NOAA FY 2000 Budget Request

National Oceanic and Atmospheric Administration
U.S. Department of Commerce
Washington, DC

FEBRUARY 1, 1999

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Budget Estimates, Fiscal Year 2000
President's Submission

Table of Contents

Exhibit No.		Page Number
Summary Materials:		
1	Table of contents	NOAA - i
2	Organization chart	NOAA - xv
3	Executive Summary (includes NOAA Request by Strategic Plan Goals)	NOAA - xvii
3a	Summary of Goals, Objectives and Performance Measures	NOAA - lix
Appropriation: Operations, Research and Facilities		
5	Summary of resource requirements	NOAA - 1
7	Summary of financing	NOAA - 7
8	Adjustments to base	NOAA - 9
9	Justification of adjustments to base	NOAA - 11
Justification of program and performance:		
National Ocean Service:		
	Strategic planning goals and objectives	NOAA - 19
	Contribution to the NOAA strategic planning goal and objectives	NOAA - 22
	Navigation services	
10	Program and performance--direct	NOAA - 25
12	Justification of program and performance	NOAA - 27

13 Changes for 2000 . . . . . NOAA - 37
15 Program change detail by object class (increase) . . . . . NOAA - 41
15 Program change detail by object class (decrease) . . . . . NOAA - 43

Ocean resources conservation and assessment
10 Program and performance--direct . . . . . NOAA - 45
12 Justification of program and performance . . . . . NOAA - 47
13 Changes for 2000 . . . . . NOAA - 61
14 Program change personnel detail . . . . . NOAA - 69
15 Program change detail by object class . . . . . NOAA - 71

Ocean and coastal management
10 Program and performance--direct . . . . . NOAA - 73
12 Justification of program and performance . . . . . NOAA - 75
13 Changes for 2000 . . . . . NOAA - 79
14 Program change personnel detail . . . . . NOAA - 85
15 Program change detail by object class . . . . . NOAA - 87

Acquisition of data
10 Program and performance--direct . . . . . NOAA - 89
12 Justification of program and performance . . . . . NOAA - 91
13 Changes for 2000 . . . . . NOAA - 93
15 Program change detail by object class . . . . . NOAA - 95

National Marine Fisheries Service:

	Strategic planning goals and objectives	NOAA - 97
	Contribution to the NOAA strategic planning goals and objectives	NOAA - 101
	Information collection and analyses	
10	Program and performance--direct	NOAA - 103
12	Justification of program and performance	NOAA - 105
13	Changes for 2000	NOAA - 113
14	Program change personnel detail	NOAA - 119
15	Program change detail by object class (increase)	NOAA - 121
15	Program change detail by object class (decrease)	NOAA - 123
	Conservation and management operations	
10	Program and performance--direct	NOAA - 125
12	Justification of program and performance	NOAA - 127
13	Changes for 2000	NOAA - 135
14	Program change personnel detail	NOAA - 151
15	Program change detail by object class (increase)	NOAA - 153
15	Program change detail by object class (decrease)	NOAA - 155
	State and industry assistance programs	
10	Program and performance--direct	NOAA - 157
12	Justification of program and performance	NOAA - 159
13	Changes for 2000	NOAA - 161
14	Program change personnel detail	NOAA - 163
15	Program change personnel detail by object class	NOAA - 165
	Acquisition of data	
10	Program and performance--direct	NOAA - 167
12	Justification of program and performance	NOAA - 169

Oceanic and Atmospheric Research:

	Management of NOAA Research and Development	NOAA - 171
	Strategic planning goals and objectives	NOAA - 177
	Contribution to the NOAA strategic planning goals and objectives	NOAA - 183
	Climate and air quality research	
10	Program and performance--direct	NOAA - 185
12	Justification of program and performance	NOAA - 187
13	Changes for 2000	NOAA - 201
15	Program change detail by object class (increase)	NOAA - 219
15	Program change detail by object class (decrease)	NOAA - 221
	Atmospheric programs	
10	Program and performance--direct	NOAA - 223
12	Justification of program and performance	NOAA - 225
13	Changes for 2000	NOAA - 231
15	Program change detail by object class (increase)	NOAA - 235
15	Program change detail by object class (decrease)	NOAA - 237
	Ocean and Great Lakes programs	
10	Program and performance--direct	NOAA - 239
12	Justification of program and performance	NOAA - 241
13	Changes for 2000	NOAA - 253
15	Program change detail by object class (increase)	NOAA - 265
15	Program change detail by object class (decrease)	NOAA - 267
	Acquisition of data	
10	Program and performance--direct	NOAA - 269
12	Justification of program and performance	NOAA - 271

National Weather Service:

Strategic planning goals and objectives . . . . . NOAA - 273
Contribution to the NOAA strategic planning goals and objectives . . . . . NOAA - 276
Operations and research
10 Program and performance--direct . . . . . NOAA - 277
12 Justification of program and performance . . . . . NOAA - 279
13 Changes for 2000 . . . . . NOAA - 287
14 Program change personnel detail . . . . . NOAA - 295
15 Program change detail by object class (increase) . . . . . NOAA - 297
15 Program change detail by object class (decrease) . . . . . NOAA - 299

Systems acquisition
10 Program and performance--direct . . . . . NOAA - 301
12 Justification of program and performance . . . . . NOAA - 303
13 Changes for 2000 . . . . . NOAA - 307
14 Program change personnel detail . . . . . NOAA - 315
15 Program change detail by object class (increase) . . . . . NOAA - 317
15 Program change detail by object class (decrease) . . . . . NOAA - 319

National Environmental Satellite, Data, and Information Service:

Strategic planning goals and objectives . . . . . NOAA - 321
Contribution to the NOAA strategic planning goals and objectives . . . . . NOAA - 323
Satellite observing systems
10 Program and performance--direct . . . . . NOAA - 325
12 Justification of program and performance . . . . . NOAA - 327
13 Changes for 2000 . . . . . NOAA - 331
15 Program change detail by object class . . . . . NOAA - 335

Environmental data management systems
10 Program and performance--direct . . . . . NOAA - 337
12 Justification of program and performance . . . . . NOAA - 339
13 Changes for 2000 . . . . . NOAA - 345
15 Program change detail by object class . . . . . NOAA - 351

Program Support
Strategic planning goals and objectives . . . . . NOAA - 353
Contribution to the NOAA strategic planning goals and objectives . . . . . NOAA - 355
Administration and services
10 Program and performance--direct . . . . . NOAA - 357
12 Justification of program and performance . . . . . NOAA - 359

Aircraft services
10 Program and performance--direct . . . . . NOAA - 365
12 Justification of program and performance . . . . . NOAA - 367
13 Changes for 2000 . . . . . NOAA - 371
14 Program change personnel detail . . . . . NOAA - 373
15 Program change detail by object class . . . . . NOAA - 375

Facilities
Contribution to the NOAA strategic planning goals and objectives . . . . . NOAA - 377
10 Program and performance--direct . . . . . NOAA - 379
12 Justification of program and performance . . . . . NOAA - 381
13 Changes for 2000 . . . . . NOAA - 383
15 Program change detail by object class (increase) . . . . . NOAA - 387
15 Program change detail by object class (decrease) . . . . . NOAA - 389

Fleet maintenance and planning

	Contribution to the NOAA strategic planning goals and objectives	NOAA - 391
10	Program and performance--direct	NOAA - 393
12	Justification of program and performance	NOAA - 395
13	Changes for 2000	NOAA - 397
15	Program change detail by object class	NOAA - 401

Other Exhibits

16	Summary of requirements by object class	NOAA - 403
17	Detailed requirements by Object Class	NOAA - 405
18	Activity/subactivity change crosswalk - Part 1	NOAA - 411
19	Activity/subactivity change crosswalk - Part 2	NOAA - 413
31	Appropriation Summary Statement	NOAA - 415
32	Justification of proposed language change	NOAA - 417
33	Appropriation language and code citations	NOAA - 419
34	Consulting and related services	NOAA - 433
35	Periodicals, pamphlets and audiovisual products	NOAA - 435
36	Average grade and salaries	NOAA - 437

Appropriation: Procurement, Acquisition and Construction

5	Summary of resource requirements	NOAA - 439
7	Summary of financing	NOAA - 441
8	Adjustments to base	NOAA - 443
9	Justification of adjustments to base	NOAA - 445
	Summary of Advanced Appropriations Requested	NOAA - 447

Systems Acquisition

	Strategic planning goals and objectives	NOAA - 449
	Contribution to the NOAA strategic planning goals and objectives	NOAA - 451
10	Program and performance--direct	NOAA - 453
12	Justification of program and performance	NOAA - 455
13	Changes for 2000	NOAA - 465
15	Program change by object class (increase)	NOAA - 493
14	Program change personnel detail	NOAA - 495
15	Program change by object class (decrease)	NOAA - 497

Construction

	Strategic planning goals and objectives	NOAA - 499
	Contribution to the NOAA strategic planning goals and objectives	NOAA - 500
10	Program and performance--direct	NOAA - 501
12	Justification of program and performance	NOAA - 503
13	Changes for 2000	NOAA - 507
15	Program change by object class (increase)	NOAA - 515
15	Program change by object class (decrease)	NOAA - 517

Fleet Replacement

	Strategic planning goals and objectives	NOAA - 519
	Contribution to the NOAA strategic planning goals and objectives	NOAA - 520
10	Program and performance--direct	NOAA - 521
12	Justification of program and performance	NOAA - 523
13	Changes for 2000	NOAA - 525
15	Program change by object class	NOAA - 527

Other PAC

	Contribution to the NOAA strategic planning goals and objectives	NOAA - 529
10	Program and performance--direct	NOAA - 531
12	Justification of program and performance	NOAA - 533
13	Changes for 2000	NOAA - 535
15	Program change by object class	NOAA - 537

Other Exhibits

16	Summary of requirements by object class	NOAA - 539
17	Detailed requirements by Object Class	NOAA - 541
31	Appropriation Summary Statement	NOAA - 545
33	Appropriation language and code citations	NOAA - 547

Appropriation: Construction

5	Summary of resource requirements	NOAA - 563
7	Summary of financing	NOAA - 565
12	Justification of program and performance	NOAA - 567
16	Summary of requirements by object class	NOAA - 569

Appropriation: Fisheries Finance, Program Account

	Contribution to the NOAA strategic planning goals and objectives	NOAA - 571
5	Summary of resource requirements	NOAA - 573
7	Summary of financing	NOAA - 575
12	Justification of program and performance	NOAA - 577
13	Changes for 2000	NOAA - 579
14	Program change personnel detail	NOAA - 581

15 Program change by object class (increase) . . . . . NOAA - 583
15 Program change by object class (decrease) . . . . . NOAA - 585
16 Summary of requirements by object class . . . . . NOAA - 587

Appropriation: Fleet Modernization, Shipbuilding and Conversion
Strategic planning goals and objectives . . . . . NOAA - 589
5 Summary of resource requirements . . . . . NOAA - 591
7 Summary of financing . . . . . NOAA - 593
12 Justification of program and performance . . . . . NOAA - 595
16 Summary of requirements by object class . . . . . NOAA - 597

Appropriation: Promote and Develop Fishery Products
Contribution to the NOAA strategic planning goals and objectives . . . . . NOAA - 599
5 Summary of resource requirements . . . . . NOAA - 601
7 Summary of financing . . . . . NOAA - 603
12 Justification of program and performance . . . . . NOAA - 605
13 Changes for 2000 . . . . . NOAA - 607
15 Program change by object class . . . . . NOAA - 609
16 Summary of requirements by object class . . . . . NOAA - 611

Appropriation: Fishing Vessel and Gear Damage Compensation Fund
5 Summary of resource requirements . . . . . NOAA - 613
7 Summary of financing . . . . . NOAA - 615
12 Justification of program and performance . . . . . NOAA - 617
16 Summary of requirements by object class . . . . . NOAA - 619

Appropriation: Fishermen's Contingency Fund

	Contribution to the NOAA strategic planning goals and objectives	NOAA - 621
5	Summary of resource requirements	NOAA - 623
7	Summary of financing	NOAA - 625
12	Justification of program and performance	NOAA - 627
16	Summary of requirements by object class	NOAA - 629

Appropriation: Foreign Fishing Observer Fund

	Contribution to the NOAA strategic planning goals and objectives	NOAA - 631
5	Summary of resource requirements	NOAA - 633
7	Summary of financing	NOAA - 635
12	Justification of program and performance	NOAA - 637
16	Summary of requirements by object class	NOAA - 639

Appropriation: Coastal Zone Management Fund

	Contribution to the NOAA strategic planning goals and objectives	NOAA - 641
5	Summary of resource requirements	NOAA - 643
7	Summary of financing	NOAA - 645
8	Adjustments to base	NOAA - 647
9	Justification of adjustments to base	NOAA - 649
12	Justification of program and performance	NOAA - 651

Appropriation: Damage Assessment and Restoration Revolving Fund

	Contribution to the NOAA strategic planning goals and objectives	NOAA - 653
5	Summary of resource requirements	NOAA - 655
7	Summary of financing	NOAA - 657
8	Adjustments to base	NOAA - 659

9 Justification of adjustments to base . . . . . NOAA - 661
12 Justification of program and performance . . . . . NOAA - 663
16 Summary of requirements by object class . . . . . NOAA - 665

Appropriation: Federal Ship Financing Fund
Contribution to the NOAA strategic planning goals and objectives . . . . . NOAA - 667
5 Summary of resource requirements . . . . . NOAA - 669
7 Summary of financing . . . . . NOAA - 671
12 Justification of program and performance . . . . . NOAA - 673
16 Summary of requirements by object class . . . . . NOAA - 675

Appropriation: Aircraft Procurement and Modernization
5 Summary of resource requirements . . . . . NOAA - 677
7 Summary of financing . . . . . NOAA - 679
12 Justification of program and performance . . . . . NOAA - 681
16 Summary of requirements by object class . . . . . NOAA - 683

Appropriation: Fisheries Promotional Fund
Contribution to the NOAA strategic planning goals and objectives . . . . . NOAA - 685
5 Summary of resource requirements . . . . . NOAA - 687
7 Summary of Financing . . . . . NOAA - 689
12 Justification of program and performance . . . . . NOAA - 691

Appropriation: Pacific Coastal Salmon Recovery Account
Contribution to the NOAA strategic planning goals and objectives . . . . . NOAA - 693
5 Summary of resource requirements . . . . . NOAA - 695

7 Summary of Financing . . . . . NOAA - 697
12 Justification of program and performance . . . . . NOAA - 699
13 Changes for 2000 . . . . . NOAA - 701
15 Program change by object class . . . . . NOAA - 703
16 Summary of requirement . . . . . NOAA - 705

NOAA FY 2000 President's Submission - Activities by Strategic Plan . . . . . NOAA - 707

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION

Under Secretary for Oceans & Atmosphere & Administrator
- Assistant Secretary for Oceans & Atmosphere & Deputy Administrator
- Deputy Under Secretary for Oceans & Atmosphere
- Chief Scientist of NOAA
- Counsellor to the Under Secretary
- Deputy Assistant Secretary for Oceans & Atmosphere
- Deputy Assistant Secretary for International Affairs
- Naval & Air Force Deputies

- Public & Constituent Affairs
- Sustainable Development & International Affairs
- Policy & Strategic Planning
- Legislative Affairs
- General Counsel
- NOAA Corps Operations
- Finance & Administration

- Systems Acquisition
- Program Coordination
- Global Programs
- High Performance Computing & Communications
- Military Affairs
- Federal Coordinator for Meteorology

National Marine Fisheries Service

Assistant Administrator Fisheries

- Sustainable Fisheries
- Protected Resources
- Habitat Conservation
- Science & Technology

National Ocean Service

Assistant Administrator Ocean Services and Coastal Zone Management

- Coastal Ocean Program Office
- Coast Survey
- Aeronautical Charting & Cartography
- National Geodetic Survey
- Ocean Resources Conservation & Assessment
- Ocean & Coastal Resources Management

National Weather Service

Assistant Administrator Weather Services

- Meteorology
- Hydrology
- Systems Operations
- Systems Development
- National Centers for Environmental Prediction
- NWS Training Center
- National Data Buoy Center
- 6 Regions

National Environmental Satellite, Data, & Information Service

Assistant Administrator Satellite & Information Services

- Satellite Operations
- Satellite Data Processing & Distribution
- Research & Applications
- Systems Development
- National Climatic Data Center
- National Oceanographic Data Center
- National Geophysical Data Center

Oceanic & Atmospheric Research

Assistant Administrator Oceanic & Atmospheric Research

- NOAA Undersea Research Program
- National Sea Grant College Program
- Environmental Research Laboratories

NOA-APV2.OPX

Amendment 1
May 27, 1998

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Executive Summary

Introduction

NOAA, a key part of the Department of Commerce, plays an invaluable role in contributing to the Nation's economic and environmental health. NOAA's FY 2000 budget request of $2.5 billion in total budget authority will allow us to build on a number of exciting accomplishments over the past year. In 1998, NOAA's responsibilities, from issuing weather and climate forecasts, to managing our Nation's ocean and marine resources, were foremost in the public view. In 1998, we experienced a range of powerful storms, including a strong El Niño, for which NOAA provided a six-month forecast, ice storms that froze northern states and searing heat that scorched southern states, floods that swallowed parts of America's heartland, and a devastating hurricane season. The 1997-98 El Niño provided scientists around the world their first opportunity to observe a major climate event from beginning to end, and issue valuable forecasts to help mitigate the potential impacts. NOAA issued predictions for the winter of 1997-98 that allowed emergency managers, businesses, communities and individuals to make advance preparations for the inclement weather.

To fulfill its environmental stewardship mission in 1998, NOAA initiated or continued strong cooperative efforts to protect our living marine resources. These efforts include innovative partnerships with the states of Washington, Oregon, and California to protect and recover at-risk Pacific salmon and steelhead species. These partnerships were based upon the significant flexibility of the Endangered Species Act and provided a mechanism to reduce human-caused threats to the at-risk species before they are listed under the Endangered Species Act. Thus, the partnerships promote the economic strength of the Nation and enhance recovery of at-risk species. Human-caused mortality of North Atlantic right whales, a critically endangered, majestic large whale of which there are fewer than 300 animals remaining in the population, was reduced through an early warning systems that reduced ship-strikes and take reduction strategies that reduced incidental mortality in commercial fisheries. Strong fishery management programs ensured the long-term sustainable harvest of valuable stocks of marine fish, including scamp and white grunt in the South Atlantic and yellowtail rockfish, which are found along the coasts of Washington, Oregon, and California. Management actions to rebuild haddock stocks in New England resulted in recent assessments indicating that the stock is recovering, and harvest limits were safely increased.

Also in 1998, NOAA led an effort to bring increased visibility to the challenges threatening our living marine resources. NOAA co-hosted with the Department of Navy the National Ocean Conference, which was the first national conference to draw attention to key ocean resources and issues, including coastal and ocean navigation and transportation, coastal habitat, fishing resources, and the interaction of ocean processes on weather and climate. Over 800 national leaders, members of Congress, researchers, and other interested stakeholders attended. Over 1000 additional

stakeholders participated in the Conference via satellite downlinks to facilities around the country. Several initiatives were introduced during the Conference which are included in the FY 2000 budget submission.

These recent events demonstrate the continuing value that NOAA services offer to the American public. Our FY 2000 Budget Request will allow us to make progress in meeting the Commerce Department's three strategic themes. They are:

- Build for the future and promote U.S. competitiveness in the global marketplace, by strengthening and safeguarding the Nation's economic infrastructure;

- Keep America competitive with cutting-edge science and technology and an unrivaled information base; and

- Provide effective management and stewardship of our Nation's resources and assets to ensure sustainable economic opportunities.

NOAA's mission is to describe and predict changes in the Earth's environment, and to conserve and manage the Nation's coastal and marine resources to ensure sustainable economic opportunities. NOAA conducts research to develop new technologies, improve operations, and supply the scientific basis for managing natural resources and solving environmental problems. NOAA's comprehensive system for acquiring observations -- from satellites and radars to ships and submersibles -- provides the quality data and information needed for the safe conduct of daily life and the basic functioning of a modern society. Products and services include short-term weather forecasts, seasonal climate predictions, long-term global change prognoses, environmental technologies, nautical charts, marine fisheries statistics and regulations, assessments of environmental changes, hazardous materials response information, and stewardship of the Nation's ocean, coastal, and living marine resources. These products and services support the domestic security and global competitiveness of the United States, and positively impact the lives of many citizens every day.

In a period of strongly competing government priorities, the President's FY 2000 Budget Request provides critical new resources for NOAA, which underscores the Agency's important contributions to the Nation. The proposed budget provides the resources necessary to maintain essential services, ensures continuing progress in critical investment areas, and addresses statutory obligations.

The President's Budget Request also allows NOAA to perform an essential role in a number of Departmental, interagency and Presidential initiatives, including the Lands Legacy Initiative and other Oceans Initiatives, the Climate in the 21st Century Initiative, the Clean Water Initiative, the Natural Disaster Reduction Initiative, the South Florida Ecosystem Restoration Initiative, and building the capacity of the Nation's Historically Black Colleges and Universities (HBCUs). Compared with the FY 2000 base, significant resource changes in the FY 2000 budget include:

- $132.1 million to continue the President's commitment to restore the health and wealth of America's fisheries and protect species in danger of extinction. Increases include $22.7 million in the Lands Legacy Initiative for fishery habitat restoration to increase the geographic scope

and rate of restoration efforts at the regional and community level and will expand existing restoration efforts and restore additional areas identified as essential fish habitat; $24.6 million for salmon recovery to provide core science and management expertise in partnership with the state and local communities; $5.1 million to stem the decline of highly endangered species and $2.6 million to characterize and map biodiversity and protected species habitat.

- $51.6 million to design and acquire the first of four new fisheries research vessels to support the current mission, as well as address the new requirements of the Magnuson-Stevens Fishery Conservation and Management Act.

- $42.1 million to conduct critical activities to reduce and mitigate the direct and indirect costs of natural disasters, including $12.3 million to fully support National Weather Service base operations and research and ensure the continuation of quality services to the public; $2.2 million to initiate the national implementation of the Advanced Hydrologic Prediction System, an integrated real-time modeling and data management/analysis system for flood forecasts, in the upper Midwest and Ohio River Basin; and $25.8 million increase for recurring and operational support for the entire AWIPS network.

- $3.0 million to ensure the reliability and consistency of observations and support of the Nation's climate record and local forecasting and $0.9 million to meet the growth in demand for environmental data products archived at NOAA's data centers.

- $1.5 million to ensure continuity of geostationary weather satellite coverage; a reduction of $8.9 million to support requirements for the current polar-orbiting environmental satellite system; and $30.1 million to converge civilian and military polar-orbiting satellites; and $1.7 million to maintain satellite operations and data processing.

- $28.1 million to significantly enhance NOAA's oceanic and atmospheric research capabilities, including support for climate, air quality and global change research to address environmental concerns of universal importance, weather research, ocean exploration, the Sea Grant College Program, and the National Undersea Research Program. Increases include $4.0 million to launch a major initiative to deploy an array of approximately 1000 drifting buoys to obtain key observations of the upper ocean in the Pacific and Atlantic which will help produce "weather maps" of the upper ocean; $1.5 million to improve the forecast accuracy and lead-time for hurricane landfall location as part of the U.S. Weather Research program; and $3.6 million to support aquaculture research on sustainable production and impacts on the marine environment.

- $100.0 million to establish a new Pacific Coastal Salmon Recovery Account to help share the costs of state, tribal and local conservation activities for at-risk Pacific salmon runs in the western states of Oregon, Washington, California, and Alaska.

- $32.0 million is included in the Lands Legacy Initiative to promote “smart growth” strategies along America’s coast of which $28.0 million will help states and localities implement section 310 of the Coastal Zone Management Act, for community-based solutions to restore or enhance coastal resources and community revitalization. $2.0 million for Non point Pollution control and $2.0 million for Section 306 Grants. NOAA will work with its coastal and state partners on this Coastal Community Revitalization Initiative by providing grants and technical assistance to local governments to improve land-use and address impacts of increased development and urban sprawl on coastal resources.

- $15.0 million is included in the Lands Legacy Initiative to strengthen protection at the 12 existing marine sanctuaries and to enhance the Nation’s marine resource protection through planning for future marine sanctuaries. Included in this request is $3 million in the Procurement, Acquisition, and Construction (PAC) account to develop a comprehensive facilities plan for the Sanctuary program, including education and outreach projects.

- $14.7 million is included in the Lands Legacy Initiative for the National Estuarine Research Reserve System to support operational needs required by the doubling of the system’s protected areas (to nearly 1 million acres with the anticipated addition of five new reserves). The funds will provide support for land acquisition, management, education, monitoring, research, and training activities.

- $12.0 million for coral reef activities including $2.0 million for coral reef protection through research, monitoring, and management, and $10.0 million as part of the Lands Legacy Initiative for coral reef restoration projects. Both are designed to prevent the continuing loss and degradation of these vital and fragile ecosystems.
- $10.0 million is included in the Lands Legacy Initiative to expedite dredging projects by working with state and local managers and the Corps of Engineers to develop tools for assessing the magnitude of sediment and contamination, evaluating threats and making innovative decisions on disposal actions, including the re-use of dredged materials to aid in restoring coastal habitat.

- A total of $22.0 million for the Clean Water Initiative (of which $4.0 million is funded through the Lands Legacy Initiative) to provide comprehensive research, monitoring, assessment, planning, response, and technical support to states and communities to address polluted run-off and growing outbreaks of harmful algal blooms (e.g., pfiesteria), hypoxia and other symptoms of degraded coastal ecosystems.

- A total of $5.1 million for an ecosystem research, management, and monitoring system for the South Florida Ecosystem Restoration Initiative, an integrated effort among federal, local, state, and non-governmental partners to halt the degradation and restore the function of the South Florida Bay and the Florida Keys.

- An increase of $5.2 million to conduct critical hydrographic surveys, advance marine predictions and provide real-time oceanographic data critical to safe and efficient navigation and improve the National Spatial Reference System.

- $3.1 million to expand shallow water observations, develop new deep-sea observations and enhance vehicles through the use of advance technologies to explore and understand the undersea environment.

- $5.7 million to lease or purchase a high capacity, scalable computer system that will provide critical computing, storage, and analysis capabilities to NOAA’s Geophysical Fluid Dynamics Laboratory (GFDL). This enhanced computational capability will permit leveraging of NOAA’s scientific talent to attack some of the most difficult, but critical, barrier problems in climate change projections, climate predictions and the next-generation hurricane prediction system.

- $4.3 million to fund GEOSTORMS, a tri-agency program, to ensure the continuity of critical space weather observations. GEOSTORMS will double the lead time of its predecessor satellite (ACE).

- $2.0 million to establish an integrated Global Disaster Information Network (GDIN) to improve all phases of disaster management, including cooperative efforts with states and localities.

- $13.2 million to continue NOAA's facilities maintenance and construction projects including, a base transfer of $3.0 million for NWS weather forecast office and maintenance to NWS Operations and Research, and an increase of $3.8 million to fund additional infrastructure costs associated with NOAA’s new Boulder facility.

- Total savings of $173.0 million are included in this Budget for program reductions, streamlining and terminations.

The challenge of investing strategically in the Nation's future is accompanied by the requirement to be more effective, to identify and realize opportunities for savings, and to focus the efforts of Government on what matters to the American people. Performance is what counts, and NOAA’s FY 2000 budget includes measures which track results to the level of public investment. Success in this changing world increasingly will depend on partnerships with business and industry, universities, state and local governments and international parties. NOAA will continue to develop partnerships to leverage resources and talent, and provide the means for meeting program requirements more effectively.

Environmental Assessment and Prediction Mission

Advance Short-Term Warning and Forecast Services

Total Request: $1,325,451,000

NOAA requests $1,325.5 million to address this strategic goal, a net increase of $32.3 million over the FY 2000 Base. The objectives of this goal are to:

- Sustain modernized weather service operations;
- Maintain continuous operational satellite coverage critical for warnings and forecasts;
- Strengthen observing and prediction systems through scientific, technological and programmatic advances and international cooperation; and
- Improve customer service to the public, emergency managers, the media, and private forecast planners through effective communication and utilization of NOAA's products.

These objectives will be accomplished primarily through the efforts of the National Weather Service (NWS), the National Environmental Satellite, Data, and Information Service (NESDIS) and the Office of Oceanic and Atmospheric Research (OAR).

For the NWS, the request provides $603.5 million for operations and research, including a net increase of $55.7 million from 1999 to implement the budgets and associated program activities recommended in the 1997 study conducted by John J. Kelly, BGD/Gen (Ret), entitled An Assessment of the Fiscal Requirements to Operate the Modernized National Weather Service during Fiscal Years 1998 and 1999. The request also provides $55.8 million for major systems acquisition within the PAC account supporting the modernization of the weather service, a net decrease of $32.6 million from FY 1999.

Within the total amount for NWS operations, an increase of $2.2 million is requested to initiate the national implementation of Advanced Hydrologic Prediction System, a real time modeling and data analysis system which will significantly improve flood forecasting and water management in the U.S.

Within the total amount for systems acquisition in the Procurement, Acquisition and Construction (PAC) account, the NWS requests $22.6 million for continued deployment of the Advanced Weather Interactive Processing System (AWIPS).

For NESDIS, $544.0 million is needed to ensure continuity and coverage of its Geostationary Operational Environmental Satellite (GOES) and Polar-orbiting Operational Environmental Satellite (POES). This represents an increase of $23.8 million from the FY 2000 base. Within this amount $80.1 million is requested to meet NOAA's commitment to share development costs with the Department of Defense for the National Polar-orbiting Operational Environmental Satellite System, an increase of $30.1 million over the FY 2000 base.

OAR requests a total of $55.8 million to advance the science of weather forecasting over land, sea and space, and to improve weather-related observing technologies. An increase of $1.5 million requested for the High Performance Computing and Communications (HPCC) program to lease or purchase a massively parallel processing computer to improve national and regional-scale weather prediction models. Within the PAC account, OAR requests an increase of $4.3 million to ensure the continuity of critical space weather observations by funding GEOSTORMS, a follow-on to the Advanced Composition Explorer satellite. Many of these activities are key components of the interagency Natural Disaster Reduction Initiative which will improve the Nation's resiliency to extreme natural events.

Improvements in the accuracy and timeliness of severe weather, flooding and other natural hazards are directly linked to modernized technologies. NWS modernization and restructuring efforts, in particular, have shown improvements in services combined with productivity and efficiency gains. Today the NWS is delivering more accurate and timely warning and forecast services thereby increasing the benefits from more timely, pertinent information.

NWS has completed its deployment of 123 Next Generation Weather Radars (NEXRAD). Deployment of the Advanced Weather Interactive Processing System (AWIPS) currently underway is expected to be completed by June, 1999. As of January 1999, approximately 88 of 152 units have been installed. Office closures facilitated by the modernization efforts are progressing on schedule as well.

These activities show that NOAA is aggressively implementing its weather services modernization program. These efforts have already been proven to enhance NWS’ warning and forecast services that daily enhance public safety and the economic productivity of the Nation. Maintaining this critical investment and capability is a key NOAA objective. With this enhanced infrastructure, the Nation can realize annual benefits in excess of $7 billion.

Implement Seasonal to Interannual Climate Forecasts

Total Request: $112,626,000 million

NOAA requests $112.6 million to address this strategic goal, a net decrease of $0.2 million from the FY 2000 base. The objectives are to:

- implement climate prediction systems to deliver useful seasonal to interannual climate forecasts for the U.S. and collaborate in a multinational effort to generate and use similar forecasts;

- enhance global observing and data systems required to provide data for the initialization and validation of model predictions of seasonal to interannual climate variations;

- invest in process and modeling research that leads to improved predictability of temperature and rainfall distributions; and

- assess the impacts of climate variability on human activity and economic potential, and improve public education so that climate forecasts are understood and acted upon.

These objectives will be accomplished primarily through the efforts of the Office of Oceanic and Atmospheric Research (OAR), the National Environmental Satellite, Data, and Information Service (NESDIS), and the National Weather Service (NWS).

Emerging capabilities to forecast climate are the result of federal investments in basic research, development and deployment of global observing and data systems, and transition of research findings to operational uses. Climate services will be as important to 21st-century economies and societies as weather forecasting is today. The future capacity to deliver uniform climate information will continue to depend strongly on federal support for process and modeling research, and for the collection of global data needed to initialize and validate climate models. As was announced at the National Oceans Conference in June 1998, NOAA requests $4.0 million to deploy an array of floating buoys in the Atlantic and Pacific to measure temperature, salinity, and currents to improve our understanding of natural climate events.

Because El Niño affects global wind, temperature, and rainfall patterns, it also affects the supply and demand for commodities, thus impacting prices, interest rates, inflation, and even economic growth. Climate changes can, for example, reduce supply and increase prices, or can reduce demand and reduce prices. Better climate forecasting could save U.S. agriculture, and ultimately U.S. consumers, more than $300.0 million annually from improved agricultural decisions. For example, a perfect seasonal forecast made one year in advance could allow U.S. corn inventories to decline eight percent, with annual savings of nearly $240.0 million. A cost-benefit analysis of one NOAA program to understand and model the El Niño – the Tropical Ocean Global Atmosphere (TOGA) program - has an economic return on investment of at least 13-26 percent for

U.S. agriculture alone. NOAA is also working with federal, academic, and private sector partners to examine the interactions between climate and ecological systems and the subsequent implications for human health.

Many other U.S. sectors benefit from climate forecasts made months in advance, such as construction, to plan schedules; energy, to determine production and distribution of gasoline and heating oil; natural resources, for example water management; federal, state, and local emergency managers; clothing manufacturers, to determine what type of clothing consumers will want to buy; ski resort and beach resort operators, for families planning vacations; and the insurance industry, which recently created a new financial instrument, called weather derivatives, to allow businesses to hedge against direct and indirect weather-related costs.

Predict and Assess Decadal-to Centennial Change

Total Request: $103,766,000

NOAA requests $103.8 million to address this strategic goal, a net decrease of $12.6 million from FY 2000 base. The six research objectives of this goal are to:

- characterize the agents and processes that force decadal to centennial climate change;
- understand the role of the ocean as a reservoir of both heat and carbon dioxide to address a major source of uncertainty in climate models;
- ensure a long-term climate record by enhancing domestic ad international weather networks, observing procedures, and information management systems. Document present and past changes and variations in the climate system, including extreme events, and rapid climate changes, exploiting national and international observing networks, satellites, and paleoclimatic data;
- guide the rehabilitation of the ozone layer by providing the scientific basis for policy choices associate with ozone-depleting compounds and their replacements;
- provide the scientific basis for improved air quality by improving the understanding of high surface ozone episodes in rural areas and by strengthening the monitoring network to detect cleaner air quality and improving the characterization of airborne fine particles; and
- develop models for the prediction of long-term climate change (including extreme events and rapid climate changes), carry out scientific assessments, and provide human impacts information.

These objectives will be accomplished largely through the efforts of the NOAA Climate and Global Change Program (OGP), the Office of Oceanic and Atmospheric Research (OAR), the National Weather Service (NWS), and the National Environmental Satellite Data & Information Service (NESDIS).

Within the OAR line item, the total request is $78.4 million. Within the NESDIS line item, the total request is $4.7 million.

In FY 2000, requested augmentation to NOAA's research will largely be concentrated under the objective entitled Role of the Oceans. Recent research has highlighted the role of the oceans in climate change. NOAA and NOAA-sponsored university investigators have established strong partnerships in advancing our knowledge of these processes toward the goal of climate prediction. NOAA is also investigating the role of the oceans in the global carbon budget, examining both the rate and variability of ocean uptake of carbon dioxide, and the exchange of carbon dioxide between the ocean and the atmosphere. NOAA is also requesting funding for a new, highly scalable computer for climate weather modeling.

In late 1995, the U.N. Intergovernmental Panel on Climate Change (IPCC) released findings that, due to global warming from greenhouse gases, average global surface temperature may increase 1 to 3.5 degrees Celsius (1.8 to 6.3 degrees Fahrenheit), and sea level may rise 50 to 95 centimeters (20 to 37 inches), by the year 2100. These global trends will significantly affect both natural processes and societal systems, including agriculture, energy, and the world-wide transmission of diseases.

NESDIS developed and implemented a global land and sea surface temperature monitoring system in 1997 to provide monthly climatic assessments of temperature and precipitation by the 10th of each month. The period of record of these perspectives is 1880 to the present. This system was instrumental in focusing U.S. and global attention on the unprecedented sequence of surface warming in the 1990s. Monitoring at this scale was made possible only by NOAA observations and data management, but more needs to be done. NESDIS still relies on data with uncertainties from the United Kingdom for its pre-satellite era sea surface temperature sampling – a condition that will be remedied with augmented FY 2000 funds. Data from the NESDIS Data Rescue program will be merged with currently available data to form the most complete data sets and analyses ever possible.

Decisions on actions to mitigate anticipated climate changes on the order of decades to centuries will not receive domestic and international backing unless they are supported by demonstrable, objective, credible and sound science. NOAA provides decision-makers with scientifically informed options for these types of decisions, focusing on climate change and greenhouse warming, ozone layer depletion, and air quality improvement.

Promote Safe Navigation

Total Request: $101,074,000

NOAA requests $101.1 million to address this strategic goal, a net increase of $2.6 million from FY 2000 base funding. The objectives are to:

- build, maintain, and deliver a digital nautical charting database to underpin new electronic navigation systems which integrate satellite positioning, tidal heights and currents, radar and sonar, and navigational aids;
- update nautical surveys of the Nation's coastal areas using full-bottom coverage technologies;
- define the national shoreline in an accurate and consistent manner using state of the art technology to serve the Nation's navigational and coastal;
- Provide mariners with real-time observations and forecasts of water levels, tides, and currents, and weather conditions in ports; and
- transform the obsolete geodetic reference frame into a Global Positioning System (GPS)-based system of monumented marks and continuously-operating reference stations to support the digital revolution in mapping, charting, and surveying.

These objectives will be accomplished largely through National Ocean Service (NOS) mapping, charting, geodesy, and tide and currents sub-activities.

NOAA requests $58.7 million to acquire hydrographic data, update nautical surveys and deliver digital nautical charting databases. NOAA also requests $14.9 million to acquire oceanographic data and to make available marine predictions and advanced oceanographic observation systems, which include both the Physical Oceanographic Observation System (PORTS) and the National Water Level Observation Network (NWLON) stations, and $19.8 million to provide a National Spatial Reference System (NSRS) that utilizes the Global Positioning System (GPS) for navigation and positioning. The integration of these services and tools is required for safe and efficient navigation and is extremely important to pilots and port authorities.

Sea-going commerce has tripled in the last 50 years, and 98 percent of our international trade by weight moves through U.S. ports. Fifty percent of the total tonnage is oil or other hazardous material. Despite the risk that accompanies increasing traffic, and the competitive advantage of modern observations and systems, much of the Nation's charting and geodetic infrastructure is not up to world standards. Accurate charts and modern navigation systems are required for safe and efficient maritime transport.

NOAA collects, processes and distributes such information in support of national, commercial and individual needs. NOAA is working to revolutionize U.S. marine navigation, mapping and surveying, and to provide a precise satellite-derived reference system as the basis for the Nation's 21st-century positioning needs. During 1998, NOAA's NOS produced 368 new editions of nautical charts; established private sector partnerships to update nautical surveys; installed 160 Federal Base Network stations and 34 continuously operating reference stations that will form the basic positional framework for the Nation's future spatial data infrastructure; and entered into a cooperative agreement to research, develop and implement a commercially viable national PORTS project.

For later transmittal is a request for authorization to collect a navigation assistance fee in FY 2000-2004. Fees will be set at a level to recover approximately 29 percent of NOAA's nautical charting costs (total annual fee collection of $14 million).

Environmental Stewardship Mission

Build Sustainable Fisheries

Total Request: $426,345,000

NOAA requests $426.3 million to address this strategic goal, a net increase of $27.9 million from the FY 2000 base. The objectives are to:

- eliminate and prevent overfishing and overcapitalization - by assessing the status of fishery resources, advancing fishery predictions, managing for economic growth in the fishing industry and ensuring adequate and voluntary compliance with fishery regulations;

- attain economic sustainability in fishing communities - by providing research and services for fishery-dependent industries and maximizing benefits from marine resources; and

- develop environmentally and economically sound marine aquaculture - by supporting aquaculture research and development and ensuring responsible industry practices.

These objectives will be accomplished primarily through the efforts of the National Marine Fisheries Service (NMFS), Office of Oceanic and Atmospheric Research (OAR) and the National Ocean Service (NOS).

The NMFS portion of the request is $298.2 million which includes: $1.6 million in increases to expand the collection, evaluation, and dissemination of fisheries data including the development of strategies for bycatch reduction; $22.7 million for fishery habitat restoration to increase the scope and rate of restoration efforts at the regional and community level; a net increase of $3.9 million for fisheries management programs, including funding

for Regional Councils, under the provision of the Magnuson-Stevens Fishery Conservation and Management Act and NMFS to develop and amend fishery management plans to end overfishing and rebuild stocks, implement the new national standards, include essential fish habitat identifications, and meet other requirements; an increase of $1.0 million specifically for implementation of the Magnuson-Stevens Fishery Conservation and Management Act's National Standard 8 requirements for additional economic data; $1.0 million in additional funds to improve at-sea and shoreside compliance; and funds to provide grants and other assistance for fisheries development programs.

OAR requests a total of $31.4 million in the Sea Grant Program, National Undersea Research Program (NURP), and marine environmental research sub-activities to: improve technologies for tracking and estimating aquatic biomass; advance aquaculture and economic growth initiatives; apply new computing techniques; and provide for other research activities including in-situ undersea research.

NOS requests $11.8 million to strengthen abilities to assess and predict natural and human-induced changes and their impact on fisheries health, an increase of $2.6 million for NOAA's Ecology and Oceanography of Harmful Algal Blooms program.

Under Fleet Replacement, NOAA requests $51.6 million to acquire a new fisheries research vessel (FRV). These vessels are essential to conduct stock assessment surveys necessary to monitor species' abundance, recruitment, age composition and their responses to ecological changes and fisheries pressure. NOAA's nine current fisheries research vessels are reaching the end of their useful lives and are becoming technologically obsolete. Significant improvement is anticipated in the quality of the data collected because of the more capable dedicated FRVs. In addition, reduced error margins resulting from better quality data could allow for higher fishing quotas in many fisheries without jeopardizing the resources.

Under the Construction activity, NOAA requests a total of $1.0 million to continue the current scoping work for the eventual formal design and construction of a new NMFS state-of-the-art research facility near Juneau, Alaska. The facility would replace the current outdated Auke Bay lab and expand NMFS groundfish and ecosystem research capabilities significantly, as well as provide for a focal point for national and international conferences and meetings addressing the valuable marine resources of the North Pacific.

The FY 2000 proposed appropriation requests authority to collect fees to offset costs associated with providing fisheries management and enforcement. A proposal for the fees will be developed in consultation with fishing interests, taking into account current fees and potential new ones. The $20.0 million in estimated fees, if collected, would be used to offset the overall NOAA Budget Authority and Appropriation in FY 2000.

As evidenced by the Sustainable Fisheries Act's amendments, there is a strong consensus among lawmakers, fishery managers, the fishing industry and the public, that depleted fishery resources must be restored and healthy fisheries must be maintained and managed for greater efficiency. Of the U.S. fishery resources for which population status is known, 36 percent are over utilized. Even fisheries that are producing a large catch are doing so with unnecessary cost and waste. Well-managed fisheries produce significant and continuous benefits, such as the $1.0 billion Alaskan groundfish fishery. Controlled access measures implemented in the $180.0 million Alaskan halibut/sablefish fishery have resulted in reduced

accidents and property loss, increased economic value of the resource, and reduced bycatch. Since 1994, NOAA has increased the number of fishery management plans with access controls by over 30 percent. NOAA estimates that restoring fisheries will have a potential $25.0 billion total positive impact on the national economy.

NOAA is providing the federal leadership and support to restore fisheries. Accurate and timely resource assessments are being used to guide management decisions.

The NMFS, NOS, and other parts of NOAA are conducting research to advance fishery predictions, reduce costs of conventional stock assessments, improve fishery habitat and mitigate harmful algal blooms. Enforcement is carried out to ensure compliance with regulations, and NOAA is working with state and international partners to develop policies for managing fisheries that occupy multiple geo-political zones. In addition, NOAA continues to design and implement harvest capacity reduction programs, and programs to provide fishermen with economic and technical support during stock rebuilding efforts.

Recover Protected Species

Total Request: $213,339,000

NOAA requests $213.3 million to address this strategic goal, a net increase of $132.1 million over the FY 2000 base. The objectives are to:

- reduce the probability of extinction for protected species; and
- maintain healthy species and ecosystems.

These objectives will be accomplished primarily through the efforts of NMFS. The request includes:
$170.4 million, an increase of $131.6 million over the FY 2000 base, for activities to prevent the extinction of at-risk species; and $37.5 million, an increase of $5.5 million over the FY 2000 base, for maintaining healthy species and ecosystems. The requested increase of $28.1 million will implement programs to prevent the extinction of several highly endangered marine species and significantly expand efforts to recover Pacific salmonids. These programs will stem the decline of Pacific Leatherback and Northern Atlantic Loggerhead turtles, Right Whales, Hawaiian Monk seals, and Steller sea lions. In addition, $100.0 million is requested to support Pacific Coastal Salmon Recovery Account to help pay for the costs of state, tribal and local conservation activities. This new fund is NOAA's contribution to a broad interdepartmental initiative bolstering and deploying existing and new Federal capabilities to assist in the conservation of at-risk Pacific salmon runs in the western states of California, Oregon, Washington, and Alaska. The salmon recovery efforts will allow NOAA to actively partner with other Federal agencies and state, local, and tribal governments to implement recovery actions for listed West Coast salmon species. The increase of $5.5 million to maintain healthy

species and ecosystems will move the Recover Protected Species program beyond species crisis management. New funding of $2.0 million (NMFS) will assist in maintaining healthy species within the Coral Reef Restoration Initiative. NOAA will identify and monitor many areas of high marine biodiversity and work on protection of coral reef ecosystems.

During 1998, NMFS implemented a take reduction plan for marine mammals in the mid-Atlantic and conducted hundreds of ESA Section 7 and Section 10 consultations. The population of Atlantic Right Whales was maintained through early warning systems and the implementation of take reduction strategies for fisheries. These and other accomplishments have improved the status of these species in a manner compatible with the sustainable use of other marine resources.

Sustain Healthy Coasts

Total Request: $315,268,000

NOAA requests $315.3 million to address this strategic goal, a net increase of $53.6 million from FY 2000 base. The objectives are to:

- Protect, conserve and restore coastal habitats and their biodiversity;
- Promote clean coastal waters to sustain living marine resources and ensure safe recreation, healthy seafood, and economic vitality; and
- Foster well-planned and revitalized coastal communities that sustain coastal economies, are compatible with the natural environment, minimize the risks from nature's hazards, and provide access to coastal resources for the public's use and enjoyment.

These objectives will be accomplished primarily through the efforts of NOS, NMFS, OAR and NESDIS. For NOS, the request includes $218.2 million, an increase of $60.0 million. For NMFS, the request includes $18.7 million, an increase of $1.3 million. For OAR, the request includes $47.3 million and for NESDIS, the request includes $6.2 million.

Coastal ecosystems are powerful engines that fuel the nation's economy. One in every six U.S. jobs is marine related, and one-third of the nation's gross domestic product is produced in coastal areas. For example, over 180 million people visit the nation's coasts every year, beaches are the number one tourism destination in the country, and coastal states earn 85 percent of all U.S. tourism revenues. This economic activity depends on productive habitats, clean waters, rich biodiversity and healthy coastal ecosystems to support the coastal tourism, recreation, fishing and other industries. Communities also depend on coastal habitats for important services such as storage and filtration of water, and protection from storms and floods. NOAA provides the science, technology and management tools to ensure that the economic productivity of coastal areas can be sustainably realized.

More than one half the U.S. population now lives and works within 50 miles of the coast. The U.S. coastal population increases by 3,600 people every day. Rapid growth of coastal populations can degrade and destroy coastal resources and threaten the communities and economies that depend on them. Growing demands for access to coastal areas have resulted in habitat loss, water pollution and contamination in many coastal areas. Harmful algal blooms, polluted beaches, contaminated shell-fish beds and diseased coral reefs are signs that human activities are degrading valuable coastal resources.

FY 2000 funding for this goal will help sustain coastal ecosystems and the communities that depend on them by contributing to several important interagency efforts and Administration priorities including: the Lands Legacy Initiative, Year of the Ocean Initiative, Natural Disaster Reduction Initiative (NDRI), the South Florida Ecosystem Restoration Initiative, the Clean Water Initiative, and the CENR Initiative on Integrated Science for Sustainable Communities.

For Objective 1 (Protect and Restore Coastal Habitats and Biodiversity), a request of $141.6 million will support essential tools for protecting restoring and understanding coastal habitats. New funding of $12.0 million (NOS) will increase the ability to address important coral reef restoration and research efforts ($10.0 million under SHC, $2.0 million under RPS); and $6.0 million will enable NOAA to work with state and other federal agencies to make environmental sound dredging decisions and use dredged material to restore important coastal habitat. An increase of $14.0 million (NOS) will enhance protection of nationally important marine areas by improving management, education and research ($11.0 million), and improving public access and facilities planning ($3.0 million) in the National Marine Sanctuaries. To increase protection of the nation's valuable estuaries, an increase of $14.7 million (NOS) will support acquisition of new sites and increased public access ($12.0 million), as well as provide key research, monitoring, and education ($2.7 million) efforts through the National Estuarine Research Reserves System. Improved knowledge, management and restoration of vital coastal habitat that support fisheries will be achieved with an increase of $1.7 million (NMFS). An increase of $0.8 million ($0.4 million for NOS and $0.4 million for OAR) will expand research and understanding of hypoxia and improve work on developing management strategies for addressing this problem. An increase of $0.6 million (NOS) will expand to new areas the ability to predict, prevent and respond to outbreaks of harmful algal blooms (HAB's) in coastal waters. A $1.6 million increase ($1.0 million NOS and, $0.6 million NMFS) for NOAA will provide monitoring and research critical to the interagency South Florida Ecosystem Restoration Initiative. An increase of $4.1 million (OAR and NOS) will support the commitments at the Nation Oceans Conference to improve our understanding of undersea habitats and National Marine Sanctuaries using new ocean observatories ($3.1 million) (OAR), and to assess the role of oceans in the U.S. economy and environment ($1.0 million) (NOS).

For Objective 2 (Promote Clean Coastal Waters), a request of $72.5 million includes a $4.0 million increase for NOS to support a number of activities for addressing degraded coastal waters as part of the Administration's Clean Water Initiative. By FY 2000, 29 coastal states will have approved Coastal Nonpoint Source Pollution Control Programs requiring funds for implementation. The new funds will allow NOAA to help these states monitor, maintain, and improve coastal water quality by attacking the major cause of coastal water pollution, hypoxia, and harmful algal blooms - runoff pollution from nonpoint sources. Four new states entered the Coastal Zone Management (CZM) Program between FY 1997 and FY 1999. Increased CZM funding will also allow these states to begin developing and planning the implementation of their nonpoint source

pollution control program. In addition, an increase of $1.0 million (OAR) will improve coastal monitoring and assessment of air-borne pollutants and atmospheric deposition on coastal water quality.

A request of $79.0 million for Objective 3 (Foster Well-Planned Coastal Communities) will help improve the economic and environmental vitality of the many coastal communities as well as reduce the vulnerability of these communities to impacts of natural disasters. An increase of $4.0 million (NOS) will enhance national, state, and local capacity for making sound economic decisions in determining dredging projects that will benefit local communities without causing damage to the environment. A $28 million increase (NOS) will assist states and localities in revitalizing coastal communities through grants and technical assistance to address impacts on coastal resources through increased development and urban sprawl. Better growth and wiser use of coastal land and resources will also benefit local coastal economies and the environment. To support the Natural Disaster Reduction Initiative, an increase of $1.0 million will initiate development of coastal risk atlases to help local, state, federal, and private groups assess the exposure and vulnerability of coastal communities to natural disasters, and better plan to reduce this vulnerability. The increase will also enable NOAA to apply satellite-derived data to track natural hazards in coastal areas, and reduce the impact of natural hazards on essential fish habitat and other natural resources.

NOAA’s Crosscutting Initiatives

I. Ocean 2000

Ocean and coastal resources are the foundation of the Nation’s coastal and regional economies. One-third of the U.S. GNP and one-half of the Nation’s jobs are produced in coastal zones through industries such as fishing, tourism, and marine transportation. The Ocean 2000 crosscut integrates the Administration’s Lands Legacy programs, and initiatives supporting the Year Of The Ocean (YOTO), Resource Protection, South Florida ecosystems restoration and research, and implementation of the Clean Water Act.

A. Lands Legacy Initiative $105 million

NOAA's FY 2000 budget requests $105 million of new funding to be derived from the Land and Water Conservation Fund to fulfill the environmental mandates outlined in the Administrations Lands Legacy Initiative. The Nation's wetlands, estuaries, rivers, and other coastal habitats are critically important for supporting wildlife, commercial fisheries, recreational opportunities, and livable communities. Federal efforts to protect America's valuable ocean and coastal resources will be significantly strengthened, and state and community efforts to implement "smart growth" strategies will be bolstered through the requested funding. America's ocean and coastal areas, the gateways to our nation, are increasingly threatened by a whole suite of activities, including coastal population growth, development, maritime commerce, commercial and recreational fishing, and tourism. The economic and environmental well-being we derive from the abundant essential natural resources and beauty provided by these areas is being undermined by the very critical economic and aesthetic uses that make these diverse areas valuable to the Nation. Escalating losses and degradation of coastal wetlands, fisheries habitat, and coral reef ecosystems must be reversed. NOAA, the Nation's leader in ocean and

coastal stewardship, has the vision, expertise and partnerships with state and local governments to successfully confront this challenge. The request includes funding for targeted investments to: strengthen and expand protection of the nation's most significant ocean and coastal areas; restore critical coastal habitat and vibrant coral reef ecosystems; and provide states and coastal communities with the tools and resources for environmentally-sound and economically-sustainable smart growth.

Coastal Zone Management Act Program $32.0 million

The coastal zone is home to more than half the Nation's population and continues to serve as an important economic engine. Working with the 32 coastal states and territories, and hundreds of coastal communities, the Lands Legacy Initiative proposes an increase of $32.0 million to develop and implement community-based comprehensive strategies that support environmentally-sound economic development and reduce urban sprawl. $28.0 million of the proposed funding would be available through competitive, non-matching grants under section 310 of the CZMA to strengthen the support of community-based waterfront revitalization and habitat protection in states with approved Coastal Management Programs or plans and implement programs identified by states' and localities' planning efforts as part of the National Estuary Program. The remaining $4.0 million in funding will be available to states and communities to address polluted run off problems. This initiative also would enable NOAA to provide the technical and scientific support needed to states and local governments to develop and implement these plans and improvements.

National Marine Sanctuaries $15.0 million

The National Marine Sanctuaries are home to diverse marine life and exquisite marine ecosystems such as coral reefs, kelp beds and sea mounts. Recognizing the importance of these special places, the Lands Legacy Initiative proposes an increase of $15.0 million to strengthen the nation's only system of marine protected areas. ($12.0 million in the ORF account, and $3.0 million in PAC.) The National Marine Sanctuary program is designed to conserve, protect and enhance the biodiversity, ecological integrity and cultural legacy of the nation's marine environment. Funds will be used to accomplish this in three ways. First to enhance programs at the twelve existing sites in Massachusetts, North Carolina, Georgia, Florida, Texas, California, Washington, Hawaii, and American Samoa, so that they are able to carry out their mission of marine resource protection and management. Second funds will be used to expand education and outreach opportunities at the Sanctuaries. Through public and private partnerships, NOAA will develop programs designed to better interpret the uniqueness of each sanctuary for the public. Lastly, the initiative will look to the future and begin the planning process necessary for the potential growth of the National Marine Sanctuary system by working with states and communities to identify possible new sites.

National Estuarine Research Reserve System $14.7 million

The initiative proposes an increase of $14.7 million to enhance the protection of critical estuaries by providing funds to states and communities for the acquisition of lands in and around the existing National Estuarine Research Reserves. Funds will also be used to improve management capabilities and upgrade facilities at these sites. There are currently 22 Reserves in 19 state and territories managing over 500,000 acres. The acreage in the System will more than double with the planned new addition of three Reserves and acquisition of additional properties at existing Reserves this year. The proposed funding would support the acquisition of forests and wetlands, buffer Reserve resources from the impacts of development, and provide opportunities for interpretation of estuary resources. This initiative also would strengthen Reserve management capabilities and enhance education and resource stewardship in surrounding communities.

Coastal Dredging and Restoration $10.0 million

More than 95 percent of U.S. overseas trade by tonnage (excluding Mexico and Canada) passes through U.S. ports and harbors. In 1996, U.S. ports handled approximately 2.3 billion tons of cargo and supported nearly 16 million jobs. As we head into the 21st century, international trade will continue to grow. Unless our ports are prepared--for instance, by deepening channels to accommodate large cargo ships,--Americans will pay more for imported goods, and American businesses will pay higher export costs. Such efforts must be undertaken in a way that protects the environment. This includes a continued commitment to environmentally sound dredging and safe disposal or reuse of dredged materials. The Lands Legacy Initiative proposes an increase of $10.0 million dollars for NOAA to work with the Corps of Engineers, other federal and state agencies, and coastal communities to help them determine ways to use material dredged from ports and shipping channels to restore important coastal habitats. This initiative will reduce costs and avoid delays in important dredging projects as well as restore degraded habitats and water quality for natural resource and human use.

Coral Reef Restoration $10.0 million

The Lands Legacy Initiative proposes an increase of $10.0 million to restore fragile coral reefs injured by human impacts. These exquisite yet endangered ecosystems sustain tourism, recreation and fishing industries worth billions of dollars in economic activity. NOAA, by working with states and other agencies, will restore injured reefs in Puerto Rico, Florida, Hawaii, the U.S. territories and the Commonwealths. Funding will be provided for: development and implementation of emergency restoration activities; restoration of small to moderate-sized injured sites; development of coral nurseries to provide donor material for restoration projects; monitoring to evaluate restoration effectiveness; and the transfer of restoration technologies to other coastal stewards. This request complements and supports the $2 million Coral Reef Protection increase requested under the Year of the Oceans Initiative.

Fisheries Habitat Restoration $22.7 million

The Initiative proposes $22.7 million for NOAA to increase the number and geographical scope of community-based habitat restoration efforts that generate quality coastal or river habitat to improve survival of many salt water fish species nationwide. NOAA receives hundreds of restoration requests from state and local governments, universities, and private organizations seeking to partner in these efforts. Funding would go toward restoring areas that have been identified as important fish habitat and have an existing habitat restoration plan. In addition, funding would expand NOAA's existing community-based restoration program of public and private partnerships that address small-scale restoration projects, foster community natural resource stewardship and help leverage additional public and private funding.

Ocean 2000 - Lands Legacy

Line Office	Activity	Strategic Plan	Program Changes ($ million)
	Coastal Zone Management (CZM)		
NOS	CZM Section 310	SHC	28.0
NOS	CZM 309 Enhancement Grants	SHC	2.0*
NOS	Polluted Run-off	SHC	2.0*
	National Marine Sanctuaries		
NOS	Sanctuaries Operations (ORF)	SHC	12.0
NOS	Sanctuaries Construction (PAC)	SHC	3.0
	National Estuarine Research Reserve System		
NOS	NERRS Operations (ORF)	SHC	2.7
NOS	NERRS Construction (PAC)	SHC	12.0
NOS	**Coastal Dredging and Restoration**	SHC	10.0
NOS	**Coral Reef Restoration**	SHC	10.0
NMFS	**Fisheries Habitat Restoration**	BSF/RPS	22.7
	TOTAL		**105.0****

* These amounts are also shown in the Clean Water Initiative, but are not included in the CWI total to avoid double-counting.
** Total effected by rounding.

B. Year of the Ocean $78.1 million

At the 1998 National Ocean Conference in Monterey, California, President Clinton launched a series of major initiatives to explore, protect and restore America's vital ocean resources. Highlighting the important role the ocean plays in the daily lives of all Americans, the Administration introduced measures to promote new scientific insight into the oceans, sustain use of fisheries and other marine resources, provide new opportunities for economic growth, and protect fragile coastal communities and ecosystems, such as coral reefs, from damage and environmental degradation. NOAA's FY 2000 budget request includes $78.1 million to support the Year of the Ocean (YOTO) Initiative.

Safe Navigation $5.2 million

NOAA requests an increase of $5.2 million to promote safe and efficient navigation. This balanced investment will improve the competitiveness of U.S. ports and exports while lowering the risk of marine accidents and resulting pollution. In partnership with the private sector and local authorities, NOAA will support the implementation of real-time oceanographic systems and continue to reduce a critical backlog of hydrographic surveying requirements. NOAA will continue to implement digital nautical charts and modernize the national spatial reference systems. This investment supports the administration's Year of the Ocean "Ports for the 21st Century initiative.

Aquaculture $4.6 million

Wild fish stocks in the U.S. and around the world are dwindling. At the same time world demand for protein continues to rise. In order to promote the development of an environmentally friendly and commercially viable domestic aquaculture industry, the budget proposes $4.6 million. Approximately $3.6 million will be used by OAR for research and development of environmentally and economically sound aquaculture technologies with a focus on peer reviewed competition to find projects that will lead to business use. NMFS will direct much of its $1.0 million toward developing aquaculture standards that protect the environment, which promote ecologically-sound farming technologies, and address site selection criteria to assist those who plan to invest in aquaculture within federal waters. These funds will further the administration's ocean stewardship mission by protecting the environment while developing sustainable aquaculture.

Ocean Climate Variability $4.0 million

To better understand the role of oceans in shaping our weather and climate, finer measurements of ocean data are needed to track climate shifts, understand the interaction of the oceans and atmosphere, and predict severe weather and the regional impacts of global climate change. In FY 2000, NOAA is requesting $4.0 million to construct, deploy and operate an array of 1000 profiling autonomous floats for data collection in the Pacific and Atlantic Oceans. The floats will make real-time, basin-wide measurements of temperature and salinity profiles, and will estimate current velocities at depth. These data will be used with existing satellite and *in situ* ocean observations and weather analyses to produce the first

“weather maps” of the upper ocean and associated seasonal cycles. The seasonal patterns of ocean anomalies in these maps are key to understanding and predicting the climate phenomena that affect U.S. interests at home and abroad.

Fisheries Stock Assessments and Conservation, and Management $ 58.2 million

A major step forward in improving fisheries stock assessment will begin this year as the National Marine Fisheries Service invests $58.2 million on the first of four new state-of-the-art research vessels to replace vessels that will be decommissioned. These new vessels will be constructed to conduct essential stock assessment surveys and monitor fish and marine mammal species, assess ecological changes and provide the best available data to rebuild sustainable fisheries. These ships must be available for fisheries research missions through the first decade of the twenty-first century to protect the integrity of long-term research analyses. These new ships will complement our increasing charters with research partners in industry and academia and will modernize NOAA's aging fleet of research vessels. The budget also includes an increase of $2.6 million for NOAA to carry out its requirements of the Magnuson Stevens Fisheries Conservation Management Act. Funds will be used to conserve and manage the fisheries resources of the U.S. to prevent overfishing, to rebuild overfished stocks, to ensure conservation, and to protect essential fish habitats in order to realize the full potential of our fisheries. There is $2.0 million for observer coverage to carry out mandates in the Act. NOAA will also provide $2.0 million to support work on fisheries oceanography to improve stock predictions by identifying and assessing critical environmental processes controlling long-term trends in the Nation's fishery production. A network of bio-physical moorings in the North Pacific Ocean will provide data on key oceanographic indicators and give greater insight into environmentally-induced shifts in the productivity of commercially important fish stocks.

Coral Reef Protection $2.0 million

Coral reefs are among the most exquisite and most endangered ecosystems on Earth. As a destination for tourism, recreation and fishing, coral reefs sustain billions of dollars in economic activities. Often described as the marine equivalent of the rainforests of the sea, coral reefs support a stunning diversity and abundance of undersea life. Yet around the world coral reefs are showing signs of degradation associated with pollution, development, overfishing and increasing ocean temperatures. NOAA requests $2.0 million in order to work with the states, U.S. Territories and Commonwealths, and local communities, to carry out important research, monitoring, management and mapping of the nation’s coral reef system. These funds will be used to better understand the state of this fragile ecosystem and help identify solutions to protect this vital resource.

Ocean Bottom Observatories/Exploring Our Last Frontier $4.1 million

As announced at the National Oceans Conference, NOAA is requesting an increase of $4.1 million to unravel deep-sea mysteries, discover new opportunities in the ocean, and better understand how to protect marine resources. These funds will launch a program to map and explore U.S. ocean waters with advanced underwater technology. It will expand activities at two existing shallow-water observatories, the Leo - off of the coast of New Jersey, and the Aquarius in the Florida Keys. And the increase will fund two new deep-sea observatories, one in the Pacific Juan deFuca Ridge and the other in the Gulf of Mexico. It also will support a partnership with the National Geographic Society where high-tech submersible

technologies will begin to map and explore the biodiversity of all of the National Marine Sanctuaries. Finally, to better understand the contribution that ocean resources provide to the Nation's economy, funds will also be used to assess the economic value of the domestic ocean and coastal resources.

OCEAN 2000 - Year of the Ocean

Line Office	Activity	Strategic Plan	Program Changes ($ millions)
	Safe Navigation		
NOS	Tide & Current Data (PORTS)	PSN	2.8
NOS	Mapping and Charting (Reduce Backlog)	PSN	0.9
NOS	Build Nautical Charting Database	PSN	1.0
NOS	National Spatial Reference System	PSN	0.5
NMFS/OAR	**Aquaculture**	BSF	4.6
OAR	**Ocean Climate Variability**	ISICF	4.0
NMFS	**Fisheries Stock Assessments and Conservation, and Management**		
NMFS	Fisheries Research Vessel (FRV)	BFS/RPS	51.6
NMFS	Magnuson-Stevens Act	BSF	2.6
NMFS	Observers	BSF/RPS	2.0
OAR/NMFS	Fisheries Oceanography	BSF/RPS	2.0
NOS	**Coral Reef Protection**	RPS	2.0
OAR/NOS	**Ocean Bottom Observatories/Exploring the Last Frontier**	SHC	4.1
	TOTAL		**78.1**

C. Resource Protection $131.3 million

Development is posing an increasing threat to marine life and their habitat. The number of species either listed by NOAA under the Endangered Species Act or under consideration for listing is growing. Stemming this crisis of extinction is one of NOAA's greatest challenges. NOAA is committed to preventing the extinction of at-risk marine species, and restoring their habitat and ecosystems. Our ongoing efforts to protect and

conserve our natural resources include establishing greater public involvement in conservation planning, creating incentives for landowners and states to protect species and their habitat in order to prevent the need to list, and entering into long term conservation plans with landowners.

Pacific Coastal Salmon Recovery Account $100.0 million

The fiscal year 2000 budget bolsters salmon recovery through a new partnership agreement establishing a Pacific Coastal Salmon Recovery Account to share salmon restoration costs that will double the President's $100.0 million in federal dollars with matching non-federal contributions. The Presidential initiative focuses on improving federal conservation activities and building crucial federal-state-tribal partnerships to share limited resources while improving scientific information to ensure a lasting recovery of salmon. Many salmon runs are at risk of extinction or endangerment in the Western states of California, Oregon, Washington, and Alaska.

Protected Species Management $2.6 million

Protecting biodiversity is essential to the successful protection and recovery of at-risk species. NOAA is requesting $2.6 million in FY 2000 to characterize and map biodiversity and protected species habitat. These efforts will permit the identification of crucial habitat for the conservation of at-risk species and will identify increased conservation efforts under the ESA. These funds will provide matching challenge grants to local entities for the conservation and restoration of significant biodiversity sites.

Endangered Species Act Recovery Planning $27.5 million

Protecting the most highly endangered species is a key piece of NOAA's effort to prevent the extinction of species. For FY 2000, NOAA is requesting a net increase of $27.5 million for Endangered Species Act (ESA) Recovery Planning to stem the decline of highly endangered species including Atlantic and Pacific Salmon ($24.6 million), leatherback and loggerhead turtles, Hawaiian monk seals, and North Atlantic right whales. The North Atlantic right whale is one of the most highly endangered mammals on earth. ESA planning efforts to protect the right whale, Pacific Salmon, and other species will include: protecting and restoring critical habitat; eliminating incidental take in commercial fisheries and conducting research and monitoring to determine species status and habitat requirements.

OCEAN 2000 - Resource Protection

Line Office	Activity	Strategic Plan	Program Changes ($ million)
NMFS	**Pacific Coastal Salmon Recovery Account**	BSF/RPS	100.0
NMFS	**Protected Species Management/Biodiversity**	BSF/RPS	2.6
	Endangered Species Act Recovery Planning		
NMFS	ESA Recovery Plans	BSF/RPS	27.5
NMFS	Enforcement & Surveillance	BSF/RPS	1.0
	TOTAL:		**131.3**

D. South Florida Everglades Restoration $5.1 million

NOAA's FY 2000 budget request includes $5.1 million to address issues related to the South Florida Everglades Restoration effort. (NOS/Coastal Ocean Science, $1.3 million; NMFS, $1.9 million - an increase of $0.6 million; and NOS, $1.9 million - an increase of $1.0 million) The South Florida Initiative is an integrated effort among federal, tribal, state and non-governmental partners to halt the degradation and restore the function of the South Florida ecosystem. NOAA supports the portion of the South Florida Everglades Initiative exclusively devoted to restoring and protecting the coastal and marine portions of the South Florida ecosystem such as the fisheries habitat and coral reefs. The Initiative has already produced significant accomplishments in this area. Continued investment is necessary to restore and maintain the marine ecosystem and the associated economies of South Florida Bay, and the Florida Keys.

Ocean 2000 - South Florida

Line Office	Activity	Strategic Plan	Program Changes ($ million)
NOS	South Florida Ecosystem (ORCA)	SHC	1.0
NMFS	Resource Information/Restoration and Research	SHC	0.6
	TOTAL		**1.6**

E. Clean Water Initiative $22.0 million

NOAA's FY 2000 budget request includes $22.0 million to support the Administration's Clean Water Initiative. This Initiative will help protect coastal communities from toxics and reduce the flow of pollution into coastal waters from nonpoint sources (e.g., runoff from agricultural fields, city streets, and other areas). Polluted runoff is now a major source of coastal water pollution and one of the primary factors associated with outbreaks of harmful algal blooms (e.g., Pfiesteria) and the spread of hypoxic zones in U.S. coastal waters.

Communities, businesses and human health are increasingly threatened by polluted runoff and the symptoms of polluted coastal waters. For example, every year degraded water quality causes warnings or closures of thousands of beaches resulting in losses to tourism and recreation industries. Degraded water quality continues to close or restrict the use of nearly 30 percent of U.S. shellfish growing areas. This includes 4.5 million acres or 50 percent of the shellfish growing area in the Gulf of Mexico, the Nation's top shellfish-producing region. Over the past 20 years, harmful algal blooms have impacted nearly every coastal state and produced an estimated $1.0 billion in economic losses. The increasing frequency and magnitude of these problems suggests that significant action is required now to reduce the costs and symptoms of nonpoint source pollution, and improve the quality of U.S. coastal waters.

NOAA's FY 2000 request will strengthen and enhance critical research, monitoring and coastal management capabilities of the National Ocean Service required to address the sources of nonpoint source pollution and symptoms of degraded coastal waters (e.g., harmful algal blooms, hypoxia, beach closings, and shellfish advisories).

Harmful Algal Blooms $1.3 million

Harmful Algal Blooms (HABs) are an expanding problem in all of our Nation’s coastal areas. Over the past two decades, an estimated $1.0 billion in economic losses have occurred in coastal communities due to HABs such as Pfiesteria and brown tides, that are associated with polluted waters. A requested increase of $1.3 million will be used to work with states, universities, and communities to conduct rapid monitoring and assessment response activities in responding to HAB outbreaks. The funds will be used to develop HAB action plans, take necessary actions such as targeted research, monitoring and assessment during an episode, provide fiscal and technical support to those affected by HABs and to guide management measures aimed at recovery, prevention and control.

Coastal Nonpoint Source Pollution Control Programs $2.0 million

By FY 2000, 29 coastal states will have approved Coastal Nonpoint Source Pollution Control Programs that require funds for implementation. Working with other federal, state and local agencies, NOAA will use $6.0 million of the Coastal Zone Management (CZM) Act Section 309 Enhancement Grants to fund these programs and implement on-the-ground management measures to control polluted runoff in coastal areas. This increase of $2.0 million has been previously shown in the Lands Legacy Initiative.

Polluted Runoff Grants $2.0 million

Funding of $6.0 million, an increase of $2.0 million previously shown in the Land Legacy Initiative, will support the development of nonpoint control programs in these new CZM states through Polluted Runoff (Nonpoint Pollution Control Program -Section 6217) Grants. These grants will also be used to assist coastal states with conditionally approved nonpoint programs to address the conditions and manage and implement their ongoing programs.

Coastal Resource Coordination Program $1.0 million

$1.0 million in FY 2000 will enhance NOAA's capabilities to address the impacts of hazardous waste sites on coastal water quality and NOAA trust resources. Funds will allow NOAA's Coastal Resource Coordination Program to address these serious environmental threats sooner and more effectively, expedite restoration and cleanup of coastal natural resources without costly litigation, share NOAA's technical expertise, and create cost effective approaches for remediating waste site contamination as part of the Clean Water Initiative.

Clean Water Initiative

Line Office	Activity	Strategic Plan	FY 2000 Program Totals	Program Changes ($ million)
NOS	CZM 309 Enhancement Grants	SHC	6.0	[2.0]*
NOS	Polluted Run-off	SHC	6.0	[2.0]*
NOS	Pfiesteria Research & HAB Response	SHC	5.2	1.8
NOS	ECOHAB	BSF/RPS	2.8	0.0
NOS	Coastal Resource Coordination	SHC	1.0	0.0
NOS	Pfiesteria Research (Charleston Lab)	SHC	1.0	0.0
	Total		**22.0**	**1.8**

* Previously shown in Lands Legacy Initiative

II. Natural Disaster Reduction Initiative $42.1 million

Natural hazards related to severe weather (hurricanes, tornadoes, winter storms, droughts and floods) or geophysical activity (volcanoes, geomagnetic storms, earthquakes, and tsunamis) threaten lives, property and the stability of local and regional economies throughout the United States. In FY 2000, NOAA requests an increase of $42.1 million for the Natural Disaster Reduction Initiative (NDRI) to implement a second phase of the DOC strategy to reduce and mitigate against the impacts of extreme natural events. The strategy calls for an end-to-end approach to natural disaster mitigation, from research to improve prediction and understanding of extreme events, to advances in developing response and recovery plans, to assessment of vulnerabilities of communities and infrastructure, and providing information, technology and training to reduce vulnerability before and after natural disasters. FY 2000 funding will support the highest priority efforts necessary to continue this end-to-end approach and significantly reduce U.S. costs and vulnerabilities to natural hazards.

Two critical areas must be addressed to reduce the costs and risks from natural disasters. They are (1) providing warnings and mechanisms for people and property to escape hazards when in their path, and (2) providing information and mechanisms so people and property are more resilient in the path of hazards in the first place. NOAA's FY 2000 request will provide more accurate and timely warnings and forecasts, provide information on the vulnerability of coastal communities to natural hazards and provide technology, training and other mitigation measures to reduce these vulnerabilities, save lives and reduce other costs from natural hazards.

To provide warnings and mechanisms for people and property to escape hazards when in their path, FY 2000 funding will be used to support continued advancement of El Niño prediction capabilities, the U.S. Weather Research Program, space weather warnings and forecasts in preparation for the upcoming solar maximum, and accelerated deployment of the flood forecasting system. NOAA will help reduce the direct vulnerability to disasters by supporting and upgrading operational systems critical to predicting, obtaining and communicating information before and during natural hazards events.

To provide information and mechanisms to reduce the vulnerability of coastal communities to natural hazards, NOAA will work with federal, state, and industry partners to identify areas of high hazard risk, develop techniques for mitigating hazard impacts, and provide disaster mitigation techniques.

These measures will:

- Improve lead times and accuracies of warnings and forecasts to enable individuals, emergency managers, businesses, and entire communities to better prepare and respond to extreme events.

- Improve hydrologic forecasts over time scales of hours to seasons to assist water resource managers in optimizing resource allocations and emergency managers in reducing impacts of floods.

- Provide risk assessments that indicate the exposure or vulnerability of communities to natural hazards for use in land use planning and building at local and state levels, to reduce the cost of public and private insurance for residences and businesses.

- Improve the abilities of local and state governments and federal agencies to prepare land use regulations, building codes and other pre-event mitigation actions that reduce the overall costs of natural disasters and promote sustainable communities.

- Increase the resiliency of the built environment to reduce human injuries and other damages as well as costs associated with clean-up and repairs.

The NDRI will allow NOAA to substantially improve forecasts of weather related natural disasters ranging from a few minutes to several months in advance. It will also allow NOAA to immediately provide local, state, federal and private-sector partners with better information on how to avoid and mitigate the impacts of natural hazards. This second phase of the Initiative focuses on areas needed to enhance the end-to-end natural disaster mitigation strategy begun in FY1999. The cross-NOAA Initiative draws from NOAA's strengths in environmental forecast and warning systems, data and information management, research and development, and federal-state partnerships for coastal resource management.

A large and diverse group of partners is depending on NOAA and DOC to maintain leadership in reducing costs and risks associated with natural disasters. The NDRI has been developed through the Committee on Environment and Natural Resources (CENR) Subcommittee on Natural Disaster Reduction (representing 16 federal agencies) and represents a coordinated effort by many Department of Commerce bureaus to address critical business and public sector needs for information, science and technical assistance in disaster reduction. It will fulfill NOAA's responsibility in the Federal Natural Disaster Mitigation Strategy.

Natural Disaster Reduction Initiative

Line Office	Activity	Strategic Plan	Program Changes ($ million)
NWS & NESDIS	Local Warnings & Forecasts/Satellite Observing Systems	ASTWFS	14.0
NWS	WFO Maintenance	ASTWFS	1.0
NWS	AWIPS Operations & Maintenance	ASTWFS	25.8
NWS	ASOS	ASTWFS	0.2
NWS	AHPS - Advanced Hydrologic Prediction System	ASTWFS	2.2
OAR	USWRP	ASTWFS	1.5
Program Support	Aircraft Services/G-IV	ASTWFS	0.4

NWS	Upper Air Evolution - ACARS	ASTWFS	0.6
NESDIS	GDIN - Global Disaster Information Network	ASTWFS	2.0
OAR	HPCC-FSL - High Performance Computing Center - FSL	ASTWFS	1.5
NOS	Coastal Vulnerability	SHC	1.0
OAR	Health of the Atmosphere	ASTWFS	0.4
PAC	Procurement, Acquisition & Construction		
	NPOESS	ASTWFS	30.1
	GOES N-Q	ASTWFS	20.2
	NEXRAD	ASTWFS	2.6
	ASOS	ASTWFS	0.3
	Secretary's Mitigation/AWIPS	ASTWFS	1.6
	Radiosonde Replacement Program	ASTWFS	6.4
	ACE Follow-on/GEOSTORM	ASTWFS	4.3
	WFO Construction	ASTWFS	2.7
	Secretary's Mitigation/Construction	ASTWFS	1.1
	SUBTOTAL		**119.9**
	NDRI System Reductions		
	Procurement, Acquisition & Construction		
PAC	GOES I-M	ASTWFS	-18.7
PAC	POLAR K-N'	ASTWFS	-8.9
PAC	AWIPS - System Acquisition	ASTWFS	-46.7
PAC	Central Computer Facility Upgrade	ASTWFS	-3.4
	SUBTOTAL		**-77.7**
	NDRI TOTAL		**42.1**

III. Climate in the 21st Century $19.1 million

In Winter 1997, climate emerged as one of the most compelling, long-term strategic environmental security issues facing the United States. The urgency and demand for climate science information by decision-makers and the public is accelerating. For this reason, as the Department prepares to enter the 21st century, NOAA requests an increase of $19.1 million to meet the Nation's climate service needs.

El Niño-Southern Oscillation Events $3.6 million

On the seasonal to interannual climate time scale, the 1997/1998 El Niño-Southern Oscillation (ENSO) event, forecasted by NOAA with a six month lead time, caused unusual and extreme weather events, including heavy rainfall on the West Coast, ice storms in the Northeast, and an unusually mild winter in the northern central tier of the United States. The success of that forecast, and the subsequent La Niña climate anomaly, were based on understanding what happens in the surface waters of the tropical Pacific, and the strong El Niño signal. Other climate signals that occur on seasonal and longer time scales influence ENSO and can be as important to weather and climate anomalies over North America as ENSO in non- or weak-ENSO periods. NOAA is requesting $3.6 million to improve our understanding of these other, key climate variability cycles; such as changes in the monsoonal circulation affecting North America, the North Atlantic Oscillation (changes in sea level pressure over the North Atlantic), and the Pacific Decadal Oscillation (changes in sea surface temperature of the North Pacific), which are also modes of seasonal to interannual climate variability. This knowledge is essential to allow us to forecast weather and climate at longer time scales and predict their impact at a regional level.

Autonomous Profiling Floats $4.0 million

Related to this research is NOAA's request for $4.0 million to launch an array of 1000 autonomous profiling floats in the Atlantic and Pacific Oceans that will provide real-time, basin-wide measurements to help produce for the first time "weather maps" of the upper ocean and the associated seasonal cycles. This initiative was announced at the recent National Oceans Conference and is being shown under the Year of the Ocean Crosscutting Initiative.

Kyoto Conference Projects $5.9 million

Representatives of many nations met in Kyoto, Japan in December 1997 to address the steps and implementation plans to forestall global warming, an event which promises to fundamentally challenge post-industrial civilization in the next 25-50 years. To understand these challenges and the nature of long-term climate change, it is increasingly necessary that the Department of Commerce accelerate its investments to unlock the scientific uncertainties of the carbon cycle and the relationship between human-induced and natural climate variability. NOAA is requesting $1.6 million to expand our understanding of the role of oceanic processes in climate and, in particular, the sources and sinks of atmospheric carbon dioxide. These resources will be used to make long term measurements of carbon dioxide in the surface ocean and overlying atmosphere, improve existing climate

models, and develop new data assimilation methods. Complementing this effort, NOAA is requesting $3.1 million to study the role of vegetation type and land use changes in the uptake of atmospheric carbon dioxide. These resources will also be used to improve our understanding of the linkage between climate and the intensity and frequency of extreme weather events, such as floods, hurricanes, and tornadoes.

Three key components of this initiative will provide critical funding for NOAA's unique responsibility to obtain long-term observations of the atmosphere and maintain national data archives. NOAA is requesting $1.2 million to restore and maintain operations at its baseline atmospheric observatories in Alaska, Hawaii, Samoa, and Antarctica that provide the world's longest atmospheric time series.

Cooperative Reference Network and Raingauge Network $3.0 million

The NOAA request also includes $3.0 million to begin the modernization of the Cooperative Reference Network and Raingauge Network. Evidence for changes in extreme precipitation rates have been documented across the United States as global and regional temperatures and water vapor have changed. The aging Cooperative Reference Network and Raingauge Network have contributed significantly to our ability to observe and analyze these changes. Funds are requested in FY 2000 to ensure the future health and usefulness of these valuable national programs. The modernization program is required to avoid a number of imminent catastrophic failures, including the inability to read punched paper tapes from the raingauges, inadequate supply of replacement chips for thermistors used in the cooperative network, and the elimination of changes in observing times which effectively destroy our ability to evaluate changes in extremes for our longest and best observing stations. Fundamental climate statistics, such as extreme precipitation events are related to numerous economic and ecological impacts. Upgrading the Cooperative Reference Network and Raingauge Network will ensure a reliable long-term climate record, including extreme precipitation events, and support the economic and ecological impact studies related to climate change. NOAA is also requesting $0.9 million for Data and Information Services to meet the increased demand for near real-time products, data, and information related to unusual weather, climate, and environmental events.

Computer for Climate and Weather Research $5.7 million

Underlying NOAA's ability to improve climate and weather models is maintaining state-of-the-art computer capabilities for world-class research. Included in this request is $5.7 million to acquire a massively parallel computer to improve forecasts of El Nino events, model climate variability, and make better hurricane predictions. Procurement of this computer will help close the computing gap between the U.S. and European climate centers.

Specific deliverables of this initiative are discussed in detail within the budget requests for NOAA's two climate portfolios, Predict and Assess Decadal to Centennial Change and Implement Seasonal to Interannual Climate Forecasts.

Climate in the 21st Century

Line Office	Activity	Strategic Plan	Program Changes ($ million)
OAR	Research on Other Modes of Seasonal Climate Variability	ISICF	3.6
OAR	Ocean Climate Variability	ISICF	[4.0]*
OAR	Role of Oceans	PADCC	1.6
OAR	Climate Forcing Agents	PADCC	3.1
OAR	GFDL Supercomputer (PAC)	PADCC	5.7
OAR	Baseline Observatory Deficiency	PADCC	1.2
NWS	Cooperative Reference Network	PADCC	1.5
NESDIS	Cooperative Reference Network	PADCC	1.5
NESDIS	Data Center Base Restoration	ISICF	0.9
	TOTAL		**19.1**

* Previously shown under Year of the Ocean.

IV. Historically Black Colleges and Universities $1.0 million

As part of a Commerce-wide capacity building effort, NOAA requests $1.0 million to establish educational training relationships through a joint partnership with a consortium of Historically Black Colleges and Universities (HBCU). These efforts would not only result in the education of new marine, atmospheric and environmental scientists, but would also assist many coastal communities in the development of new business and environmental engineering alternatives to support sustainable economic development. In addition, the initiative would help to develop capacity at the consortium HBCUs and allow these institutions to train a greater number of resource scientists and managers. This effort would provide the Department with a broader and more diverse pool of potential employees from which to choose. Having additional, trained natural resource managers can also provide NOAA with additional scientific data that would allow the agency to more effectively carry out its mission.

V. Committee on Environment and Natural Resources $536.7 million

Through the National Science and Technology Council's (NSTC) Committee on Environment and Natural Resources (CENR), NOAA works with other federal agencies and non-governmental experts to design and prioritize the government's environment and natural resources research and development agenda. This interagency planning and coordination ensures the effective application of available resources.

For FY 2000, the NSTC identified interagency science and technology investment priorities, as well as special emphasis areas. NOAA will participate in the following special emphasis areas:

- The continuation of the U.S. Global Change Research Program, is a NSTC high priority area for interagency research; and

- Integrated Science for Ecosystems Challenges, an area of special emphasis developed to expand the knowledge base, information infrastructure, and modeling framework to help resource managers predict and assess environmental and economic impacts of stress on vulnerable ecosystems. Particular focus is placed on invasive species, water and air pollution, changes in weather and climate, and land and resource use.

The NSTC identified high priority areas for interagency research in FY 1999 in which NOAA will continue to participate through FY 2000. These include:

- National environmental monitoring and research initiatives, including production of a report card on the health of the Nation's ecosystems by 2001;

- Natural Disaster Reduction Initiative with enhanced international cooperation in science and technology to reduce the damage to communities caused by natural disasters through improved risk assessment, mitigation, and consolidation of warning systems;

- Endocrine disruption research to identify and reduce the impacts of chemical pollutants that interact with endocrine and reproductive systems of wildlife and humans; and

- The North American Research Strategy for Tropospheric Ozone, including technology development through public-private partnerships to reduce the impacts of ozone pollution.

Reducing Costs and Improving Effectiveness

In an environment of tightening dollars and increasingly complex challenges, NOAA is reducing costs and improving program effectiveness. NOAA is saving money through streamlining personnel and processes, outsourcing where appropriate, and leveraging external resources and talent. NOAA holds managers accountable for results, and for using performance measures to validate progress. The highest priority continues to be to ensure that critical services are provided well.

National Performance Review, Streamlining, and Reinvention

In an effort to create a government that works better and costs less, NOAA is reinventing itself and achieving the goals outlined in the National Performance Review (NPR). Weather service modernization is reinvention in the making. Owing to the range and effectiveness of new technologies, the NWS is realigning its field structure to reduce the number of offices from over 300 to 121. Due to this capital investment in technology, and the application of advanced scientific understanding -- much of which has been developed in NOAA -- the U.S. now commands the most modern and efficient weather service in the world.

In addition, NOAA is reinventing the National Undersea Research Program to focus research priorities on management needs and to provide for the competitive allocation of funds; and creating a NOAA National Virtual Data Center to handle the growing demand for environmental data through a centralized and physically distributed system to enable customers to locate, browse, and acquire data without human intervention. A brief status of formal NOAA NPR initiatives follows:

- Streamlining processes. NOAA has simplified administrative processes, delegated authorities downward, and made progress toward implementing the Commerce Administrative Management System, which will greatly improve financial management and accountability.

- Converging satellites. NOAA continues to work with the Department of Defense (DOD) to merge civilian and defense weather satellites. Participating agencies have approved an Optimized Convergence proposal to make best use of production and on-orbit assets and to reduce risk on critical sensor payloads and algorithms. The NPOESS Integrated Program Office is proceeding with Phase 1 sensor development, a key acquisition milestone. On May 29, 1998, the initiation of joint civilian and military satellite operations, command and control marked an important pre-convergence effort. In FY 2000, key development activities will continue including initiation of Phase II production of five key sensors.

- Closing NWS field offices. NWS continues to make progress towards completing the Modernization and Associated Restructuring. Currently, NWS plans to consolidate its field office infrastructure and close a total of 164 Weather Service Offices in FY 2000. As of January 1999, the NWS completed closure certifications for 132 offices.

- Expanding private sector ship support. NOAA continues to utilize private contractors and cooperative arrangements with universities for ship support, and to assess private interest, capability, and costs. Future ship support planning is based upon the philosophy that the most cost effective means for acquiring data is a mix of chartering, contracting, leasing, and NOAA ships. One-third of the ship time that NOAA currently needs is being acquired through charters and lease services. Several of NOAA's older inefficient ships have been removed from service. The number of NOAA ships has been reduced from 19 to 15 active vessels. Outdated and expensive oceanographic research vessels have been replaced by a converted Navy ship and a newly constructed vessel. NOAA's ship operations office has been re-engineered and downsized. The remaining active NOAA ships are cost effective. All funding increases for hydrographic data acquisition to eliminate the critical survey backlog will be spent on contracting for data or leasing of ships.

- Transforming seafood inspection. NOAA expects to propose legislation to establish a seafood inspection Performance Based Organization and transfer the program to the Food and Drug Administration.

Strategic Planning and the Government Performance and Results Act

NOAA has institutionalized a strategic planning process that defines and validates its business activities, guides the development of implementation, operating and senior management performance plans, and forms the basis for management decisions. The Strategic Plan provides the framework for articulating and organizing the agency's goals and work objectives. NOAA's goals for the future will enhance opportunities for our citizens, the health of the U.S. economy, the protection of our environment, and the sustainable use of our natural resources.

NOAA has made the Government Performance and Results Act (GPRA) operational following strong participation as a pilot agency. During the pilot period, NOAA was selected by the Office of Management and Budget (OMB) as one of ten exemplars and was commended by the National Academy of Public Administration's (NAPA's) GPRA review panel. Currently, NOAA is working with GAO to identify best practices for Federal agencies to follow, contributing to NPR performance measurement benchmarking studies, and is participating in the Department's strategic planning process. NOAA views the GPRA as a management tool to facilitate decision-making. NOAA has integrated performance measures into its planning, budgeting, and management review cycles, and is designing a program evaluation process to measure agency-wide progress toward meeting goals.

The GPRA extended requirements established under the Chief Financial Officer's Act (1990) for an independent audit of an agency's financial statements. These requirements were further addressed by the Government Management and Reform Act (1994) and the Federal Financial Manager's Integrity Act (1996). During FY 2000, NOAA anticipates receipt of an unqualified audit rating, reflecting the correction of all identified outstanding corrective actions. During this period, it is also anticipated that NOAA and the Department will have completed implementation of all requisite financial management modifications needed to satisfy requirements contained in the OMB Bulletin 97-01.

Beneficial Partnerships

NOAA builds partnerships with universities; federal, state, local and international entities; industries and businesses; and groups and individuals to address common needs and leverage resources. For example, the Fishery Management Councils are innovative partnerships bringing resource managers and fishing interests to the same table to address concerns and make management decisions. International leadership and federal-state collaboration help ensure the conservation of living marine resources, especially straddling fish stocks, endangered species and other at-risk marine species. NOAA also helps advance the state of science and technology in atmospheric and oceanographic fields by coordinating related research and environmental monitoring efforts around the globe. NOAA continues to work with local communities to formulate and oversee policies and programs to address fishery resource disasters in Alaska, the Pacific Northwest, the Northeast, and the Gulf of Mexico. NOAA also has unique federal-state partnerships with coastal states to provide technical assistance and financial support for the development and implementation of state coastal zone management plans and estuarine research reserves.

NOAA depends strongly on universities to help accomplish science objectives in its mission areas. NOAA and university scientists collaborate on severe weather, climate, oceanography, atmospheric chemistry and fisheries research via a network of ten Joint and Cooperative Institutes at universities around the Nation. NOAA also funds academic researchers through competitive, peer-reviewed programs, including the Climate and Global Change Program, National Sea Grant College Program, the National Undersea Research Program, Coastal Ocean Science, and the National Estuarine Research Reserve System. The National Sea Grant College Program network includes 29 Sea Grant College Programs that provide critical research and community services for the Nation. NOAA has established a NOAA-University partnership to enhance collaboration with universities, and will host its third series of workshops in 1999 with a broad range of both academic and other constituents to provide for constituent input and feedback into NOAA's strategic planning and budget formulation process.

Weather and climate services are provided to the public and industry through a unique partnership between NOAA and the private meteorological sector. NOAA provides forecasts and warnings for public safety, and the private sector promotes dissemination of forecasts and the tailoring of basic information for business uses. NOAA generally is seeking to reduce the costs of environmental data collection and to improve access to space-based and other environmental monitoring technologies by utilizing existing Federal and international assets, and planning for the next generation of polar-orbiting satellites.

As part of NOAA's commitment to expanding its partnerships, and as part of a Commerce-wide capacity building effort, NOAA is proposing an expanded effort with a consortium of nine Historically Black Colleges and Universities in FY 2000. The goal of this effort is to strengthen and develop new education, training and business opportunities at the consortium schools, to establish Centers of Excellence at three of the participating schools and offer internships at NOAA facilities throughout the Nation. These efforts would not only result in the education of new marine, environmental and atmospheric scientists, but would also assist in the development of new business and engineering alternatives to support sustainable economic development.

THIS PAGE INTENTIONALLY LEFT BLANK

FY 2000 NOAA Request by Strategic Plan Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Advance Short-Term Warning and Forecast Services										
Complete NWS Modernization	4,843	758,820	4,783	730,702	4,783	750,954	4,581	743,691	(202)	(7,263)
Satellite Continuity	587	279,198	587	437,068	587	437,818	587	466,933		29,115
Enhance Observations & Predictions	328	57,975	332	56,133	332	56,761	336	67,701	4	10,940
Improve Service Communication and Utilization	21	6,442	21	1,870	21	1,915	21	1,915		
Infrastructure	627	38,461	628	43,927	628	45,709	628	45,211		(498)
Total ASTWFS	**6,406**	**1,140,896**	**6,351**	**1,269,700**	**6,351**	**1,293,157**	**6,153**	**1,325,451**	**(198)**	**32,294**
Implement Seasonal to Interannual Climate Forecast										
Implement Prediction Systems	73	15,416	74	18,566	74	18,566	74	18,566		
Maintain and Improve Observing and Data Delivery Systems	338	57,490	344	58,618	357	59,693	357	57,875		(1,818)
Conduct Research for Improved Climate Predictions	73	27,701	77	29,701	77	30,011	77	31,611		1,600
Deliver Climate Services and Assess Socio-economic Impacts		1,122		1,122		422		422		
Infrastructure	54	3,983	54	3,968	54	4,124	54	4,152		28
Total ISICF	**538**	**105,712**	**549**	**111,975**	**562**	**112,816**	**562**	**112,626**		**(190)**
Predict and Assess Decadal-to-Centennial Change										
Characterize Global Climate Forcing Agents	44	7,387	44	7,237	44	7,305	44	10,405		3,100
Understand the Role of Oceans in Global Change	196	30,101	211	29,221	211	30,644	211	32,344		1,700
Guide the Rehabilitation of the Ozone Layer	42	7,183	44	7,033	44	7,099	44	7,099		
Provide Prediction, Assessment, & Human Impact Info.	40	7,498	41	8,956	41	9,018	41	10,218		1,200
Ensure a Long-Term Climate Record	75	22,139	75	24,125	75	24,125	75	22,125		(2,000)
Provide the Scientific Basis for Improved Air Quality		4,064	3	5,412	3	5,412	3	5,799		387
GLOBE	9	5,000	9	2,500	9	2,500	9	5,000		2,500
Infrastructure	57	4,587	58	5,008	58	5,034	58	10,776		5,742
Total PADCC	**463**	**87,959**	**485**	**89,492**	**485**	**91,137**	**485**	**103,766**		**12,629**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Promote Safe Navigation										
Build Nautical Charting Database	175	21,950	175	23,950	175	24,123	175	25,123		1,000
Update Nautical Surveys	318	17,997	319	20,539	319	20,821	319	18,661		(2,160)
Provide Marine Predictions	141	11,350	141	12,000	141	12,133	141	14,883		2,750
Establish National Spatial Reference System	197	20,700	197	19,659	197	19,849	197	19,849		
Define National Shoreline		3,311		3,311		3,311		3,311		
Infrastructure	46	3,577	46	4,105	46	4,260	46	4,347		87
Address Survey Backlog/Contracts		13,900		14,000		14,000		14,900		900
Total PSN	**877**	**92,785**	**878**	**97,564**	**878**	**98,497**	**878**	**101,074**		**2,577**
Build Sustainable Fisheries										
Develop Sound Aquaculture					7	28,757	17	26,252	10	(2,505)
Assess the Status of Fishery Resources	1,415	173,362	1,492	190,080						
Advance Fishery Prediction	16	17,033	17	20,950						
Managing for Economic Growth	333	86,942	384	117,983						
Ensuring Adequate Compliance	171	17,600	181	17,775						
Provide Research and Service	47	18,686	47	18,250						
Infrastructure	209	64,881	209	39,624	209	37,364	209	80,543		43,179
Eliminate & Prevent Overfishing					1,852	285,225	1,862	268,502	10	(16,723)
Attain Economic Sustainability in Communities					262	47,087	283	51,048	21	3,961
Total BSF	**2,191**	**378,504**	**2,330**	**404,662**	**2,330**	**398,433**	**2,371**	**426,345**	**41**	**27,912**
Recover Protected Species										
Assess Status and Impacts	346	37,266	351	37,868						
Implement Conservation Plans	59	30,580	199	37,557						
Infrastructure	25	3,156	25	4,209	25	4,957	25	5,349		392
Maintain Healthy Species & Ecosystems					360	32,068	369	37,541	9	5,473
Prevent Extinction					190	44,237	327	170,449	137	126,212
Total RPS	**430**	**71,002**	**575**	**79,634**	**575**	**81,262**	**721**	**213,339**	**146**	**132,077**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Sustain Healthy Coasts										
Protect, conserve and restore habitats	439	105,640	548	117,112	527	120,903	581	141,642	54	20,739
Promote clean coastal waters	320	69,931	214	76,426	209	73,412	211	72,450	2	(962)
Foster well-planned and revitalized coastal communities	30	46,802	30	50,202	43	49,840	54	79,032	11	29,192
Infrastructure	98	19,712	98	17,257	98	17,542	98	22,144		4,602
Total SHC	**887**	**242,085**	**890**	**260,997**	**877**	**261,697**	**944**	**315,268**	**67**	**53,571**
Infrastructure										
Administration										
Construction/Facilities/Env. Compliance		(4,656)						(4,656)		(4,656)
High Performance Computing										
Total Infra		**(4,656)**						**(4,656)**		**(4,656)**
NOAA										
All goals		(21,500)				13,900		(20,100)		(34,000)
Supports no goals										
Total NOAA		**(21,500)**				**13,900**		**(20,100)**		**(34,000)**
Total Obligations for NOAA	**11,792**	**2,092,787**	**12,058**	**2,314,024**	**12,058**	**2,350,899**	**12,114**	**2,573,113**	**56**	**222,214**

Obligations from above	2,573,113
Prior Year Recoveries,ORF and PAC	(40,400)
Unobligated Balance Rescission	(3,400)
DARRF Unobligated Balance	(2,684)
Offsetting Collections, CZMF	(4,000)
Total Budget Authority	**2,522,629**
Mandatory Payment	(13,900)
Transfer from Agriculture for P & D	(66,426)
Mandatory Spending Authority from Collections	4,000
Discretionary Budget Authority	**2,446,303**

SUMMARY OF GOALS, OBJECTIVES AND PERFORMANCE MEASURES

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
Build for the future and promote U.S. competitiveness in the global marketplace by strengthening and safeguarding the nation's economic infrastructure	Advance Short-Term Warning and Forecast Services	Maintain NWS modernized operations	NWS NESDIS OAR COP	Meet % reliability targets for continuing operation and maintenance of modernized systems Implement recommendations in Commerce Secretary's Mitigation Report	Increase lead time (minutes) and accuracy (%) for severe weather warnings (e.g. tornado, thunderstorm, flash flood) Increase % accuracy of global aviation model forecasts
		Maintain satellite continuity	NESDIS NWS OAR	Continue procurement, launch, maintenance and operations of GOES satellites; launch Polar-L	Increase lead time and accuracy (km/24 hrs) for hurricane landfall Improve temperature, snow, aviation, and precipitation forecasts (time and accuracy)
		Enhance Observations and Predictions	OAR NWS NESDIS OAR	% completion of replacement of the radiosonde network Improved Upper Air and Surface Observations	Increase lead time (minutes) and accuracy (%) for prediction of severe weather events (e.g. tornado, flash flood, hurricane, thunderstorm, lake effect snow)

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
				Continue national implementation of the Advanced Hydrologic Prediction System (% completion) Continue G-IV Operations to improve hurricane/winter storm surveillance	Increase essential upper air data for local to global numerical weather prediction models
		Improve service communication and utilization	NWS NESDIS	Promote hazard awareness and mitigation education	Increase public response and the awareness of hazards
Keep America competitive with cutting-edge science and technology and an unrivaled information base	Implement Seasonal to Interannual Climate Forecasts	Implement prediction systems	NWS OAR	% dynamic forecast model operational	ENSO forecasts accuracy (correlation), lead time (years) U.S. temperature and precipitation skill score (% above persistence), lead time (years)
		Maintain and improve observing and data delivery systems	NWS OAR NOS NESDIS	% ENSO observing system operational # requests for new and improved data sets developed and produced	ENSO forecasts accuracy (correlation), lead time (years) U.S. temperature skill score (% above persistence), lead time (years)

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
		Conduct research for improved climate predictions	OAR	% key research programs (GCIP, GOALS, CLIVAR) implemented	ENSO forecasts accuracy (correlation), lead time (years) U.S. temperature score (% above persistence), lead time (years)
		Deliver climate services and assess socio-economic impacts	NWS OAR	# user surveys conducted # regional assessment and demonstration projects	Analyze and quantify economic and social benefits of climate forecasts
	Predict and Assess Decadal to Centennial Change	Characterize forcing agents of climate change	OAR OGP NESDIS NWS	development of time series of past climate and forcing agents	% improved understanding of trends and forcing of greenhouse gases
		Understand the role of ocean processes in climate change	OAR OGP NESDIS NWS	# hydrophone arrays in critical regions not covered by SOSUS	# accelerated development of four dimensional data assimilation systems for oceans
		Ensure long-term climate record	OAR OGP NESDIS NWS	# 20 year data sets completed for ozone, sea surface temperature, and other key climate parameters	# chapters and citations in IPCC report stemming from NOAA research
		Guide rehabilitation of ozone layer	OAR OGP NESDIS NWS	Report findings of the 1997 POLARIS field campaign on Arctic ozone loss	Provide detailed science-based advice to policy makers and industry (reports, conferences, articles, hearings)

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
		Provide the scientific basis for improved air quality	OAR NESDIS NWS OGP	% completion of upgrade and operation of early detection of air quality stations (AIRMON)	% NOAA tropospheric ozone research cited in the 1998 NARSTO Assessment of surface level ozone
		Furnish prediction, assessment and human impacts information on decadal to centennial climate change	OAR, NESDIS NWS OGP	# programs implemented to reduce uncertainty in climate forcing by aerosols and process understanding of tropospheric ozone	% inventory NOAA research that will contribute to the Year 2000 and 2005 IPCC scientific assessment of climate change and provide this information to IPCC planning
	Promote Safe Navigation	Build, maintain and deliver digital nautical charting database	NOS	Increased number of charts available in vector electronic format. Throughput of data from collection to chart product	Increased access to all nautical charts in electronic format Reduce the time necessary to produce a chart once survey data has been collected.
		Update nautical surveys	NOS	% reduction in backlog of hydrographic surveys for critical areas	Increased % of critical areas will have been surveyed to produce up-to-date nautical charts
		Provide real-time observations and forecasts on water levels, tides and currents	NOS	% of Water Level Network modernized # of PORTS supported by quality-assured data	Increased access to the full suite of quality-assured, real-time tide, current and positioning data

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
		Develop the National Spatial Reference System	NOS	# of Continuously Operating Reference Stations (CORS) added to the CORS network	The CORS System, which enables high accuracy readings from the Global Positioning System, will be available to a wider # and range of users
		Define the national shoreline	NOS	% of shoreline mapped (critical and non-critical)	Provides accurate shoreline data for highest priority ports.
Provide effective management and stewardship of our nation's resources and assets to ensure sustainable economic opportunities	Build Sustainable Fisheries	Eliminate and prevent overfishing and overcapitalization	NMFS OAR NOS	# sea-days for data collection % increase in efficiency of base statistics collection % completion of federal-state data collection plan # models/syntheses incorporating natural variability # of Essential Fish Habitat amendments to FMPs completed # fleets using vessel monitoring systems for spatial/temporal regulations	% fewer overfished fisheries (stocks subject to overfishing) % fewer overcapitalized fisheries % of stocks which have essential fish habitat

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
				% reduction in enforcement risk factors in the most at-risk fisheries over base year	
		Attain economic sustainability in fishing communities	NMFS OAR	% Fishery Management Plans with net economic benefits calculated # Fishery Management Plans with access controls implemented # of crosscutting partnerships with EDA, MBDA, ESA, NIST, and others to assist fishing communities	% increase in employment in non-capture fishing and/or other sectors % of communities impacted by limited/closed fisheries which are economically improved
		Develop environmentally and economically sound marine aquaculture	NMFS OAR NOS	# of new biotechnology methods to increase aquaculture production # of new technologies for offshore production and enhancement of local marine fish species # of new genetic techniques for aquaculture # new disease diagnostics/control systems developed for aquaculture	% of aquaculture operations which are in compliance with code of responsible aquaculture % increase in economic contribution of aquaculture to Gross Domestic Product (GDP)

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
				# of new improved feeds and feeding regimes for use in different aquaculture systems and species # of new species in commercial aquaculture production % reduction in the time and cost of permitting environmentally sound aquaculture ventures	
	Recover Protected Species	Prevent extinction of listed species	NMFS OAR NESDIS NOS	% reduction in incidental and direct takes % improvement in protected species habitat % decrease in negative interactions # stocks monitored and status assessments conducted	% reduction in probability of extinction of ESA endangered, threatened or candidate species % increase in the probability that depleted marine mammals will exceed minimum optimal sustainable population level % reduction to insignificant levels of strategic marine mammal mortality incidental to commercial fishing

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
		Maintain healthy species and ecosystems	NMFS OAR NESDIS NOS	% increase in protected biodiversity habitat % reduction in conflicts between healthy species and human activities # marine mammal species maintained at zero mortality rate goal	# marine mammal stocks within optimal sustainable population range # protected or restored priority biodiversity areas # of healthy or recovered protected species maintained beyond the status of candidates
	Sustain Healthy Coasts	Protect, conserve and restore coastal habitats and their biodiversity	NOS NMFS NESDIS OAR	# environmental technologies and tools developed that enhance monitoring, assessment, management and restoration of coastal habitats % of U.S. coastline with habitats characterized and mapped.	% of U.S. coastline with threats to habitat assessed and ranked.
			NOS NMFS		# Natural Resource Damage cases settled or damage assessments completed.
			NOS OAR		# U.S. coastal regions with reduced introductions and impacts of nonindigenous species.

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
			NOS NMFS NESDIS		# CZM and NERRS sites with management capabilities upgraded to protect and restore coastal habitats.
			NOS	# National Estuarine Research Reserves completed and maintained at acceptable levels to protect special marine and estuarine ecosystems. % of designated National Marine Sanctuary sites that meet baseline operational levels. % of National Marine Sanctuary sites that have significantly upgraded management capabilities.	% of the Nation's 40 key coastal ecosystems with reduced risks of habitat loss from releases of oil and hazardous chemicals due to response planning, mitigation, modeling, monitoring and assessments.
			NMFS	# interagency projects supported to restore coastal habitat.	# acres coastal habitat restored.
		Promote clean coastal waters	NOS	% State coastal nonpoint source pollution control programs approved (% of 35 coastal states). % State coastal nonpoint source pollution control	# National Estuarine Research Reserves and National Marine Sanctuaries with upgraded capabilities to protect and enhance coastal water quality.

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
				program elements implemented (% of 35 coastal states).	
			NOS OAR		# U.S. coastal regions with systems to predict and reduce impacts of harmful algal blooms.
			OAR	# of coastal and Great Lakes states provided with improved predictive capabilities and understanding of environmental processes.	% U.S. coastal regions with assessments of atmospheric pollution effects on water quality and habitat.
		Foster well-planned and revitalized coastal communities	NOS OAR		% U.S. coastline and inland areas with improved ability to identify extent and severity of coastal hazards.
			NOS OAR NESDIS	# improved information management tools developed to assist coastal hazard mitigation.	
			NOS	# activities conducted to provide a technically trained work force and environmentally informed citizenry. % coastal constituencies	% reduction in time between hazardous event and the beginning of response and recovery operations and application of remote sensing capabilities.

Strategic Theme	Bureau Goal	Bureau Objective	LO/PO	Outputs	Outcomes
				incorporating improved coastal hazard mitigation measures into local planning/regulatory activities.	# of models for new commercial products and industrial processes based on bioproducts from marine organisms. # minority students trained and graduated with advance degrees from historically black colleges and universities in oceanic, atmospheric or environmental sciences.

THIS PAGE INTENTIONALLY LEFT BLANK

National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	Positions	FTE	Approp.	Budget Authority	Direct Obligations
FY 1999 Currently Available	11,903	11,818	1,579,844	1,651,725	1,761,702
plus: Restoration of recoveries from prior years			33,000	33,000	33,000
plus: FY 2000 Adjustments to Base	51	49	44,112	39,612	49,415
less: Requested recoveries from FY 2000			(33,000)	(33,000)	(33,000)
less: ATBs absorbed to cover program chnages			(17,824)	(17,824)	(17,824)
less: Prior Year Unobligated balance SOY					(72,880)
FY 2000 Base	11,954	11,867	1,606,132	1,673,513	1,720,413
plus: FY 2000 Program Changes	229	55	129,379	130,924	130,924
Total FY 2000 Estimate, ORF	12,183	11,922	1,735,511	1,804,437	1,851,337

Comparison by activity/subactivity		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service:											
Navigation Services	Pos./BA.	623	90,310	630	79,919	630	80,477	630	82,967	0	2,490
	FTE/Obl.	624	81,003	576	89,226	576		576		0	
Ocean Resource Conservation & Assessment	Pos./BA.	313	81,677	368	82,792	428	84,450	463	99,650	35	15,200
	FTE/Obl.	310	78,497	365	85,972	425		451		26	
Ocean and Coastal Management	Pos./BA.	100	72,689	100	76,850	151	80,850	185	128,200	34	47,350
	FTE/Obl.	74	70,894	97	78,645	146		171		25	
Acquisition of Data	Pos./BA.	196	15,820	196	14,546	196	14,726	196	17,726	0	3,000
	FTE/Obl.	257	15,627	231	14,739	231		231		0	
Subtotal, National Ocean Service	Pos./BA.	1,232	260,496	1,294	254,107	1,405	260,503	1,474	328,543	69	68,040
	FTE/Obl.*	1,265	246,021	1,269	268,582	1,378	0	1,429	0	51	0

* The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.

National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

Comparison by activity/subactivity		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Marine Fisheries Service:											
Information, Collection, and Analyses	Pos./BA.	1,302	190,643	1,366	188,826	1,366	191,229	1,382	169,505	16	(21,724)
	FTE/Obl.	1,260	186,225	1,360	193,244	1,360		1,372		12	
Conservation and Management Operations	Pos./BA.	755	140,594	960	138,602	960	146,839	1,212	208,411	252	61,572
	FTE/Obl.	708	138,216	961	140,980	961		1,152		191	
State and Industry Assistance Programs	Pos./BA.	90	38,400	90	30,024	90	23,228	66	17,028	(24)	(6,200)
	FTE/Obl.	120	26,996	90	41,428	90		66		(24)	
Acquisition of Data	Pos./BA.	296	30,174	296	25,098	296	25,488	296	25,488	0	0
	FTE/Obl.	356	29,295	366	25,977	366		366		0	
Subtotal, National Marine Fisheries Service	Pos./BA.	2,443	399,811	2,712	382,550	2,712	386,784	2,956	420,432	244	33,648
	FTE/Obl.*	2,444	380,732	2,777	401,629	2,777		2,956		179	
Oceanic and Atmospheric Research:											
Climate and Air Quality Research	Pos./BA.	335	115,418	383	122,400	383	122,813	383	139,700	0	16,887
	FTE/Obl.	297	114,922	384	122,896	384		384		0	
Atmospheric Programs	Pos./BA.	301	47,514	301	46,450	301	47,050	301	47,050	0	0
	FTE/Obl.	228	44,114	293	49,850	293		293		0	
Ocean and Great Lakes Program	Pos./BA.	218	102,520	218	105,676	158	99,000	158	82,800	0	(16,200)
	FTE/Obl.	160	101,128	189	107,068	129		129		0	
Acquisition of Data	Pos./BA.	103	15,156	103	12,884	103	13,020	103	13,020	0	0
	FTE/Obl.	148	14,790	117	13,250	117		117		0	
Subtotal, Oceanic and Atmospheric Research	Pos./BA.	957	280,608	1,005	287,410	945	281,883	945	282,570	0	687
	FTE/Obl.*	833	274,954	983	293,064	923		923		0	

* The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.

National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

Comparison by activity/subactivity		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Weather Service											
Operations and Research	Pos./BA.	4,616	473,843	4,674	498,454	4,674	518,240	4,574	532,997	(100)	14,757
	FTE/Obl.	4,449	471,694	4,599	500,603	4,599		4,412		(187)	
Systems Acquisition	Pos./BA.	166	54,036	179	62,251	179	58,855	190	84,900	11	26,045
	FTE/Obl.	167	54,665	179	61,622	179		187		8	
Subtotal, National Weather Service	Pos./BA.	4,782	527,879	4,853	560,705	4,853	577,095	4,764	617,897	(89)	40,802
	FTE/Obl.*	4,616	526,359	4,778	562,225	4,778		4,599		(179)	
National Environmental Satellite, Data and Information Service:											
Satellite Observing Systems	Pos./BA.	519	93,328	519	57,300	519	58,050	519	59,236	0	1,186
	FTE/Obl.	448	90,171	507	60,457	507		507	0	0	
Environmental Data Management Systems	Pos./BA.	277	53,517	277	52,635	277	53,174	277	43,856	0	(9,318)
	FTE/Obl.	258	54,675	275	51,477	275		275			
Subtotal, National Environmental Satellite Data. and Information Service:	Pos./BA.	796	146,845	796	109,935	796	111,224	796	103,092	0	(8,132)
	FTE/Obl.*	706	144,846	782	111,934	782		782		0	
Program Support:											
Administration and Services	Pos./BA.	1,135	67,232	1,109	58,750	1,109	62,868	1,109	62,868	0	0
	FTE/Obl.	1,031	66,250	1,096	59,732	1,096		1,096		0	
Aircraft Services	Pos./BA.	107	11,224	107	10,500	107	10,669	112	11,019	5	350
	FTE/Obl.	91	10,945	106	10,779	106		110		4	
Subtotal, Program Support:	Pos./BA.	1,242	78,456	1,216	69,250	1,216	73,537	1,221	73,887	5	350
	FTE/Obl.*	1,122	77,195	1,202	70,511	1,202		1,206		4	

* The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.

National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

Comparison by activity/subactivity		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Facilities:											
Facilities	Pos./BA.	15	46,307	15	13,265	15	3,844	15	9,829	0	5,985
	FTE/Obl.	18	25,308	15	34,264	15		15		0	
Fleet Maintenance and Planning:											
Fleet Maintenance and Planning	Pos./BA.		23,225	12	11,600	12	11,643	12	9,243	0	(2,400)
	FTE/Obl.	14	21,384	12	13,441	12	0	12		0	
ORF:	Pos./BA.	**11,467**	**1,763,627**	**11,903**	**1,688,822**	**11,954**	**1,706,513**	**12,183**	**1,845,493**	**229**	**138,980**
	FTE/Obl.*	**11,018**	**1,696,799**	**11,818**	**1,755,650**	**11,867**		**11,922**		**55**	
Rescission-Unobligated Satellite Balance (BA only)							0				
Undistributed Satellite Balance, per P.L. 105-18 (BA only)			2,652		2,652	0					
Rent Savings to Finance Goddard						0	0	0	(4,656)	0	(4,656)
Offset for Fee Collections						0	0	0	[34,000	0	[34,000]
Mandatory Payment for NOAA Corps Retirement						0	13,900	0	13,900	0	0
Unavailable			3,400		3,400	0		0		0	0
Direct Obligations ORF	Pos./BA.	11,467	1,769,679	11,903	1,688,822	11,954	1,720,413	12,183	1,854,737	229	134,324
	FTE/Obl.*	11,018	1,696,799	11,818	1,761,702	11,867		11,922		55	

* The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

	1998 Actual *		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
	Personnel	Amount	Personnel	Amount	Personnel	Amoun	Personnel	Amount	Personnel	Amount
Direct Obligations	11,018	1,696,799	11,818	1,761,702	11,867	1,720,413	11,922	1,854,737	55	134,324
Adjustment to Obligations										
Recoveries		(61,712)		(33,000)		(33,000)		(33,000)		0
Unobligated balance, start of year.		(186,908)		(72,880)						
Unobligated balance Transferred, net		(5,150)		(4,097)		0		0		0
Unobligated balance, end of year		118,139		3,400						
Unobligated balance,(unavailable)				(3,400)						
Federal Ship Financing Fund Express										
Anticipated offsetting collections								[34,000]		0
New offsetting collection (data sales)										
Budget Authority	11,018	1,561,168	11,818	1,651,725	11,867	1,687,413	11,922	1,821,737	55	134,324
Less Mandatory Funding						(13,900)		(13,900)		
Financing from transfers:										
Promote and develop American fisheries		(62,381)		(63,381)		(63,381)		(64,926)		(1,545)
Damage asses. & restoration revolving fund		(1,162)		(1,500)		(4,000)		(4,000)		0
Disaster research and prevention				(7,000)						
Unobligated balance transferred from EDA		0								
Transfer from AID		(75)								
Transfer to GA		1,000								
		0								
Net Appropriation (general fund)	11,018	1,498,550	11,818	1,579,844	11,867	1,606,132	11,922	1,738,911	55	132,779
Anticipated Offsetting Collections		0		0		0				0
Appropriation With collections	11,018	1,498,550	11,818	1,579,844	11,867	1,606,132	11,922	1,738,911	55	132,779
Budget Authority, Total (from above)		1,561,168		1,651,725		1,687,413		1,821,737		134,324
Less: Rescission of unobligated balances								(3,400)		(3,400)
ORF Total BA w/Rescission		1,561,168		1,651,725		1,687,413		1,818,337		130,924
ORF Appropriation w/Rescission	11,018	1,498,550	11,818	1,579,844	11,867	1,606,132	12,533	1,735,511	55	129,379

* The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.

Exhibit 7

National Oceanic and Atmospheric Administration
Operations, Research and Facilities
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease
Direct Obligations	1,696,799	1,761,702	1,720,413	1,854,737	134,324
Reimbursables	237,852	274,659	195,767	195,767	0
Navigation and Magnuson Fee Collections		4,000	4,000	4,000	[30,000]
Anticipated offsetting collects	3,000	0			0
New Offsetting Collecrions	2,400	3,600	3,600	3,600	0
Total Obligations	1,940,051	2,043,961	1,923,780	2,058,104	134,324
Offsetting collections from:					
Federal funds	(178,252)	(172,000)	(172,000)	(172,000)	0
Non-Federal funds	(57,900)	(57,400)	(23,767)	(23,767)	0
Offset for Fee Collections		(4,000)	(4,000)	(4,000)	0
Federal Ship Financing Fund	(1,700)	0			0
Anticipated offsetting collects	(3,000)	0			0
New offsetting collections (data sales)	(2,400)	(3,600)	(3,600)	(3,600)	0
Recoveries	(61,712)	(33,000)	(33,000)	(33,000)	0
Unobligated balance, start of year	(186,908)	(118,139)			0
Unobligated balance transferred	(5,150)	(4,097)	0	0	0
Unobligated balance, end of year	118,139	3,400			
Unobligated balance, (unavailable)		(3,400)			
Total Budget Authority	1,561,168	1,651,725	1,687,413	1,821,737	134,324
Less Mandatory Funding			(13,900)	(13,900)	
Financing from transfers:					
Promote and Develop American Fisheries	(62,381)	(63,381)	(63,381)	(64,926)	(1,545)
From Damage Assessment and Restoration Revolving Fund	(1,162)	(1,500)	0	0	0
Coastal Zone Management			(4,000)	(4,000)	
Disaster research and prevention		(7,000)			
Unobligated balance transferred from EDA	(75)				
Transfer to Census	0				
Transfer to GA	1,000				
Net Appropriation	1,498,550	1,579,844	1,606,132	1,738,911	132,779
Anticipated Offsetting Collections	0	0	0		0
Appropriations without collections	1,498,550	1,579,844	1,606,132	1,738,911	132,779
Budget Authority, Total (from above)	1,561,168	1,651,725	1,687,413	1,821,737	134,324
Less: Rescission of unobligated balances				(3,400)	(3,400)
ORF Total BA w/ Rescission	1,561,168	1,651,725	1,687,413	1,818,337	130,924
ORF Appropriation w/Rescission	1,498,550	1,579,844	1,606,132	1,735,511	129,379

Exhibit 8

National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
CHANGES TO BASE
(Dollar amounts in thousands)

	FTE	Amount
Adjustments to Base:		
Financing:		
Restoration of FY 1999 Deobligations		33,000
Restoration of Prior Years-FY 1999		(33,000)
Subtotal		0
Adjustments:		
Mandatory Payments for NOAA Corps Retirement		13,900
Retired Pay Commissioned Officers		(7,000)
Offset ORF Appropriation with Coastal Zone Management Fund	49	4,000
Terminate Transfer of Damage Assessment and Restoration Revolving Fund (DARRF) to ORF		(1,500)
FY 1999 Reprogramming		
From OAR, Marine Environmental Research (GLERL)		(6,825)
To NOS, Estuarine and Coastal Assessment, (GLERL)		6,825
FY 1999 Realignments		
From Facilities, Sandy Hook Lease		(2,000)
From Facilities, Columbia River Facilities		(4,465)
From Facilities, NWS WFO Facilities Maintenance		(3,000)
To NMFS, Fisheries Management Program		2,000
To NMFS, Fisheries Management Program, Columbia River Hatcheries		4,465
To NMFS, Local Warnings and Forecasts, WFO Maintenance		3,000
From NOS, Estuarine and Coastal Assessment, Ocean Assessment Program		(1,000)
To NOS, Estuarine and Coastal Assessment, Response and Restoration		1,000
Subtotal	49	9,400

Exhibit 8

National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
CHANGES TO BASE
(Dollar amounts in thousands)

Transfer:		
From NMFS, Disaster Research and Prevention (FY 1999 Transfer from Agriculture)		(7,000)
Transfer to Procurement, Acquisition and Construction from NWS, Radiosonde Replacement, Computer Facility Upgrade		(6,600)
Subtotal	0	(13,600)
Other Changes:		
Annualization of Jan., 1999 Pay Raise		6,045
2000 Pay raise		23,115
Within-grade step increases		7,395
Civil Service Retirement System (CSRS)		(1,260)
Federal Employees Retirement System (FERS)		1,631
Thrift Savings Plan		296
Federal Insurance Contribution Act (FICA) - OASDI		961
Health insurance premiums		1,764
Employees' Compensation Fund		233
Travel:		
Per diem		616
Transportation of Things		107
Rental payments to GSA		1,355
Rental payments to others		126
Comm,, Util., and misc.		246
Postage		117
FTS 2000		460
Printing and reproduction		184
Other Services		2,480
CAMS		9,000
Supplies and Materials		727
Equipment		776
Grants		338
HBCU		1,000
Subtotal, Other Changes	0	57,712
ATBs Absorbed		(17,824)
ATBs Requested	49	35,688
Less Mandatory funding of Payment for NOAA Corp Retirement		(13,900)
Total, Changes to Base	49	21,788

Department of Commerce **Exhibit 9**
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF CHANGES TO BASE

	FTE	Amount
Adjustments To Base		
Financing		
Restoration of FY 1999 Deobligations		33,000,000
Restoration of Prior Years- FY 1999		(33,000,000)
Adjustments		
Mandatory Payments for NOAA Corps Retirement		
Payment for Retired Pay for Commissioned Officers are an entitlement under 33 U.S.C. 853o, 33 U.S.C. 853p, and 33 U.S.C. 857-2	0	13,900,000
No Future funding will be included in Program Support for Retired Commissioned Officers.		(7,000,000)
Offset ORF Appropriation with Coastal Zone Management Fund	49	4,000,000
NOAA proposes to offset the ORF account for the cost implementing the Coastal Zone Management Act of 1972, as amended. This action would increase ORF discretionary Budget Authority, and eliminate Budget authority in the Coastal Zone Management Fund.		
Terminate Transfer of Damage Assessment and Restoration Revolving Fund (DARRF) to ORF		
NOS, Estuarine and Coastal Assessment		(5,597,000)
Unobligated balance transferred from DARRF		4,097,000
FY 1999 Reprogramming		
From OAR, marine Environmental Research, (GLERL)		(6,825,000)
To NOS, Estuarine and Coastal Assessment (GLERL)		6,825,000

	FTE	Amount
FY 1999 Realignments		
From Facilities, Sandy Hook Lease		(2,000,000)
From Facilities, Columbia River Facilities		(4,465,000)
From Facilities, NWS WFO Facilities Maintenance		(3,000,000)
To NMFS, Fisheries Management Program		2,000,000
To NMFS, Fisheries Management Program, Columbia River Hatcheries		4,465,000
TO NWS, Local Warning and Forecast, WFO Maintenance		3,000,000
From NOS, Estuarine and Coastal assessment, Ocean Assessment Program		(1,000,000)
To Nos, Estuarine and Coastal Assessment, Response and Restoration		1,000,000

Transfer:

From NMFS, Disaster Research and Prevention (FY 1999 Transfer from Agriculture)		(7,000,000)
Transfer to Procurement, Acquisition and Construction from NWS, Radiosonde		(6,600,000)

Other Changes:

Personnel Compensation Related Costs:	**0**	**40,180,000**

This ATB represents gross compensation for personal services rendered to the Government.

1112 Annualization of Jan., 1999 Pay Raise 6,045,000

Total cost in 2000 of 1999 pay increase	15,576
Amount funded in 1999	(9,531)
Adjustment for 1999 pay increase	6,045

				FTE	Amount
1112	**General Schedule, General Merit and SES salaries**		23,115,000		
	2000 pay increase and related costs				
	A general pay raise of 4.4% is assumed to be effective January 1, 2000.				
	Total cost of the January 2000 pay increase	24,183			
	Less amount for period October 2000 - December 2000.	(18,138)			
	Payment to the Department of Commerce Working Capital fund for the pay raise	0			
	Total, adjustment for 2000 pay increase	6,045			
	Within Grade Increases		7,395,000		
	The estimate for the cost of within grade increases reflects the net cost of step increases which will be earned in FY 2000.				
	Estimated number of within grade step increases	6,014			
	Less WIG in the MARDI program	6,014			
	Step increases not earned due to turnover (11.3%)	680			
	Average step above step 1 per separation	3			
	Average cost per within grade step increase	1,608			
	Gross cost of scheduled step increases	9,670,512			
	Less savings due to separations	(3,280,320)			
	Subtotal, personnel compensation	6,390,192			
	Benefits	1,004,792			
	Total adjustment to base	7,394,984			
1231	**Civil Service Retirement System (CSRS)**		(1,260,000)		

This ATB represents a decrease in the estimated contribution to the Civil Service Retirement System - (CSRS). The number of employees covered by the the CSRS continues to drop as positions become vacant and are filled by employees who are covered by FERS.

	Regular:	
2000	$575,322,399 x .4590 x .0851.....	22,472,611
1998	$575,322,399 x .4840 x .0851	23,696,609
	Subtotal.....	(1,223,998)

		FTE	Amount
Law Enforcement:			
2000 $6,915,300 x .4750 x .0901	295,958		
1999 $6,915,300 x .5320 x .0901	331,472		
Subtotal	(35,514)		
Total adjustment-to-base	(1,259,512)		
1236 Federal Employees Retirement System (FERS)			1,631,000

This ATB represents an increase in the estimated contribution to the Federal Retirement Systems - (FERS). There now exists an increasing rate of FERS employees. Also, the Department has implemented a more accurate forecast in producing the FERS estimates.

Regular:	
2000 $575,322,399 x .5410 x .1070	33,303,688
1999 $575,322,399 x .5160 x .1070	(31,764,700)
Subtotal	1,538,988
Law Enforcement:	
2000 $6,915,300 x .5250 x .2330	845,914
1999 $6,915,300 x .4680 x .2330	(754,072)
Subtotal	91,842
Total adjustment-to-base	1,630,830

1238 Thrift Savings Plan (TSP) 296,000

This ATB represents an increase in the estimated contribution to the Thrift Savings Plan. The cost of the agency contributions to the TSP will also rise as FERS participation increases. The contribution rate is expected to remain 2%.

Regular:	
2000 $575,322,399 x .5410 x .02	6,224,988
1999 $575,322,399 x .5160 x .02	(5,937,327)
Subtotal	287,661

		FTE	Amount
Law Enforcement:			
2000 $6,915,300 x 5250 x .02	72,611		
1999 $6,915,300 x .4680 x .02	(64,727)		
Subtotal	7,884		
Total adjustment-to-base	295,545		
1230 Old Age, Survivors, and Disability Insurance (OASDI)			961,000

This ATB represents an increase in the estimated contribution to the Old Age Survivors, and Disability Insurance (OASDI). As the percentage of payroll covered by FERS raises, the cost of OASDI contributions will increase. The OASDI tax rate will remain 6.2% in FY 2000.

Regular:	
FERS employees	
2000 $575,322,399 x .5410 x .9830 x .062	18,969,407
1999 $575,322,399 x .5160 x .9830 x .062	(18,092,817)
Subtotal	876,590
Law Enforcement	
2000 $6,915,300 x .5250 x .9830 x .062	221,266
1999 $6,915,300 x .4680 x .9830 x .062	(197,243)
Subtotal	24,023

			FTE	Amount
	Other Salaries			
2000 $39,400,041 x .5410 x.9830 x .062		1,299,090		
1999 $39,400,041 x .5160 x 9830 x .062		(1,239,058)		
Subtotal		60,032		
Total adjustment-to-base		960,645		
1232 Health Insurance Premium	1,764,000			

This ATB represents an decrease in the estimated contribution to Health Care Premiums.

1999 Congressional estimate for health benefits.	27,564,953
Avg rate increase	6.4%
2000 Adjustment To Base	1,764,157

Employees Compensation Fund	233,000		
Travel and Transportation of Persons:			**616,000**
2130 Per Diem Related to Domestic Administrative Travel	616,000		

This ATB reflects the increased costs of per diem for NOAA employees, based on analysis of the average per diem rate which increased by 4.6%. This percent was a fiscal year 1999 Congressional estimate of $13,393,020 for an increase of $616,079. Since the rate increase is applied to the 1997 estimate, a consistent number of trips is implicit.

General Pricing Level Adjustment **4,216,000**

This request applies the OMB economic assumption for FY 2000 to Subobject Classes where the prices that the government pays are established through the market system. Factors are applied to transportation of things $107,000; rental payment to other $126,000; supplies and material $727,000; Equipment $776,000; and other services 2,480,000.

	FTE	Amount
Communication, Utilities, and Miscellaneous Charges		**246,000**

This ATB represents the increase of charges assessed by General Services Administration.

2319 Rental Payments to GSA		**1,355,000**

This ATB represents rental costs to GSA controlled space using the FY 1999 GSA deflator of 2.6x%.

Postage		**117,000**

This ATB represents costs of postage using FY 1999 base estimate times 3.0%.

FTS 2000		**460,000**

This ATB represents costs of FTS 2000 using the FY 1999 Congressional Budget estimate times 4.9%.

2411 Printing and Reproduction		**184,000**

This estimate is based on the FY 1999 Congressional Budget estimate, using an estimated 3.1% increase for GPO printing provided by DOC.

Other Services

2521 NOAA cots of implementing CAMS		**9,000,000**

Funds of $9,000,000 are requested for bureau participation in the Department wide Commerce Administrative Management System (CAMS). Bureau requirements include site licenses for CAMS models and for new systems designed for bureau specific applications, feeder system assessments and upgrades, telecommunications system upgrades, additional PCs and related hardware, data conversion, and training implementation assistance.

	FTE	Amount
Grants		**338,000**
This ATB is based on applying the 2.6% grant deflator factor for FY 1999 to all NOAA grants which are critical to the completion of its mission.		
Historically Black Colleges and universities	-	- 1,000,000
As a part of NOAA's commitment to expanding its partnerships, and as part of a Commerce-wide capacity building effort and building on ongoing efforts under the Gore-Mbeki commission, NOAA is proposing and expanded effort with nine of our Nation's Historically Black College and Universities in FY 2000. The goal of this effort is to develop new education, training and business opportunities through a joint partnership with many of our Nation's Historically Black Colleges and Universities. These efforts would not only result in the education of new Marine, Atmospheric and Environmental Scientists, but would also assist in the development of new business and engineering to support sustainable economic development.		
Subtotal, Adjustments To Base	**0**	**57,712,000**
ATBs Absorbed	**0**	**(17,824,000)**
ATBs Requested	**49**	**35,688,000**
Less Mandatory funding of payment for NOAA Corp Retirement		**(13,900,000)**
Total, Changes To Base	**49**	**21,788,000**

NATIONAL OCEAN SERVICE
STRATEGIC PLANNING GOALS AND OBJECTIVES

The National Ocean Service (NOS) supports three of NOAA's Strategic Planning Goals. Below is a brief characterization of the NOS programs in the context of these Goals.

GOAL - PROMOTE SAFE NAVIGATION

NOS includes efforts in all five of the objectives for this goal.

OBJECTIVE - BUILD, MAINTAIN, AND DELIVER DIGITAL NAUTICAL CHARTING DATABASE

Accurate, reliable, and up-to-date nautical chart information is more important today, as margins of error are smaller and the consequences greater, than at any time in the past. New electronic navigation systems can meet demands for greater protection of life, property, and the environment, as well as significantly improving efficiency. A digital nautical charting database is needed not only to support these systems but also to improve the productivity of our chart-making process. NOS's Nautical Charting Program will be reinvented as the transition is made from traditional techniques to an automated digital process.

OBJECTIVE - UPDATE NAUTICAL SURVEYS

NOS must increase its hydrographic survey efforts to ensure up-to-date coverage of critical areas to ensure that they are safe for marine transportation. More efficient and effective hydrographic survey systems are required to improve productivity and sea floor coverage. The current backlog of 39,000 square nautical miles in the Nation’s ports, harbors and other coastal areas must be eliminated. This survey activity will balance in-house resources with private sector contracts to reduce the backlog.

OBJECTIVE - DEFINE THE NATIONAL SHORELINE

NOS must use state of the art technology to delineate the Nation’s coastline in an accurate, consistent manner to create an up-to-date database which will serve the nation’s navigational and coastal management requirements. Photogrammetric mapping of the coastline will be expanded to simultaneously characterize benthic communities and marine habitats, measure nearshore topography (for setbacks, zoning, erosion measurement, and hazardous material response), and delineate shoreline for nautical charts.

OBJECTIVE - PROVIDE REAL-TIME OBSERVATIONS AND FORECASTS OF WATER LEVELS, TIDES, AND CURRENTS

NOS's National Water Level Observation Network, the national network of water level, current, water temperature, and meteorological sensors, must be modernized to provide the data required for nowcasting and predicting in real-time and supplemented with sensors to measure currents at critical locations. Physical oceanography (tides, currents, and weather) measurements and measurement-based predictions will be made available in real-time to mariners and environmental planners in all key U.S. ports.

OBJECTIVE - DEVELOP THE NATIONAL SPATIAL REFERENCE SYSTEM

New electronic navigation systems integrate electronic chart data with satellite positioning, as well as radar, sonar, and telemetered environmental information. In order to meet the Nation's navigation and other positioning needs, NOS's National Geodetic Survey must renovate the existing coordinate reference system to provide the higher accuracy and accessibility needed for use with the Global Positioning System (GPS). The digital revolution in mapping, charting, and surveying requires a National Spatial Reference System (NSRS) consisting of the following components: (1) a network of monumented points having four-dimensional positions, (2) a set of GPS Continuously Operating Reference Stations (CORS), (3) high accuracy orbits of the GPS satellites, and (4) a highly accurate geoid.

GOAL - SUSTAIN HEALTHY COASTS

NOS includes efforts in all three of the objectives for this goal.

OBJECTIVE - PROTECT, CONSERVE AND RESTORE COASTAL HABITATS AND THEIR BIODIVERSITY

To improve stewardship of coastal habitats and biodiversity, NOS and other NOAA line and program offices will continue to focus their research and monitoring activities on identifying and assessing habitat requirements of key species, building NOAA's capability to use biodiversity as an indicator of coastal ecosystem health, and understanding how habitats function, threats to them, and the consequences of change to living resources. NOS is supporting and implementing science-based regional research, assessment, and modeling programs related to cumulative impacts of multiple stressors, the functions of regional ecosystems, practical applications of remote sensing science, and coral reef degradation and recovery to better integrate our understanding and management of natural resource systems at broader spatial and temporal scales. NOS, through the National Centers for Coastal Ocean Science (NCCOS), leads the interagency Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) program which addresses the need for long-term, large-scale, interdisciplinary research and mitigation of harmful algal blooms that threaten marine resources and ecosystem health. NOS and its Federal and state partners will use this information to implement and enhance protection, damage assessment, and restoration solutions to problems threatening habitat and living resources.

OBJECTIVE - PROMOTE CLEAN COASTAL WATERS

To promote clean coastal waters, NOS and other NOAA line and program offices must understand the factors affecting water quality and the repercussions for ecosystem functions. NOS will conduct research on the transport, fate, and effects of contaminants, nutrients, and other pollutants, and monitor changes in coastal water quality. To fully understand the complexity of factors affecting coastal water quality, NOS research, monitoring, and assessment activities will be undertaken at the appropriate local, watershed, and regional scales. NOS will implement solutions to these problems in protected areas and will work with coastal states to implement point and nonpoint source pollution controls. NOS will inform the public and coastal decision makers about the problems and participate in development and implementation of the best possible solutions.

OBJECTIVE - FOSTER WELL-PLANNED AND REVITALIZED COASTAL COMMUNITIES

The health of coastal economies and the lifestyles they afford depend on well-planned, sustainable development and healthy coastal resources. To foster sustainable coastal communities and conserve coastal resources, NOS must better understand the physical processes and cumulative impacts of development affecting coastal shorelines and the economic value of coastal resources and recreational activities. NOS and its state partners will conduct research on coastal processes (e.g., beach and bluff erosion) and NOS will assess the value of coastal resources and economies. NOS will work with its partners in coastal states to foster well-planned development and redevelopment through improved project reviews; enhanced public access and recreational opportunities in coastal states and protected areas; and wise economic development. NOS will make the information and solutions available to the public and coastal decision makers in a useable and timely fashion.

GOAL - BUILD SUSTAINABLE FISHERIES

NOS includes efforts in one of the objectives for this goal.

OBJECTIVE - ADVANCE FISHERY PREDICTION

The NOS National Centers for Coastal Ocean Science (NCCOS) works with other NOAA line and program offices to strengthen NOAA's ability to advance fisheries predictions by assessing and predicting natural and human-induced changes in fisheries productivity. Better prediction of future fishery yields will depend upon the development of better coastal ecosystem models that incorporate mechanisms of population control, natural environmental fluctuations, cumulative impacts of multiple stressors, and multi-species interactions. To build these models, the NCCOS must first identify the dominant natural processes that control variation in the growth and productivity of fish stocks. Non-fishing anthropogenic stresses, such as pollution, need to be sorted out against the background of natural variability, and important information must be obtained on the physical environment, predator-prey relationships, and basic recruitment processes. NCCOS also leads the interagency ECOHAB (Ecology and Oceanography of Harmful Algal Blooms) program which addresses the need for long-term, large-scale, interdisciplinary research and mitigation of harmful algal blooms which threaten marine resources and health.

National Ocean Service
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Advance Short-Term Warning and Forecast Services										
Enhance Observations & Predictions		100								
Total ASTWFS		**100**								
Implement Seasonal to Interannual Climate Forecast										
Implement Prediction Systems										
Maintain and Improve Observing and Data Delivery Systems		2,500								
Total ISICF		**2.500**								
Predict and Assess Decadal-to-Centennial Change										
Characterize Global Climate Forcing Agents										
Understand the Role of Oceans in Global Change										
Guide the Rehabilitation of the Ozone Layer										
Provide Prediction, Assessment, & Human Impact Info.										
Ensure a Long-Term Climate Record										
Total PADCC										
Promote Safe Navigation										
Build Nautical Charting Database	175	21,950	175	23,950	175	24,123	175	25,123		1,000
Update Nautical Surveys	294	17,029	294	19,328	294	19,570	294	17,410		(2,160)
Provide Marine Predictions	141	11,350	141	12,000	141	12,133	141	14,883		2,750
Establish National Spatial Reference System	197	20,700	197	19,659	197	19,849	197	19,849		
Define National Shoreline		3,311		3,311		3,311		3,311		
Address Survey Backlog/Contracts		13,900		14,000		14,000		14,900		900
Total PSN	**807**	**88.240**	**807**	**92.248**	**807**	**92.986**	**807**	**95.476**		**2.490**
Build Sustainable Fisheries										
Advance Fishery Prediction	14	8,600	14	9,200						
Eliminate & Prevent Overfishing					14	9,220	14	11,820		2,600
Total BSF	**14**	**8.600**	**14**	**9.200**	**14**	**9.220**	**14**	**11,820**		**2.600**

Recover Protected Species										
Maintain Healthy Species & Ecosystems								3,000		3,000
Total RPS								**3,000**		**3,000**
Sustain Healthy Coasts										
Protect, conserve and restore habitats	137	60,883	294	73,984	370	82,429	408	104,061	38	21,632
Promote clean coastal waters	243	48,241	135	53,027	152	48,880	154	54,214	2	5,334
Foster well-planned and revitalized coastal communities	19	25,131	19	25,648	35	26,988	46	59,972	11	32,984
Total SHC	**399**	**134,255**	**448**	**152,659**	**557**	**158,297**	**608**	**218,247**	**51**	**59,950**
Total for NOS	**1,220**	**233,695**	**1,269**	**254,107**	**1,378**	**260,503**	**1,429**	**328,543**	**51**	**68,040**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: National Ocean Service
Subactivity: Navigation Services

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Mapping and Charting	Pos./BA	251	57,437	258	48,260	258	48,495	258	48,235	0	(260)
	FTE/OBL.	337	49,707	238	55,990	238		238		0	
Geodesy	Pos./BA	227	21,222	227	19,659	227	19,849	227	19,849	0	0
	FTE/OBL.	183	19,785	197	21,096	197		197		0	
Tide and Current Data	Pos./BA	145	11,651	145	12,000	145	12,133	145	14,883	0	2,750
	FTE/OBL.	104	11,511	141	12,140	141		141		0	
Total	Pos./BA	623	90,310	630	79,919	630	80,477	630	82,967	0	2,490
	FTE/OBL.*	624	81,003	576	89,226	576		576		0	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Ocean Service**
Subactivity: **Navigation Services**

Goal Statement

Reduce the risks to life, property and the coastal environment and enhance NOS' role of coastal stewardship by providing an extremely powerful set of products and services to meet the Nation's need for accurate and up-to-date marine navigation information. This is accomplished through the provision of a variety of digital and traditional data products and services which include such things as paper charts, electronic charts, tide and current predictions, etc.

To improve and maintain the National Spatial Reference System (NSRS) for accurate geographic positions, elevations, and gravity values to provide a common geographic framework and the foundation for the Nation's spatial data infrastructure. The NSRS is the positioning basis for mapping, charting, navigation, boundary determination, property delineation, infrastructure development, resource evaluation surveys and scientific applications.

To provide the navigation community with access to real-time data from a variety of instruments that measure current speed and direction, water levels, and meteorological data (wind speed and direction, gusts, etc.) to enable safer and more efficient vessel routing. Accurate and timely tide and current data are also critical for coastal flood warnings, emergency response operations to spills of hazardous materials, and for real-time control of harbor maintenance dredging.

Proposed Legislative

No legislation is proposed for this activity.

Base Program

Mapping and Charting: The Mapping and Charting Line Item consists of two programs: Nautical Charting and Coastal Mapping.

Nautical Charting: The objectives of this program are to:

- Plan and direct hydrographic and special investigation surveys.
- Process the data from these surveys, access information affecting marine transportation, create nautical charts, and other products for marine navigation, ocean operation, national defense, and marine resources planning and management.
- Build, maintain and deliver the nautical charting database to support new electronic charting systems which integrate satellite positioning, tidal heights and currents, radar and sonar, and navigational aids.

The Nautical Charting Program is carried out by NOS's Office of Coast Survey (OCS). OCS plans hydrographic surveys that provide the basic data for the production of nautical charts. These surveys and special investigations of wrecks and obstructions are conducted by NOAA and/or contractors. Significant productivity improvements have occurred in the past four years using new computer based surveying and positioning technologies. Data from both government and private sources are used to update nautical charts. Approximately 50,000 of these source documents are evaluated annually and qualified data, plus the hydrographic survey data, are incorporated onto the nautical charts.

Accurate, reliable, and up-to-date nautical chart information is more important today than at any time in the past. As an increased number of vessels push their cargo capacities to the limit, margins of safety are becoming smaller. New electronic navigation systems can meet demands for greater protection of life, property, and the environment, as well as significantly improving the efficiency of maritime commerce. A digital nautical charting database forms the core of the Nautical Charting Program. This database also serves as the most basic component required to fuel the new electronic systems. Responding to these requirements, the Nautical Charting Program process has been re-engineered and has made the transition from traditional techniques to fully automated digital processes using off-the-shelf personal computer technology.

Nautical charts and related marine navigational publications are the basic tools for marine navigation, ocean operations, and marine resources planning and management. A significant portion of chart production goes to the Department of Defense and other government agencies to support their activities. Other major users are merchant ships, offshore platforms, work boats, commercial fishing vessels and dredges operating in U.S. ports, coastal and most inland waters of the country, requiring charts to operate safely and efficiently.

OCS has revolutionized its chart production and delivery techniques over the past two years as part of an overall modernization strategy. This has allowed for a focus on the following processes and services: 1) full implementation of continuous maintenance of the digital raster nautical charting database, keeping all 1000 nautical charts in a constant state of currency; 2) continuing the delivery of a raster electronic chart product through a partnership with the private sector, in effect since 1994; 3) through a partnership with the private sector, transition from lithographic offset printing to “print-on-demand”; 4) Complete the collection of a vector electronic navigational chart (ENC) database in the Internationally accepted S-57 format for the Nation’s priority ports and harbors, with incremental expansion of the chart coverage as required by users; and 5) in cooperation with the U. S. Coast Guard and the U.S. Army Corps of Engineers, develop and deliver an S-57 compliant vector river chart for the main components of the inland river navigation system.

In accordance with 44 USC 1307, the prices of NOS's nautical charts are recomputed annually. The objective in pricing these products is to recover production costs to the extent possible given the current market. This same statute prohibits NOS from recovering hydrographic and photogrammetric source data acquisition costs.

Coastal Mapping: The objectives of this program are to:

- Define the National Shoreline.
- Plan and conduct aerial photographic missions to map the coastal zone.
- Perform analyses of survey data to position landmarks and navigational aids needed for the compilation and revision of nautical charts, marine boundary maps, and special coastal zone maps.
- Maintain the photogrammetric data base.
- Design and develop new photogrammetric techniques.
- Establish geodetic control and provide cartographic data for inshore hydrographic surveys.
- Map the high and low water shoreline for depiction on nautical charts and marine boundary maps.

The National Shoreline definition is the delineation of the 95,000 miles of United States shoreline on a map or in a digital database. It is the official U.S. shoreline; it must be accurate, consistent, and up-to-date. This program is carried out by the Remote Sensing Division of NOS' National Geodetic Survey (NGS).

Presently, one-third of the U.S. shoreline has never been mapped by this agency, and of the portion that has been mapped, one-quarter was mapped prior to 1970. Only about 6 percent of the shoreline has been produced digitally. At the present rate of progress, the entire U.S. shoreline is projected to be surveyed on a 50-year cycle. Also, many different shoreline definitions are used.

The present situation will be improved by using new technologies and new methodologies including: kinematic Global Positioning System (GPS) in aircraft for the very accurate 3-dimensional positioning of the data sensor, real-time tidal heights telemetered to the aircraft to ensure that the data are collected at Mean High Water (MHW) and/or Mean Lower Low Water (MLLW), digital ortho-images (for computer assisted data processing), and high accuracy shoreline for the production of electronic docking charts. The National Shoreline should be resurveyed on a 5-year cycle for critical portions of coastline and on a 10-year cycle for other areas to maintain adequate coverage.

Data will be collected by methods including: aerial photography with metric cameras, interferometric synthetic aperture radar, and LIDAR (Light Detection And Ranging). Sensor positions will be determined using kinematic GPS, and the data collection times will be coordinated with real-time tides. The actual heights above the datum for MHW and MLLW will be determined from long-term NOAA tide gauges. Data processing will be performed on analytical photogrammetric plotters, soft copy workstations, and desktop computers, resulting in digital shoreline data.

Detailed project instructions are prepared for NOAA's aerial photographic missions that map the coastal zone. NGS Survey field parties provide the control needed for these aerial photographic missions. The Remote Sensing Division also carries out research in new photogrammetric techniques.

The Integrated Digital Photogrammetric Facility (IDPF), which uses analytical stereo plotters, computer graphics, and modern data base technologies, has replaced manual methods and provides digital cartographic source data needed to support the Nautical Charting Program. Research is also conducted on improved aerial camera systems and applying multispectral imagery to NOS shoreline mapping. Cost saving techniques for positioning an aircraft carrying out aerial photography by kinematic GPS methods have become operational.

Products of the Coastal Mapping Program are essential to NOAA's nautical charting program. Over the years the program's photogrammetric techniques have also been applied to other environmental problems dealing with the coastal zone. For example, the program has produced boundary maps for government agencies and legal authorities for use in the adjudication of marine boundary disputes among Federal, state, and private litigants. Storm evacuation maps have been used by government and disaster relief agencies for planning emergency evacuation of affected inhabitants from coastal areas subject to flooding by severe storms and hurricanes. Coastal zone managers, planners, scientists, and regulatory agencies use the coastal zone maps prepared by NOAA/NOS to assess marshlands, marine sanctuaries and other coastal areas subject to multiple use.

Address Survey Backlog/Contracts: The objectives of this sub-line item are to:

- Increase the outsourcing of hydrographic surveys to meet the Nation’s nautical charting needs.
- Reduce the backlog of 43,000 square nautical miles in the most efficient manner possible.

In 1993, NOAA identified 43,000 square nautical miles of sea floor in U.S. waters that was in critical need of resurvey with over half of this backlog in Alaska. Since 1993, the backlog has been reduced to 39,000 square nautical miles. At FY 2000 requested levels, it will take approximately 22 years to eliminate the backlog. Many of these areas carry heavy commercial traffic, are less than 30 meters deep, and are known to be naturally changeable, a risky condition at best. Other areas have also reported chart inadequacies, requiring resurvey. This sub-line item allows for the expanded use of private contractors to increase the data collected for the surveying of critical areas and reduce the time required to eliminate the critical survey backlog. NOS will acquire at least 50 percent of its hydrographic services through the use of private contracts or long-term leases. The use of more efficient techniques, such as multibeam swath sonar, will provide more accurate and greatly improved coverage.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Percent of critical area survey backlog reduced(43,000 SNM total backlog in 1993)				
Annual Reduction	3	3.5	3.5	3.5
Cumulative reduction	12.0	15.5	19.0	22.5
National Chart Editions (Suite of 1000)				
Lithographic	338	360	325	0
Print-on-Demand	-	-	250	500
Thruput*(In weeks)	104	104	78	4
Electronic Navigational Charts	-	-	73	190
Percent of cumulative shoreline defined:				
Critical**	5	10	15	20

*Thruput is defined as the time from when data is received in OCS to when it appears on the product.
**Critical Shoreline is the approximate 20% of total national shoreline concentrated in 38 high priority Ports, prioritized by amount of shipping tonnage.

Geodesy: The objectives of this line item are to:

- To improve and maintain the National Spatial Reference System (NSRS)
- Incorporate new horizontal data from NOAA and non-NOAA surveys into the redefined North American Datum of 1983 (NAD 83) and complete the horizontal network in deficient and unsurveyed areas.
- Incorporate Federal surveys referenced to the National Geodetic Vertical Datum (NGVD 29) into the North American Vertical Datum of 1988 (NAVD 88) and complete the vertical network in deficient and unsurveyed areas.
- Provide support to the States in the development of high precision geodetic networks.
- Carry out advanced geodetic science activities, including high accuracy, high resolution geoid determination and crustal motion studies in support of time-dependent modeling of control stations within the National Spatial Reference System (NSRS).
- Transfer geodetic technology to Federal, state, and local governments and the private sector.
- Provide GPS tracking data to users from a nationwide network of Continuously Operating Reference Stations (CORS).
- Process GPS satellite data from global tracking stations for issuance of GPS orbital positions to civilian users.

- Apply Very Long Baseline Interferometry (VLBI) and GPS observations to determine variations in the rotation of the Earth.
- Participate in international VLBI and GPS observing programs and analyze the observations to define the International Terrestrial Reference Frame (ITRF).

In order to meet the Nation's navigation and other positioning needs, the existing coordinate reference system must be renovated to provide the higher accuracy and special accessibility needed for use with the Global Positioning System (GPS). The digital revolution in mapping, charting, and surveying requires a National Spatial Reference System (NSRS) consisting of the following components:

(1) a network of monumented points having four-dimensional positions,
(2) a set of GPS Continuously Operating Reference Stations (CORS),
(3) high accuracy orbits of the GPS satellites, and
(4) a highly accurate geoid model.

The NSRS provides a common geographic framework and the foundation for the Nation's spatial data infrastructure. The NSRS is the basis for mapping, charting, navigation, boundary determination, property delineation, infrastructure development, resource evaluation surveys, and scientific applications. The National Geodetic Survey (NGS) is responsible for developing and maintaining the NSRS.

The constantly evolving needs for more accurate, timely, and consistent positioning services cause the NSRS to continually grow and adapt to anticipate and meet these burgeoning demands. Given this dynamic environment, it is impossible to accurately gauge at what point the NSRS will fully meet user needs as advances in technology spawn new applications requiring greater and varying demands. The NSRS can be justifiably credited with helping to accelerate this rapid pace of innovation in positioning applications.

The major emphasis of the NSRS is now on providing better access to accurate and consistent height data and support of differential GPS activities. These objectives can be categorized under two broad activities: Height Modernization and support services for CORS.

Height Modernization is an effort to enhance the vertical aspect of NSRS. Two major components of the NSRS are the Federal Base Network (FBN), a set of very accurately positioned monumented survey marks, and the CORS, which provide real-time GPS satellite information. The horizontal aspect of the FBN is complete; however, most of the survey marks and all of the CORS in the system do not include an adequately accurate vertical component. By integrating advanced GPS with improved height information, very accurate vertical coordinates can be obtained, as well as, accomplishing more comprehensive nationwide implementation of the National Vertical Datum of 1988 (NAVD 88).

NGS collects and distributes GPS observational data from a nationwide network of permanently operating GPS receivers known as CORS. The primary objective of CORS is to provide local users with ties to NSRS for post-processing position determination. Another of the CORS objectives is to monitor sites for their positional stability, which are determined to centimeter accuracy.

The CORS sites, along with other globally distributed tracking stations, are also used by NGS in computing precise GPS orbits. The CORS System, consisting of the CORS stations and a central data facility makes observational data from a present network of over 110 GPS receivers available over the Internet. These receivers have been positioned, three dimensionally, at the 1 to 3 centimeter level.

CORS data are used to greatly improve the accuracy of users' GPS positioning activities through the use of differential GPS (DGPS) techniques. A CORS network goal of approximately 300 receivers should provide nationwide coverage such that the entire U.S. will be within 200 km of a CORS. However, it cannot be determined at this time if this network will fully meet all users' needs. In some portions of the country, local CORS networks are being developed that will provide coverage within 100 km or less of a CORS. These prototype local networks will be the model for a more innovative CORS system. To more fully meet its users' needs, NGS plans to develop guidelines, installation and application assistance along with support capabilities to local authorities to successfully implement local CORS networks. NGS will continually assess the utility of incorporating the local CORS networks and services into the Federally monitored CORS network.

Other significant activities being undertaken by NGS include technology transfer. As part of its efforts to transfer geodetic technology to Federal, state, and local governments and the private sector, NGS administer its State Geodetic Advisory Program with operations in 21 states. Other technology transfer programs are continuing through regional geodetic coordination and calibration baseline services, including the transfer of GPS technology to State and local governments, universities, and the private sector.

NGS also applies advanced methods of measurement (e.g. VLBI, GPS, and absolute gravity) to the observation and analysis of global, continental and regional scale geodetic and geophysical problems. NGS researchers collect and analyze measurements of geophysical phenomena such as variations in the rotation of the earth, global patterns of glacial rebound, tectonic motions of the lithospheric plates, and sudden displacements of the crust associated with major earthquakes, ocean and atmospheric loading, tidal displacements, and ocean heat content and circulation. Research continues in the application of GPS to crustal motion studies, improvements in GPS techniques for high precision static and kinematic surveys, and refinements to a high resolution geoid model that allows vertical heights to be determined from GPS measurements.

NGS makes the data it acquires, processes, and certifies available from the NGS Integrated Data Base via the Internet.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Percent of Networks with NAVD88 heights with 2 cm accuracy at 2 sigma level				
FBN - (Vertical component)	34	43	62	81
CORS - (Vertical component)	0	0	0	0
NWLON - (Vertical component)	0	0	0	0

Tide and Current Data: The objectives of this line item are to:

- Collect and distribute observations and predictions of tides, water levels and currents to promote safety of navigation.
- Provide tide and water level datums in support of: (1) nautical charting; (2) determination of Federal, state and offshore marine boundaries; (3) coastal dredging; and (4) coastal engineering.
- Operate prototype real-time oceanographic observation systems, in partnership with local sponsors, to demonstrate the feasibility and benefits of real-time oceanographic and related atmospheric data to the maritime community.
- Develop and implement a prototype capability to quality control real-time data provided by real-time oceanographic systems.
- Establish partnerships with private industry, state and local governments, and the academic community to share responsibility for the provision of marine navigation services.
- Provide technical assistance to public and private organizations who wish to establish real-time oceanographic measurement systems in areas of maritime economic and environmental significance.

The Tide and Current Data Program (TCDP) is one component of an integrated National Ocean Service Program to provide a comprehensive suite of information products needed by the maritime community to ensure safe and efficient navigation, improve oil and other hazardous material spill response, and support coastal resource management. The TCDP is operated by the Center for Operational Oceanographic Products and Services. Observations and predictions of water levels and currents are collected and distributed to the marine transportation community, as well as other users. For example, this same set of water level and coastal current products are required by the National Weather Service to meet its weather warning and forecasting responsibilities (e.g., tsunami warnings, storm surge warnings/forecasts).

The TCDP operates and maintains 189 long-term stations in the National Water Level Observation Network (NWLON) located in U.S. coastal areas including the Great Lakes, and U.S. Territories and possessions; performs quality assurance procedures on the data from these stations and computes tidal and Great Lakes datums and predicts tides for all U.S. coastal areas; enters into cooperative programs with other Federal and State

agencies; provides data, information and products critical to the National defense, safe navigation, tsunami and storm surge warnings; determination of marine boundaries; Great Lakes water resource management, including hydroelectric power generation and regulation, coastal engineering, and wetland preservation and management.

Slightly under 80% of the NWLON has been modernized with the Next Generation Water Level Measurement System (NGWLMS), a microprocessor based data collection, processing, and dissemination system developed in the early 1980's that, among other technical advances, enabled real-time data dissemination. NGWLMS technology is required for a NWLON station to support more sophisticated decision support tools such as Physical Oceanographic Real-Time Systems (PORTS). Current FY 1999 funding levels do not allow for the NWLON modernization effort to be completed, or even maintained at the current level, as stations fail or are destroyed by natural hazards. Therefore, NWLON stations will be reduced through attrition.

The provision of real-time oceanographic and related marine meteorological data to users can greatly improve navigation safety and efficiency, oil and other hazardous materials spills response, and the management of coastal resources. The Physical Oceanographic Real-Time System (PORTS) is a decision support tool which integrates and disseminates real-time environmental observations, forecasts and other geospatial information. Four prototype PORTS (Tampa, New York, San Francisco, and Houston/Galveston.), and several smaller (single station) prototype real-time systems (called PORTS-Lite) are being operated by NOS on a partnership basis with local sponsors to demonstrate their feasibility and benefits. Local sponsors are required to fund local operation and maintenance costs as a condition for continued NOS support. NOS is also developing a prototype quality control capability called the Continuous Operational Real-Time Monitoring System (CORMS) to provide a centralized capability to quality control the real-time data disseminated by real-time oceanographic systems. This capability is required to ensure that mariners and other users have accurate data upon which to confidently base critical operational decisions that can affect life and property, and to protect NOS against exposure to potentially large liability. In FY 1998, NOS implemented a limited, prototype version of CORMS which can perform rudimentary quality control on the existing real-time oceanographic data systems, but cannot support additional new installations of systems without further development and enhancements.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Percentage of National Water Level Observation Network(NWLON) (of 189 stations total) Modernized	78	75	70	65
Number of PORTS installations	4	4	4	4

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Navigation Services	Pos/BA	630	$80,477	630	$82,967		$2,490
	FTE/Obl	576		576			

The net changes in this subactivity are 0 FTE and + $2,490,000 and support the NOAA strategic goal of Promote Safe Navigation. NOAA requests these increases to ensure a balanced approach in providing the suite of navigation products and services, including extremely powerful digital data products, required by user communities for safe and efficient navigation, as well as to accelerate reduction of the critical survey backlog. The request supports the President's "Ports for the 21st Century" Year of the Ocean National Ocean Conference pledge by maintaining America's ability to safely handle increasing ocean vessel traffic and competitiveness in the world marketplace . The FY 2000 proposed appropriation requests authority to collect fees to begin to offset costs associated with providing navigation services. A proposal for the fees is being developed in conjunction with the U.S. Coast Guard. The $14.0 million in estimated fees collected will be used to offset the overall NOAA Budget Authority and Appropriation in FY 2000.

Mapping & Charting (0 FTE, -$260,000): A net decrease of $260,000 is requested under the base Mapping & Charting line item. A decrease of $2,200,000 million is proposed to eliminate the funding provided in FY 1999 to establish a joint hydrographic center, and for a steam quality monitoring project, reflecting completion of these projects. NOAA requests an increase of $1,000,000 to maintain and enhance the modernization of NOAA's Nautical Charting Database production processes and support reduction of the critical survey backlog. NOAA will use the funds to maintain and further modernize its Nautical Charting Database production processes as it transitions from traditional techniques to fully digital processes primarily through private sector contracts and using off the shelf technology. The increase replaces base funds redirected by Congress in FY 1997 toward reduction of the critical survey backlog through contract services. The increase will maintain the successful modernization efforts and achievements that are essential to ensuring that accurate and timely navigation products and services are realized from an accelerated effort to reduce the critical survey backlog. One of the most dramatic advances is the reduction of the time between when charting data is acquired, and a new chart edition is published, from 20 months to 8 months.

Address Survey Backlog/Contracts (0 FTE, +$900,000): NOAA requests an increase of $900,000 to accelerate reduction of the critical nautical survey backlog through expanded use of private sector contracts for critical survey areas primarily in Alaska, the Gulf, and along the west coast. This increase will enable NOAA to reduce the total time required to eliminate the backlog to approximately 22 years. Accurate and up-to-date hydrographic data is essential to safe and efficient navigation. NOAA’s ability to support an accelerated reduction of the backlog coupled with

timely provision of the data to the maritime user community through updated navigation products and services, is dependent upon increases being requested through other components of the navigation services, particularly NOAA's chart modernization capabilities. Within the Mapping and Charting line, NOAA proposes a decrease of $2.2 million to eliminate the funding provided in FY 1999 to establish a joint hydrographic center, and for a stream quality monitoring project, reflecting completion of these projects.

Geodesy (0 FTE, $0): A net change of $0 is requested under the Geodesy line item. An increase of $500,000 is proposed to expand the number of Federal Base Network stations connected to the North American Vertical Datum 1988 through GPS vertical measurements, improve the accuracy of the geoid model, and increase the Nation's access to Continuously Operating Reference Stations. These activities continue to improve access to the National Spatial Reference System (NSRS) by a broad range of user communities, including the maritime transportation sector, who derive significant safety and economic benefits from access to accurate, consistent, and timely spatial reference data. The increase also supports the height modernization activities required to enhance the vertical component of the NSRS commensurate with the high accuracy levels recently attained in the horizontal component. This effort is particularly critical to the maritime community for such efforts as supporting under-keel clearance regulations affecting deep draft vessels, and mitigation of coastal hazards by enabling cost-effective GPS elevation surveys of all coastal areas vulnerable to storm and hurricane induced flooding. A decrease of $0.5 million is proposed to eliminate specific funding for a state of South Carolina geodetic survey project.

Tide and Current Data (0 FTE, $2,750,000): NOAA requests an increase of $2,750,000 for activities required to effectively and responsibly manage the dissemination of real-time oceanographic data used to make life and property decisions. NOAA will use of the funds to fully develop and implement a robust centralized Quality Assurance (QA) capability. The first component of this comprehensive QA capability is the Continuous Operational Real-time Monitoring System (CORMS). CORMS will rigorously quality control real-time oceanographic and related meteorologic data critical to navigation safety, oil and hazardous material spill response efforts, and storm surge/coastal flooding warnings to ensure that real-time data can be used safely and with confidence. CORMS is currently a minimal prototype system that has successfully demonstrated its ability to quality control data from the four existing prototype Physical Oceanographic Real-Time Systems (PORTS), but requires further development and enhancements before additional PORTS installations can be supported. New PORTS will be established through cost sharing partnerships requiring that installation and on-going local operation and maintenance costs be paid for by local partners, and other sources. However, additional PORTS installations will not significantly increase costs associated with CORMS beyond this request. The second component of this required QA effort is the Ocean Systems Test & Evaluation Program (OSTEP). OSTEP will be implemented through a partnership with other Federal Agencies, academia, and the private sector to test new instrument technology, and to ensure instruments/systems used for collecting and disseminating real-time information are fully tested, integrated, and QA processes developed prior to installation. Funds for OSTEP will provide the required test equipment, contractor support to operate OSTEP and conduct the tests, and QA algorithm/process development. Facility space will be provided by NOAA's partners. OSTEP is critical to the support of any new PORTS. NOAA has an innovative Cooperative Research & Development Agreement with the Lockheed Martin Corporation to develop a commercially viable PORTS, so that PORTS installations may be accomplished through private sector contracts. OSTEP, together with CORMS, provides the comprehensive capability necessary to quality control real time data from initial design to end user. Activities to complete the modernization of the National Water Level Observation Network (NWLON) to ensure that all stations have real time capability will be increased. The NWLON is the underlying support infrastructure for PORTS and can provide real-time data in locations not covered by a PORTS. This funding will help support and

complement the President's goal to modernize the Nation's Ports as announced through "Ports for the 21st Century" initiative at the National Ocean Conference.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
MAPPING & CHARTING					
Percent of critical survey area backlog reduced					
Annual reduction (total with base)	3.6	3.6	3.6	3.6	3.6
Cumulative reduction (total with base)	22.6	26.2	29.8	33.4	37.0
Nautical Chart Editions					
Print-on-Demand	500	500	500	500	500
Throughput* (In weeks)	4	2	2	2	2
Electronic Navigational Charts	190	220	250	300	300
Percentage of National Water Level Observation Network (NWLON) Modernized (189 stations total)	75	80	85	90	95

*Throughput is defined as the time from when data is received in OCS to when it appears on the product.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
GEODESY					
Percent of Networks with NAVD88 heights with 2 cm accuracy at 2 sigma level					
FBN - (Vertical component)	70	81	92	100	100
CORS - (Vertical component)	0	32	64	96	100
NWLON - (Vertical component)	0	33	66	100	100
TIDE AND CURRENT DATA					
Number of PORTS and PORTS-Lite installations* . . .	7	10	13	16	19

* NOAA is not requesting any base funding for PORTS/PORTS-Lite installations. Installations will be funded by local entities and the estimates are based on entities that have indicated an active interest to proceed once real-time data quality assurance can be provided.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 1999 Base (BA in Thousands)					
Total Program Changes (Outlined above)	$2,490	$2,490	$2,490	$2,490	$2,490

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **National Ocean Service**
Subactivity: **Navigation Services**

Object Class	2000 Decrease
Personnel compensation	
Full-time permanent	$0
Other than full-time permanent	0
Other personnel compensation	0
Special personnel services payments	0
Total personnel compensation	0
Civilian personnel benefits	0
Benefits for former personnel	0
Travel and transportation of persons	0
Transportation of things	0
Rental payments to GSA	0
Rental payments to others	0
Commun., util., misc. charges	0
Printing and reproduction	0
Other services	0
Supplies and materials	0
Equipment	0
Lands and structures	0
Investments and loans	0
Grants, subsidies and contributions	(2,660)
Insurance claims and indemnities	0
Interest and dividends	0
Refunds	0
Total obligations	($2,660)

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **National Ocean Service**
Subactivity: **Navigation Services**

Object Class	2000 Increase
Personnel compensation	
Full-time permanent	$0
Other than full-time permanent	0
Other personnel compensation	0
Special personnel services payments	0
Total personnel compensation	0
Civilian personnel benefits	0
Benefits for former personnel	0
Travel and transportation of persons	200
Transportation of things	0
Rental payments to GSA	0
Rental payments to others	0
Commun., util., misc. charges	0
Printing and reproduction	0
Other services	3,850
Supplies and materials	100
Equipment	1,000
Lands and structures	0
Investments and loans	0
Grants, subsidies and contributions	0
Insurance claims and indemnities	0
Interest and dividends	0
Refunds	0
Total obligations	$5,150

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Ocean Service
Subactivity: Ocean Resource Conservation and Assessment

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Estuarine and Coastal Assessment	Pos./BA	292	63,296	347	64,392	407	66,020	442	80,220	35	14,200
	FTE/OBL.	293	60,418	344	67,270	404		430		26	
Coastal Ocean Science	Pos./BA	21	18,381	21	18,400	21	18,430	21	19,430	0	1,000
	FTE/OBL.	17	18,079	21	18,702	21		21		0	
Total	Pos./BA	313	81,677	368	82,792	428	84,450	463	99,650	35	15,200
	FTE/OBL.*	310	78,497	365	85,972	425		451		26	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Ocean Service**
Subactivity: **Ocean Resources Conservation and Assessment**

Goal Statement

Promote healthy coastal ecosystems by ensuring that economic development in coastal areas of the U.S. is managed in ways that maintain biodiversity and long-term productivity for sustained use. Working in partnership with Federal and state agencies, NOS will integrate operational coastal management, protection and restoration activities in an ecosystem-wide or watershed approach, expand monitoring in coastal areas, conduct strategic assessments to provide improved and focused information for decision-makers, strengthen predictive capabilities to improve the scientific basis for policy and management decisions, develop and facilitate the use of technologies that support the sustainable use of coastal resources, and provide education and outreach to increase public understanding.

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

Estuarine and Coastal Assessment: This line item contains the programs managed by the National Centers for Coastal Ocean Science (NCCOS), the Office of Response and Restoration (ORR), and the Coastal Services Center (CSC) of the National Ocean Service. The goals of this line item are to use the authorities established in the Clean Water Act, Coastal Zone Management Act, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA/Superfund), Oil Pollution Act, National Coastal Monitoring Act, Marine Protection Research and Sanctuaries Act, and other

legislation to protect, conserve, and restore natural resources and the environmental quality of the Nation's coastal ecosystems. More specifically, over time NOAA proposes to:

- Establish the institutional arrangements and procedural framework through which the authorities of Federal and state agencies can be focused to provide for the protection and restoration of coastal resources within a watershed context and to recommend management actions to minimize the cumulative effects of coastal development on natural resources, especially NOAA trust resources.

- Conduct research to define the nature and extent of human activities and conditions that threaten the health and productivity of the Nation's coastal resources, conduct damage assessments to support negotiated settlements and litigation for recovering funds for restoration of injuries to NOAA trust resources, and undertake actions to restore ecosystem functions and resource values.

- Develop a joint Federal/state capability to monitor, assess, and predict coastal ecosystem structure and function to detect unacceptable changes, to evaluate effects of management strategies, and to identify actions to manage effectively threats to ecosystem health, including establishment of program elements necessary to implement the National Coastal Monitoring Act.

- Conduct research to develop and synthesize information needed to understand and predict ecosystem functions and processes, develop means for valuing non-market ecological resources, clarify causes and significance of ecosystem changes, identify requirements and opportunities for management intervention, and develop new tools, technologies, and strategies for monitoring, protecting, restoring, and managing the health of coastal ecosystems.

- Improve public understanding of functions and values of coastal ecosystems, enhance public access to information on coastal environmental quality and environmental health risks from pollutants in coastal ecosystems, and facilitate transfer of technology for protecting against or reducing impacts of coastal development on natural resources, and restoring injured resources.

- Support NOAA's and the Nation's obligations under international treaties and conventions, and increase effectiveness of international programs for coastal environmental science and technology, integrated coastal zone management, and sustainability of coastal resources.

Three National Ocean Service program offices currently conduct activities in estuarine and coastal assessment.

National Centers for Coastal Ocean Science (NCCOS): NCCOS provides National leadership in ocean, coastal, and Great Lakes science to build the strong scientific foundation essential for sustainable use of coastal resources. NCCOS capitalizes on comprehensive, integrated research, monitoring, assessment, prediction, and technical assistance capabilities to address critical National coastal environmental problems, build better linkages among NOAA's coastal programs that are responsible for ocean, coastal, and Great Lakes resources, and strengthen the scientific basis underlying effective coastal management. NCCOS provides high-quality science for predicting coastal ocean, Great Lakes, and watershed processes and their impacts on

coastal habitats and living resources, and delivers data, information, products, and technical assistance to NOAA and to its other Federal, state, academic, non-governmental, and public partners.

NCCOS is comprised of five research centers, each with unique and complementary expertise and capabilities to address critical coastal resource issues.

Through monitoring, applied research, and assessment programs, the Center for Coastal Monitoring and Assessment (CCMA) evaluates the environmental quality of U.S. coastal, estuarine, and Great Lakes areas and the ecosystem consequences of current and potential anthropogenic stresses on these areas. The Center conducts national, regional, and local-scale monitoring and assessment programs to support sustainable management of U.S. coastal resources. CCMA manages NOAA's National Status and Trends Program (NS&T) for marine environmental quality. Since 1984, the NS&T program has monitored the concentrations of toxic contaminants, nutrients, indicators of biological effects, and related properties in biota, water, and sediments at over 300 coastal and estuarine sites around the U.S. to determine the current status, and to detect changes that are occurring, in the environmental quality of these areas. A "specimen bank" of samples, taken each year at about ten percent of the sites, is maintained at the National Institute of Standards and Technology for future retrospective analyses. The CCMA also conducts programs in applied research, monitoring, and assessment to determine: the distribution of anoxia/hypoxia and other effects of anthropogenic eutrophication and the association of these conditions to nutrients and other causative agents; the occurrences and environmental relationships of harmful algal blooms (HABs); and the biodiversity, habitat and other physical, chemical, and biological properties of U.S. estuarine, coastal, and Great Lakes areas. Complementary research programs are focused on mapping and quantifying the spatial and temporal distributions of living marine resource species and the habitat conditions that control these distributions. These efforts include defining the habitat affinities based on life history requirements and developing assessment tools to support effective management of coastal habitat and living resources, designation of essential fish habitats, and assessment of the potential impacts on living marine resources from changes of freshwater inflow into estuaries.

The Center for Coastal Environmental Health and Biomolecular Research (CCEHBR) at Charleston, South Carolina conducts applied research programs to: develop new methods to characterize and detect marine biotoxins and harmful algal blooms (e.g., *Pfiesteria*) and identify the hazards to marine resources and seafood consumers; develop and implement new techniques for field assessment of environmental quality and marine ecosystems health; improve detection and measurement of chemical and microbiological contaminants and evaluation of their significance in the management and utilization of marine species and their habitats; and understand the predominant factors linking land use in the coastal zones with distribution, fate, and effect of environmental contaminants on living marine resources and coastal habitats. Research on other environmental issues is being conducted to: develop techniques and mathematical models for determining exposure to hazards from environmental contaminants, including assessment of risks associated with consumption of seafood; determine the anthropogenic impacts and anomalous events on the health of marine mammals and sea turtles, including response to strandings and unusual mortalities; and apply biotechnology to support fisheries management, including development of genetic characterization of fish and shellfish to improve species, stock, and population identifications. The CCEHBR maintains close working relationships with NOAA's National Marine Fisheries Service to cooperatively address fishery related impacts of federal water development projects, and to conduct field assessment of coastal aquatic habitats.

The Center for Coastal Fisheries Habitat Research (CCFHR) at Beaufort, North Carolina is the second oldest Federal marine laboratory in the Nation and has been a focal point for coastal habitat and fisheries research for nearly a century. The Center's research efforts are focused on the role of coastal habitats in controlling the growth and survival of fishery organisms, particularly pre-adult stages. Because most of the economically important fishery organisms along the southeastern and Gulf coasts of the United States are offshore spawners with estuarine dependent juvenile stages, research is focused on investigations of natural and human-related factors that control the survival and growth of larval fish in coastal waters and juvenile fish in estuaries. Field investigations address the importance of various coastal habitats (i.e. marshes, seagrasses, mangroves, mudflats, etc.) to these organisms and the development of effective habitat restoration techniques, as well as, spawning locations, feeding requirements, and inshore transport mechanisms of newly spawned fish. Research on other environmental issues, such as the causative factors and effects of harmful algal blooms on fishery resources, is being conducted to understand better the impact of these events on living marine resources. Laboratory studies are conducted to better understand the role of trace metals in controlling estuarine food webs, not only in terms of potential toxicity, but also from their role as micro-nutrients. Results of the Center's research are utilized by habitat managers at the Federal, state, and local level to address important environmental issues, such as controversial permit applications, environmental litigation, and the development of effective environmental management policies. The CCFHR maintains close working relationships with NOAA's National Marine Fisheries Service to ensure strong multi-disciplinary research programs directed towards the conservation of living marine resources.

NOAA's Great Lakes Environmental Research Laboratory (GLERL) in Ann Arbor, Michigan is a center of NOAA expertise on Great Lakes, estuarine, and coastal marine ecosystems that conducts integrated, interdisciplinary environmental research, develops environmental models, and provides management and information tools used by local, state, and Federal resource management agencies, regulatory agencies, the scientific community, the private industrial sector, and private citizens. Current research programs include: climate variability and change in the Great Lakes basin; freshwater resources and advanced hydrologic prediction models; fish ecology; food web dynamics; the biogeochemistry, cycling and transport of sediment particles and associated toxic organics; retrospective environmental analyses; the influence of short-term high frequency episodic events on ecosystem structure and function; direct observation of physical phenomena; improved forecasting of coastal environmental conditions, such as waves, thermal structure, circulation, and ice-cover; and the effects of aquatic nonindigenous species on ecosystem dynamics. In collaboration with the Cooperative Institute for Limnology and Ecosystems Research (CILER) and NOAA's Sea Grant Program, the Aquatic Nonindigenous Species Program has conducted one of the most comprehensive studies in the U.S. of the effects of zebra mussels on aquatic ecosystem dynamics. Recently, GLERL's research has implicated zebra mussels in the occurrence of large blooms of toxic blue-green algae in the Great Lakes, which can cause odor and taste problems in drinking water. GLERL also serves as the Midwest Regional NOAA CoastWatch node and conducts research in remote sensing to support coastal ecosystem studies. GLERL operates the Lake Michigan Field Station in Muskegon, Michigan which supports GLERL's research vessel operations and a long-term ecological trends program that focuses on understanding and assessing changes in, and monitoring the health of, the Lake Michigan ecosystem, especially the lower food web. To complement these long-term studies, GLERL's High Frequency Events Project uses advanced technology moored instrumentation to study the effects of episodic events, such as storms, on the Lake Michigan ecosystem.

The Center for Sponsored Coastal Ocean Research (CSCOR) manages NOAA's Coastal Ocean Program (COP) and the National Oceanographic Partnership Program (NOPP). These programs support, through the competitive peer-review process, research investigations, studies, surveys, and pilot projects to improve the understanding and prediction of ocean, coastal, and Great Lakes dynamics and resources to support sustainable use of living and non-living marine resources. The research sponsored through these programs provides scientific information to assist coastal decision makers to meet the challenges of managing our Nation's coastal resources. The Center targets critical issues that exist in the Nation's estuaries, coastal waters, and Great Lakes and translates its findings into accessible information for coastal managers, planners, lawmakers, and the public to make significant strides toward finding the solutions that will protect coastal habitats and the associated living resources and ensure their availability and well-being for future generations. Funding for the Coastal Ocean Program is carried under the ***Coastal Ocean Science*** line item, which is described below.

NOAA is one of several Federal, State, and local agency partners working to focus the many competing interests in South Florida on restoration, sustainable use, and long-term management of the Florida Everglades and the South Florida Ecosystem. NOAA's efforts are focused primarily on the coastal marine areas encompassing Florida Bay and the Florida Keys National Marine Sanctuary. As part of the Interagency South Florida Ecosystem Restoration Task Force, NCCOS is implementing and supporting an integrated marine ecosystem monitoring, assessment, and prediction program to evaluate the effects of operational management decisions and the effectiveness of land-based restoration activities in South Florida; preparing comprehensive databases to map and assess risks and determine the impacts of various stressors on the numerous diverse, fragile habitats comprising the South Florida Marine Ecosystem; and conducting socioeconomic monitoring to evaluate the impacts of restoration and management strategies in the Florida Keys National Marine Sanctuary. Guidance for NOAA's multi-year efforts in integrated coastal monitoring and prediction has been developed through a series of regional workshops involving other Federal, state, and local agencies and university partners. An enhanced South Florida Marine Ecosystem monitoring program directly supports collaborative efforts within the National Marine Fisheries Service to improve assessments, understanding, and predictions of critical ecosystem components and to develop ecosystem models to evaluate the effects of natural and anthropogenic changes to the South Florida Ecosystem.

Office of Response and Restoration (ORR): The mission of ORR is to protect and restore coastal resources by responding to environmental threats through the application of science and technology. ORR conducts national programs that include:

- Coordination of spill response and contingency planning activities to minimize the environmental effects of oil and hazardous materials spills and hazardous waste sites in coastal areas;

- Development of personal computer-based geographic information systems, models, and other tools for decision-making, planning, and responses to emergency events;

- Scientific and economic evaluation of injuries and damages to NOAA trust resources resulting from accidental spills or chronic discharges of oil or hazardous materials to support recovery of funds for restoration;

- Identifying risks to coastal resources and improving prevention, preparedness, and response through partnerships and cross-NOS capabilities; and

- Assessing the severity of environmental risk posed by hazardous waste sites and other specific pollution problems and developing effective and relevant solutions.

As scientific support coordinator to the U.S. Coast Guard's Federal On–Scene Coordinator, NOAA's Hazardous Materials Response (HazMat) Program protects NOAA trust resources by providing the scientific basis for appropriate response decisions. NOAA supports the Unified Command in making timely operational decisions by forecasting the movement of spilled oil or chemicals, evaluating the risk to resources, and recommending cleanup actions. NOAA develops technical guidance to assist federal, state, and local governments and industry prepare for more effective response. NOAA strengthens implementation of this guidance through training and drills to maintain readiness for rapid and effective response, both within the U.S. and overseas. Planning and response to spills and other environmental insults are supported by a suite of sophisticated tools that allow trajectory prediction, weathering and characterization of pollutant behavior, threat assessment to natural resources or humans, and rapid access to site-specific information. Tools such as CAMEO™ (Computer-Aided Management of Emergency Operations) provide first responders the capability to rapidly access critical information upon which to base life-threatening decisions. Such tools are used both domestically and internationally by emergency responders and are continually refined, based upon user input and NOAA field experience. NOAA, in collaboration with states and other federal agencies, maps the entire U.S. coastline to identify the sensitivity of habitats to oil spills and makes these maps available electronically to the first responder community. NOAA conducts research to improve its ability to provide effective assessments and recommendations for response actions that will protect sensitive environments and facilitate recovery of impacted shorelines. NOAA also responds to other emergency events that require scientific expertise to develop appropriate response actions.

To fulfill the responsibility of the Secretary of Commerce as a Federal trustee for living natural resources in coastal and marine areas, under statutes including CERCLA (Superfund), the Oil Spill Act, and the Clean Water Act, NOAA conducts comprehensive assessments of damages to NOAA trust resources from discharges of oil and releases of hazardous substances. Since 1985, NOAA has evaluated more than 700 hazardous waste sites in coastal areas and identified several hundred others that could potentially affect NOAA trust resources. NOAA works with EPA to address natural resource concerns at these sites and related cleanup efforts. Where significant damages have occurred, NOAA conducts damage assessments to enable the Federal Government to file claims against potentially responsible parties. The NOAA Damage Assessment Center is currently involved in more than 50 natural resource damage assessments. As part of these damage assessments, NOAA conducts a program to lead implementation of Oil Pollution Act planning, research, development and monitoring requirements. This responsibility includes maintenance of related natural resource damage assessment regulations and development of methods to more efficiently and effectively value specific coastal and estuarine habitats to improve NOAA's understanding, protection, and restoration of coastal ecosystems. The Damage Assessment Center works cooperatively with other NOAA program offices as a component of the NOAA Damage Assessment and Restoration Program (DARP),to lead the planning, implementation, and monitoring of case-specific efforts to restore NOAA trust resources after successful settlement of natural resource damage claims. Since its inception, NOAA's

DARP has recovered approximately $200 million in restoration funds. This cost-effective program produces a return of approximately $10 for the restoration of injured coastal and marine habitats for every tax dollar spent.

The Coastal Protection and Restoration (CPR) Program protects and restores coastal habitats and resources affected by hazardous materials releases. In support of NOAA's responsibilities as a Federal trustee for coastal resources, the program works with EPA and other Federal and state lead hazardous-waste cleanup agencies and responsible parties throughout the CERCLA remedial process to ensure that selected remedies are protective and appropriate measures to restore NOAA trust resources are implemented. Staff scientists provide technical expertise on ecological risk and remedial issues, including injury evaluation and site characterization, ecological risk assessment, remedy selection and implementation, and effectiveness monitoring at over 350 coastal hazardous waste sites annually. Because restoration cannot occur until a protective cleanup is in place, this work is a critical component of NOAA's trustee program. NOS staff coordinate with the NMFS's Restoration Center to evaluate and choose feasible compensation and restoration alternatives. NOAA then works with EPA, co-trustees, and the Department of Justice (DOJ) to attain negotiated settlements that resolve cleanup and natural resource liability. NOS conducts applied research and technology transfer in the areas of ecological risk, biological impact assessment, and environmentally protective remediation. NOS also develops computer-based tools, including watershed and sediment toxicity databases, to support site-specific remedial decisions, dredging and disposal of contaminated sediments, and habitat restoration.

The Regional Projects Program (RPP) works at local and regional scales with the maritime industry, coastal resource managers, and other NOS and NOAA clients in the coastal zone. Projects are designed in collaboration with these clients to provide integrated support for safe and efficient marine transportation and sound coastal resource management. The program crosscuts NOS programs by coordinating the participation of other NOS elements, including existing field staff and selecting project sites, matching local regional needs to NOS capabilities, and delivering products and services responsive to local and regional conditions and needs. This broad-spectrum program engages NOS clients at the local, state, and national level to support safe and efficient maritime commerce in the context of sound coastal resource management. Regional projects are tailored to meet local and regional needs, and to reflect the different institutions and stakeholders involved. All projects depend on actively engaging the local community in developing and implementing project activities. The Regional Projects Program also serves a clearinghouse function for NOS staff, increasing coordination and fostering a unified local and regional NOS voice.

Coastal Services Center (CSC): The NOAA CSC in Charleston, South Carolina conducts programs to foster and sustain the economic and environmental well-being of the Nation's coasts by linking people, information, and technology. In this role, CSC serves to "bridge the gap" between coastal science and coastal resource management by bringing Center staff, technologies, and outside partner expertise to bear on national problems related to coastal ecosystems and economies. CSC conducts activities and provides services to synthesize and distribute to public agencies, legislators, conservationists, and strategic planners in the public and private sectors, comprehensive information on coastal and ocean resources to identify compatibilities and conflicts among multiple uses and to determine management needs and priorities. Four overarching principles guide the development of activities and services conducted through the Center. They represent simple criteria for engaging in programs and projects, and assist in shaping the strategic, operational, management, and evaluation needs of the Center. Projects and activities undertaken must be: 1) client oriented;

2) driven by results; 3) national in scope, but local in approach; and 4) aligned with partners. All projects must have clear end users and utility, and must be conducted in partnership with clients and enablers to leverage resources and ensure buy-in.

To accomplish its mission, CSC draws on the expertise of NOAA and its partners to address coastal resource management issues. CSC is organizationally unique within NOAA, being composed of employees from throughout the agency. CSC's annual operating plan is developed in coordination with all of NOAA's line offices. The CSC functions through three major service areas.

Coastal Management Services (CMS) promotes and develops the ability of state and local coastal resource managers and planners to perform their duties. By working with the coastal management community and the other CSC service areas, CMS: (1) facilitates management assistance to the coastal management community, including fellowship and apprenticeship programs; (2) increases communication, understanding, and outreach between CSC and its clients; and (3) provides customized training and meeting planning.

Coastal Information Services (CIS) houses the Center's data management and analysis, and product development capabilities. Program functions include satellite and aircraft-based coastal remote sensing, geographic information systems (GIS), a coastal information library, Internet accessibility, landscape characterization and restoration, coastal change analysis, and coastal hazards. CIS focuses on developing and providing access to broad-based information and technology tools for coastal resource managers.

Coastal Technology Services (CTS) works to bring new and underutilized technology out of the laboratory and into the hands of the coastal resource manager. CTS provides both technology transfer, as well as technology commercialization expertise. CTS helps scientists with important steps of technology identification and assessment, including demonstration, testing, verification, evaluation, and marketing potential.

Recently established programmatic directions reflect the Center's efforts to address priority issues identified by clients and partners, NOAA, the Department of Commerce, the Administration, and Congress. Significant on-going technical projects include: laser mapping of beach topography and erosion; development of protected areas and ocean planning and governance GIS systems; ecological characterizations in estuarine reserves; tracking of harmful algal blooms; land cover and submerged aquatic vegetation trend analyses; and evaluation and development of *in-situ* sensors for coastal monitoring. CSC is enhancing and expanding its programmatic scope as a contributor to the Administration's Natural Disaster Reduction Initiative (NDRI). The Center efforts are focused on the assessment of risk and vulnerability to communities from coastal hazards. This work combines available hazard data for an area into a common, easily accessible format. Regional prototypes are being developed for Alabama, North Carolina, and Ohio. Eventually, a process will be in place to help all coastal regions create similar coastal hazard risk, vulnerability and economic cost assessments. The Center also continues to develop its long-term service oriented programs including: coastal management fellowships and apprenticeships; coastal information directory and library services; needs assessments; and training and capacity building to ensure sustainability.

Coastal Ocean Science: The programs under this line item are managed by NOAA's Coastal Ocean Program (COP) within NOS's National Centers for Coastal Ocean Science. The goal of this line item is to strengthen NOAA's predictive capabilities across its coastal missions, improving

the scientific basis for policy and management decisions. Through this program NOAA applies new observation and analytical technologies, such as advanced satellite remote sensing, high-performance computing, and geographic information system capabilities, as well as multi-disciplinary research partnerships with universities, to the development of tools for coastal decision-makers. NOAA's Coastal Ocean Program (COP) represents a unique intra- and inter-agency approach to addressing the large-scale, interdisciplinary, and complex issues that confront our Nation's marine environment.

Research projects funded through the COP support NOAA's mission requirements for ocean, fisheries, and weather services in the coastal environment. Projects are designed and implemented by multidisciplinary teams of scientists, from across all NOAA line offices and the academic and state research communities. The quality of COP's efforts is assured through a competitive peer-review selection process. COP's regional scale efforts fill the critical gap between very long lead-time, individual-investigator fundamental research and the incident-driven science needs of crisis management. The COP's innovative, cross-cutting program development and implementation structure ensures maximum participation by NOAA programs, the outside scientific community, and user groups. This program structure ensures:

- Internal/external partnerships
- Wide participation in cross-cutting program development and implementation
- Routine input from outside technical advisors
- Consensus-building decision processes
- Leveraging existing capabilities
- Delegation of program implementation
- Open competition and peer review
- Relevance of its products to the user community

Through this program structure, NOAA undertakes the improvement in predictions necessary for accomplishing its strategic objectives, and directly responds to the goals of sustainable development of the Nation's marine environments, providing information vital to sound decision making in the public and private sectors.

The COP directs its theme-oriented focus toward regional integrated ecosystem approaches to improve prediction of human influence on the marine environment within the context of natural variability. To improve our understanding and prediction of impacts on Sustain Healthy Coasts, the Coastal Ocean Program is conducting research, assessments, and modeling efforts to understand the cumulative impacts of multiple stressors, the functions of regional ecosystems, and practical applications of remote sensing science. This is accomplished through a series of marine ecosystem research studies focused on regional-scale systems and investigation of high-priority coastal ecosystem issues over a four- to six-year time frame. To improve our understanding and prediction of factors which influence Build Sustainable Fisheries, the COP seeks to strengthen NOAA's ability to advance fisheries predictions by assessing and predicting natural and human-induced changes in fisheries productivity. This is accomplished through a series of coastal ecosystems research studies and areas of special focus, such as hypoxia and Harmful Algal Blooms (HABs). Each effort addresses the need to

understand the links between environmental variability and the biophysical processes controlling populations. This understanding will support the continued development and application of improved fisheries assessments and management actions.

One of the most significant measures of COP's work is its success in developing relevant, practical programs which become integrated into NOAA's operational framework. The following projects have been successfully transitioned to NOAA Line Offices: CoastWatch, Coastal Change Analysis Program (C-CAP), East Coast Ocean Forecast System (ECOFS) and the Great Lakes Forecast System (GLFS). The COP has also developed a variety of ways to assess quality factors -- utility, timeliness, scientific quality, user-friendliness -- associated with its applied research. These evaluations are accomplished through: competitive peer-review of internal and external proposals; formal reviews of research projects for technical merit and applicability to evaluate Program implementation and progress; and development and evaluation of formal implementation plans that identify goals, objectives, activity milestones, and performance measures for efforts during each fiscal year. In addition, the COP monitors appropriate intermediate outcomes (e.g., scientific publications, frequency of technology [models, analyses] applications) to evaluate program performance. Finally, the COP provides iterative user feedback processes in guiding the development and application of its science, analyses, and methodologies.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
SUSTAIN HEALTHY COASTS				
PROTECT, CONSERVE AND RESTORE COASTAL HABITATS AND THEIR BIODIVERSITY				
Cumulative percent of Nation's 40 major coastal ecosystems with reduced risks of habitat loss from releases of oil and hazardous chemicals due to response planning, mitigation, modeling, monitoring, and assessments	15	20	25	30
Cumulative number of assessment and remediation projects conducted to clean up hazardous waste sites that impact NOAA trust resources in coastal areas . . .	-	-	10	20
Cumulative number of natural resource damage assessments completed or cases settled to recover funds for restoration of coastal resources injured by pollution	26	29	32	36

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of environmental technologies and tools developed that enhance monitoring, assessment, management, and restoration of coastal habitats	8	10	12	12
Cumulative number of 5-year regional assessments and ecosystem simulation models initiated	6	7	7	7
Cumulative number of regional assessments and ecosystem simulation models available to resource managers	1	1	1	1
Number of monitoring efforts initiated to improve mapping, definition and modeling of Gulf of Mexico hypoxia	-	-	1	1
PROMOTE CLEAN COASTAL WATERS				
Cumulative percent of Nation's 40 major coastal ecosystems for which inventories, databases, and assessments of water quality and natural resources have been developed or enhanced	23	25	28	32
Cumulative percent of Nation's 40 major coastal ecosystems that have assessments of levels and effects of toxic contamination and/or nutrient enrichment	20	25	28	32
Number of U.S. Coastal regions with systems to predict and reduce the impacts of harmful algal blooms	-	-	0	1
FOSTER WELL-PLANNED COASTAL COMMUNITIES				
Cumulative percent of shoreline and inland areas with improved ability to identify extent and severity of coastal hazards	-	5	6	7

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of improved information management tools developed to assist coastal hazard mitigation	-	-	1	1
Cumulative percent of coastal constituencies incorporating improved coastal hazard mitigation measures into local planning and regulatory activities	-	-	0	0
BUILD SUSTAINABLE FISHERIES				
ELIMINATE AND PREVENT OVERFISHING AND OVERCAPITALIZATION				
Through process research and coupled physical-biological models, develop models and syntheses that will allow managers to incorporate environmental variability into decisions related to management and sustainable development of regional fisheries	2	2	2	2
SUSTAIN HEALTHY COASTS				
Number of 5-year regional assessments and ecosystem simulation models initiated (cumulative)	4	6	7	7
Number of regional assessment and ecosystem simulation models available to resource managers (cumulative)	1	1	1	1
Number of remote sensing applications demonstrated for ecosystem and/or resource management	1	2	2	2

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
BUILD SUSTAINABLE FISHERIES				
Through process research and coupled physical-biological models, develop models and syntheses that will allow managers to incorporate environmental variability into decisions related to management and sustainable development of regional fisheries	2	2	2	2

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Ocean Resources Conservation and Assessment	Pos/BA	428	$84,450	462	$99,650	34	$15,200
	FTE/Obl	425		451		26	

The net changes in this subactivity are +26 FTE and +$15,200,000.

Estuarine and Coastal Assessment (+26 FTE, +$14,200,000): NOAA requests an increase of $14,200,000 for programs in the Estuarine and Coastal Assessment line item. Funding requested under Estuarine and Coastal Assessment supports a number of important activities and interagency projects to aid in protecting our vital ocean and coastal habitat and resources. Pledges made at the National Ocean Conference for the Year of the Ocean will enhance the Nation's ability to better explore our ocean - the last frontier - as well as to strengthen our understanding of valuable and fragile coral reefs. Targeted support for coral reef restoration and promoting better decisions for dredging to aid in restoring coastal environments to benefit local communities are vital parts of the Administration's Lands Legacy Initiative to protect our oceans and coasts. Funds to assist states, universities, and communities in responding to harmful algal bloom events will continue support for the Administration's Clean Water Initiative. Interagency projects such as the South Florida Ecosystem Restoration Initiative and the Natural Disaster Reduction Initiative will enable NOAA to work with others in supporting restoration in the valuable South Florida ecosystem and decreasing the costs and risks associated with natural disasters along our coasts. Together, these activities will provide important services to the Nation's coastal areas to ensure better understanding and use of coastal resources.

Oceanic and Coastal Research (+0 FTE, +$500,000) NOAA proposes an increase of $500,000 for the cooperative Marine Environmental Health Research Laboratory in Charleston, South Carolina to meet increased operational costs. This increase will enable the laboratory to work with the state of South Carolina, local universities, and the National Institute of Standards and Technology to improve understanding of coastal environmental health issues, marine toxicology and coastal fisheries habitat issues.

Great Lakes Environmental Research Laboratory (GLERL) (+0 FTE, - $800,000) NOAA requests total funding for GLERL in FY 2000 of $6,085,000, a decrease of $800,000 from FY 2000 base funding, reflecting the reduction of Great Lakes nearshore research and zebra mussel research conducted by GLERL.

Ocean Assessment Program (+ 15 FTE, + $4,500)

The Ocean Assessment program request includes increases of $16,750 and $12,250 in decreases. As part of the Administration's Lands Legacy Initiative, NOAA requests an increase of $10,000,000 to work with federal and state agencies and coastal communities to put material dredged from ports and shipping channels to beneficial use in restoring important coastal environments to benefit local communities. Through this initiative, NOAA will 1) carry out and facilitate habitat restoration using dredged material to benefit natural resources and improve water quality; 2) partner with the states and local communities to plan and promote beneficial reuse of dredged material, including capping contaminated sites for urban development projects; and 3) minimize environmental risks of contaminated sediments through proper evaluation and disposal. The dredging of ports, harbors, and shipping channels is essential for navigation safety, economic well-being and national security. The establishment of NOAA regional dredging coordinators would enhance technical assistance to state and local managers for determining potential restoration projects, recommending ways to address contaminated sediments, and understanding biological effects of actions. This increase will not only reduce costs and avoid delays in important dredging projects, but will also directly improve coastal habitats and water quality for natural resources and human use.

A requested increase of $1,250,000 will be used to address increasing outbreaks of harmful algal blooms (HAB) that are degrading our coastal ecosystems. These funds will support states, universities, and communities to conduct rapid monitoring and assessment response activities in responding to HAB outbreaks. The funds will be used to develop HAB action plans, take necessary actions such as targeted research, monitoring and assessment during an episode, provide fiscal and technical support to those affected by HABs and to guide management measures aimed at recovery, prevention and control. These actions will be linked to the longer term ECOHAB efforts to improve understanding of these episodic harmful algal bloom events to better manage emergency outbreaks and to prevent or control them in the future. An increase of $0.5 million is also requested for NOAA to expand its role in National *pfiesteria* research and monitoring. This allows NOAA to continue critical monitoring , rapid response, and assessment of *pfiesteria* outbreaks. These increases support the Administrations' Clean Water Initiative. A decrease of $0.5 million is requested to eliminate specific funding for a North Carolina State *pfiesteria* project.

NOAA requests an increase of $1,000,000 to fund NOS's portion of the Interagency South Florida Ecosystem Restoration Initiative. The funds will allow NOS to implement an integrated ecosystem monitoring program in South Florida, particularly in the coastal marine areas encompassing Florida Bay and the Florida Keys National Marine Sanctuary. These monitoring and research activities are critical to determine the design and impacts of ecosystem restoration efforts on sensitive coastal resources such as the Florida Keys coral reefs. The objectives of the monitoring program will be accomplished primarily through partnerships with state and local agencies and academic institutions. An enhanced South Florida ecosystem monitoring program directly supports collaborative efforts within the National Marine Fisheries Service to improve assessments, understanding, and predictions of critical ecosystem components and to develop ecosystem models to evaluate the effects of natural and anthropogenic changes to the South Florida Ecosystem.

NOAA requests an increase of $1,000,000 to fund the Sustain Healthy Coasts (SHC) components of the government-wide Natural Disaster Reduction Initiative (NDRI), collectively termed the Coastal Vulnerability Reduction Program. This multi-year, focused effort will be accomplished primarily through collaborative efforts in hazards risk assessment, technology transfer, and effective implementation of coastal hazard mitigation activities at the state and local levels, among programs within the NOS, NMFS, and NESDIS in cooperation with other NOAA Line and Program Offices, Federal and state agencies, and public and private sector partners. NOAA will use this funding increase to: identify coastal hazards and the associated socio-economic risks; enhance remote sensing capabilities to map and track coastal hazards; and assess the impacts of coastal hazards on natural resources. NOAA will begin to construct a geographic information system (GIS) for coastal risk characterizations to provide coastal communities spatial information on hazards, coastal changes, and relative risks. NOAA will enhance operational capabilities in remote sensing to develop data products that, when combined with other information, will enable more comprehensive and timely responses to natural coastal hazards, including volcanic events and coastal fires. Risk tables for various habitat types that are important to fisheries management will be developed to provide a framework for evaluating the impacts of hazardous events on natural resources and to monitor the spatial and temporal recovery of damaged coastal habitats. Products for use in state and local hazard mitigation planning and implementation will be developed and provided to coastal resource managers. NOAA's activities in coastal hazards will contribute critical information and assistance to national efforts to mitigate and minimize loss of life and property and significantly reduce the costs of cleanup due to coastal hazards.

A request of $1,000,000 will allow NOAA to work to explore the last frontier: the ocean. The President highlighted this effort at the National Ocean Conference as a way to discover new opportunities in the ocean. Increased research to explore undersea life in America's marine sanctuaries will enable better understanding in ways to protect and manage these valuable American resources. Better understanding of the contribution that ocean resources provide to the Nation's economy and environment through an economic evaluation will result in improved ways to manage all ocean resources. These activities will allow our Nation to better identify ways that the ocean can continue to benefit all people. NOAA will work with other federal agencies as well as local governments, academia, and private groups.

As part of the President's pledge at the National Ocean Conference in 1998, NOAA will expand activities to protect the Nation's fragile coral reef ecosystems. To strengthen protection and restoration of U.S. coral reefs, an increase of $2,200,000 is proposed to expand research and preservation activities as proposed by the President at the National Ocean Conference and required by the new Executive Order on coral reefs. The funding will build management capacity and cooperative relationships among stakeholders to mitigate human impacts and conserve coral reef ecosystems at local levels for the sustainable use and enjoyment of future generations. NOAA will provide coral reef research and monitoring to help produce a comprehensive program to map, monitor and assess the health of U.S. coral reefs. NOAA will also support research on the major causes and consequences of coral reef damage, address land-based sources of pollution and sedimentation, protect vulnerable reef species, promote conservation and sustainable use of coral reefs worldwide, and work with state, territorial, commonwealth and other partners to improve sustainable management of the nation's valuable coral reef ecosystems. This request complements and supports the Coral Reef Restoration increase requested under the Land Legacy Initiative.

Under the Ocean Assessment Program line item, NOAA proposes a total decrease of $12,250,000 for a number of activities. NOAA proposes a decrease of $5,800,000 for the cooperative agreement between NOAA and the Cooperative Institute for Coastal and Estuarine Environmental Technology. A decrease of $3,750,000 is proposed for the NOAA Coastal Services Center to discontinue coastal hazards research, technology application and training; conversion of defense technologies for environmental monitoring; and state-level special projects, technical assistance training, and fellowship programs. NOAA also proposes a decrease of $1,200,000 to terminate the one-time assistance for a citizen based clean-water task force on waterways issues in Beaufort, South Carolina. A decrease of $1,000,000 is proposed to discontinue support for coral reef studies in the Pacific and Southeast regions, however, funding is included under other proposed increases to conduct coral reef research, monitoring and restoration activities.

Response and Restoration Program (+ 15 FTE, + $10,000,000) NOAA requests an increase of $10,000,000 to restore fragile coral reefs injured by pollution and other human impacts. These exquisite, yet endangered, ecosystems sustain tourism, recreation, and fishing industries worth billions of dollars in economic activity, but these essential resources face critical threats from both pollution and direct human impacts. In the past decade alone, more than four acres of coral reef habitat in the Florida Keys National Marine Sanctuary and more than ten acres in Puerto Rico has been destroyed by major vessel groundings. Even more dramatic is the amount of coral lost each year to small vessel groundings. Since no source of funding is available for restoring these minor, but cumulatively very destructive incidents, this initiative request funding to pursue restoration of small coral reef grounding sites. NOAA, by working with states and other agencies, will restore injured reefs in Puerto Rico, Florida, Hawaii, and U.S. territories and commonwealths. Toward this end, NOAA is proposing an investment in a three-pronged approach to enhancing the Nation's existing coral reef restoration capabilities. The three elements include:

- Implementing Coral Restoration Projects --For small to moderate-sized injuries, the cost of pursuing damage assessments outweighs the benefits of active restoration efforts, resulting in a large total area of sites remaining unaddressed. NOAA proposes undertaking restoration projects in Florida, Puerto Rico and trust territories with injured coral resources.
- Development of a Coral Nursery -- NOAA proposes the establishment of a coral reef nursery at which dislodged coral could be stabilized, protected and cultured until a suitable transplant site could be located and the re-attachment undertaken. Such a facility would help minimize mortality of injured corals and provide a steady source of donor material to help restore injured sites.
- Review of Restoration Effectiveness -- NOAA proposes to perform a review of coral restoration projects to aid in the determination of optimal coral reef restoration techniques and to help quantify the extent to which these restoration efforts expedite the recovery of injured corals to baseline (pre-injury) conditions.

This Lands Legacy Initiative request complements the Year of the Ocean increase requested under the Ocean Assessment Program for research and other activities to better understand and protect coral reefs.

Coastal Ocean Science: (0 FTE, + $1,000,000). NOAA requests an increase of $1,000,000 for programs in the Coastal Ocean Science line item. The FY 2000 request for this line item includes continued support for the Coastal Ocean Program's (COP) academic and other NOAA partnerships to improve understanding and predictions of the impacts of natural and anthropogenic stresses on estuarine and coastal habitats and fisheries productivity. This request is part of complementary program requests in the Sustain Healthy Coasts (SHC), Build Sustainable Fisheries (BSF), and Recover Protected Species (RPS) strategic goals to provide an integrated, cross-NOAA approach to address coastal habitat and biodiversity issues.

The NOAA Strategic Goal and Line Office requests comprise the critical coastal and marine components of a FY 2000 interagency Sustainable Ecosystems initiative supported by the National Science and Technology Council (NSTC) Committee on Environment and Natural Resources (CENR).

Of the total, NOAA requests an increase of $400,000 to support ecological research and monitoring and assessment of hypoxic conditions in the northern Gulf of Mexico that develop seasonally along the coast from the mouths of the Mississippi and Atchafalaya Rivers to the Texas border. Hypoxia potentially threatens nationally important fisheries and associated essential fish habitat. The increase will allow NOAA to respond directly to heightened regional and national concerns about worsening water quality conditions and the urgent need to quantify the causes and effects of this condition. The funding increase will be used to:

- conduct ecological observation and monitoring of hypoxia in the northern Gulf of Mexico;
- map and define the inshore boundary of the hypoxic zone; and
- assess and model the relationships between nutrient loads from the Mississippi and Atchafalaya Rivers, the subsequent response in the coastal marine ecosystem, and the potential impacts of the changes in the Mississippi River Basin management practices and water diversion actions on the problem.

These complementary monitoring, assessment, and modeling activities will provide the framework for an integrated spatial decision-analysis system for basin-wide assessment, and will provide the basis for development and delivery of the science-based tools needed to control the problems.

The remaining $600,000 is requested to support research on the ecology and oceanography of harmful algal blooms (HABs), and to develop models to predict their development, persistence, and impacts in U.S. waters. HABs are common and increasingly frequent natural hazards in our coastal environments, causing severe impacts to water quality, coastal living resources, public safety and coastal industries including fisheries, shellfisheries and tourism related business; the estimated direct and indirect losses attributable to HABs exceed $1 billion over the last few decades. The research will be interdisciplinary and follow the plan outlined in the NOAA and NSF supported national research agenda - ECOHAB; the Ecology and Oceanography of Harmful Algal Blooms. This effort, continuing the interagency partnership developed with EPA, NSF, and ONR to oversee and coordinate HAB research, will support additional research and modeling, allowing another regional component of the comparative approach to understand and predict bloom impacts in 7-8 coastal zones of the U.S. Supporting HABs. These results will also serve as the foundation for developing control, prevention, and mitigation strategies for ameliorating HAB impacts on U.S. coastal resources and populations.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
SUSTAIN HEALTHY COASTS					
PROTECT, CONSERVE AND RESTORE COASTAL HABITATS AND THEIR BIODIVERSITY					
Number of interagency projects supported to restore coastal habitat from the beneficial use of dredged materials . .	5	10	15	20	25
Number of interagency projects supported to restore coral reef habitat	5	10	17	24	31
PROMOTE CLEAN COASTAL WATERS					
Number of U.S. coastal regions with systems to predict and reduce the impact of harmful algal blooms	1	1	2	3	4
FOSTER WELL-PLANNED COASTAL COMMUNITIES					
Cumulative percent of shoreline and inland areas with improved ability to identify extent and severity of coastal hazards	8	10	12	14	16

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 1999 Base (BA in Thousands)					
Total Program Changes (Outlined above)	+ $15,200	+ $15,200	+ $15,200	+ $15,200	+ $15,200

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Ocean Service
Subactivity: Ocean Resources Conservation and Assessment

Title:		Grade	Number	Annual Salary	Total Salaries
Program Manager		15	2	129,810	259,620
Program Analyst		14	1	130,067	130,067
Regional Coordinator		13	1	71,189	71,189
Environmental Scientist		13	1	64,914	64,914
Environmental Scientist		13	1	65,023	65,023
Environmental Scientist		13	1	59,786	59,786
Environmental Scientist		13	2	59,644	119,288
Regional Coordinator		13	1	64,515	64,515
Environmental Scientist		13	1	58,027	58,027
Environmental Scientist		13	3	65,279	195,837
Biologist		12	1	59,864	59,864
Restoration Specialist		12	3	65,277	195,831
Contaminant Specialist		12	2	65,277	130,554
Program Analyst		12	1	65,276	65,276
Tech Transfer Specialist		12	1	65,276	65,276
Contracts Specialist		12	1	65,276	65,276
Biologist		12	3	47,891	143,673
Ecologist		11	1	50,174	50,174
Ecologist		11	1	65,532	65,532
Technician		11	1	65,532	65,532
Program Analyst		11	1	64,766	64,766
Ecologist		11	1	64,536	64,536
Administrative Specialist		9	1	33,790	33,790
Ecologist		9	1	33,026	33,026
Secretary		6	1	24,830	24,830
Total			34		2,216,202
Less lapse	25%		(8)		(554,051)
Total full-time permanent (FTE)			26		1,662,152
2000 Pay Adjustment (3.0%)					49,865
Total					1,712,016

* Positions in Hawaii, 1.25% of RUS Salary used.

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Ocean Service
Subactivity: Ocean Resources Conservation and Assessment

Personnel Data	Number
Full-time permanent	26
Other than full-time permanent	0
Total	26
Authorized Positions	
Full-time permanent	34
Other than full-time permanent	0
Total	34

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: **National Ocean Service**
Subactivity: **Ocean Resources Conservation and Assessment**

Object Class	2000 Increase
Personnel compensation	
Full-time permanent	$1,380
Other than full-time permanent	0
Other personnel compensation	30
Special personnel services payments	0
Total personnel compensation	1,410
Civilian personnel benefits	361
Benefits for former personnel	0
Travel and transportation of persons	1,400
Transportation of things	710
Rental payments to GSA	305
Rental payments to others	0
Commun., util., misc. charges	300
Printing and reproduction	275
Other services	8,249
Supplies and materials	1,200
Equipment	800
Lands and structures	0
Investments and loans	0
Grants, subsidies and contributions	190
Insurance claims and indemnities	0
Interest and dividends	0
Refunds	0
Total obligations	$15,200

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Ocean Service
Subactivity: Ocean and Coastal Management

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Coastal Management	Pos./BA	0	58,535	51	66,500	51	66,500	65	102,200	14	35,700
	FTE/OBL.	0	57,251	49	67,784	49		59		10	
Coastal Zone Management Fund (Obl. in Fund)	Pos./BA	0	0	(51)	(4,000)	0	0	0	0	0	0
	FTE/OBL.	0	0	(49)	(4,000)	0		0		0	
Ocean Management	Pos./BA	100	14,154	100	14,350	100	14,350	120	26,000	20	11,650
	FTE/OBL.	74	13,643	97	14,861	97		112		15	
Total	Pos./BA	100	72,689	100	76,850	151	80,850	185	128,200	34	47,350
	FTE/OBL.*	74	70,894	97	78,645	146		171		25	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Ocean Service**
Subactivity: **Ocean and Coastal Management**

Goal Statement

The goal of the Coastal Zone Management Act (CZMA) of 1972, as amended, (P.L. 104-150), administered by the Office of Ocean and Coastal Resource Management (OCRM) of the National Ocean Service, is to ensure the rational use and conservation of the lands and waters of the Nation's coastal zone. OCRM provides financial and technical assistance to coastal states and territories, enabling them to (1) develop and implement comprehensive coastal resource management programs, (2) undertake new and innovative projects to enhance management and protection of the coastal zone, and (3) establish and manage estuarine research reserves to protect natural resources, strengthen estuarine research and education, and support coastal decision-making.

The goal of the National Marine Sanctuary Act (NMSA), as amended, (P.L. 104-283), administered by OCRM, is to identify, designate and manage as national marine sanctuaries, areas of the marine environment which possess conservation, recreational, ecological, historical, research, educational or aesthetic qualities which give them special national significance.

Proposed Legislation

NOAA will be working with Congress in FY 1999 to reauthorize the CZMA and the NMSA. Both Acts provide authorities which are critical for NOS to fulfill its coastal stewardship role in the management and protection of ocean and coastal resources. During this process, NOAA may seek authority to combine funding for Coastal Nonpoint Pollution grants into the comprehensive CZM grants to develop a complete program in support of the Administration's Clean Water Action Plan.

Base Program

Coastal Management: The primary purpose of the national Coastal Zone Management (CZM) Program is to maintain and improve the quality and utility of the Nation's coastal lands and waters through a national network of federally-approved, coordinated, and supported state management programs that seek to maintain the balance between the needs of resource protection and coastal-dependent economic activity. This national program

recognizes the significance of coastal resources to our Nation's population and economy and promotes improved management of these national assets. Federal matching funds are provided as cooperative agreements to support state staff and projects that address the broad spectrum of coastal management issues ranging from habitat conservation and protection of life and property from coastal hazards to urban waterfront and port revitalization (Section 306/306A CZMA).

Recent state and Federal CZM efforts are focused on:

- (1) the implementation of 29 state Coastal Nonpoint Source Pollution Control programs and the development of programs in the newly approved states of Texas, Ohio, and Georgia (Section 6217);
- (2) strengthening the ability of state programs to the address the issues of wetlands protection, aquaculture, cumulative impacts of coastal development, coastal hazards, ocean resources use, marine debris, energy facility siting, and public recreational access (Section 309 CZMA);
- (3) the development (Section 305 CZMA) of management programs in two new states (Indiana and Minnesota), and
- (4) using resources available through the Clean Water Initiative to clean up polluted areas and restore coastal resources to public use.

The Georgia program was approved in early 1998 and the Minnesota program is expected to be approved by the end of 1999.

The **National Estuarine Research Reserve System** (Section 315 CZMA) is a national network of estuarine protected areas that represent the diverse biogeography and typology of the estuarine and estuarine-like systems of the United States. OCRM provides system-wide national guidance, technical support, and matching funds to support state management, stewardship, research and education staff, acquire land, construct on-site facilities, and conduct on-site resource protection, research, education, and monitoring programs. Reserves serve as both local and regional sources of technical information and testing grounds for the improvement of coastal resource management. There are 22 designated reserves in 19 states and territories managing approximately 500,000 acres of estuarine lands and waters. Five additional reserves are in development: Alaska (Kachemak Bay), California (San Francisco Bay), Florida (Guana/Tolomato/Matanzas), New York (St. Lawrence River), and Mississippi (Grand Bay).

OCRM provides technical assistance to states in the development, implementation, and improvement of state CZM programs and estuarine research reserves; reviews Federal agency actions for compliance with the Section 307 Federal consistency provisions of the CZMA; assists in the resolution of conflicts over the use of coastal and marine resources; supports scientific research and environmental monitoring for improved coastal management; conducts outreach and education activities concerning coastal issues; negotiates annual work programs with the states to ensure that CZM management and reserve operational issues are being addressed; evaluates state programs and reserves to ensure that Federal requirements continue to be met; and provides national policy perspective and support for ocean and coastal management issues.

Ocean Management: OCRM also administers the National Marine Sanctuaries Act and its National Marine Sanctuary Program by: (1) identifying areas of the marine environment of special national significance due to their resource or human-use values; (2) carrying out a comprehensive and coordinated program of conservation and management of these marine areas, including restoration of damaged ecosystems; (3) supporting,

promoting, and coordinating scientific research on, and monitoring of, the resources of these protected areas; (4) enhancing public awareness, understanding, and appreciation of the marine environment; and (5) facilitating, to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities.

There are 12 designated national marine sanctuaries: Monitor (NC), Channel Islands (CA), Gray's Reef (GA), Gulf of the Farallones (CA), Fagatele Bay (AS), Cordell Bank (CA), Florida Keys (FL), Flower Garden Banks (TX/LA), Gerry Studds Stellwagen Bank (MA), Monterey Bay (CA), Olympic Coast (WA), and Hawaiian Islands Humpback Whale (HI). Two additional proposed sanctuaries are in development: Thunder Bay (MI) on Lake Huron and Northwest Straits (WA).

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
RESOURCE PROTECTION SYSTEMS COMPLETED				
Percent completed of Coastal Zone Management (CZM) Program System	89	94	97	97
RESOURCE PROTECTION SYSTEMS UPGRADED				
Percent of CZM Programs with management capabilities upgraded to protect and restore coastal habitat	14	21	29	29
Percent of CZM states with fully approved Coastal Nonpoint Programs	77	74	83	86
Percent of State Coastal Nonpoint Pollution Control Programs Elements Implemented (% of 35 coastal states)	0	0	13	20

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of NERRS sites with management capabilities upgraded to protect and restore coastal habitats	21	22	22	22
Percentage of NMS sites that have reached a baseline operational level	8	17	23	31
Percentage of NMS sites hat have significantly upgraded management capabilities	0	0	0	0

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Ocean and Coastal Management	Pos/BA	151	$80,850	185	$128,200	+34	+$47,350
	FTE/Obl	146		171		25	

The net changes in this subactivity are +25 FTE and +$47,350,000. The program increases of 25 FTE and $47,350,000 support the NOAA Strategic Plan goal Sustain Healthy Coasts (SHC). The increases support the Administration's Lands Legacy and Clean Water Initiatives goals to protect our ocean and coastal resources.

Coastal Management (+10 FTE, +$35,700,000): A net increase of 10 FTE and $35,700,000 is requested under Coastal Management.

Administration of the Coastal Zone Management Act (+ 8 FTE, +$1,000,000): An increase of $1,000,000 is requested to improve and better support NOAA's responsibilities under the Coastal Zone Management Act (CZMA), particularly those of the National Estuarine Research Reserve System (NERRS), whose total acreage will have doubled by FY 2000 with the addition of five new sites. NOAA's direct responsibilities under the CZMA have grown, including the planned expansion of NERRS from 22 to 27 sites, the continued additions to the state Coastal Zone Management programs (34 of 35 eligible states and territories will be participating by FY 2000), and the Administration's Clean Water Action Plan to address coastal non-point pollution. The $1,000,000 increase will support augmented technical assistance to program participants, particularly for coastal community revitalization efforts; better synthesis and dissemination of NERRS research and monitoring information; more effective outreach and education of key coastal decision-makers, support land acquisition and construction activities at Reserves, and enable a greater emphasis on resource conservation issues. Adequate technical and administrative support to manage and protect vital coastal habitat through the national estuarine and coastal management programs is essential to NOAA's ability to act as a coastal steward.

Coastal Nonpoint Pollution Control (+ 0 FTE, +$2,000,000): NOAA is requesting an increase of $2.0 million for the Coastal Nonpoint Pollution Control Program (CNPCP). Twenty-nine coastal states have received approval of their Coastal Nonpoint Pollution Control Programs with some conditions. Four additional states (Georgia, Texas, Ohio, and Minnesota) are beginning development of their CNPCP. These funds will assist Coastal Zone Management states in completing development of state programs, including specific actions necessary to address approval conditions, and in carrying out CNPCP development in the four other states. This increase supports the Administration's Clean Water Initiative, and Lands Legacy Initiative.

Coastal Zone Management Section 306/309 (+ 0 FTE, +$2,000,000): NOAA requests an increase of $2.0 million to be provided to states through Coastal Zone Management Act (CZMA) Enhancement Grants to improve and implement the approved Coastal Nonpoint Control program control elements of state management programs to address polluted runoff. This increase supports the Administration's Clean Water Initiative and Lands Legacy Initiative and is critical to solving problems associated with polluted runoff in coastal areas. In FY 1999, NOAA will be working with Congress on the CZMA reauthorization. During this process, NOAA may seek authority to combine funding for Coastal Nonpoint Pollution grants into the comprehensive CZM grants to develop a complete program in support of the Administration's Clean Water Action Plan.

Coastal Zone Management Section 310 (+ 2 FTE, +$28,000,000) NOAA proposes an increase of $28,000,000 for Coastal Zone Management Act (CZMA) Section 310 to improve the management and protection of coastal resources, revitalize coastal communities, and promote smart growth approaches which are environmentally sound and economically sustainable. These funds will increase Federal and state support of community-based, environmentally protective solutions that help restore the livability of coastal communities and reduce pressure on natural areas and agricultural lands by increasing national and state support of community-based efforts to address impacts on coastal resources resulting from increased development and urban sprawl. Funding proposed under section 310 would be available as grants and technical assistance to local governments through NOAA and state coastal management programs. Specific projects would be funded on a competitive basis for up to $500,000 per community per year. Examples of eligible activities include local efforts to address the environmental impacts of development, improve the urban coastal environment, promote "smart growth" approaches, and revitalize and reuse urban waterfronts, including such considerations as public access to the coast, brownfields reuse, and improved port, harbor, and marina management within the community. The intent would be to revitalize previously developed areas, to discourage development in undeveloped and environmentally sensitive areas, to restore or enhance coastal resources impacted by coastal development, and to emphasize water dependent uses. The result would be significant improvements to the health and vitality of coastal communities nationally, decreased pressure on adjacent natural areas, improved environmental quality within coastal communities, and an improved coastal economy. This cornerstone of the Lands Legacy Initiative supports NOAA's Sustain Healthy Coasts objective to "foster well-planned and revitalized coastal communities that sustain coastal economies and are compatible with the natural environment."

National Estuarine Research Reserve System (+0 FTE, +$2,700,000): A program increase of $2,700,000 is requested for the National Estuarine Research Reserve System (NERRS) to improve the ability of NOAA to meet its Sustain Healthy Coast's objective of protecting, conserving, and restoring coastal habitats and biodiversity. NOAA will use the funds to enhance its coastal trustee responsibilities and provide national leadership in demonstrating how estuaries can be managed for the benefit of future generations. The program increase will support operations for the five new reserves (Alaska, California, Florida, Mississippi, and New York) expected to come on line by FY 2000, and which will double the acreage of the current System. The increase will help make existing reserves fully functional in accordance with program guidelines and a 1997 report by the Inspector General. Funds will help State partners hire Reserves full-time core field staff (with a goal of having manager, science coordinator, and education coordinator at each site), and allow Reserve staff to plan and complete land acquisition and construction activities under the Administration's Lands Legacy Initiative. The increase will also allow Reserve staff to complete updated ecological profiles for each site, fully implement the water quality and weather component of the NERR System-wide monitoring program, and

begin Phase II of the monitoring program which includes the biological component. The NERRS monitoring program is an one-of-a-kind national monitoring that provides important information to both scientists and managers. Other important services provided by the NERRS, including conducting professional training workshops, holding issue forums, and demonstrating innovative management techniques, require additional funds to continue and expand these services to cover all 27 sites. In addition, NERRs increasingly: (1) promote improved water quality through management of Reserve watersheds; (2) conduct habitat restoration at their sites and in their watersheds; and (3) act as hubs for conducting long-term scientific studies to support sustainable coastal management solutions at the local, regional, and national levels. In addition to directly supporting the Lands Legacy Initiative, NERRS can help the achieve goals for the Clean Water Action Plan, Coral Reef Initiative, the Committee on Environment and Natural Resources plans for a national network of monitoring index sites, and the North American Free Trade Agreement (border environmental projects). Additional increases to the NERRS program supporting the Lands Legacy Initiative are proposed in PAC.

Ocean Management (+15 FTE, +$11,650,000): A net increase of 15 FTE and $11,650,000 is requested under Ocean Management.

National Marine Sanctuary Program (+15 FTE, +$11,650,000): NOAA requests a net increase of 15 FTE and $11,650,000 under the this line item. NOAA requests an increase of $12,000,000 to strengthen management and operations at the existing 12 marine sanctuaries (with a 13th, Thunder Bay MI anticipated by FY2000), and to enhance the nation's marine resource protection through a growing network of sanctuaries in support of the Lands Legacy Initiative. The increase would enable: socioeconomic studies leading toward the development of improved sanctuary management plans; inventories of existing resources through site characterization studies; comprehensive Geographic Information System (GIS) capability to support sound management decisions; and establishment of a system-wide monitoring program to assess management effectiveness and identify emerging threats to sanctuary resources. The increase would allow existing sanctuaries to strengthen interpretive enforcement, expand their volunteer base, enhance existing education and outreach programs, and support coral reef protection and restoration efforts. Improvements to, and expansion of, monitoring, assessment, and development and application of new technologies will take place in sanctuaries to better NOAA's ability to protect and recover vital marine species. NOAA will expand the sanctuary system by undertaking a comprehensive effort to update the site selection criteria and to identify additional, potential candidate sites. The analysis will include examination of current scientific and economic data, and the use of, and threats to, the marine ecosystems or cultural/historical resources in each area. The result will be adequate resource protection for some of the nation's most unique ecosystems, including the only extensive barrier coral reef system and other important coral reefs in the Gulf of Mexico, South Atlantic, and the Pacific; and America's most significant populations of, and habitats for, humpback, right, and blue whales, and other important marine mammal colonies in the Pacific. In addition, important cultural resources including historic shipwrecks in the Florida Keys and the Pacific, and the Civil War ironclad, the Monitor, will be protected for future generations. A decrease of $350,000 is proposed to end the Northwest Straits Citizens Advisory Commission reflecting completion of this activity. The increase of $12,000,000 is requested as part of Lands Legacy; additional increases to the National Marine Sanctuaries program supporting the Lands Legacy Initiative are proposed in PAC.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Number of CZM sites with management capabilities upgraded to protect and restore coastal habitats	29	30	31	32	33
Number of coastal communities planning and implementing resource protection and community revitalization initiatives which enhance the local capacity to address impact and pressures on coastal resources . .	46	62	83	112	132
Percent of CZM states with fully approved Coastal Nonpoint Programs (% of 35 coastal states) . .	86	89	91	94	94
Percent of State Coastal Nonpoint Pollution Control Programs Elements Implemented (% of 35 coastal states)	20	20	20	20	20
Number of NERRS sites with management capabilities upgraded to protect and restore coastal habitats	24	25	26	27	27
Percent of NMS that have reached a baseline operational level	54	69	77	85	85
Percent of NMS sites that have significantly upgraded management capabilities	54	62	69	77	77

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 1999 Base (BA in Thousands)					
Total Program Changes (Outlined above)	+ $47,350	+ $47,350	+ $47,350	+ $47,350	+ $47,350

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Ocean Service
Subactivity: Ocean and Coastal Management

Title:		Grade	Number	Annual Salary	Total Salaries
Science Coordinator		14	1	130,042	130,042
Policy Analyst		13	3	58,027	174,081
Program Specialist		13	3	65,279	195,837
Urban Planner		13	1	58,027	58,027
Education Specialist		12	1	59,864	59,864
Ecologist		12	1	59,864	59,864
Education Specialist		12	1	65,480	65,480
Education Specialist		12	1	64,611	64,611
Program Specialist		12	4	65,276	261,104
Education Specialist		12	2	47,891	95,782
Ecologist		12	1	47,891	47,891
Program Specialist		11	4	65,290	261,160
Program Analyst		11	1	65,290	65,290
Education Specialist		9	1	65,534	65,534
Program Analyst		9	4	33,650	134,600
Writer/Editor		9	1	33,650	33,650
Program Analyst		9	2	33,026	66,052
Administrative Specialist		7	1	32,628	32,628
Secretary		6	1	24,830	24,830
Total			34		1,896,327
Less lapse	25%		(9)		(474,082)
Total full-time permanent (FTE)			25		1,422,245
2000 Pay Adjustment (3.0%)					42,667
Total					1,464,913

* Positions in Hawaii, 1.25% of RUS Salary used.

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Ocean Service
Subactivity: Ocean and Coastal Management

Personnel Data	**Number**
Full-time permanent	25
Other than full-time permanent	0
Total	25
Authorized Positions	
Full-time permanent	34
Other than full-time permanent	0
Total	34

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: **National Ocean Service**
Subactivity: **Ocean and Coastal Management**

Object Class	2000 Increase
Personnel compensation	
Full-time permanent	$1,203
Other than full-time permanent	0
Other personnel compensation	20
Special personnel services payments	0
Total personnel compensation	1,223
Civilian personnel benefits	323
Benefits for former personnel	0
Travel and transportation of persons	565
Transportation of things	252
Rental payments to GSA	0
Rental payments to others	0
Commun., util., misc. charges	0
Printing and reproduction	160
Other services	10,735
Supplies and materials	177
Equipment	2,065
Lands and structures	0
Investments and loans	0
Grants, subsidies and contributions	31,850
Insurance claims and indemnities	0
Interest and dividends	0
Refunds	0
Total obligations	$47,350

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Ocean Service
Subactivity: Acquisition of Data

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Acquisition of Data	Pos./BA	196	15,820	196	14,546	196	14,726	196	17,726	0	3,000
	FTE/OBL.	257	15,627	231	14,739	231		231		0	
Total	Pos./BA	196	15,820	196	14,546	196	14,726	196	17,726	0	3,000
	FTE/OBL.*	257	15,627	231	14,739	231		231		0	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Ocean Service**
Subactivity: **Acquisition of Data**

Goal Statement

The goal of this subactivity is to provide vessel support needed to collect hydrographic and coastal assessment data. Vessel support needed by NOAA is unique and requires the ability to gather the precise measurements and observations needed to promote safe navigation and sustain healthy coasts. These vessels will provide days-at-sea for conducting and supporting programs of significant national interest, including marine environmental quality, safety of marine navigation, and protection of life and property.

Proposed Legislation

No legislation is proposed in this subactivity.

Base Program

The FY 2000 NOS acquisition of data base funding is $14,726,000. These funds will provide approximately 700 Days-at-Sea for nautical charting and coastal projects performed by the NOAA ships RAINIER, WHITING, RUDE, FERREL, and McARTHUR. Vessel characteristics and homeport are tabulated below.

Vessel	Length - Class	Mission	Homeport	Status
RAINIER	231 ft. - II	Hydrographic Surveys	Seattle, WA	Active
WHITING	163 ft. - III	Hydrographic Surveys & Bathymetric Mapping	Norfolk, VA	Active

Vessel	Length - Class	Mission	Homeport	Status
RUDE	90 ft. - V	Hydrographic Surveys	Norfolk, VA	Active
FERREL*	133 ft. - IV	Environmental Assessment	Charleston, SC	Active
McARTHUR**	175 ft. - III	Fisheries Research & Environmental Assessment	Seattle, WA	Active

* Vessel shared with Oceanic & Atmospheric Research (OAR)
** Vessel shared with National Marine Fisheries Service (NMFS)

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of Days-at-Sea funded by NOS Acquisition of Data and allocated by the Fleet Allocation Council	838	795	700	700

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
NOS Data Acquisition	Pos/BA	196	+ $14,726	196	+ $17,726		+ $3,000
	FTE/Obl	231		231			

NOS Data Acquisition (0 FTE, + $3,000,000): NOAA requests an increase of $3,000,000 to support NOAA's portion of UNOLS chartering by providing approximately an additional 245 days-at-sea for ongoing and new activities conducted under the joint NOAA/NSF Global Ocean Ecosystem Dynamics (GLOBEC) and Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) programs. These projects seek to improve knowledge of how changes in fish populations are affected by changing ocean conditions, and to understand and predict the impacts of multiple stressors, such as hypoxia and Harmful Algal Blooms including pfiesteria, on coastal estuarine habitats. This understanding is critical to predicting and mitigating the impacts of these processes. This funding will support the Committee on Environment and Natural Resources' Integrated Science for Sustainable Ecosystems Initiative.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Number of Days-At-Sea funded by NOS Acquisition of Data and allocated by the Fleet Allocation Council .	945	945	945	945	945

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Total Program Changes (outlined above)	+ $3,000	+ $3,000	+ $3,000	+ $3,000	+ $3,000

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: **National Ocean Service**
Subactivity: **Data Acquisition**

Object Class	2000 Increase
Personnel compensation	
Full-time permanent	$0
Other than full-time permanent	0
Other personnel compensation	0
Special personnel services payments	0
Total personnel compensation	0
Civilian personnel benefits	0
Benefits for former personnel	0
Travel and transportation of persons	0
Transportation of things	0
Rental payments to GSA	0
Rental payments to others	0
Commun., util., misc. charges	3,000
Printing and reproduction	0
Other services	0
Supplies and materials	0
Equipment	0
Lands and structures	0
Investments and loans	0
Grants, subsidies and contributions	0
Insurance claims and indemnities	0
Interest and dividends	0
Refunds	0
Total obligations	$3,000

NATIONAL MARINE FISHERIES SERVICE
STRATEGIC PLANNING GOALS AND OBJECTIVES

The National Marine Fisheries Service (NMFS) supports three of NOAA's Strategic Planning Goals. Below is a brief characterization of the NMFS programs in the context of these three Goals.

GOAL - BUILD SUSTAINABLE FISHERIES

The Build Sustainable Fisheries initiative seeks to optimize the value of our fisheries resources for the benefit of the nation and reflects the Administration's emphasis on stewardship of our environmental resources. Fisheries include the fish stocks, the people who catch them, and the communities that depend on them. Rebuilding the health of U.S. fisheries requires the elimination of overfishing and overcapitalization while minimizing the impacts on fisheries- dependent communities. Additional fisheries resources can be produced through the development of environmentally sound aquaculture, and aquaculture can offer alternative employment in fisheries-based communities. This initiative will increase NOAA's capability to implement the Department's crosscutting theme of environmental stewardship and assessment by decreasing the scientific uncertainty associated with resource conservation decision-making and reducing conflicts between competing user groups for marine resources, such as commercial fisheries. The National Marine Fisheries Service supports the NOAA Strategic Planning Goal to Build Sustainable Fisheries through three objectives: 1) Eliminate and Prevent Overfishing and Overcapitalization; 2) Attain Economic Stability in Fishing Communities; and, 3) Develop Environmentally and Economically Sound Aquaculture.

OBJECTIVE - ELIMINATE AND PREVENT OVERFISHING AND OVERCAPITALIZATION

In order to eliminate overfishing and allow fishing at sustainable levels, considerable information is necessary about the stock size and age structure and the physical and biological processes that control ecosystem dynamics. This objective includes fishery assessment and prediction programs that give the Fishery Management Councils and the Secretary of Commerce the information necessary for equitable and legally sound regulatory decisions for the current 39 Fisheries Management Plans (FMP's) and for additional proposed plans to address other stocks. This objective also accommodates the management support necessary to assist the Councils to evaluate, select and monitor fisheries measures, such as FMP's that restrict access to the stocks and reduce overcapitalization. Overcapitalization is also addressed through fishing fleet downsizing, most often accomplished by industry-supported "buy-backs". Once regulations to manage fisheries are in place, preventing overfishing requires adequate compliance, an important component of this objective. Another essential and legally mandated program under this objective is to maintain and improve essential fish habitat. NOAA will also pursue national and international agreements to support both conservation and economic goals.

OBJECTIVE - ATTAIN ECONOMIC SUSTAINABILITY IN FISHING COMMUNITIES

The rebuilding of overfished fisheries required under the Magnuson-Stevens Act will result in lower harvest levels, and therefore fewer fishing vessels and fishing-related jobs and a potential for overall reduction in economic activity in many coastal communities. In order to minimize the economic impact of fisheries management decisions to communities, this effort uses economic and social science research to understand the consequences of various alternative FMP strategies. NOAA is working with other Federal, state and local agencies to addresses these impacts on fishing communities through a variety of programs including loans, retraining, vessel and permit buyouts, and community planning. While NOAA alone does not cover the total costs of such programs, it acts as a catalyst to work within the DOC with such agencies as the Economic Development Administration and with other Federal agencies such as the Department of Labor and the Small Business Administration to coordinate community assistance to address the economic and social impacts of reduced fishing levels.

OBJECTIVE - DEVELOP ENVIRONMENTALLY AND ECONOMICALLY SOUND MARINE AQUACULTURE

Marine aquaculture can play an important role in producing fish for food, thereby reducing our dependence on wildstocks, and can offer new business and employment opportunities in coastal communities impacted by reduced fishing activity. In addition to food production, aquaculture can also be used to enhance wildstock populations, assist in recovery plans for protected species and to produce non-food products such as ornamental fish, baitfish and drugs and pharmaceuticals. This objective supports the development of marine aquaculture in the U.S. by addressing the technical, environmental, siting, regulatory, educational and socio-economic aspects. NOAA will also foster technology development and international agreements to support environmentally and economically sound aquaculture.

GOAL - RECOVER PROTECTED SPECIES

The recover protected species initiative reflects the Administration's emphasis on conservation of our environmental resources. This initiative will increase NOAA's capability to implement the Department's crosscutting theme of environmental stewardship and assessment through decreasing the scientific uncertainty associated with resource conservation decision-making and reducing conflicts between protected species management and users of other marine resources, such as commercial fisheries. The National Marine Fisheries Service supports the NOAA Strategic Planning Goal to Recover Protected Species through two objectives: 1) Prevent Extinction of Protected Species; and, 2) Maintain Healthy Species and Ecosystems.

OBJECTIVE - PREVENT EXTINCTION OF PROTECTED SPECIES

NOAA will reduce the probability of extinction for protected species. NOAA will accomplish the objective in cooperation with Federal, tribal, state, and local partners. To do this, NOAA will strengthen its capabilities to identify and protect marine resources facing declines and extinction and will develop conservation and recovery programs that consider the resource and habitat needs of marine species in conjunction with sustainable economic opportunities in the marine environment. NOAA will provide leadership and assistance through its scientific, educational, and technical capabilities

to implement recovery plans and thereby ensure that protected resources remain for future generations. A significant portion of the activities under this objective will implement research and management actions to mitigate or avoid detrimental interactions between marine species and human activities.

OBJECTIVE - MAINTAIN HEALTHY SPECIES AND ECOSYSTEMS

NOAA will assess and predict the status of protected species and identify barriers to their recovery. This objective applies an ecosystem approach to marine biodiversity conservation and species recovery. This supports mandates in the ESA, MMPA, and international treaties, conventions and partnerships for species and ecosystem conservation. NOAA will produce the information and analyses necessary for assessments of the status and trends of protected marine species and ecosystems and the threats to their health. Knowledge of the status of species and assessments of those factors causing decline will assist in resolving conflicts between marine resource users without having to resort to overly restrictive conservation measures. Actions taken to conserve healthy or at risk resources will serve to avoid the need for listing as protected species.

GOAL - SUSTAIN HEALTHY COASTS

NMFS includes efforts in all three objectives of this goal.

OBJECTIVE - PROTECT AND RESTORE COASTAL HABITATS

Programs to protect and restore habitat are essential to the recovery and long-term health of living marine resources. This is especially true for those habitats important to U.S. commercial and recreational fisheries and for maintaining the biological diversity and associated economic productivity of the Nation's coasts. Activities under this objective will increase protection of habitats through collaborative assessment, research and management actions; expand participation in ecosystem and watershed programs for the benefit of trust resources; and improve Federal, state and local government decisions regarding permits, projects and their cumulative impact on habitats. In addition, NOAA will expand coastal habitat restoration actions, expanding the range of habitats restored and establishing joint efforts to increase leverage of Federal project funds. NOAA will also strengthen its ability to gather, transfer, and use data on biological diversity as an indicator of the health of coastal habitats and ecosystems and makes better use of ongoing resource surveys.

OBJECTIVE - PROMOTE CLEAN COASTAL WATERS

Chemical pollution continues to assault living marine resources, affecting both their health and survival, and to contaminate fisheries products. We must give greater attention to the research and management of chemical contaminants and water quality in the marine environment if we are to manage better trust resources (e.g., increase understanding and management measures to address decreased survival and impaired reproduction and development of living marine resources from endocrine disrupters.) Participation with state and Federal regulatory agencies regarding point and nonpoint discharges

into the marine environment and comprehensive assessments of Federal projects under Clean Water and Ocean Dumping Acts will continue under existing consultative authorities. These efforts will help improve water quality and help to ensure the safety of seafood for the Nation's consumers.

OBJECTIVE - FOSTER WELL-PLANNED COASTAL COMMUNITIES

Our valuable commercial and recreational fisheries illustrate the important relationship that exists between healthy coastal habitats and the economic well being of coastal communities. The economic growth and development of coastal communities can lead to the destruction or degradation of living marine resources and their habitats. The loss of habitat can threaten industries, such as aquaculture, that NOAA is seeking to promote. In addition, actions taken to mitigate the impacts of coastal hazards and reduce life and property losses can seriously affect living marine resources and their habitats. The objective provides the ability to quantify habitat functions, demonstrate the value of fishing activities to local economies, and design measures to enhance living marine resource conservation at the local level.

National Marine Fisheries Service
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Build Sustainable Fisheries										
Develop Sound Aquaculture						14,350	10	11,300	10	(3,050)
Assess the Status of Fishery Resources	1,390	166,351	1,476	184,197						
Advance Fishery Prediction		601		601						
Managing for Economic Growth	325	77,957	377	85,352						
Ensuring Adequate Compliance	171	17,600	181	17,775						
Provide Research and Service	43	3,448	43	3,448						
Infrastructure						6,465		6,465		
Eliminate & Prevent Overfishing					1,815	229,119	1,801	231,622	(14)	2,503
Attain Economic Sustainability in Communities					262	44,565	283	48,765	21	4,200
Total BSF	**1.929**	**265.957**	**2.077**	**291.373**	**2.077**	**294.499**	**2.094**	**298.152**	**17**	**3.653**
Recover Protected Species										
Assess Status and Impacts	328	35,808	331	36,516						
Implement Conservation Plans	59	30,580	199	37,557						
Maintain Healthy Species & Ecosystems					340	30,684	349	33,157	9	2,473
Prevent Extinction					190	44,237	327	70,449	137	26,212
Total RPS	**387**	**66.388**	**530**	**74.073**	**530**	**74.921**	**676**	**103.606**	**146**	**28.685**
Sustain Healthy Coasts										
Protect, conserve and restore habitats	192	16,110	143	14,474	143	14,683	159	16,108	16	1,425
Promote clean coastal waters	27	2,630	27	2,630	27	2,681	27	2,566		(115)
Foster well-planned and revitalized coastal communities										
Total SHC	**219**	**18.740**	**170**	**17,104**	**170**	**17,364**	**186**	**18,674**	**16**	**1.310**
Infrastructure										
Construction/Facilities/Env. Compliance										
Total Infra										
Total for NMFS	**2,535**	**351,085**	**2,777**	**382,550**	**2,777**	**386,784**	**2,956**	**420,432**	**179**	**33,648**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Marine Fisheries Service
Subactivity: Information Collection & Analysis

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Resource Information	Pos./BA	911	136,958	948	133,826	948	135,530	961	118,606	13	(16,924)
	FTE/OBL.	900	134,423	945	136,361	945		955		10	
Fishery Industry Information	Pos./BA	146	28,581	168	30,100	168	30,357	171	25,557	3	(4,800)
	FTE/OBL.	143	26,103	168	32,578	168		170		2	
Information Analyses and Dissemination	Pos./BA	245	25,104	250	24,900	250	25,342	250	25,342	0	0
	FTE/OBL.	217	25,699	247	24,305	247		247		0	
Total	Pos./BA	1,302	190,643	1,366	188,826	1,366	191,229	1,382	169,505	16	(21,724)
	FTE/OBL.*	1,260	186,225	1,360	193,244	1,360		1,372		12	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Marine Fisheries Service**
Subactivity: **Information Collection and Analyses**

Goal Statement

Provide accurate and timely analyses on the biological, ecological, economic, and social aspects of the Nation's use and conservation of its living marine resources in order to support the National Oceanic and Administration (NOAA) Strategic Plan goals to build sustainable fisheries, recover protected species, and sustain healthy coasts.

Proposed Legislation

NOAA will work with the Administration to reauthorize the Endangered Species Act (ESA), P.L. 95-632; the Magnuson-Stevens Fishery Conservation and Management Act, P.L. 104-297; and the Marine Mammal Protection Act, P.L. 97-58.

Base Program

The objectives of this subactivity are to:

- Collect, analyze, manage, and disseminate timely information on the status of fish, shellfish, marine mammal, and endangered species stocks and on their social and economic importance.
- Determine the impacts of the incidental taking of marine mammals and endangered species.
- Develop forecasting models for living marine resource populations, ecosystems, and fishery systems.
- Evaluate alternative management options and their effects on fishery resources and industry.
- Improve the quality and timeliness of information services concerning living marine resources, their habitats, and their use.
- Provide marine service to support fishery management and protected species functions.

Under the Magnuson-Stevens Fishery Conservation and Management Act, the Endangered Species Act, and the Marine Mammal Protection Act, NOAA is responsible for the management and conservation of the Nation's living marine resources and their habitats. Effective credible management -- to build sustainable fisheries, to recover protected species, and to promote coastal ecosystems health -- is in large measure dependent on the scientific foundation provided by information collection and analysis activities. This information is required by the eight Regional Fishery Management Councils; international and domestic fishery commissions; the Marine Mammal Commission; the interstate fishery commissions; and other Federal and state agencies to establish and implement fishery, protected species, and habitat conservation measures. The information and analyses are the basis for management and development decisions that support the growth and stability of the U.S. economy, especially the fishing industry that contributes billions of dollars each year to the economy. Currently, NOAA monitors and conducts research on 201 stocks of fish, marine mammals, and endangered species, as well as their habitats. These assessments must be updated frequently because of the dynamic and natural variability of the marine environment, the stocks involved, and widespread changes in fishing practices. To complete these assessments, NOAA collects biological, environmental, economic, social, and statistical data on fish, shellfish, marine mammal and endangered species stocks, their habitats, and uses. Analytical models then are used to combine these data to assess trends in stock sizes, determine appropriate sustainable yields from resources, ascertain their economic and social importance, and evaluate the impacts of alternative management measures.

Work is conducted by NOAA's National Marine Fisheries Service (NMFS) field elements with oversight, review, and direction by NMFS headquarters in Silver Spring, MD. The field structure consists of five Regional Offices, each with a Science Center that conducts research and directs the work carried out by the other laboratories and satellite/special purpose facilities in that region. Major NMFS facilities are located at the following sites:

Northeast: **Regional Office** - Gloucester, MA.
Science Center - Woods Hole, MA.
Major Laboratories - Milford, CT; Narragansett, RI; Sandy Hook, NJ.
Satellite/Special Purpose Facilities - Smithsonian (National Systematics Lab), Washington, DC.

Southeast: **Regional Office** - St. Petersburg, FL.
Science Center - Miami, FL.
Major Laboratories - Galveston, TX; Panama City, FL; Pascagoula, MS.
Satellite/Special Purpose Facilities - Stennis Space Center (Bay St. Louis).

Southwest: **Regional Office** - Long Beach, CA.
Science Center - La Jolla, CA.
Major Laboratories - Tiburon, CA; Honolulu, HI.
Satellite/Special Purpose Facilities - Monterey, CA.

Northwest: **Regional Office** - Seattle, WA at Sand Point.

Science Center - Seattle, WA at Montlake.
Satellite/Special Purpose Facilities - Manchester, WA; Mukilteo, WA; Pasco, WA; Newport, OR; Pt. Adams, OR.

Alaska: **Regional Office** - Juneau, AK.
Science Center - Seattle, WA at Sand Point.
Major Laboratories - Auke Bay, AK; Kodiak, AK.
Satellite/Special Purpose Facilities - Little Port Walter, AK.

Resource Information: NOAA collects biological, environmental, and ecosystem data about the Nation's living marine resources and their supporting habitats. Living marine resources include fish, shellfish, corals, marine plants, marine mammals, and endangered species. Research programs are conducted nationwide by NOAA's fisheries research laboratories and provide fundamental information required by Federal, state, and industry decision-makers for conservation and management purposes in support of the Magnuson-Stevens Act, Endangered Species Act, Marine Mammal Protection Act, and other statutes.

Scientific surveys are conducted to sample the distribution and abundance of living marine resources. The surveys are conducted by NOAA research vessels, sometimes in association with contracted state, university or private vessels, aircraft, and satellites. These surveys collect biological information on the species composition, size, abundance and distribution of living marine resources of commercial, recreational, or ecological significance, and related habitat data. This information supports habitat conservation and resource allocation decisions, including the resolution of conflicts among competing user groups. These surveys provide data on scientific samples used for determining the characteristics of the resource populations. Stock assessments are produced using a combination of information from resource surveys and information collected directly from fishing industries and observer programs, and through cooperative agreements and contracts with state agencies, universities, and private organizations. Contracting for days at sea for the Antarctic Living Marine Resources Program is also included in Resource Information base funding.

Fisheries research is conducted on predator-prey relationships, mortality and growth rates, age and sex structure, reproductive states, distribution and migrations, habitat and physiological requirements and diseases. These data provide an understanding of biological processes necessary to develop sound conservation and management strategies. Food chain and predator-prey relationships are particularly important in understanding the complex interactions of marine species and for comprehensive ecosystem management. Research also is carried out on stress to marine resources from pollution and overfishing. Accurate prediction of fishery yields is difficult because of ecological variability that influences the abundance of living marine resources. Environmental changes can affect living marine resources significantly during all life stages and drastically affect harvests, resource distribution and availability along traditional migratory routes, feeding and spawning concentrations, and behavior on fishing grounds. Natural and human-induced (i.e., fishing pressure, habitat degradation, and pollution) changes to marine habitats are studied to determine their effects upon the abundance, distribution, and physiological functions of species of commercial and recreational significance. The resulting increased understanding about recruitment dynamics, pollutant effects, and ecosystem impacts helps managers to identify and mitigate the causes of mortality and recruitment variability. Such actions help to restore, to maintain, or to rebuild marine resources.

Protected species research focuses on marine species population abundance, distribution and trends, marine ecosystem dynamics and the impacts of human activities on marine mammals and other protected marine species. NOAA conducts studies on large whales, porpoises, seals, sea lions, salmon, and sea turtles. NOAA uses this information to develop conservation and recovery plans in fulfillment of its Marine Mammal Protection Act and Endangered Species Act responsibilities. Scientists conduct research programs nationwide in NOAA fisheries research laboratories and provide fundamental information required by Federal, state and industry decision-makers for conservation and management purposes. Molecular genetics and modern approaches to stock identification supply data necessary to distinguish population stocks of marine species for use in appropriate and prudent listing determinations. NOAA specifically investigates the effects of commercial fishing, dams, power plants, polluted effluents, dumping, dredging and logging on protected species in support of Administration efforts to recover salmon species along the West Coast. NOAA prioritizes its research and monitoring efforts on only the most critical situations where sensitive populations are adversely affected by human activity and on species that are petitioned for status review to make a listing determination. Such species include several salmon, marine mammal and sea turtle populations. NOAA conducts periodic status reviews to monitor the improvement or decline of listed species and evaluate management activities.

Cross Cutting Research and Monitoring. Included within the Resource Information base is a research program to develop models and apply strategies for bycatch reduction through the assessment, monitoring and prediction of bycatch in major U.S. fisheries. While the issue of bycatch has been recognized as a significant factor in the accurate assessment of stocks, bycatch species are often an important biological component of ecosystems; their removal can be wasteful from an economic perspective, undermines conservation efforts, reduces biodiversity and may change the composition of ecosystems in ways that inhibit recovery of fish stocks. Thus means of reducing bycatch must be identified, developed and implemented. This work will provide research on the underlying biological relationships associated with bycatch and make progress on predicting the consequences of proposed mitigation options for dealing with bycatch.

The Magnuson-Stevens Fishery Conservation and Management Act directed the Department of Commerce to conduct research in the field of "conservation engineering," which includes the development of highly selective harvesting gear. Development of gear that will not catch non-target species is needed for some fisheries (e.g., Pacific halibut in Alaska trawl fisheries), while in other fisheries, gear must be developed that will permit non-target organisms, such as undersize swordfish taken on longline, to escape unharmed if captured.

NOAA uses remote sensing and other technologies to improve the timeliness and quality of the information on living marine resources. In some fisheries, acoustic devices are used to locate fish and estimate their abundance. Aerial and satellite sensor techniques are developed to: locate plankton concentrations and ocean thermal fronts; measure water temperature, salinity, and turbidity; track fish, mammals, and sea turtles; and direct research and fishing vessels to target areas. The application of advanced technology increases the speed and efficiency at which large ocean expanses and extensive coastal areas can be monitored, thereby giving a more comprehensive picture of physical changes in the ocean environment and their relationship to resource variations evidenced from survey data.

To adequately monitor the impact of a fishery on a particular stock, as well as particular ecosystems, it is important to estimate the overall catch by vessels on the fishing grounds -- not just the portion of the harvest that is ultimately landed and sold. The best means for obtaining such information

on what is removed (i.e., killed) from the system by fishing is through data collected by at-sea observers. NOAA's observer programs estimate the catch and can provide real time monitoring of the progress of the fishery. Data on the species, size, sex and other biological characteristics of both target and non-target species eventually landed or discarded at sea are collected. This includes samples of protected species such as marine mammals and sea turtles that might be bycatch to the fishery. This information is vital for the development of comprehensive management and conservation programs.

Habitat Research and Restoration. The NOAA Restoration Center directs the planning, implementation, and monitoring of case-specific programs to restore NOAA trust resources after successful settlement of natural resource damage claims. The Center provides in-house expertise and coordination for restoration and habitat research. The Center works with other NOAA components, as a participant of the Damage Assessment and Restoration Program (DARP), to develop and evaluate restoration needs and methods. In addition, the Center administers the NOAA-Army Agreement to increase marine fisheries productivity and advance habitat restoration technology, in cooperation with the Corps of Engineers Civil Works Program. It is also oversees of NMFS activities as part of implementing the Coastal Wetland Planning, Protection and Restoration Act (CWPPRA). NOAA expects to restore more than 90,000 acres of Louisiana coastal wetlands over the next five years, through CWPPRA projects. The Restoration Center provides support for NOAA efforts to build natural resource damage assessment claims against potentially responsible parties under statutes including the Comprehensive Environmental Response, Compensation and Liability Act and the Oil Spill Act of 1990. The Center uses awarded damages to restore, replace, or acquire the equivalent of injured resources; the services they provide; and to develop national expertise and institutional focus on habitat restoration through basic and applied studies.

NOAA strengthens the effectiveness of its habitat consultative powers by emphasizing research and management coordination, providing essential scientific advice early in the permit and license planning processes, working directly with developers in designing permit or license applications, supporting the Regional Fishery Management Councils in developing their positions on specific projects and issues, increasing overall habitat conservation awareness within Federal construction and permit-granting agencies and state and local agencies, and addressing opportunities to improve NOAA's ability to gather, transfer and use data on biological diversity as an indicator of the health of coastal habitats and ecosystems.

NOAA will continue its habitat restoration activities and its support for the South Florida Ecosystem Restoration using Resource Information base funding. NMFS has an important role in NOAA's contributions to the interagency restoration effort. NOAA's role is to provide the science, monitoring and assessments necessary to evaluate overall restoration activities and their impacts on coastal resources such as coral reefs, commercial and recreational fisheries. NMFS is leading the effort to restore South Florida's living marine resources through protection of essential fish habitat, restoration of protected species and their habitats, monitoring of important habitat characteristics such as pesticides and other contaminants, and using this information to help design, monitor and evaluate the impacts of inland restoration activities on coastal resources. These NMFS activities are an essential part of an integrated NOAA effort in South Florida that includes the National Ocean Service. Research projects were awarded through a competitive Request For Proposal process in collaboration with the office of Coastal Ocean Science’s South Florida Ecosystem Research, Prediction, and Modeling Program.

Fishery Industry Information: Commercial and recreational fisheries data are essential to assess the status of fisheries and develop policy options to manage fisheries for biological and economic growth and sustainability. They are also used directly in fishery management as a basis of catch allocations and to determine when allowable catch levels have been reached. The absence of timely and accurate data prevents completion of needed analyses for fishery management, stock assessment and economic impact decision making. NOAA's ability to formulate and implement public policy with a clear understanding of its implications is strongly compromised. NMFS has developed its Fisheries Statistics Strategic Plan to focus on its statistics program needs over the next decade.

The major thrusts of the program will be the initiation of systematic collections of economic and social data for recreational and commercial fisheries. Data will be collected through a combination of Federal, state and contractual mechanisms with an emphasis on integrating new activities within our existing cooperative relationships, such as our state-Federal partnerships.

NOAA plans to improve the analytical capability to predict and monitor the economic and social impacts of its management decisions. Many of these analyses are required by statute or Executive Order. This program will tap an external supply of economic and social science expertise through the creation of cooperative institutes and the use of Sea Grant and other university partnerships. More complete economic and social analyses of management decisions will rely on a systematic analysis of cost-earnings data; calculation of current and actual levels of capitalization; and establishment/implementation of standard methodology for evaluating net economic benefits and economic performance.

Commercial information includes: (1) volume and value of catch in domestic and foreign fisheries by species, region, state, and type of fishing gear; (2) incidental take or harvest of non-target species; (3) fishing effort; (4) volume and value of processed fishery products from domestic harvest, and imports; (5) cold storage holdings of fishery products; (6) production of industrial fish products (e.g., fishmeal and oil); (7) number of operating units and people employed in harvesting and processing fishery products; (8) imports and exports of fishery products; and (9) consumption of fishery products. Fishing effort and location data are collected from logbooks in some fisheries, from interviews of fishermen in others, and through at-sea sampling on domestic and foreign vessels. Recreational information includes: (1) the number and participation rates of marine recreational fishermen; and (2) their catch and effort data by mode of fishing (e.g., shore, pier, and charter boat).

Information Analysis and Dissemination: Fishery management depends on sophisticated mathematical and statistical analyses to integrate all of the available data from resource surveys, commercial and recreational data collections, at-sea observers, and population biology studies into a quantitative scientific basis for decisions. These analyses use state-of-the-art models of population dynamics and risk assessments to formulate policy options for fisheries management. Resource information, analyses, and recommendations on the status of stocks and the effects of current and potential management regulations are provided to NOAA, the eight Regional Fishery Management Councils, states, three interstate Marine Fisheries Commissions, and commissions established through international treaties. Data are analyzed and used in computer models to forecast changes in resource abundance required for long-range management. Computer-based analyses are important for monitoring domestic and foreign observer data, for administering various permit systems, and for timing of mid-season closures, if necessary, of various fisheries under quota controls. This

information also is used to identify the consequences of natural and human-induced changes in the marine environment on the production and abundance of living marine resources and to analyze the impacts of fishery management measures on the resources and the industry.

Activities support timely analysis and dissemination of fishery data, and ecosystem-focused analysis. This effort requires investments in computer, telecommunication, and facility infrastructure. Significant emphasis is placed on the use of state-of-the-art computer hardware and software systems to process scientific, administrative, and technical data used in living marine resource management, ecosystem modeling, stock abundance predictions, and other large-scale scientific applications. NOAA also must share data with states and the interstate Marine Fisheries Commissions for management of interjurisdictional fisheries, such as menhaden, flounder, and mackerel, and with other countries, such as Canada, Russia, and Mexico, for management of transboundary fisheries, including salmon, shrimp, groundfish, and pelagic swordfish and tunas.

Large quantities of valuable data are produced by fisheries assessment activities. These data must be managed so that they are accessible, easily manipulated and archived for future use by both NOAA and other users. NOAA/NMFS has a comprehensive, long-term plan for advancing data and information management as part of its Information Technology Strategic Plan.

NOAA/NMFS is in the process of planning and implementing a NMFS-wide systems architecture to provide a framework within which new systems can be acquired and existing information systems can evolve to new technologies when required. The systems architecture will build upon the capabilities currently provided by the nine host machines, distributed nationwide, which are supplemented by scientific workstations and personal computers. (The host machines and workstations were installed as the IT-95 computer system.) These are linked through a NMFS Wide Area Network (WAN) and Local Area Networks (LANs) to promote dissemination of information within and outside the agency. Conversion of older software to this relatively new system is underway. To facilitate the goal of non-duplicative, comprehensive, nation-wide systems of Fisheries information, the architecture will integrate client-server databases with distribution over the WAN and LANs. An efficient information technology system is essential for meeting NOAA's goal to Build Sustainable Fisheries, Recover Protected Species, and Sustain Healthy Coasts.

Adjustments-to-Base: The FY 2000 base amounts for all NMFS programs in this subactivity include adjustments-to-base to cover the 4.4 percent inflationary, pay increase.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Build Sustainable Fisheries				
Percent of 201 Federally managed fish stocks fully assessed	79	79	79	80
Percent completion of information technology procurement/operations	85	90	95	100
Number of new models/syntheses delivered from fisheries oceanographic studies	3	2	0	0
Recover Protected Species				
Status reviews used to establish and evaluate conservation programs (annual)	11	7	11	13
Investigations on mortality of protected species (annual)	7	10	10	15
Sustain Healthy Coasts				
Number of monitoring, research or assessment projects contributing to restoration of South Florida living marine resources	25	25	25	25

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Information Collection and Analyses	Pos./BA	1,366	$191,229	1,382	$169,505	16	($21,724)
	FTE/Obl.	1,360		1,372		12	

NOAA requests a net change in this subactivity of +12 FTE and −$21,724,000 which consist of $3,614,000 in increases and $25,338,000 in decreases for items not requested in FY 1999. The program increases are needed to maintain a sustainable and healthy fishing industry, and to conserve and protect species that are impacted by commercial fishing activities.

Resource Information (+10 FTE, −$16,924,000): NOAA requests a net decrease of $16,924,000 for programs in the Resources Information line item.

A net decrease of $11,461,000 is requested for Resources Information base programs. This net change consists of a $14,075,000 decrease for programs in the FY 1999 appropriation that were not proposed in the President's FY 1999 budget, and increases of +10 FTE and $2,614,000 which include $1,000,000 to promote environmentally sound marine aquaculture and $1,614,000 for Fisheries Oceanography.

An increase of 8 FTE and $1,000,000 is requested to promote the development of environmentally sound marine aquaculture in the United States. While globally, aquaculture production is increasing at a rate of 10 percent per year, the United States has not kept pace in realizing the economic opportunities from aquaculture. NOAA, in line with its new aquaculture policy, intends to address the technological and regulatory issues associated with increased aquaculture production in a manner consistent with its stewardship responsibilities for capture fish stocks and the environment. Aquaculture can assist in building sustainable fisheries by reducing pressure on wildstocks, and by providing alternative employment in fishing-dependent communities. Sustainable fisheries and sustainable aquaculture, existing in a healthy coastal environment, are achievable and necessary goals and will maximize the benefits of our ocean environment for the Nation. The funds will be used to develop and implement efficient regulatory and permit procedures for marine aquaculture including siting in the EEZ. Technical studies to define and develop sustainable aquaculture will also be supported.

An increase of 2 FTE and $1,614,000 is requested for fisheries oceanography to improve stock predictions. This increase will begin the Fisheries and the Environment (FATE) 2000 initiative to apply, develop, and expand research activities. This initiative will also transfer to fisheries management communities the information and models needed to integrate the impacts of ocean climate changes into resource assessment models, and to evaluate new models and techniques for resource management. The major tasks are to identify and assess critical environmental processes controlling long-term

trends in the Nation's fishery production, develop an observational program of sufficient scope to anticipate impending regime shifts, and develop coupled bio-physical models to predict the effects of regime shifts on fisheries.

The $14,075,000 of program terminations are:

Gulf of Mexico Consortium	–$1,500,000
Gulf and South Atlantic Foundation	–1,250,000
Atlantic Herring and Mackerel	–200,000
Aquatic Resources Initiative	–8,000,000
Alaska Near Shore Fisheries	–1,250,000
Chesapeake Bay Oyster Research	–450,000
Charleston Bump	–275,000
Shrimp Pathogens	–300,000
Lobster Sampling	–100,000
Southeastern Sea Turtles	–300,000
Hard Clam Population Dynamics	–450,000

In addition, decreases totaling $5,463,000 are proposed for programs funded in FY 1999 above the President's budget request:

A decrease of $390,000 is requested for Chesapeake Bay studies which was funded in FY 1999 above the President's budget request.

A decrease of $150,000 is requested for Right whale research which was funded in FY 1999 above the President's budget request.

A decrease of $239,000 is requested for Alaskan groundfish surveys which was funded in FY 1999 above the President's budget request.

A decrease of $20,000 is requested for West coast groundfish which was funded in FY 1999 above the President's budget request.

A decrease of $500,000 is requested for Hawaii stock management plan which was funded, but not requested in FY 1999.

A decrease of $1,857,000 is requested for Pacific salmon treaty program which was funded in FY 1999 above the President's budget request.

A decrease of $200,000 is requested for Hawaiian monk seals which was funded in FY 1999 above the President's budget request.

A decrease of $1,080,000 is requested for Steller sea lion recovery plan which was funded in FY 1999 above the President's budget request.

A decrease of $27,000 is requested for Hawaiian sea turtles which was funded in FY 1999 above the President's budget request.

A decrease of $1,000,000 is requested for Bluefish/striped bass which was funded, but not requested in FY 1999.

Fishery Industry Information (+2 FTE, –$4,800,000): NOAA requests a net decrease of $4,800,000 for programs in the Fishery Industry Information line item.

An increase of 2 FTE and $1,000,000 is requested for Fishery Industry Information base programs to collect fisheries statistics and perform economic analyses required by the new National Standard 8 of the Sustainable Fisheries Act. National Standard 8 of the SFA mandates that conservation and management measures need to consider the economic consequences of those measures on fishing communities during the regulatory process. The increase will initiate a comprehensive plan in all NMFS regions for fisheries data collection on the socioeconomic characteristics of commercial and recreational fishermen, economic values withing fisheries, and vessel data withing fisheries, all of which will improve the analytical capability to predict and monitor the economic and social consequences of management decisions.

A decrease of $300,000 is requested for Alaska Groundfish Monitoring which was funded in FY 1999 above the President's budget request.

A decrease of $1,700,000 is requested for PACFIN which was funded in FY 1999 above the President's budget request.

A decrease of $800,000 is requested for Recreational Fishery Harvest Monitoring which was funded in FY 1999 above the President's budget request.

A decrease of $3,000,000 is requested for Gulf FIN which was funded, but not requested in FY 1999.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total Changes	–$21,724	–$21,724	–$21,724	–$21,724	–$21,724

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Build Sustainable Fisheries					
Eliminate and Prevent Overfishing and Overcapitalization					
By 2004, 45% (86 of 286) fewer overfished fisheries (stocks subject to overfishing)[1]	0	5%	8%	20%	45%
By 2004, 10% fewer overcapitalized fisheries (economic and social aspect)	0	0	4%	8%	10%
By 2004, 60% of stocks have sufficient "essential fish habitat"	50%	52%	54%	56%	60%
Attain Economic Sustainability in Fishing Communities					
By 2004, 10% increase in employment in non-capture fishing and/or other sectors	0	0	5%	7%	10%
By 2004, 25% of communities impacted by limited/closed fisheries are economically improved	0	0	5%	15%	25%
Develop Environmentally and Economically Sound Marine Aquaculture					
By 2004, 20% of increase in economic contribution of aquaculture to Gross Domestic Product (GDP) . . .	4%	6%	8%	10%	20%
By 2005, 100% of aquaculture operations are in compliance with Code of Responsible Aquaculture Practice . .	0	10%	20%	30%	50%

[1] The 45% goal means that the number of overfished fisheries will be reduced to 47 or less by 2004.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Sustain Healthy Coasts					
Number of monitoring, research or assessment projects contributing to restoration of South Florida living marine resources	30	30	30	30	30

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Marine Fisheries Service
Subactivity: Information Collection and Analysis

Title:		Grade	Number	Annual Salary	Total Salaries
Economist		14	1	77,713	77,713
Economist		13	2	65,763	131,526
Fisheries Oceanographer		12	1	55,303	55,303
Fisheries Biologist		12	3	55,303	165,909
Fisheries Biologist		11	2	46,142	92,284
Fisheries Biologist		9	2	38,137	76,274
Fisheries Biologist Technician		7	3	31,176	93,528
Fisheries Biologist Technician		5	2	25,168	50,336
Total			16		742,873
Less Lapse	25.0%		(4)		(185,718)
Total full-time permanent (FTE)			12		557,155
FY 2000 Pay Adjustment (4.4 %)					24,515
Total					581,670

Personnel Data	
Full-Time Equivalent Employment	
Full-time permanent	12
Other than full-time permanent	0
Total	12
Authorized Positions:	
Full-time permanent	16
Other than full-time permanent	0
Total	16

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **National Marine Fisheries Service**
Subactivity: **Information Collection and Analysis**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	582
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	582
12.1	Civilian personnel benefits	147
13	Benefits for former personnel	0
21	Travel and transportation of persons	30
22	Transportation of things	10
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	50
24	Printing and reproduction	10
25.1	Consulting services	490
25.2	Other services	1,789
25.5	R&D contracts	139
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	367
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	3,614

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **National Marine Fisheries Service**
Subactivity: **Information Collection and Analysis**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.2	Other services	(11,263)
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(14,075)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(25,338)

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Marine Fisheries Service
Subactivity: Conservation and Management Operations

Line Item		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fishery Management Programs	Pos./BA	208	66,790	263	59,966	263	67,118	289	94,848	26	27,730
	FTE/OBL.	218	65,230	262	61,526	262		283		21	
Protected Species Management	Pos./BA	262	45,625	398	51,861	398	52,467	586	83,584	188	31,117
	FTE/OBL.	252	44,496	402	52,990	402		543		141	
Habitat Conservation	Pos./BA	114	8,639	116	9,000	116	9,158	136	10,858	20	1,700
	FTE/OBL.	89	9,364	116	8,275	116		132		16	
Enforcement and Surveillance	Pos./BA	171	19,540	183	17,775	183	18,096	201	19,121	18	1,025
	FTE/OBL.	149	19,126	181	18,189	181		194		13	
Total	Pos./BA	755	140,594	960	138,602	960	146,839	1,212	208,411	252	61,572
	FTE/OBL.*	708	138,216	961	140,980	961		1,152		191	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Marine Fisheries Service**
Subactivity: **Conservation and Management Operations**

Goal Statement

Implement and monitor living marine resource management measures to support the National Oceanic and Atmospheric Administration (NOAA) strategic plan goals to build sustainable fisheries, recover protected species and sustain healthy coasts.

Proposed Legislation

NOAA will work with the Administration to reauthorize the Endangered Species Act (ESA), P.L. 95-632; the Magnuson-Stevens Fishery Conservation and Management Act, P.L. 104-297; and the Marine Mammal Protection Act, P.L. 97-58.

Base Program

The objectives of this subactivity are to:

- Identify depleted and overexploited fishery stocks. Reduce fishing effort on overfished stocks. Implement Magnuson-Stevens Act (Section 602) guidelines for prevention of overfishing. Reduce bycatch of overfished stocks. Reduce the risk of overfishing in currently productive fisheries. Reduce uncertainty in stock assessments. Improve compliance with fisheries regulations. Ensure effective fisheries management to promote fisheries productivity. Rebuild overfished stocks.

- Improve the terms of competitive trade for the U.S. Fishing industry in international markets by addressing tariff and non-tariff barriers through multilateral and bilateral mechanisms.

- Identify and resolve conflicts, and improve coordination between the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA) and fisheries. Implement protected species recovery plans for species listed under the ESA and MMPA. Reduce fishery and passive viewing impacts on protected species.

- Use authority of the Fish and Wildlife Coordination Act, Magnuson-Stevens Act, Marine Mammal Protection Act, Endangered Species Act, Oil Pollution Act, Clean Water Act, Superfund, and other legislation to implement a cohesive strategy to protect and restore the habitat of living marine resources. Determine if artificial or restored habitat fulfills essential habitat needs of living marine resources. Encourage the restoration of habitats that have been adversely affected by habitat modifications to restore depleted stocks. Use international agreements to conserve living marine resources and their habitats. Establish and improve international agreements to promote scientific research and communication.

- Determine the impacts of aquaculture on habitat and wild populations, and methods to reduce adverse effects. Develop means to permit cultured products in the marketplace without jeopardizing the conservation of wild stocks. Determine the potential for aquaculture to enhance recovery of protected species and depleted fisheries.

This work is conducted by NMFS Regional Offices and Science Centers and through external partnerships with the Councils, Commissions, States and other Federal agencies.

Fishery Management Programs: The Magnuson-Stevens Fishery Conservation and Management Act established exclusive U.S. jurisdiction over the living marine resources in the 2.2 million square miles of ocean area, known as the Exclusive Economic Zone (EEZ), generally within 200 nautical miles of the coastline of the U.S. and its territories. This Act was intended to ensure that fishing within the EEZ is conducted under sound, scientifically-based management and economic conditions. U.S. commercial and recreational fishermen have right of access over foreign fishermen to resources within the EEZ. Through management decisions, government regulations, enforcement, and conservation activities, NOAA and the eight Regional Fishery Management Councils (established by the Magnuson-Stevens Fishery Conservation and Management Act) work with states, industry, other Federal agencies, and other organizations to maintain and restore fishery resources and their habitats and to enhance the health of the U.S. fishing industries. These efforts require a continuous, stable flow of data, information, and analyses provided by NOAA, states, universities, and the international scientific community.

The Regional Fishery Management Councils have the major responsibility for developing Fishery Management Plans (FMPs) for most domestic and foreign fisheries in the EEZ. The Councils also evaluate estuarine and freshwater issues affecting managed species under their purview. NOAA provides the Councils with technical and administrative assistance and financial support to develop, monitor, and amend FMPs. There is extensive consultation throughout the FMP process between NMFS Regional Administrators, who sit on the Councils, NMFS Science Directors, the Regional Councils and staffs, and the NMFS headquarters staff. Each existing fishery management plan may have one or more amendments per year. The Councils also review applications for fishing permits from foreign countries, conduct more than 200 public hearings and meetings, estimate yields, and determine the total allowable level of domestic and foreign fishing for each fishery under management within their jurisdiction. NOAA/NMFS reviews

management plans and amendments developed by the Councils to ensure compliance with the Magnuson-Stevens Fishery Conservation and Management Act and other applicable laws, and under authority delegated by the Secretary of Commerce approves or rejects them. Upon approval, NOAA/NMFS then implements the plans and amendments through promulgation and enforcement of regulations, issues permits, and collects fees for these permits if applicable. Besides providing oversight of fisheries management programs, NOAA develops national policy and legislative initiatives to guide the management of the Nation's fisheries.

Under amendments to the Magnuson-Stevens Fishery Conservation and Management Act, the Secretary of Commerce is directly responsible for the development and implementation of FMPs for any highly migratory species fisheries in the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea (in the Pacific Ocean, the Regional Fishery Management Councils are responsible for developing management programs for highly migratory species). The Magnuson-Stevens Act requires the Secretary to identify research and information priorities, including observer requirements and necessary data collection and analysis for the conservation and management of highly migratory species, especially tunas, swordfish, billfish, and sharks.

The Magnuson-Stevens Act was reauthorized in October 1996, and requires many significant new activities and programs. These new requirements include:

- Major revisions to all 39 existing Fishery Management Plans (FMPs) and associated regulations. Fishery Management Plans under development and any new Plans must conform to the Magnuson-Stevens Act's new standards.

- A new program to identify Essential Fish Habitat and to incorporate habitat needs into existing and future Management Plans prepared by the Councils. The MSFCMA directs the Secretary of Commerce to implement several requirements in the description, identification, conservation, and enhancement of essential fish habitat. The requested increase will support NOAA’s efforts to work with Federal, state, and local government agencies to award the destruction or degradation of EFH; to develop conservation and enhancement measures to minimize impacts to EFH; and identification of the effects of fishing on habitat. The Secretary is also required to provide recommendations to any Federal or state agency that funds or proposes to fund an action that may result in adverse effects on EFH.

- Establishment of six new advisory committees and preparation of numerous new reports.

- Development of a fishing vessel registration and information management system, and numerous other activities related to bycatch, limited access system permits, resource assessments, fisheries research (including a strategic plan and the expansion of ecosystem principles to fisheries management, etc.).

- Enforcement responsibilities.

Fishery resources that range beyond the EEZ and are harvested by fishing fleets of the U.S. and many other countries, must be monitored and assessed. Resources that must be monitored and assessed include tuna, swordfish, billfish, sharks, groundfish, scallops, and salmon. NOAA actively participates in international management efforts, such as the Pacific Salmon Commission, the North Atlantic Salmon Conservation Organization, the International Commission for the Conservation of Atlantic Tunas, the Inter-American Tropical Tuna Commission, the International North Pacific Fisheries Commission, the Commission for the Conservation of Antarctic Marine Living Resources, and the International Pacific Halibut Commission, to maximize U.S. access and to conserve these resources. NOAA monitors significant fishery activities in foreign countries to determine the effects on U.S. interests. Information on foreign fishing practices, policies, and programs is obtained through United Nations Food and Agriculture Organization bulletins and reports, translations and reviews of technical and industrial literature, discussions with international fishery officials, and communications with U.S. diplomatic officers.

Additionally, foreign fishing within the EEZ is assessed. However, in recent years little to no foreign fishing has taken place within the EEZ. Information on these activities is used by NOAA and the Department of State to negotiate and implement international fishery agreements and to determine which foreign countries will be allowed to harvest surplus U.S. fishery resources (i.e. those not fully utilized by U.S. fishermen within the EEZ). Negotiations and fishery allocation decisions occur throughout each fishing year and require continuous assessments of domestic and foreign fishing efforts. Currently, however, domestic fishing has almost completely supplanted foreign fishing in the EEZ, thus achieving one of the goals of the Magnuson-Stevens Act to promote U.S. economic interests and Americanize the U.S. fisheries.

Information collected in the various fishery assessment activities on the inputs of fishing industry production is used to analyze and model alternative regulatory regimes and forecast their likely impacts on the biology and economics of the fishery. Production output information is used to determine the efficacy of management decisions that are implemented and to track regulatory compliance by the participants. Timely and accurate harvesting information is vital to the effective implementation of quota-based, seasonal, areal, and in-season management regulations. Production information consists of biological, sociological, and economic information collected from commercial and recreational fisheries, as well as samples of recreational and commercial catch.

Habitat conservation and enhancement efforts directly support the essential fish habitat requirements of the Magnuson-Stevens Act. They reduce the destruction and degradation of habitats essential to living marine resources for spawning and growth to maturity. They protect and conserve habitats by helping people identify and evaluate the impacts of actions on habitat. They also develop measures to restore or enhance the value of habitat multiple uses.

Hatcheries and rearing ponds in the Columbia River Basin are operated and maintained as authorized under the Mitchell Act. The hatcheries mitigate the loss of salmon and steelhead habitat caused by Federal dams.

Given the opportunities to expand trade and competitiveness and the use of trade measures to support conservation objectives, NOAA ensures that policy makers have the best information possible to evaluate the impacts of decisions. NOAA is responsible for formulating strategy and positions on fishery

trade for bilateral and multilateral negotiations and participates as the Department's fishing industry sector staff. Activities include providing technical expertise and negotiating skills in multi- and bilateral efforts to reduce barriers in the trade of fish and fishery products. NOAA provides support for the U.S. Trade Representative's bilateral trade negotiations with Japan, Korea, and Taiwan and conducts regular technical bilateral discussions with Canada and the European Community. NOAA also provides support for actions under U.S. trade law, such as protection from import injury and retaliation for unfair trade practices. NOAA assists the Department's U.S. and Foreign Commercial Service activities in foreign countries promoting U.S. exports and U.S. Department of Agriculture food programs that purchase and distribute eligible seafood products domestically and internationally.

Protected Species Management: NOAA is required to evaluate and minimize the effects of human activities on protected marine, estuarine, and anadromous species under the Marine Mammal Protection Act of 1972 (MMPA), the Endangered Species Act of 1973 (ESA), and other statutes and international treaties and conventions. NOAA shares responsibility for the implementation of the ESA and the MMPA with the Department of the Interior. In general, the Department of the Interior is responsible for the conservation of terrestrial and aquatic (freshwater) organisms and NOAA is responsible for conservation of living marine resources, which include most marine mammals, many species of fish (both commercially valuable and non-harvested species), turtles at sea and species of marine invertebrates and plant life.

NOAA is responsible for the management, conservation, and recovery of some 32 stocks of marine species listed as threatened or endangered under the ESA, and depleted or strategic under the MMPA. An estimated 200 additional species are potential candidates for listing. When a species or population is declared depleted under the MMPA or threatened or endangered under the ESA, NOAA is responsible for developing and implementing recovery or conservation plans to promote the restoration of the species. NOAA convenes a team of experts that identifies specific research and management activities necessary to promote the recovery of the affected species or population.

The MMPA and ESA prohibit the taking (i.e. harassing, hunting, capturing, or killing) of marine mammals and endangered or threatened species. The MMPA allows the Secretary of Commerce to authorize U.S. citizens to incidentally take small numbers of marine mammals (e.g. by commercial fisheries) when the Secretary finds that the total of such taking would have a negligible impact on the affected species or stock and would not have an unmitigable adverse effect on subsistence taking. The ESA provides similar authority to the Secretary to authorize the incidental take of threatened and endangered species. To make the determination to authorize the incidental take of listed species, the Secretary must have reliable information on the status of the affected species or population and the number or proportion of the population to be taken by the proposed activity.

The recovery and conservation of salmon in the western U.S. and Atlantic has dramatically increased NOAA's responsibilities and challenged the organization’s ability to provide for the recovery of these species because the threats of extinction come from a variety of activities including fishing, hatchery operations, grazing, irrigation, and timber harvest. Status assessments allow NMFS to identify stocks in most need of management actions. If these stocks can be identified and mitigation plans developed before the stocks become depleted, threatened, or endangered, necessary actions to promote their recovery may be less restrictive than those required for listed species.

NOAA also provides public education and information services on protected species, participates in regional networks for stranded mammals and sea turtles with universities, state agencies, and private organizations, and consults with other Federal agencies to develop reasonable and prudent management actions that help Federal agencies ensure that their activities are not likely to jeopardize the continued existence of listed species or their critical habitats.

Through interagency agreements, NOAA cooperates with the Department of the Interior in listing, protecting, and controlling the importation of threatened or endangered marine species into the U.S. NOAA is also responsible for implementing numerous international agreements to further protection of marine species, including the International Whaling Convention, the Convention on Trade in Endangered Species, and the Convention on Biological Biodiversity.

Habitat Conservation: Habitat protection and restoration activities are vital to the conservation, long-term survival, and health of living marine resources, especially those important to U.S. commercial and recreational marine fisheries, and to increasing the economic and social benefits the Nation gains from its fisheries resources. NOAA carries out habitat protection through review of ecological impacts of proposed Federal actions that would affect the habitat of anadromous (e.g., salmon and shad), estuarine, and marine resources. This is done under authority of the Fish and Wildlife Coordination Act, the Federal Power Act, the National Environmental Policy Act, the Clean Water Act, and other legislation. Habitat conservation funds also protect in-river spawning, rearing and migrating habitat, which strive to join Federal salmon conservation goals with state and private sector activities. Habitat Conservation Plans for salmon seek to improve habitat while allowing the continued commercial use of affected land, and are a component part of the larger recovery and conservation effort.

In addition, the Magnuson-Stevens Fishery Conservation and Management Act gives authority for NOAA and the eight Regional Fishery Management Councils to influence Federal decisions affecting important fisheries habitats. Under these consultative powers, NMFS provides analyses and recommendations on Bureau of Reclamation and U.S. Army Corps of Engineers' construction projects, Corps permit applications for dredging and filling wetlands, Federal Energy Regulatory Commission licenses for hydroelectric power plant construction, and Environmental Protection Agency contaminant discharge permits, and other Federal funding and permit activities. Similar authorities also extend to state programs, with additional benefits to habitat.

NOAA’s National Habitat Program annually assesses about 5,000 such Federal projects, including wetlands permits, hydroelectric project license applications, and proposed outer continental shelf oil and gas development projects. In a recent year, permit applications affected over 39,000 acres of coastal habitats that supported about $12 million in commercial and marine recreational fishery harvests. NOAA also reviews and provides technical assistance on fisheries matters important to state coastal zone management plans, special area management plans, and proposed marine sanctuaries and estuarine research reserves.

The National Habitat Program also uses its mandates and expertise to influence decisions at the ecosystem or watershed level where protection and restoration successes can be even more dramatic. The Program pursues estuary improvements through regional studies, such as in the Chesapeake Bay

and partners with states to enhance watersheds and coastal ecosystems. These efforts provide large-scale benefits to NOAA trust resources and to our goals of no net habitat loss, increased yields, and sustained societal benefits.

Enforcement and Surveillance: Enforcement is a key element of a credible management effort designed to support the growth and stability of the domestic fishing industry and protect our nation's living marine resources. NOAA special agents and officers detect, deter, investigate, and document for prosecution, violations of Federal laws and regulations under the Magnuson-Stevens Fishery Conservation and Management Act, MMPA, ESA, Lacey Act, and other Federal statutes and international agreements relating to living marine resources. The program covers the full range of enforcement activities, including patrol, inspection, arrest, search, seizure, and undercover operations. Agents and officers ensure foreign and domestic fishing vessels operate in accordance with fishery management regulations, and investigate illegal taking, importation, or interstate transportation of contaminated shellfish, seafood, or protected species including their parts or products. Enforcement uses advanced satellite technologies to operate vessel monitoring systems (VMS) to reduce intrusive at sea monitoring and ensure higher compliance. A national community oriented policing and problem solving (COPPS) focus works to reduce violations by seeking solutions to improve compliance in the regulated community.

Adjustments-to-Base: The FY 2000 base amounts for all NMFS programs in this subactivity include adjustments-to-base to cover the 4.4 percent inflationary, pay increase.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Fisheries Management Program				
Fisheries with controlled access implemented (of 39 current FMPs)	25	26	27	30
# of EFH amendments to FMP's completed	0	1	4	39
Protected Species Management				
# of recovery plans developed (cumulative)	10	25	25	27
# of recovery plan priority activities implemented (annual)	8	8	15	20
# of species with status improved (annual)	12	16	15	16
Measure human-induced and other sources mortality (annual)	7	10	10	15
Understand status/trends and evaluate conservation programs (annual)	11	7	11	13
Cooperative conservation programs implemented (cumulative)	4	10	10	10
Habitat Conservation				
# of interagency agreement projects supported to restore coastal habitat (cumulative)	9	20	55	85
# of DARP restorations initiated (cumulative)	31	35	47	60
Restoration of coastal habitats, number acres benefitted (cumulative)	12,000	26,000	43,000	55,000
# of COE and other projects evaluated by NMFS	5,250	5,250	6,000	6,000
# of comprehensive project evaluations	1,500	1,500	2,000	2,000
# of watershed and ecosystem programs (e.g., NEPs) with NOAA representation	16	16	16	16
Enforcement and Surveillance				
# of initiatives to educate and promote voluntary compliance	25	30	40	50
# of regulations downgraded to fix-it status or rewritten	40	50	70	80
# of fleets using VMS for spatial/temporal regulations	3	3	5	6
# of significant civil/criminal violations documented for prosecution	145	160	155	155
% reduction in enforcement risk factors in the most at risk fisheries/base year	0	5	3	3

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Conservation and Management Operations	Pos./BA	960	$146,839	1,212	$208,411	252	$61,572
	FTE/Obl.	961		1,152		191	

NOAA requests a net change in this subactivity of +191 FTE and +$61,572,000. These program changes are required to maintain a sustainable and healthy fishing industry, and to conserve, protect and recover endangered and threatened species.

Fishery Management Programs (+21 FTE and +$27,730,000): NOAA requests increases of $27,730,000 under the Fishery Management Program line item.

A net increase of $3,900,000 is requested for Fishery Management Program base programs. Of the net increase, $2,630,000 will implement the Magnuson-Stevens Act provision for the following: improving the use of fisheries statistics and economic data, meeting the requirements of the Sustainable Fisheries Act, and implementing the essential fish habitat amendments to fishery management plans. Improving and expanding the use of fisheries statistics and economic and social data is necessary to understand the impacts of regulations on fishing communities; predict the responses of commercial fisheries to a range of policy instruments; understand market relationships required to track the impacts of management actions on producers, wholesalers, and consumers; understand and eliminate distortions in markets; and model and evaluate economic impact effects. Funding for the essential fish habitat provisions of the Magnuson-Stevens Act will enable NOAA to work with other Federal agencies, the states, and private industry to develop agreements and processes to safeguard essential fish habitat, to reduce adverse impacts to essential fish habitat from fishing gear, and to enhance habitat for increased fish abundance. Of the net increase, $1,500,000 will fund the lease and operations and maintenance costs for the Kodiak research laboratory, and $300,000 will fund the FY 2000 portion of the operations and maintenance costs for the Santa Cruz research laboratory. The annual operations and maintenance cost for Santa Cruz for FY 2001 and beyond will be $800,000. Of the net increase, decreases are included for the Pacific Coral Reef Management program (–$230,000) and the Atlantic Swordfish program (–$300,000) which were funded but not requested in FY 1999.

NOAA requests an increase of $22,700,000 for the new Fishery Habitat Restoration program as part of the Lands Legacy initiative. This increase will provide funds to broaden cooperative partnerships with Federal agencies, state and local governments, universities and private organizations for on-the-ground restoration of our Nation's coastal environments, including riverine, estuarine, and marine habitats. For over a decade, NMFS has successfully implemented habitat restorations differing in size and complexity through a variety of programs. These programs include the Damage Assessment and

Restoration Program (DARP) which restores injured resources under the Oil Pollution Act; the National Marine Sanctuary Act; the Comprehensive, Environmental Response, Compensation and Liability Act (Superfund); the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Program in Louisiana; and a national Community-based Restoration Program. The requested funds will allow NMFS to dramatically increase the geographic scope and rate at which restoration efforts are undertaken. NMFS will address the full range of habitats vital to NOAA's trust resources including wetlands, salt marshes, seagrass beds, mangroves, and coral reefs. Specific activities for this initiative include:

Of the $22,700,000, an increase of $15,700,000 is necessary to implement identified Regional Habitat Restoration projects on a regional or watershed basis to improve degraded habitats. NMFS will focus on a suite of projects in coastal environments and implement those habitat actions that provide the most significant benefits to NOAA trust resources. Partnerships with appropriate regional institutions will be sought to leverage increased funding. Participation is anticipated by those watersheds that: 1) are recognized estuary programs (e.g., Gulf of Maine, Long Island Sound, Delaware Bay, Pamlico and Albemarle Sounds, Tampa Bay, San Francisco Bay, Chesapeake Bay, Puget Sound, Beritaria/Terribone Bays); 2) have multiple federal endangered and/or threatened species (e.g., salmon habitats in the northeast, southwest and northwest); 3) have been identified as a result of regional habitat plans (Sustainable Fisheries Act of 1996); or 4) that are the sites of regional action by NOAA DARP (e.g., Narragansett Bay, Hudson River, the Louisiana coast, Galveston Bay, Puget Sound and Southern California Bight). Other planning opportunities will also be explored, including those associated with Special Area Management Plans, hydropower relicensing and water management.

Funds appropriated under this initiative will be distributed by NMFS to cooperating governments including state, local and tribes and other partners to address priority needs within habitats based on merit, the quality of existing restoration and regional habitat plans, and by the degree to which matching funds or in-kind resources are able to leverage NMFS funds. Besides restoration project implementation, limited funds will be available to states, local governments, and non-governmental organizations for land acquisition and monitoring required to document the success and improve the effectiveness of future restoration efforts.

Of the $22,700,000, an increase of $7,000,000 is necessary to expand the NMFS Community-based Habitat Restoration program to achieve greater habitat restoration through individual small-scale projects that foster local natural resource stewardship. Funds will be used to continue building a systematic national effort to encourage partnerships with states, local governments, non-governmental organizations, business, industry and schools. NMFS will broaden partnerships that presently exist with the American Sportfishing Association, the National Fish and Wildlife Foundation, and corporate environmental trusts as well as initiate new partnerships with other organizations. NMFS also will continue to solicit and support restoration initiatives at a grass-roots level by leveraging NMFS expertise and funding with in-kind expertise and monetary support from local interests. NMFS is able to leverage funding up to tenfold to produce significant on-the-ground restoration within coastal communities that ultimately monitor and maintain these restoration efforts. The number of requests for such assistance far exceeds present NMFS funding capability and greatly restricts the Agency's ability to encourage community efforts to restore marine and anadromous fish habitats.

All restoration efforts will compliment restoration needs identified by Fishery Management Councils in Fishery Management Plans. Habitat restoration is an integral part of the NOAA/NMFS goals to rebuild and maintain sustainable fisheries and to increase the long-term economic and social benefits derived from the nation's fisheries resources.

NOAA requests an increase of $5,180,000 to help rebuild overfished and overcapitalized northeast fisheries including groundfish and scallops. The additional funding will be used to implement rebuilding plans developed for such fisheries as required by the Magnuson-Stevens Fisheries Conservation and Management Act and carry out programs to address the social and economic effects of these plans on fishing communities including the administration of vessel buy out programs.

A decrease of $3,300,000 is requested for Columbia River hatcheries which was funded in FY 1999 above the President's budget request.

An increase of $300,000 is requested for the Regional Fishery Management Councils for a total funding level of $13,300,000. This increase supports the Council on Sustainable Development's goal to replenish and protect fisheries. The SFA workload for all eight Councils continues to increase for revising all existing fishery management plans (FMPs), incorporating of essential fish habitat into FMPs, and implementing new programs and regulations. NOAA/NMFS is the Councils' sole source of funding.

A decrease of $1,050,000 is requested for Pacific Tuna Management which was funded in FY 1999 above the President's budget request.

Protected Species Management (+141 FTE and +$31,117,000). NOAA requests a net increase of 141 FTE and $31,117,000 for programs in the Protected Species Management line item.

An increase of +9 FTEs and $2,600,000 is requested in the Protected Species Management base line item to apply an ecosystem approach to marine biodiversity conservation and species recovery that will result in reducing the need to list at-risk species as endangered or threatened with extinction. This initiative is critically necessary to move the Recover Protected Species (RPS) program beyond species crisis management. Human activities are threatening increasing numbers of marine, estuarine and anadromous species and their habitats. An increasing number of species face population declines and potential extinction. A number of these have been identified as candidate species under the Endangered Species Act (ESA) and numerous others may be at risk. Addressing conservation needs *before* species require listing under ESA provides greater environmental benefits with less expense and social disruption. Conservation of such species has added benefits to other species and their habitats. It is not effective from either an economic or a conservation perspective to wait until species are at the brink of extinction before acting to address conservation problems. This initiative will provide the tools necessary to identify and monitor priority marine and estuarine habitats (e.g., ecosystems) for conservation and restoration of biological diversity and essential habitat for fish, marine mammals and endangered species. This program will be based on a thorough mapping of biodiversity and a identification of at-risk areas and species so that conservation efforts can be targeted.

Endangered Species Recovery Plans (+132 FTEs, +$27,450,000): A net increase of 132 FTE and $27,450,000 is requested for Endangered Species Recovery Plans, which includes an increase of $29,700,000 to respond to the extinction crisis facing several endangered marine species and to significantly expand recovery efforts for Pacific salmonids. This increase is offset by a decrease of $2,250,000 for programs funded in FY 1999 but not requested in the President's budget. Below are projects included in this request.

The ESA Extinction Crisis Initiative (+8 FTEs; +$5,025,000): This initiative will stem the decline of highly endangered Pacific leatherback and northern Atlantic loggerhead turtles, as well as right whales, Hawaiian monk seals and Steller sea lions. All of these species are on the brink of extinction. This initiative will be done through a combination of research, monitoring, and management actions to determine the causes for the decline and to implement recovery measures. The following are included in the ESA Extinction Crisis Initiative:

! This initiative will support recovery of two critically endangered species of marine turtles, Pacific leatherback sea turtles (+1 FTE; +$750,000) and northern Atlantic loggerhead turtles (+3 FTEs; +$550,000). Pacific leatherback nesting populations of this species have declined dramatically in the last decade. A 1996 study of the four major nesting beaches for the Pacific leatherback in Mexico, which sustained as much as half of all global nesting for this species, revealed that the population has collapsed. During the last decade, the nesting population has declined by 90% to fewer than 1,000 females nesting annually. Recent evidence suggests that the driftnet and longline fisheries of the Pacific, in particular those prosecuted along the western coast of South America, may be largely responsible for these dramatic declines. NOAA will accomplish the following in support of this initiative: eliminate incidental take in commercial fisheries; support international efforts to protect nesting turtles, their eggs, and their nesting beach habitat; and determine migratory patterns, habitat requirements, and primary foraging areas for the species throughout its range.

For the northern nesting population of loggerhead turtles, residing from northeast Florida through North Carolina, this species has shown no evidence of recovery despite more than a decade of intensive conservation efforts, (e.g. TEDs). Proactive efforts are needed to reverse the observed decline, to prevent the change of listing status from threatened to endangered, and to ensure that this population recovers. NOAA will accomplish the following with support for this initiative: develop gear technology to eliminate incidental take in non-shrimp commercial fisheries, determine population size and population status in U.S. waters through in-water surveys and on nesting beaches through ground surveys, determine range of the population and assess level of mortality throughout the range, develop cooperative international efforts to protect this population throughout its range, and determine compliance with and ensure active and comprehensive enforcement of current regulatory requirements.

! The Hawaiian monk seal (+3 FTEs; +$1,237,500) is the only endangered marine mammal located entirely within U.S. waters. The Hawaiian monk seal's future is in grave jeopardy since current abundance is between 1,300 and 1,400 animals. The number of monk seals has declined by 60% since the late 1950s, and 4% to 5% annually from 1985 to 1993. Although counts have leveled off from 1993 to 1996, the population may continue to decline in the near future due to high juvenile mortality and low reproductive recruitment. Conceivably, the Hawaiian monk seal could be on the verge of extinction in 20 years.

Given the severely depleted status of the endangered Hawaiian monk seal population, this species is especially vulnerable to natural and anthropogenic influences that negatively impact population growth. To better understand these potential impacts, pelagic ecology studies are necessary to protect and conserve foraging habitat, and health/disease assessments are required for translocation efforts designed to bolster population growth and for possible mitigation efforts to reduce the impact of disease. Additionally, two immediate actions must be initiated as soon as possible: translocation of weaned pups and debris removal that will benefit population growth. Such efforts are essential to reverse the trends observed in the monk seal population over the past four decades and prevent the extinction of this endangered species.

! The northern Atlantic right whale is the most endangered large whale species in the world and one of the rarest animals on the planet (+ 1 FTE and + $762,500). Recent analyses of population trends suggest that unless the current trend is soon reversed that the population is in danger of imminent extinction. In the North Atlantic, human activities including shipping and fishing are clearly a factor in keeping these animals on the brink of extinction. Right whales are killed when struck by ships. Entanglements may restrict swimming or feeding, may lacerate the whale or, in the extreme, drown an animal. One third to one half of all known right whale deaths are caused by humans.

The increased level of funding proposed for this program in FY 2000 will considerably expand efforts to recover the species. The first complete survey efforts in a decade will provide the best estimates of population size available to date, and will finally allow the accurate assessment of population status. This initiative proposes major, new research and management initiatives to reduce the take of right whales in fisheries (through gear design) and to reduce ship strikes (through development of methods for ships to avoid whales). Examples of proposed questions to be answered with support for this initiative include: What kinds of habitats attract right whales? Can we predict where they are likely to be found in order to warn ships to be alert in an area? Can we design fishing gear that will stand up under normal fishing use but will break when a whale gets entangled?

! Funding for this initiative would support NOAA's efforts to estimate abundance for the North Pacific right whale and determine the scale of human related impacts on this highly endangered population ($300,000). The population of northern right whales found in the Bering Sea and off the west coast of North America is the most endangered population of whales in U.S. waters and one of the top ten most endangered populations of baleen whales in the world. No reliable estimate of minimum abundance is available for this population. Studies on the North Atlantic right whale population have shown that this species is particularly vulnerable to human activities (i.e., about 33% of mortalities are human-related and 60% of whales show scars from interactions with fishing gear or vessels). Although there has not been a sighting of a North Pacific right whale cow/calf pair since 1900, recent sightings of right whales in the southeastern Bering Sea support the contention that a small reproductive population still exists in the region. Funding for this initiative will allow NOAA to initiate studies to determine the population size and monitor trends in abundance, identify and protect critical habitat essential to the survival and recovery, and collect and analyze information on the areas and seasons where potential conflicts exist with vessels.

- The Marine Mammal Protection Act provides authority to establish and fund co-management conservation programs for marine mammals ($250,000) with Alaskan Natives. This request provides a means for working with Alaskan natives on a variety of issues by transferring some measure of authority and financial support. Among the priorities for co-management activities are determining sustainable take level for the subsistence harvest of beluga whales in Cook Inlet; identifying the causes of decline, and factors important to recovery of harbor seals in the Gulf of Alaska, and estimating the abundance and subsistence take levels for the Arctic ice seals.

- NOAA requests an increase of $150,000 for public education and outreach to effectively implement RPS regulations and policies through outreach to marine resource users and the general public. The most well-reasoned conservation measures are minimally effective if it is not clear to the public why they are necessary and how they can comply. Issues of concern include the swimming with and feeding of dolphins, regulations to implement marine mammal take reduction plans, and guidelines for whale watching.

- An increase of $150,000 is requested to allow NOAA to effectively implement the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). CITES is designed to conserve species by regulating and controlling international trade in species listed on its Appendices. In recent years, there has been increasing interest and activity to expand CITES regarding marine fish is greatly expanding in CITES. For example, in 1994 CITES initiated a review on the biological status of sharks and international trade in them. At the last Conference of the Parties (COP) in 1997, all species of sturgeon were listed on Appendix II. During the COP, participants also considered the establishment of a Marine Fish Working Group. The United States currently has several mandates to fund and implement CITES commitments related to marine species. Funding would support the shark related work started by CITES and continuing under the United Nations Food and Agriculture Organization. The recent listing of all sturgeon species requires permits for all caviar. This is a massive undertaking and will require close coordination with the U.S. Fish and Wildlife Service and its law enforcement branch. A proposal to downlist hawksbill sea turtles at the last COP will likely re-emerge at the next COP in 1999. In the interim, support for scientific studies on the status and migration of hawksbill sea turtles in the Caribbean is urgently needed. Capacity building for CITES throughout the Caribbean and other regions is essential for the effective operation of CITES. The United States can play an important role in providing training and supporting efforts at capacity building.

- Implementation of marine mammal take reduction plans ($590,000). NOAA is required to establish Take Reduction Teams (TRT) for strategic stocks of marine mammals that interact with U.S. commercial fisheries as required by §118 of the Marine Mammal Protection Act. Each TRT is responsible for developing a draft Take Reduction Plan (TRP), which is designed to assist in the recovery or prevent the depletion of strategic marine mammal stocks. TRPs are essential for reducing the bycatch of marine mammals to below levels that may prevent a stock from reaching or maintaining its optimum sustainable population. By the year 2001, TRPs must reduce the bycatch of marine mammals to insignificant levels approaching a zero mortality and serious injury rate. Much work remains to be done to fulfill this mandate. A critical aspect, of the take reduction process, is the involvement of key stakeholder groups including representatives of the fishing industry, NMFS, state marine resources management agencies, Fishery Management Councils, environmental organizations, and academic and scientific organizations. To date, five TRTs have been formed to develop and implement strategies (TRPs) for reducing marine mammal bycatch in commercial fisheries: Gulf of

Maine Harbor Porpoise, Atlantic Offshore Cetacean, Pacific Offshore Cetacean, Atlantic Large Whale, and Mid-Atlantic Harbor Porpoise. By 2000, twenty-two other fisheries which take unsustainable levels of marine mammals may also require the development and implementation of TRPs.

Activities to ensure successful conservation efforts:
- Support and expand monitoring of commercial fisheries, including placement of at-sea observers and alternative platforms.
- Research and monitor effectiveness and impacts of acoustic devices (pingers) and other bycatch reduction strategies.
- Develop new gear technology and/or identify practices which reduce bycatch.
- Research cetacean behavior as it relates to fishery interactions, including migration patterns, behavior around fishing gear, and feeding patterns.
- Partner with fishing industry to develop new data collection methods for stock assessments, bycatch estimates, and fishing effort.
- Coordinate with other fishery management measures to ensure the reduction of bycatch.
- Evaluate the progress of the TRPs toward reducing bycatch to insignificant levels approaching a zero mortality and serious injury rate.
- Enforce implementation of TRP regulations, including hiring of enforcement personnel.

- The Marine Mammal Health and Stranding Response Program is responsible for monitoring and coordinating marine mammal strandings, monitoring the health of marine mammal populations in the wild including the levels of pollutants in these populations, and detecting, responding to and investigating unusual mortality events. The funding in this initiative will be used to develop and maintain a national stranding database and provide funds to the National contingency fund for responses to unusual marine mammal mortality events ($285,000).

The Salmon Recovery Initiative (+124 FTEs; +$24,675,000) will significantly increase core science and management competency and for scientific research to support expert consultation and advice by NOAA to Federal, state and private landowners and resource users so that their actions promote the recovery of endangered and at-risk salmonids. Below are projects included in the Salmon Recovery Initiative.

- Partner with Federal Agencies (+40 FTEs; +$5,825,000) - NMFS will dramatically enhance its ability to protect and recover at-risk salmonids through a variety of strategies contained in this initiative. NMFS will actively partner with Federal agencies to meet the increasing demands for consultations on the impacts of Federal actions and clients of other agencies.

  This initiative will provide the additional resources needed to handle additional workload resulting from the listing of west coast chinook stocks expected to occur in 1999. Geographic areas that have not been covered by prior salmon listings include watersheds draining into the inland waters of the Puget Sound in Washington, the Willamette Basin in Oregon, and the Bay area in California. These geographic regions have large metropolitan areas that will be affected by chinook listings resulting in dramatic increases in Section 7 workload for NMFS.

Further, this initiative will allow NMFS to partner with the Department of Agriculture (USDA) and the Environmental Protection Agency on salmon conservation needs and requirements in Federal planning and activities. These efforts will complement state conservation plans developed to restore salmonid populations and avoid listings under the ESA. Application of salmon habitat conservation prescriptions through the Clean Water Act in partnership with EPA will provide better mechanisms to ensure restoration and recovery of salmonids. Specifically, these cooperative programs and partnerships will enhance NMFS efforts to modify and create water quality standards, discharge permits, total maximum daily loads and agricultural water quality management plans. This initiative also will allow NMFS to work with the states of Maine, California, Oregon, Washington, and Idaho along with the Environmental Protection Agency to assure that water quality standards and designated uses protect and facilitate the recovery of Atlantic and Pacific salmon. Staff will work with agriculture and forestry industries and USDA's Natural Resource Conservation Service to develop and implement total water use management plans that integrate the needs of the agriculture industry for processing and irrigation water and the needs of Atlantic salmon.

This initiative will fund increased NMFS participation in the Interior Columbia Basin Ecosystem Management Program (ICBEMP) and evaluation and implementation of the Eastside Environmental Impact Study (EIS). The ICBEMP applies to 144 millions acres in 7 western states and covers over 72 million acres of U.S. Forest Service (USFS) and Bureau of Land Management (BLM) lands within the Columbia River basin. More than one-third of the acreage provides habitat for anadromous salmonids, including critical habitats for listed salmonids. This initiative provides a step-up approach to funding the NMFS' $10,000,000 contribution to a $268,000,000 program in partnership with BLM, USFS, EPA and USFWS. The ICBEMP establishes a collaborative interagency process for management of federal lands and provides for direct NMFS involvement in project planning and implementation that is essential for addressing short-term and long-term risks to recovery of salmonids. Both steelhead and chinook in this basin has been listed under the ESA, and funding will provide for NMFS staffing to participate directly in the project screening process with other agencies to assess risks to salmonids and conduct programmatic ESA consultations.

The overarching need in habitat science is the development of a quantitative link between quantity and quality of habitat and stock productivity. This initiative will support the following specific needs: 1) Investigate the relationship between proper functioning conditions of habitat at a landscape scale and population dynamics and the relationship between human disturbance on habitat function, 2) Identify relationships from above that assist in the development of landscape conservation strategies to achieve long-term survival, 3) Investigate summer and winter habitat use, requirements and survival for various salmonid species and life stages, 4) Assess the value of active salmon habitat restoration projects over time, 5) Evaluate the effects of gravel removal on the watershed's gravel recruitment and determine the extent to which gravel removal can impact quality and quantity of spawning and rearing habitats, 6) Investigate the effects of over water structures on smolt habitat, predator populations and smolt food sources, 7) Investigate the changes in estuarine habitats and evaluate how salmonid populations have been affected by those changes, 8) Identify essential habitat characteristics (e.g., temperature, dissolved gas, turbidity and nutrients) required to improve freshwater salmon productivity, 9) Investigate basin wide Atlantic salmon smolt production and the overwinter survival, emigration mortality and ecology, movements and dispersal, and 10) determine straying and movements and the role of estuaries through compilation of coastal salmon abundance and distribution trend data and multi-agency data acquisition and dissemination (coastal communities).

- Partnerships with States, Tribes, Local Governments and Non-Public Entities (+61 FTEs; +$12,250,000): This initiative will dramatically enhance NMFS ability to protect and recover at-risk salmonids through local partnerships. For example, NMFS will partner with local governments and non-public entities and landowners to develop Habitat Conservation Plans (HCPs) for listed and unlisted species. HCPs minimize near-term habitat damage and provide for properly functioning aquatic habitats that contribute to the long term survival of the affected species. If unlisted species are covered by HCPs, they can help obviate the need for listings; but, if there is a listing, the non-federal entity has assurances that their land or water management will not be further affected by a listing.

  The initiative will provide NMFS the resources needed to continue cooperative work with the states and local entities in implementing and monitoring Conservation Plans. On the west coast, NMFS needs to increase its involvement and support for the states and counties on Pacific salmon conservation plans allowing for development of a consistent, objective process to track and monitor the implementation of salmonid conservation measures and their effectiveness in salmon recovery and restoration of salmon habitats. On the east coast, this initiative will allow NMFS to better work cooperatively with its Federal, state and private partners in the implementation of the Conservation Plan for Atlantic Salmon in Maine. With this request, NMFS will have a dedicated coordinator for the Maine Plan. This coordinator will serve on the Maine Technical Advisory Committee that provides scientific advice to the various agencies, and will interact with private industry through Project SHARE (Salmon Habitat and River Enhancement), the forestry industry created non-profit organization, and with private citizens through the local watershed councils. Funding also will be used to assist state agencies, private organizations and local watershed councils to conduct activities which facilitate the overall implementation of state and county conservation plans. It will support an ESA Section 6 Cooperative Cooperative Agreement with the State of Maine to conserve Atlantic salmon.

  This initiative will allow NMFS to effectively evaluate salmon conservation measures through analysis of cumulative effects, and risk analyses. Cumulative effects are caused by the aggregate of past, present, and reasonably foreseeable future actions. Cumulative effects are changes in system behavior due to the increase in the number, intensity, or frequency of system stressors over time and space. This initiative will support NMFS to 1) Develop a comprehensive analytical framework for evaluating population responses to individual and cumulative conservation measures (e.g., population viability analysis); 2) Investigate stock-specific measures of productivity to determine the best available scientific information and methods available to support development of jeopardy standards; 3) Collaborate with co-managers in the development of data bases and analytical methods (e.g. life cycle assessments) to apply to jeopardy determinations under Section 7 of the ESA; 4) Test hypotheses regarding the interactions among biotic factors (prey availability, predation, disease, growth) and abiotic factors (habitat availability and quality, water quality, river plumes, upwelling) that affect survival of listed salmonids; and, 5) Develop methods to analyze cumulative watershed effects on proper functioning aquatic condition. It is essential that a comprehensive monitoring program be designed and implemented for tracking the success of recovery efforts for Pacific salmon. NMFS should be prepared to lead the development of such a program, and then assist the states and tribes in its implementation. This initiative would allow NMFS to develop and implement a coastwide monitoring program, in cooperation with states and tribes, for all-important salmon stocks in order to monitor stock status relative to conservation measures. This initiative also would allow for implementation of a similar program for Atlantic salmon in Maine which would include continued extensive detailed study of the Narraguagus River as a model river and expansion of similar, but less intensive, protocols to other rivers systems to

develop a range-wide monitoring and status program. The expanded monitoring program will improve our understanding of survival at each life stage and determine watershed level differences to help identify threats to the species.

- ESA Recovery Planning and Implementation (+ 14 FTEs; + $5,000,000): This initiative will enable NMFS to effectively recover salmon though its commitment to recovery planning and implementation. An initiative for the development and implementation of recovery plans, will result in determining the measures necessary for recovery and conservation as well as determining the economic impacts of recovery actions. Additional listings of chinook and chum salmon in FY 2000 will increase workload in development and implementation of recovery plans. NMFS will need to develop the infrastructure to address the additional workload and better work cooperatively with other agencies to develop effective recovery plans. Recovery plans will need to address factors affecting recovery of populations at risk. Specifically, these factors include destruction, loss, and decline of habitat, cumulative effects and ecological interactions.

  Understanding the factors controlling estuarine and ocean survival is a key component of developing an ecosystem context for salmon recovery. Without such a context, setting realistic goals and evaluating improvements in all life history stages (particularly those in freshwater) will be impossible. To make critically needed progress in this area, research needs to focus on the biotic and abiotic factors that control growth, distribution, and survival of salmonids in the estuarine and nearshore oceanic environment, and on the species and environmental interactions that set the context. This research includes: 1) Develop a coordinated annual survey of juvenile salmonid health, quality, growth, and distribution along the west coast; 2) Investigate predator/prey interactions to include a) determining the mortality to downstream migrants successful in passing dams from bird populations in the lower Columbia River and estuary, and trends in bird populations, factors driving those trends, and possible approaches to reducing bird predation, b) determining impacts of pinniped predation on recovery of at-risk stocks relative to impacts from other factors, c) investigating impacts of large fish predators on juvenile salmonids in the nearshore ocean; determine the role of prey buffering by alternative forage species, d) determining impacts of pinniped predation on Atlantic salmon particularly at vulnerable choke points in rivers and investigate pinniped attacks on net pen cages which lead to release of cultured salmon, and e) evaluating the impact of increased striped bass populations and their role as predators in representative Maine rivers; 3) Investigate environmental interactions affecting growth, distribution, and survival of survival salmon in the estuary and nearshore ocean, emphasizing seasonal, annual, interannual variation in ocean productivity; 4) Develop a reliable predictive capability and methodology to factor ocean survival predictions into fisheries management programs (spawning escapement goals, exploitation rates, etc.); and, 5) Continued development of the thermal ecology models of Atlantic salmon from eastern Maine rivers to understand how changes in both riverine and ocean climate may be impacting the survival and maturation schedules of these populations. Improved understanding of the factors that effect overall juvenile salmon production will produce more refined predictive management models.

- Implementation of the 1999 Biological Opinion and FERC Relicensing (+ 9 FTEs; + $1,600,000): This initiative supports the implementation of a key biological opinion that will dramatically affect the allocation of water resources in the Pacific Northwest. The 1999 ESA Section 7 Biological Opinion addresses the impacts of Federal dams in the Columbia River basin. NMFS will work with Federal operators as well as the Mid-Columbia Public Utility Districts. Further, this initiative will enable NMFS to effectively respond to accelerated schedules in FERC

relicensing in the states of Washington, Oregon and California, such as the Hells Canyon Complex in the Snake River and dams in the Klamath River basin. The hydropower dams and reservoirs in the Columbia River basin have impacted salmon habitat and survival of salmonids migrating to and from the ocean. Managing Snake and Columbia River flow spill and other passage measures to improve the survival of migrating adult and juvenile salmon is a major issue for salmon recovery. The operation of Federal hydro projects has been addressed through a single comprehensive biological opinion. That opinion deferred major system modification decisions to 1999 pending development of additional information and analyses. That ESA consultation will be reinitiated in FY 2000 to address the system configuration issues. This will result in increasing demands on NMFS resources to design, press for implementation of, monitor and evaluate the conditions of the consultation and actively participate in water management decisions. This initiative also addresses irrigation and non-Federal hydro projects which also significantly affect flows for salmon and NMFS participation in CalFED development.

A decrease of $100,000 is requested for Driftnet Act Implementation which was funded in FY 1999 above the President's budget request.

A decrease of $358,000 is requested for the Marine Mammal Protection Act which was funded in FY 1999 above the President's budget request.

A decrease of $50,000 is requested for the Bristol Bay Native Association under Native Marine Mammals which was funded, but not requested in FY 1999.

A net increase of $1,575,000 is requested for Observers/Training. This net increase includes a program increase of $2,000,000 to provide enhanced observer coverage for vessels working in overfished fisheries on the West Coast, including important groundfish. The program increase will allow substantial additional observer days, and will allow additional training of existing observers to better address critical areas, such as bycatch and total mortality. The data collected by observers provides vital fisheries-dependent information used to make fisheries conservation and management decisions. This $2,000,000 increase is offset by a decrease of $425,000 to end the University of Alaska fishery training program which is duplicative of other training available at the Alaska Fisheries Science Center. This program was funded, but not requested in FY 1999.

Habitat Conservation (+16 FTE, +$1,700,000): NOAA requests an increase of $1,700,000 for the Habitat Conservation line item to provide operational and programmatic capability for the NOAA Restoration Center. The Center serves as NOAA's focal point for habitat restoration, restoring fish habitat and other living and nonliving natural resources injured by human activities; advancing the science and technology of coastal habitat restoration through research and monitoring by the NMFS regional science centers; and transferring restoration technology to both the public and private sectors. Since its establishment, the Restoration Center's workload has increased significantly in nature, scope, and magnitude. This trend is certain to become more pronounced as a result of NOAA's mandated natural resource trustee responsibilities and the public's growing recognition of the role of habitat in preserving marine resources. Adequate core base funding is required to ensure NOAA/NMFS can continue to meet this increased workload in each of the major areas within the Center if we are to reverse the tide of diminishing habitats for marine and anadromous fish, endangered species and marine mammals.

The Restoration Center is an essential component of NOAA's Damage Assessment and Restoration Program (DARP) which fulfills the Secretary of Commerce's responsibilities as a natural resource trustee under the Oil Pollution Act, the National Marine Sanctuary Act and the Comprehensive Environmental Response, Compensation and Liability Act (Superfund). At present, an inadequate core operational capability limits the Center's ability to support the demand for restoration planning for coastal resources injured by hazardous material releases and rapid implementation of restoration recoveries from responsible parties. While Natural Resource Damage Assessment settlements cover many case-specific procedural and project implementation requirements, many administrative, developmental and logistical costs cannot be recovered and require base funding.

The NOAA Restoration Center also directs a national program of community-based habitat restorations for NOAA trust resources via partnerships among local NMFS facilities, local and state government agencies, industry, academia, and volunteer organizations under the National Fish and Wildlife Coordination Act. NMFS effectively leverages a limited amount of appropriated funds 4 to 5 times with other public and private funding sources to accomplish significant on-the-ground restoration projects; the number of requests for this assistance far exceeds the funding available for these purpose, however. Increased Restoration Center operational funds, along with the "Fishery Habitat Restoration" funds under NMFS' Fishery Conservation budget line are needed to meet the increasing demand for technical help and seed money for habitat restoration by local governments and coastal communities throughout the United States. Budget increases will allow this program to continue to expand and better support the rapidly growing number of community restoration efforts.

Lastly, the NOAA Restoration Center coordinates the Department's role as a Federal sponsor for wetland restoration projects in Louisiana under the authority of the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA). While most of the funding supporting this program is made available to NMFS thorough its participation in the CWPPRA Task Force, specific programmatic and monitoring needs require additional support from NMFS' budget. This highly visible program needs additional support to fulfill its role in the largest single wetland creation and restoration efforts in the Nation.

Enforcement and Surveillance (+13 FTE and +$1,025,000): NOAA requests an increase of 13 FTEs and $1,025,000 to carry out NOAA's enforcement efforts in support of Endangered Species Act (ESA) Marine Mammal Protection Act (MMPA), and the Sustainable Fisheries Act (SFA) amendments to the Magnuson-Stevens Act. These increases will provide the following:

Targeting Blatant Offenders (+8 FTEs, +$425,000): Most of the commercial fishing industry are hardworking fishermen and businessmen who comply voluntarily or with very little persuasion. However, as in any human endeavor, there are those who will simply not comply. Egregious or blatant offenders are most worthy of an enforcement focus because their efforts undermine the credibility of the agency's science by skewing landing data through under reporting and the use of commercial back channels in the trade of illegal seafood and seafood products. These offenses typically occur through carefully planned ruses and schemes. Often these illicit plans exist for years and include the use of vertically integrated corporations moving thousands of pounds of illegal fish in a single year. Complex fraud schemes of this magnitude can only be uncovered by specially trained investigators using the most modern white collar crime methodology. While blatant offenders must be brought to justice because they undermine confidence and acceptance of the fisheries management plans, these complex crimes do the most damage to the resource and the long term economy of the industry.

Pacific Salmonid Recovery (+5 FTEs; +$350,000): This initiative will provide enforcement personnel and resources to support endangered salmonid recovery. This support is needed to ensure compliance with required conservation and recovery measures in the watershed of endangered salmonids. There is an enforcement need for Pacific salmonid recovery program as no additional personnel to enforce salmon recovery efforts have been provided since the initial listing of Sacramento River winter-run chinook in 1990. The geographic area covered by current listings includes practically the entire west coast. The program's priority is to direct effort in the watershed areas to ensure compliance with required conservation measures.

Endangered Turtle Recovery (+$250,000): This funding supports NOAA's efforts to restore ESA-listed loggerhead turtles. Funding will support enforcement personnel's attempts to determine compliance with and ensure active and comprehensive enforcement of current regulatory requirements.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Build Sustainable Fisheries					
Eliminate and Prevent Overfishing and Overcapitalization					
By 2004, 45% (86 of 286) fewer overfished fisheries (stocks subject to overfishing)[1]	0	5%	8%	20%	45%
By 2004, 10% fewer overcapitalized fisheries (economic and social aspect)	0	0	4%	8%	10%
By 2004, 60% of stocks have sufficient "essential fish habitat"	50%	52%	54%	56%	60%
Attain Economic Sustainability in Fishing Communities					
By 2004, 10% increase in employment in non-capture fishing and/or other sectors	0	0	5%	7%	10%
By 2004, 25% of communities impacted by limited/closed fisheries are economically improved	0	0	5%	15%	25%

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Develop Environmentally and Economically Sound Marine Aquaculture					
By 2004, 20% of increase in economic contribution of aquaculture to Gross Domestic Product (GDP) . . .	4%	6%	8%	10%	20%
By 2005, 100% of aquaculture operations are in compliance with Code of Responsible Aquaculture Practice . .	0	10%	20%	30%	50%

[1] The 45% goal means that the number of overfished fisheries will be reduced to 47 or less by 2004

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Recover Protected Species					
By FY 2004, reduce the probability of extinction of 6 endangered species [1]/ESUs (Pacific leatherback turtles, Hawaiian monk seals, North Atlantic right whales, western Steller sea lions, North Pacific right whales, Pacific salmonids[2]) out of 16 endangered species/ESUs:	0	0	0	2	6
By FY 2004, reduce the probability of extinction of 2 threatened species[1]/ESUs (North Atlantic loggerhead turtles, Pacific salmonids[2]) out of 7 threatened species/ESUs:	0	0	1	1	2

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
By FY 2004, reduce the probability of extinction of 4 ESA candidate species[1]/ESUs (Atlantic salmon[2], white abalone, Atlantic sturgeon, Pacific salmonids[2]) out of 16 candidate species/ESUs: .	0	0	0	0	4
By FY 2004 protect or restore priority biodiversity areas					
% ESA species critical habitat mapped	30	75	100		
% MMPA species critical habitat mapped	0	25	50	100	
# priority sites monitored	3	5	8	12	16
Regions where threats are identified and mapped .	0	Atlantic	Gulf	E. Pacific	W. Pacific
% increase in number of new sites protected	0	0	Base + 2	Base + 10	Base + 20

[1] Quantitative measures of the probability of extinction for individual protected species will be developed in the next years to establish the baseline from which program performance (reduction in the probability of extinction) is measured. NMFS recognizes the need for objective procedures to determine the status of protected species based on population viability analyses that take into account species biology and threats to existence that are both human-caused and natural. The RPS FY 2000-2004 budget proposal is based in part on measuring our ability to reduce the probability of extinction for at risk-species. RPS performance will be measured by the results of our attempts to reduce the risk of extinction for protected species from detrimental human activities, e.g., reducing incidental and direct takes, increasing species habitat, decreasing negative interactions, and mitigating natural phenomena.

[2] The life cycle of salmonids is 3 years or more. Thus, any positive benefits of conservation measures implemented in FY 2000 will first be seen as results in FY 2003.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Sustain Healthy Coasts					
# of monitoring, research, or assessment projects contributing to restoration of South Florida marine resources	30	30	30	30	30
# of interagency agreement projects supported to restore coastal habitat (cum)	85	130	180	235	295
# of DARP restorations initiated	40	55	70	85	100
Restoration of coastal habitats, # acres benefitted (cum)	55,000	70,000	80,000	92,000	120,000
# of COE and other projects evaluated by NMFS	6,000	8,000	10,000	12,000	14,000
# of comprehensive project evaluations	2,000	2,200	2,400	2,600	2,800
# of watershed and ecosystem programs (e.g. NEPs) with NOAA representation	16	20	24	28	32

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total Changes	+ $61,572	+ $61,572	+ $58,272	+ $58,272	+ $58,272

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Marine Fisheries Service
Subactivity: Conservation Management and Operations

Title:		Grade	Number	Annual Salary	Total Salaries
Program Analyst		13	2	65,763	131,526
Statistician		12/13	1	65,763	65,763
Ecologist		12/13	4	65,763	263,052
Computer Specialist		12	2	55,303	110,606
Economist		12	1	55,303	55,303
Attorney Advisors		12	5	55,303	276,515
Biometrician		12	7	55,303	387,121
Ecologist		12	1	55,303	55,303
Hydraulic Engineers		12	2	55,303	110,606
Hydrologist		12	3	55,303	165,909
Fishery Biologist		12	155	55,303	8,571,965
Zoologist		12	1	55,303	55,303
Biologist/Resource Management		12	3	55,303	165,909
Special Agent		11	3	46,142	138,426
Fishery Biologist		11	43	46,142	1,984,106
Wildlife Biologist		11	1	46,142	46,142
Zoologist		9	1	38,137	38,137
Wildlife Biologist		5/7/9	1	38,137	38,137
Fisheries Biologist		9	1	38,137	38,137
Enforcement Technician		9	2	38,137	76,274
Special Agent		9	3	38,137	114,411
Special Agent		7	5	31,176	155,880
Enforcement Technician		5	5	25,168	125,840
Total			252		13,170,371
Less Lapse	25.0%		(63)		(3,292,593)
Total full-time permanent (FTE)			189		9,877,778
FY 2000 Pay Adjustment (4.4 %)					434,622
Total					10,312,400

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Personnel Data	Number
Full-Time Equivalent Employment	
Full-time permanent	189
Other than full-time permanent	0
Total	189
Authorized Positions:	
Full-time permanent	252
Other than full-time permanent	0
Total	252

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **National Marine Fisheries Service**
Subactivity: **Conservation and Management Operations**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	10,312
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	123
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	10,435
12.1	Civilian personnel benefits	2,604
13	Benefits for former personnel	0
21	Travel and transportation of persons	2,039
22	Transportation of things	154
23.1	Rental payments to GSA	1,341
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	83
24	Printing and reproduction	332
25.1	Consulting services	200
25.2	Other services	32,433
25.5	R&D contracts	9,126
26	Supplies and materials	2,122
31	Equipment	2,284
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	3,277
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	66,430

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **National Marine Fisheries Service**
Subactivity: **Conservation and Management Operations**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.2	Other services	(1,558)
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(3,300)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(4,858)

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Marine Fisheries Service
Subactivity: State and Industry Assistance Programs

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Grants to States	Pos./BA	0	11,471	0	19,450	0	12,450	0	8,700	0	(3,750)
	FTE/OBL.	0	10,695	0	20,226	0		0		0	
Fisheries Development Program	Pos./BA	90	26,929	90	10,574	90	10,778	66	8,328	(24)	(2,450)
	FTE/OBL.	120	16,301	90	21,202	90		66		(24)	
Total	Pos./BA	90	38,400	90	30,024	90	23,228	66	17,028	(24)	(6,200)
	FTE/OBL.*	120	26,996	90	41,428	90		66		(24)	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Marine Fisheries Service**
Subactivity: **State and Industry Assistance Programs**

Goal Statement

Conduct state and industry assistance programs to support National Marine Fisheries Service (NMFS) strategic plan goals to build sustainable fisheries, recover protected species and sustain healthy coasts.

Proposed Legislation

NOAA will work with the Administration to reauthorize the Endangered Species Act (ESA), P.L. 95-632. The FY 2000 President's budget includes legislation to transfer the Seafood Inspection Program to the Food and Drug Administration.

Base Program

The objectives of this subactivity are to:

- Provide cost-sharing grants to states to conduct research, collect and analyze data, and support interjurisdictional fishery management.

- Carry out a product quality and safety program with emphasis on reducing human health risks from microbial, biotoxin, and chemical sources in fish and shellfish and establishing mechanisms other than inspection to reduce human health risk from seafood consumption.

The Fish and Wildlife Act of 1956, the Magnuson-Stevens Fishery Conservation and Management Act, and the American Fisheries Promotion Act of 1980 encourage the conservation, management, and wise use of available fishery resources for the benefit of the nation. To help meet this goal, NMFS carries out a program in cooperation with the states and the private sector to address both the management of the national fishery resources and issues affecting the utilization of fish and seafood.

Grants to States: Grants to states are authorized under the Interjurisdictional Fisheries Act of 1986 (P.L. 99-659, Title III); the Anadromous Fish Conservation Act of 1965 (P.L. 89-304), and the Atlantic Coastal Fisheries Act of 1993, as amended (P.L.103-206). The goals of the formula-based, matching fund Interjurisdictional Fisheries Grants Program are to promote state activities that support interjurisdictional fisheries management and to encourage the management of resources throughout their range, recognizing that many species spend a substantial portion of their life cycle in state waters and state-controlled habitat and nursery areas. Funds are apportioned to states based on the value and volume of commercial landings by domestic fishermen. States submit research proposals for Federal funding through state management agencies or Interstate Marine Fisheries Commissions that support management of a fishery that occurs in waters under the jurisdictions of one or more states and the U.S. EEZ, for which there exists an interstate fishery management plan. States also submit proposals to conduct research on resources that migrate between the waters under the jurisdictions of two or more states. States bordering on the Great Lakes also may request funding support for fisheries research. This program also funds projects to alleviate resource disasters, such as hurricane damage to oyster beds, and to enforce interjurisdictional fisheries regulations.

The Anadromous Fish Conservation Act of 1965 (P.L. 89-304) authorizes NOAA to provide grants to conserve, develop, and enhance the Nation's anadromous fisheries resources, including fish in the Great Lakes. This Act is administered jointly with the Department of the Interior's Fish and Wildlife Service. Federal funds of up to 50 percent of project costs (or up to 66 2/3 percent for multi-state projects or up to 90 percent for projects supporting interstate fishery management plans) may be provided to state fisheries agencies, universities, and other non-Federal participants in the 31 states bordering the oceans and Great Lakes.

Fisheries Development Program: The Fish and Wildlife Act of 1956 and the Magnuson-Stevens Fishery Conservation and Management Act encourage the wise use of the Nation's living marine resources. NOAA carries out research and provides services for seafood harvesters, processors, and marketers with the objective of resolving technical issues and other barriers to optimum resource utilization.

NOAA's research program focuses on fishery resource health and safety, and on improving the safety and quality of fishery products for human consumption. This program is carried out through NOAA research laboratories located in Charleston, SC; Pascagoula, MS; and Seattle, WA, in cooperation with other Federal and state agencies. Program's components, such as risk management research support constitutes NOAA's primary involvement in reducing public health risks associated with the harvesting, processing, distribution, and consumption of fish and shellfish. NOAA's risk management research addresses priority public health problems (i.e. marine biotoxins, pathogenic microorganisms, and chemical contaminants associated with seafood) recognizing that most of these hazards originate in the environment and therefore, NOAA as the fisheries agency has a role in addressing these problems at their source. The focus of these research activities is on: (1) the development of improved detection methodologies; and (2) the development of risk assessment data bases for use by fishery managers in addressing seafood safety issues.

Adjustments-to-Base: The FY 2000 base amounts for all NMFS programs in this subactivity include adjustments-to-base to cover the 4.4 percent inflationary, pay increase.

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
State and Industry Assistance Programs	Pos./BA	90	$23,228	66	$17,028	(24)	($6,200)
	FTE/Obl.	90		66		(24)	

The net change in this subactivity is –24 FTE and –$6,200,000.

Grants to States (0 FTE, –$3,750,000): A decrease of $3,750,000 is requested for the Atlantic Coastal Fisheries Cooperative Management Act under the Interstate Fish Commissions which was funded in FY 1999 above the President's budget request.

Fisheries Development Program (–24 FTE, –$2,450,000): A decrease of 24 FTEs and $1,700,000 is requested to terminate funding Federal Ship Financing Fund (FSFF) Administrative Expenses within the Operations, Research and Facilities (OR&F) account. These expenses are incurred in the Fisheries Finance Program; thus, new budget authority is requested in the Fisheries Finance Program account to cover FSFF administrative expenses.

A decrease of $750,000 is requested for Hawaiian Fisheries Development which was funded, but not requested in FY 1999.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total Changes	–$6,200	–$6,200	–$6,200	–$6,200	–$6,200

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Marine Fisheries Service
Subactivity: State and Industry Assistance Programs

Title:		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist		Various	(24)	56,542	(1,357,000)
Total			(24)		(1,357,000)
Less Lapse	0.0%		0		0
Total full-time permanent (FTE)			(24)		(1,357,000)
FY 2000 Pay Adjustment (0 %)					0
Total					(1,357,000)

Personnel Data	
Full-Time Equivalent Employment	
Full-time permanent	(24)
Other than full-time permanent	0
Total	(24)
Authorized Positions:	
Full-time permanent	(24)
Other than full-time permanent	0
Total	(24)

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **National Marine Fisheries Service**
Subactivity: **State and Industry Assistance Programs**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	(1,357)
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	(1,357)
12.1	Civilian personnel benefits	(343)
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.2	Other services	(750)
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(3,750)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(6,200)

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Marine Fisheries Service
Subactivity: Acquisition of Data

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Acquisition of Data	Pos./BA	296	30,174	296	25,098	296	25,488	296	25,488	0	0
	FTE/OBL.	356	29,295	366	25,977	366		366		0	
Total	Pos./BA	296	30,174	296	25,098	296	25,488	296	25,488	0	0
	FTE/OBL.*	356	29,295	366	25,977	366		366		0	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Marine Fisheries Service**
Subactivity: **Acquisition of Data**

Goal Statement

The goal of this subactivity is to provide vessel support needed to conduct sustained fisheries scientific and survey operations in various marine environments. The vessel support must provide the unique operating capabilities to gather the observations needed to build sustainable fisheries and recover protected species. Vessels will provide days-at-sea for conducting and supporting programs of marine resource assessment and development.

Proposed Legislation

No legislation is proposed in this subactivity.

Base Program

FY 2000 base funding for National Marine Fisheries Service acquisition of data is $25,488,000. These funds will provide approximately 1,992 days-at-sea for fisheries resource assessment and protected species work performed by NOAA ships MILLER FREEMAN, ALBATROSS IV, MCARTHUR, OREGON II, DAVID STARR JORDAN, TOWNSEND CROMWELL, DELAWARE II, GORDON GUNTER (formerly the NOAA Ship RELENTLESS), and JOHN N. COBB.

Adjustments-to-Base: The FY 2000 base amounts for all NMFS programs in this subactivity include adjustments-to-base to cover the 4.4 percent inflationary, pay increase.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
The following are the number of Days-at-Sea funded by NMFS and allocated by the Fleet Allocation Council	1,789	1,670	1,897	1,992

Vessel Characteristics and Homeport are Shown Below:

Vessels	Length-Class	Mission	Homeport	Status
MILLER FREEMAN	215 ft. - II	Oceanic Research Fisheries Research Environmental Assessment	Seattle, WA	Active
GORDON GUNTER *	224 ft. - III	Fisheries Research	Pascagoula, MS	Active
ALBATROSS IV	187 ft. - III	Fisheries Research	Woods Hole, MA	Active
McARTHUR **	175 ft. - III	Fisheries Research	Seattle, WA	Active
OREGON II	175 ft. - III	Fisheries Research	Pascagoula, MS	Active
DAVID STARR JORDAN	171 ft. - III	Fisheries Research	San Diego, CA	Active
TOWNSEND CROMWELL	163 ft. - IV	Fisheries Research	Honolulu, HI	Active
DELAWARE II	155 ft. - IV	Fisheries Research	Woods Hole, MA	Active
JOHN N. COBB	93 ft. - IV	Fisheries Research	Seattle, WA	Active
ADVENTUROUS	224 ft. - III	N/A	James River, VA MARAD	Inactive

* Formally known as the NOAA Ship RELENTLESS
** Vessel shared with the National Ocean Service (NOS)

Management of NOAA Research & Development

The primary center for NOAA research and development is the Office of Oceanic and Atmospheric Research (OAR). OAR includes a national network of 58 Federal laboratories and university-based research programs. It supports NOAA by providing: (1) the research knowledge and techniques needed to improve existing NOAA products and services and (2) the longer-range R&D needed to create the wholly new products and services to keep NOAA relevant as national needs, knowledge, and technologies evolve. OAR does this through four components - Environmental Research Laboratories, Office of Global Programs, National Sea Grant College Program, and National Undersea Research Program. With this diverse research "tool kit," OAR: (1) provides national and international leadership on critical environmental issues and (2) addresses environmental R&D needs of internal NOAA customers, states, industry, the Department of Commerce, and other Federal agencies. For example, OAR's Sea Grant program includes efforts aimed at economic development related to the coasts and the sea. OAR researchers are at the forefront of modeling, environmental observations, and outreach efforts. They are developing: better models to predict the weather and climate change; improved tools for sustaining fisheries resources and bio-diversity; innovative techniques for fostering marine and ocean-related industry; enhanced methods for air and water quality assessment, coastal hazards mitigation, and biotechnology; and the scientific basis for U.S. leadership in environmental science. In short, OAR research makes valuable contributions to the health and economic well-being of society.

Environmental Research Laboratories (ERLs)

NOAA requires a solid underpinning of atmospheric sciences, oceanography, chemistry, biology, mathematics, and space physics in order to make improvements to further its mission goals. Eleven Environmental Research Laboratories have been founded around the country to carry out much of the necessary research. The ERL system consists today of a headquarters office in Silver Spring, MD, 12 research laboratories; and 11 Joint or Cooperative Institutes and a collaborative Program in Atmospheric and Ocean Sciences. The locations of these institutions are shown on the map below and detailed in the accompanying list.

The ERLs' primary role is to integrate new insights and discoveries from all these fields into NOAA operations for the benefit of the Nation. ERL does this by:

- conducting purposeful research and technology development at the forefront of those areas upon which future service improvements will depend;
- transferring research discoveries and technical developments into practical applications;
- delivering specialized environmental services; and
- providing leadership on environmental science issues of national and international importance.

ERL makes substantial contributions in support of NOAA's strategic goals - Advance Short-Term Warning and Forecast Systems (AST), Implement Seasonal to Interannual Climate Forecasts (SIC), and Predict and Assess Decadal to Centennial Change (DCC).

For example, ERL serves as the principal NOAA locus for weather R&D (AST) and the U.S. Weather Research Program (USWRP), recently providing the impetus and technology to implement the Advanced Weather Interactive Processing System which constitutes the heart of the National Weather Service modernization program, as well as spearheading the incorporation of Next Generation Weather Radar (NEXRAD) data into forecasts. ERL is increasing its efforts in applied remote sensing research related to ground-based and satellite instruments. In addition, ERL provides climate observations and modeling research in support of NOAA's Climate Prediction Center (SIC/DCC). With respect to NOAA's environmental stewardship mission, ERL plays more of a contributory research role in two of NOAA's three strategic plan goals - Build Sustainable Fisheries (BSF) and Sustain Healthy Coasts (SHC). For example, ERL supports NOAA's Fisheries Service by developing and testing new remote sensing techniques for fish surveys (BSF). Also, ERL provides NOAA's Coastal Ocean Program with atmospheric and air/sea remote sensing R&D and modeling to improve coastal storm and pollution predictions (SHC).

Within the OAR budget, ERL can be difficult to distinguish because its resources are spread among five line items in three sub-activities. In addition, ERL competes successfully for funds from the Climate and Global Change Program, Coastal Ocean Program, and the High Performance Computing and Communications Program.

OAR Joint and Cooperative Institutes

Over the years, OAR has, through the ERLs, developed research partnerships with academia and scientific institutions with programs dedicated to oceanic and atmospheric research, to form the Joint Institutes. The Joint and Cooperative Institutes, also referred to as "the University Programs" are formal, long-term collaborations established under a Memorandum of Understanding (MOU)/Agreement (MOA) between NOAA through the Under Secretary for Oceans and Atmosphere. By design, most of the Institutes are located with one or more NOAA facilities to promote scientific interchange and technology transfer. The primary purpose of each Institute is to bring together the diverse resources of a research university or institution, OAR, ERL, and other branches of NOAA, to develop and maintain a center of excellence in research with relevance to increased understanding of the Earth's waters, Arctic regions, solar-terrestrial environment, inter-mountain west, and the atmosphere. The locations of the Joint/Cooperative Institutes are shown on the map below.

Office of Global Programs (OGP)

Within the Federal Government, NOAA has the primary responsibility to routinely provide climate forecasts and assessments to the other Federal agencies, the public and private sectors, and the international community. The Office of Global Programs (OGP) assists in this capacity through its leadership of the Climate and Global Change Program. OGP's Climate and Global Change Program is an integral part of the interagency U.S. Global Change Research Program, and works to increase our understanding of the global climate system. To accomplish this goal, the Climate and Global Change Program supports focused scientific research within many research elements, such as Global Ocean-Atmosphere-Land System for predicting seasonal-to-interannual climate, Climate Change Data and Detection, and Economics and Human Dimensions research. Through these studies, researchers coordinate activities that jointly contribute to improved predictions and assessments of climate variability over a continuum of time scales (seasonal, annual, decadal, etc.). OGP's participation in these areas has assisted NOAA in augmenting the state of science in the United States and around the world, guiding the development of our research efforts, and providing valuable scientific data and information for practical use and social

and economic benefit. OGP funds are distributed through competitive, peer and/or panel reviewed grants to qualified academic institutions, research organizations, and individuals.

Sea Grant

Congress established the National Sea Grant College Program in 1966 to enhance the development, use, and conservation of the Nation's marine and Great Lakes resources. The legislation required a network of Sea Grant Colleges to conduct education, training, and research in all fields of marine study. It also directed that grants and contracts go to "suitable public and private institutions of higher education, institutes, laboratories, and public or private agencies which are engaged in, or concerned with, activities in the various fields related to the development of marine resources." [PL 89-688 Sec. 204(c)]. There now are 29 Sea Grant College programs in coastal and Great Lakes states and Puerto Rico. These programs form the core of a national network of some 300 participating institutions involving over 3,000 scientists, engineers, educators, students, and outreach specialists to accomplish research and outreach objectives. The Sea Grant network provides a powerful, focused national capability in marine research and outreach. States participating in the Sea Grant program, and their associated Sea Grant Colleges, are shown on the map below.

Sea Grant plays a unique and important role in advancing our national interest in marine resources. Together with the Office of Naval Research (ONR) and the National Science Foundation (NSF), Sea Grant and other OAR programs provide the only sustained Federal contact and funding source for universities with marine research capabilities. Unlike ONR and NSF, Sea Grant supports marine and coastal resource research of immediate public importance and application. Sea Grant provides the major source of support for applied marine science research, including coastal and ocean engineering and management, fisheries and aquaculture, and marine-related social sciences and law. The Sea Grant Marine Extension Service is unique - it transfers NOAA products to residents, managers, and industries in coastal and Great Lakes states and Puerto Rico. By law, Sea Grant must be responsive to local as well as national concerns; accordingly, one-third of the program's funds must be matched by state or local governments, industry, or other sources. In recent years, the match at most Sea Grant colleges considerably exceeds this requirement, thus providing outstanding leverage from limited Federal dollars.

National Undersea Research Program (NURP)

The National Undersea Research Program places scientists under water, directly (via submersibles, underwater laboratories, and SCUBA diving) or indirectly (via remotely operated vehicles and observatories). The program is comprised of a headquarters office and six National Undersea Research Centers. Also, by agreement with the Navy, NURP serves as the research manager for civilian use of U.S. Navy deep submergence vehicles (e.g., ATV Scorpio, Turtle, and NR-1). NURP owns and operates the “Aquarius,” the world’s only underwater science laboratory located off Key Largo, Florida. Finally, NURP represents NOAA in supporting, along with NSF and ONR, civilian use of the deep submergence vehicle Alvin (operated by Woods Hole Oceanographic Institution).

This “in-situ” approach allows acquisition of otherwise unobtainable observations, samples, and experiments related to such high-priority NOAA research goals as Build Sustainable Fisheries and Sustain Healthy Coasts. NURP also provides access for the U.S. research community to civilian, military, and international undersea technology. Finally, NURP addresses NOAA’s legal requirement to improve the safety and performance of civilian

divers. NURP-funded scientists conduct wide-ranging research investigations in such areas as the causes behind depletion of fisheries, the impacts of commercial fishing activity on critical habitats, the effects of climate change on the health of coral reefs, and undersea volcanism and its role in coastal hazards. The program also supports research at a long-term ecosystem observatory off the coast of New Jersey to provide a continuous stream of physical and biological data necessary to model coastal ecosystems and predict how they will respond to such major events as storms, oil spills, and the presence of excess nutrients.

NURP supports six National Undersea Research Centers: the Caribbean, Hawaii and Pacific, Middle Atlantic, North Atlantic and Great Lakes, Southeast and Gulf of Mexico, and West Coast and Polar Regions. These are also shown on the map below:

NOAA Oceanic and Atmospheric Research

Locations of Environmental Research Labs, National Undersea Research Centers, Joint and Cooperative Institutes, and Sea Grant Colleges and States

J - Joint or Cooperative Institute
E - Environmental Research Laboratory
S - Sea Grant College
Shaded states indicate participants in the National Sea Grant College Program
✶ - National Undersea Research Center

Environmental Research Laboratories

AL	Aeronomy Laboratory, Boulder, Colorado
AOML	Atlantic Oceanographic and Meteorologic Laboratory, Miami, Florida
ARL	Air Resources Laboratory, Silver Spring, Maryland
CDC	Climate Diagnostics Center, Boulder, Colorado
CMDL	Climate Monitoring and Diagnostics Laboratory, Boulder, Colorado
ETL	Environmental Technology Laboratory, Boulder, Colorado
FSL	Forecast Systems Laboratory, Boulder, Colorado
GFDL	Geophysical Fluid Dynamics Laboratory, Princeton, New Jersey
GLERL	Great Lakes Environmental Research Laboratory, Ann Arbor, Michigan (to be proposed for transferral to the National Ocean Service in FY 1999)
NSSL	National Severe Storms Laboratory, Norman, Oklahoma
PMEL	Pacific Marine Environmental Laboratory, Seattle, Washington
SEC	Space Environment Center, Boulder, Colorado (also a component of the National Centers for Environmental Prediction of the National Weather Service)

Joint and Cooperative Institutes

CIASTA	Cooperative Institute for Atmospheric Sciences and Terrestrials Applications - Desert Research Institute of the University and Community College System of Nevada, Las Vegas, and Reno, Nevada
CICOR	Cooperative Institute for Climate and Ocean Research - Woods Hole Oceanographic Institution, Woods Hole, Massachusetts
CIFAR	Cooperative Institute for Arctic Research - University of Alaska, Fairbanks, Alaska
CILER	Cooperative Institute for Limnology and Ecosystems Research - University of Michigan, Ann Arbor, Michigan
CIMAS	Cooperative Institute for Marine and Atmospheric Studies - University of Miami, Miami, Florida
CIMMS	Cooperative Institute for Mesoscale Meteorological Studies, University of Oklahoma, Norman, Oklahoma
CIRA	Cooperative Institute for Research in the Atmosphere - Colorado State University, Fort Collins, Colorado
CIRES	Cooperative Institute for Research in Environmental Sciences - University of Colorado, Boulder, Colorado
JIMAR	Joint Institute for Marine and Atmospheric Research - University of Hawaii, Honolulu, Hawaii
JIMO	Joint Institute for Marine Observations - Scripps Institution of Oceanography,

OCEANIC AND ATMOSPHERIC RESEARCH
STRATEGIC PLANNING GOALS AND OBJECTIVES

The Office of Oceanic and Atmospheric Research (OAR) supports five of NOAA's Strategic Planning Goals. Below is a brief characterization of the OAR programs in the context of the five Goals.

GOAL - ADVANCE SHORT-TERM WARNING AND FORECAST SERVICES

NOAA's present ability to accurately predict short-term environmental change is restricted by observations that are both temporally and spatially incomplete. Improvements in NOAA's environmental prediction services depend critically on OAR research to improve NOAA observational systems, develop a better understanding of environmental processes, and enhance predictive models and dissemination systems in a comprehensive approach to natural hazard reduction. OAR supports the NOAA strategic planning goal to Advance Short-Term Warning and Forecast Services through two objectives: (1) Enhance Observations and Predictions and (2) Improve Service Communication and Utilization. The weather research activity in OAR is organized under the leadership of the U.S. Weather Research Program (USWRP). The USWRP seeks to coordinate and expand research in three key areas: (1) Improve forecasts of hurricanes at landfall, (2) determine the optimal mix at observations and advance data assimilation into forecast models, and (3) improve quantitative predictive forecasts. Through this coordinated approach, research results will move rapidly into operational application to directly provide improvements in products and NOAA services.

OBJECTIVE - ENHANCE OBSERVATIONS AND PREDICTIONS

The NWS modernization represents only the first step toward providing an overall system of improved environmental forecasts and natural hazard reduction. Additional service improvements can only occur through a well organized research effort including a combination of scientific, technologic, and programmatic advances. This will include research in the areas of predicting weather, inland water resources, oceanic conditions, and the space environment. OAR funding will support additional research to design the next-generation national observing system, improvements in hurricane track and intensity forecasts, enhancements to NEXRAD severe weather detection capability, extending forecast accuracy out to a week and longer, and development of techniques to assimilate new data streams into forecast models. OAR also strives to support research to improve forecasts of descriptions to the Earths’s magnetic field due to solar activities (space weather). In cooperation with the Federal Aviation Administration (FAA), OAR provides predictive capabilities for volcanic plumes; with the Environmental Protection Agency (EPA), research on environmental stressors in the atmosphere/earth/water systems in the eastern U.S., and with the Nuclear Regulatory Commission and EPA, quick response, local models for hazardous plane prediction.

OBJECTIVE - IMPROVE SERVICE COMMUNICATION AND UTILIZATION

The benefits of NOAA's short-range prediction improvements will fail to reach their potential unless they can be retrieved and passed quickly and clearly to the public, both directly and through improved communications and display capabilities for emergency management agencies, public planners, the media, and private forecast providers. OAR funding will develop strategies and demonstration systems of advanced workstations to speed critical weather information into the hands of decision makers and will also evaluate the effectiveness of weather and flood warning products and dissemination systems in meeting the needs of users of NOAA services. With FEMA and the USGS, OAR provides a tsunami warning and risk analysis system to the West Coast states, including Alaska and Hawaii.

GOAL - IMPLEMENT SEASONAL TO INTERANNUAL CLIMATE FORECASTS

OAR supports efforts in all four objectives of this goal with the major efforts in Observing and Data Delivery Systems and in Conducting Research.

OBJECTIVE - IMPLEMENT PREDICTION SYSTEMS

The Geophysical Fluid Dynamics Laboratory (GFDL), the Climate Diagnostics Center (CDC) and the Hayes Center (joint Center between the Pacific Marine Environmental Laboratory and the University of Washington) are applied research centers within NOAA's Seasonal-to-Interannual Climate Prediction Program (SCPP). The GFDL's objective is to improve global coupled models and assimilation methods, to explore the levels of predictability of model-based forecasts, and provide these models and results to prediction centers. The CDC analyzes the accuracy and utility of observations, models, and assimilation techniques for prediction systems, and the Hayes Center is analyzing atmospheric and oceanic variability (e.g. data from the TAO array) and developing ocean-atmosphere models of the El Niño-Southern Oscillation (ENSO) phenomena.

OBJECTIVE - MAINTAIN AND IMPROVE OBSERVING AND DATA DELIVERY SYSTEMS

OAR supports and operates a number of major observing systems necessary for climate predictions on this time-scale and that are useful for weather prediction. OAR is the major contributor to the TOGA (Tropical Ocean-Global Atmosphere) Observing System, the key system for ENSO predictions. OAR implemented and maintains the TAO (Tropical Atmosphere-Ocean) array in the equatorial Pacific and the Pacific profiler and upper-air networks; has assumed the responsibility for implementing and maintaining the global drifter program (formally known as the Surface Velocity Program - SVP); and is responsible for a portion of the Volunteer Observing Ship (VOS) program. OAR is responsible for all aspects of data delivery from the TAO array, the profiler and upper-air networks, and the SVP. OAR is also the focal point for activities of the virtual laboratory for evaluating the observing system.

OBJECTIVE - CONDUCT RESEARCH FOR IMPROVED CLIMATE PREDICTIONS

OAR is the primary NOAA office responsible for conducting research for improved climate predictions. The Global Ocean-Atmosphere-Land System (GOALS) program has been formulated to improve our understanding of the global climate system. The first GOALS sub-program is the Pan American Climate Studies (PACS) program, designed to improve seasonal climate predictions over the Americas. This program was developed by OAR and its university partners and is co-managed and co-funded by OAR and the Office of Global Programs. The Global Energy Water Cycle Experiment (GEWEX) focuses on the hydrologic cycle and energy fluxes over land. Implementation of the GEWEX Continental-Scale International Project (GCIP), which focuses on the Mississippi basin, is another major OAR research effort. Finally, a primary activity at a number of OAR facilities (laboratories, centers, and joint institutes) is developing a basic understanding of the ocean-atmosphere system through modeling, data assimilation and diagnostic programs, and research on different components of the system.

OBJECTIVE - DELIVER CLIMATE SERVICES AND ASSESS SOCIO-ECONOMIC IMPACTS

OAR is responsible for assessing the impacts of climate variations on all time-scales. In turn, assessments of the effects of these changes on economic sectors in regions also are conducted.

GOAL - PREDICT AND ASSESS DECADAL-TO-CENTENNIAL CHANGE

OAR includes efforts in all six objectives of this goal with the major efforts in Forcing Agents, the Role of the Ocean, Ozone Layer, and Air Quality objectives.

OBJECTIVE - CHARACTERIZE THE FORCING AGENTS OF CLIMATE CHANGE

OAR monitors trends in the atmospheric distribution of radiatively important trace species (e.g., carbon dioxide, methane), including water vapor, and studies their interactions with each other, land, and oceans. It conducts laboratory, process, and modeling studies on the impact of these species and their trends on the Earth's radiation balance, both warming as in the case of infrared absorption and cooling as in the case of increased clouds and increased atmospheric aerosols. OAR synthesizes observed modern records with paleoclimate records to document impacts of past climatic variations.

OBJECTIVE - UNDERSTAND THE ROLE OF THE OCEANS IN GLOBAL CHANGE

The oceans play a major role in climate on all time-scales because they are the major heat storage and transfer mechanism operating on earth. The oceans are also a major reservoir for carbon dioxide. OAR conducts major programs to collect and analyze oceanographic data to evaluate models of ocean circulation and predictive models of climate variability. It conducts major efforts on the cycling of carbon dioxide (geochemical and

biological) between the oceans, atmosphere, and terrestrial biosphere. Major continuous observational programs, and long time-series research programs conducted by OAR provide the benchmarks to assess future changes in oceanic and coastal environments.

OBJECTIVE - ENSURE A LONG-TERM CLIMATE RECORD

OAR developed and is responsible for maintaining, upgrading, and updating the most frequently used, high-quality ocean-atmosphere data set for climate analysis - the Comprehensive Ocean-Atmosphere Data Set (COADS).

OBJECTIVE - GUIDE TO THE REHABILITATION OF THE OZONE LAYER

OAR is the leading organization in the United States with a comprehensive program to understand the Earth's stratospheric ozone layer (good ozone). Its researchers have led the world in discoveries that have dramatically changed our understanding of the ozone layer. It develops and deploys new instrumentation essential for enhanced observation, analysis, and understanding of photochemical processes on ozone. It conducts laboratory and field research on chemical reactions and kinetics and develops models to simulate stratospheric processes that will allow higher confidence predictions of ozone-layer response to perturbations, including natural perturbations, such as volcanic emissions. OAR research provides the scientific basis for identification of safe substitutes for ozone-depleting substances. Research to elucidate the coupling between stratospheric ozone perturbations and surface climate variability is also conducted by OAR.

OBJECTIVE - PROVIDE THE SCIENTIFIC BASIS FOR IMPROVED AIR QUALITY

OAR supports the observational and research program to study key atmospheric reactions and perturbations that may impact air quality both in the United States and globally. Recent discoveries that elevated surface ozone levels (bad ozone) in rural areas are the result of the reaction of natural hydrocarbons with nitrogen emissions demonstrate the need for understanding these processes and their impact on ecosystems and agriculture. OAR conducts research on the human-influenced and natural emissions on ozone levels in rural areas. It conducts field programs to establish where natural emissions of ozone precursors dominate over human-caused emissions and conducts laboratory studies of the role of natural hydrocarbon emissions in creating surface ozone. These studies are combined with modeling and prediction studies to assist in the development of emission control strategies.

OBJECTIVE - PROVIDE PREDICTION, ASSESSMENT, AND HUMAN IMPACT INFORMATION

OAR is responsible for assessing the impacts of climate variations on all time-scales. In turn, assessments of changes in these areas on economic sectors in the region are also conducted.

GOAL - BUILD SUSTAINABLE FISHERIES

OAR research activities supporting Build Sustainable Fisheries are based on programs in the Atlantic Oceanographic and Meteorological Laboratory (AOML), Pacific Marine Environmental Laboratory (PMEL), Environmental Technology Laboratory (ETL), the National Sea Grant College Program (NSGCP) and the National Undersea Research Program (NURP). OAR supports the Build Sustainable Fisheries initiative through activities in four strategic plan objectives:

OBJECTIVE - ASSESSING THE STATUS OF FISHERY RESOURCES

OAR is providing direct, in-situ estimates of populations of commercially valuable species and is determining the value of harvest refugia.

OBJECTIVE - ADVANCING FISHERIES PREDICTIONS

OAR research is focused on: developing remote sensing technologies, including airborne sampling, to assess fisheries status in larger areas of the oceans than currently possible; determining the major processes controlling recruitment variability and population dynamics using resultant models for marine fishery issues; providing information on stock structure and recruitment variability, which will lead to an increase in yield of the walleye pollock fishery in the Bering Sea and Shelikov Strait, Alaska; understanding processes influencing recruitment of finfish; assessing the impacts of nonindigenous species introductions on fishery resources; and understanding recruitment processes of commercially important crustacean species.

OBJECTIVE - MANAGING FOR ECONOMIC GROWTH AND SUSTAINABILITY

OAR is using research and technology transfer to: assist in the design of mechanisms to allocate fishery resources that minimize community and industry dislocations; conduct research, technology transfer, and outreach to help rebuild fisheries and to develop and improve methods to increase efficiency of fishery management.

OBJECTIVE - PROVIDE RESEARCH AND SERVICES FOR FISHERY-DEPENDENT INDUSTRIES

OAR is providing results to reduce by-catch, ensure seafood safety and high quality; develop monitoring, control, and culture systems for aquaculture; reduce disease incidence and improve feed for cultured organisms; and produce genetically manipulated strains yielding higher production.

GOAL- SUSTAIN HEALTHY COASTS

OBJECTIVE - PROTECT, CONSERVE, AND RESTORE COASTAL HABITATS AND THEIR BIODIVERSITY

OAR research will assist in restoration of habitat that has been lost or degraded so that its original functional value can be recovered. Critical research needs being addressed are: (1) Developing and refining cost-effective and reliable techniques for restoring and creating critical wetland and estuarine habitats, emphasizing the use of innovative technologies where appropriate, and (2) Developing population and community level indices of habitat quality that reflect the ability of habitats to support living marine resources. OAR researchers will also help to identify non-indigenous organisms, their life cycles and ecological relationships, and work with outreach specialists to develop cost-effective, environmentally sound management strategies.

OBJECTIVE - PROMOTE CLEAN COASTAL WATERS

Through its Environmental Research Laboratories, National Sea Grant College Program, and NURP programs, OAR conducts research on the sources, transport, fate, and effects of coastal pollutants. These activities affect the concerns of this objective and the overall goal of achieving sustainable development in the coastal zone. They include the development of better tools, predictions, and understanding related to coastal water quality and coastal ecosystem management. They also include new ways at looking at such problems, such as the regional/watershed viewpoint and long range transport of pollutants which may reach Arctic environments.

OBJECTIVE - FOSTER WELL PLANNED AND REVITALIZED COASTAL COMMUNITIES

OAR, through the National Sea Grant College Programs, will contribute to development of the pharmaceutical, chemical, and seafood industries by using the tools of biotechnology. Research and technology-transfer programs will develop fundamental knowledge of natural products and processes of marine organisms to provide models for new commercial products and new approaches to industrial processing and bioprocessing. For example, bacteria from undersea vents have the potential for significant industrial, commercial, and medical applications. Molecular genetics provide a means for exploring ways in which lower plants and animals--macroalgae, bacteria, and cyanobacteria--may be used to produce chemical products or used in industrial processing. Success will result in strains that synthesize useful compounds at faster rates or break down waste materials and toxic pollutants more efficiently. A major goal of NOAA in FY 2000 is maximizing value of coastal resources through a blend of fisheries management, marine aquaculture and fisheries enhancement, fish processing and community involvement.

Oceanic and Atmospheric Research
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Advance Short-Term Warning and Forecast Services										
Enhance Observations & Predictions	273	46,781	272	47,680	272	47,435	272	45,135		(2,300)
Improve Service Communication and Utilization	21	6,442	21	1,870	21	1,915	21	1,915		
Infrastructure	2	2,763	3	7,263	3	7,263	3	8,763		1,500
Total ASTWFS	**296**	**55.986**	**296**	**56.813**	**296**	**56.613**	**296**	**55.813**		**(800)**
Implement Seasonal to Interannual Climate Forecast										
Implement Prediction Systems	19	10,728	20	13,728	20	13,728	20	13,728		
Maintain and Improve Observing and Data Delivery Systems	71	18,532	77	18,118	90	18,476	90	22,476		4,000
Conduct Research for Improved Climate Predictions	73	27,701	77	29,701	77	29,761	77	31,361		1,600
Deliver Climate Services and Assess Socio-economic Impacts		1,122		1,122		422		422		
Infrastructure		930		930		930		930		
Total ISICF	**163**	**59.013**	**174**	**63,599**	**187**	**63,317**	**187**	**68.917**		**5.600**
Predict and Assess Decadal-to-Centennial Change										
Characterize Global Climate Forcing Agents	44	7,387	44	7,237	44	7,305	44	10,405		3,100
Understand the Role of Oceans in Global Change	196	30,101	211	29,221	211	30,644	211	32,344		1,700
Guide the Rehabilitation of the Ozone Layer	42	7,183	44	7,033	44	7,099	44	7,099		
Provide Prediction, Assessment, & Human Impact Info.	40	7,498	40	7,348	40	7,408	40	8,608		1,200
Ensure a Long-Term Climate Record	20	8,231	20	7,717	20	7,717	20	7,717		
Provide the Scientific Basis for Improved Air Quality		4,064	3	5,412	3	5,412	3	5,799		387
GLOBE	9	5,000	9	2,500	9	2,500	9	5,000		2,500
Infrastructure	2	1,468	3	1,468	3	1,468	3	1,468		
Total PADCC	**353**	**70.932**	**374**	**67,936**	**374**	**69,553**	**374**	**78,440**		**8.887**
Promote Safe Navigation										
Infrastructure		389		389		389		389		
Total PSN		**389**		**389**		**389**		**389**		

Build Sustainable Fisheries									
Develop Sound Aquaculture					7	13,935	7	14,719	784
Assess the Status of Fishery Resources	16	6,199	16	5,883					
Advance Fishery Prediction	2	7,832	3	11,149					
Managing for Economic Growth	2	4,492	1	1,050					
Provide Research and Service	4	14,198	4	13,858					
Infrastructure		2,505		3,205		805		805	
Eliminate & Prevent Overfishing					17	15,305	17	13,812	(1,493)
Attain Economic Sustainability in Communities						2,050		2,050	
Total BSF	**24**	**35,226**	**24**	**35,145**	**24**	**32,095**	**24**	**31,386**	**(709)**
Recover Protected Species									
Infrastructure		340		340		340		340	
Maintain Healthy Species & Ecosystems									
Total RPS		**340**		**340**		**340**		**340**	
Sustain Healthy Coasts									
Protect, conserve and restore habitats	64	20,556	65	22,075	5	16,132	5	13,814	(2,318)
Promote clean coastal waters	40	16,753	42	19,724	29	21,437	29	15,256	(6,181)
Foster well-planned and revitalized coastal communities	8	17,741	8	20,584	8	21,202	8	17,410	(3,792)
Infrastructure		805		805		805		805	
Total SHC	**112**	**55,855**	**115**	**63,188**	**42**	**59,576**	**42**	**47,285**	**(12,291)**
Infrastructure									
High Performance Computing									
Total Infra									
Total for OAR	**948**	**277,741**	**983**	**287,410**	**923**	**281,883**	**923**	**282,570**	**687**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: Oceanic and Atmospheric Research
Subactivity: Climate and Air Quality Research

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Interannual & Seasonal Climate Research	Pos./BA	38	12,990	38	14,900	38	14,900	38	16,900	0	2,000
	FTE/OBL.	35	13,749	27	14,141	27		27		0	
Long-Term Climate and Air Quality Research	Pos./BA	183	36,981	189	42,000	189	42,413	189	48,100	0	5,687
	FTE/OBL.	182	37,412	230	41,569	230		230		0	
Climate & Global Change/Globe	Pos./BA	114	65,447	156	65,500	156	65,500	156	74,700	0	9,200
	FTE/OBL.	80	63,761	127	67,186	127		127		0	
Total	Pos./BA	335	115,418	383	122,400	383	122,813	383	139,700	0	16,887
	FTE/OBL.*	297	114,922	384	122,896	384		384		0	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Oceanic and Atmospheric Research**
Subactivity: **Climate and Air Quality Research**

Goal Statement

To increase our understanding of oceanic and atmospheric processes through monitoring and research, to develop a predictive capability, and to provide sound scientific advice to those charged with managing the Nation's oceanic and atmospheric resources.

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

Interannual and Seasonal Climate Research - The objective of this element is to develop a predictive capability for interannual and seasonal climate fluctuations for North America and scientifically important areas. This line item provides research base support to NOAA's Strategic Plan objective to implement Seasonal and Interannual Climate (SIC) forecasts.

NOAA's Interannual and Seasonal Climate Research effort focuses primarily on the El Niño/Southern Oscillation (ENSO) phenomenon in the equatorial Pacific. The ENSO results in large-scale periodic variations in atmospheric circulation which occur in approximately four-year cycles with differing intensities. The ENSO is characterized by changes in atmospheric pressure, wind patterns, and sea-surface temperature in the tropical Pacific which are correlated with interannual and seasonal variations in temperature and precipitation throughout the Northern Hemisphere. Predictions of seasonal climate fluctuations related to the ENSO are possible once these correlations are well defined and the physical processes producing them are understood. NOAA organizations primarily involved in this effort include the Office of Global Programs and four of the Environmental Research Laboratories, working in cooperation with NWS, NMFS, NOS, NESDIS, and scientists in universities and several foreign countries. NOAA's strategy is to: (1) acquire the essential data; (2) develop diagnostic and predictive models related to changes in the equatorial oceans; and (3) establish the relationship of those changes to widespread climate variations through data analysis and modeling. Specific research activities include:

- NOAA's **Pan-American Climate Studies (PACS)** program has the goal of improving seasonal precipitation forecasts over North America, which will benefit agriculture, energy, and other sectors of the U.S. economy. PACS is a follow-on to the Equatorial Pacific Ocean Climate Studies (EPOCS) that pioneered NOAA's efforts on ENSO. PACS will develop the capability for real-time analyses and projections (in association with the National Centers for Environmental Prediction) and for operational tropical-ocean analyses using coupled ocean-atmosphere models. The research includes: (1) analysis of the seasonally varying mean climate of the Americas and adjacent ocean regions, with emphasis on: (a) precipitation patterns over North America, (b) fluctuations in the Pacific and Atlantic intertropical convergence zones which help to determine these patterns, (c) the role of oceanic clouds which are a major factor in the moisture and energy balance of the atmosphere, (d) the evolution of El Niño in the eastern Pacific, and (e) the dominant storm tracks affecting North America; (2) the role of land-air and tropical air-sea interactions in determining precipitation and seasonal-to-interannual climate variability in North America; (3) the interaction between the oceans and atmosphere throughout the North Pacific and subtropical North Atlantic in determining atmospheric circulation patterns over North America; and (4) the processes that determine sea-surface temperature in the tropical and subtropical Pacific, which are, perhaps, the largest of several major factors that determine temperature and precipitation patterns over North America.

- The **International Satellite Cloud Climatology Program (ISCCP)**, which collects meteorological-satellite imagery data in order to determine the effect of clouds on the Earth's radiation balance. The first step in ISCCP is to convert the vast quantity of satellite data into a form amenable to systematic analysis to be used in models of climate prediction.

Long-Term Climate and Air Quality Research

The objectives of this element are to establish a critical observational data base and a capability to analyze and predict changes in long-term climate and air quality due to natural and human causes, such as changing atmospheric levels of radiatively important trace species, surface ozone, and acid rain. These activities provide the research base support to NOAA's strategic objectives to "Predict and Assess Decadal-to-Centennial change" and contribute also to activities in "Seasonal-to-Interannual Climate Forecasting" (e.g., ocean data assimilation).

Trends in long-term climate and air quality are influenced by natural processes and human-induced modifications of these natural processes. Human activities may impact the natural cycles of change by altering the global temperature and modifying atmospheric chemistry. The adverse effects of these changes are: (1) a perturbation of the global radiation and heat balance, which may change global temperature and precipitation patterns and significantly affect agricultural production worldwide; (2) a reduction in the ultraviolet shielding by the stratospheric ozone layer, significantly increasing the risk of skin cancer and damage to terrestrial and aquatic ecosystems; and (3) an increase in the acidity of precipitation and in oxidant levels at the Earth's surface, which has already damaged vegetation in some areas.

NOAA monitors important atmospheric constituents and studies dynamics and processes linked to global air quality and climate variability. NOAA research programs focus on: (1) monitoring and determining trends in atmospheric greenhouse species (e.g., carbon dioxide, methane, and aerosols);

(2) determining the atmospheric processes that distribute these species around the globe; (3) evaluating their impact on climate and the global chemical balance; and (4) determining the removal processes of these gases (e.g., absorption in the oceans and terrestrial vegetation) that may have a significant effect on long-term climate variability. These gases have a significant impact on Earth's heat balance. Indeed, it is the natural presence of some of these species (carbon dioxide and water vapor) that result in Earth's surface temperature being above freezing. These species also affect the overall air quality, acidic nature, and chemical reactivity of the atmosphere. Knowledge of long-term trends in the abundance of these atmospheric constituents and their local distributions is critical to establish a sound predictive understanding to aid informed decisions about resource management and economic issues, both public and private.

The Clean Air Act Amendments of 1990 define NOAA's role in providing the atmospheric chemistry and transport research that supports the efforts of the interagency National Acid Precipitation Assessment Program. NOAA operates acidic deposition and atmospheric monitoring networks that provide the standard against which routine monitoring networks are compared in the assessment of the status of national efforts to reduce acidic deposition and improve air quality. NOAA also is charged with investigating the role of natural emissions and processes in the formation of acids and surface ozone.

The principal NOAA organizations involved in this line item are seven of OAR's Environmental Research Laboratories (ERL) working in cooperation with ERL's joint institutes, other university scientists, and scientists from foreign countries. Specific research activities include:

! **Ocean's Role in Climate** - Recent Research has highlighted the role of the oceans in climate change. NOAA and NOAA-sponsored university investigators have established strong partnerships in advancing our knowledge of these processes toward the goal of climate prediction. The Atlantic Climate Change Program (ACCP) is directed toward understanding the relationship between the Atlantic Ocean and the atmosphere decadal to centennial time scales and contributes to the international Climate Variability and Predictability Program (CLIVAR). In particular, ACCP is focusing on the coupled-ocean atmosphere system to examine modes of climate variability, such as the North Atlantic Oscillation and tropical variability, and their potential predictability. As the field phase of the World Ocean Circulation Experiment (WOCE) is completed., world-wide oceanographic data sets will soon become available for analysis in the context of climate and modes of climate variability. NOAA is also investigating the role of the ocean in the global carbon budget, examining both the rate and variability of ocean uptake of carbon dioxide, as well that the exchange of carbon dioxide between the ocean and atmospheres.

! **Global Atmospheric Sampling Network** is the world's <u>only</u> truly global activity that measures the long-term background concentrations of key radiatively important atmospheric constituents, such as carbon dioxide, ozone, methane, water vapor, and chlorofluorocarbons, that may enhance the greenhouse effect by absorbing and re-radiating heat emitted by the Earth. Knowledge of the long-term trends in the global abundance and distribution of these constituents of the atmosphere and the radiation received from the sun and radiated back to space is necessary for the modeling and assessment of climate variability. NOAA monitors changes in stratospheric ozone and will host an observatory at Mauna Loa, Hawaii, as a part of the International Network for Detection of Stratospheric Change. NOAA

also monitors fluctuations and long-term changes in solar radiation in the ultraviolet, optical, and infrared spectra since these affect both long-term climate and atmospheric chemistry. In addition to the automated measurements of the better known atmospheric constituents affecting climate variability, measurements will be taken for additional trace gas species that may play a role.

! The **Radiatively Important Trace Species (RITS)** program supports the Global Air Sampling Program by conducting research and monitoring to understand the trends, sources, sinks, and behavior of species that occur in the atmosphere in low concentrations (such as nitrous oxide, methane, and chlorofluorocarbons) and to determine their climatic and chemical consequences. Knowledge of the long-term trends in the global abundance and distribution of these constituents of the atmosphere and the radiation received from the sun and radiated back to space is necessary for the modeling and assessment of climate variability. NOAA will continue to upgrade measurement programs for these compounds to better understand their global distribution, including sampling and field studies along ocean shipping lanes. Recognizing the importance of tropospheric ozone in global chemistry and radiation balance, NOAA will continue work to characterize the concentration and transport of ozone and ozone precursors in the troposphere, including work with other agencies and countries to establish a long-term monitoring network.

! **Climate modeling research** uses numerical models of air and ocean systems to assess the sensitivity of these systems to changes in solar radiation, atmospheric and oceanic conditions, and trace substances. Ultimately, this research will lead to better predictions of climate variations through the improved reliability of coupled ocean-atmosphere models. Ongoing work focuses on: global balances of heat, salinity, and carbon dioxide; seasonal variations in oceanic heat transport; and the response of tropical oceans to fluctuating winds in relation to the El Niño current phenomenon. NOAA is continuing to develop, test, and evaluate a more sophisticated three-dimensional dynamical, chemical, and radiative model to better simulate the response of global atmospheric chemistry and climate to changes in atmospheric concentrations of radiatively important trace species.

! **Stratospheric ozone research** is conducted to investigate the causes of the depletion of the stratospheric ozone layer (good ozone), the impact on the atmosphere of proposed chemical substitutes for ozone-depleting substances, and the relation between ozone and climate. This program consists of monitoring the state of the stratospheric ozone layer and the amount of ozone-depleting chemicals and substitute species in the atmosphere, theoretical and field studies to understand the physical and chemical processes behind stratospheric ozone destruction, laboratory studies to evaluate the atmospheric impact of chemicals proposed as substitutes for those ozone-depleting species being banned by international treaty, and studies on the impact of stratospheric ozone depletion on climate change. The results of these research activities are providing vital scientific information to international policy makers charged with implementing the treaty to protect the stratospheric ozone layer.

! **The Health of the Atmosphere program** focuses on providing a sounder, more economical basis for implementing the Clean Air Act Amendments of 1990 through investigation of processes involved in the formation of surface ozone in rural areas and augmentation of an integrated air-quality monitoring network that can evaluate the effectiveness of the Act. The rural-ozone component of the

program pursues understanding of the processes that govern the formation of surface ozone (smog) in rural areas, which, in elevated concentrations, damages crops and forests. This includes developing new measurement techniques for human-made and natural ozone precursor compounds, conducting field experiments to characterize the formation of ozone in rural areas, performing laboratory studies of ozone-forming chemical reactions, and improving models for predicting occurrences of high ozone levels in rural areas. The monitoring component provides augmented measurements for determining trends in air quality as emissions controls are implemented. This knowledge is critical for evaluating the effectiveness of current controls. This includes improving and operating special monitoring sites for wet-deposition and dry-deposition monitoring and analyzing the monitoring data to determine the causes of air-quality variability. The air-quality program provides the scientific expertise needed to develop the most cost-effective emission control strategies so as to avoid both over-regulation of several industrial sectors and unnecessary regulatory burden on states.

! NOAA's program in **High Performance Computing and Communication** supports a number of the objectives included in NOAA's Strategic Plan. Its purpose is to make possible major improvements in the Nation's ability to forecast the weather and climate and to disseminate environmental information while, at the same time, stimulating reinvention of NOAA's computationally intensive services through the use of evolving high performance computing and high-speed networking technologies. Through this program, NOAA participates as a "mission" agency in the Federal High Performance Computing and Communications Initiative. NOAA has a need for high performance computing and high-speed networking to perform its mission; and, through participation in this initiative, NOAA contributes to the overall goals of the Federal initiative. Improvements in the accuracy and timeliness of NOAA's short-term weather warnings, seasonal forecasts, and regional and global climate predictions are heavily dependent on major advances in high-end computing power and the widespread availability of environmental data and information. Timely and responsive dissemination of NOAA's services and information requires full use of modern network and communication technologies.

CLIMATE AND GLOBAL CHANGE - NOAA's broad objective is to establish a national information service based on reliable assessments and quantitative predictions of changing global climate. Once established, this service will help NOAA provide high-quality predictions and assessments to the public and private sectors, other federal and state agencies, and the international community. The near-term objective is to provide reliable predictions of global climate changes, both natural and human-induced, and their associated human effects on time scales ranging from seasons to that of a century or more.

NOAA's climate and global change program is an integral part of the interagency U.S. Global Change Research Program (USGCRP). As part of this program NOAA is addressing an important aspect of global change - the global climate system - because changing climate confronts us with significant economic, health, safety, and national security implications. NOAA has a significant responsibility in operational observation, research, prediction, and information management efforts for the global change study effort. NOAA's role is integrated and coordinated with the roles of other agency participants in global change (NSF, NASA, DOE, EPA, etc.) through the National Science and Technology Council's Committee on the Environment and Natural Resources (CENR).

The Climate and Global Change Program contributes to two prediction and assessment initiatives of the NOAA strategic plan: (1) Implement Seasonal-to-Interannual Climate Forecasts, and (2) Predict and Assess Decadal-to-Centennial Change. Base activities of these initiatives supported by Climate and Global Change funding are described below.

Implement Seasonal to Interannual Climate Forecasts

Research in climate variability and predictability over the past ten years has advanced to the point where useful climate forecasts, particularly of El Nino, can be made seasons to a year in advance. Research continues to improve modeling and predictive capabilities and now focuses beyond prediction of El Nino in the tropical Pacific to include other factors that influence climate variability over seasons to years, such as air-sea interactions in other tropical oceans, higher latitude oceans, and land soil moisture content. This program is the only focused U.S. federal effort aimed at providing forecasts of climate events and their consequent impacts.

NOAA maintains an end-to-end climate forecasting system by supporting four parallel activities: (1) implement prediction systems (2) maintain and improve required observation and data systems (3) perform underlying research required for improvement of forecasts and (4) deliver climate information to the user community and assess socio-economic impacts.

Establishing and Upgrading Prediction Systems -The Climate and Global Change Program supports institutional arrangements that apply the unique talents and capabilities of NOAA and its university partners to providing climate forecasting products for use by all interested countries, and an operational forecasting capability designed specifically to address U.S. interests. The National Centers for Environmental Prediction (NCEP) routinely issues a suite of long-lead climate anomaly predictions for the U.S. up to four seasons in advance.

NOAA leads a multinational effort to establish a network of centers operating particularly on behalf of those countries that do not currently have the infrastructure required to produce and disseminate climate forecasts. The network includes to enhance the development of climate forecast models and forecast methodologies. One research center, the International Research Institute (IRI) generates and disseminates forecast guidance multinationally. Regional Application Centers have been established in collaboration with participating countries to tailor guidance from the IRI into localized forecasts and distribute products of immediate social and economic benefit.

Observing and Data Systems - NOAA maintains the continuity of several existing ocean-atmosphere observing systems which include land, air, ocean, and space-based components. These components contribute substantially to further our understanding of climate physics and satisfy the measurement needs of seasonal-to-interannual climate forecasting. Building on the successful El Nino Southern Oscillation (ENSO) observing system, which was transitioned to operational status is 1998, the Climate and Global Change Program has expanded research observations beyond the tropical Pacific to study the variability of El Nino and the relations between El Nino and other important “climate regimes” affecting the U.S. such as the North Atlantic Oscillation (NAO). The TAO array of moored buoys in the tropical Pacific has been extended eastward by the Pilot Research Array in the Tropical Atlantic (PIRATA). The hurricane genesis area of the Tropical Atlantic is now targeted with a drifting buoy array which will improve prediction of

intensity and land-fall tracks of storms impacting the U.S. coasts. Other network components which advance the climate observing system toward truly global coverage include tide gauges for satellite altimeter calibration and sea level monitoring, Volunteer Observing Ships (VOS) for ocean temperature and surface meteorology measurements, and autonomous profiling floats for deep ocean currents and temperature/salinity measurements.

Other major projects in this area include the Global Precipitation Climatology Project (GPCP) and the International Satellite Cloud Climatology Project (ISCCP). The data from these systems are combined with routine data from the World Weather Watch, the International Global Ocean Services System, and operational and research satellites to produce the best possible fields for initializing and verifying operational forecasts. A strong emphasis is placed on evaluating and quantifying the sensitivity of the analyses and forecast models to the observations from these systems.

Process Research - To improve predictive climate modeling, NOAA is investing in the Global Ocean-Atmosphere-Land System (GOALS) Program and Global Energy and Water Cycle Experiment (GEWEX) Continental-Scale International Experiment (GCIP). GOALS has been formulated to continue improvement of coupled ocean-atmosphere models in computer simulations of the structure of El Nino events and their related global atmospheric response, and to expand the investigation of predictability beyond the tropical Pacific to include the influence of other oceans and land masses. In particular, the Pan American Climate Studies (PACS) Program of GOALS investigates the variability and predictability of precipitation over the Americas. GCIP, a five-year field campaign in the Mississippi River basin, is working to improve the representation of subgrid-scale processes in climate models, particularly land-atmosphere interactions. Together, GOALS and GCIP are initiating a joint effort aimed at improving the seasonal-to-interannual prediction of summer precipitation over North America.

Socio-Economics- The pervasiveness of economic and other human consequences of seasonal-to-interannual events reflects the importance of improved understanding of human components and processes associated with climate fluctuations. The successful forecast of El Nino last year proved invaluable to both the public and private sector in guiding their planning and decision-making. NOAA's socio-economic research effort is designed to develop quantitative and qualitative evaluations of the social and economic consequences of climate variation, and how the use of climate forecasts can meliorate or take advantage of these variations. These evaluations include the impacts of climate fluctuations on economic sectors such as the water supply, land use, agriculture, and energy, and on human vulnerability to natural disasters (floods and droughts) and the redistribution of contagious diseases associated with environments disturbed by climate variations. Decision-making frameworks are integrated into climate assessments emphasizing the regional implications of climate fluctuations. Special attention is given to the analysis of impacts of El Nino events as well as the value of improved El Nino forecasting.

In an effort to build an end-to-end program that ensures the effective use of seasonal-to-interannual climate predictions in socio-economic planning, NOAA is supporting research to assess the best way to distribute and use climate predictions in specific regions and sectors, nationally and internationally. Initially, NOAA will focus on the water resource sector. Base-funded activities include developing and implementing, with outside partners including local Universities, assessments and predictions for more effective management of water resources, and initiating national and international regional applications activities. Assessments in three U.S. regions are being undertaken in the Pacific Northwest, the Southeast, and the Southwest, as well as a pilot project in California.

Predict and Assess Decadal-to-Centennial Change

The Climate and Global Change elements focusing on time scales of decades and longer can be generally divided into research activities that address: (1) the forcing agents of climate change; (2) the role of the oceans in global change; (3) the long-term climate record; (4) rehabilitation of the ozone layer; and (5) prediction, assessment, and human impacts.

Forcing Agents: Gases and Aerosols - An initial step in gaining a predictive knowledge of human-induced decadal-to-centennial changes is characterization of the agents of change, both natural and human-related. The past two-to-three decades has seen the marked deterioration of air quality in the industrialized countries caused by chemical and aerosol emission from human activities. Starting in Kyoto in December 1997, and in a series of follow-up conferences, world governments are focusing on reaching a multinational consensus on decisions regarding greenhouse gases. The economic stakes are high, both in terms of impact of possible global warming and the costs of making ameliorative emission reductions. Hence, knowledge regarding the greenhouse roles of a large variety of greenhouse gases is of premium value.

Monitoring the trends of the major human-influenced greenhouse gas - carbon dioxide - in the atmosphere has been a hallmark of NOAA. The Mauna Loa 30-year record is probably one of the most frequently displayed time series in the atmospheric sciences. In addition, NOAA has now developed an unparalleled global network of carbon dioxide monitoring sties, and continues to analyze this record to reduce the uncertainty of the global carbon budget. The global distribution of carbon dioxide sinks is being determined using these data, combined with a global earth system carbon model, providing solid scientific information for the future policy discussions. The NOAA records of methane abundance globally are similarly second to none. NOAA data was the first to reveal the recent decreases in the growth rate of these gases. NOAA is leading the quest to understand this anomaly and its implications. Complementing this monitoring activity are laboratory, field, and modeling studies that focus on grasping the knowledge and ability to predict future greenhouse forcing.

The Role of the Oceans - Recent research has highlighted the role of the oceans in climate change. NOAA and university investigation sponsored by NOAA have advanced our knowledge of these processes toward the goal of climate prediction. The Atlantic Climate Change Program (ACCP) is directed toward understanding the relationship between the Atlantic Ocean and the atmosphere on decadal to centennial time scales and contributes to the international Climate Variability and Predictability Program (CLIVAR). In particular, ACCP is focusing on the coupled ocean-atmosphere system to examine modes of climate variability, such as the North Atlantic Oscillation and tropical variability, and become available for analysis in the context of climate and modes of climate variability. NOAA is also investigating the role of the ocean in the global carbon budget, examining both the rate and variability of ocean uptake of carbon dioxide, as well as the exchange of carbon dioxide between the ocean and atmosphere.

Ensuring a Long-Term Record - NOAA supplies much of the accurate information about long-term changes for a variety of climate quantities required for the computer models which help ascertain the sensitivity of the climate system to changes in atmospheric composition, as well as the impact of climate change on socio-economic, biogeochemical and physical systems. These climate quantities often are required at high temporal and spatial

resolutions, especially with respect to the impact of climate change. The observations available to develop this information are derived from disparate observing systems as well as proxy paleoclimate data.

Rehabilitation of the Ozone Layer - NOAA supports studies to measure ozone-depleting reaction, field investigations to characterize ozone losses over mid-latitudes, and monitoring of the effects of the CFC and halon substitutes. This year has seen an encouraging leveling-off in the accumulation of ozone depleting compounds in the stratosphere as a result of substitution. The work is directed toward providing the scientific basis for policy choices associated with the substitutes as well as other ozone depleting gases such as methyl bromide. Better definition of which substitutes are the most "ozone friendly" will help our chemical industry avoid production of a substitute that later proves to destroy unacceptable amounts of ozone.

Prediction, Assessment, and Human Impacts - NOAA researchers, supported by both OAR and the Climate and Global Change Program, are the world leaders in discoveries that have dramatically changed our understanding of human influences on the ozone layer. Their services include ground-based monitoring of ozone trends and those of the gases that cause those trends, discovering the cause of the Antarctic ozone "hole", coordinating world scientific assessments of the state of understanding, and conveying the significance of that to policy makers. The NOAA global climate models are widely accepted as the benchmarks for prediction of long-term change. For example, the NOAA global warming climate models have provided the fundamental data for all of the international assessments.

Global Learning and Observations to Benefit the Environment (GLOBE) - The objectives of this program are to: (1) enhance the collective awareness of individuals throughout the world concerning the global environment, (2) increase scientific understanding of the Earth by using a dense worldwide network of schools to collect environmental observations, and (3) help all students reach higher levels of achievement in science and mathematics. Scientists design experiments in which the spatial density of schools over the world's land area would augment the accurate, but low density observations from existing *in situ* and satellite measurements. Students at GLOBE schools carry out the measurements in coordination with scientists to ensure data validity and reliability. The program uses the Internet for student reporting of their observations for central processing and distribution, including dissemination of global environmental visualizations based on these and other data sets. Scientists access the data through the Internet and then use it in their research and provide feedback through the network to students. GLOBE school lead teachers are trained to enable them to guide their students to make observations that will be useful for scientists and to fulfill the educational objectives of the program.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
IMPLEMENT SEASONAL TO INTERANNUAL CLIMATE FORECASTS				
ENSO forecasts:				
Accuracy (correlation)	.81	.85	.85	.85
U.S. temperature:				
Skill score	22	20	20	20
ENSO Observing System operational (percent)	0	50	75	90
GCIP experiments implemented (percent)	40	40	60	80
GOALS experiments implemented (percent)	15	15	20	25

"Accuracy" means the pattern correlation of the forecast relative to actual conditions. Since ENSO events are defined by the sea surface temperatures (SST) in the central Pacific Ocean, the accuracy of the forecast of an ENSO event is quantified by the pattern correlation of the central Pacific SST forecast versus observed. "Skill" score is a quantitative measure that evaluates the correctness of the forecast; higher numbers indicate more skill.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
PREDICTING DECADAL TO CENTENNIAL CLIMATE CHANGE				
Operational ozone stations to measure tropospheric ozone trends for greenhouse gases (Old Perf. Mea.)	2	N/A	N/A	N/A
Conduct continuous program of upgrading AirMon (wet/dry) sites and publish updated trend results - Quarterly Annual Assessment Completed and Reported Upon (New Perf. Mea.)	N/A	4	4	4
Percent of commercially viable CFC-substitutes evaluated for their greenhouse warming potentials (100% = 30) (Old Perf. Mea.)	50	60	N/A	N/A
Evaluate and Report the Global Warming Potentials (GWPs) of the proposed, viable substitutes for ozone depleting substances - Quarter Completed (New Perf. Mea.)	N/A	2nd	3rd	N/A
Percent of commercially viable CFC-substitutes evaluated for their ozone Depletion potentials (100% = 30) (Old Perf. Mea.)	50	70	N/A	N/A
Document the "turnover" of CFC source gases (whose atmospheric abundance Is expected to begin decreasing by 1998) in order to verify the effectiveness of global policy actions - (Number of Reports) (New Perf. Mea.)	N/A	N/A	1 report	N/A
Completion of initial state of science assessment of rural ozone Chemistry (percent)(Old Perf. Mea.)	50	N/A	N/A	N/A
Lead development of a peer reviewed initial assessment of regional ozone in N. America, including summarizing results for customers - (Number of Reports) (New Perf. Mea.)	N/A	N/A	1 report	N/A

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Percent completion of upgrade and operation of the early detection of air quality stations (100% = 20)(Old Perf. Mea.)	30	N/A	N/A	N/A
Develop and evaluate techniques to measure key intermediate and sink species needed for model evaluation - Quarter Completed (New Perf. Mea.)	N/A	2	4	4
Inventory the NOAA research that will contribute to the year 2000 IPCC scientific Assessment of climate and provide this information(percent) (New Perf. Mea.)	N/A	25	50	100
Publish updated trend results of air quality measurements	N/A	N/A	1 report	N/A

The goals of the Predict and Assess Decadal-to-Centennial Change program are long-term, with often long lead times for results. In accordance with the Government Performance and Results Act, qualitative performance measures will be used to evaluate the success of the program--the quality of the scientific information, applicability to national and international environmental policy decisions, and utility to the policy making users. Progress will be evaluated by independent panels of peers and users based on the following goals:

- Narrow the uncertainties in the global carbon dioxide budget.
- Achieve quantitative assessment of the benefits of each climate observing system in documenting and understanding climate and the impacts of changes or additions to systems.
- Document observed changes in climate, including extremes, for IPCC.
- Develop scenarios for regional climate and ecosystem change in a form suitable for impact models, starting with the North Pacific and California current.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
HIGH PERFORMANCE COMPUTING AND COMMUNICATIONS				
Major models adapted to run on highly parallel systems	2	3	3	4
Long-running weather/climate forecast prototypes on highly parallel systems	1	1	3	3
NOAA computing and data archiving facilities connected to the Internet . . .	20	23	25	27
NOAA centers of data connected to the Internet/NGI at high bandwidth	1	2	3	4
GLOBAL LEARNING AND OBSERVATIONS TO BENEFIT THE ENVIRONMENT (GLOBE)				
Number of School participants	3900	5900	7400	9400
Cumulative # of Data Reports (in thousands)	710	1200	1600	2000
Number of Countries Participating	57	67	72	77

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Climate and Air Quality Research	Pos/BA	383	$122,813	383	$139,700	0	$16,887
	FTE/Obl	384		394		0	

The net changes in this subactivity are 0 FTE and +$16,887,000. These are described below:

Interannual & Seasonal Climate Research (+0 FTE; +$2,000,000) NOAA requests a total increase of $2,000,000 for the following initiatives within the Interannual & Seasonal Climate Research line item:

Ocean-Climate Variability (+0 FTEs, +$4,000,000) NOAA requests $4,000,000 to expand NOAA's ability to observe the upper oceans. This is the first year of a three-year research initiative.

Background - The El Niño Observing System in the tropical Pacific has been critical to our development of skillful forecasts of El Niño and La Niña Nina. Improved ocean observations produces clear economic and social benefits as well as lead to increased knowledge of the coupled ocean-atmosphere climate system. Just as El Niño is a powerful, predictable feature of the coupled system, so too are there other phenomena whose predictability depends on improved observations and understanding. Specifically we need increased extra-tropical ocean observations. With increased amounts of data it will become feasible for the climate and oceanographic communities to enter a new age, where the full physical state of the ocean will be estimated routinely (as has been done for the atmosphere for several decades) in near-real time. The implementation of an ocean observing system and development of appropriate ocean models which assimilate the data are key to realizing the benefits to predicting natural climate variability.

Proposed Actions - The initiative entails deployment of a global array of profiling autonomous floats capable of making repeated temperature and salinity profiles of upper ocean and currents at depth. Design of the initial deployment has been based on existing knowledge of the variability of the upper oceans and will result in the provision of sufficient data to make meaningful seasonal estimates of the large-scale upper oceans circulation, temperature, and salinity. The design calls for approximately 1000 floats to be deployed over a three-year period in the Atlantic and Pacific Oceans. This initiative will be carried out through the National Oceanographic Partnership Program (NOPP). These data will be used with satellite measurements, existing routinely collected ocean observations, and atmospheric analyses to produce "weather maps" of the upper oceans.

Benefits - These observations will lead, for the first time, to an accurate knowledge of the seasonal cycle of the upper ocean. We can then accurately determine seasonal ocean anomalies that are key to understanding other air-sea climate phenomena (such as the Pacific Decadal Oscillation and the North Atlantic Oscillation) that affect U.S. interests. The value of satellite measurements will be increased with the addition of complementary ocean data to be used for calibration and bias removal. Resulting data, with the data from the Role of Oceanic Processes in Climate initiative, will give better initialization for short-range ocean forecasts and will lead to an improved ability of ocean models to simulate oceanic changes. The data will also enable experimental forecasts and predictability studies of coupled air-sea climate phenomena.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Percent of Basin-scale observing system implemented	0	50	75	100	Project Completed

Program Eliminations (0 FTE, - $2,000,000) NOAA requests discontinuation of funding for the Climate Change Research Center at the Institute for the Study of Earth, Oceans, and Space, (–$2,000,000) .

Long-Term Climate and Air Quality Research (+0FTE; +$5,687,000): NOAA requests a total increase of $18,700,000 for the following initiatives within the Long-Term Climate and Air Quality Research line item:

Ozone and Particulate Matter - Health of the Atmosphere (+0FTE, +$387,000): NOAA requests $387,000 for the Health of the Atmospheric program within the Long-Term Climate and Air Quality Research line item to provide an improved understanding of the atmospheric processes that control the formation and distribution of ground-level ozone and fine particles.

Background: Although the Nation's air quality has improved significantly in the three decades since the passage of the Clean Air Act, there are still areas where the public is exposed to unhealthy levels of air pollution. Two pollutants that still represent a serious problem, despite extensive management efforts, are ground-level ozone and fine particles. In an effort to provide an adequate margin of protection for public health and welfare, EPA has recently (1997) promulgated new air quality standards for these pollutants. However, fundamental scientific questions still exist regarding the atmospheric processes responsible for elevated levels of these pollutants that limit the development of a sound predictive understanding. For example: What role, if any, do reactions occurring on the surface of fine particles play in the formation and removal of ozone? What is the chemical composition and physical characteristics of the fine particle mass to which the public is exposed?

Proposed Actions: With the above augmentation, NOAA research will contribute to the science needed to develop sound predictive capability for these two pollutants. Specifically, OAR will focus its efforts in two areas. 1) The interplay between the chemical processes leading to formation of these two pollutants will be studied in an effort to identify how emission reductions targeted for one could positively or negatively influence the other. 2) The chemical composition of ambient aerosols will be determined to identify the relevant particle-forming atmospheric processes, the sources responsible, and to provide composition information in support of health studies that seek to identify mechanism responsible for health impacts of fine particles. Laboratory studies will be conducted to better understand the chemical processes that occur on particle surfaces. Intensive field studies will be conducted to characterize particles in the "real world" and to better understand the processes responsible for their formation and disposition. The new science will be incorporated into predictive models that can be used by policy-makers to design effective air quality management strategies.

Benefits: Provide scientific information needed for rationally addressing these issues, particularly with respect to: (1) natural ozone and particulate matter levels and (2) distinguishing locally and regionally-induced causes. Provide chemical composition data on fine particles to determine whether their health impacts are due to the originally emitted particles or to the surface coating formed during exposure to poor air quality prior to human ingestion. This augmentation will facilitate providing the scientific basis for addressing these air quality issues. It also will help prevent missteps of inadvertently trying to resolve one problem and later discovering it was at the expense of the other. This delineation has significant economic implications.

Measures of Performance

	FY 2000 Estimate	**FY 2001 Estimate**
Perform laboratory studies of chemical reactions occurring on particle surfaces, report results	4th Qtr	
Carry out and report the findings of a coordinated airborne and ground-based study of the common processes that form ozone and particulate matter in the Eastern U.S.		3rd Qtr

Results of 80% of the research activities cited in the 2001 NARSTO Assessment of Surface-Level Ozone and Particulate Matter to be prepared for the governments of the U.S., Canada, and Mexico.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in thousands)					
Ozone and Particulate Matter- Health of the Atmosphere	+ $387	+ $387	+ $387	+ $387	+ $387

The Role of Oceanic Processes in Climate (+ 0 FTE, + $1,600,000) NOAA requests an increase of $1,600,000 within it's Long-Term Climate and Air Quality Research line item to provide the scientific input to decisions associated with our Nation's response to the Kyoto Conference.

Background: On decadal and longer time-scales, modeling and observational studies find that the ocean is a major contributor to climate variability. Coupled General Circulation Models (GCMs) play a crucial role in assessing the variability of the global climate system at the longer periods. Equally important, observations must be collected to insure that climatically important processes are adequately represented in the models; to initialize the models; and to document climate change. Key uncertainties in our understanding of oceanic processes limit our ability to adequately model the climate system and, therefore, our ability to both assess the predictability of decadal time-scales and to detect both natural and anthropogenic climate change. The goals of this initiative are 1) increased confidence in CO_2 warming scenarios through improved representation of natural and anthropogenic ocean climate processes in models and systematic collection of long-term instrumental observations of climate system variables in the ocean and 2) the development of advanced data assimilation systems for the oceans to be used for model improvement, assessing climate predictability, diagnostic studies, and incorporation into the operational prediction of climate.

Proposed Actions: NOAA will focus on the improvement of coupled GCMs, assessment of the predictability to the coupled climate system on decadal time-scales in response to natural and anthropogenic forcing agents, and the acquisition of adequate data to continue to track climatically important ocean signals and to validate and initialize GCMs. Specifically, OAR will work with its partners and collaborators, including other Federal agencies and the international community to undertake new observational and modeling activities selected annually from the following desired activities: 1) implement a long-term ocean observing program of intermittent sampling of the full water column at eddy-resolving resolution along fixed transects; 2) establish a total water column hydrographic program at a few key locations that will provide high temporal resolution of temperature, salinity, carbon dioxide and other critical climate variables; 3) upgrade existing Voluntary Observing Ship (VOS) programs to include new sensors for carbon dioxide and other climate variables; 4) use the resulting data to validate decadal and longer-term climate change scenarios developed from GCMs and thereby improve model parameterizations 5) continue development of new data assimilation methods and ocean models taking advantage of new massively parallel processor technology, and interface these to the operational climate prediction centers; 6) apply new assimilation methodology to existing data sets (e.g. WOCE) as will as to the new data-sets resulting from recent global ocean programs; and 7) develop over time a record of the movement of the

anthropogenic CO_2 signal into the world's oceans. The data generated from these observations will be used in conjunction with additional data generated from the $4,000,000 Ocean Climate Variability initiative.

Benefits: (1) Providing an improved understanding of the relative roles of natural and anthropogenic forcing of climate change (2) an evaluation of the ability of coupled models to predict aspects of decadal variability (3) increased confidence in CO_2 warming scenarios through improved representation of natural and anthropogenic ocean climate processes in models; (4) improved climate prediction models (5) increased understanding of the causes of observed variability and (6) improved skill of seasonal and longer climate forecasts. All of these will have significant benefit to the economic decisions that will be part of the deliberations regarding the Kyoto conference.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Annual progress reports and next year plans for Ocean Four Dimensional Data Assimilation Program (Qtr. Completed)	3	3	3	3	3
Begin International Global Ocean Data Assimilation Experiment (Qtr. Begun)	....	....	....	1	....
Deploy efficient upper-ocean temperature and salinity observing networks	....	4	4	....	....
Track the introduction of anthropogenic carbon dioxide into the global oceans (Field Programs-Qtr. Completed)	4	4	2	2	4
Characterize decadal variability along selected oceanic transects (Field Programs - Qtr. Completed)	....	4	2	2	4

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in thousands)					
The Role of Oceanic Processes in Climate	+$1,600	+$1,600	+$1,600	+$1,600	+$1,600

Quantifying the Influence of Air Pollution on Coastal Waters and Habitat (+0 FTE; +$1,000,000): NOAA requests an increase of $1,000,000 to improve coastal monitoring and assessment capabilities for the purpose of quantifying the influence of atmospherically derived inputs on U.S. coastal water quality and habitat. This initiative supports CENR priorities for coastal monitoring and research within its National Environmental Monitoring Framework and Integrated Science for Sustainable Ecosystems Initiative.

Background: Eutrophication in coastal zones resulting from excess nitrogen is directly responsible for decreased productivity in these economically important waters. The work proposed falls under the Clean Water Action Plan and will permit NOAA to respond to the language of the Clean Air Act Amendments of 1990, Section 113 (m) (1) ("The Administrator, in cooperation with the Under Secretary of Commerce for Oceans and Atmosphere, shall conduct a program to identify and assess the extent of atmospheric deposition of hazardous air pollutants (and in the discretion of the Administrator, other air pollutants) to the Great Lakes, the Chesapeake Bay, Lake Champlain, and coastal water . . ."). It is now known that up to 40 percent of the nutrients that cause harmful algal blooms along the east coast come from the air. The Pfiesteria piscicida occurrences of 1997 followed periods of intense inputs of atmospheric pollution, a correlation that might be indicative of an atmospheric cause and effect. So that we can develop the skill to predict the occurrence of harmful algal blooms and protect against over-regulating and against imposition of inappropriate controls, we need to quantify and assess atmospheric nutrient loading on sensitive and vulnerable coastal ecosystems. The work proposed will provide additional scientific basis for coupling air and water nutrient issues in sensitive coastal areas.

Proposed Actions: OAR/Air Resources Laboratory (ARL) scientists are currently leading the first national assessment designed to provide an initial, uniform estimate of the seriousness and extent of detrimental effects of nitrogen over-enrichment throughout the coastal areas of the United States. This proposed initiative would increase the extent and coverage of this initial assessment to the entire U.S. Coast, and includes collaborative efforts with several components of the NOAA system including: NERRS, NMFS, and CZM. Milestones associated with this effort include: Quantify nitrogen loads and subsequent abiotic and biotic effects on U.S. coastal bodies of water; Establish and maintain integrated research monitoring sites to develop model evaluation databases; and, Inclusion of process data into diagnostic/predictive tools for quantitative assessment of atmospheric nutrient inputs, and subsequent effects, to individual coastal water bodies.

Benefits: The initiative will make a strong contribution to two targeted outcomes of NOAA's Sustain Healthy Coasts goal: (1) Increase the percentage of U.S. coastal waters that con provide a sustainable level of living marine resources, safe recreation, healthy seafood, and economic vitality. A

quantitative understanding of the nutrient mass balance for a given location or body of water is needed to develop viable management strategies for reducing nutrient input to those waters. Through implementation of CENR pilot projects, this initiative will increase available information and understanding through cooperative data collection and analysis. (2) Ensure no net loss of coastal habitat in terms of quantity and quality. It is becoming widely accepted that water quality and habitat issues are directly related. Furthermore, it has become clear that proper management decisions cannot be based on water quality considerations alone. This initiative will improve quantitative linkages (across spatial and temporal scales) between water quality and habitat.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
U.S. Coastal Regions with Assessment of Atmospheric Pollution Effects on water quality and habitat (percent)	38	50	75	100	100

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in thousands)					
Quantifying the Influence of Air Pollution on Coastal Waters and Habitat ($K)	+$1,000	+$1,000	+$1,000	+$1,000	+$1,000

Baseline Observatories Restoration (+0 FT, +$1,200,000) NOAA requests an increase of $1,200,000 within it's Long-Term Climate and Air Quality Research line item to carry out repairs and upgrades crucial to the maintenance of base-line observatories and for maintaining the continuity of the long-term time series data they supply the global scientific community.

Background: NOAA maintains fully staffed, world class remote Atmospheric baseline Observatories at Barrow, Alaska (27 years); Mauna Loa, Hawaii (41 years); American Samoa (26 years); and at the South Pole, Antarctica (35 years). Due to their remote locations, continually monitored background levels of trace gases, aerosols, and solar energy (including UV radiation) are subject to the minimal effects of pollutants released from anthropogenic sources. In addition the stations monitor the stratospheric ozone layer using balloon borne ozonesondes, ozone absorption spectra, and remote sensing

lidars. Taken together, these measurements provide the baseline to which other data from around the world have been compared for decades and from which international policy such as the "Montreal Protocol" on control of fluorocarbons have been developed. In addition, the data are routinely used to calibrate and verify NOAA and NASA environmental satellites. Taken together, these measurements contribute, uniquely and vitally, to our scientific understanding of global atmospheric processes and factors contributing to climate change. However, the continuity of these data are in jeopardy because the sites at which they are located have suffered steady degradation over the decades they have been in operation and from the increased number and costs of the monitoring programs. Due to the absorption of inflation and other factors leading the erosion of base funding, these sites have insufficient funds to carry out routine equipment upgrades, replacement, facility maintenance and for the purchase of operational supplies such as ozonesondes. Mauna Loa Observatory alone has doubled its measurement programs in the past 10 years due to requirements associated with ozone monitoring, without any increase in base budget. In FY 1998 the South Pole Observatory, which conducts an ozonesonde program to monitor the Antarctic ozone hole, ran out of sondes at the peak of the 1998 Antarctic Ozone Hole, and only through borrowing sondes from another institution were the year's measurements completed. Without this record it would be impossible to monitor the status of the ozone hole and the progress that has been made in reversing its growth which is projected to occur early next century.

Proposed Actions: NOAA will carry out immediate upgrades of equipment and facilities at all four base-line facilities. These will include (1) ensuring the basic upkeep and resources for support of the NOAA Dobson Ozone Spectrophotometer Network to ensure the continuance of the world standard for stratospheric ozone measurements, (2) restoring necessary funding for the South Pole, Samoa, and Mauna Loa ozonesonde programs to continue monitoring the rehabilitation of the ozone layer and to detect any new, as yet unknown ozone destruction effects, (3) one-time maintenance and replacement of instrument housing at Barrow, Alaska, (4) supporting a schedule of routine repairs and maintenance at the Mauna Loa observatory to ensure an uninterrupted monitoring program there, (5) one-time rehabilitation of the Samoa Observatory and institution of regular facility and instrument maintenance,

Benefits: The restoration of the Baseline Observatories will allow NOAA to continue the on-going "global background" measurements of atmospheric trace gases, aerosols, UV radiation and stratospheric ozone, among other changing phenomena that are crucial to ensuring a long-term atmospheric composition and climate change record. State-of-the-art equipment at the observatories will be maintained in a state of good repair with sufficient spares and consumables on hand to be certain of the absolute accuracy and reliability of the data collected. NOAA Baseline Station measurements are the world standard in the carbon cycle gases, total column ozone, UV radiation and most of the fluorocarbons. These data streams will be continued uninterrupted to support science both nationally and world-wide, will be used in calibrating and confirming measurements from remote sensors such as satellites, will provide precise measurements as to the severity and timing of the ozone hole over Antarctica, and will document the state of stratospheric ozone elsewhere over the Earth. The global community looks to NOAA to maintain the quality and integrity of these unique data records.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Restoration of Barrow, Alaska facilities completed . . .	X				
Mauna Loa monitoring station refurbished			X		
Restoration of Samoa facilities completed		X			
Full operation of Dobson Ozone Spectrophotometer network	X	X	X	X	X
Full year supply of ozonesondes to Antarctic Ozone monitoring program	X	X	X	X	X

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in thousands)					
Baseline Observatories Restoration	+$1,200	+$1,200	+$1,200	+$1,200	+$1,200

Global Learning and Observations to Benefit the Environment (GLOBE) (+0 FTE, +$2,500,000): NOAA is requesting an increase of $2,500,000 for the GLOBE program to restore funding to the FY 1998 level.

Background: The mission of the GLOBE Program is to enhance environmental awareness, increase scientific understanding of the Earth through in situ environmental measurements, and help all students reach higher levels of achievement through hands-on science and the use of state-of-the-art computing and networking technology. GLOBE is implemented nationwide through partnerships with state departments of education, local school districts, and universities. These GLOBE partner organizations, and the teachers and schools they support, are guided by GLOBE science and education

leaders at universities across the United States, who develop science measurement protocols and supporting educational resource materials that are essential for GLOBE schools to make measurements that result in research-quality data. The GLOBE science leaders also interact with GLOBE teachers and students and oversee overall data quality control. GLOBE science and education leaders assure that GLOBE science data are useful to the science community for their research and that GLOBE provides a real, science-based education experience for students in their classrooms.

Proposed Actions: This increase will support GLOBE science and education leaders at universities across the United States, so they can develop science measurement protocols and supporting educational resource materials which enable GLOBE schools to make research-quality measurements. The increase will also enable GLOBE to assure that teachers in every state can be trained in the GLOBE measurement protocols through additional program support for teacher training workshops support to GLOBE partner organizations.

Benefits: This increase will support competitively selected GLOBE science and education leaders at universities across the United States, so they can develop science measurement protocols and supporting educational resource materials which enable GLOBE schools to make measurements that result in research-quality data. The GLOBE science leaders interact with GLOBE teachers and students as they make their environmental measurements and oversee overall data quality control. GLOBE science and education leaders assure that GLOBE science data are useful to the science community for their research and that GLOBE provides a real, hands-on science education experience for students in their classrooms. The increase will enable GLOBE to meet the high demand from teachers in every state to be trained in the GLOBE measurement protocols. GLOBE is implemented nationwide through partnerships with state departments of education, local school districts, and universities. These partner organizations are dependent on the GLOBE science, education, and systems infrastructure, supported by this funding request, as they invest local resources to train and support teachers so they can implement GLOBE at their schools.

High Performance Computing and Communications - GFDL (+0 FTEs, +$5,700,000): [NOTE: Complete narrative supporting this request may be found in the Procurement, Acquisition and Construction Account section of this budget submission.] NOAA requests an increase of $5,700,000 to enter into a lease for, or purchase of, a very large, scalable computer system that will provide critical computing, storage, and analysis capabilities to NOAA's Geophysical Fluid Dynamics Laboratory (GFDL). This sharply enhanced computing environment will allow GFDL to attack some of the most important frontier problems in computational climate and weather research. This computing initiative is essential if NOAA is to leverage the world-class research staff and modeling capabilities now in place at GFDL to address these important research problems. The laboratory's on-going model development effort, supported by HPCC, is positioning GFDL to take full advantage of the scalable architectures being developed by the American computer industry. This computer also replaces the current supercomputer at the end of its five-year lease.

High-Performance Computing and Communications - FSL (+0 FTEs, +$1,500,000): NOAA requests an increase of $1,500,000 for the full year lease of a massively parallel computing system for developing and evaluating mesoscale weather prediction models and evaluating designs for an improved national weather observing system at NOAA's Forecast Systems Laboratory (FSL). This supports the full-year funding requirement for the massively parallel system acquired in FY 1999. The FY 1999 costs reflected a prorated partial-year lease and support during the year of acquisition.

Background: Through the acquisition of the FSL supercomputer, NOAA is taking the next logical step toward developing its massively parallel processing capabilities on which future NOAA weather forecasting improvements will depend. While today's numerical weather prediction models and the supercomputers on which they run demonstrate substantial advancements over those of only five years ago, the atmospheric representation they produce still lacks many key features, such as weather fronts, convection, and precipitation. To take the next major steps to develop and test weather prediction models with resolutions on the order of 5 km over a national U.S. domain and to conduct the testing necessary to design the most cost-effective atmospheric observing system of the future, NOAA is acquiring a next generation, state-of-the-art MPP computer. First year funding supported the system acquisition and one-time startup costs. This increment supports the lease and programming and technical support for a full year.

Proposed Actions: NOAA will continue the lease of the full-scale computing system being acquired at FSL including a balanced system of computing, storage management, software development, and technical support. The new computing system will be used to conduct data sensitivity analyses necessary to test and evaluate observing systems design for identifying the most cost-effective mix of sensors and measurements for next generation weather observing systems. The system will be used to develop software that will ease the conversion of numerical software routines to be able to rum on a number of massively parallel, scalable machines. The system will also be used to work toward implementing highly parallel state-of-the-art numerical models for weather prediction, especially a national domain mesoscale high resolution model.

Benefits: This increase provides the most efficient path to achieving the goals of this work 1) a more efficient and effective natonal weather observing system, 2) efficient, flexible, portable weather, climate and ocean modeling on the new advanced highly scalable computer architectures being developed by American industry, and 3) advanced weather prediction models with resolutions of 5 km over the entire nation to more accurately predict such important features as heavy snow bands, regions of intense convection, and heavy rain.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
[All following performance measures are annual.]					
Scalable Modeling System Improvements					
New features	2	2	2	2	2
New supported architectures	2	1	2	1	2
Percentage efficiency improvement	10	10	10	5	5
Observing System Improvement					
Configurations evaluated	3	3	3	N/A	N/A

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Progress: High Resolution Model					
Additional features	1	1	2	2	2
High resolution model run time as a % of forecast length	….	20	15	10	8

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in thousands)					
GLOBE	+ $2,500	+ $2,500	+ $2,500	+ $2,500	+ $2,500
High Performance Computing and Communications - FSL	+ $1,500	+ $1,500	+ $1,500	+ $1,500	+ $1,500

Climate and Global Change (+ 0 FTE, + $6,700,000): NOAA requests a total increase of $6,700,000 in FY 2000 to implement a comprehensive research initiative to provide the vital scientific input for policy questions and management challenges that have emerged from: (1) the climate negotiations in Kyoto; (2) the strong 1997-1998 El Niño/Southern Oscillation (ENSO) event.

Background: Two significant events took place in 1997-1998 to which NOAA plans a comprehensive response. The first was the promulgation of the Kyoto Protocol, designed to reduce global emissions of greenhouse gases in an attempt to avert or reduce the potentially harmful effects of global climate change. The second was the 1997-1998 El Niño, which severely impacted many parts of the globe, including the U.S. and many of our trading partners. These two events raised the national awareness of the role of climate variability in our daily lives and have placed an immediate and unprecedented demand on NOAA to provide a greater scope and depth in our understanding and forecasting of climate and global change. The requested increase will improve NOAA's prediction and assessment capabilities based upon a program of observations and modeling carried out through a competitive grants

program. The improvement will result from a better understanding of the recurrent patterns of variability of the climate system and its forcings across all time scales.

Implicit in our approach is the recognition that time scale distinctions (seasonal-to-interannual and decadal-to-centennial) are blurring, largely due to research results that point to the interaction of variability across time scales. This recognition coincides with, and is perhaps instrumental in Vice President Gore's suggestion for a convergence of seasonal-to-interannual and decadal-to-centennial research programs. Although the time scale division is retained below for budget presentation purposes, this FY 2000 initiative marks the beginning of the Climate and Global Change program of time scale convergence. Characterizing the several "modes" of variability in our climate system and how they interact with one another will be critical to the success of future climate forecasting.

To this end, the specific and interdependent goals of this initiative include: (1) improved ENSO prediction; (2) improved determination of the influence of the North American Monsoon, North Atlantic Oscillation, and Pacific Decadal Oscillation on climate variability; (3) improved quantification of the oceanic and terrestrial sources and sinks of carbon dioxide; (4) improved estimation of the spatial distribution of atmospheric carbon dioxide and tropospheric ozone and their roles in the patterns of climate variability; (5) improved information on the trends and probabilities of occurrence of extreme events such as floods, storms, hurricanes, and tornadoes.

Seasonal-to-Interannual Climate Change (+0 FTE, +$3,600,000): Of the total $6,700,000 increase, NOAA requests $3,600,000 in FY 2000 for Climate and Global Change research into the decadal variability of ENSO and to improve determination of the influence of the North American Monsoon, North Atlantic Oscillation, and Pacific Decadal Oscillation on climate variability.

Background: NOAA's limited but nevertheless extremely promising success in forecasting and informing the public preceding and during the 1997-1998 ENSO event has created an immediate demand to improve tropical forecasting, expand our understanding of extra-tropical variability (particularly over the U.S.), and further examine regional impact and response options. The 1997-98 ENSO event presented a valuable opportunity to the climate research community to identify research and observational gaps and evaluate our modeling and forecasting capabilities. Improved forecasting of precipitation and temperature variability requires us to fully develop the understanding of how several modes of variability are interacting to impact regional precipitation patterns. In addition to the ENSO phenomenon, recent evidence has indicated the existence of other climate variability cycles including the North American Monsoon, the North Atlantic Oscillation (NAO) and the Pacific Decadal Oscillation (PDO), which may have significant and predictable effects on the climate of the United States.

Proposed Actions: Meeting the increased demand for climate predictive information requires acceleration of NOAA's plans to develop and expand its observational, process research, and modeling efforts. Specifically, NOAA plans to:

- Improve ENSO forecasting focusing on three areas which are inadequately represented in today's models: Interannual to decadal variability, sub-seasonal variability, and regional variability. This involves both process research to improve the modeling and prediction of these variabilities, and developing new, more sophisticated models.

- Enhance our current climate predictive capability by addressing the modes of variability beyond ENSO--e.g., the North American Monsoon, the NAO, and the PDO–through the use of Basin-wide Extended Climate Studies (BECS) in the Atlantic and Pacific Oceans. The BECS are designed as an integrated program of sustained observations, process research, and modeling conducted jointly by meteorologists and oceanographers. This program will develop analyses of the interacting ocean and atmosphere based on an economically efficient observing system and encompassing model-data synthesis in which the mechanisms, key processes, and global teleconnections of the several climate patterns are addressed inside a framework of improving coupled climate models.

Benefits: Our Nation's emerging climate forecasting capabilities are the result of Federal investments in basic research, development and deployment of global observing and data systems and subsequent transition of research findings to operational functions. Climate services will be as important to 21st century economies and societies as weather forecasting is today. The capacity to deliver climate information to the user community depends strongly on Federal support for process and modeling research and the collection of global data needed to initialize and validate climate models. Operational climate forecasts will greatly improve our national capabilities to manage efficiently and develop sustainably our Nation's water, agriculture, and energy resources and to forecast natural disasters, such as drought, floods, and other climate extremes.

Savings to the U.S. agricultural sector could be enormous. For example, more than $300 million could be saved annually from improved cropping decisions alone. Agricultural storage costs would also be reduced - for example, annual domestic savings for corn inventories are estimated at $400 million. NOAA has already provided a glimpse of the potential for future savings from climate prediction. The successful forecast six months in advance of the 1997-1998 El Niño was NOAA's most successful and significant interannual climate forecast to date. Working with Federal, state, and local emergency management coordinators, NOAA was able to help Americans prepare for El Niño and minimize loss of life and property, often through such inexpensive preventative measures such as clearing storm drains and fixing roofs.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
ENSO (SST) forecasts Skill (correlation)/ lead time (years)	0.85/0.5	0.85/0.75	0.75/1.0	0.85/1.0	0.85/1.0
Tropical Rain Forecasts Skill/Lead Time (years) (The location and intensity of tropical rainfall is a better indicator of the climate response than just a SST skill score.)		0.6/0.5	0.7/0.5	0.7/0.75	0.8/0.75
Implement Climate Variability and Predictability (CLIVAR) Extended Climate Studies (percent) . . .	25%	45%	65%	80%	95%
Experimental Drought Forecasts Skill (percent above probability/Lead Time (years)		8/0.25	10/0.25	12/0.25	14/0.25

Milestones

Establish Basin-wide Extended Climate Studies (BECS) over the Pacific and Atlantic Oceans. 4th qtr - FY 2000

Develop forecast capabilities on droughts and other extreme climate events. 4th qtr - FY 2000

Develop new probability forecasts based on extended range and seasonal ensemble predictions. 3rd qtr - FY 2001 and FY 2003

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in thousands)					
Seasonal-to-Interannual Climate Change	+$3,600	+$3,600	+$3,600	+$3,600	+$3,600

Decadal-to-Centennial Climate Change (+0 FTE, +$3,100,000): Of the $6,700,000 Climate and Global Change total, NOAA requests $3,100,000 to address two current questions associated with the Earth's radiation balance and its role in changes in the climate system.

Background: Change in the chemical composition of the atmosphere is a factor in the Earth's heat balance and hence the climate system. Records of climatic changes through the millennia suggest that the roles of water vapor, carbon dioxide, and airborne fine particles, in particular, affect the radiation balance and may be involved in climate shifts. Both natural and human-influenced processes are involved in the radiative contributions of trace gases (for example, the uptake of carbon dioxide by vegetation and the emission of carbon dioxide from the combustion of fossil fuels and biomass). Clearly, a predictive understanding that is to serve as sound scientific input to potential decisions regarding the processes that humans can influence needs to be based on well-characterized major components of the radiation balance. It is in this context, we request resources that will be devoted to gaining a better understanding of two of these components: (1) the uptake of carbon dioxide from the atmosphere by terrestrial vegetation, and (2) the radiative role of ozone in the global troposphere.

Proposed Actions: Meeting these information needs requires enhanced observational efforts, interpretive modeling, and climatological data set development. Specifically, NOAA will:

I. Expand carbon dioxide research that will build upon the Agency's unique monitoring network and will extend the recent calculations that have estimated a large uptake of atmospheric carbon dioxide by North American vegetation. Specifically, NOAA plans to carry out regular lower atmospheric sampling of carbon dioxide using instrumented small aircraft. Data on the variability of carbon dioxide in the mid- to lower-atmosphere is needed to characterize the uptake over large regions such as forests and wet- and low-land vegetation. Regional meteorological models will yield the net surface uptake and how this North American sink varies with region, vegetation type, season, and long-term land-use changes.

II. Build upon NOAA's chemical and meteorological studies of the formation of ozone to better characterize the role of this gas in the Northern Hemispheric heat budget. The new investigations will involve airborne sampling of ozone and ozone-precursors over North America and the Atlantic. These data will identify the natural contributions (for example, downward transport from the stratosphere) and human influences on this component

of the radiation balance. Global models will assess the relative role of the regional radiative forcing from ozone (for example, from the combustion of biomass in tropical regions) over the past few decades, say, compared to the emissions of carbon dioxide.

III. Reduce the uncertainties in our understanding of the trends and causes of extreme weather and climate events in North America. The research will include improvement of the historical data record to strengthen its representation of extremes, analysis of the changes in the frequency of extremes over the past few decades, and, using the climate model predictions as diagnostics, evaluate the attribution of the causes. Those extremes with high social impacts will be priorities--for example, rates of rainfall and "degree days" (degrees above the daily norm) for heat waves. This information not only will yield a record of U.S. extreme events, but also will help improve the design of observing networks that can, in addition to providing weather information, better document extremes.

Benefits: The results from this research will help address two of the key current scientific questions associated with the Earth's radiation balance and hence the predictability of changes in the climate system. (1) What are the factors that control the amount of carbon dioxide in the atmosphere? Now that it is clear that removal by vegetation is a substantial part of the answer, a better quantification of this sink has several scientific payoffs: balancing the carbon dioxide atmospheric budget, indicating research directions for potentially enhancing the vegetative uptake of carbon dioxide, and improving the predictions of what the future atmospheric carbon dioxide abundance could be by a better understanding of how managed or natural carbon sinks may change. (2) How well can the "signature" of human influences be spotted in the record of climate variability when ALL of the major forcing agents are included? Past scientific statements about the attribution of observed climate changes have been based on carbon dioxide (global positive forcing) and regional fine particles (regional negative forcing). By being able to include a reliable forcing for tropospheric ozone (regional and negative), the statement about detection of human influences can be improved scientifically, since it could properly account for the balance of the negative and positive forcings of particles and ozone, which occur over nearly the same regions of the globe.

Sound science is the touchstone for rational discussion of challenging environmental problems and policy choices. A better record of the natural occurrence of extreme events in the past is the vital context needed to compare with the frequency with which such events occur today. The building of the extreme events record will help quantitatively fill this key information gap.

Measures of Performance

The scientific community has in place a regular process for evaluating, on a several-year time scale, the major scientific advances in climate science. This process is the periodic assessment of the state of scientific understanding of the climate system. NOAA's measure of performance is that 90% of the research in relevant areas of endeavor be incorporated into these assessments; namely, the vast majority of NOAA's results are deemed by our international peers to be major advances in understanding. The next assessment to with the FY 2000-initiated research can contribute is "The Science of Climate Change: 2005", which will begin in about the period 2002-2003.

Milestones

Begin regular airborne sampling of the variation in the vertical distribution of carbon dioxide at three under-sampled subcontinental regions. 4th qtr - FY 2001; 4th qtr - FY 2002; 4th qtr - FY 2003.

Update the understanding of the terrestrial carbon sink in North America and its role in past trends, as well as how it could influence future carbon dioxide abundances. 3rd qtr - FY 2004.

Complete airborne studies of the horizontal gradients (N. America - N. Atlantic) of tropospheric ozone and update the description of the atmospheric processes that cause and maintain them. 3rd qtr - FY 2002.

Provide an analysis of the role of radiative forcing by tropospheric ozone as input to an expanded analysis of the attribution of climate variation and change. 2nd qtr - FY 2004.

Complete data set development for extreme weather and climate events related to economic, societal, and environmental impacts. 4th qtr - FY 02.

Complete assessment of trends in climate extremes and probable causes to serve as input to the
2005 IPCC Fourth Assessment Report of Climate Change. 4th qtr - FY 02

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in thousands)					
Decadal to Centennial Climate Change	+ $3,100	+ $3,100	+ $3,100	+ $3,100	+ $3,100

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Oceanic and Atmospheric Research**
Subactivity: **Climate and Air Quality Research**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	70
22	Transportation of things	205
23.1	Rental payments to GSA	10
23.2	Rental payments to others	850
23.3	Commun., util., misc. charges	10
24	Printing and reproduction	10
25.1	Consulting services	0
25.2	Other services	465
25.5	R&D contracts	2,840
26	Supplies and materials	2,080
31	Equipment	2,050
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	10,297
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	18,887

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Oceanic and Atmospheric Research**
Subactivity: **Climate and Air Quality Research**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	0
25.5	R&D contracts	0
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(2,000)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(2,000)

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: Oceanic and Atmospheric Research
Subactivity: Atmospheric Programs

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Weather Research	Pos./BA	240	41,795	240	40,450	240	40,950	240	40,950	0	0
	FTE/OBL.	186	38,590	228	43,655	228		228		0	
Solar-Terrestrial Services and Research	Pos./BA	61	5,719	61	6,000	61	6,100	61	6,100	0	0
	FTE/OBL.	42	5,524	65	6,195	65		65		0	
Total	Pos./BA	301	47,514	301	46,450	301	47,050	301	47,050	0	0
	FTE/OBL.*	228	44,114	293	49,850	293		293		0	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Oceanic and Atmospheric Research**
Subactivity: **Atmospheric Programs**

Goal Statement

The goal of Atmospheric Research programs is to provide the Nation with more accurate and timely warnings and forecasts of: (1) weather events, particularly high-impact weather events which disrupt economic productivity and cause loss of life and property; and (2) solar disturbances and their terrestrial effects, including hazards to satellites and disruptions of communications, navigation, and utility systems.

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

Weather Research - The objectives for this element are to provide theoretical frameworks, remote sensing technologies, and scientific understanding to: (1) develop and assess new, cost-effective atmospheric observing systems; (2) develop data acquisition, management, analysis, and display systems; (3) develop and verify numerical models and other techniques to provide prediction guidance for all types of weather, particularly high-impact events; and (4) transfer research results both to aid the research community and to improve operational warnings and forecasts which are important to the emergency response and mitigation components of NOAA's National Disaster Reduction Initiative (NDRI).

Improving our understanding of atmospheric physical processes and interactions of weather systems on all scales is essential to the continued improvement of the forecasts and warnings of the National Weather Service (NWS). NOAA organizations involved in this line item include five Environmental Research Laboratories working in close collaboration with the operational components of NWS and NESDIS and in partnership with the NOAA joint institutes and other university scientists. This research program has two major program elements: systems/modernization and forecasting research.

Systems/Modernization - Improved forecasts and warnings require more frequent and higher-density observations, faster communications, and better local data-handling systems. This is true for both short-range forecasts and warnings prepared by meteorologists monitoring conditions as they develop and for the longer-range ones generated by complex numerical models. NOAA is now implementing a major capital investment that will substantially upgrade its ability to collect weather data. This includes the Next Generation Weather Radars (NEXRAD), satellites, and Automated Surface Observing Systems (ASOS). NOAA also is developing the Advanced Weather Interactive Processing System (AWIPS), which will significantly improve forecasters' ability to use the information. In support of this modernization effort, research is critically needed to improve the spatial and temporal resolution of remote observations of the atmosphere and to integrate the resulting data into coherent four-dimensional physical descriptions of the atmosphere for use in weather forecasting research and operations. The primary research activities currently include:

- Development of atmospheric **profiling** systems to remotely and continuously measure vertical profiles of wind speed and direction, temperature, and humidity. Specific efforts include: (1) operating and assessing the Wind Profiler Demonstration Network (WPDN) in the central U.S. and (2) developing techniques that can integrate the data from ground-based and satellite-borne profiling systems for more effective use in forecasts. The WPDN is an observing system that is relied upon and regularly used by weather forecasters, researchers, universities, and the private sector. It has been demonstrated to improve both subjective and objective (numerical) forecasts, especially for short-term, severe weather events. Finally, data from the WPDN are used by NASA and the Defense Department for improved launch safety and by airlines for more efficient routing of aircraft, resulting in fuel savings.

- Development of **LIDARs and infrared Doppler multi-frequency radars** as research tools to improve our knowledge of atmospheric winds, turbulence, aerosols, and moisture processes.

- Development of **dual-polarization Doppler and multi-frequency radars** and passive **radiometers** to study convective storms and their precursors (including in-cloud processes and cloud interactions with the surrounding air) and to improve the ability to measure rainfall important to flood forecasts a detect damaging winds.

- Improvement of short-range (1-12 hour) forecasting by the development and evaluation of **new local data system technologies** and techniques, some of which have already been incorporated into an operational weather forecasting environment. These include improvements to workstations and products that depict the state of the atmosphere as well as improvements to NEXRAD algorithms that detect high impact weather.

Forecasting Research - Improvements in forecasts and warnings for operational weather services also require that: (1) the numerical models be based on sound mathematical and physical concepts of the atmosphere and (2) specific forecasting techniques (based on research findings) are developed, thereby allowing meteorologists to quickly recognize precursors to various high-impact weather events. Scientific understanding of physical processes that govern the behavior of the atmosphere is essential for accurate models, which in turn, provides a tool for more accurate weather prediction.

Numerical models also are important tools for generating National Center for Environmental Prediction (NCEP) forecast guidance. The specific activities include:

- Developing numerical **models** to simulate and predict the behavior of the atmosphere on several spatial scales including the global (synoptic and mesoscale). A better understanding of the physical processes associated with scale interaction is necessary in order to improve our current predictive capabilities. An example of such an improvement is the recent incorporation of advanced physics into the NCEP global model, which extended the reliability of global forecasts by an average of 1.5 days.

- Developing and implementing **data-assimilation techniques** to better use the considerable amount of data from new and existing observing systems (e.g., wind profilers, NEXRAD, ARINC Communications Addressing and Reporting System (ACARS), GOES/POES). These activities have resulted in increased accuracy in the model products.

- **Collaborating with NWS scientists** (particularly in experimental forecast exercises) to improve predictions by the National Centers and regional forecast and local service offices through: improvements in data analysis and integration; algorithm development; and the application, interpretation, and transfer of model guidance.

- Investigating **convective storms** and their precursor conditions to better understand the processes involved in severe weather and developing prediction techniques and technologies capable of increasing the lead-time and accuracy for NWS watches and warnings of potentially destructive storms.

- Undertaking **field studies** to determine the factors that influence **hurricanes and other severe weather events** which will provide the basis of improving prediction models.

- Developing and transitioning into operations, models to forecast and specify solar disturbances and Earth's responses to these disturbances.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Scientific publications (refereed)	119	119	126	126
Technical publications	27	26	26	26
Major field experiments	3	2	2	2
Experimental models/algorithms developed	2	2	2	2
Flash Flood Warning				
Lead Time (minutes)	40	40	41	42
Accuracy (%)	83	83	85	85
Severe Thunderstorm Warning				
Lead Time (minutes)	18	18	19	19
Accuracy (%)	84	84	84	84
Tornado Warning				
Lead Time (minutes)	10	12	11	12
Accuracy (%)	59	70	70	70
Temperature				
Correct Forecast (%)	86	86	87	87
Accuracy of Forecasting Onset of Freezing Temperatures (%)	76	76	78	78
Snow Amount				
Forecasting of Heavy Snow (%)	45	50	55	60
Aviation Forecasts				
Measure Accuracy of 24-hr Forecasts of Wind Speed at 250 mbs (35,000 ft) (m/s)	7.5	7.4	7.3	7.2
Speed of Delivery of Forecast Products to Users (hours)		3.0	3.0	3.0
Precipitation Forecasts				
Lead Time for 1"Precipitation Forecast with Same Accuracy as a 1-Day Forecast in 1971 (days in advance)	2.3	2.3	2.3	2.4

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Severe Coastal Event Warnings				
Hurricanes				
Accuracy of Landfall (km) with 24-Hour Lead Time	125	140	135	130
Tsunamis				
Lead Time (hours)	....	1	1	1
Height Accuracy (%)	....	0	0	0
Accuracy of Coastline to be Evacuated (km)	....	1600	1600	1600
Tsunami Inundation Maps Completed (% coastal communities)	....	11	11	20

Solar-Terrestrial Services and Research - In the context of the rising solar cycle, expected to maximize in the year 2000, the principle objectives of NOAA's solar terrestrial programs are to: (1) provide forecasts, alerts, warnings, and other key information about space weather (i.e., solar disturbances and geomagnetic storms) and its effects on communications, navigation systems, power distribution networks, operation of satellites, protection of astronauts on space missions to government and civilian customers on a 24 hour per day, seven days a week basis; (2) improve observations, data bases, physical forecast models, forecast and information products, and dissemination systems for these data and products through research and development; (3) evaluate and demonstrate research and development gains and transition them into operations.

Forecasts and Warnings

NOAA's Space Environment Center (SEC), together with the US Air Force, operates the national civilian space weather service through its Space Weather Operations Division located in SEC. Forecasts, alerts and warnings are provided to customers interested in the Solar-Terrestrial environment on a 7 day a week, 24 hour a day basis. These products are synthesized from over 1400 data streams providing observations of the solar terrestrial environment, including x-ray flux, charged particles, and magnetic field changes produced by solar disturbances.

Research

SEC's research scientists improve space weather forecasts and warnings by studying the Sun's electromagnetic, particle, and magnetic-field emissions and the processes by which they affect Earth's space environment. Specifically, they develop: (1) algorithms for processing and analyzing data from advanced space-environment sensors; (2) improved diagnostic and prediction techniques; (3) theoretical models, both statistical and numerical, to forecast space weather that will impact Earth; (4) improved sensor calibration and quality control; and (5) "expert systems" to recognize developing solar features for operational use. Furthermore, research is necessary to plan for longer-term follow-on replacements for current observing systems that are too old to maintain operationally because of expired satellite lifetimes and out-of-date technology.

Customer Service

SEC provides services to a broad user community of government agencies, industries, public institutions, and private individuals involved in satellite operation, space explorations, radio navigation, high-altitude polar flights, high-frequency communications, remote intelligence gathering, long-line power and data transmissions, and geophysical exploration. Forecast, alert, and warning products are distributed to these customers and the general public via the NOAA Weather Wire, email, the World Wide Web, broadcasts on the standard time and frequency radio station, and other electronic and non-electronic distribution networks. Many of the products are further distributed by industry and dedicated networks such as the World Meteorological Organization (WMO), Federal Aviation Administration contractors, American Amateur Radio League, WMO nets, and electric power coordination networks. Customer support is also provided by SEC's forecasters, who are available to respond to customer inquiries. To develop a viable way of meeting the expanding demand for space weather services as solar activity moves toward its cyclical maximum in the last part of the 1990's, SEC is fostering the development of a commercial third-party vender community to use the information gathered by the SEC from government observing systems and to turn it into tailored products aimed at solving specific user problems which are outside the role of government to provide.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Scientific Publications (refereed)	31	31	29	29
Technical Publications	10	12	11	11
Receive, Process & display new data streams	1	0	1	1
New Alerts and Warnings products	0	0	1	2
Space Weather Operations				
Number of forecasters	6	6	7	7
Hours of forecaster coverage	10	10	24	24

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Atmospheric Programs	Pos/BA	301	$47,050	301	$47,050	0	$0
	FTE/Obl	293		293		0	

The net change in this subactivity are 0 FTE and $0. The individual changes are described below:

Weather Research (+0 FTE, +$1,500,000): NOAA requests an increase of $1,500,000 for the Weather Research line item. This increase consists of the following proposal.

U.S. Weather Research Program (USWRP) (+ 0 FTE, +$1,500,000) NOAA requests $1,500,000 for its weather research component of the National Disaster Reduction Initiative (NDRI), under the theme of "Reducing the Costs of Disruptive Weather." These increased funds represent the first year of a five- to seven-year effort that will provide the research and operational implementation necessary to improve forecasts of hurricane landfall. It is a cooperative effort among OAR, NWS, and NESDIS, and among three other agencies (NSF, NASA, and the Navy).

Background: This initiative is a partial culmination of multi-year and multi-agency science planning process under the sponsorship of the USWRP. More than 200 top scientists, forecasters, social economists, and users participated on prospectus development teams leading to three workshops. The product of these workshops was a conceptually detailed science plan agreed upon by representatives from NOAA, NSF, NASA, and the Navy. Part of the plan lays out the research required to significantly improve the forecasts of hurricanes at landfall.

Proposed Actions: OAR will carry out directed basic research, research and development on experimental numerical model algorithms, provide field observational support for and analysis of special or enhanced observations, and assist in information and technology transfer to operational and services in order to reach performance goals defined for the following:

Hurricanes at Landfall – Through inter-agency and intra-NOAA coordination, the 5- to seven-year research program will be directed toward extending hurricane track predictions up to 120 hours, improving the accuracy of the hurricane landfall location, and improving the forecasts of hurricane intensity at landfall. Furthermore, as the storm moves inland, research will be directed toward the improvement of surface wind forecasts, both intensity and location, and more precise quantitative precipitation forecasts in conditions under which such precipitation may lead to inland flooding. The effort will be accomplished through research on hurricane initialization and intensification processes, and data assimilation of

targeted observations into operational and experimental numerical models. It will also involve studies of precipitation precesses overland as the storm weakens in terms of wind speeds, but often maintains or increases its ability to produce copious amounts of precipitation and to spawn tornadoes. Field observations are planned during hurricane seasons in the western Atlantic, Carribean, and Gulf of Mexico. The NOAA P3 and Gulfstream IV, as well as NASA aircraft, each with state-of-the-art instrumentation will be deployed in coordinated campaigns. Observations from NOAA, NASA, and DMSP satellites will be combined with other data sources to provide information for hurricane process studies, for assimilation into operational and experimental numerical models and for real-time use at national and local forecast offices. Portable surface observations such as wind profilers, # mesonets, and Doppler radars will observe the modifications of the hurricane boundary layer as the storm crosses the coast and moves overland. An important part of this effort is the extension of watch lead times and updating and improving the preparation of warnings and their dissemination. As products improve, we must also improve the ability to get the forecasts to those who need them the most.

Benefits: Through a USWRP-sponsored Workshop on the “Social and Economic Impacts of Weather,” attended by social scientists, economists, and end users of weather information, the potential benefits of the improved forecasts listed below were specified. Using the most conservative measures, the benefit-to-cost ratio is, at minimum, 10 to 1. As an example, reducing the average length of coastline under hurricane warnings by 50% will reduce the costs of evacuation and other preparedness actions by about $200 million per year. Decreasing the error in forecasted hurricane intensity would save many lives and would assist in our understanding of surface wind damage, aiding future mitigation efforts. With about 75% of the insured losses in this country directly caused by weather and 95% of the Presidentially declared disasters over the last decade weather-related, a small forecast improvements can lead to large benefits.

Measures of Performance: Although the performance measures listed below indicate the forecast improvement goals at the end of the five- to seven-year program, many of the observation will be assimilated into operation numerical weather prediction models with increasingly sophisticated methods in the near real time. We expect these observations and improved techniques to provide gradual forecast improvements throughout the five to seven-year period.

Milestones:

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Implement improved tropical data assimilation system				3rd Qtr	
Conduct enhanced tropical field program		4th Qtr (hurricane season is in the 4th quarter)			
Complete research necessary to double watch lead time to two days					3rd Qtr
Complete research necessary to reduce the warned coastline by 50% on average					3rd Qtr
Complete research necessary to reduce the intensity forecast error to within ½ “category” at 24 h, 1 “category” at 48 h, 95% of the time					2005-2006
Complete research necessary to reduce inland flooding forecast error by 50%					2005-2006

Program Eliminations (0 FTE - $1,500,000), NOAA requests discontinued funding of $1,500,000 for directed research of wind-profile data for incorporation into forecast models $1,500,000.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
USWRP/NDRI	+ $1,500	+ $1,500	+ $1,500	+ $1,500	+ $1,500
Wind Profile Data into Forecast Models	(1,500)	(1,500)	(1,500)	(1,500)	(1,500)
Total for Atmospheric Programs	$0	$0	$0	$0	$0

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Oceanic and Atmospheric Research**
Subactivity: **Atmospheric Programs**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	100
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	20
24	Printing and reproduction	5
25.1	Consulting services	0
25.2	Other services	0
25.5	R&D contracts	0
26	Supplies and materials	1,000
31	Equipment	25
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	350
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	1,500

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Oceanic and Atmospheric Research**
Subactivity: **Atmospheric Programs**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	0
25.5	R&D contracts	0
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(1,500)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(1,500)

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: Oceanic and Atmospheric Research
Subactivity: Ocean and Great Lakes Programs

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Marine Environmental Research	Pos./BA	188	30,404	188	33,626	128	26,950	128	22,300	0	(4,650)
	FTE/OBL.	134	29,792	159	34,238	99		99		0	
Sea Grant	Pos./BA	22	56,519	22	57,500	22	57,500	22	51,500	0	(6,000)
	FTE/OBL.	18	55,800	22	58,219	22		22		0	
National Undersea Research Program	Pos./BA	8	15,597	8	14,550	8	14,550	8	9,000	0	(5,550)
	FTE/OBL.	8	15,536	8	14,611	8		8		0	
Total	Pos./BA	218	102,520	218	105,676	158	99,000	158	82,800	0	(16,200)
	FTE/OBL.*	160	101,128	189	107,068	129		129		0	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Oceanic and Atmospheric Research**
Subactivity: **Ocean and Great Lakes Programs**

Goal Statement

NOAA's Ocean and Great Lakes Programs seek to:

- Provide the information base to support policy and management decisions for protecting the quality and value of the Nation's marine and coastal resources.
- Increase our understanding of coastal and marine processes for the purpose of predicting environmental changes.
- Provide the technical basis for enhancing the Nation's marine economic sector.

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

Marine Environmental Research - The objective for this element is to support a wide variety of research carried out by five Environmental Research Laboratories (Great Lakes Environmental Research Laboratory, GLERL(proposed for transfer to NOS); Atlantic Oceanographic and Meteorological Laboratory, AOML; Pacific Marine Environmental Laboratory, PMEL, Environmental Technology Laboratory, ETL; and the Air Resources Laboratory, ARL) and through cooperative activities at universities and other NOAA and Federal Laboratories. Though each laboratory

specializes in certain aspects of research, they all support both of NOAA's primary mission areas (i.e., to improve the prediction and assessment of ocean, coastal, and Great Lakes processes, phenomena, and resources and to promote stewardship of those resources).

Research is conducted within the following themes to: develop a sound scientific basis for management, development, and use of coastal, estuarine, and Great Lakes waters and for understanding and predicting physical, biological, and chemical processes; develop instrumentation, modeling, and other technologies for more effective measurement, storage/retrieval, and analysis of environmental data; and transfer new technologies, techniques, and data/information bases to the private sector in a timely and effective manner. An overview of the ocean and Great Lakes research programs with some specific examples is covered below.

Great Lakes Programs - The aquatic contaminants research program combines process studies and mathematical modeling focused on these toxic organic contaminants to increase our understanding of the dynamics and effects of pollutants in the ecosystem. Contaminants introduced into the Great Lakes ecosystem bind to particles and either remain suspended in the water column or settle into the sediment. Aquatic bottom-dwelling organisms are exposed to certain critical pollutants through their contact with the sediment. These pollutants may then be introduced into the food chain where they ultimately threaten human health as well as the health of the ecosystem.

Meteorological and oceanographic conditions in coastal and Great Lakes areas can sometimes become dangerous enough to cause significant damage to property, loss of human life, and social or economic disruption. One of the primary factors responsible for producing hazardous conditions in these areas is the marine surface wind, which produce damaging waves, storm surges, and strong currents. High and low lake levels, heavy snowfalls, ice, and shoreline erosion also pose serious threats, as do human-caused hazards, especially chemical and petroleum spills. The Circulation Modeling and Nearshore Processes program provides new or improved circulation and wind models and other products to assist in marine hazard prediction, emergency response, damage prevention and reduction. It also synthesizes the results of research on large lake hydrodynamics, biological processes, and water chemistry to assist coastal managers in making well-informed decisions on nearshore water quality and natural resource problems.

Great Lakes and coastal ecosystems are continually exposed to various stressors such as increased or decreased nutrient loads, human-induced changes in the carbon cycle and climate, and the introduction of toxic contaminants. The goal of the Biogeochemical Processes program is to help answer questions and address issues about the system’s biogeochemical response to these stressors.

Coastal Research - The coastal regions of the world, along with their adjacent oceans and estuaries, exemplify a dynamic system that confronts severe pressures. Not only must these regions face natural hazards such as storms, but they also must try to meet the demands for resources by plants and animals. The human demand is perhaps the harshest. The goal of optimizing the use of these resources for both the benefit of humans and the health of the ecosystem can only be achieved if the processes that operate within the coastal system are thoroughly understood. Currently, several research programs are working on increasing our understanding of coastal regions in the United States, specifically on direct impacts to marine organisms and the discharge of material into the coastal ocean, as well as improving the forecasting accuracy of: lake levels; hazardous winds, waves, tsunamis, and storm surges. For example:

The coastal region of the lower Everglades is the transition zone between the Florida peninsula and Florida Bay. The natural and anthropogenic changes that have occurred within this region over time are important to understanding the entire ecosystem. There have been no long-term monitoring programs to record these changes, but the sediments potentially contain a continuous historical record of such information. The biological, chemical, and geological responses of the ecosystem to these changes, from the turn of the century to the present, are being studied so that we will be in a better position to predict the effects of future changes. This research is supported directly by OAR and through reimbursement by the NOAA Florida Bay Program and other sponsors.

Every day hundreds of millions of gallons of treated sewage effluent are being discharged into our coastal regions by numerous sewage treatment plants. Until 1988, little was known about the initial dilution and mixing characteristics of the discharged wastewater. This lack of scientific and practical knowledge created conflicts between those who wrote regulations (both state and federal) and those who had to abide by them (municipal utilities). To remedy this situation, programs have been developed to measure the chemical, biological, and physical oceanographic parameters of the receiving water column, which furthers our understanding of potential sewage effluent transport pathways, dilution, and exposure potentials. Data from these programs are now being used as the factual basis for the formation of efficient operating procedures and effective regulations for discharge. The work is supported through several reimbursable projects.

Direct biomass surveys are an important tool for fishery research and stock assessment. The use of biomass surveys is increasing as resources become fully utilized and require frequent and accurate monitoring to be managed properly. The traditional direct surveys (e.g., trawling) have substantial limitations when applied to active fishes such as mackerels, sardines, anchovies, menhaden, tuna, and oceanic salmon. Airborne Light Detection And Ranging (LIDAR), currently being developed by OAR and NMFS, provides a more accurate assessment. The basic technology was developed by the U.S. Navy for submarine and mine detection. The newly developed instrumentation has been used to make calibration measurements of sardines. A NOAA research trawler tested the instrumentation's capabilities, with favorable results, and NOAA's LIDAR is currently being installed on an aircraft belonging to the state of California. Further tests are planned, and the results will be used to guide system and algorithm improvements. In addition, new techniques for measuring zooplankton availability and distribution of fish larvae using automated instrumentation are being developed and used in research projects to develop improved fishery recruitment models and stock assessment techniques.

U.S. coastal communities are threatened by tsunamis that are generated by local and distant earthquakes. Local tsunamis give residents only a few minutes to seek safety. Tsunamis of distant origin give residents more time to evacuate threatened coastal areas but increase the need for timely and accurate assessment of the tsunami hazard to avoid costly false alarms. The Tsunami Hazard Mitigation program seeks to mitigate tsunami hazards to Hawaii, California, Oregon, Washington and Alaska through research and development aimed at improving the speed and accuracy of tsunami warnings. Initial research has been focused on development of deep ocean tsunami detection buoys and tsunami inundation mapping. The program has also been upgrading existing seismic networks in Alaska, Washington, Oregon, California and Hawaii, designing prototype data and earthquake products for the two NOAA warning centers, creating an inventory of existing mitigation materials and developing a strategic implementation plan for coordination among Federal, State, and local agencies.

Ocean Observations - On a global scale, the 1982-1983 El Niño is estimated to have caused more than $8 billion in economic damages. Over the millennia, the waxing and waning of entire cultures is believed, in part, to be related to regional climatic change. Sea surface temperature and the underlying thermal structure of the ocean are believed to hold the key to forecasting El Niño Southern Oscillation (ENSO) variations. Recently, the National Weather Service has begun using such information to prepare experimental climate forecasts that are being issued to the public. Using moored arrays, drifting buoys and expendable bathythermographs (XBT's) to probe the evolution of the temperature structure of the upper ocean, OAR also provides many of the observations that essential to the climate forecasting activities of the National Weather Service. Meteorological centers throughout the world receive data from both the XBTs and the buoys via a global communications network, and use it to prepare analyses for weather forecasts.

North Pacific and Arctic Research - NOAA supports a spectrum of research in coupled biological-physical oceanography designed to predict recruitment of walleye pollock, an extremely important commercially fished species in the Gulf of Alaska and Southeast Bering Sea. These projects are a uniquely successful example of modeling the effects of changes in the physical environment on survival of a population of wild fish. The results are not only used by National Marine Fisheries Service managers to determine catch limits, but also by biologists attempting to understand the fluctuations in Bering Sea fur seal populations that feed on pollock as a main part of their diet.

The NOAA **Arctic Research Initiative (ARI)** focuses on research, monitoring and assessment projects to study natural variability and anthropogenic influences on the Western Arctic/Bering Sea ecosystems, taking into account fisheries and marine mammals, the presence of coastal communities, the cultural and economic value of the area, and the need to address sustainable use of resources. This initiative contributes to the international Arctic Monitoring and Assessment Program (AMAP) and to NOAA research priorities in climate and the Bering Sea ecosystem. The ARI has implemented a competitive research program, through its Cooperative Institute for Arctic Research (CIFAR) at the University of Alaska - Fairbanks, to build partnerships among NOAA and academic scientists with participation from foreign (e.g., Russian) and other Alaskan scientists.

Open Ocean Processes - Established in 1984, the VENTS Program focuses research on determining the oceanic impacts and consequences of submarine hydrothermal venting. The program directs most of its efforts toward achieving an understanding of the chemical and thermal effects of venting along northeast Pacific Ocean floor spreading centers and their potential impact on the global ocean. Over the past two years, VENTS has shifted a major portion of its efforts to acquiring and disseminating key ocean data from real-time ocean monitoring systems (e.g., SOSUS and automated in-situ instrumentation). This data is critical to a new NOAA and NSF effort to understand and exploit a newly discovered subseafloor microbial biosphere.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of watersheds examined for multiple stressors and their effects using selected species and regions	0	1	0	2
Technical publications	29	27	27	30
Major field experiments	3	3	3	0
Experimental models/algorithms developed	1	1	1	1
Number of coastal ecosystems that have assessments of levels and effects of toxic contamination	0	1	0	1
Improve technology for modeling and predicting survival of larvae and recruitment (percent improved in predictive capability)	0	15	0	10
Develop and evaluate new technologies for tracking, surveying, and aging larvae, juveniles, and populations (technologies evaluated)	0	1	0	1
Number of studies that improve assessment/understanding of select nonindigenous species in the Great Lakes	0	1	1	1
Establishment of long-term environmental monitoring program in Alaska				X

National Sea Grant College Program: NOAA's National Sea Grant College Program draws upon a partnership among the Federal government, academia, and industry to develop coastal and marine resources for a sustainable economy and environment. Sea Grant involves a university-based network of 29 programs through which scientific research, education and training, and technology transfer are conducted to ensure stewardship and responsible use of our Nation's marine and Great Lakes resources.

The Sea Grant College network--comprised of universities in coastal and Great Lakes states, Hawaii, and Puerto Rico--conducts competitively reviewed, high-quality research projects providing the fundamental knowledge necessary for solving coastal and marine-related problems. A major component of these research projects is the involvement/training of students who then enter the workforce equipped with the knowledge and skills needed to be wise stewards of the Nation's coastal and marine resources. Finally, Sea Grant uses a cadre of specialists trained in public outreach and education to transfer research results out of the laboratories and into the hands of businesses and persons who can best use the results for new product development, job creation, and/or better management of coastal resources.

Through Sea Grant, NOAA forges a major link to the external academic community, where a strong infrastructure and a talented pool of scientists, engineers, educators, and outreach specialists can be tapped to meet agency and departmental missions in a time of a reduced Federal workforce. While focusing on making the United States the global leader in marine resources research and development, Sea Grant contributes to the NOAA 1995-2005 Strategic Plan as well as to the Department of Commerce's mission to ensure and enhance economic opportunity for the American people. Sea Grant organizes its work with three broad portfolios in mind: economic leadership, coastal ecosystem health and public safety, and education and human resources.

Economic Leadership -- The United States is being challenged to find ways to balance the amenities and environmental health of coastal areas with the economic expansion and development needed to sustain these communities. In responding to the current economic dislocation within the New England fishing industry, for instance, Sea Grant has developed an export market for hagfish skins used to produce high quality leather. A viable and environmentally friendly fishing technology has been developed for this formerly unexploited fish. The market is already over $1 million annually and expanding rapidly; it has kept some fishermen, who would have been without work, economically productive. Sea Grant has initiated five major research programs to provide critical information required to better manage the New England fisheries and to develop new jobs through new and expanded aquaculture opportunities.

To further develop the marine sector of the national economy and to strengthen coastal community infrastructures, Sea Grant will concentrate on stimulating scientific knowledge related to: advanced technology for commercial products and processes, seafood production, and coastal economic development.

Advanced technology -- Sea Grant research and technology transfer programs in marine biotechnology will develop fundamental knowledge of natural products and processes of marine organisms in order to provide models for new commercial products and new approaches to industrial processing and bioprocessing. Sea Grant also will develop environmental technologies for application to environmental assessment and monitoring, pollution reduction in the seafood industry, and contaminant remediation in the coastal environment.

! Sea Grant, along with NMFS, NOS, and other NOAA and DOC partners have established a NOAA/DOC Aquaculture policy and development program. New policy and regulations to facilitate aquaculture industry development for such technologies as marine offshore, recirculating,

and enhancement technologies are being finalized. Critical issues in this area will be addressed in new programs beginning in FY 1999 and expanding in FY 2000 and beyond.

- Seafood production--To enhance the Nation's commercial fisheries, Sea Grant will work to advance ecosystem-based management and to minimize the heavy bycatches of non-target species. Related research in seafood technology will provide the knowledge needed for improved seafood product quality and safety.

- Coastal economic development--Coastal enterprises engaged in tourism, recreational boating, sportfishing, and marine trades face a complex regulatory environment and increasing competition for waterfront. Sea Grant will use its linkages with businesses to help them adapt to changes in the regulatory environment and to manage more efficiently in their business environment. Along the Nation's coastlines, many docks, piers, outfalls and shipyards are in a state of disrepair. Rejuvenating this aging physical marine infrastructure will require Sea Grant research on such topics as inspection techniques and structural performance assessments.

Coastal Ecosystem Health and Public Safety--The fragility of natural coastal ecosystems and their susceptibility to natural and man-made hazards provide major challenges to policy makers and public safety officials concerned with providing sustained development opportunities and maintaining public safety. Sea Grant provides a major mechanism for accomplishing this difficult task. As just one example, Sea Grant research on nutrient inputs from agriculture into bays led to the adoption of "Best Management Practices" in four states. These new land-use practices resulted in a 25 percent reduction of nitrogen compounds entering bays, with a subsequent improvement in water quality. Sea Grant's research and outreach programs will support sustainable development and the enhancement of public safety in the coastal zone.

- Coastal Ecosystem Health--Sea Grant will focus on enhancing the quality of coastal and Great Lakes waters through research and outreach on non-point source pollution, toxic chemicals, and harmful algal blooms. The impacts of coastal habitat alterations and procedures for restoring damaged areas will also be investigated. In order to promote sustainable development, Sea Grant will provide policy makers and resource managers with the information and tools needed for formulating appropriate environmental policy.

- Protection of Life and Property--Sea Grant will conduct research and outreach designed to enable public safety officials to implement programs that ensure the preparedness and response of communities to coastal hazards such as hurricanes, coastal storms, tsunamis, and chemical/oil spills. It will also promote safety at sea through development of new equipment and training programs for the fishing and the diving communities.

Education and Human Resources--Whether formal or informal, Sea Grant educational efforts have provided the impetus for individuals from kindergarten to graduate school as well as those outside of school to experience the excitement and reality of scientific study in a way that whets the appetite for more. At the university level, Sea Grant researchers annually train about 500 undergraduate and graduate students to solve coastal and

marine problems in science and engineering as well as in coastal policy. Ensuring sustainable development of the Nation's marine, coastal, and Great Lakes environments requires an investment in education and human resources.

! A Technically-Trained Workforce--Sea Grant will continue to fill the Nation's need for qualified scientists, engineers, technicians, and resource managers in marine and coastal fields and will give greater attention to increasing student diversity and training opportunities. Complementing its successful program of providing university fellowships, Sea Grant will initiate a pilot program in partnership with industry to provide highly qualified graduate students with research experiences in corporate settings.

! An Environmentally and Scientifically Informed Citizenry--Coastal issues such as declining water quality and multiple-use conflicts require an informed public aware of the issues and potential solutions. In the area of formal pre-college education, Sea Grant will design programs to complement the national systemic education reform movement by reflecting marine and coastal information translated into local contexts. Reaching more teachers through marine science training opportunities will let them acquire new knowledge and skills for use in educating their students. In the non-formal sphere, Sea Grant will increase public understanding of science via life-long learning programs, museums and aquaria, and the use of emerging communication technologies.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Develop improved monitoring and control and culture systems for existing aquaculture industries (systems)	4	4	4	8
Number of environmental technologies developed that enhance environmental monitoring and assessment (cum.)	4	6	8	10
Number of techniques developed to reduce the amount of degraded habitats and improve habitat restoration (cum)	0	3	4	5
Number of Coastal and Great Lakes states provided with improved predictive capabilities and understanding of environmental processes	0	2	2	4
Number of technology and business forums developed to transfer research results to increase productivity of coastal businesses	3	4	4	6

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of models for new commercial products and new approaches to industrial processing and bioprocessing based on biochemical products and processes in marine organisms	8	8	8	8
Improve technology for modeling and predicting survival of larvae and juveniles, and recruitment (percent)	10	15	15	20
Decrease commercial by-catch (percent)	5	10	10	15
Develop and transfer technology for ensuring safety and high quality of seafood by reducing time to market and bacterial contamination (percent)	10	15	15	15
Develop new genetic techniques for aquaculture	1	2	3	5
Develop new disease diagnostics and control systems for use in aquaculture	2	4	6	8
Develop and improve methods for gathering and using information relating to fisheries management	2	3	4	5
Develop Biotechnology methods for use in aquaculture to increase production (percent)	5%	10%	10%	15%
Determine economic and social factors affecting selected fisheries	1	2	3	4

National Undersea Research Program (NURP): NURP is the nation's only federal scientific program that specializes in providing civilian access to undersea technology to help us better manage Earth's last frontier. NURP makes undersea technologies available to the scientific community, supports creative partnerships, and conducts groundbreaking research towards the advancement of marine and Great Lakes science. In the past three years, NURP supported more than 373 peer-reviewed research projects involving more than 3,000 scientists, and safely conducted 856 submersible, 1,250 remotely operated vehicle and 20,045 SCUBA and mixed gas dives, a performance record unmatched by any program in the world. Additionally, NURP's FY 1998 appropriation allowed it to establish a partnership with the JASON Foundation and the Institute for Exploration, which have proven very effective in conveying NURP's research activities and results as well as NOAA's environmental messages to others, adding to the ocean literacy of the general population and the educational development of our school children. NURP Leadership. NURP's research program is implemented primarily through its 6 university-based centers. About 80 percent of NURP's research is performed by university scientists from around the country. In order to be supported by NURP, research must be relevant, peer-reviewed, and high quality science.

NURP has recently undergone a re-invention that has resulted in better direction of the research and expertise of NURP-funded scientists at universities and private laboratories to support NOAA's goals. This has allowed NURP to more-effectively address NOAA, national, and regional needs. The

reorganized NURP is based on principles that will continue to ensure competitive, high quality research, responsible management, and responsiveness to stakeholder concerns.

NURP Technologies and Expertise. The wide array of undersea scientific problems facing the Nation requires a variety of technologies. Through ownership or leasing, NURP provides undersea systems that work from the coast to the deep sea, for example:

- NURP owns and operates the Aquarius, the world's only underwater science laboratory, located off Key Largo, Fla. in a national marine sanctuary. Aquanauts live on and study sensitive coral reef ecosystems threatened by natural and human-caused impacts and are able to perform studies not possible through traditional diving techniques.

- NURP operates undersea robots or remotely operated vehicles (ROVs) that are deployed from ships of opportunity as well as autonomous underwater vehicles (AUVs) that are independent of the surface, battery powered, and controlled by computers.

- NURP scientists also occupy submersibles to depths of up to 4,500meters (14,450 feet) to perform their research. Submersibles including the Johnson Sea-Link, Delta, Alvin, and Pisces V are used by NURP to study a variety of ocean and Great Lakes communities.

- NURP's partnership with the Navy provides access to Navy submersible assets for civilian use, including the NR-1, the world's only nuclear-powered research submarine.

NURP is also the only Federal program with statutory responsibility to improve the safety and performance of civilian divers.

Benefits: NURP benefits have included: providing valuable knowledge concerning the management of fisheries, marine sanctuaries, and other marine resources; the coring of deep sediments and other media to study the ocean's and Earth's past climates and their ecosystem impacts; discovering events associated with plate tectonics and the consequence and implications of the movement of the continents; discovering new species within the Earth's undersea ecosystems; observing undersea volcanism and the birth of new islands such as Loihi; and identifying processes that contribute to the control or chaotic nature of air-sea interactions and their influence on weather, climate, beach erosion, and natural hazards. Examples of NURP's numerous recent accomplishments are the following:

Sustainable Fisheries - NURP-supported researchers predict variations in fish and shellfish populations and study the role played by sea floor habitats in their life-cycles and population strength.

Healthy Oceans - NURP researchers implement more efficient ways to observe, monitor, and conserve ocean resources, e.g., coral reefs and marine sanctuaries.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of exploited species whose biological requirements and habitats are better understood	1	0	1	1
Number of coastal and Great Lakes states provided with improved predictive capabilities and understanding of environmental processes	2	0	0	0
Determine non-destructive underwater stock assessments for commercially valuable species	0	1	0	0
Identify factors that control habitat biodiversity	2	1	1	1
Compare direct in-situ observation estimates of key stocks with traditional estimates (# of studies)	1	0	0	0
Develop models and synthesis incorporating physical variability into management decisions leading to sustainable development of regional fisheries (# of process studies)	2	0	0	0
Number of coral reef ecosystems with resource and management assessments	2	1	1	1
Develop better tools, predictive models, and understanding related to water quality and coastal ecosystem management	0	0	0	0
Contribute to an understanding of the dynamics and maintenance of stable beaches (number of process studies)	1	0	0	0

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Ocean and Great Lakes Programs	Pos/BA	158	$99,000	158	$82,800	0	($16,200)
	FTE/Obl	129		129		0	

The changes in this subactivity total 0 FTE and –$16,200,000. The individual increases are described below by line item:

Marine Environmental Research (0 FTE, –$4,650,000): NOAA requests a net decrease of $4,650,000 for Marine Environmental Research which includes increases of $7,700,000 for the following four initiatives:

Aquatic Nuisance Species/NISA (+ 0 FTE, + $200,000) NOAA is requesting $200,000 within the Marine Environmental Research line item to support and promote measures to prevent the spread of aquatic nuisance species which present serious threats to indigenous ecosystems and related economies.

Background: Since 1990, Congress has provided funding through Sea Grant and the Great Lakes Environmental Research Laboratory to combat the invasion of non-indigenous species in the Great Lakes and other freshwater environments. Non-indigenous species have also been introduced in to U.S. coastal and marine environments and have the potential to cause serious economic damage. For example, the green crab, a recent introduction to San Francisco Bay, has already spread north to Washington and threatens to decimate the cultivated oyster and clam industries along the Pacific Northwest coast. The Dungeness crab fishery, valued at $45-60 million per year, and recreational fisheries for crab and bivalves are also threatened. NISA requires NOAA to respond to these issues through research, outreach, prevention, and control efforts.

Proposed Actions: NOAA plans to continue to address aquatic nuisance species issues through both Sea Grant and the Great Lakes Environmental Laboratory to address priority items under NISA including: (1) Reducing the impacts of aquatic nuisance species in five marine regions (Chesapeake Bay, Gulf of Mexico, Pacific Coast, Atlantic Coast, and San Francisco Bay-Delta Estuary) through a nationally competitive program to improve and implement measures to prevent and control marine non-indigenous species introduction; (2) Developing improved or alternative technologies for ballast water exchange by the shipping industry so that mid-ocean exchange of ballast water may be avoided and the risk of new introductions reduced. This objective will be conducted by NOAA, academic, and industry scientists funded through a competitive peer review process; (3) Supporting efforts by

the Aquatic Nuisance Species Task Force (co-chaired by NOAA and the U.S. Fish and Wildlife Service) to continue developing species-specific control programs and coordinate national efforts to prevent introductions of non-indigenous species into coastal environments.

Benefits: These activities will result in: reducing the rate at which non-indigenous species invade and disrupt ecosystems; promoting public and industry awareness of activities which promote the spread of these species and preventive measures which have been shown to be cost-effective; carrying out NOAA's share of the responsibilities within ANS; and developing new technologies and techniques that will reduce or prevent future damages that would otherwise cause harm to marine and freshwater ecosystems and their dependent economies.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from the FY 2000 Base (BA in thousands)					
Aquatic Nuisance Species/NISA	+$200	+$200	+$200	+$200	+$200

Advanced Modeling Technology for Hypoxia Research (+0 FTE, +$400,000) NOAA requests an increase of $400,000 within it's Marine Environmental Research line item to provide new modeling technologies that will enable efficient long-term observation of hypoxic conditions in U.S. coastal waters, and that will enable model-based forecasts of the distribution of dissolved oxygen in coastal waters.

Background: Nutrient over-enrichment from anthropogenic sources is one of the major stresses impacting coastal ecosystems. Excess nutrients typically lead to increased algal production and organic carbon within an ecosystem (eutrophication) which may sink to the bottom and decay, using all (anoxia) or most (hypoxia) of the available dissolved oxygen. This leads to the emigration or death of living resources and loss of ecosystem function. Hypoxia occurs naturally in many parts of the world but can be exacerbated by human activities on land. As a result, ecological and economic problems associated with low oxygen conditions are increasing on a global scale. Although hypoxic waters are found in near shore environments around the world, the northern Gulf of Mexico hypoxia phenomena represents one of the largest zones of oxygen deficient bottom waters in the western Atlantic Ocean. The areal extent of the hypoxic zone rivals the hypoxic regions in the Baltic and Black Sea. Seasonally severe and persistent hypoxia (low dissolved oxygen conditions) has been documented over the continental shelf of the northern Gulf of Mexico, west of the Mississippi and Atchafalaya River deltas for the last decade.

Proposed Actions: Over the last several years, concern has grown over the threat to commercial and recreational fisheries and critical habitats in the northern Gulf of Mexico. Environmental, legal and fishermen's organizations petitioned EPA and the State of Louisiana to reduce non-point source nutrient loads from the Mississippi River Basin and improve Gulf of Mexico water quality and habitat, preserving ecosystem structure and function. One outcome from a series of public meetings and hearings was an administration commitment for a major interagency initiative addressing these scientific questions and policy implications.

As part of a larger effort, NOAA will develop or refine numerical models that have to ability to predict (based on actual observations or on scenarios of possible management actions) the time-space varying state of hypoxic conditions in the northern Gulf of Mexico, with emphasis on the outflow region of the Mississippi-Atchafalaya River system, including the shelf area and coastal embayments. The goal is to develop a modeling capability that includes: coupled (or interfaced) physical and biological models; variable grid scales to accommodate riverine, estuarine, shelf, and open Gulf of Mexico conditions; defined observational needs to drive or initialize the model; (future) means for running models to support management planning and environmental response

Benefits: These new modeling technologies will provide a forward-looking context and an integrative tool to support on-going research, monitoring, and assessment programs whose goals are to: (1) demonstrate the present and potential impacts of hypoxia on fisheries and ecosystems; (2) identify and assess the ecological and economic consequences of shifts in the population dynamics and trophic interactions/linkages of key fisheries species due to a loss of critical habitat and changes in predator-prey interactions due to hypoxia; (3) Determine the geographic and temporal extent and persistence of the problem

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Annual progress reports and next year plans for model development (Qtr. Completed)	3	3	3	3	3
Develop/refine ocean model that produces predicted fields of dissolved oxygen (Qtr. Begun)	….	….	3	….	3

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Advanced Modeling Technology for Hypoxia Research	+ $400	+ $400	+ $400	+ $400	+ $400

Marine Aquaculture (+ 0 FTE, + $3,600,000): NOAA requests an increase of $3,600,000 to expand the ongoing marine aquaculture initiative that began in FY 1999. NOAA and DOC will develop environmentally appropriate marine Aquaculture in cooperation with industry, Federal, and State partners.

Background: Several NOAA and DOC agencies have come together in a national steering committee to create new aquaculture policy and implementation plans. OAR, through its National Sea Grant College Program, and the National Marine Fisheries Service, have a long history in development of aquaculture technology. Recent technological developments provide an excellent opportunity to expand this new industry. New opportunities exist for offshore and recirculating production systems, and marine species enhancement as well as expansion of the existing marine culture industry.

Proposed Actions: NOAA and DOC will work with partners in industry, academia, and other State and Federal agencies in regional meetings to identify the most critical issues and set common goals for developing new, environmentally friendly aquaculture technologies. State and Federal policy, permits, and regulations need to be reviewed and clarified so that we can set up a positive development environment. At this time we need to develop commercial-scale hatcheries and nurseries in different regions for different species in order to provide seed stock and fingerlings for pilot scale studies. This capability does not exist at this time. We envision two to three integrated programs around the country focused on a different suite of species and environmental conditions. These programs will integrate the efforts of existing State, Federal and private research and production facilities whenever possible to avoid building redundant facilities. Individual and multi-disciplined projects, outside of the regional context, will be considered when they advance the national and regional needs as perceived by the National Steering Committee for this effort. Pilot and demonstration projects will be conducted for key species in order to establish economic feasibility and to test experimental systems under different environmental conditions.

NOAA will provide a marine aquaculture information clearing house through its network of libraries and academic partners. Modern, computer-based information systems will be used to provide real time data and results that can be used by the industry and academic institutions. Sea Grant educators will adapt the information in the research program to the classrooms at both the primary and secondary school levels.

OAR will hold a national peer-reviewed competition that will include review by a blue-ribbon advisory panel of industry, academic, and government leaders. Projects and programs that leverage resources of funding partners will be given priority. Projects that lead to commercial opportunity will be given priority. Outreach, extension, communications, and education will be considered as important parts of the program. Resources of all DOC

and NOAA agencies will be integrated through the NOAA Aquaculture Steering Committee to focus on this national issue. The DOC Small Business Innovation Program and existing industry outreach efforts of several agencies will be focused on marine aquaculture as a way of revitalizing coastal communities that have been devastated by the loss of natural fisheries production. The aquaculture technology and development activities will be integrated with the Fisheries and the Coastal Community Development components under the Build Sustainable Fisheries goal in order to provide a holistic management system for maximizing the value of coastal resources.

Benefits:
- NOAA will focus and integrate national efforts in marine aquaculture
- Tens of thousands of new jobs will be created with an expanded industry.
- The national trade deficit in seafood products (currently almost $4 billion) will be reduced.
- Coastal communities will benefit and stabilize with an integrated program of fisheries and aquaculture.
- NOAA will provide a national clearinghouse for marine aquaculture information.
- Better, higher quality seafood will be available.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
By 2004, have a 10% increase in economic contribution of aquaculture to Gross Domestic Product (OAR/NMFS)	0%	0%	5%	10%	20%
Milestones					
Establish Marine Aquaculture Clearing House through NOAA library system (NESDIS/OAR/NMFS)	X	X	X	X	X
Provide DOC international and domestic trade help to industry (DOC/OAR/NMFS)		X			
Develop educational programs using interactive TV and standard educational methods about NOAA's aquaculture activities (OAR/NMFS/NESDIS)		X	X	X	X

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Provide fishermen professional retraining in aquaculture technologies (OAR/NMFS/NESDIS)		X	X	X	X
Hold workshops with partners in different biogeographical regions to identify goals and priorities (OAR/NMFS/DOC/NOS)	X				
Develop working relationship with industry and state partners (OAR/NMFS/DOC)	X	X	X	X	X
Develop ecologically appropriate technologies for offshore and on-land aquaculture and marine stock enhancement (OAR/NMFS)		X	X	X	
Test marine culture system technologies at pilot scale (OAR/NMFS)		X	X	X	
Develop model business plans for different aquaculture technologies (OAR/NMFS)				X	X
Develop biological techniques for improving production (OAR/NMFS)	X	X	X	X	X
By 2005, 100% of aquaculture operations are in compliance with guidelines for responsible aquaculture practice (NMFS/OAR)	0	10%	20%	30%	50%

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Milestones					
Develop process to clarify and make transparent permit and licence process for both EEZ and state waters (NMFS/OAR)	X	X			
Develop siting criteria for different aquaculture technologies (NMFS/OAR)		X	X	X	
Publish handbook of permit procedures for use by industry (NMFS/OAR)			X		
Establish pre-permitted aquaculture zones in different biogeographical regions (NMFS/OAR)		X	X	X	

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in thousands)					
Marine Aquaculture	+$3,600	+$3,600	+$3,600	+$3,600	+$3,600

Fisheries Oceanography (+0 FTE, +$400,000): NOAA requests an increase of $400,000 to develop a North Pacific Ocean monitoring system. This system will provide key oceanographic indicators to allow NOAA managers to provide early warning of major environmentally-induced shifts in the productivity of key fisheries stocks. It will also enable NOAA researchers and managers to monitor current and water structure trends, atmospheric changes, fishery productivity, and ecosystem dynamics. This project is a partnership between OAR and NMFS. This request is part of the ?Fisheries

and the Environment (FATE-2000)" initiative, proposed to NMFS. FATE- 2000 is a modeling and monitoring effort to improve the management of North Pacific fisheries stocks. The OAR portion of FATE 2000 provides the bio-physical measurements of environmental variability necessary for accomplishment of critical mission-related NMFS and OAR goals.

Background: Ongoing research programs have demonstrated that the effects of long-term ocean climate variability can affect the distribution, abundance, carrying capacity, and, ultimately, fisheries productivity of major ocean species of commercially valuable fish stocks in the North Pacific basin. Presently, there are no broad-scale monitoring systems in place in the North Pacific. This initiative provides for the establishment of a near real-time monitoring network to supply ocean measurements for use in model verification and to initiate a long-term sampling program that will enable NOAA fisheries managers to build sustainable fisheries in the North Pacific Ocean.

Proposed Actions: OAR will develop, deploy, and maintain 5 bio-physical surface moorings and 14 subsurface moorings in strategic locations throughout the North Pacific Ocean. These moorings are designed to quantify the oceanographic and atmospheric impacts of long-term climate and oceanographic variability on commercially important fish stocks. Moorings will be phased in over a four year period. Data collected from surface moorings will be made available in near real-time to researchers and fisheries managers via the World Wide Web. Moorings will be augmented by sub-surface drifting floats that measure temperature and salinity and provide flow trajectories in the North Pacific.

Benefits: OAR's contribution to FATE 2000's multi-disciplinary approach to fisheries research will enable managers to use physical factors, such as climate, wind, and ocean current circulations, and biological factors to establish sustainable harvest rates in ecosystems that experience large changes in long-term climatic conditions. This initiative will allow fishery managers to anticipate environmentally-induced changes in fishery yields and respond with appropriate management measures. It will provide direct economic benefit to both industry and the consumer.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Establish real-time web-based data distribution capability	X	....	....	....	....
Number of new moorings deployed	4	4	10	1	0
Number of moorings refurbished	4	8	18	19	....
New sub-surface drifters	1	1	2	3	3

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in thousands)					
Fisheries Oceanography	+ $400	+ $400	+ $400	+ $400	+ $400

Ocean Floor Observations (+ 0 FTE, + $3,100,000) OAR requests an additional $3,100,000 within the Marine Environmental Research line item to expand shallow water observatories, develop new deep-sea observatories, and enhance vehicles through the use of advanced technologies to explore exotic sea life.

Background: This increase will allow OAR to advance undersea observing systems - the next step in developing the means to monitor and understand the chemical, physical and biotechnical events occurring beneath the ocean's surface. Today, through technologies such as remote and in-situ observing systems and other advanced technologies, we have gained considerable knowledge of the ocean and its resources. However, we need to advance state-of-the-art observations if we are to use this information to reverse the decline in the ocean's living resources, make predictions in ocean and coastal environments, and effect progress in other areas such as energy (e.g., gas hydrates) and marine biomedical and biotechnological products. OAR's approach will entail the following strategy, which will be administered through the National Undersea Research Program:

- Improve and expand existing seafloor observatories in shallow coastal waters
- Develop new seafloor observatories to monitor the deep ocean and its seafloor
- Develop state-of-the-art autonomous undersea vehicles (AUVs) and facilitate their adaption to NURP missions

Benefits: OAR's accomplishments in underwater science have been impressive. However, the vast unknown resources of this last frontier demand that OAR be proactive in its exploration of the undersea environment if the potential of these untapped resources is to be realized. This request is intended to allow OAR to do just that - provide the leadership needed to explore this frontier in a skillful manner so that benefits accrue in areas that are of vital interest to NOAA meeting its mission in such areas as building sustainable fisheries, sustaining healthy coasts, understanding and increasing ocean biodiversity, understanding and predicting environmental change, and pursuing an aggressive outreach and education program.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Improve shallow water coastal observatories	1	0	1	0	0
Develop two new deep seafloor observatories	0	1	0	1	0
Facilitate the use of advanced AUVs at OAR Observatories	0	1	0	1	0

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Ocean Floor Observations	+ $3,100	+ $3,100	+ $3,100	+ $3,100	+ $3,100

Program Eliminations/Reductions: Ocean and Great Lake programs - (0 FTE, –$23,900,000), NOAA requests a decrease in and program terminations of totaling $23,900,000 for Marine Environmental Research programs specifically, National Invasive Species Act/Ballast Water Demonstration studies ($850,000), Ocean Observations at the University of North Carolina ($750,000), Tsunami Hazard Mitigation ($2,300,000), Open Ocean Aquaculture program ($2,400,000), the Administration already supporting a $3,600,000 initiative in mariculture, Lake Champlain Studies ($150,000), Atmospheric research and, facilities construction at the Canaan Valley Institute ($4,000,000), Gulf of Maine Council ($500,000), Sediment Control Study ($50,000), and the Thayer Marine Ecosystem Initiative ($1,000,000). A decrease of $350,000 in base funding is also requested for the Arctic Research Initiative. The administration supports this program at the $1,300,000 level. A decrease of $6,000,000 is requested for the National Sea Grant College Program. The administration supports the National Sea Grant College Program at the $51,500,000 million level. This $6,000,000 request in proposed reductions, reflects the discontinuation of lower priority activities. A decrease of $5,550,000 million is requested for the National Undersea Research Program (NURP). The administration supports the NURP program at the $9,000,000 level. In addition, NURP will play a role in the Ocean Floor Observing Program. This request will decrease support to lower priority activities while continuing important undersea research in fisheries habitats, coral reef ecosystems, and fisheries management issues. The program expects to encourage new research related to understanding deep ocean environments and obtaining new products from the sea. This new direction, "bio-prospecting," will catalyze new partnerships to pursue aggressively an integrated program of basic and applied research into the biotechnological benefits that lurk beneath the ocean's surface.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in thousands)					
Marine Environmental Research	–$12,350	–$12,350	–$12,350	–$12,350	–$12,350
National Sea Grant College Program	–6,000	–6,000	–6,000	–6,000	–6,000
National Undersea Sea Research Program (NURP) . . .	–5,550	–5,550	–5,550	–5,550	–5,550
Total Reductions, Ocean and Great Lakes Programs . .	–$23,900	–$23,900	–$23,900	–$23,900	–$23,900

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Oceanic and Atmospheric Research**
Subactivity: **Ocean and Great Lakes Programs**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	600
25.5	R&D contracts	0
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	7,100
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	7,700

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research, and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Oceanic and Atmospheric Research**
Subactivity: **Ocean and Great Lakes Programs**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	(100)
25.5	R&D contracts	0
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(23,800)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(23,900)

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: Oceanic and Atmospheric Research
Subactivity: Acquisition of Data

		1998 Actual		1999 Currently		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Acquisition of Data	Pos./BA	103	15,156	103	12,884	103	13,020	103	13,020	0	0
	FTE/OBL.	148	14,790	117	13,250	117		117		0	
Total	Pos./BA	103	15,156	103	12,884	103	13,020	103	13,020	0	0
	FTE/OBL.*	148	14,790	117	13,250	117		117		0	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Oceanic and Atmospheric Research**
Subactivity: **Acquisition of Data**

Goal Statement

The goal of this subactivity is to provide vessel support needed to conduct sustained oceanographic and atmospheric data collection in various marine environments. The vessel support must provide the unique operating capabilities to gather the observations needed to predict short and long term climate change. These vessels will provide days-at-sea for conducting and supporting programs of oceanographic and atmospheric research.

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

Acquisition of Data: The FY 2000 Office of Oceanic and Atmospheric Research acquisition of data base funding is $13,020,000. These funds provide approximately 721 Days-at-Sea (DAS) for climate and global change, tropical atmospheric ocean, Pan American Climate Study, VENTS, GLOBEC, Harmful Algal Bloom, and Sea Grant projects. This work is be performed by the KA'IMIMOANA, RONALD H. BROWN, FERREL and through outsourcing arrangements with vessels of the University National Oceanographic Laboratory System (UNOLS). One third of these DAS are used to provide ship support of the TOGA TAO operational ocean buoy network in the Pacific.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of Days-at-Sea funded by OAR Acquisition of Data and allocated by Fleet Allocation Council	681	883	795	721

Vessel Characteristics and Homeport are Shown Below:

Vessels	Length-Class	Mission	Homeport	Status
RONALD H. BROWN	274 ft. - I	Oceanographic Research Bathymetric Mapping	Charleston, SC	Active
KA'IMIMOANA	224 ft. - III	Oceanographic Research	Honolulu, HI	Active
FERREL	133 ft. - IV	Environmental Assessment	Charleston, SC	Active

NATIONAL WEATHER SERVICE
STRATEGIC PLANNING GOALS AND OBJECTIVES

The National Weather Service (NWS) supports three of NOAA's Strategic Planning Goals. Below is a brief characterization of the NWS programs in the context of these three Goals.

GOAL - ADVANCE SHORT TERM WARNING AND FORECAST SERVICES

NWS actively supports activities and programs in three of the four objectives for this goal.

OBJECTIVE - MAINTAIN NWS MODERNIZED OPERATIONS

The NWS Modernization and Associated Restructuring is two-thirds complete. The process of modernization and restructuring was prompted by two factors: (1) the desire to apply advances in hydrometeorological science and technology to operational forecasting, and (2) the desire to replace obsolete and increasingly unreliable equipment. These replacement systems coupled with observations from planned, advanced geostationary and polar orbiting satellites, other existing weather observing systems/sources (e.g. radiosondes, data buoys, etc.), and newly developed mesoscale forecasting techniques have, and will continue to improve the timeliness and accuracy of severe weather and flood warnings to the U.S. public. The modernization and restructuring of the NWS will result in the transition to a final weather office structure of 121 Weather Forecast Offices (WFOs) and 13 River Forecast Centers (RFCs).

A Strategic Plan for the Modernization and Associated Restructuring of the National Weather Service was submitted to Congress in 1989. Implementation of this plan will enable the NWS to optimize efficiency and effectiveness of the mesoscale warning and forecast program. The plan also includes an evaluation program to refine operational procedures and resolve implementation issues best addressed through actual field experience. The National Implementation Plan (NIP), updated annually and submitted to Congress, provides a planning framework and general strategies for execution of the Strategic Plan, as revised.

Activities to complete the modernization within the NWS include: the staffing and associated activities to transition to the modernized office structure (MARDI); the operation and maintenance of Next Generation Weather Radar (NEXRAD) which replaced existing aging weather radars and enhances severe weather and flood warnings, the Automated Surface Observing Systems (ASOS) and the Advanced Weather Interactive Processing System (AWIPS/NOAAPORT) to integrate all meteorological and hydrological data at the NWS field offices; and the upgrade of the NOAA Central Computer Facility to provide the capability to process the increased amount of data that will lead to more accurate and specific forecasts of major storms and medium (3 to 10 day) and extended (30 day) range forecasts.

OBJECTIVE - ENHANCE OBSERVATIONS AND PREDICTIONS

The NWS Modernization represents only the first step toward providing an overall system of improved environmental forecasts. NOAA can achieve additional service improvements through better utilization and understanding of the advanced observing technology installed under the NWS modernization. These improvements can only occur through a well organized research effort with a combination of scientific, technological, and programmatic advances. Dramatic gains in the prediction of high-impact weather such as hurricanes, thunderstorms, and their attendant flash floods, damaging hail, tornadoes and high winds can be achieved by combining new observing tools with emerging research which will lead to a better understanding of the processes responsible for such events. Service improvements through the U.S. Weather Research Program will enhance the Nation's capabilities to mitigate the impacts of national disasters; one of the major goals of the International Decade for Natural Disaster Reduction.

OBJECTIVE - IMPROVE SERVICE COMMUNICATION AND UTILIZATION

The benefits of NOAA's short-range prediction improvements will fail to reach their full potential unless the modernized data sets can be retrieved and passed quickly to the public through improved communications and display capabilities. NOAA interacts with several different organizations to communicate its warning and forecast products to the public including emergency management agencies, public planners, the media and private weather service providers. NOAA must improve customer service through an effective communication and utilization of its products and services to fully protect life and property and the economic well being of our Nation.

GOAL - IMPLEMENT SEASONAL TO INTERANNUAL CLIMATE FORECASTS

NWS actively supports activities and programs in one of the four objectives for this goal.

OBJECTIVE - IMPLEMENT PREDICTION SYSTEMS

The Climate Prediction Center (CPC) predicts climate variability, monitors the climate system, and develops data bases for determining current climate trends, and analysis and assessment of their origins. These services cover climate time scales ranging from weeks to seasons, and factor geographic, oceanic, and atmospheric conditions.

Climate services are distributed to the users in government, the research community, private industry and the public, both in this country and abroad. CPC supports and stimulates the application of climate information and services with particular attention to applications in agriculture, energy, transportation, water resources, and health.

To support these services and maintain their vitality, the CPC engages in diagnostic research and studies of model output to improve the monitoring, analysis and predictions of the physical climate system. A close connection with extramural research programs is accomplished through extramural sponsored research, cooperative institutes, and climate workshops.

GOAL - PREDICT AND ASSESS DECADAL TO CENTENNIAL CHANGE

NWS actively supports activities and programs in one of the four objectives for this goal.

OBJECTIVE - ENSURE A LONG TERM CLIMATE RECORD

Co-Operative Observer Program (COOP): The NWS uses approximately 11,500 Cooperative (volunteer) Observers as a supplement to its observational infrastructure in order to provide a long-term record of the Nation's climate. These observers are recruited in areas where additional observations are needed to fill in climatic and hydrologic information. These non-airport data sources provide ground level verifications for local weather office NEXRAD radar observations and provide a major source of data for the National Climate Data Base.

Observers are usually selected from permanent residents in a community, who have an interest in observing the weather. Nearly all observers record daily precipitation, and many take maximum and minimum temperature readings, snowfall and snow depth, usually at their homes. Others record river stages, evaporation, snow density, etc. NWS personnel visit each observer at least once a year, to maintain the equipment and to maintain rapport with the observers. At the end of each month, observers mail their records to the National Climatic Data Center (NCDC) or to another office, for publication in "Climatological Data" or "Hourly Precipitation Data".

National Weather Service
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Advance Short-Term Warning and Forecast Services										
Complete NWS Modernization	4,648	504,657	4,669	545,828	4,669	564,218	4,490	601,320	(179)	37,102
Enhance Observations & Predictions		2,730		2,000				2,200		2,200
Improve Service Communication and Utilization										
Total ASTWFS	**4,648**	**507,387**	**4,669**	**547,828**	**4,669**	**564,218**	**4,490**	**603,520**	**(179)**	**39,302**
Implement Seasonal to Interannual Climate Forecast										
Implement Prediction Systems	54	4,688	54	4,688	54	4,688	54	4,688		
Maintain and Improve Observing and Data Delivery Systems										
Total ISICF	**54**	**4,688**	**54**	**4,688**	**54**	**4,688**	**54**	**4,688**		
Predict and Assess Decadal-to-Centennial Change										
Ensure a Long-Term Climate Record	55	8,189	55	8,189	55	8,189	55	9,689		1,500
Total PADCC	**55**	**8,189**	**55**	**8,189**	**55**	**8,189**	**55**	**9,689**		**1,500**
Total for NWS	**4,757**	**520,264**	**4,778**	**560,705**	**4,778**	**577,095**	**4,599**	**617,897**	**(179)**	**40,802**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Weather Service
Subactivity: Operations and Research

Line Item		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Local Warnings and Forecasts	Pos./BA	4,301	442,005	4,359	459,916	4,359	478,069	4,259	492,826	(100)	14,757
	FTE/OBL.	4,119	441,648	4,295	460,273	4,295		4,108		(187)	
Central Forecast Guidance	Pos./BA	276	29,396	276	35,574	276	37,081	276	37,081	0	0
	FTE/OBL.	300	27,287	266	37,683	266		266		0	
Atmospheric and Hydrological Research	Pos./BA	39	2,442	39	2,964	39	3,090	39	3,090	0	0
	FTE/OBL.	30	2,759	38	2,647	38		38		0	
Total	Pos./BA	4,616	473,843	4,674	498,454	4,674	518,240	4,574	532,997	(100)	14,757
	FTE/OBL.*	4,449	471,694	4,599	500,603	4,599		4,412		(187)	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Weather Service**
Subactivity: **Operations and Research**

Goal Statement

The principal goals of the National Weather Service (NWS) are: 1) To improve the timeliness and accuracy of meteorological, hydrologic, and climatological forecasts and warnings by developing new techniques and procedures, integrating new scientific advances into operations, and applying new technology; 2) To better mitigate the effect of severe weather events on the public and the economy by improving methods of dissemination, and improving customer response and education. The NWS supports NOAA's Environmental Assessment and Prediction mission as outlined in the Strategic Plan goals "Advance Short Term Warning and Forecast Services", "Implementing Seasonal to Interannual Climate Forecasts," and "Predict and Assess Decadal to Centennial Change."

Proposed Legislation

None proposed for this Activity.

Base Program

The objectives of this sub-activity are to ensure the safety of the population, mitigate property losses, and improve the economic efficiency of the Nation through the provision of timely and accurate meteorological, hydrologic, and climatological warnings, forecasts, and planning information.

Line item Description

Local Warnings and Forecasts: NOAA provides around-the-clock weather and flood warning and forecast services to the general public for the protection of life and property and to meet the needs of all segments of the economy. Weather services are provided primarily by a restructured national network of 121 WFOs and 13 RFCs assisted by 13 Data Collection Offices (DCOs). The provision of services of the NWS described in the following pages depends on the coordination, management, and centrally funded support provided by NWS's national and regional headquarters. This operational

infrastructure includes such diverse functions as the maintenance and coordination of the NOAA Weather Radio Program, the logistics of all NWS observing systems spares, testing and evaluation of new observing sensors and systems, and the coordination and funding of centralized employee training. Management and support for the NWS is provided by national headquarters located in the national capital area, four regional headquarters offices within the continental United States, plus regional offices for Alaska and the Pacific region, the National Data Buoy Center in Bay St. Louis, MS, and the National Logistics Support Center and National Training Centers, both located in Kansas City, MO.

Weather warnings and forecasts: At 121 Weather Forecast Offices (WFOs) nationwide, NWS forecasters issue local warnings of severe weather such as tornadoes, severe thunderstorms, flash floods, and extreme winter weather. WFOs prepare forecasts for zones which are comprised of several counties that experience similar weather. Each WFO has forecast responsibility for several zones. WFOs also provide the main field forecast support for the marine and aviation programs as well as guidance for the fire weather program supporting federal lands management and wildfire control. All counties in the United States are assigned to specific WFOs for warning purposes. These offices issue and distribute local warnings of severe weather for their assigned counties. WFOs adapt generalized weather forecasts to local areas and issue severe weather and flash flood warnings. In preparing local warnings and forecasts, WFOs use value-added forecast guidance prepared by NCEP. Functions of the National Centers also provide central support for the local warning program.

Aviation weather services: The NWS provides a broad range of services in support of the aviation community. WFOs prepare site specific airport terminal forecasts four times per day with amendments as needed for over 500 public use airports in the fifty states and in the Caribbean. These offices also produce about 300 individual route-oriented forecasts three times per day for the forty-eight contiguous states. Weather Service Offices (WSOs) also take observations to meet local aviation requirements.

Marine weather services: Using weather analysis and forecast guidance provided by NCEP, marine weather forecasters at coastal and Great Lakes WFOs issue wind, wave, weather, and ice warnings, forecasts, and other information for the population living and working along the sea coast, off-shore, on the Great Lakes and the high seas. Principal products include small craft advisories, gale, storm, tropical cyclone, and storm surge warnings; coastal, off-shore, and high seas forecasts; sea and swell forecasts; sea and lake advisories; and special weather forecasts to aid in the containment and clean up of oil spills and other hazardous substances in the marine environment.

Fire weather services: Many WFOs in the Western and Southern parts of the country are staffed to provide wildfire suppression support, and support to prescribed burns on federal lands.

Tsunami warnings: Tsunami watches and warnings for Pacific Ocean areas and Alaska are prepared and issued by the Tsunami Warning Center at Ewa Beach, Hawaii, and the regional center at Palmer, Alaska. NWS collects and analyzes observational data from an international network of seismological observatories and sea level observing stations which operate on a cooperative basis. The centers use the data to prepare watches and warnings covering all U.S. territories and states bordering on the Pacific Ocean and disseminate them to WFOs, Federal and state disaster agencies, military organizations, private broadcast media, and other facilities that can furnish warning information to the public.

River & flood forecasts and guidance:
At 13 regional River Forecast Centers (RFCs), hydrologists and hydrometeorologists are responsible for river flow and flood forecast services specific to 13 river basins in the U.S., maintaining hydrologic prediction models and databases, implementing forecast coordination and providing support for interagency water resources planning activities, and data exchange. The river flow and flood forecast products produced by the RFCs are the basis for flash flood and flood warning programs implemented at the WFOs.

The Office of Hydrology (OH) provides several centralized guidance and operational support functions for the RFCs. OH manages the application of hydrological forecasting techniques, provides hydrologic model development for field operations and hotline support to field users, and provides a focal point for assembling and disseminating real-time hydrologic information.

Forecast coordination: At each WFO a Warning and Coordination Meteorologist (WCM) is responsible for the coordination of local forecast and warning information with local emergency management and other state and local officials, both leading up to and during severe weather events. This ensures the most effective dissemination of NWS forecasts and warnings and ensures adequate public response to weather warnings. A national warning telecommunications system supports the rapid dissemination of weather forecasts and warnings, and coordination material to federal, state, and local emergency management.

Dissemination/communication: In order to disseminate data, forecasts, watches, and warnings to the public, emergency managers, private weather companies, the media, other federal agencies, the NWS relies on the following dissemination subsystems: NOAA Weather Wire Service, NOAA Weather Radio network, NEXRAD Information Dissemination Service, Emergency Management Weather Information Network, NOAA/GOES communications, and Family of Services. The Advanced Weather Interactive Processing System (AWIPS) Local Data Access and Dissemination (LDAD) capability will allow two-way information exchange between WFOs and local users including emergency management during and leading up to severe weather events.

Central Forecast Guidance: The modernized field office structure emphasizes warnings and short-range forecasts. The process by which these products are generated begins with centralized processing of weather observations, followed by the application of high-resolution computer simulations of the atmosphere on the NOAA supercomputers, and adjustment by skilled NCEP forecasters. The results are forwarded to local WFO forecasters, who use them as the basis for local forecast products. Typically, local forecasters add the greatest value in the shortest forecast ranges. Beyond about 3 days, forecasts depend almost exclusively on NCEP output. The total forecast process depends critically on both NCEP products and local forecast efforts to enhance both accuracy and uniformity of service across the country.

In addition to their role in the local WFO forecast product generation, the NCEP are also the principal means through which NOAA provides operational weather, ocean, and climate prediction services for large areas, up to and including the entire globe, to a vast assortment of domestic and international users. These services typically exceed the domain of a single WFO, and require a large supercomputer; efficiency demands that they be generated centrally.

The NCEP consists of six science-based, service-oriented centers that generate environmental prediction products and two central activities supporting those services. The NWS National Prediction Centers provide an integrated suite of forecast guidance and specific forecast products from the short-term through seasonal, interannual, decadal, and centennial time frames. Each service center depends on the observational infrastructure, the data assimilation systems, the numeric modeling function, and the application of model output statistics to produce value-added forecast guidance products for NWS field offices and direct users.

Storm Prediction Center: The Storm Prediction Center (SPC) focuses on hazardous weather events such as severe thunderstorms and tornadoes, ice or heavy snow, and flash floods, with emphasis on the first few hours of the forecast period. Products issued from the SPC give the WFOs specific guidance as to the probability and intensity of severe weather occurrences for regional to local geographic scales.

Hydrometeorological Prediction Center: The Hydrometeorological Prediction Center (HPC) has the responsibility for preparing quantitative precipitation forecasts (QPF) that is used by WFOs to develop local rainfall, snow, and ice forecasts and by the RFCs to develop local river and flood forecasts. The HPC provides special QPFs and coordination to other federal agencies such as FEMA during major flood events. The HPC also provides an array of analyzes and forecasts of frontal systems, pressure patterns, temperature, and precipitation for use by WFOs and the private weather community.

Marine Prediction Center: The Marine Prediction Center (MPC) discharges U.S. international meteorological obligations to marine interests under the International Convention for Safety of Life at Sea (SOLAS), to which the U.S. is a signatory. It provides one-stop-shopping for marine interests operating outside the domain of coastal WFOs. The HPC provides weather and sea state warnings and forecasts for the high seas of the Northern Hemisphere for planning and operational purposes. Its warnings and products go directly to ships at sea, and are vital for the protection of life and property. The Marine Prediction Center also provides guidance forecasts for WFOs with coastal responsibilities, which extend out to about 100 nautical miles. Coastal WFOs have responsibility for local forecasts and warnings out to that limit; for the high seas beyond, the responsibility has been centralized in the HPC.

Tropical Prediction Center/National Hurricane Center: The NCEP experts in the area of tropical meteorology are concentrated in the Tropical Prediction Center (TPC)/National Hurricane Center (NHC) in Miami, FL. Services provided by the TPC/NHC include advisories, watches, and warnings for tropical cyclones in the North Atlantic and eastern North Pacific Oceans, the Caribbean Sea, and the Gulf of Mexico, including the portions of the U.S. coastline threatened by such storms. In addition, TPC forecasters provide aviation and marine analyzes and forecast products for the same areas of responsibility. The TPC/NHC functions both to provide guidance, coordination, and tropical weather expertise to WFO forecasters and to serve users of centrally-generated products.

Aviation Weather Center: The Aviation Weather Center (AWC) is the mechanism by which the U.S. discharges its weather forecasting obligations to the aviation community under an international agreement through the International Civil Aviation Organization. The AWC provides wind, temperature, and flight hazard (e.g., icing, turbulence) forecasts for flight planning and en route aircraft operations for the U.S.,

the north Atlantic and north Pacific routes, and some routes in the Southern Hemisphere. In addition to the en route weather support provided for the aviation industry, the AWC also produces guidance products for use by WFOs in support of the airport terminal forecast function. Thus, the AWC discharges large-scale, global aviation functions which can be sensibly centralized, while the WFOs discharge local aviation functions based on centralized guidance provided by the AWC.

Climate Prediction Center: The Climate Prediction Center (CPC) produces climate services consisting of operational prediction of climate variability, monitoring of the climate system and development of data bases for determining current climate anomalies and trends, and analysis and assessment of their origins and linkages to the rest of the climate system. These services cover climate time scales ranging from weeks to seasons, extending into the future as far as technically feasible, and cover the domain of land, ocean and atmosphere, extending into the stratosphere. CPC climate services are used by WFOs as well as the public, private industry, and the international research community.

NCEP also maintains two critical support organizations to facilitate the central forecast guidance process;

The *Central Operations* (NCO) of NCEP operates the NOAA Central Computing Facility, manages the computer production suite upon which all NCEP services are based and the communications linking the several parts of NCEP, and provides operational quality assurance of incoming observations and outgoing products. NCO staff also provide central support for software development for data processing, display, interaction, and product generation. The NCO is the technical transition between the development of numerical weather and climate prediction models and their operational use by forecasters at the NCEP and WFOs. The NCO staff also provide central support for software development for data processing, display, interaction, and product generation. The NCO consists of computing, communications, and software specialists, as well as meteorologists with special knowledge of numerical modeling operations.

NCEP's *Environmental Modeling Center* (EMC) develops and implements complex data assimilation and numerical model systems that span the globe. The computer models and other numerical forecast products developed by the EMC provide the basic guidance that meteorologists at the NCEP and WFOs use in making weather and climate predictions.

Atmospheric and hydrological research: NWS conducts applied research, building upon the more basic research conducted by NOAA research laboratories and the academic community. Applied meteorological and hydrological research is integral to providing more timely and accurate weather and flood warning and forecast services to the U.S. public.

The NWS Environmental Modeling Center (EMC) serves as the integrator of numerical modeling research and development performed in universities and research laboratories. Model impact studies are conducted by the EMC to validate data sets which lead to new data requirements from observing technologies (satellites, radar, etc.).

Atmospheric and hydrological research

The NWS Office of Systems Development (OSD) develops techniques for predicting mesoscale phenomena (e.g., heavy precipitation, tornadoes, and severe thunderstorms). These techniques are being developed and improved to use digital data from new observing systems, such as NEXRAD (Next Generation Weather Radar), and GOES I-M (geostationary satellites with higher resolution). OSD develops models to improve hurricane tracking, hurricane probability estimates, and analyzes; and develops storm surge models to assist in developing hurricane evacuation plans for coastal basins. Through these applied atmospheric research and development activities, OSD works to best exploit and improve the capability of weather data observing and processing systems to hydrologic, meteorologic, and service requirements.

The NWS Office of Hydrology also develops improved hydrologic and hydrometeorological models and procedures in support of the national flood forecasting and water resources forecasting programs including:

- Specialized flood and flash flood forecasting procedures using linked hydrological, meteorological, and climatological models/products;
- Improvements to the Ensemble Streamflow Prediction model and its complementary models in the NWS River Forecast System;
- Algorithms to combine WSR-88D precipitation estimates with data from satellites and other ground-based observation systems;
- Development of remotely-sensed (airborne and satellite) snow-water equivalent and snow cover data products in near real-time; and,
- National integration of the Nation's hydrologic conditions and forecasts.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
NEXRAD Offices annual/(cumulative)				
Staffing: **Stage I Operations**	20/(118)	0/(118)	1/(119)	0/(119)
Flash Flood Warnings				
Lead Time (minutes)	45	52	45	46
Accuracy (percent)	82	83	85	86
Severe Thunderstorm Warnings				
Lead Time (minutes)	18	18	19	20
Accuracy (percent)	82	84	84	85

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Tornado Warnings				
Lead time (minutes)	10	11	11	12
Accuracy (percent)	59	67	70	70
Temperature				
Percentage of correct forecasts	86	86	87	87
Forecast accuracy of the onset of freezing temperatures	70	54	78	80
Snow Amount				
Forecast accuracy of heavy snowfall	44	**	55	60
Precipitation Forecasts				
Lead time for 1" precipitation forecast with same accuracy as a 1-day forecast in 1971 (days in advance)	2.3	2.3	2.3	2.4
Severe Coastal Event Warnings				
Hurricanes				
Accuracy of landfall (miles) with 24 hour lead time	44*	82	84	81

*Only one landfall hurricane in FY 1997. The sample is too small for a representative year.
** Insufficient data.

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Operations and Research	Pos/BA	4,674	$520,240	4,574	$532,997	-100	+ $12,757
	FTE/Obl	4,599		4,412		-187	

Maintain Warning and Forecast Services

Mandatory Pay and Inflationary Costs The FY 2000 Base request includes $18,786,000 in Adjustments- to- Base (ATBs) for NWS base operations. This includes funding for the mandatory federal pay raise of 4.4% as well as increases in employee benefit rates. This increase also includes funding for projected inflationary increases in non-labor categories such as maintenance and service contracts. Approximately 70% of the NWS base operations budget is dedicated to labor costs. This is due to the labor intensive nature of local weather forecast and warning services which requires human analysis and interpretation of information 24 hrs/day, 7 days/week at field offices and national centers. Further, the NWS central operations and field operations rely upon thousands of equipment maintenance and service contracts to maintain their operational infrastructure. These contracts must comply with local Department of Labor wage rates which are periodically adjusted for inflation. Therefore, these funding adjustments are critical to sustaining current staffing levels and operations in the NWS. These ATBs are spread between the three principle NWS base operations line items: Local Warning & Forecasts ($17.2M), Central Forecast Guidance ($1.5M), and Atmospheric and Hydrological Research ($0.1M).

Staffing and Associated Costs (-221 FTEs, + 9,634,000): NOAA requests an increase of $8,930,000 to sustain the staffing levels for base operations as recommended in the NOAA Review and an increase of $704,000 provide the necessary operational staffing levels at the Jackson, Kentucky and Guam Weather Forecast Offices.

Sustain Current Services Staffing Levels (-230 FTEs, + $8,930,000): NOAA requests an increase of $7,630,000 to sustain the staffing levels for NWS base operations, as recommended the NOAA Review and reflected in the FY 1999 President's Budget. The requested FTE reduction reflects the transition towards end-state staffing as part of the modernization coupled with projected lapse rates.

After the NWS submitted its FY 2000 Budget to NOAA, the Under Secretary appointed a special task team to review the proposed increases in NWS labor costs. The Task Team included staff from the DOC, NOAA and NWS Budget Offices. After a two month review process, the task team concluded the NOAA Review underestimated the funding requirements necessary to support the NWS workforce. The task team concluded this increase was associated with changes in the employee step demographics and minor changes in grade levels and benefits rates. The Task Team confirmed the labor requirement submitted by the NWS. However, the Task Team recommended a 2% lapse rate for Field

Office positions and 5% lapse rate for Headquarters Office positions based on historical vacancy rates. The NOAA request to the Department incorporates the revised cost estimates for NWS labor and adopts the recommendation to apply a 2% and 5 % lapse rate. In addition, NOAA also requests an increase of 18 FTEs and $1,300,000 for staffing associated with the delay in the deployment of the AWIPS system with the capabilities that will enable staff reductions.

Jackson, Kentucky & Guam WFO Staffing (+9 FTEs, +$704,000): NOAA proposes to increase the staffing levels by 7 FTEs at the Jackson, Kentucky WFO and 2 FTEs at the Agana, Guam WFO. As recommended by the NOAA Review, the NWS reviewed the planned staffing levels for both Jackson and Guam and concluded that both WFOs did not have sufficient staff to provide a consistent level of warning and forecast services. The funding included in this initiative will allow the NWS add staff to these offices and ensure a consistent level of service are provided at each of the WFOs.

Secretary's Mitigation Sites (+34 FTEs, +$1,006,000) NOAA requests a total of $4,790,000 to implement the Secretary's recommendations for the areas of concern that required further assessments. As part of the 1995 Secretary's Report to Congress on Adequacy of NEXRAD Coverage and Degradation of Weather Services under the National Weather Service Modernization for 32 areas of concern, the Secretary of Commerce requested further studies be performed in Williston, North Dakota; Caribou, Maine; Key West, Florida; Erie, Pennsylvania; and South Bend, Indiana. The NWS completed a two-year assessment study at each of these locations and made recommendations to the Secretary of Commerce. Specifically, the Secretary recommended to establish a Weather Forecast Office in Key West and Caribou, maintain WSR-74C radar operations in Erie and Williston, until an assessment of service levels utilizing AWIPS capabilities could be complete, and close the Weather Service Office in South Bend, Indiana.

In FY 2000, NOAA will begin the transition to Weather Forecast Office operations at both Key West and Caribou. NOAA proposes a total staffing level of 23 positions at Caribou, Maine and 21 positions at Key West, FL. This funding request also include costs to maintain operations at interim facilities, pending construction of the new WFO building. Furthermore, the request includes the cost to maintain radar operations in Erie and Williston, pending the operational testing after the delivery of AWIPS at each location.

By implementing the Secretary's recommendations, NOAA will ensure the respective communities will receive the necessary level of weather services for its citizens. In addition, NOAA will ensure "no degradation of service" standard, as required by the Weather Service Modernization Act is maintained for these communities.

Non-Labor Requirements for Field Operations (+0 FTE, +$1,663,000): The NOAA review identified the funding levels necessary to provide adequate modernized field operations for the NWS. NOAA requests an increase of $1,663,000 to address specific deficiencies highlighted in the NOAA review including: maintaining and replacing critical field office equipment, providing the necessary level of training to field forecasters, and maintaining centralized communication and dissemination services.

Base Funding Reductions: (+ 0 FTE, -$2,846,000): NOAA requests a decrease of $2,846,000 from the FY 1999 NWS operations and research appropriation in order to reflect the completion of one-time activities as mandated by Congress during FY 1999 including: (1) installation of NOAA Weather Radio transmitters in Kentucky (-$200,000), Northeastern Georgia (-$800,000), South Dakota (-$400,000), and Illinois (-$200,000); (2) the Oklahoma Climate Survey (-$399,000); (3) the Cooperative Institute located at the University of Utah in preparation for the 2002 Olympics (-$216,000); and (4) product enhancement activities under the Susquehanna River Basin Flood System (-$631,000).

Major Initiatives

Advanced Hydrologic Prediction System (AHPS) (+ 0 FTE, + 2,200,000): NOAA requests $2,200,000 to initiate the National implementation of its Advanced Hydrologic Prediction System (AHPS).

Background: Our Nation's recent floods and droughts have forced the need for improved predictions to support flood/drought management and damage mitigation. Floods are this Nation's leading weather-related hazard. AHPS is an integrated real-time modeling and data management/analysis system that is ready for implementation and will provide new forecasts containing more information on river levels and river flow volumes. AHPS is the operational flood forecasting component of DOC's Natural Disaster Reduction Initiative. AHPS' hydrologic prediction capabilities contribute to DOC's leadership role in fostering economic gains for environmentally sound decision making.

Proposed Actions: During FY 2000, the National implementation of AHPS will begin in the Upper Midwest (which includes Wisconsin, Minnesota, Michigan, Illinois, and portions of Iowa, Missouri, and North Dakota) and tributaries within the upper Ohio River basin (which includes Kentucky, West Virginia, Ohio, and western Pennsylvania). AHPS will provide forecasts of river levels and river flow volumes from days to several months in advance of the event. Presently, NWS River Forecast Centers typically issue river level forecasts for events occurring 1, 2, and 3 days into the future. AHPS will also provide new river forecast information which can be used by water resource and emergency managers for risk based decision making.

Benefits: AHPS products with extended forecast lead times (out to several months) will greatly improve the Nation's capability to take timely and effective actions that will significantly mitigate the economic losses from major floods and droughts. With over 75 percent of Presidentially- declared disasters associated with flooding events, it is imperative for AHPS river forecasts to be provided which will enhance the mitigation of this hazard. In addition, AHPS will provide new river forecast information which can be used by water resource managers to more efficiently utilize the availability of water which will accrue economic enhancements to industries (navigation, hydropower, water supply, irrigation, and recreation) and environmental enhancements to ecosystems. National implementation of AHPS will save lives and a projected $200 million per year in flood losses and $400 million per year in economic benefits to water resource users.

WFO Facilities Maintenance (+ 0 FTE, + $1,000,000): NOAA requests an increase of $1,000,000 for WFO Maintenance in ORF, pursuant to the recommendations in the NOAA Review. The WFOs provide forecasters with modernized facilities, supporting the new advanced technology systems and the provision of weather services to the public. As WFOs continue to age, the facilities require an investment in recurring and cyclic maintenance activities to support modernized field operations. The increase will provide for basic facility service contracts and will fund deferred corrective and

preventive maintenance actions at selected sites across the country. This request includes a transfer of $3.0 million from the NOAA Facilities budget to NWS base operations to more accurately reflect the role of WFO facilities maintenance on NWS base operations.

Modernize Cooperative Observer Network (+0 FTE, +$1,500,000): NOAA requests an increase of $1,500,000 to ensure the continuity of observations in support of the Nation's climate record and local forecasting.

Background: The cooperative observer network is a nationwide network of over 11,000 volunteer operated weather observing sites used by NOAA to record the Nation's climate and to provide data to local NWS field offices. The NWS manages and maintains the network and provides the necessary equipment and instrumentation at each site. Properly maintaining this network and the information it provides is critical to preserving the Nation's climate record used to monitor and detect local, regional, and national climate changes and variations. In addition, NWS forecasters use data from the network for local forecasting and verification purposes. Currently, the instruments used to detect daily minimum and maximum temperatures, and the rain gage recording devices for measuring precipitation are antiquated and obsolete with many spare parts no longer commercially available. Specific issues include the inability to read punched paper tapes from the rain gages and inadequate supply of replacement processor chips for automated temperature sensors and the. These issues affect the ability of the NWS to obtain consistent observation data and potentially jeopardize the Nation's climate record.

Proposed Actions: During FY 2000, the NWS will begin replacing obsolete rain gage recording devices and minimum/maximum temperature sensors. New instrumentation will have the capability of recording maximum and minimum temperatures on a midnight-to-midnight basis, retaining more than a full month of daily high and low temperatures, measuring precipitation (with screens where appropriate), and transmitting data in near real-time for the wide-variety of NOAA users and requirements. NWS personnel will install and procure the new instruments based on weather forecasting and climate requirements.

Benefits: This request will provide the nation with a network that sustains high quality climate and weather observations into the next century and addresses recent concerns expressed by the National Research Council and NOAA's Climate Council. Once implemented, this network modernization will protect the Nation's climate record by preventing equipment failures, greatly reducing lost observations, improving access time to observational data, and reducing costly servicing of antiquated recording devices and the handling of paper records.

Timeliness: Timely implementation of this network modernization effort will address critical technology obsolescence issues before they have a larger impact on the continuity of the Nation's climate record.

Aircraft Observations (+0 FTE, +$600,000): NOAA requests an increase of $600,000 to provide a cost-effective path from the present upper air observing system to the composite observing system for the 21st century. Funding will be used to obtain, operationally implement, and effectively utilize commercial aircraft observations critical for numerical weather prediction models and Weather Forecast Office operations, by incorporating ARINC Communication Addressing and Reporting System (ACARS) and Water Vapor Sensing Systems (WVSS). This initiative is in direct support of the goals of NOAA's U. S. Weather Research Program and the Natural Disaster Reduction Initiative.

Background: Basic upper-air observations are the cornerstone to NOAA's Environmental Assessment and Prediction capabilities and are critical for use in local to global numerical weather models and by field forecasters. Modifications and improvements must be made to the upper air observing systems over the next five years to keep pace with the demand for improved forecast services while restraining costs. The major drivers for these changes are 1) technological and scientific advancements which provide opportunities to obtain better quality data with much improved spatial and temporal resolution, 2) pressures to make more efficient use of current and future investments, and 3) the absolute necessity to provide for the scientific, technical, and fiscally-sound basis for making fundamental investments in observing technologies and capabilities.

Through informal agreements with the airline industries, NWS has begun the operational use of ACARS observations, including high quality wind and temperature profiles. The use of these data have become critical for initializing short-term numerical weather prediction models and for the verification of nowcasts, and forecasts and warnings. During a recent evaluation, the NWS estimated ACARS data improved certain upper level wind forecasts by over 40 percent; used by the aviation community and NWS forecasters.

Proposed Actions: With the cooperation of ARINC, the airline industry and the FAA, NOAA will 1)formalize agreements to process and use the ACARS data and 2) establish an infrastructure to guarantee the effective and efficient processing and distribution of the data for operations. The value of the WVSS Demonstration System currently being implemented by the FAA will be validated under the NAOS Program to establish the accuracy, reliability, and cost-effectiveness of WVSS for its contributions to Numerical Weather Prediction (NWP) and as means of obtaining moisture profiles which could offset the measurements from the current radiosonde network and increase the density of measurements necessary for better precipitation forecasts.

Benefits: Increased spatial and temporal information over and above that provided by radiosondes is critical for maintaining the improvements in the NWP of weather patterns critical to aviation safety and forecast accuracy over the continental U.S. Observations over data void regions will provide significantly better short-term forecasts over the U.S. and especially for weather approaching the U.S. mainland from the Pacific, Gulf of Mexico, and Atlantic Oceans. Assuring the availability of ACARS data, including winds, temperature, and eventually water vapor measurements, is critical to any strategy for reducing data requirements from other component systems of the composite observing network. ACARS data sets are one of the highest quality and least costly upper air data sources which can become a major component in the U.S. upper air observing network.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
annual/cumulative)					
Staffing: **Stage I Operations**	0/(119)	2/(121)	0/(121)	0/(121)	0/(121)
Flash Flood Warnings					
Lead Time (minutes)	46	48	50	55	58
Accuracy (percent)	86	86	87	88	88
Severe Thunderstorm Warnings					
Lead Time (minutes)	20	21	22	23	24
Accuracy (percent)	85	86	87	88	89
Tornado Warnings					
Lead time (minutes)	12	13	13	14	15
Accuracy (percent)	70	70	70	72	74
Temperature					
Percentage of correct forecasts	87	88	88	89	89
Forecast accuracy of the onset of freezing temperatures	80	82	83	84	83
Snow Amount					
Forecast accuracy of heavy snowfall	60	65	70	70	70

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Precipitation Forecasts					
Lead time for 1" precipitation forecast with same accuracy as a 1-day forecast in 1971 (days in advance)	2.4	2.4	2.5	2.5	2.5
Severe Coastal Event Warnings					
Hurricanes					
Accuracy of landfall (miles) with 24 hour lead time .	81	81	78	78	75

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total Changes	+ 14,757	+ 14,757	+ 14,757	+ 14,757	+ 14,757

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Weather Service
Subactivity: Operations and Research

Title:			Grade	Number	Annual Salary	Total Salaries
Calculation of missing Steps	NOAA Report Labor Shortfall			4,451	2,751	12,243,944
Meteorologist-in-Charge	Secretary's Mititgation Report		14	2	72,042	144,084
Meteorologist	Secretary's Mititgation Report		13	13	60,965	792,545
Electronics Systems Analysts	Secretary's Mititgation Report		13	2	60,965	121,930
Meteorologist	Secretary's Mititgation Report		12	6	51,270	307,620
Meteorological Technician	Secretary's Mititgation Report		12	1	51,270	51,270
Electronics Technician	Secretary's Mititgation Report		12	(1)	51,270	(51,270)
Meteorologist	Secretary's Mititgation Report		11	(3)	42,775	(128,325)
Meteorological Technician	Secretary's Mititgation Report		11	10	42,775	427,750
Electronics Technician	Secretary's Mititgation Report		11	2	42,775	85,550
Administraitve Assistant	Secretary's Mititgation Report		7	2	31,195	62,390
Meteorologist	AWIPS Delay		13	1	60,965	60,965
Meteorologist	AWIPS Delay		12	29	51,270	1,486,830
Meteorological Technician	AWIPS Delay		11	11	42,775	470,525
Science and Operations Officer	Guam/Jackson		13	2	60,965	121,930
Service Hydrologist	Guam/Jackson		13	1	60,965	60,965
Meteorologist	Guam/Jackson		12	1	51,270	51,270
Data Acquisistion Program Manager	Guam/Jackson		12	1	51,270	51,270
Hydrometeorological Technician	Guam/Jackson		11	2	42,775	85,550
Electronics Technician	Guam/Jackson		11	1	42,775	42,775
Administraitve Assistant	Guam/Jackson		7	1	31,195	31,195
Total				84		16,520,763
Adjustment for Locality Pay						325,884
Less Unfunded/Unused FTE from FY 1999				(133)		
Less lapse						
	NOAA Report Labor Shortfa	2% Field, 5% HQ		(115)	55,086	(6,334,944)
	AWIPS Delay	44%		(23)		(1,132,228)
Total full-time permanent (FTE)				(187)		9,379,475
2000 Pay Adjustment (3.0%)						281,384
Total						9,660,859

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Weather Service
Subactivity: Operations and Research

Personnel Data	Number
Full-Time Equivalent Employment	
Full-time permanent	(187)
Other than full-time permanent	0
Total	(187)

Authorized Positions	
Full-time permanent	(100)
Other than full-time permanent	0
Total	(100)

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **National Weather Service**
Subactivity: **Operations and Research**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	8,126
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	
11.9	**Total personnel compensation**	8,126
12.1	Civilian personnel benefits	2,364
13	Benefits for former personnel	0
21	Travel and transportation of persons	176
22	Transportation of things	26
23.1	Rental payments to GSA	268
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	50
24	Printing and reproduction	26
25.1	Consulting services	0
25.2	Other services	3,459
25.4	Operation of GOCO's	0
26	Supplies and materials	466
31	Equipment	2,112
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	530
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	17,603

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: **National Weather Service**
Subactivity: **Operations and Research**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	-10
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	-166
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	(1,030)
25.4	Operation of GOCO's	0
26	Supplies and materials	(40)
31	Equipment	(1,600)
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(2,846)

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Weather Service
Subactivity: Systems Acquisition

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Public Warning and Forecast Systems	Pos./BA	166	54,036	179	62,251	179	58,855	190	84,900	11	26,045
	FTE/OBL.	167	54,665	179	61,622	179		187		8	
Total	Pos./BA	166	54,036	179	62,251	179	58,855	190	84,900	11	26,045
	FTE/OBL.*	167	54,665	179	61,622	179		187		8	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Weather Service**
Subactivity: **Systems Acquisition**

Goal Statement

To provide timely and accurate meteorological, hydrologic, and oceanographic warnings, forecasts, and planning information to ensure the safety of the population, mitigate property losses, and improve the economic efficiency of the Nation in support of the Advance Short-Term Warnings and Forecasts initiative.

Proposed Legislation

No legislation is proposed for this activity.

Base Program

In FY 1998, the base program for this subactivity has changed with the inception of the Procurement, Acquisition, and Construction (PAC) account. All acquisition activity including program management and pre-planned product improvement is now included in the PAC account. This ORF subactivity reflects the costs of on-going operations and maintenance until the completion of the entire acquisition, at which time it will be moved to the Operations and Research subactivity.

Public Warning and Forecast Systems: Consistent with the goal of providing more timely and accurate weather and flood warning and forecast services to the public and in support of the Advance Short-Term Warning and Forecast Services portion of the NOAA Strategic Plan, NOAA has modernized the national weather system during the 1990s through the acquisition of technologically advanced systems:

Next Generation Weather Radar (NEXRAD): Managed by NOAA, and recently completed, this acquisition is a tri-agency program involving the Departments of Commerce, Defense and Transportation. NEXRAD is a Doppler weather radar system which provides automated signal processing,

computerized processing of data by sophisticated meteorological software algorithms, state-of-the art ergonomically designed operator workstations, and a high-capacity, processor-driven communications capability. The system is modular in design, upgradable, has a long life-cycle expectancy, and provides its principal users with a wide array of automated weather information that will increase their capability to meet their respective operational requirements. For the National Weather Service, the system utilizes the Doppler technology and hydrometeorological processing to provide significant increases both in the functional capability and in performance compared with present radars including improved tornado and thunderstorm warnings, increased air safety, improved flash flood warnings and improved water resources management.

In FY 1999, NWS will continue to operate and maintain the network of 123 systems and continue acquisition contract closeout activities.

FY 2000 Plans:
- Continue operations and maintenance of fielded systems

ASOS (Automated Surface Observing System) provides reliable, 24-hour per day, continuous surface weather observations. Implementation of ASOS into NWS field operations provides continuous weather watch, and yields improved staff productivity. NWS operates and maintains NWS ASOS units, and under a reimbursable funding arrangement, FAA ASOS units.

In FY 1999, NOAA anticipates that all 68 additional ASOS units (primarily scaled-down versions) will be installed and accepted.

FY 2000 Plans:
- Continue deployment of the sunshine sensor
- Continue development, testing, and integration of the dew point sensor, the ice-free wind sensor, and the all-weather precipitation accumulation gauge
- Continue evaluation of the enhanced precipitation identification sensor
- Continue acquisition contract closeout activities
- Continue to work with the FAA and the aviation industry on sensor improvements

Advanced Weather Interactive Processing System (AWIPS)/NOAAPort: AWIPS is the cornerstone of the NWS modernization. This system is required to integrate and display all hydrometeorological data at NWS field offices. AWIPS will acquire and process data from modernized sensors and local sources, provide computational and display functions at operational sites, provide an interactive communications system to interconnect NWS operational sites, and disseminate warnings and forecasts in a rapid, highly reliable manner. This system will integrate satellite and radar data for the first time and provide to the local field forecaster a capability that will significantly improve forecasts and warnings. NOAAPORT offers the communications capability to provide internal and external users with open access to much of NOAA's real-time environmental data.

In FY 1999, the nationwide deployment will be completed, and systems evolution activities will be initiated.

FY 2000 Plans
- Continue operation and maintenance of fielded systems
- Continue system evolution activities

NOAA Central Computer Facility Upgrade This initiative will lead to improved NWS weather guidance products for hurricanes, severe thunderstorms, floods, and winter storms and forecasts of large-scale weather patterns in the medium (3 to 10 days) and extended range (30 days). Enhancement of the current computing environment with a Class VIII supercomputer in FY 1999 will result in a significant enhancement in the forecasting guidance for hurricanes, especially storm intensity, and the ability to implement operationally a relocatable storm-scale model for detailed severe storm guidance.

FY 1999 Plans:
- Convert high performance computing operations to the Class VIII system
- Increase the horizontal resolution of the global model to 70 km (T170/G42)
- Increase the horizontal resolution of the meso-eta model from 32 kilometers to 24 kilometers

FY 2000 Plans:
- Make second lease payment toward Class VIII
- Implement new version of the GFDL hurricane model (18km to 13km)
- Continue cyclical replacement and upgrade of interactive workstations
- Implement 4D variational analysis
- Upgrade global ensemble forecast system
- Implement short-range ensemble forecast system

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
NEXRAD delivered (NWS systems)	120	123	123	123
NEXRAD accepted (NWS systems)	118	123	123	123
ASOS (NWS systems)				
Base (ASOS)				
installed	246	246	246	246
accepted	246	246	246	246
Additional ASOS (primarily scaled-down versions)				
installed	15	59	68	68
accepted	10	53	68	68
AWIPS installed*	15	16	152	152
AWIPS accepted *	0	16	152	152

*The AWIPS schedule assumes deployment ends in June 1999.

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
System Acquisition (Total)	Pos/BA	179	$58,855	190	$84,900	11	$26,045
	FTE/Obl	179		187		8	

NOAA requests a net increase of $26,045,000 for this subactivity. This subactivity provides for the operation and maintenance of the modernized NWS systems.

NEXRAD (Next Generation Weather Radar) (+0 FTE, -$8,000): NOAA requests a total of 128 FTEs and $39,325,000 to operate and maintain a currently deployed network of 123 systems. This funding level will allow NOAA to sustain its logistical and maintenance support to improve the operational availability of the network. The FY 2000 Base amount includes $987,000 for mandatory pay related and inflationary cost increases necessary to provide for the 4.4% federal pay raise and systems operations and maintenance contract and logistics price increases.

Background: NEXRAD is required to replace existing obsolete weather radars and enhance severe weather and flood warnings and forecasts.

Proposed Actions: FY 2000 will support the operations and maintenance of the fully deployed network of 123 radar systems, including funding for the operation of the Operational Support Facility (OSF), the National Logistics Support Center, and the National Reconditioning Center at a level commensurate with the fully deployed number of radar systems.

Benefits: Completion of the NEXRAD system acquisition and deployment has resulted in increased tornado warning lead times from the pre-modernization average of 0-2 minutes to 15-20 minutes and, equally important, has reduced false warning rates. To date, fielded NEXRADs have already demonstrated improvements in tornado warning lead times to an average of 11 minutes with some warnings issued 20 to 30 minutes in advance. Accurate mapping of precipitation also will be possible on a wide scale, enabling extensive improvements in forecasting river plain flooding and flash floods. The NEXRAD acquisition program supports the goals of the Advance Short-Term Forecasts and Warnings portion of the NOAA Strategic Plan.

Timeliness: Funding for operation and maintenance of NEXRAD is required to ensure the continuity of weather observations and associated services to the public.

Automated Surface Observing System (ASOS) (0 FTE, +$240,000): NOAA requests a total of $7,573,000 to continue operations and maintenance of fielded ASOS units. This increase in funding reflects additional corrective and preventive maintenance for the equipment based on actual maintenance experience and additional support for ASOS software maintenance. Fiscal Year 2000 Base funding includes $217,000 for mandatory pay related and inflationary cost increases necessary to provide for the 4.4% federal pay raise and systems operations and maintenance contract and logistics price increases.

Background: ASOS is required to provide reliable, 24-hour per day, continuous automated surface weather observations. NWS operates and maintains NWS ASOS units as well as FAA ASOS units under a reimbursable funding arrangement.

Proposed Actions: The FY 2000 request supports the operations and maintenance of fielded ASOS units.

Benefits: Implementation of ASOS into NWS field operations provides continuous weather watch and yields improved staff productivity.

Timeliness: Funding for operations and maintenance of ASOS is required to ensure the continuity of weather observations and associated services to the public.

Advanced Weather Interactive Processing System (AWIPS)/NOAAPort (+8 FTEs, +$25,813,000): NOAA requests an increase of 8 FTEs and $25,813,000 to continue the operations and maintenance phase of the AWIPS program. This funding level accommodates a full year of contract operations and maintenance of AWIPS and in-house support to support the fully deployed network of 152 systems.

Background: AWIPS is required to provide reliable, 24-hour per day communications, data processing, and display capabilities to support the NWS warnings and forecast operation.

Proposed Actions: The FY 2000 request supports the operations and maintenance of fielded AWIPS units.

Benefits: Implementation of AWIPS will substantially improve the productivity of the staff involved with the performance of day to day NWS operations and significantly improve the timelines and accuracy of weather warnings and forecasts.

Timeliness: Funding for operations and maintenance of AWIPS is required to ensure the continuity of communications, data processing, and display capabilities for field office forecasters.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
NEXRADs in operation (NWS systems)	123	123	123	123	123
ASOS (NWS systems in operation)					
Base ASOS	246	246	246	246	246
Additional ASOS (primarily scaled-down versions) . . .	68	68	68	68	68
AWIPS units in operation	152	152	152	152	152

NEXRAD Outyear Funding Profile
(Dollar Amounts in Thousands)

	FY 1998 and Prior	FY 1999 Pres. Budget	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	To Complete	All Years
Procurement, Acquisition and Construction									
Program Management*	$61,199	$930	$615	$442	$0	$0	$0	$0	$63,186
Support Contracts*	64,617	800	425	58	0	0	0	0	65,900
Acquisition/Deployment*	427,750	0	1,000	1,000	1,000	0	0	0	430,750
Logistics Support*	74,631	0	0	0	0	0	0	0	74,631
Facilities/Land*	45,639	0	0	0	0	0	0	0	45,639
Planned Product Improvement *	9,607	5,270	7,520	7,560	8,060	9,060	9,060	///	56,137
Operation & Maintenance*	102,321	0	0	0	0	0	0	0	102,321
SAO Acquisition Management*	4,364	0	0	0	0	0	0	0	4,364
Subtotal	790,128	7,000	9,560	9,060	9,060	9,060	9,060	0	842,928
Operations Research and Facilities									
Operation & Maintenance	79,636	38,346	39,325	39,325	39,325	39,325	39,325	///	314,607
Subtotal	79,636	38,346	39,325	39,325	39,325	39,325	39,325	///	314,607
PROGRAM TOTAL	$869,764	$45,346	$48,885	$48,385	$48,385	$48,385	48,385	0	$1,157,535

/// Funding to Continue

ASOS Outyear Funding Profile
(Dollar Amounts in Thousands)

	FY 1998 and Prior	FY 1999 Pres. Budget	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	To Complete	All Years
Procurement, Acquisition and Construction									
Program Management*	$31,227	0	0	$0	$0	$0	$0	$0	$31,227
Exp. of Alt. Sys. Design*	13,128	0	0	0	0	0	0	0	13,128
Competitive Demonstration*	12,814	0	0	0	0	0	0	0	12,814
Full-scale Development*	5,978	0	0	0	0	0	0	0	5,978
Production/Deployment*	56,889	0	0	0	0	0	0	0	56,889
Planned Product Improvement*	12,952	3,855	4,180	6,125	7,565	6,655	5,495	0	46,827
Operation & Maintenance*	16,070	0	0	0	0	0	0	0	16,070
SAO Acquisition Management*		1,393	0	0	0	0	0	0	0
1,393									
Subtotal	150,451	3,855	4,180	6,125	7,565	6,655	5,495	0	184,326
Operations Research and Facilities									
Operation & Maintenance	9,402	7,116	7,573	7,573	7,573	7,573	7,573	///	54,382
Subtotal	9,402	7,116	7,573	7,573	7,573	7,573	7,573	///	54,382
PROGRAM TOTAL	$159,853	$10,971	$11,753	$13,698	$15,138	$14,228	$13,068	0	$238,709

/// Funding to Continue

AWIPS Outyear Funding Profile
(Dollar Amounts in Thousands)

	FY 1998 and Prior	FY 1999 Pres. Budget	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	To Complete	All Years
Procurement, Acquisition and Construction									
Program Management*	$35,738	$3,432	$2,950	$2,450	$1,950	$1,000	$500	///	$48,020
Exp. of Alt Sys. Design*	$18,543	0	0	0	0	0	0	0	18,543
Full-scale Development*	$265,746	8,976	0	0	0	0	0	0	274,722
Production, Deployment*	139,454	54,034	1,600	0	0	0	0	0	195,088
System Evolution*	0	250	17,200	18,350	5,450	2,000	2,050	0	45,300
SAO Acquisition Management*	5,995	975	825	725	500	500	0	0	9,520
Operation & Maintenance*	12,769		0	0	0	0	0	0	12,769
Subtotal	478,245	67,667	22,575	21,525	7,900	3,500	2,550	0	603,962
Operations Research and Facilities									
Program Management			0	0	0	0	0		0
Operation & Maintenance	0	12,189	38,002	38,002	38,002	38,002	38,002	///	202,199
Subtotal	0	12,189	38,002	38,002	38,002	38,002	38,002	///	202,199
TOTAL	$478,245	$79,856	$60,577	$59,527	$45,902	$41,502	$40,552	$0	$806,161

/// Funding to Continue

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
ORF - Systems Acquisition	26,045	26,045	26,045	26,045	26,045
Procurement, Acquisition and Construction	(45,607)	(43,477)	(52,362)	(61,472)	(64,082)
Total Changes	(19,562)	(17,432)	(26,317)	(35,427)	(38,037)

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Weather Service
Subactivity: Systems Acquisition

Title:		Grade	Number	Annual Salary	Total Salaries
Computer Specialist		14	1	88,650	88,650
Computer Specialist		13	10	65,397	653,970
Total			11		742,620
Less Lapse	25%		(3)		(185,655)
			8		556,965
FY2000 Pay Adjustment (3.0%)					16,709
Total					573,674

Personnel Data	Number
Full-Time Equivalent Employment	
Full-time permanent	8
Other than full-time permanent	0
Total	8
Authorized Positions:	
Full-time permanent	11
Other than full-time permanent	0
Total	11

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: **National Weather Service**
Subactivity: **Systems Acquisition**

	Object Class	2000 Increase
11	Personnel compensation	2,970
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	2,970
12.1	Civilian personnel benefits	624
13	Benefits for former personnel	0
21	Travel and transportation of persons	375
22	Transportation of things	2
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	1,585
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	19,799
25.4	Operation of GOCO's	0
26	Supplies and materials	160
31	Equipment	538
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	26,053

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: **National Weather Service**
Subactivity: **Systems Acquisition**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	0
25.4	Operation of GOCO's	0
26	Supplies and materials	0
31	Equipment	(8)
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(8)

NATIONAL ENVIRONMENTAL SATELLITE, DATA AND INFORMATION SERVICE
STRATEGIC PLANNING GOALS AND OBJECTIVES

The National Environmental Satellite, Data and Information Service (NESDIS) supports five of NOAA's Strategic Planning Goals. Below is a brief characterization of the NESDIS programs in the context of these Goals.

GOAL - ADVANCE SHORT TERM WARNING AND FORECAST SERVICES

NESDIS actively supports activities and programs in two of the objectives for this goal.

OBJECTIVE - COMPLETE NWS MODERNIZATION

NOAA is well underway toward completing the largest modernization and restructuring effort in the history of the NWS. The process of modernization and restructuring was prompted by two factors: (1) the desire to apply advances in hydrometeorological science and technology to operational forecasting, and (2) the desire to replace obsolete and increasingly unreliable equipment. These replacement systems coupled with observations from planned, advanced geostationary satellites and newly developed mesoscale forecasting techniques have and will continue to improve the timeliness and accuracy of severe weather and flood warnings to the U.S. public. A major element of this objective is the operation of the new series of geostationary satellites (GOES I-M). The first two satellites of this series are in operation and are providing enhanced capabilities to meet the objectives of a modernized NWS. A third satellite, GOES-K, has been launched and is currently in an on-orbit back-up mode.

OBJECTIVE - SATELLITE CONTINUITY

This objective is to provide continuity of satellite coverage. Included is the continued operation of the current polar orbiting series (NOAA K-N'), and coordination of the start of additional geostationary satellites to be ready to replace the GOES I-M satellites when needed. Also included is development of a converged NOAA/DOD/NASA series of polar orbiting spacecraft.

NOAA will continue to acquire data from foreign and other non-NOAA satellites to achieve coverage of the Earth's oceans and wind measurements over these vast areas.

GOAL - IMPLEMENT SEASONAL TO INTERANNUAL CLIMATE FORECASTS

NESDIS actively supports activities and programs in two of the objectives for this goal.

OBJECTIVE - IMPLEMENT PREDICTION SYSTEMS

The prediction systems developed as the result of this objective will be implemented using the environmental data available from the three centers.

OBJECTIVE - MAINTAIN AND IMPROVE OBSERVING AND DATA DELIVERY

The three environmental data centers within NOAA are the nation's centers for the archiving and distribution of environmental data. They serve thousands of users from virtually all segments of the economy.

GOAL - PREDICT AND ASSESS DECADAL TO CENTENNIAL CHANGE

NESDIS actively supports activities and programs in one of the objectives for this goal.

OBJECTIVE - ENSURE A LONG TERM CLIMATE RECORD

NOAA will be responsible for maintaining the data archives for the large volumes of environmental data that will be collected for NASA's Earth Observing System (EOS).

GOAL - RECOVER PROTECTED SPECIES

NESDIS actively supports activities and programs in one of the objectives for this goal.

OBJECTIVE - ASSESS THE STATUS AND IMPACTS

The data retained in NOAA's three national data centers provide important environmental data necessary for understanding and addressing the many phenomena that effect changes in the environment.

GOAL - SUSTAIN HEALTHY COASTS

NESDIS actively supports activities and programs in one of the objectives for this goal.

OBJECTIVE - PROTECT, CONSERVE AND RESTORE HABITATS

NOAA's satellites, along with satellites from other government agencies and foreign nations, provide data necessary for assessment of our coastal areas.

National Environmental Satellite, Data and Information Service
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Advance Short-Term Warning and Forecast Services										
Complete NWS Modernization										
Satellite Continuity	507	85,432	507	54,385	507	55,135	507	56,321		1,186
Enhance Observations & Predictions										
Improve Service Communication and Utilization										
Total ASTWFS	**507**	**85,432**	**507**	**54,385**	**507**	**55,135**	**507**	**56,321**		**1,186**
Implement Seasonal to Interannual Climate Forecast										
Implement Prediction Systems										
Maintain and Improve Observing and Data Delivery Systems	266	36,158	266	39,958	266	40,443	266	34,625		(5,818)
Total ISICF	**266**	**36,158**	**266**	**39,958**	**266**	**40,443**	**266**	**34,625**		**(5,818)**
Predict and Assess Decadal-to-Centennial Change										
Characterize Global Climate Forcing Agents										
Ensure a Long-Term Climate Record		5,719		8,219		8,219		4,719		(3,500)
Total PADCC		**5,719**		**8,219**		**8,219**		**4,719**		**(3,500)**
Build Sustainable Fisheries										
Assess the Status of Fishery Resources										
Eliminate & Prevent Overfishing										
Total BSF										
Recover Protected Species										
Assess Status and Impacts		1,202		1,202						
Maintain Healthy Species & Ecosystems						1,202		1,202		
Total RPS		**1,202**		**1,202**		**1,202**		**1,202**		
Sustain Healthy Coasts										
Protect, conserve and restore habitats	9	4,971	9	4,771	9	4,825	9	4,825		
Foster well-planned and revitalized coastal communities		1,200		1,400		1,400		1,400		
Total SHC	**9**	**6,171**	**9**	**6,171**	**9**	**6,225**	**9**	**6,225**		
Total for NESDIS	**782**	**134,682**	**782**	**109,935**	**782**	**111,224**	**782**	**103,092**		**(8,132)**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Environmental Satellite, Data and Information Service
Subactivity: Satellite Observing Systems

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Polar Convergence	Pos./BA	0	34,176	0	0	0	0	0	0	0	0
	FTE/OBL.	0	33,877	0	299	0		0		0	
Global Disaster Information network (GDIN)	Pos./BA	0	0	0	0	0	0	0	2,000	0	2,000
	FTE/OBL.	0	0	0	0	0		0		0	
Ocean remote Sensing	Pos./BA	0	4,033	0	4,000	0	4,000	0	4,000	0	0
	FTE/OBL.	0	3,965	0	4,068	0		0		0	
Environmental Observing Services	Pos./BA	519	55,119	519	53,300	519	54,050	519	53,236	0	(814)
	FTE/OBL.	448	52,329	507	56,090	507		507		0	
Total	Pos./BA	519	93,328	519	57,300	519	58,050	519	59,236	0	1,186
	FTE/OBL.*	448	90,171	507	60,457	507	0	507	0	0	0

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Environmental Satellite, Data, and Information Service**
Subactivity: **Satellite Observing Systems**

Goal Statement

The goals of the Satellite Observing Systems subactivity are: to maintain a system of polar-orbiting satellites that obtain global environmental data; to maintain a system of geostationary satellites that provide near-continuous observations of the Earth's western hemisphere; to access other U.S. and foreign ocean sensing environmental satellites, to monitor the Earth's surface and space environmental conditions; to introduce improved atmospheric, oceanic, and U.S. coastal observations and data dissemination capabilities; and to develop and provide new and improved applications and products for a wide range of Federal agencies, state and local governments, and private users. Programs in this subactivity support all of the Strategic Plan's Environmental Assessment and Prediction mission goals and the Recover Protected Species and Sustain Healthy Coasts goals of the Environmental Stewardship mission.

Proposed Legislation

No legislation is proposed for this activity.

Base Program

Environmental Observing Services: The operating objectives of the Environmental Observing Services line item are to: (1) operate and maintain the NOAA satellites and acquire data from them; (2) acquire, process and analyze the data from NOAA, DOD, and other operational and research Earth-observing satellites; (3) supply data, interpretations, and consultation services to users; (4) conduct research to improve satellite systems' capabilities for obtaining environmental data; (5) determine requirements for future satellite systems, (6) operate and maintain the Search and Rescue (SARSAT) mission control center plus seven ground receiving sites, and act as the lead U.S. agency for SARSAT; and (7) demonstrate better ways to use and distribute data from NOAA, NASA, and other satellites, aircraft, and laboratory investigations, and apply these improvements to satellite data products for operational use.

Under this program, NOAA operates and maintains satellite ground facilities, ingests and preprocesses incoming satellite data, provides satellite-derived products to the users, and conducts research to improve the use of the satellite data. Specific functions include:

- Operation and maintenance of ground facilities to command and control operational satellites, acquire satellite data, and transmit satellite data to the central processing and analysis center. These functions are carried out by the Satellite Operations Control Center (SOCC) at Suitland, Maryland, and the Command and Data Acquisition (CDA) stations at Wallops Island, Virginia, and Fairbanks, Alaska.

- Ingesting and processing all data from the polar and geostationary spacecraft, including vertical atmospheric measurements (soundings), low-level wind vectors, and sea surface temperatures for input to National Weather Service analyses and forecast models. Image production for distribution to users and a digital satellite data archive.

- Ingesting and processing data from non-NOAA satellites to produce products to support protection, restoration, and sustainable use of coastal and oceanic ecosystems.

- Assessing and providing spacecraft and data anomaly; providing launch and checkout services for new spacecraft, and provision of tracking and other acquisition information to outside users of the spacecraft data.

- Providing products to assist in protection of life and property such as quantitative precipitation estimates for flash flood situations, hurricane classification, satellite monitoring and tracking of severe weather, and sea ice and ocean front analyses.

- Operation of the SARSAT mission control center. NOAA is the lead U.S. agency for the international COSPAS/SARSAT program. In this program, transponders flown on NOAA and Russian satellites receive signals from ships and aircraft in distress and identify their location.

- Research to develop new and improved methods of obtaining satellite data and to develop techniques for applying these data to atmospheric, oceanic, and land monitoring, warning, and prediction.

After acquiring, processing, and analyzing satellite data, NOAA prepares products for distribution. The primary uses for NESDIS polar-orbiting satellite products are the forecasts and warnings provided by the National Weather Service, but the satellite data are also used in many other environmental information contexts. These include analyzing climate change; detecting volcanic eruptions and wilderness fires and tracking associated dust clouds; and monitoring the health of vegetation, the growth of deserts, and deforestation. NOAA conducts research and development to improve data quality and to identify other ways in which the data can be used to protect life and property, strengthen the Nation's economy, and improve our understanding of changes in the global climate.

Analyses and interpretations of geostationary and polar-orbiting satellite data are prepared by the National Weather Service at forecast offices staffed with satellite meteorology experts. These offices receive high-resolution images on a 24 hour-per-day, 365 day-per-year basis from the GOES Central Data Distribution System. San Francisco, Anchorage, and Honolulu forecast offices receive the high resolution polar satellite data directly from the spacecraft. All of these offices analyze and interpret the cloud and earth surface images and associated products for use in their regional forecasts. These images are used in preparing aviation forecasts, and short-term forecasts and warnings of hazardous events such as severe local storms and tornadoes, hurricane advisories, and gale warnings. The products also are used in preparing river and flood forecasts, snow melt and sea ice analyses, and marine forecasts and warnings, including services for shipping, coastal and ocean fisheries, and recreational boating. GOES imagery is distributed to television stations, universities, state governments, industry, and other Federal agencies through the GOES-TAP system which allows the user to receive any of the standard image sectors available to a particular forecast office. Concurrent with the implementation of the Advanced Weather Interactive Processing System (AWIPS) the NOAAPort system will be the primary means of delivering GOES data and products.

The satellite data sets and applications products derived from both polar and geostationary satellites are delivered through a variety of systems and formats: network accessible data sets of near real time and archive data; photo facsimile images; satellite broadcast weather facsimile (WEFAX); and other archives. The newest distribution system for NOAA satellite data is the Satellite Active Archive (SAA). The SAA provides a more user friendly interface via the Internet to NOAA satellite data and products, allowing a customer to browse and order data sets for delivery via the network. Stratospheric sounding data derived from instruments developed and funded by the United Kingdom are relayed to the United Kingdom; Data Collection System (DCS) data, derived from the French-funded ARGOS systems on the spacecraft, are relayed to Project ARGOS in France as part of bilateral agreements. United States users, in turn, receive processed data from the French.

NOAA conducts research to improve our understanding of the physical processes in the atmosphere, on land, and in the oceans which affect weather and climate. Satellites are integral to this work because of their unique capability to provide the vast amounts of data needed for forecast modeling. The satellite's vantage point in space provides data coverage in both time and areal extent not achievable by other practical observational techniques or systems. Techniques also are developed for new and improved applications of satellite data. Universities and industrial groups participate in developmental activities through cooperative research and information exchange arrangements. NOAA coordinates closely with related NASA and DOD research and development programs and with the environmental satellite programs of other nations.

Ocean Remote Sensing: NOAA is developing a multi-disciplinary, multi-platform coordinated program of satellite ocean remote sensing. Data from NOAA and non-NOAA environmental satellites will be used to provide operational sensing of the U.S. coastal and global ocean. Data will be acquired, processed and distributed for use by NOAA, other federal agencies, state, local, and academic and educational users.

LANDSAT: NOAA discontinued operational responsibility for LANDSAT activity in 1998.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of quantitative precipitation estimates produced - GOES [thousands]	1.4	1.4	1.4	1.4
Accuracy of quantitative precipitation estimates - GOES (in Percent)	75	75	75	75
Number of severe weather systems tracked	180	180	180	180
Percent of time devoted to severe storms tracking	30	30	30	30
Satellite-derived wind velocity (Western hemisphere) - GOES [millions]	12.2	35.0	35.0	35.0
Satellite-derived atmospheric moisture profiles - GOES [millions]	12.0	17.52	17.52	17.52
Number of CoastWatch users	450	1,200	2,200	3,200
Upgrade CoastWatch Regional Nodes	0	0	0	0
Number of new CoastWatch products lines added	0	1	0	2
Collections from GOES DCS remote platforms [millions]	33.6	33.9	34.2	34.5
New coastal hazards products/services developed and available	0	0	0	0
New coastal hazard types supported	0	1	1	1
Numbers of derived ocean products (AVHRR CoastWatch) [thousands]	178	285	285	288
GOES DCS platforms in services end of year	14,030	14,590	15,175	15,782
Number of RADARSAT ice products	1,800	2,300	2,700	3,000
Number of ocean color scenes available to CoastWatch Nodes	0	250	250	1,500
Emergency locator signals collected from aircraft and ships in distress	19,300	20,200	21,200	22,300
Emergency beacons in service at end of year	739,000	771,000	804,000	839,000
POES and DMSP global temperature and water vapor profiles collected [millions]	158,000	158,000	158,000	158,000
POES cloud cover images collected	40,000	40,000	40,000	40,000
Collections from remote terrestrial and marine observations from Argos (POES) platforms [millions]	3.8	4.0	4.2	4.4
Remote Argos platforms in services end of year (POES)	5,800	6,100	6,400	6,700
POES Global ozone measurements collected	485,000	485,000	485,000	485,000
Number of global ocean surface winds [millions]	24.0	4.0	52.0	101.1
Number of RADARSAT Ice Products	1,800	2,300	2,700	3,000

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Satellite Observing Systems	Pos/BA	519	$58,050	519	$59,236	0	+$1,186
	FTE/Obl	507		507			

Satellite Observing Systems (0 FTE, +$1,186,000): In FY 2000 the net change in this subactivity is 0 FTE and +$1,186,000. This increase is made up of three elements within the Environmental Observing Services budget line item as described below:

Environmental Observing Services (0 FTE, +$1,686,000): NOAA requests an increase of $1,686,000 for the following:

Restoration of Base Funding (+$1,686,000): This increase will partially restore the Environmental Observing Services base funding to previous appropriation levels plus adjustments for annual inflation. This budget line item supports the operations of the two NESDIS satellite systems, the acquisition and processing of satellite data, and the applications research required for continued future operations. NESDIS provides satellite services on a 24 hours per day, 365 days per year schedule. Without adjustments for inflationary and technology-imposed cost increases, delivery of satellite data to the National Weather Service will be seriously impacted.

Funds must be restored to avoid increasing risk to the health and safety of current operational spacecraft (both polar and geostationary). These operations utilize over a billion dollars of NOAA's on-orbit spacecraft. The operational nature of the NESDIS mission leaves little option for cost reductions. These funds are necessary to keep up with increased labor cost and increases in such items as software licensing, communications, and ground system maintenance.

Funding requirements for the Environmental Observing Services line item have expanded because:

- GOES (8, 9 & 10) have imposed greater demands on operations and control.
- GOES satellites have provided greater amounts of data and opportunities for new products.
- New Polar satellite (NOAA-15) flies an advanced sounder requiring a high level of software development and improved products.
- International activities such as INSAT add to demands and opportunities for products and services.
- Opportunities for new products continues to expand.
- Ground System O&M is strained.

Impact of not restoring base funding:

- GOES Products and Services: A reduction in the operational performance levels for GOES products and services (winds, ABOS, soundings, NEWPORT, image distribution, SST, quantitative precis, etc.) will likely occur, dropping from the current reliability rate of 99 percent. If this occurs, all NWS satellite-based warnings and forecasts will be impacted.

- POES Products and Services: POES products and services contractor support reduced resulting in: 1) a degradation in performance measures for all POES products systems (soundings, SST, radiation, aerosol, ozone, vegetation index, etc.).

Global Disaster Information Network (+$2,000,000): This increase is requested to establish an integrated National Disaster Information Network (GDIN) to improve all phases of disaster management. The GDIN program will support a multiagency effort to establish a robust, integrated, disaster information network for cooperative exchange of timely, relevant information that can be used during all phases of disaster management to save lives and reduce economic losses. Funds will be used to improve the organization of and access to disaster information; to enhance coordination among appropriate Federal, other government, and private organizations; to ensure the reliability of Federal intranets and other communications channels during disasters; and to standardize data sets, data access, and data analysis tools. Efforts to achieve these results include adapting appropriate technologies, supporting some research, and development for integrating data among appropriate agencies and stakeholders and disseminating disaster information. Specific GPRA results include evaluating existing capabilities and establishing and integrating Federal "nodes" to enable rapid data exchange among disaster information sources. Federal coordination will be achieved through an integrated program office, composed of representatives from participating agencies. The program office will develop policy and work to integrate information and establish a national disaster information network. A public/private partnership will be established in the development of this information system to involve those who manage or are affected by disasters.

The FY 2000 funds will be used to inventory all available data sets, Government-wide, for use in emergency management and associated dissemination systems; to develop a detailed plan for successful completion of this interagency project; and to develop and execute appropriate demonstrations/projects to determine technical or "process" feasibility.

Global Winds Demonstration (-$2,500,000): This decrease discontinues funding provided in FY 1999 for the Global Winds Demonstration project.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
New coastal satellite capabilities added (additional/satellite/ sensors)	1	0	0	0	0
New coastal hazards products/services developed and available	3	0	0	0	0
New coastal hazard types supported	2	0	0	0	0
Number of derived ocean products (AVHRR CoastWatch) [thousands]	288	288	288	288	288
Number of global ocean surface winds [millions]	73.4	73.4	73.4	73.4	73.4
Number of RADARSAT ice products	4,000	4,000	4,000	4,000	4,000
Number of ocean color scenes available to CoastWatch Nodes	1,500	1,500	1,500	1,500	1,500

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 1999 Base (BA in Thousands)					
Satellite Observing Systems	+$1,186	+$1,186	+$1,186	+$1,186	+$1,186

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: **National Environmental Satellite, Data and Information Service**
Subactivity: **Satellite Observing Systems**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	100
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	0
25.3	Purchase of goods and services from Government accounts	1,086
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	1,186

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: National Environmental Satellite, Data and Information Service
Subactivity: Environmental Data Management Systems

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Data and Information Services	Pos./BA	277	53,517	277	52,635	277	53,174	277	43,856	0	(9,318)
	FTE/OBL.	258	54,675	275	51,477	275		275		0	
Total	Pos./BA	277	53,517	277	52,635	277	53,174	277	43,856	0	(9,318)
	FTE/OBL.*	258	54,675	275	51,477	275		275		0	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **National Environmental Satellite, Data, and Information Service**
Subactivity: **Environmental Data Management Systems**

Goal Statement

The goals of the Environmental Data Management System (EDMS) subactivity are to provide worldwide environmental data and information products and services in the atmospheric, marine, solid earth, and solar-terrestrial sciences to meet the needs of users in commerce, industry, agriculture, science and engineering, the general public, and Federal, state, and local agencies. These products and services are used in decisions critical to the following: national economy; national defense; industrial productivity; energy development and distribution; world food supplies; public health, safety, and welfare; and development of natural resources. Environmental data management is becoming increasingly important due to the growing national and international focus on understanding the processes of global climate change. Programs in this subactivity support all of the Strategic Plan's Environmental Assessment and Prediction mission goals and the Build Sustainable Fisheries, Recover Protected Species and Coastal Ecosystems Health goals of the Environmental Stewardship mission.

Proposed Legislation

No new legislation is proposed for this subactivity.

Base Program

Environmental Data Management Systems: This subactivity is made up of the following line activities:

Environmental Data Systems Modernization: The operating objectives of this program are to increase productivity and improve support to the national economy, food and energy industries, scientific research, and the military services by improving the quality and accessibility of national environmental data and information files; and to improve environmental data products and services. Key elements of this subactivity are the rescue of critical environmental data that are presently at risk of being lost due to deteriorating storage media, and to develop the systems required to archive data from new NOAA observation systems and make it readily accessible to users.

Data and Information Services: The Environmental Data Management System subactivity includes NOAA-wide data and information services that include the NOAA data centers and other repositories of environmental data and information located throughout NOAA. The three NOAA data centers are: the National Climatic Data Center (NCDC) in Asheville, N.C.; the National Oceanographic Data Center (NODC) in Silver Spring, M.D.; and the National Geophysical Data Center (NGDC) in Boulder, Colorado. This line item also includes the NOAA library system. The library system, managed by NODC, includes a central library in Silver Spring, Maryland and branches in Seattle, Washington and Miami, Florida.

NOAA collects global environmental data about the oceans, earth, atmosphere, and the sun for use in NOAA activities to investigate, describe, and predict environmental conditions. Other domestic and foreign agencies, organizations, and individuals also collect data for their own environmental activities. After the data have been used for short-term purposes, selected data from these sources are obtained by NOAA, processed, and managed in the national environmental databases. The data are used in numerous applications in industry, agriculture, business, law, science, engineering, and academic research, as well as by Federal, state, and local government agencies and by the general public. Maintaining a national environmental database ensures that the large investment made to collect global data continues to pay off by providing information for decision-making in climate sensitive industries, marine resource management, policy planning, education, and science.

Climate Data Services: The National Climatic Data Center (NCDC), located in Asheville, NC, archives billions of meteorological observations and approximately hundreds of terabytes of digital data, making it the world's largest climate data center. NCDC provides full data management functions, as it receives, processes, archives, and disseminates surface, marine, upper air, radar, solar radiation, and satellite-derived data obtained from the National Weather Service (NWS), the Federal Aviation Administration, NOAA satellites, the Department of Defense, and other national and international sources. Using the Internet, NCDC has provided users (national and international) computer-to-computer access to NOAA's environmental data. The NCDC On-line Access and Service Information System (OASIS) allows users to browse and visualize data and download it to their own computers.

NCDC is handling the influx of new data streams made available under the NWS modernization. GOES I-M satellites, Automated Surface Observing System (ASOS), and the Next Generation Weather Radar (NEXRAD) systems. ASOS and NEXRAD data are ingested in near real-time using new computer processing/quality control systems and telecommunications to keep pace with the modernization and provide timely customer service. This includes on-line delivery of data and station history information. Archived data are maintained in a variety of media including digital, analog, microform, photographic imagery, and manuscript forms. Collected continually over long periods (in some instances for over 100 years), the data give clues to climate variability and trends. NCDC operates the World Data Center-A discipline center for meteorology and, through close coordination with the World Meteorological Organization and individual countries, gains access to worldwide climatic data.

NCDC provides data and information products to a large and diverse community (over one million requests per year), including climate researchers, engineers, agribusiness, planners, attorneys, government agencies, and the general public. For the climatological community, NCDC publishes several monthly publications that directly support its mission of describing the climate of the United States. (Over 1.4 million copies are distributed each year.)

In addition to providing customized services to answer specific needs, NCDC prepares and publishes climate information summaries to improve public health and safety, improve productivity, and to generally improve the U.S. competitive edge through informed decision-making. Economic sectors benefitting from NCDC's data include such diverse elements as energy development, energy conservation, power production, food production, human health, construction design and scheduling, air pollution control, and airport siting. NCDC also performs climatic applications studies for other government agencies including NASA, EPA, DOD, and DOE.

Ocean Data Services: The National Oceanographic Data Center (NODC) in Silver Spring, Maryland, maintains the world's largest unclassified oceanographic data base. Holdings include records from more than 2 million stations containing temperature, salinity, and in many cases nutrient chemistry data from the total water column (sea surface to ocean floor); 73 million surface and subsurface current measurements; 3.5 million bathythermograph records; and over 79 million records from automated ocean buoys. Data holdings also contain approximately 150 million records from special data sets such as ocean data from the U.S. Navy Geosat Altimetry Satellite. Access to these huge data bases is provided both by interactive use of the Internet and by personal inquiry to one of the oceanographer information specialists at NODC. Data is distributed on a variety of media including, on-line, CD-ROM, magnetic diskette, magnetic tape and/or paper as desired by the client. Plans include approximately 13 new CD-ROM data products to be published each year for unlimited distribution.

Over half of NODC's archived data are obtained through international exchange agreements. NODC operates World Data Center A, Oceanography under which data exchange agreements are in effect with more than forty countries engaged in marine research.

NODC also oversees development, coordination, and operation of the NOAA library and information system. The NOAA library network, comprising a central, two regional and 25 branch libraries hold more than 1.5 million volumes, and is responsible for providing up-to-date scientific, technical, and legislative information services to all NOAA scientists, administrators, and managers. The library uses a wide array of products and services to provide user support, including on-line access to hundreds of data bases, inter-library loan arrangements, and CD-ROM technology for citation searches and data. Library users other than NOAA users include scientists, researchers, policy-makers, other governments, educators, the private sector and the general public.

Users of NODC services (about 150,000 per year) include industry, such as maritime shipping and offshore drilling companies; oceanographic and atmospheric scientists working on ocean Atmosphere (TOGA), World Ocean Circulation Experiment (WOCE), and Global Ocan Flux Study (GOFS); commercial research organizations; federal government agencies such as NASA, USGS, EPA and other NOAA activities working jointly on monitoring and assessing the coastal and deep ocean environment; state and local government agencies working with NOAA on coastal ocean research problems; and the general public.

Data are provided to users on either an exchange or a reimbursable basis. Under exchange agreements, data may be provided to foreign organizations at no cost in exchange for data of comparable value for inclusion in the natural data base. In all other cases, data are provided to the users on a cost-recovery basis.

Geophysical Data Services: The National Geophysical Data Center (NGDC) in Boulder, Colorado, compiles, archives, and disseminates a wide variety of scientific data related to the earth's interior; the land surface and ocean floor; snow cover and ice extent; the upper atmosphere; past climates, the space environment; and solar activity. Disciplines covered include seismology, studies of the earth's gravity and magnetic fields, geochemistry, marine geology and geophysics, glaciology, paleoclimatology, upper atmospheric physics, and space and solar physics. Data are acquired through formal and informal arrangements with other government agencies, universities, and many foreign sources. NGDC operates the World Data Center A discipline center for Solar-Terrestrial Physics, Solid Earth Geophysics, Marine Geology and Geophysics, Paleoclimatology, and Glaciology (Ice and Snow).

Data holdings consist of several hundred data bases of various sizes. Holdings include over 65 million ionograms; over 2.5 million magnetograms; marine geophysical data collected over 15 million miles of ship tracks by research vessels; aeromagnetic data collected over 12 million flight miles; over 14 terabytes of satellite imagery from the Defense Meteorological Satellite Program, and many others. Selected data are routinely exchanged with World Data Centers B in Russia, C in Europe and Japan, and D in China.

NGDC publishes the monthly periodical "Solar Geophysical Data", which provides detailed information on solar activity and its effect on Earth to the worldwide research community. It also publishes a wide variety of special reports, summaries, listings, and announcements of new data acquisitions. It provides various customized services to meet specific user needs in both the research community and the private sector.

More than 850,000 users receive services each year. They range from scientists and engineers in the research community and the private sector, to Federal, state, and local government agencies and the general public. Particular emphasis is placed on providing data to the earth science research community to support research in global change, resource exploration, and basic science.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of:				
National climatic, oceanographic, and geophysical data base records maintained (billions of bytes)	405,854	508,423	613,589	719,757
Records added (billions of bytes)	102,854	102,569	105,166	108,170
Records converted from analog to digital format (millions of bytes)	40.856	10,045,500	20,050,500	20,050,500
Public user requests processed [millions]	2.5	3.3	3.6	3.9
Scientific and academic requests processed	375	495	540	585
Library volumes maintained (thousands)	1,674	1,719	1,754	1,790
Library volumes added (thousands)	43	43	42	41
Bibliographic citations (thousands)	6,900	7,038	7,179	7,323
Public user requests for library information	30,000	31,000	32,500	33,000
Scientific and academic user requests for library information	157,488	160,638	163,851	167,128

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Environmental Data Management Systems	Pos/BA	277	$53,174	277	$43,856		-$9,318
	FTE/Obl	275		275			

Environmental Data Management Systems (0 FTE -$9,318,000): The net change to this subactivity is -$9,318,000.

Data and Information Services (0 FTE -$2,568,000: NOAA request a net decrease of 0 FTE and -$2,568,000 for the below listed changes to this line item:

Restoration of Base Funding/Data and Information Services (+ $932,000): This request partially restores inflationary increases in data center operations costs to meet the growing demand of incoming data to be managed and the rapidly increasing user community to be served. A stable base plus the modernization efforts are needed to keep pace with these increasing demands.

Without this requested restoration of base, archiving and delivery of critical environmental data to our diverse user community could be seriously impacted. The operational nature of the three National Data Centers' mission leaves little option for cost reductions. These funds are necessary to keep up with increased labor cost and increases in such items as software licensing, and communications, to meet an ever expanding user demand.

NOAA's three national data centers archive, quality control, and make accessible the Nation's oceanographic, climate and geophysical data. They provide essential data services to over 4,000,000 users per year and are still growing at 20 percent per year. Incoming data to be archived are still growing at an increasing rate with no end in sight. With the erosion of base over many years, very little other services beyond keeping up with the archiving, the increased volume of data (100 terabytes per year), and maintaining the 550 terabytes they now have can be managed.

The NOAA Data Centers have already decreased their staff by over 20 percent over the past 5 years.

Cooperative Observer Network Modernization (+$1,500,000): An increase of +$1,500,000 is requested to initiate the modernization of NOAA's Cooperative Observer Network and Rain Gauge Network. This program will ensure the future health and usefulness of the cooperative observer network for years to come. It will prevent a number of imminent catastrophic failures in network including the inability to read punched paper tapes from the raingauges, inadequate supply of replacement chips for thermistors used in the cooperative network, and the elimination of changes in observing times which effectively destroy our ability to evaluate changes in extremes for our longest and best observing stations.

It will also greatly improve the access time to the data and, over the long run, significantly reduce costly servicing of antiquated recording devices and the handling of paper records. This request will provide the nation with a network to sustain high quality climate and weather observations into the next Century. It addresses recent concerns expressed by the National Research Council and NOAA's Climate Council. This request represents a coordinated program with the National Weather Service, with each line office requesting $1,500,000 in FY 2000.

There are three components of this initiative:

Reference Network

It has long been known that the US does not maintain a climate reference network capable of ensuring long-term climate records with a minimal of time-dependent biases affecting the interpretation of decadel climate variability and change. The reference network in this budget request will fulfill this need and also provide the USA with a reference network that meets the requirements of GCOS.

A reference network of approximately 250 (this number assures us of capturing both long-term temperature and precipitation changes) of our best long-term stations will be identified and upgraded to long-term climate monitoring standards (virtually eliminating time-dependent biases). A nearby backup site for each of these stations will also be identified to provide redundancy in the network for unavoidable station closings. On-site inspections and training will be required at each site, which will help evaluate objective assessments of station quality. Each site will have extensive metadata regarding station operation and surrounding environment, including digital satellite imagery to monitor changes in the regional and local surface characteristics, e.g., urbanization. New instrumentation will be put in place, while maintaining existing observations for a period of at least two years. These data will be used to develop transfer functions that will preserve the integrity of the long-term record. New instruments will include automated temperature measurements with automated raingauges (modified Fischer-Porter gauges). These instruments will be procured and installed by NWS personnel. The National Climatic Data Center (NCDC) will routinely monitor the quality and long-term integrity of the data from these sites, and provide reports back for on-site inspection as warranted. Data from these sites will be used to provide the best possible information about changes in surface temperature and precipitation, including means and extremes.

Replacing the Punched Paper Tape Devices on Fischer-Porter Raingauges

Evidence for changes in extreme precipitation rates have been documented across the USA as global and regional temperatures and water vapor have changed. This a fundamental climate statistic that is related to numerous economic and ecological impacts. This is a fundamental climate statistic that is related to numerous economic and ecological impacts. Unfortunately the long record of extreme precipitation events is in danger of being permanently lost. A replacement for the punched paper tape device mounted on Fischer-Porter raingauges is needed immediately. The punched paper tape readers which will soon be inoperable (within a few years) due to failing parts. There are no replacements and only four readers remain. This budget will enable the purchase of digital data loggers with a telecommunication port for future connectivity electronic transmission of data. This latter option could eliminate the need for any manual intervention in terms of data transfer. Moreover, new data loggers will improve resolution by an order of magnitude. To ensure that adequate transfer functions are developed to accommodate the increase in resolution 5% of the 2500 station network will retain dual measurements for a 1-year overlap. Data will be transmitted to field stations and the National Data Center for archive, quality control, and distribution in a much more timely manner.

Modernizing the Full Cooperative Observer Network (not including first order stations)

Full cooperative network modernization will take place for the network of stations that are published by the NCDC (8000) as well as cooperative stations that are not published (3000). The modernization will be implemented to preserve the homogeneity of the long-term records by using overlapping measurements between old and new technology, wherever feasible. New instrumentation will have the capability of recording maximum and minimum temperatures on a midnight-to-midnight basis, retaining more than a full month of daily high and low temperatures, measuring precipitation (with screens where appropriate), and transmitting data in near-real time for the wide variety of NOAA users and requirements. NWS personnel will install and procure the new instruments based on weather forecasting and climate requirements. Data will continue to be routinely quality controlled and published by NCDC, but in a more timely manner due to the more efficient transfer of data. Metadata and information about the site will be sent to the NCDC for archive and use by NWS personnel and other users of NOAA data.

Data Preservation (-$5,000,000): A decrease of 0 FTE and -$5,000,000 is requested to discontinue the Data Preservation activity initiated in FY 1999.

Environmental Data Systems Modernization (-$4,000,000): NOAA requests a decrease of -$4,000,000 for this budget line item. Change to this line item is described below.

NOAA Virtual Data System (-$4,000,000): The decrease in the NVDS reflects completion of the non-recurring hardware acquisition and software conversion portions of the program.

Regional Climate Centers (-$2,750,000): NOAA request a decrease of 0 FTE and -$2,750,000 for the Regional Climate Centers, which can, and should be, provided by the private sector.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
National Climatic, Oceanographic, and Geophysical Database records maintained (billions of bytes)	719,757	827,927	939,097	1,054,267	1,174,437
Records added (billions of bytes)	108,170	108,170	111,170	115,170	120,170
Records converted from analog to digital (millions of bytes)	20,050	20,030	20,020	20,020	20,020
Public user requests processed [millions]	3.9	4.2	4.4	4.6	4.8
Scientific and academic requests processed [thousands]	585	630	675	720	765
Library Volumes maintained (thousands)	1,790	1,826	1,863	1,883	1,904
Library volumes added (thousands)	41	40	39	28	28
Bibliographic citations (thousands)	7,323	7,470	7,620	7,820	8,000
Public user requests for library information	33,000	34,500	35,000	35,420	35,500
Scientific and academic user requests for library information	167,128	170,471	173,880	175,100	175,800

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Environmental Data Management Systems	-$9,318	-$9,318	-$9,318	-$9,318	-$9,318

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: **National Environmental Satellite, Data and Information Service**
Subactivity: **Environmental Data Management Systems**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	(8,068)
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(1,250)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(9,318)

PROGRAM SUPPORT
STRATEGIC PLANNING GOALS AND OBJECTIVE

The Program Support activity provides support to all of NOAA's Strategic Planning Goals. Below is a brief characterization of Program Support activities in the context of these Goals.

GOAL - ADVANCE SHORT TERM WARNINGS AND FORECASTS

Program Support funds NOAA's executive management as well as administrative services such as procurement, grants and personnel management. Aircraft Services provide observation and data collection platforms in support of strengthening NOAA's environmental observing and prediction systems.

GOAL - IMPLEMENT SEASONAL TO INTERANNUAL CLIMATE FORECASTS

Program Support funds NOAA's executive management as well as administrative services such as procurement, grants and personnel management.

GOAL - PREDICT AND ASSESS DECADAL-TO-CENTENNIAL CHANGE

Program Support funds NOAA's executive management as well as administrative services such as procurement, grants and personnel management. Aircraft Services provide observation and data collection platforms in support of anticipatory research on climate and global change as well as health of the atmosphere.

GOAL - PROMOTE SAFE NAVIGATION

Program Support funds NOAA's executive management as well as administrative services such as procurement, grants and personnel management. Aircraft Services provide observation and data collection platforms in support of enhancing navigation products and services.

GOAL - BUILD SUSTAINABLE U.S. FISHERIES

Program Support funds NOAA's executive management as well as administrative services such as procurement, grants and personnel management.

GOAL - RECOVER PROTECTED SPECIES

Program Support funds NOAA's executive management as well as administrative services such as procurement, grants and personnel management.

GOAL - SUSTAIN HEALTHY COASTS

Program Support funds NOAA's executive management as well as administrative services such as procurement, grants and personnel management.

Program Support
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Advance Short-Term Warning and Forecast Services										
Complete NWS Modernization	36	1,420	9	700	9	962	9	962		
Satellite Continuity										
Enhance Observations & Predictions	55	8,364	60	6,453	60	7,326	64	7,676	4	350
Infrastructure	621	33,766	621	33,194	621	34,970	621	34,970		
Total ASTWFS	**712**	**43.550**	**690**	**40.347**	**690**	**43.258**	**694**	**43.608**	**4**	**350**
Implement Seasonal to Interannual Climate Forecast										
Implement Prediction Systems				150		150		150		
Maintain and Improve Observing and Data Delivery Systems										
Conduct Research for Improved Climate Predictions						250		250		
Infrastructure	54	2,952	54	2,902	54	3,057	54	3,057		
Total ISICF	**54**	**2.952**	**54**	**3,052**	**54**	**3,457**	**54**	**3,457**		
Predict and Assess Decadal-to-Centennial Change										
Characterize Global Climate Forcing Agents										
Understand the Role of Oceans in Global Change										
Guide the Rehabilitation of the Ozone Layer										
Provide Prediction, Assessment, & Human Impact Info.			1	1,608	1	1,610	1	1,610		
Infrastructure	54	2,900	54	2,851	54	3,004	54	3,004		
Total PADCC	**54**	**2.900**	**55**	**4,459**	**55**	**4,614**	**55**	**4,614**		
Promote Safe Navigation										
Update Nautical Surveys	24	968	25	1,211	25	1,251	25	1,251		
Provide Marine Predictions										
Infrastructure	44	2,361	44	2,321	44	2,445	44	2,445		
Total PSN	**68**	**3.329**	**69**	**3.532**	**69**	**3.696**	**69**	**3.696**		

Build Sustainable Fisheries										
Assess the Status of Fishery Resources	9	812								
Advance Fishery Prediction										
Provide Research and Service										
Infrastructure	196	10,553	196	10,374	196	11,179	196	11,179		
Eliminate & Prevent Overfishing										
Total BSF	**205**	**11.365**	**196**	**10.374**	**196**	**11.179**	**196**	**11.179**		
Recover Protected Species										
Assess Status and Impacts	18	256	20	150						
Infrastructure	21	1,204	21	1,184	21	1,247	21	1,247		
Maintain Healthy Species & Ecosystems					20	182	20	182		
Total RPS	**39**	**1.460**	**41**	**1.334**	**41**	**1.429**	**41**	**1.429**		
Sustain Healthy Coasts										
Protect, conserve and restore habitats				928		150		150		
Promote clean coastal waters										
Foster well-planned and revitalized coastal communities						250		250		
Infrastructure	97	5,314	97	5,224	97	5,504	97	5,504		
Total SHC	**97**	**5.314**	**97**	**6.152**	**97**	**5.904**	**97**	**5.904**		
Infrastructure										
Administration										
Total Infra										
Total for Prog Sup	**1,229**	**70,870**	**1,202**	**69,250**	**1,202**	**73,537**	**1,206**	**73,887**	**4**	**350**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: Program Support
Subactivity: Administration and Services

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Executive Direction and Administration	Pos./BA	335	21,209	309	19,900	309	20,285	309	20,285	0	0
	FTE/OBL.	360	20,191	301	20,918	301		301		0	
Central Administrative Support	Pos./BA	800	34,907	800	31,850	800	42,583	800	42,583	0	0
	FTE/OBL.	671	34,943	795	31,814	795		795		0	
Retired Pay Benefits to Commissioned Officers	Pos./BA	0	11,116	0	7,000	0	0	0	0	0	0
	FTE/OBL.	0	11,116	0	7,000	0		0		0	
Total	Pos./BA	1,135	67,232	1,109	58,750	1,109	62,868	1,109	62,868	0	0
	FTE/OBL.*	1,031	66,250	1,096	59,732	1,096		1,096		0	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Program Support**
Subactivity: **Administration and Services**

Goal Statement

The goal of the administration and services subactivity is to support NOAA and DOC programs and missions through executive direction for the implementation of agency policies; develop and acquire major support systems; and provide administrative, budget, finance, legal, and public relations services. Programs in this subactivity support all of the Strategic Plan's goals.

Proposed Legislation

No legislation is proposed.

Base Program

Executive Direction: The objectives of this line item are to provide centralized executive management and decisions concerning NOAA policy and planning objectives; development and acquisition of major NOAA modernization systems; individual program operations; budget priorities; financial management; statutory and other legal requirements; congressional relations; and public and educational affairs; and strategic planning.

This line item provides funding for the Under Secretary and NOAA-level staff offices within the Office of the Administrator which provide executive direction and support for the operational programs. Located in the Department of Commerce headquarters in Washington, D.C., those offices include:

Under Secretary and Administrator
Assistant Secretary and Deputy Administrator
Deputy Under Secretary
Chief Scientist
General Counsel

Naval Deputy
Budget and Finance(Acctg.) portion of Office of Finance and Administration(OFA)
Legislative Affairs
Public and Constituent Affairs
Systems Acquisition Office
Sustainable Development
Policy and Strategic Planning

Central Administrative Support: The objective of this line item is to provide timely, high quality, cost-effective administrative support to all of NOAA and to the Department of Commerce programs in the field, while ensuring all laws, regulations and guidelines are followed.

This line item includes funding for NOAA's overall management of personnel, acquisition and grants, finance, facilities and logistics, and information technology systems. In addition, it includes funding for NOAA's share of the operation of the four field Administrative Support Centers (ASCs), and the headquarters administrative support operations. NOAA's Office of Finance and Administration structure is:

Office of Director of Finance and Administration located in Washington, D.C.

Headquarters Offices -
- Human Resources Management Office located in Silver Spring, Maryland
- Civil Rights Staff located in Silver Spring, Maryland
- Diversity Program Office located in Silver Spring, Maryland
- Acquisition, Grants & Facilities Services Office located in Silver Spring, Maryland
- Information Systems Office located in Silver Spring, Maryland
- Finance Office located in Germantown, Maryland

Field Offices -
- Eastern Administrative Support Center located at Norfolk, Virginia
- Central Administrative Support Center located at Kansas City, Missouri
- Mountain Administrative Support Center located at Boulder, Colorado
- Western Administrative Support Center located at Seattle, Washington
- (Each field office includes the services listed in the following section)

Below is a summary of the services provided to NOAA and all DOC field organizations:

- Personnel - includes all personnel functions, including classification and hiring, maintenance of personnel files, position review, labor management relations, employee counseling, and separation and retirement processing.

- Acquisition and Grants - includes processing of all contracts and purchase orders and performing all other associated procurement functions. Grants and cooperative agreements are handled for all of NOAA.

- Facilities and Logistics - includes management of real property and space utilization, safety, security services, personal property, transportation of goods, telecommunications and printing, environmental compliance, and engineering services.

- Finance - provides planning, design, and coordination on financial operations for NOAA-wide application, including financial accounting policy and procedures as well as administrative payments for DOC bureaus.

- Systems Support - includes, for NOAA only, the bureau-level Information Technology Management, operations and maintenance of NOAA resource management systems including the NOAA accounting system and financial management information, and overall network\telecommunications management.

- Site Specific Services - several OFA Offices(Headquarters/field) provide unique services to their clients including a research library, warehousing, guard and custodial services and health units.

- Commerce Administrative Management System (CAMS) - OFA continues to contribute to the design and implementation of CAMS. The purpose of the System is to improve resources management and accountability by integrating various systems and data bases containing financial and other resource data. As such, CAMS will also contribute to NOAA's ongoing efforts to achieve, and then maintain, a clean audit. In order to better serve OFA customers and accommodate staffing decreases, OFA has automated services in grants, acquisitions, and human resources, and made a large volume of various types of information available via the Internet. OFA has also looked at consolidating various services to achieve economies of scale.

The administrative functions funded in this line item are critical to each program in NOAA and the programs conducted by other Department of Commerce offices in the field. In addition to providing timely, quality administrative support, the Office of Finance and Administration also has the responsibility to ensure that their actions comply with all laws, regulations and guidelines. The organization is under continual pressure from the client

organizations to continue to improve services and hold costs down, while being pressed for tighter controls on the processes. The NOAA ASCs also provide a wide range of administrative services to other bureaus. An annual billing process provides the mechanism to distribute the costs of these operations.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Lead time in days to process requisitions (over $100K)	114	118	118	116
# of days to process travel vouchers	10	10	10	4
Interest ($) paid to vendors for late payments ($ 000)	333	180	250	200
# of Outstanding Audit Recommendation	115	110	75	60
# of days to process collections	5	8	8	4

Retired Pay/Benefits for Commissioned Officers: The objective of this line item is to provide payment of benefits to retired NOAA Commissioned officers and their families.

The retirement system for the uniformed services provides a measure of financial security after release from active duty for service members and their survivors. It is an important factor in the choice of a career in the uniformed services and the legal mandate for rates to be paid is the same for all uniformed services, 10 USC.

The current system permits 1) a non-disability retirement for 20 years or more of active duty, and 2) a disability retirement for active duty members who are determined to be unfit to perform the duties of their office or grade because of a physical disability. Legal authority for retirement of NOAA Corps officers is contained in 33 USC 853l. Retired commissioned officers of the NOAA Corps receive retirement benefits from the Commissioned Personnel Center within the Office of NOAA Corps Operations, which is under the Office of the Administrator.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of Retirees Serviced	250	268	288	303*
Number of Survivors Serviced	43	42	42	42*
Total	293	310	330	345*

*Payments for Retired Pay for Commissioned Officers are mandated as an entitlement under 33 U.S.C. 853o, 33 U.S.C. 853p, and 33 U.S.C. 857-2. No further discretionary funding for this line item will be included in Program Support. However, in FY 2000, the NOAA total budget authority includes $13.9 million in such payments (mandatory).

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: Program Support
Subactivity: Aircraft Services

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Aircraft Services	Pos./BA	107	11,224	107	10,500	107	10,669	112	11,019	5	350
	FTE/OBL.	91	10,945	106	10,779	106		110		4	
Total	Pos./BA	107	11,224	107	10,500	107	10,669	112	11,019	5	350
	FTE/OBL.*	91	10,945	106	10,779	106		110		4	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Program Support**
Subactivity: **Aircraft Services**

Goal Statement

The goal of this subactivity is to ensure safe and timely operation of aircraft equipped with modern scientific instrumentation to conduct NOAA missions supporting the Department's goal of balanced management of the oceanic and atmospheric environment.

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

Aircraft Operations and Maintenance: The objectives of this line item are: (1) to ensure the operational readiness and to enhance capabilities of NOAA's uniquely configured aircraft and highly skilled personnel to perform missions which directly support NOAA's responsibilities of providing timely and accurate storm and weather warning and forecasts; accurate charts for safe navigation; providing effective stewardship of living marine resources -- and, often in cooperation with other agencies and institutions, conducting studies which increase our understanding of ocean and atmosphere processes and the effects of pollution on habitats, air and ocean quality, and climate change; (2) to provide centralized management and coordination, scheduling, repair, maintenance, labor relations, operations procedures, training, and engineering to operate a fleet of 13 aircraft; (3) to provide fuel, operating supplies, personnel, flight equipment, sensor packages, communications, and navigation equipment to meet user requirements and schedules; (4) to design, develop and engineer aircraft systems and modifications to ensure cost-effective operations; (5) meet safety/legal regulations for aircraft and their operation; and (6) provide training to pilots/navigators to meet proficiency requirements and ensure safety of passengers and property.

The Office of NOAA Corps Operations, Aircraft Operations Center (AOC) at MacDill Air Force Base, Tampa, FL manages the 13 NOAA aircraft, composed of 2 heavy aircraft, 1 mid-sized jet, 7 light aircraft, and 3 helicopters which are deployed on world-wide operations, and based out of 4 major

locations in the United States. The Office of NOAA Corps Operations is headquartered in Silver Spring, MD, and provides oversight and policy direction.

AOC provides support for NOAA's top priority programs as follows:

Climate and Global Change and Atmospheric Research - These programs are supported by NOAA's two fully instrumented WP-3D aircraft. The P-3's are the most sophisticated meteorological research platforms in the world. The aircraft research and navigation systems provide detailed spatial and temporal observations of a wide range of atmospheric and oceanic parameters in support of climate and global change, severe weather research, ocean and great lakes programs, air quality, air/sea interaction, and ocean dynamics. The Gulfstream IV jet provides the capability to conduct high altitude research, both for air sampling and investigations of mesoscale features in support of improved severe weather predictions. AOC develops and calibrates specialized instrumentation, integrates user-supplied instruments into the automated systems, and processes and analyzes data sets obtained from various field programs.

Hurricane Reconnaissance - NOAA P-3 aircraft provide high density/accuracy hurricane data to the National Hurricane Center in near real-time. Storm data are transmitted via the aircraft satellite data link to upgrade forecasting models of hurricane tracking/intensity. Because of this capability, the AOC provides reconnaissance for hurricanes within 24 hours of landfall on the United States and its territories. Additionally, the AOC augments reconnaissance by DOD aircraft on developing tropical storms and provides hurricane reconnaissance over foreign airspace where military aircraft may be prohibited. NOAA’s Gulfstream IV jet provides high altitude hurricane surveillance and limited research. Data from this platform provide significant improvements in the accuracy of hurricane forecasts.

Air Quality Research Program - One Twin Otter and one P-3 are instrumented to perform meteorological flux and air chemistry studies for OAR including research to measure, understand, and model the physical, chemical and dynamic processes of the lower atmosphere. This study includes the possible effects of the introduction of man-made pollutants. The Citation II provides the capability for mid-high altitude atmospheric research. The Gulfstream IV jet provides a long-range, high capacity platform capable of research in the upper troposphere.

Nautical Charting Operations - The Citation II jet and Turbo Commander, both camera equipped, support specialized aerial surveys and provide aerial photographs for the production of shoreline maps, shoreline revision data, nearshore bathymetric data for nautical charts, geodetic control establishment and storm evacuation routes; to position landmarks and aids to navigation; and to support other NOAA activities such as natural disaster damage assessment. These aircraft also serve as testbeds for a multi-spectral scanner for coastal mapping, HAZMAT, and potential use for other NOAA missions.

Snow Survey Program - AOC provides support to the Airborne Snow Survey Program to obtain soil moisture and snow water equivalent data from a network of flight lines. Data is provided to the National Weather Service (NWS) River Forecast Centers in Kansas City and Minneapolis, for use in issuing river and flood forecasts as part of the NWS Hydrologic Service Program. A Shrike and the Turbo Commander support this program.

Aerial Surveys - The Twin Otters, MD-500D helicopter, and the Lake Seawolf, support NMFS aerial surveys for marine mammals, endangered species, and other fisheries. These aircraft provide the capability for surveillance, enforcement operations, and quick response in support of the NOAA HAZMAT group. The Twin Otters are also supporting various remote sensing systems which can map coastal topography and monitor coastal waters for chlorophyll, salinity, and turbidity.

Helicopter Support - NOAA programs require the use of several different types of helicopters, 2 Bell 212 twin-engine helicopters and 1 small single engine MD-500D helicopter to support NOS, HAZMAT, OAR, and NMFS Programs. There is a wide variety of requirements including: aerial surveys, hydrographic, tide and oceanographic observations in the Arctic, tropical and remote locations; collection of biological, geological, and oceanographic specimens and samples; marine law and sanctuary enforcement; transportation to otherwise inaccessible areas to perform logistics functions; and shipboard operations in the Antarctic and Arctic for the safety of the ship, scientific investigations or logistics. The Bell 212's now serve as the platforms for the Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS), a joint coastal hydrography program with NOS and the U.S. Army Corps of Engineers.

The following table provides information on the aircraft fleet and crew for the current base program (missions and support fluctuate based on NOAA priorities):

Aircraft	Type	Year Manufactured	Crew/ Passenger	Primary Mission/ Configuration	Crew Duty-station	Aircraft Base
HEAVY:						
(2) Lockheed WP-3D	4 engine turbo prop	1975/1976	10/7	Atmospheric Research (OAR) Reconnaissance (NWS)	Tampa, FL	MacDill AFB
MID:						
(1) Gulfstream G-IVSP	2 engine turbo jet	1994	7/5	Hurricane Surveillance/ Reconnaissance (NWS)	Tampa, FL	MacDill AFB
LIGHT:						
(2) Dehavilland Twin Otter DH6	2 engine turbo prop	1980/1981	2/6	Aerial Surveys (NMFS)	Tampa, FL	MacDill AFB
Lake Seawolf Amphibian	1 engine reciprocating	1991	1/3	Aerial Surveys/training (NMFS, NOS)	Tampa, FL	MacDill AFB
Lake Seawolf Amphibian	1 engine reciprocating	1991	1/3	Aerial Surveys/training (Sanctuary Support)	Monterey, CA	Monterey, CA
Cessna Citation II	2 engine turbo jet	1978	3/1 2/2	Photogrammetry (NOS) & High Altitude Atmos. Research (OAR) & Multi-Spectral Scanner (NOS)	Tampa, FL Rockville, MD	MacDill AFB Rockville, MD

Aircraft	Type	Year Manufactured	Crew/ Passenger	Primary Mission/ Configuration	Crew Duty-station	Aircraft Base
Rockwell Aero Commander 690A (Turbo Commander)	2 engine turbo prop	1974	3/0 2/1	Photogrammetry (NOS) & Snow Survey (NWS) & Multi-Spectral Scanner(NOS)	Rockville, MD	Rockville, MD
Rockwell Shrike 500S	2 engine reciprocating	1977	2/2	Snow Survey (NWS)	Minneapolis, MN	Flying Cloud Airport, MN
HELICOPTERS:						
(2) Bell 212	Twin engine helicopter	1979	2/7	Remote over-water operations/ship support/SHOALS, hydrography (NOS, OAR, NMFS)	Tampa, FL	Anchorage, AK
McDonnell Douglas 500D	Single engine light helicopter	1979	1/3	Aerial Surveys & Logistics	Tampa, FL	MacDill AFB

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Base funded flight hours allocated by the NOAA Aircraft Allocation Council	2,298*	2,147**	2,165**	2,165**
Hours Flown	2,119*	1,792**	2,165**	2,165**

*Includes previously uncounted flight hours for training.
**Reflects shrike being transferred to FAA.

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Aircraft Services	Pos/BA	107	$10,669	112	$11,019	5	$350
	FTE/Obl	106		110		4	

Aircraft Services (+4 FTE, +$350,000): NOAA requests $350,000 for a second flight crew for the NOAA G-IV high altitude jet. The second crew would allow the jet to be flown on high priority back-to-back missions (12-hour intervals), such as for land-falling hurricanes. It would also permit storm tracking for long-duration hurricanes when crew rest limitations might otherwise ground the aircraft. Two flight crews will provide 24-hour storm surveillance which is the operational requirement. Use of two flight crews provides data necessary for mathematical models to improve hurricane landfall predictions.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Aircraft Services (BA in Thousands)	+$350	+$350	+$350	+$350	+$350

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Program Support
Subactivity: Aircraft Services

Title:	Grade	Number	Annual Salary	Total Salaries
Flight Meteorologist	12/4	1	$50,881	$50,881
Electronics Engineer	12/4	1	50,881	50,881
Electronics Technician	10/5	1	39,881	39,881
Equipment Specialist	11/5	1	43,738	43,738
Pilot	14/5	1	73,663	73,663
Total		5		$259,044
Less Lapse (25%)		(1)		(64,761)
Total full-time permanent (FTE)		4		194,283
FY2000 Pay Adjustment (4.4%)				8,548
Total		4		$202,831

Personnel Data	Number
Full-Time Equivalent Employment	
Full-time permanent	4
Other than full-time permanent	0
Total	4
Authorized Positions	
Full-time permanent	5
Other than full-time permanent	0
Total	5

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Program Support**
Subactivity: **Aircraft Services**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	203
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	3
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	206
12.1	Civilian personnel benefits	54
13	Benefits for former personnel	0
21	Travel and transportation of persons	10
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	10
24	Printing and reproduction	0
25	Other services	0
26	Supplies and materials	25
31	Equipment	10
32	Lands and structures	35
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	350

Facilities
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Advance Short-Term Warning and Forecast Services										
Complete NWS Modernization		1,000		3,000						
Infrastructure	4	647	4	647	4	653	4	1,478		825
Total ASTWFS	**4**	**1.647**	**4**	**3.647**	**4**	**653**	**4**	**1.478**		**825**
Implement Seasonal to Interannual Climate Forecast										
Infrastructure		72		72		73		165		92
Total ISICF		**72**		**72**		**73**		**165**		**92**
Predict and Assess Decadal-to-Centennial Change										
Infrastructure		83		83		84		190		106
Total PADCC		**83**		**83**		**84**		**190**		**106**
Promote Safe Navigation										
Infrastructure		68		68		69		156		87
Total PSN		**68**		**68**		**69**		**156**		**87**
Build Sustainable Fisheries										
Infrastructure	8	8,985	8	8,535	8	2,093	8	5,300		3,207
Total BSF	**8**	**8.985**	**8**	**8.535**	**8**	**2.093**	**8**	**5.300**		**3.207**
Recover Protected Species										
Infrastructure	2	747	2	747	2	754	2	1,705		951
Total RPS	**2**	**747**	**2**	**747**	**2**	**754**	**2**	**1.705**		**951**
Sustain Healthy Coasts										
Infrastructure	1	563	1	113	1	118	1	835		717
Total SHC	**1**	**563**	**1**	**113**	**1**	**118**	**1**	**835**		**717**
Infrastructure										
Construction/Facilities/Env. Compliance										
Total Infra										
Total for Fac	**15**	**12,165**	**15**	**13,265**	**15**	**3,844**	**15**	**9,829**		**5,985**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: Facilities
Subactivity: Facilities

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
NOAA-wide Space Planning	Pos./BA	0	480	0	0	0	0	0	0	0	0
	FTE/OBL.	1	951	0	(471)	0		0		0	
NOAA Maintenance and Repair	Pos./BA	6	8,645	6	1,800	6	1,818	6	1,818	0	0
	FTE/OBL.	6	6,092	6	4,353	6		6		0	
Sandy Hook lease	Pos./BA	0	2,000	0	2,000	0	0	0	0	0	0
	FTE/OBL.	0	2,000	0	2,000	0		0		0	
Environmental Compliance	Pos./BA	9	2,931	9	2,000	9	2,026	9	3,899	0	1,873
	FTE/OBL.	9	2,510	9	2,421	9		9		0	
NWS WFO Facilities Maintenance	Pos./BA	0	14,936	9	3,000	9	0	9	0	0	0
	FTE/OBL.	0	1,784	9	16,152	9		9		0	
NARA Records Management	Pos./BA	0	0	0	0	0	0	0	262	0	262
	FTE/OBL.	0	0	0	0	0		0		0	
Boulder	Pos./BA	0	0	0	0	0	0	0	3,850	0	0
	FTE/OBL.	0	0	0	0	0		0		0	
Newport Marine Science Center	Pos./BA	0	3,856	0	0	0	0	0	0	0	0
	FTE/OBL.	0	66	0	3,790	0		0		0	
Columbia River Facilities	Pos./BA	0	13,459	0	4,465	0	0	0	0	0	0
	FTE/OBL.	2	11,905	0	6,019	0		0		0	
Total	Pos./BA	15	46,307	15	13,265	15	3,844	15	9,829	0	5,985
	FTE/OBL.*	18	25,308	15	34,264	15		15		0	

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Facilities**
Subactivity: **Facilities**

Goal Statement

To provide for major repairs, building systems replacements, preventive actions, and modifications to existing facilities, and for environmental compliance, safety and health, in the most economical, efficient and effective manner.

Base Program

The FY 2000 request includes funds to provide for NOAA's Environmental Compliance, facilities maintenance and space planning. The objectives of NOAA's Facilities programs are to bring all facilities into legal compliance with applicable laws and regulations, and to bring each facility up to a standard condition, operating at a "steady-state" requiring only normal, regular maintenance and periodic, life-cycle replacement of major building systems and components. These objectives can best be achieved by implementing a Government Performance and Results Act-based management system which can provide a more efficient and consistent level of problem identification and corrective action, identifying projects, eliminating the backlog, and establishing a means by which NOAA maintains its facilities to the standard required to accomplish its mission. Funds for new construction and major capital improvements are requested in the Procurement, Acquisition and Construction Account.

The specific activities funded include:

Facilities Maintenance and Repairs - As the NOAA-owned facilities exceed an average age of 30 years, investment in significant major maintenance, repairs and upgrades becomes increasingly critical. Major systems in many facilities have failed, are in imminent danger of failure, or are well past their design life and require maintenance, repair or replacement to ensure that the facilities remain viable in support of NOAA's programs. Additional funds for, major repairs, replacements and renovations is requested in the Procurement Acquisition and Construction account.

Environmental Compliance and Cleanup Programs - The NOAA Environmental Compliance and Cleanup Program encompasses activities necessary to: comply with all existing laws, regulations and safety requirements; identify environmental problems and engage in required cleanup; and

provide guidance to NOAA program managers engaged in the receipt, handling, use and disposal of hazardous materials. NOAA is implementing a management system which will increase awareness, provide more consistent compliance at a higher level, maximize economies of scale, produce tailored efforts, and establish guiding principles for the program.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
%of Facilities projects completed:				
Base Increment by year[2]	8.3%	3.2%	3.1%	2.9%

1/ Facilities projects are priority-ranked on a scale of 1 to 10 (10 being the highest priority). Top priority facilities projects are those with a ranking of 8 or above. FY 1998 starting backlog is estimated to be $32,474,000.

2/ It is estimated that the facilities project backlog will grow at a rate of about $2.5-3.0 million per year through the year 2000; the Environmental Compliance backlog is expected to grow at a rate of about $1.8 million per year during the same period.

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Facilities	Pos/BA	15	$3,844	15	$9,829		$5,985
	FTE/Obl	15					

The net changes in this subactivity are 0 FTE and +$5,985,000. The program changes are outlined below.

Environmental Compliance and Cleanup (0 FTE, +1,873,000): NOAA requests an increase of $1,873,000 for the nationwide NOAA Environmental Compliance Program. This increase will fund 20 percent of the large backlog of high risk environmental compliance projects and begin cleanup activity at 10 percent of the NOAA facilities being closed.

In recent years, most of NOAA's environmental compliance resources has been diverted to address the Pribilof Islands cleanup; however, the agency's responsibilities for environmental compliance extend to the complete inventory of nearly 2,000 NOAA facilities nationwide. With the Pribilof Island program nearing completion, NOAA's requirements at its laboratories and facilities must be given renewed attention in order to maintain compliance with state and Federal laws.

The NOAA Environmental Compliance Program responds to numerous Federal, state, and local laws and regulations mandating environmentally responsible activity. As a result of NOAA's past focus on the Pribilof Islands, NOAA has incurred a heightened risk of adverse action from regulating agencies. Comprehensive investigations of NOAA staffed facilities and an aggressive employee training program have helped clearly identify the work necessary to be compliant with applicable laws and regulations which were designed to protect human health and safety and to preserve the environment. NOAA action has already resulted in cost avoidance of over $3,500,000 for potential penalty assessment by the Environmental Protection Agency (EPA) in FY 1996 alone.

Environmental Compliance Projects - The backlog of unfunded NOAA projects ranked 7.0 or higher by EPA's scale for ranking Federal agency environmental compliance projects and activities is $3,400,000. Projects ranked 7.0 or higher address current violations to Federal and state law and have a high potential for risk to human health and the environment. The requested funding is for completing 20 percent of the high-risk projects. At this rate of corrective action, NOAA will take to the year 2005 to eliminate the high risk projects currently identified.

Cleanup - Property transfers are planned at Tiburon, CA; Juneau and Kodiak, AK; Suitland, MD; Sterling, VA; the Pacific Marine Center, WA; and nearly 100 smaller NWS facilities. The General Services Administration will not accept property for reuse without environmental cleanup certification. Additionally, NOAA has no comprehensive assessment of property condition to determine future liabilities. Funding requested is for cleanup of only 10 percent of the identified sites. Transfers of the remaining sites will occur after site cleanup activities have been carried out in future years, with the attendant costs of maintaining old, unoccupied facilities, and delaying the use of these facilities by interested outside parties.

Chemical Information Management System (CIMS) - Over 30 percent of NOAA's staffed facilities manage hazardous materials. The CIMS, a corporate system for all Line and Program Offices, provides an efficient, cost-effective way for every NOAA facility to manage their hazardous materials. A small portion of the funding requested is for managing the corporate program; Line and Program Offices contribute an allocated share per facility.

Training - Audits of NOAA facilities showed the lack of job-specific environmental training to be a major deficiency. Personnel at NOAA facilities are generally unaware of environmental requirements and the appropriate procedures, and since over 30 percent of NOAA's facilities handle hazardous materials, job-specific training is imperative.

Pollution Prevention - Through Executive Order (EO) 12856, NOAA is ordered to comply with EPCRA and the Pollution Prevention Act of 1990. The EO directs each Federal agency to develop a written pollution prevention strategy by Dec. 31, 1995. To date, NOAA has no such policy or program to reduce it's hazardous chemical usage.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
% of Environmental Compliance backlog projects completed:	13	14	15	17	18
% of Facility Closure Activities completed:	10	20	30	40	50

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Program Changes (Outlined above)	+ 1,873	+ 1,873	+ 1,873	+ 1,873	+ 1,873

Facilities Operations--Recurring Costs (0 FTE, + $3,850,000): NOAA requests an increase of $3,850,000 for recurring facilities operations costs associated with the Boulder Building in FY 2000. As NOAA continues to execute its scientific mission in an ever-changing technological environment, new laboratories and renovated facilities (provided for in the Procurement, Acquisitions and Construction account) must be brought on-line to keep pace with the scientific need. As new construction projects and major renovations are completed, provision must be made for the costs associated with operating and adequately maintaining these new and different facilities. In addition, in many locations NOAA needs to provide services and support scientific activities beyond the standard work day, further increasing the costs of operations of NOAA facilities.

Included in this request for the Boulder facility, are such things as higher lease costs associated with proportionately greater amounts of specialized space, utilities costs for 24-hour operations, additional charges associated with higher levels of electrical service, increased custodial and security costs, etc.

! **Boulder Laboratory:** The recurring request for rent, operating, and maintenance expenses is $3,850,000. While negotiations with GSA and NIST are not final, there will be additional rent, security, and maintenance expenses for NOAA when the Boulder Building is occupied. All of the NOAA functions in Boulder will be consolidated in the Boulder Building by May 1999. This 372,000 gross sq ft facility, ten percent larger than the space now occupied, with state-of-the-art laboratories and accompanying communications network, will house 11 separate tenant organizations from three NOAA line offices (OAR, NESDIS, and NWS), as well as the Office of Finance and Administration. Funds are needed over that required for current GSA, NIST, and commercial lease costs to pay the additional GSA space and NIST-provided security and campus maintenance costs.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Program Changes (Outlined above)	+3,850	+3,850	+3,850	+3,850	+3,850

National Records Management (0 FTE, +262,000): This requirement represents a storage cost which the National Archives and Records Administration (NARA) will begin charging for all services provided by the Federal Records Centers.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Program Changes (Outlined above)	+262	+262	+262	+262	+262

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Facilities**
Subactivity: **Facilities**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	$0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	100
22	Transportation of things	0
23.1	Rental payments to GSA	3,850
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.2	Other services	2,070
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	$6,020

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: **Facilities**
Subactivity: **Facilities**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	$0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25	Other services	0
26	Supplies and materials	0
31	Equipment	(35)
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	($35)

Fleet Maintenance and Planning
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Implement Seasonal to Interannual Climate Forecast										
Maintain and Improve Observing and Data Delivery Systems	1	300	1	542	1	774	1	774		
Total ISICF	**1**	**300**	**1**	**542**	**1**	**774**	**1**	**774**		
Predict and Assess Decadal-to-Centennial Change										
Infrastructure	1	107	1	542	1	414	1	414		
Total PADCC	**1**	**107**	**1**	**542**	**1**	**414**	**1**	**414**		
Promote Safe Navigation										
Infrastructure	2	759	2	1,327	2	1,357	2	1,357		
Total PSN	**2**	**759**	**2**	**1,327**	**2**	**1,357**	**2**	**1,357**		
Build Sustainable Fisheries										
Infrastructure	5	11,366	5	7,315	5	6,627	5	4,227		(2,400)
Total BSF	**5**	**11,366**	**5**	**7,315**	**5**	**6,627**	**5**	**4,227**		**(2,400)**
Recover Protected Species										
Infrastructure	2	611	2	1,379	2	2,057	2	2,057		
Total RPS	**2**	**611**	**2**	**1,379**	**2**	**2,057**	**2**	**2,057**		
Sustain Healthy Coasts										
Promote clean coastal waters	1	357	1	495	1	414	1	414		
Total SHC	**1**	**357**	**1**	**495**	**1**	**414**	**1**	**414**		
Total for Fleet	**12**	**13,500**	**12**	**11,600**	**12**	**11,643**	**12**	**9,243**		**(2,400)**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPERATIONS, RESEARCH, AND FACILITIES

Activity: Fleet Maintenance and Planning
Subactivity:

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Line Item											
Fleet Maintenance and Planning	Pos./BA	12	23,225	12	11,600	12	11,643	12	9,243	0	(2,400)
	FTE/OBL.	14	21,384	12	13,441	12		12		0	0
Total	Pos./BA	12	23,225	12	11,600	12	11,643	12	9,243	0	(2,400)
	FTE/OBL.*	14	21,384	12	13,441	12		12		0	0

*** The obligations reported for FY 1998 are based on a methodology which more correctly reflects the indirect cost. NOAA will provide a crosswalk and will be proposing changes to the FY 1999 amounts to fully implement this methodology. Final decisions on both the methodology and line office implementation of the methodology could cause future adjustments to the above reported numbers. Any subsequent changes will be reported to the appropriate OMB and Congressional parties.**

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Fleet Maintenance and Planning**
Subactivity: **Fleet Maintenance and Planning**

Goal Statement

The goal of this fund is to maintain NOAA's current fisheries, survey, and oceanographic research ship support capability and to plan for future capability to allow critical data collection requirements to be met effectively well into the 21st century.

Proposed Legislation

No legislation is proposed.

Base Program

Fleet Maintenance and Planning: NOAA's ability to collect data at sea is critical to the agency's missions in mapping and charting, assessment and management of living marine resources, environmental monitoring and oceanographic research. For a significant portion of this data, NOAA must rely on ships which are appropriately designed, equipped and outfitted.

In the past, ship support to NOAA programs has been provided mostly by NOAA owned and operated ships. These ships have been maintained well and NOAA ship users have come to expect their excellent performance and reliability. NOAA's future ship support planning anticipates that the most cost effective support for its data collection programs can likely be provided by a mix of charter vessels, contracts for data, university ships, and NOAA ships. NOAA plans to maintain the high level of reliability and capability expected by its ship users. NOAA's goal is to make the transition to this mix in a well planned and well thought out program that does not subject its data collection activities to high levels of risk. In many cases, NOAA has already made considerable progress toward achieving a cost effective mix of ship support capabilities.

Significant progress has been made by the Fleet Maintenance and Planning program. In FY 2000 this funding will be used to maintain existing ships to allow their continued operation until they can be modernized or replaced, and for completing the repairs to the fisheries research vessel DAVID STARR JORDAN.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
New Ships Constructed (Delivered)	1	0	0	0
Ships Converted (Delivered)	0	1	0	0
Ship Repairs (Completed)	0	1	1	1
Ships Maintained	15	15	15	15

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fleet Maintenance and Planning	Pos/BA	12	$11,643	12	$9,243	(0)	($2,400)
	FTE/Obl						

Fleet Maintenance and Planning (0 FTE, -$2,400,000): NOAA requests $9,243,000 for Fleet Maintenance and Planning. This represents a decrease of $2,400,000 over the FY 1999 level. The decrease reflects completion of repairs to the fisheries research vessel MILLER FREEMAN, and completion of the NOAA Pascagoula facility property purchase and renovations to pier space.

Proposed Actions: FY 2000 actions will include:

- Maintenance of existing ships to ensure continued ship support capability
- Complete repairs to the fisheries research vessel DAVID STARR JORDAN

Benefits: Fleet Maintenance and Planning provides platforms necessary for the continued collection of data essential to the fulfillment of NOAA's statutory research, surveying, and living marine resource management responsibilities. Significant benefits include:

- Rebuilding overfished marine fisheries
- Preventing loss of life, cargo, and other property, and preventing damage from ship groundings
- Improving productivity of maritime commerce
- Improving response capability for spills of oil and hazardous materials in ports, harbors, and coastal waters
- Providing seasonal and interannual forecasts of temperature, precipitation and droughts
- Providing long-term climate predictions and assessments for crucial policy and economic planning decisions

Timeliness: NOAA's FY 2000 actions ensure continued reliable support from existing ships and completion of contracts or projects awarded or started prior to FY 2000.

FY 2000 SPENDING PLAN FOR FLEET MAINTENANCE AND PLANNING

(Dollar Amounts in Thousands)

Ship or Project	Mission Supported	Estimate
Maintenance and Technical Management	All	$7,000
DAVID STARR JORDAN Repairs	Build Sustainable Fisheries and Protected Species	$2,200
. . . . . TOTAL SPENDING PLAN		**$9,200**

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Ship Converted (Delivered)	0	0	0	0	0
Ship Repairs (Completed)	1	0	0	0	0
Ships Maintained*	15	15	15	15	15

*It is uncertain as to the replacement dates for NOAA ships at this time. Actual replacement dates will be based on engineering assessment of ships' condition.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Program Changes (Outlined above)	-2,400	-2,400	-2,400	-2,400	-2,400

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Operations, Research and Facilities

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Fleet Maintenance and Planning**
Subactivity: **Fleet Maintenance and Planning**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25	Other services	(2,400)
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(2,400)

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Operation, Research, and Facilities
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Request	Increase/ (Decrease) over 2000 Base
11	Personnel compensation				
11.1	Full-time permanent	555,048	573,916	623,189	23,418
11.3	Other than full-time permanent	9,200	9,764	9,874	0
11.5	Other personnel compensation	38,737	34,295	34,471	176
11.8	Special personnel services payments	298	321	321	0
11.9	Total personnel compensation	603,283	618,296	667,855	23,594
12.1	Civilian personnel benefits	144,694	125,541	136,482	6,134
13	Benefits for former personnel	11,992	14,608	14,608	0
21	Travel and transportation of persons	32,649	28,887	34,131	5,055
22	Transportation of things	10,542	7,188	8,690	1,459
23.1	Rental payments to GSA	41,259	52,119	54,242	1,118
23.2	Rental payments to others	12,904	9,331	10,572	850
23.3	Commun., util., misc. charges	48,970	48,896	53,980	4,942
24	Printing and reproduction	5,978	6,994	7,869	818
25.1	Consulting services	32,053	14,350	15,542	690
25.2	Other services	185,612	311,206	297,399	58,805
25.3	Purchase of goods and services from Gov't accounts	88,146	23,114	24,218	1,086
25.4	Operation of GOCOs	20	104	104	0
25.5	Research and development contracts	2,064	29,097	38,702	9,605
26	Supplies and materials	78,324	83,584	91,165	7,265
31	Equipment	55,332	82,116	91,761	9,277
32	Lands and structures	2,009	2,009	2,009	0
33	Investments and loans	0	0	0	0
41	Grants, subsidies and contributions	340,796	304,120	301,865	226
42	Insurance claims and indemnities	61	22	22	0
43	Interest and dividends	111	121	121	0
44	Refunds	0	0	0	0
99	**Total Direct Obligations**	1,696,799	1,761,703	1,851,337	130,924

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Operation, Research, and Facilities
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Request	Increase/ (Decrease) over 2000 Base
Less prior year recoveries	(61,712)	(33,000)	(33,000)	0
Less unobligated balance, start of year	(186,909)	(72,881)	0	0
Less unobligated balance, unavailable	0	(3,400)		
Less unobligated balance, transfer	(5,150)	(4,097)	0	0
Plus unobligated balance,end of year (ORF)	118,140	3,400	0	0
Total Budget Authority	1,561,168	1,651,725	1,818,337	130,924
Less Fee Collection Offset			(34,000)	(34,000)
Discretionary Budget Authority	1,561,168	1,651,725	1,784,337	96,924
Personnel Data				
Full-Time equivalent Employment:				
Full-time permanent	10,497	11,293	11,397	55
Other than full-time permanent	521	525	525	0
Total	11,018	11,818	11,922	55
Authorized Positions:				
Full-time permanent	10,958	11,378	11,657	228
Other than full-time permanent	521	525	525	0
Total	11,479	11,903	12,182	228

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Request	Increase/ (Decrease)
11	Personnel compensation					
11.1	Full-time permanent					
	Executive level	358	358	373	373	0
	Senior Executive Service	12,992	12,992	13,532	13,552	20
	General schedule	500,236	541,448	550,700	573,554	22,854
	Commissioned officers	22,344	0	15,331	15,331	0
	Wage board/wage marine	11,460	11,460	11,936	11,936	0
	Scientific & professional (P.L. 80-313)	983	983	1,024	1,024	0
	Law Enforcement	6,675	6,675	6,875	7,419	544
	Students	0	0	0	0	0
	Subtotal	555,048	573,916	599,771	623,189	23,418
11.3	Other than full-time permanent					
	General schedule	3,482	3,287	3,309	3,309	0
	Wage board/wage marine	1,686	1,686	1,756	1,756	0
	Experts & consultants	443	443	461	461	0
	Hourly	3,589	4,348	4,348	4,348	0
	Subtotal	9,200	9,764	9,874	9,874	0
11.5	Other personnel compensation					
	Overtime	15,129	13,393	13,393	13,423	30
	Cash awards	8,689	7,689	7,689	7,712	23
	Other	14,919	13,213	13,213	13,336	123
	Subtotal	38,737	34,295	34,295	34,471	176

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Request	Increase/ (Decrease)
11.8	Special personnel services payments					
	Foreign service officers (State)	0	0	0	0	0
	Other	298	321	321	321	0
	Subtotal	298	321	321	321	0
11.9	Total personnel compensation	603,283	618,296	644,261	667,855	23,594
12.1	Civilian personnel benefits					
	Civil service retirement	26,236	22,200	21,871	21,879	8
	Federal Employee Retirement	31,978	28,956	31,897	34,655	2,758
	Medicare	10,507	9,153	9,493	9,857	364
	Thrift savings plan	12,688	11,131	11,671	12,176	505
	Federal insurance contribution act	20,075	18,022	19,741	21,327	1,586
	Health insurance	31,224	26,787	26,126	26,962	836
	Life insurance	1,205	1,072	1,117	1,186	69
	Overseas allowance (COLA)	7,751	6,559	6,771	6,771	0
	Employees comp fund (bec)	0	0	0	0	0
	Other	3,030	1,661	1,661	1,669	8
	Subtotal	144,694	125,541	130,348	136,482	6,134
13.0	Benefits for former personnel					
	Retired Pay	7,309	9,925	7,000	7,000	0
	Health benefits	0	0	0	0	0
	Other	4,683	4,683	7,608	7,608	0
	Subtotal	11,992	14,608	14,608	14,608	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Request	Increase/ (Decrease)
21	Travel and transportation of persons					
	Aircraft rental	10	10	10	10	0
	GSA vehicles	496	486	486	487	1
	Program travel	32,143	28,391	28,580	33,634	5,054
	Subtotal	32,649	28,887	29,076	34,131	5,055
22	Transportation of things					
	Trans of household goods	375	257	260	260	0
	GSA trucks	5,259	3,608	3,615	3,615	0
	Other	4,908	3,323	3,356	4,815	1,459
	Subtotal	10,542	7,188	7,231	8,690	1,459
23.1	Rental payments to GSA	41,259	52,119	53,124	54,242	1,118
23.2	Rental payments to others	12,904	9,331	9,722	10,572	850
23.3	Communications, utilities and miscellaneous charges					
	Utility services	10,683	11,517	11,632	12,088	456
	Aircraft charter	268	250	252	252	0
	Vessel charter	3,422	1,065	1,076	4,079	3,003
	Rental of office copying equipment	432	413	417	433	16
	Rental of ADP equipment	989	946	955	994	39
	Federal telecommunications system	10,750	10,286	10,790	11,207	417
	Other telecommunications services	16,216	16,514	17,680	18,325	645
	Postal services by USPS	3,649	3,491	3,596	3,735	139
	Other	2,561	2,414	2,700	2,926	227
	Subtotal	48,970	46,896	49,098	54,040	4,942

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Request	Increase/ (Decrease)
24	Printing and reproduction					
	Publications	4,575	5,371	5,397	5,997	600
	Public use forms	270	317	337	386	49
	Other	1,133	1,306	1,317	1,486	169
	Subtotal	5,978	6,994	7,051	7,869	818
25.1	Consulting services	32,053	14,350	14,852	15,542	690
25.2	Other services					
	Aircraft repair	1,099	1,096	1,101	1,101	0
	Vessel repair	5,304	1,079	1,084	(1,316)	(2,400)
	Contracts for research	24,256	22,342	22,453	30,272	7,819
	Maintenance of equipment	14,010	21,716	21,824	26,586	4,762
	Training:					
	University training	2,344	3,023	3,038	3,859	821
	CS commission training	0	0	0	0	0
	Other	0	500	502	764	262
	Substation observers	0	0	0	0	0
	Federal Employees Compensation	0	0	0	0	0
	Audit Cost	0	0	0	0	0
	Other	138,599	261,450	188,592	236,134	47,541
	Subtotal	185,612	311,206	238,594	297,399	58,805
25.3	Purchases of goods & services from Gov't accounts	61,062	3,837	1,986	3,072	1,086
	Office of Personnel Management Training	699	486	251	251	0
	GSA reimbursable services	286	199	103	103	0
	Payments to FA, WCF	20,085	14,546	12,457	12,457	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Request	Increase/ (Decrease)
	Payments to FA, WCF (CAMS)	6,014	4,046	8,335	8,335	0
	Subtotal	88,146	23,114	23,132	24,218	1,086
25.4	Operation of GOCOs	20	104	104	104	0
25.5	Research and development contracts	2,064	29,097	29,097	38,702	9,605
26	Supplies and materials					
	Chart paper	0	0	0	0	0
	Met. upper air	3,917	6,632	6,674	6,674	0
	Maintenance of vessel	514	542	547	547	0
	Gases	1,135	1,521	1,533	1,819	286
	Fuel	4,438	4,718	4,765	5,232	467
	ADP supplies	15,375	16,744	16,908	18,733	1,825
	Other	52,945	53,427	53,473	58,160	4,687
	Subtotal	78,324	83,584	83,900	91,165	7,265
31	Equipment					
	Office machines and equipment	110	153	155	155	0
	ADP hardware	15,625	21,844	22,081	23,410	1,329
	Other capitalized	24,858	34,752	34,357	39,023	4,666
	Depreciation on capitalized equipment	128	178	180	180	0
	Non-capitalized	14,611	27,189	25,711	28,993	3,282
	Subtotal	55,332	84,116	82,484	91,761	9,277
32	Lands and structures					
	Land	67	67	67	67	0
	Building and Other Structures	1,238	1,238	1,238	1,238	0
	Depreciation of Building	704	704	704	704	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Request	Increase/ (Decrease)
	Subtotal lands and structures	2,009	2,009	2,009	2,009	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	340,796	304,120	301,579	301,805	226
42	Insurance claims and indemnities	61	22	22	22	0
43	Interest/dividends..	111	121	121	121	0
44	Refunds	0	0	0	0	0
99	**Total Direct Obligations**	1,696,799	1,761,703	1,720,413	1,851,337	130,924
	Less prior year recoveries	(61,712)	(33,000)	(33,000)	(33,000)	0
	Less unobligated balance, start of year	(186,909)	(72,881)	0		
	Less Unobligated balance, unavailable	0	(3,400)	0		
	Less unobligated balance, transfer	(5,150)	(4,097)	0	0	
	Plus unobligated balance, end of year	118,140	3,400	0		
	Budget Authority	1,561,168	1,651,725	1,687,413	1,818,337	130,924
	Less Fee Collection Offset				(34,000)	(34,000)
	Discretionary Budget Authority	1,561,168	1,651,725	1,687,413	1,784,337	96,924
FTE		11,018	11,818	11,867	11,922	55
Positions		11,479	11,903	11,954	12,182	228

Exhibit 18

Department of Commerce
National Oceanic and Atmospheric Administration
Activity/ Subactivity Change Crosswalk
Part 1 - 1999 Structure
(Dollar amounts in thousands)

	2000 Direct Obls	Proposed Changes
FY 1999 Reprogramming		
From OAR, Marine Environmental Research (GLERL)	(6,825)	Transfer to NOS
To NOS, Estuarine and Coastal Assessment, (GLERL)	6,825	Transfer from OAR
FY 1999 Realignments		
From Facilities, Sandy Hook Lease	(2,000)	Realigned to NMFS Fisheries Management Program
From Facilities, Columbia River Facilities	(4,465)	Realigned to NMFS Fisheries Management Program, Columbia River Hatcheries
From Facilities, NWS WFO Facilities Maintenance	(3,000)	Realigned to NWS Local Warnings and Forecast, WFO Maintenance
To NMFS, Fisheries Management Program	2,000	Realigned from Facilities, Sandy Hook Lease
To NMFS, Fisheries Management Program, Columbia River Hatcheries	4,465	Realigned from Facilities, Columbia River Hatcheries
To NWS, Local Warnings and Forecasts, WFO Maintenance	3,000	Realigned from Facilities, NWS WFO Facilities Maintenance
From NOS, Estuarine and Coastal Assessment, Ocean Assessment Program	(1,000)	Realigned to Response and Restoration
To NOS, Estuarine and Coastal Assessment, Response and Restoration	1,000	Realigned from Ocean Assessment Program
Subtotal	0	
FY 1999 Transfer		
Transfer to Procurement, Acquisition and Construction from NWS, Radiosonde	(6,000)	
Replacement, Computer Facility Upgrade **Subtotal**	(6,000)	

Exhibit 19

Department of Commerce
National Oceanic and Atmospheric Administration
Activity/ Subactivity Change Crosswalk
Part 2 - 2000 Structure
(Dollar amounts in thousands)

Activity/Subactivity	1996	1997	1998	1999	2000
National Ocean Service					
Estuarine and Coastal Assessment, (GLERL)	5,200	5,200	6,025	6,825	6,825
Estuarine and Coastal Assessment, Response and Restoration	0	0	0	1,000	1,000
Subtotal:	5,200	5,200	6,025	7,825	7,825
National Marine Fisheries Service					
Fisheries Management Program	2,000	2,000	2,000	2,000	2,000
Fisheries Management Program, Columbia River Hatcheries	4,465	4,465	4,465	4,465	4,465
Subtotal:	6,465	6,465	6,465	6,465	6,465
National Weather Service					
Local Warnings and Forecasts, WFO Maintenance	0	0	1,000	3,000	3,000
Total Obligations	11,665	11,665	13,490	17,290	17,290

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Operations, Research, and Facilities
APPROPRIATION SUMMARY STATEMENT

For necessary expenses of activities authorized by law for the National Oceanic and Atmospheric Administration, including maintenance, operation, and hire of aircraft; not to exceed 250 commissioned officers on the active list as of September 30, [1999] *2000;* grants, contracts, or other payments to nonprofit organizations for the purposes of conducting activities pursuant to cooperative agreements; and relocation of facilities as authorized by 33 U.S.C. 883i; [$1,579,844,000] $1,738,911,000, *of which $89,700,000 shall be derived from the Land and Water Conservation Fund,* to remain available until expended: *Provided,* That fees and donations received by the National Ocean Service for the management of the national marine sanctuaries may be retained and used for the salaries and expenses associated with those activities, notwithstanding 31 U.S.C. 3302: *Provided further,* That in addition, [$63,381,000] *$64,926,000* shall be derived by transfer from the fund entitled "Promote and Develop Fishery Products and Research Pertaining to American Fisheries": *Provided further,* That in addition, not to exceed $4,000,000 shall be derived by transfer from the fund entitled "Coastal Zone Management": *[Provided further,* That grants to States pursuant to sections 306 and 306A of the Coastal Zone Management Act of 1972, as amended, shall not exceed $2,000,000: *Provided further,* That not to exceed $31,439,000 shall be expended for Executive Direction and Administration, which consists of the Offices of the Under Secretary, the Executive Secretariat, Policy and Strategic Planning, International Affairs, Legislative Affairs, Public Affairs, Sustainable Development, the Chief Scientist, and the General Counsel: *Provided further,* That the aforementioned offices, excluding the Office of the General Counsel, shall not be augmented by personnel details, temporary transfers of personnel on either a reimbursable or non-reimbursable basis or any other type of formal or informal transfer or reimbursement of personnel or funds on either a temporary or long-term basis above the level of 33 personnel: *Provided further,* That the Secretary of Commerce shall make funds available to implement the mitigation recommendations identified subsequent to the "1995 Secretary's Report to Congress on Adequacy of NEXRAD Coverage and Degradation of Weather Services", and shall ensure continuation of weather service coverage for these communities until mitigation activities are completed: *Provided further,* That no general administrative charge shall be applied against any assigned activity included in this Act and, further, that any direct administrative expenses applied against assigned activities shall be limited to five percent of the funds provided for that assigned activity].

Of the funds provided under the heading, "Operations, Research, and Facilities," in the Dire Emergency Supplemental Appropriations Act, 1992 (Public Law 102-368), $3,400,000 are rescinded. (5 U.S.C. 5348; 7 U.S.C. 1622; 12 U.S.C. 1715m; 15 U.S.C. 313, 313a, 313b, 325, 330b, 330e, 1511d, 1514, 1517, 1537-40, 2904, 2906; 16 U.S.C. 661 et seq., 1361, 1431 et seq., 1444, 1447a et seq., 1451 et seq., 1464, 4701, 5001 et seq., 30 U.S.C. 1412, 1419, 1424, 1428, 1469, 1470; 33 U.S.C. 706 et seq., 853 et seq., 883a et seq., 891 et seq., 1121, 1251, 1441-44, 1703-05, 2706, 2801 et seq., 42 U.S.C. 8902-05, 9601 et seq., 43 U.S.C. 1347e; 44 U.S.C. 1307; 49 U.S.C. 44720; Department of Commerce and Related Agencies Appropriations Act, 1999, as included in Public Law 105-277, section 101(b).)

[In addition to the amounts appropriated or otherwise made available for this purpose, $5,000,000 is appropriated to the Department of Commerce to remain available until expended to provide emergency disaster assistance to persons or entities in the Northeast multispecies fishery who have incurred losses from a commercial fishery failure under section 308(b) of the Interjurisdictional Fisheries Act of 1986, as amended: *Provided,* That the entire amount is designated by the Congress as an emergency requirement pursuant to section 251(b)(2)(A) of the Balanced Budget and Emergency Deficit Control Act of 1985, as

amended: *Provided further*, That the entire amount shall be available only to the extent an official budget request, for a specific dollar amount, that includes designation of the entire amount of the request as an emergency requirement as defined in the Balanced Budget and Emergency Deficit Control Act of 1985, as amended, is transmitted to the Congress.] (*Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999, as included in Public Law 105-277, Division B, Title IV, chapter 1)*

FOREIGN FISHING OBSERVER FUND

For expenses necessary to carry out the provisions of the Atlantic Tunas Convention Act of 1975, as amended (Public Law 96-339), and the Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended (Public Law 100-627), and the American Fisheries Promotion Act (Public Law 96-561), to be derived from the fees imposed under the foreign fishery observer program authorized by these Acts, not to exceed $189,000, to remain available until expended. (16 U.S.C. 1824(b)(10), 1827; *Department of Commerce and Related Agencies Appropriations Act, 1999, as included in Public Law 105-277, section 101(b).)*

(Legislative proposal not subject to PAYGO)

Contingent upon the enactment of authorizing legislation, the Secretary shall charge fees for any navigation services provided and for any fisheries management and enforcement services provided, and such fees shall be deposited as offsetting collections to this appropriation, to remain available until expended for the purpose of such services: Provided further, that upon enactment of such authorizing legislation, the amount appropriated from the General Fund shall be reduced by $14,000,000 for navigation services and $20,000,000 for fisheries management and enforcement services.

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Operations, Research, and Facilities
JUSTIFICATION OF PROPOSED LANGUAGE CHANGES

1. After the words “not to exceed 250 commissioned officers on the active list as of September 30", delete “1999" and insert “2000".

   This change deletes the previous year and adds the inserts the applicable budget year.

2. After the words “and relocation of facilities as authorized by 33 U.S.C. 883i:” delete “$1,579,844,000" and insert “$1,738,911,000 of which $89,700,000 shall be derived from the Land and Water Conservation Fund"

   This change increases the budget authority authorized to be expended.

3. After the words “notwithstanding 31 U.S.C. 3302: *Provided further,* That in addition,” delete $63,381,000 and insert “64,926,000".

   This change increases the offset to the Operating, Research, and Facilities account by a transfer from the Promote and Development account.

4. After the words “Promote and Develop Fishery Products and Research Pertaining to American Fisheries” add “Provided further, that in addition not to exceed $4,000,000 shall be derived by transfer from the fund entitled “Coastal Zone Management”.

   This changes allows the budget authority for the cost of administering the Coastal Zone Management Act to be expended in this account. Funding for this previously was accounted for separately in the Coastal Zone Management Fund.

5. After the words “by transfer from the fund entitled “Coastal Zone Management” add the words “*Provided further,*
   That the Secretary of Commerce shall make funds available to implement the mitigation recommendations identified subsequent to the “1995
   Secretary’s Report to Congress on Adequacy of NEXRAD Coverage and Degradation of Weather Services’, and shall ensure continuation of weather service coverage for these communities until mitigation activities are completed;”

   This statement is added pursuant to 15 U.S.C. 313 nt., Weather Service Modernization Act, requiring the National Weather Service to ensure that those communities affected by the modernization will not suffer degradation of services.

6. After the words “transfer from the fund entitled ‘Coastal Zone Management’:” delete “*Provided further,* That grants to States pursuant to sections 306 and 306A of the Coastal Zone Management Act of 1972, as amended, shall not exceed $2,000,000: *Provided further,* That not to exceed $31,439,000 shall be expended for Executive Direction and Administration, which consists of the Offices of the Under Secretary, the Executive Secretariat, Policy and Strategic Planning,

International Affairs, Legislative Affairs, Public Affairs, Sustainable Development, the Chief Scientist, and the General Counsel: *Provided further,* That the aforementioned offices, excluding the Office of the General Counsel, shall not be augmented by personnel details, temporary transfers of personnel on either a reimbursable or non-reimbursable basis or any other type of formal or informal transfer or reimbursement of personnel or funds on either a temporary or long-term basis above the level of 33 personnel: *provided further,* That the Secretary of Commerce shall make funds available to implement the mitigation recommendations identified subsequent to the "1995 Secretary's Report to Congress on Adequacy of NEXRAD Coverage and Degradation of Weather Services", and shall ensure continuation of weather service coverage for these communities until mitigation activities are completed: *Provided further,* That no general administrative charge shall be applied against any assigned activity included in this Act and, further, that any direct administrative expenses applied against assigned activities shall be limited to five percent of the funds provided for that assigned activity]., and insert " *[Provided further,* That grants to States pursuant to sections 306 and 306A of the Coastal Zone Management Act of 1972, as amended, shall not exceed $2,000,000: *Provided further,* That not to exceed $31,439,000 shall be expended for Executive Direction and Administration, which consists of the Offices of the Under Secretary, the Executive Secretariat, Policy and Strategic Planning, International Affairs, Legislative Affairs, Public Affairs, Sustainable Development, the Chief Scientist, and the General Counsel: *Provided further,* That the aforementioned offices, excluding the Office of the General Counsel, shall not be augmented by personnel details, temporary transfers of personnel on either a reimbursable or non-reimbursable basis or any other type of formal or informal transfer or reimbursement of personnel or funds on either a temporary or long-term basis above the level of 33 personnel: *provided further,* That the Secretary of Commerce shall make funds available to implement the mitigation recommendations identified subsequent to the "1995 Secretary's Report to Congress on Adequacy of NEXRAD Coverage and Degradation of Weather Services", and shall ensure continuation of weather service coverage for these communities until mitigation activities are completed: *Provided further,* That no general administrative charge shall be applied against any assigned activity included in this Act and, further, that any direct administrative expenses applied against assigned activities shall be limited to five percent of the funds provided for that assigned activity]." and add "*Of the funds provided under the heading, "Operations, Research, and Facilities," in the Dire Emergency Supplemental Appropriations Act, 1992"*

This change eliminates the cap of $2,000,000 for states under the Coastal Zone Management Act and is consistent with the proposed reauthorization of the Act for FY 2000.

7. Delete "In addition to the amounts appropriated or otherwise made available for this purpose, $5,000,000 is appropriated to the Department of Commerce to remain available until expended to provide emergency disaster assistance to persons or entities in the Northeast multispecies fishery who have incurred losses from a commercial fishery failure under section 308(b) of the Interjurisdictional Fisheries Act of 1986, as amended: *Provided,* That the entire amount is designated by the Congress as an emergency requirement pursuant to section 251(b)(2)(A) of the Balanced Budget and Emergency Deficit Control Act of 1985, as amended: *Provided further,* That the entire amount shall be available only to the extent an official budget request, for a specific dollar amount, that includes designation of the entire amount of the request as an emergency requirement as defined in the Balanced Budget and Emergency Deficit Control Act of 1985, as amended, is transmitted to the Congress."

   This emergency disaster assistance was for one time costs. NOAA is not requesting these funds in FY 2000.

8. After the words "to remain available until expended for the purpose of such services:" delete " *Provided further,* that upon enactment of such authorizing legislation, the amount appropriated from the General Fund shall be reduced by $14,000,000 for navigation services and $20,000,000 for fisheries management and enforcement services." and add "*Provided further,* That upon enactment of such authorizing legislation and collection of such fees, the amount appropriated from the General Fund shall be reduced up to $14,000,000 for navigation services and 20,000,000 for fisheries management and enforcement services."

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Appropriation Language and Code Citations:
Operations, Research and Facilities Account

1. For necessary expenses of activities authorized by law for the National Oceanic and Atmospheric Administration,

5 USC 5348	15 USC 1517	16 USC 1531	33 USC 853 et seq.
7 USC 1622	15 USC 1537-40	16 USC 1801 et seq.	33 USC 1251
12 USC 1715m	15 USC 2901 et seq.	16 USC 4101	33 USC 1441-44
15 USC 313	15 USC 5601 et seq.	16 USC 4701	33 USC 2706
15 USC 313a	16 USC 661 et seq.	16 USC 5001 et seq.	33 USC 2801 et seq.
15 USC 313b	16 USC 757a et seq.	30 USC 1412	42 USC 8902-05
15 USC 313nt	16 USC 1361	30 USC 1419	42 USC 9601 et seq.
15 USC 325	16 USC 1431 et seq.	30 USC 1424	43 USC 1347e
15 USC 330b	16 USC 1444	30 USC 1428	44 USC 1307
15 USC 330e	16 USC 1447a et seq.	30 USC 1469	49 USC 44720
15 USC 1511d	16 USC 1451 et seq.	30 USC 1470	
44 USC 1307	16 USC 1464	33 USC 706 et seq.	

Organizations and Employees

5 USC 5348 - Crews of Vessels.

"…the pay of officers and members of crews of vessels excepted from chapter 51 of this title by section 5102(c)(8) of this title shall be fixed and adjusted from time to time as nearly as is consistent with the public interest in accordance with prevailing rates and practices in the maritime industry."

Agriculture

7 USC 1622 - Distribution and Marketing of Agricultural Products

"The Secretary … is directed and authorized: …

(a) to determine the needs and develop or assist in the development of plans for the proper assembly, processing, transportation, storage, distribution, and handling of agricultural (fish) products.

(f) to conduct and cooperate in consumer education for the more effective utilization and greater consumption of agricultural products (fish)…

(g) to collect and disseminate marketing information… for the purpose of … bringing about a balance between production and utilization of agricultural (fish) products.

(h) to inspect, certify, and identify the class, quality, quantity and condition of agricultural (fish) products …

(m) to conduct … research … to determine the most efficient … processes for the handling, storing, preserving, protecting…of agricultural (fish) commodities …"

(h) - Duties of Secretary relating to agricultural products; penalties

"Whoever knowingly shall falsely make, issue, alter, forge, or counterfeit any official certificate, memorandum, or other identification, with respect to inspection, class, grade, quality, size, quantity, or condition, issued or authorized under this section or knowingly cause or procure, or aid assist in, or be a party to, such false making, issuing, altering, forging, or counterfeiting, or whoever knowingly shall possess, without promptly notifying the Secretary (of Commerce) or his representative, utter, published, or used as true, any such falsely made, altered forged, or counterfeited official certificate, memorandum, mark, identification, or device, or whoever knowingly represents that an agricultural product has been officially inspected or graded…when in fact such commodity has not been so graded or inspected shall be fined not more than $1,000 or imprisoned not more than one year, or both."

Banks and Banking

12 USC 1715m - Mortgage Insurance for Servicemen [NOAA Corps].

This section authorizes payment of Federal Housing Administration (FHA) home mortgage insurance premiums to NOAA Corps Officers.

Commerce and Trade

15 USC 313 - Duties of Secretary of Commerce [National Weather Service].

"The Secretary of Commerce…shall have charge of the forecasting of weather,…issue of storm warnings,…weather and flood signals,… gauging and reporting of rivers,…collection and transmission of marine intelligence…,…reporting of temperature and rainfall conditions…, the display of frost and cold-wave signals, the distribution of meteorological information…, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States, or as are essential for the proper execution of the foregoing duties."

15 USC 313 note - Weather Service Modernization Act

"(a) As part of the budget justification documents submitted to Congress in support of the annual budget request for the Department of Commerce, the Secretary shall include a National Implementation Plan for modernization of the National Weather Service" setting for specified modernization actions for the following two fiscal years."

15 U.S.C. 313a - Establishment of meteorological observation stations in the Arctic region.

"… The Secretary of Commerce shall … take such actions as may be necessary in the development of an international basic meteorological reporting network in the Arctic region of the Western Hemisphere…"

15 USC 313b - Institute for Aviation Weather Prediction

"The Administrator of the National Oceanic and Atmospheric Administration shall establish an Institute for Aviation Weather Prediction that shall provide forecasts, weather warnings, and other weather services to the United States aviation community…."

15 USC 330b - Duties of Secretary relating to Weather Modification Activities or Attempts - Reporting Requirement.

(a) "The Secretary shall maintain a record of weather modification activities, including attempts, which take place in the United States and shall publish summaries thereof from time to time as he determines."

15 USC 330e - Authorization of Appropriations relating to Weather Modification Activities or Attempts - Reporting Requirement.

This section provides funding authority to support the reporting requirements specified in this chapter.

15 USC 1511d - NOAA Estuarine Programs Office.

"… The Estuarine Programs Office shall develop, coordinate, and implement the estuarine activities of the administration with the activities of other Federal and State agencies. There are authorized to be appropriated to the Administration not to exceed $560,000 for fiscal year 1989, and $600,000 for fiscal year 1990."

15 USC 1514 - Basic authority for performance of certain functions and activities of Department.

"Appropriations are authorized for the following activities of the Department of Commerce:

(a) furnishing to employees…and their dependents, in Alaska and other points outside the continental United States, free emergency medical services…and supplies;

(b) …purchasing, transporting, storing, and distributing food and other subsistence supplies for resale to employees…and their dependents, in Alaska and other points outside the continental United States at a reasonable value…; the proceeds from such resales to be credited to the appropriation from which the expenditure was made;

(c) …establishment, maintenance, and operation of messing facilities, by contract or otherwise, in Alaska and other points outside the continental United States…, such service to be furnished to employees…and their dependents,…

(d) reimbursement…of officers or employees in or under the Department…for food, clothing, medicines, and other supplies furnished by them in emergencies for the temporary relief of dislocated persons in remote localities;

(e) providing motion-picture equipment and film for recreation of crews of vessels…, for…employees in remote localities…, and for training purposes;

(f) erecting, altering, repairing, equipping, furnishing, and maintaining…such living quarters and facilities as may be necessary to carry out its authorized work at remote localities not on foreign soil where such living and working accommodations are not otherwise available."

15 USC 1517 - Transfer of statistical or scientific work.

"The President is authorized, by order in writing, to transfer at any time the whole or any part of any office, bureau, division, or other branch of the public service engaged in statistical or scientific work, from the Department of State, the Department of the Treasury, the Department of Defense, the Department of Justice, the United States Postal Service, or the Department of the Interior, to the Department of Commerce; and in every such case the duties and authority performed by and conferred by law upon such office, bureau, division, or other branch of the public service, or the part thereof so transferred, shall be thereby transferred with such office, bureau, division, or other branch of the public service, or the part thereof which is so transferred. All power and authority conferred by law, both supervisory and appellate, upon the department from which such transfer is made, or the Secretary thereof, in relation to the said office, bureau, division, or other branch of the public service, or the part thereof so transferred, shall immediately, when such transfer is so ordered by the President,

be fully conferred upon and vested in the Department of Commerce, or the Secretary thereof, as the case may be, as to the whole or part of such office, bureau, division, or other branch of the public service so transferred."

15 USC 1537 - 1540 Needs Assessment for Data Management.

"Not later than 12 months after October 29, 1992, and at least biennially thereafter, the Secretary of Commerce shall complete an assessment of the adequacy of the environmental data and information systems of NOAA"

Conservation

16 USC 661 et seq.- Declaration of purpose; cooperation of agencies; surveys and investigations; donations.

"…the Secretary of the Interior is authorized (1) to provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat, in controlling losses of the same from disease or other causes, in minimizing damages from overabundant species, in providing public shooting and fishing areas, including easements across public lands for access thereto, and in carrying out other measures necessary to effectuate the purposes of said sections; (2) to make surveys and investigations of the wildlife of the public domain, including lands and waters or interests therein acquired or controlled by any agency of the United States; and (3) to accept donations of land and contributions of funds in furtherance of the purposes of said sections."

16 USC 757a et seq.

The Act authorizes cooperative agreements with States "that are concerned with the development, conservation, and enhancement of [anadromous] fish" (section 757a(a)). Section 757d authorizes $4,250,000 for each of fiscal years 1998, 1999, and 2000.

16 USC 1361 - Congressional Findings.

"The Congress finds that - (1) certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man's activities;"

> "The Secretary is authorized to make grants, or to provide financial assistance in such other form as he deems appropriate, to any Federal or State agency, public or private institution, or other person for the purpose of assisting such agency, institution, or person to undertake research in subjects which are relevant to the protection and conservation of marine mammals, and shall provide

financial assistance for, research into new methods of locating and catching yellow-fin tuna without the incidental taking of marine mammals."

16 UCS 1431 et seq. - Findings, Purposes, and Policies [The National Marine Sanctuaries Act, as amended].

(b) Purposes and Policies

"The purposes and policies of this title are -

(1) to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance;
(2) to provide authority for … conservation and management of these marine areas …
(3) to support, promote, and coordinate scientific research on, an monitoring of,. the resources of these marine areas…
(4) to enhance public awareness, understanding, appreciation, and wise use of the marine environment;
(5) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;
(6) to develop and implement coordinated plans for the protection and management of these areas…;
(7) to create models of, and incentives for, ways to conserve and manage these areas…"
(8) to cooperate with global programs …; and
(9) to maintain, restore, and enhance living resources …"

16 USC 1444 - Authorization of Appropriations.

"There are authorized to be appropriated to the Secretary" -

(1) $12,000,000 for fiscal year 1997;
(2) $15,000,000 for fiscal year 1998; and
(3) $18,000,000 for fiscal year 1999.

16 USC 1447a et seq. - Regional Marine Research Programs

Authorizes NOAA/EPA and Governors of certain states to appoint members to a number of regional marine research boards. Each board is to develop a comprehensive four year marine research plan and "the Administrator of the National Oceanic and Atmospheric Administration shall administer a grant program to support the administrative functions of each Board."

Authorization for the Boards expires on October 1, 1999. The authorization for appropriations expired at the end of fiscal year 1996.

16 USC 1451 et seq. - Findings, Purposes, and Policies [Coastal Zone Management Act]

Establishes a voluntary partnership between the Federal Government and coastal States. It also establishes the National Estuarine Reserve Research program, in which the Secretary of Commerce may designate an estuarine area as a national estuarine research reserve in consultation with governor of affected state.

16 USC 1464 - Authorization of Appropriations.

"(a) There are authorized to be appropriated to the Secretary- (1) for grants under sections 306, 306A, and 309 - (A) $47,600,000 for fiscal year 1997; (B) $49,000,000 for fiscal year 1998; and (C) $50,500,500 for fiscal year 1999; (2) for grants under section 315-(A) $4,400,00 for fiscal 1997; (B) $4,500,000 for fiscal year 1998; and (C) $4,600,000 for fiscal year 1999.

16 USC 1531 et seq.

The purposes of the Act are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in [the statute]" (section 11531(b)).

16 USC 1801 et seq,

Magnuson-Stevens Fishery conservation and Management Act.

The primary purpose of the Act is "to take immediate action to conserve and manage the fishery resources found off the coasts of the United States (section 1801(b)(1)).

16 USC 4101 et seq.

"The purposes of this chapter are - (1) to promote and encourage State activities in support of the management of interjurisdictional fishery resources, and (2) to promote and encourage management of interjurisdictional fishery resources through their range" (section 4101). Section 4107(a) authorizes $4,400,000 for each of fiscal years 1998, 1999, and 2000.

16 USC 4701 - Aquatic Nuisance Prevention and Control

Establishes an interagency Aquatic Nuisance species Task Force, of which the Administrator of NOAA is a co-chair. The task force's responsibilities include developing and implementing "a program for waters of the United States to prevent introduction and dispersal of aquatic nuisance species; to monitor, control and study such species; and to disseminate related information."

16 USC 5001 et seq. - Purpose of Convention.

"It is the purpose … to implement the Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean, signed in Moscow, February 11, 1992."

Mineral Lands and Mining

30 USC 1412 - Licenses for exploration and permits for commercial recovery

"The Administrator shall issue to applicants who are eligible therefore licences for exploration and permits for commercial recovery."

30 USC 1419 - Protection of the Environment

The Administrator shall assess the effects on the environment from deep seabed hard mineral resources exploration and commercial recovery activities … and shall conduct a continuing program of ocean research.

30 USC 1424 - Monitoring Exploration and Commercial Recovery

Authorizes the Administrator to place observers aboard vessels engaged in the exploration or commercial recovery of deep seabed hard mineral resources.

30 USC 1428 - Reciprocating States

Provides a mechanism for the Administrator of NOAA, in consultations with the Secretary of State, to designate as reciprocating States, nations that recognize U.S. licenses under the DSHMRA and have compatible regulatory regimes.

30 USC 1469 - Biennial Report

The Administrator shall submit to the Congress not later than December 31 of each second year after September 30, 1981, a report on the administration of the Deep Seabed Hard Mineral Resources Act.

30 USC 1470 - Authorization of Appropriations

Authorizes appropriations for NOAA through FY 94 to carry out provisions of the Deep Seabed Hard Mineral Resources Act.

Navigation and Navigable Waters

33 USC 706 et seq. - Department of Commerce; current precipitation information; appropriation.

"There is authorized an expenditure as required,…, for the establishment, operation, and maintenance by the Secretary of Commerce of a network of recording and non-recording precipitation stations, known as the Hydroclimatic Network, whenever…such service is advisable…"

33 USC 883a et seq. - Surveys and other activities.

"…the Secretary…is authorized to conduct the following activities:

(1) Hydrographic and topographic surveys;
(2) Tide and current observations;
(3) Geodetic-control surveys;
(4) Field surveys for aeronautical charts;
(5) Geomagnetic, seismological, gravity, and related geophysical measurements and investigations, and observations …"

33 USC 883b - Dissemination of data; further activities.

"…the Secretary is authorized to conduct the following activities:

(1) Analysis and prediction of tide and current data;
(2) Processing and publication of data…;
(3) Compilation and printing of aeronautical charts…;
(4) Compilation and printing of nautical charts…;
(5) Distribution of aeronautical charts…;
(6) Distribution of nautical charts…"

33 USC 883c - Geomagnetic data; collection; correlation, and dissemination.

"To provide for the orderly collection of geomagnetic data…the Secretary … is authorized to collect, correlate, and disseminate such data."

33 USC 883d - Improvement of methods, instruments, and equipments; investigations and research.

"…the Secretary … is authorized to conduct developmental work for the improvement of surveying and cartographic methods, instruments, and equipments; and to conduct investigations and research in geophysical sciences…"

33 USC 883e - Cooperative Agreements for Surveys and Investigations; contribution of costs incurred by National Oceanic and Atmospheric Administration.

"(1) The Secretary of Commerce is authorized to enter into cooperative agreements with, and to receive and expand funds made available by… for surveys or investigations… or for performing related surveying and mapping activities… and for the preparation and publication of the results thereof."

"(2) The Secretary of Commerce is authorized to establish the terms of any cooperative agreement entered into … including the amount of funds to be received … which the Secretary determines represents the amount of benefits derived … from the cooperative agreement."

33 USC 883f - Contracts with qualified organizations.

"The Secretary is authorized to contract with qualified organizations for the performance of any part of the authorized functions of the National Ocean Survey…"

33 USC 883h - Employment of public vessels.

"The President is authorized to cause to be employed such of the public vessels as he deems it expedient to employ, and to give such instructions for regulating their conduct as he deems proper in order to carry out the provisions of this chapter."

33 USC 883i - Authorization of Appropriations.

"There are hereby authorized to be appropriated such funds as may be necessary to acquire, construct, maintain, and operate ships, stations, equipment, and facilities and for such other expenditures, including personal services at the seat of government and elsewhere and including the erection of temporary observatory buildings and lease of sites therefore as may be necessary…"

33 USC 891 et seq. - Fleet Replacement and Modernization Program

"The Secretary is authorized to implement… a 15-year program to replace and Modernize the NOAA fleet."

33 USC 1121-1131 - National Sea Grant College Program Act.

The Sea Grant Act authorizes the awarding of grants and contracts to initiate and support programs at Sea Grant colleges and other institutions for research, education, and advisory services in any field related to the conservation and development of marine resources.

The authorization for appropriation expired at the end of FY 1995.

33 USC 1251- Water Pollution Prevention and Control

Through the National Shellfish Indicator Program, authorizes the Secretary of Commerce, in cooperation with the Secretary of Health and Human Services and the Administrator of EPA, to establish and administer a 5-year national shellfish research program for the purpose of improving existing classification systems for shellfish growing waters using the latest technological advancements in microbiology and epidemiological methods.

33 USC 1321 - Oil and Hazardous Substances [Clean Water Act]

Authorizes the recovery of damages to natural resources in the event of an oil spill in waters of the United States. This authority has been delegated to several Federal agencies, including the Department, pursuant to an Executive Order.

33 USC 1441 - Monitoring and Research Program [Marine Protection, Research and Sanctuaries Act]

Authorizes the Secretary of Commerce, in coordination with other agencies, to initiate a comprehensive and continuing program of monitoring and research regarding the effects of the dumping of material into ocean waters or other coastal waters where the tide ebbs and flows or into the Great Lakes or their connecting waters.

33 USC 1442 - Research program respecting possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems

Authorizes the Secretary of Commerce, in consultation with other agencies, to … "initiate a comprehensive and continuing program of research with respect to the possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems."

33 USC 1443 - Regional management plans for waste disposal in coastal areas.

Authorizes the Secretary of Commerce to assist the Environmental Protection Agency in assessing "the feasibility in coastal areas of regional management plans for the disposal of waste materials."

33 USC 1444 - Annual Report

Requires the Secretary of Commerce to provide Congress with an annual report on the Department's activities to monitor ocean dumping and research the long-range effects of pollution on ocean ecosystems.

33 USC 2706 - Natural Resources [NOAA Oil and Hazardous Substance Spill Cost Reimbursement].

"…the National Oceanic and Atmospheric Administration acts as trustee of said marine environment and/or resources, shall be deposited in the Damage Assessment and Restoration Revolving Fund … for purposes of obligation and expenditure in fiscal year 1991 and thereafter, sums available in the Damage Assessment and Restoration Revolving Fund may be transferred, upon the approval of the Secretary …, to the Operations, Research, and Facilities appropriation of the National Oceanic and Atmospheric Administration."

33 USC 2801 et seq. - National Coastal Monitoring Act.

"The purposes of this chapter are to -

(1) establish a comprehensive national program for consistent monitoring of the Nation's coastal ecosystems;
(2) establish long-term water quality assessment and monitoring programs for high priority coastal waters that will enhance the ability of Federal, State, and local authorities to develop and implement effective remedial programs for those waters;
(3) establish a system for reviewing and evaluating the scientific, analytical, and technological means that are available for monitoring the environmental quality of coastal ecosystems;
(4) establish methods for identifying uniform indicators of coastal ecosystem quality;
(5) provide for periodic, comprehensive reports to Congress concerning the quality of the Nation's coastal ecosystems;
(6) establish a coastal environment information program to distribute coastal monitoring information;
(7) provide state programs authorized under the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.) with information necessary to design land use plans and coastal zone regulations that will contribute to the protection of coastal ecosystems; and
(8) provide certain water pollution control programs authorized under the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) with information necessary to design and implement effective coastal water pollution controls."

The Public Health and Welfare

42 USC 8902 et seq. - Acid Precipitation Program

Authorized the Administrator of NOAA to serve as co-chair of a task force to prepare a comprehensive research plan for a program to study the causes and effects of acid precipitation. Also authorizes the Administrator of NOAA to serve as the director of a related research program.

42 USC 9601 et seq. (CERCLA)

Through associated regulations and delegations, authorizes the Administrator to provide technical assistance to the Administrator, EPA, for hazardous waste response under CERCLA and the National Contingency Plan and authorizes the Administrator to act as a natural resource trustee with authority to bring a cause of action for damages resulting from an injury to, destruction of or loss of resources under NOAA's jurisdiction.

Public Lands

43 USC 1347 - Safety and Health Regulations

Authorizes the Secretary of Commerce in cooperation with other Federal entities, to conduct studies of underwater diving techniques and equipment "suitable for protection of human safety and improvement of diver performance…."

Public Printing and Documents

44 USC 1307 - Sale and Distribution of NOAA Nautical and Aeronautical Products.

"All nautical and aeronautical products created or published … shall be sold at … prices … the Secretary of Commerce shall establish annually … so as to recover all costs attributable to data base management, compilation, printing, and distribution of such products."

Transportation

49 USC 44720 - Meteorological services

The Administrator of the Federal Aviation Administration shall make recommendations to the Secretary of Commerce on providing meteorological services necessary for the safe and efficient movement of aircraft in air commerce. In providing the services, the Secretary shall cooperate with the Administrator and give complete consideration to those recommendations.

"To promote safety and efficiency in air navigation to the highest possible degree, the Secretary shall -(1)observe, measure, investigate, and study atmospheric phenomena, and maintain meteorological stations and offices…(2) provide reports to the Administrator (3)cooperate with persons engaged in air commerce in meteorological services…(4)maintain and coordinate international exchanges of meteorological information… (5) participate in developing an international basic meteorological reporting network…(6)coordinate meteorological requirements in the United States to maintain standard observations…;(7)promote and develop meteorological science….

Interjurisdictional Fisheries Act

97 Stat. 1409
Authorizes NMFS fisheries programs not otherwise authorized by law, including research to reduce entanglement of marine mammals in fishing gear, development of habitat restoration techniques, restoration of Chesapeake Bay, and conservation of Antarctic living marine resources.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
CONSULTING AND RELATED SERVICES
(Obligations in thousands of dollars)

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Management and Professional Support Services	4,083	5,960	1,990	5,534
Studies, Analysis and Evaluations	4,583	2,220	1,694	1,772
Engineering and Technical Services	10,765	19,116	3,176	18,197
Total	19,431	27,296	6,860	25,503

Consulting Services are those services of a pure nature relating to the governmental functions of agency administration and management and agency problem management. These services are normally provided by persons or organizations generally considered to have knowledge and special abilities that are not usually available within the agency. Such services can be obtained through personnel appointments, procurement contracts, or advisory committees.

Management and professional services deal with management data collection, policy review or development, program development, review or evaluation, systems engineering and other management support services. Special studies and analyses deal with the highly specialized areas of agency activity, e.g., air quality, chemical, environmental, geophysical, oceanographic, technological, and etc. Management and support services for research and development are procurement actions that meet the description of management and professional services or special studies and analyses but are funded under research and development.

* NOTE: The Object Class 25.1 in MAX reflects Consultants only. It does not include Management & Professional Support Services; Studies, Analysis and Evaluation; and Engineering & Technical Services which are also defined in the A-11 as Consulting Services.

National Ocean Service ($20,220,000) - Management services in NOS are primarily to assist in the development of economic and scientific methodologies for natural resource damage assessment and to identify and assess risks to marine resources from hazardous waste sites. Support services for the development of CZM, NERR, and NMS programs to provide a balanced approach to coastal issues pertaining to Federal, State, and private agencies. Funds are also used to evaluate the national effectiveness of the Coastal Zone Management Programs. Funds for Engineering and Technical Services are used to develop automated systems for the support of Ocean and Coastal programs.

Consulting services are used for program development support of interagency coordination of coastal ocean science activities, and support of expert advisory committees reviews of NOAA's coastal ocean science program within the Coastal Ocean Program Office (COPO).

National Marine Fisheries Service ($4,890,000) - Consulting services are used for specialized advice such as feasibility studies. This category also includes $18,000 in travel and contractual obligations for the National Marine Fisheries Advisory Committee (MAFAC), which provides the agency with outside expert advice and review. Management and professional services are used for: Operations computer system support at headquarters, data management, data collection, computer programming, and program review. Studies and analyses include: studies to support domestic and international conservation and management decisions associated with fish and protected species. These studies included socio-economic data, recreational fisheries data and assessment/status reviews.

Oceanic and Atmospheric Research ($54,000) - Consulting services are necessary for the laboratory review panels used by the Environmental Research Laboratories (ERL). In its formal laboratory reviews, ERL uses several outside experts in the fields of research being reviewed who serve as members of the review team. The National Sea Grant College Program uses consultants to assist in developing Sea Grant's new procedures for program evaluation. In addition, Sea Grant pays honorarium to individuals who serve on technical review panels administered by the National Sea Grant College Program.

National Environmental Satellite, Data, and Information Service ($300,000) - Management and professional services will be used to provide outside technical and scientific expertise related to spacecraft sensors. FY 1999 amounts reflect anticipated level necessary for support of the Polar orbiting and Geostationary satellite systems.

Program Support ($39,000) - The funds provide professional medical services, assessment of fleet logistics support, and other alternatives and related studies. Engineering and technical support services such as system design, analysis, and integration; ship operational characteristics and requirements development; drawing services; logistics support; engineering services; and other related supporting services. Other Special studies and analyses will be used for preparation of actuary report of NOAA Corps retirement system required by Public Law 95-595.

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PERIODICAL, PAMPHLETS, AND AUDIOVISUAL PRODUCTS
(Obligations in thousands of dollars)

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Periodicals	786	771	786	813
Pamphlets	734	575	629	585
Audiovisuals	83	165	180	280
Total	1,603	1,511	1,595	1,678

National Ocean Service ($366,000): The Office of Ocean Resources Conservation and Assessment produces numerous technical publications. Other components of NOS routinely produce technical publications (i.e., scientific bulletins and reports, and newsletters to keep abreast of ocean and coastal activities in the US and the world). The Office of Ocean and Coastal Resource Management produces numerous pamphlets describing their programs (i.e., National Marine Sanctuaries and National Estuarine Research Reserve outreach and education materials), and accounts for the bulk of NOS expenditures. Audiovisual materials used for ocean and coastal management briefings and technical assistance to state and local governments. Safe Navigation CD ROMS will be distributed.

National Marine Fisheries Service ($246,000): Expenditures are for periodicals and pamphlets of various technical reports, programmatic bulletins and annual reports required by Congress.

Oceanic and Atmospheric Research ($56,000): Expenditures are for preliminary reports and forecasts of solar-geophysical activity bi-weekly.

Environmental Research Laboratories: (ERL) ($36,000): Expenditures are for preliminary reports and forecasts of solar-geophysical activity bi-weekly.

National Sea Grant College Program: (NSGC) ($15,000): Expenditures are for Sea Grant Pamphlets, Sea Grant Directory, Sea Grant National Guidance and the Sea Grant Strategic Plan. Also, expenditures are for audio-visuals and Graphics which include slides, posters, and photographs.

National Undersea Research Program: (NURP) ($5,000): Expenditures are for audio-visual and graphic materials.

National Weather Service ($890,000): Expenditures are for various weather service charts, maps, bulletins, newsletters, and reports on climate, fire weather, floods, hurricanes, tornadoes, and winter storms.

National Environmental Satellite, Data, and Information Service ($100,000): Expenditures for periodicals include technical data publications in meteorology, oceanography, solid-earth geophysics, solar-terrestrial physics, and satellite meteorology. Pamphlets include scientific and technical reports that present results of operational, developmental, and research programs of NOAA. Audiovisual products are primarily the slide and viewgraph sets used for technical presentations of operational programs within NOAA.

Program Support ($20,000): NOAA Corps Bulletin, Roster of Commissioned Officers, and recruiting manuals and handouts. NOAA Corps will also prepare Aircraft Operations Center Brochure and a P-3 pamphlet. Audiovisuals products includes Aircraft Operations Center Cameras and VCRs placed on P-3 aircraft to enhance data collection and imaging.

Department of Commerce
National Oceanic and Atmospheric Administration
AVERAGE GRADE and SALARY

	FY 98 Actual	FY 99 Estimate	FY 00 Estimate
Average ES salary	**105,920**	**103,938**	**107,056**
Average GS/GM grade	**13.96**	**10.40**	**12.60**
Average GS/GM salary	**44,113**	**45,819**	**47,176**
Average Pay Band salary	**50,000**	**51,673**	**53,249**
Average Commissioned Officers salary	**46,668**	**46,731**	**47,826**
A verage salary for other positions	**40,019**	**41,176**	**42,411**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINSTRATION
PROCUREMENT, ACQUISITION, AND CONSTRUCTION
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

Page No.		Positions	FTE	Budget Authority	Direct Obligations
	FY 1999 Currently Available	185	185	$584,677	$653,928
	plus: Recoveries from prior years in FY 1999			4,000	
	plus: Obligations from prior years				(65,251)
	plus: 2000 Adjustments to Base			6,600	6,600
	less: Recoveries from FY 2000			(7,400)	
	FY 2000 Base	185	185	$587,877	$595,277
	plus: FY 2000 Program Changes	(23)	(23)	42,701	42,701
	Total FY 2000 Estimate, PAC	162	162	$630,578	$637,978

Comparison by activity/subactivity		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Systems Acquisition	Pos./BA.	201	431,686	180	553,481	180		157		(23)	
	FTE/Obl.	198	529,309	180	569,389	180	560,081	157	553,499	(23)	($6,582)
Construction	Pos./BA.	5	59,923	5	34,196	5		5		0	
	FTE/Obl.	7	36,015	5	83,539	5	34,196	5	32,912	0	($1,284)
Fleet Replacement	Pos./BA.	0	0	0	0	0		0		0	
	FTE/Obl.	0	0	0	0	0	0	0	51,567	0	$51,567
Fishermen's Health Care	Pos./BA.	0	0	0	1,000	0		0		0	
	FTE/Obl.	0	0	0	1,000	0	1,000	0	0	0	($1,000)
TOTALS	Pos./BA.	**206**	**491,609**	**185**	**588,677**	**185**		**162**		**(23)**	
	FTE/Obl.	**205**	**565,324**	**185**	**653,928**	**185**	**595,277**	**162**	**637,978**	**(23)**	**42,701**
Adjustments for:											
Recoveries					(4,000)		(7,400)		(7,400)		
Unobligated balance, start of year			(138,966)		(65,251)						
Unobligated balance, end of year			65,251								
Budget Authority		**206**	**491,609**	**185**	**584,677**	**185**	**587,877**	**162**	**630,578**	**(23)**	**42,701**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINSTRATION
PROCUREMENT, ACQUISITION, AND CONSTRUCTION

SUMMARY OF FINANCING

(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease)
Direct Obligations	565,324	653,928	$595,277	$637,978	$42,701
Reimbursables	0	0	0	0	0
Anticipated offsetting collects	0	0	0	0	
Total Obligations	565,324	653,928	595,277	637,978	42,701
Recoveries	0	(4,000)	(7,400)	(7,400)	0
Unobligated balance, start of year	(138,966)	(65,251)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	65,251	0	0	0	0
Total Budget Authority	491,609	584,677	587,877	630,578	42,701
Net Appropriation	491,609	$584,677	$587,877	$630,578	$42,701

Exhibit 8

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
CHANGES TO BASE
(Dollar amounts in thousands)

	FTE	Amount
Adjustment		
Restoration of FY 99 Deobligations		4,000
Recoveries from FY 2000		(7,400)
Subtotal		(3,400)
Adjustment		6,600
Subtotal, adjustments to base		3,200
ATBs Absorbed		0
ATBs Requested		3,200

Exhibit 9

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
JUSTIFICATION OF CHANGES TO BASE

	FTE	Amount
Adjustments		
Radiosonde Replacement Network		3,200,000
The transfer of the Base program from ORF to PAC to reflect its scoring as a capital asset acquisition.		
	0	
Subtotal, Adjustments to Base Total		3,200,000
ATB's absorbed		
Total, Changes to Base		3,200,000
Total		

Advanced Appropriations Requested for Projects in the Procurement, Acquisition and Construction Account

(Dollars in thousands)

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	To Complete	Total
Systems Acquisition									
NEXRAD	6,339	$7,000	$9,560	$9,060	$9,060	$9,060	$9,060	$0	$59,139
ASOS	4,274	3,855	4,180	6,125	7,565	6,655	5,495	$0	$38,149
AWIPS	131,115	67,667	22,575	21,525	7,900	3,500	2,550	$0	$256,832
Computer Facility Upgrades	4,852	9,900	11,100	12,835	16,135	12,335	11,835	0	$78,992
Radiosonde Replacement Program	0	0	8,350	8,350	8,350	8,350	3,000	0	$36,400
GFDL Supercomputer	0	0	5,700	8,000	8,000	8,000	8,000	6,500	$44,200
ACE Follow-on/GEOSTORM	0	0	4,340	6,160	6,580	6,580	6,580	0	$30,240
POES K-N'	149,058	149,917	140,979	114,594	98,253	73,699	61,241	94,011	$881,752
Polar Convergence	0	50,000	80,100	113,600	180,000	230,500	333,500	2,209,750	$3,197,450
GOES I - M	122,810	82,376	77,082	58,615	15,960	11,476	9,009	4,922	$382,250
GOES N - Q	110,861	182,766	189,533	245,609	226,841	226,256	213,464	609,306	$2,004,636
Subtotal, Systems Acquisition	529,309	553,481	553,499	604,473	584,644	596,411	663,734	2,924,489	7,010,040
Construction									
Capital Improvement Program	0	0	0	0	0	0	0	0	$0
Boulder Laboratory Above Standard Cost	2,857	6,370	0	0	0	0	0	0	$9,227
WFO Construction	13,740	9,526	13,367	12,225	12,725	7,552	8,536	0	$77,671
NCEP	805	850	0	0	0	0	0	0	$1,655
Santa Cruz Research Lab	2,078	4,200	0	0	0	0	0	0	$6,278
NERRS Construction	8,897	7,300	12,000	12,000	12,000	12,000	12,000	0	$76,197
Honolulu Fisheries Lab	820	0	0	0	0	0	0	0	$820
Alaska Facilities Fisheries Center Juneau	3,435	0	1,000	15,000	20,000	0	0	0	$39,435
Pribilof Island Cleanup	3,383	700	0	0	0	0	0	0	$4,083
NORC Rehabilitation	0	0	3,545	2,380	0	0	0	0	$5,925
Charleston/Fort Johnson	0	3,000	0	0	0	0	0	0	$3,000
Outer Banks Community Foundation	0	750	0	0	0	0	0	0	$750
New York Facilities	0	1,500	0	0	0	0	0	0	$1,500
Marine Sanctuaries	0	0	3,000	3,000	3,000	3,000	3,000	0	$15,000
Subtotal, Construction	36,015	34,196	32,912	44,605	47,725	22,552	23,536	0	241,541

Advanced Appropriations Requested for Projects in the Procurement, Acquisition and Construction Account

(Dollars in thousands)

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	To Complete	Total
Fleet Replacement									
Fleet Replacement……	0	0	51,567	51,000	39,778	40,226	2,060	0	$184,631
Subtotal, Fleet Replacement	0	0	51,567	51,000	39,778	40,226	2,060	0	184,631
Other (Fishermen's Health Care)……	0	1,000	0	0	0	0	0	0	$1,000
Total, Procurement, Acquisition & Construction Obligations	$565,324	$588,677	$637,978	$700,078	$672,147	$659,189	$689,330	$2,924,489	$7,437,212
Deobligations		(4,000)	(7,400)	(8,404)	(10,612)	(10,824)	(10,824)	TBD	($52,064)
Unobligated balance, start of year	(138,966)								
Unobligated balance, end of year	65,251								
Total, Procurement, Acquisition & Construction B.A.	$491,609	$584,677	$630,578	$691,674	$661,535	$648,365	$678,506	$2,924,489	$7,385,148
No Advanced Appropriation Requested									
ACE Follow-on/GEOSTORM……	0	$0	$0	$0		($6,580)	($6,580)		($13,160)
NERRS……	0	$0	$0	($12,000)	($12,000)	($12,000)	($12,000)		($48,000)
Alaska Facilities/Juneau……	0	$0	$0	($15,000)	($20,000)				($35,000)
Marine Sanctuaries……	0	$0	$0	($3,000)	($3,000)	($3,000)	($3,000)		($12,000)
Fleet Replacement……	0	$0	$0	($51,000)	($39,778)	($40,226)	($2,060)		($133,064)
Subtotal	0	0	0	(81,000)	(74,778)	(61,806)	(23,640)	0	(241,224)
Total, Advance Appropriation Requested	$491,609	$584,677	$630,578	$610,674	$586,757	$586,559	$654,866	$2,924,489	$7,143,924

PROCUREMENT, ACQUISITION AND CONSTRUCTION (PAC)
SYSTEMS ACQUISITION
STRATEGIC PLANNING GOALS AND OBJECTIVES

The Systems Acquisition activity of the Procurement, Acquisition and Construction account supports one of NOAA's Strategic Planning Goals. Below is a brief characterization of the programs contained in the System Acquisition activity in the context of this Goal.

GOAL - ADVANCE SHORT TERM WARNING AND FORECAST SERVICES

Systems Acquisition supports activities and programs in two of the four objectives for this goal.

OBJECTIVE - COMPLETE NWS MODERNIZATION

The NWS Modernization and Associated Restructuring is two-thirds complete. The process of modernization and restructuring was prompted by two factors: (1) the desire to apply advances in hydrometeorological science and technology to operational forecasting, and (2) the desire to replace obsolete and increasingly unreliable equipment. These replacement systems coupled with observations from planned, advanced geostationary and polar orbiting satellites, other existing weather observing systems/sources (e.g. radiosondes, data buoys, etc.), and newly developed mesoscale forecasting techniques have and will continue to improve the timeliness and accuracy of severe weather and flood warnings to the U.S. public. The modernization and restructuring of the NWS will result in the transition to a final weather office structure of 121 Weather Forecast Offices (WFOs) and 13 River Forecast Centers (RFCs).

Programs contained in this activity to continue the acquisition/improvement of major systems associated with maintaining NWS modernized operations, they are; the acquisition and installation of Next Generation Weather Radar (NEXRAD) to replace existing aging weather radars and enhance severe weather and flood warnings, the development and testing of new sensor capabilities for the Automated Surface Observing Systems (ASOS) which provides reliable, 24-hour per day, continuous surface weather observations; the continued system evolution of the Advanced Weather Interactive Processing System (AWIPS/NOAAPORT) to integrate all meteorological and hydrological data at the NWS field offices; and the upgrade of the NOAA Central Computer Facility to provide the capability to process the increased amount of data that will lead to more accurate and specific forecasts of major storms and medium (3 to 10 day) and extended (30 day) range forecasts. In addition, within NESDIS is the procurement and launch of geostationary satellites (GOES I-M). The first two satellites of this series GOES-8 and 9 were successfully launched and have provided enhanced capabilities on an operational basis to meet the objectives of a modernized NWS. A third GOES satellite GOES-10 has also been launched and has replaced GOES-9 as the operational satellite over the western U.S. and Pacific Ocean. GOES-9 has been placed in an on-orbit storage mode.

OBJECTIVE - SATELLITE CONTINUITY

This objective is to provide continuity of satellite coverage. Included is the continuation of the current polar orbiting series (NOAA K-N'), and acquisition of GOES N-Q geostationary satellites to be ready to replace the GOES I-M satellites when needed. Development activities associated with the National Polar-Orbiting Operational Environmental Satellite System (NPOESS) program to succeed the NOAA K-N' series are included in this objective.

Systems Acquisition
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Advance Short-Term Warning and Forecast Services										
Complete NWS Modernization	154	237,920	100	170,798	100	175,398	77	124,497	(23)	(50,901)
Satellite Continuity	80	193,766	80	382,683	80	382,683	80	410,612		27,929
Enhance Observations & Predictions						2,000		12,690		10,690
Infrastructure										
Total ASTWFS	**234**	**431,686**	**180**	**553,481**	**180**	**560,081**	**157**	**547,799**	**(23)**	**(12,282)**
Implement Seasonal to Interannual Climate Forecast										
Infrastructure										
Total ISICF										
Predict and Assess Decadal-to-Centennial Change										
Infrastructure								5,700		5,700
Total PADCC								**5,700**		**5,700**
Promote Safe Navigation										
Infrastructure										
Total PSN										
Build Sustainable Fisheries										
Infrastructure										
Total BSF										
Recover Protected Species										
Infrastructure										
Total RPS										
Sustain Healthy Coasts										
Infrastructure										
Total SHC										

Infrastructure											
Administration											
Total Infra											
Total for Systems	**234**	**431,686**	**180**	**553,481**	**180**	**560,081**	**157**	**553,499**	**(23)**	**(6,582)**	

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINSTRATION
PROCUREMENT, ACQUISITION, AND CONSTRUCTION
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: Systems Acquisition

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
Line Item		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NEXRAD	Pos./BA.	27	6,377	11	7,000	11		7		(4)	
	FTE/Obl.	25	6,339	11	8,180	11	7,000	7	9,560	(4)	2,560
ASOS	Pos./BA.	10	4,494	0	3,855	0		0		0	
	FTE/Obl.	17	4,274	0	4,168	0	3,855	0	4,180	0	325
AWIPS	Pos./BA.	114	116,910	89	67,667	89		70		(19)	
	FTE/Obl.	107	131,115	89	73,892	89	67,667	70	22,575	(19)	(45,092)
Central Computer Upgrade	Pos./BA.	0	5,000	0	9,900	0		0		0	
	FTE/Obl.	0	4,852	0	10,048	0	14,500	0	11,100	0	(3,400)
Radiosonde Replacement Program	Pos./BA.	0	0	0	0	0		0		0	
	FTE/Obl.	0	0	0	0	0	2,000	0	8,350		6,350
GFDL Supercomputer	Pos./BA.	0	0	0	0	0		0		0	
	FTE/Obl.	0	0	0	0	0	0	0	5,700		5,700
Ace Follow-on/GEOSTORM	Pos./BA.	0	0	0	0	0		0		0	
	FTE/Obl.	0	0	0	0	0	0	0	4,340		4,340
Polar	Pos./BA.	20	82,905	20	149,917	20		20		0	
	FTE/Obl.	19	149,058	20	149,949	20	149,917	20	140,979	0	(8,938)
Polar Convergence	Pos./BA.	0	0	13	50,000	13		13		0	
	FTE/Obl.	0	0	13	50,000	13	50,000	13	80,100	0	30,100
GOES	Pos./BA.	30	216,000	47	265,142	47		47		0	
	FTE/Obl.	30	233,671	47	273,152	47	265,142	47	266,615	0	1,473
Total	Pos./BA	**201**	**431,686**	**180**	**553,481**	**180**		**157**		**(23)**	
	FTE/OBL.	**198**	**529,309**	**180**	**569,389**	**180**	**560,081**	**157**	**553,499**	**(23)**	**(6,582)**

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Systems Acquisition**

Background

The objectives of this account are to capture the costs of acquiring and/or improving capital assets used by NOAA in carrying outs its varied missions. Creation of this account meets the requirement of OMB Circular A-11, as amended, and NOAA's request seeks advanced appropriations for the majority of assets falling into this category. Advanced appropriations will allow NOAA to realize procurement efficiencies, management accountability, as well as to reflect full cost of acquisition and/or improvement of an asset.

Goal Statement

The objective of this activity is to continue the acquisition/improvement of major systems associated with advancing short term warnings and forecasts. Specifically, NOAA has replaced obsolete weather radars and enhanced severe weather and flood warnings; acquired, deployed and commissioned an automated surface observing system which provides reliable, 24-hour per day, continuous surface weather observations; is moving towards integrating all meteorological and hydrological data at the NWS field offices through the acquisition of Advanced Weather Interactive Processing System (AWIPS); enhancing the current computing environment by continually upgrading supercomputers to significantly enhance the forecasting guidance for hurricanes, especially storm intensity, and the ability to implement an operational storm-scale model for detailed severe storm guidance; continuing procurement of spacecraft, instruments, launch services, and ground equipment necessary to maintain an uninterrupted operational polar-orbiting satellite system for the following purposes: (1) obtain quantitative environmental data such as temperature, moisture, radiation flux, and solar energetic particle flux, used in numerical analysis and prediction programs; (2) locate and collect data from remote, fixed and moving platforms, such as buoys, balloons, and ships; (3) provide visible and infrared imagery and radiation flux of the earth and its environment on a regular basis through direct read-out and environmental data broadcasts to ground stations; and (4) provide search and rescue data to locate aircraft and ships in distress and; via geostationary satellites (GOES), providing near-continuous observations of the Earth's western hemisphere; monitor the Earth's surface and space environmental conditions; introduce improved atmospheric, oceanic, observations and data dissemination capabilities; and develop and provide new and improved applications and products for a wide range of Federal agencies, state and local governments, and private users.

Proposed Legislation

No new legislation is proposed for this activity.

Included in this account are: planned product improvement of the NOAA's Next Generation Weather Radars (NEXRAD) and the Automated Surface Observing System (ASOS) network; the continued acquisition of AWIPS; central computer facility upgrades (specifically Class VIII and IX supercomputers); the NWS radiosonde replacement program; the acquisition of the Geophysical Fluid Dynamics Laboratory (GFDL) supercomputers; Polar-orbiting Operational Environmental Satellites (K-N' series); the converged NOAA/DoD National Polar-orbiting Operational Environmental Satellite System (NPOESS) program, Geostationary Operational Environmental Satellites (GOES I-M and N-Q series); the ACE satellite follow-on/GEOSTORM program; National Weather Service Weather Forecast Office Construction and other major construction projects NOAA-wide.

Base Program

Next Generation Weather Radar (NEXRAD): Managed by NOAA, this acquisition is a tri-agency program involving the Departments of Commerce, Defense (DoD) and Transportation (FAA). NEXRAD is a Doppler weather radar system which provides automated signal processing, computerized processing of data by sophisticated meteorological software algorithms, state-of-the art ergonomically designed operator workstations, and a high-capacity, processor-driven communications capability. The system is modular in design, ungradable, has a long life-cycle expectancy, and provides its principal users with a wide array of automated weather information that will increase their capability to meet their respective operational requirements. For the National Weather Service, the system utilizes the Doppler technology and hydrometeorological processing to provide significant increases both in the functional capability and in performance compared with previous radars including improved tornado and thunderstorm warnings, increased air safety, improved flash flood warnings and improved water resources management.

In FY 2000, NWS will continue to operate maintain the network of 123 systems and continue acquisition contract closeout activities, as appropriate.

FY 2000 Plans:

- Continue acquisition contract closeout functions
- Continue product improvement initiative
- Continue operation and maintenance of fielded systems

Automated Surface Observing System (ASOS): Managed by NOAA, this acquisition is a tri-agency program involving NOAA, DoD and FAA. ASOS provides reliable, 24-hour per day, continuous surface weather observations. Under the product improvement portion of this acquisition program, NOAA is developing new ASOS sensor capabilities in order to meet changing user requirements and decrease maintenance demands.

In FY 1999, NOAA anticipates that all 68 additional ASOS units (primarily scaled-down versions) will be installed and accepted.

FY 2000 Plans
- Continue deployment of the sunshine sensor
- Continue development, testing, and integration of the dew point sensor, the ice-free wind sensor, and the all-weather precipitation accumulation gauge
- Continue evaluation of the enhanced precipitation identification sensor
- Complete acquisition contract closeout activities
- Continue to work with the FAA and the aviation industry on sensor improvements

Advanced Weather Interactive Processing System (AWIPS)/NOAAPort: AWIPS is the cornerstone of the NWS modernization. This system is required to integrate and display all hydrometeorological data at NWS field offices. AWIPS will acquire and process data from modernized sensors and local sources, provide computational and display functions at operational sites, provide an interactive communications system to interconnect NWS operational sites, and disseminate warnings and forecasts in a rapid, highly reliable manner. This system will integrate satellite and radar data for the first time and provide to the local field forecaster a capability that will significantly improve forecasts and warnings. NOAAPORT offers the communications capability to provide internal and external users with open access to much of NOAA's real-time environmental data.

In FY 1999, the nationwide deployment will be completed, and systems evolution activities will be initiated.

FY 2000 Plans:
- Continue operation and maintenance of fielded systems
- Continue system evolution activities

Central Computer Facility Upgrade: Begun in FY 1990, the upgrade of the NOAA Central Computer Facility is intended to procure the computing and communication equipment needed to receive and process the increasing wealth of environmental data acquired by modernized observing systems, process improved and more sophisticated numerical weather prediction models, and stay current with the supercomputing technology the market has to offer. Execution of this program will result in increase public safety and protect property by providing the National Centers for Environmental Prediction (NCEP) with the computer systems that are capable of producing more accurate, NWS weather guidance products for hurricanes, severe thunderstorms, floods, and winter storms and forecasts of large-scale weather patterns in the medium (3 to 10 days) and extended range (30 days), improving the delivery of products to the field, and providing system users with enhanced productivity. These products and services will lead to

significant economic benefits for users, i.e., the agriculture, construction, and transportation industries, etc., and are necessary to realize the full benefits of the NWS Modernization.

FY 2000 Plans:
- Make second lease payment toward Class VIII
- Implement new version of the GFDL hurricane model (18km to 13km)
- Continue cyclical replacement and upgrade of interactive workstations
- Implement 4D variational analysis
- Upgrade global ensemble forecast system
- Implement short-range ensemble forecast system

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of:				
NEXRAD delivered (NWS systems)	120	123	123	123
NEXRAD accepted (NWS systems)	118	123	123	123
ASOS (NWS systems)				
Base				
installed	246	246	246	246
accepted	246	246	246	246
Additional ASOS (primarily scaled-down versions)				
installed	15	57	68	68
accepted	10	46	68	68
AWIPS installed	15	16	81	152
AWIPS accepted	0	16	81	152
Complete global temperature and water vapor profiles collected (millions)	158.0	158.0	158.0	285.0
Global cloud cover images collected (thousands)	40.0	40.0	40.0	40.0
Collections from remote terrestrial and marine observation ARGOS platforms (millions)	3.6	3.8	4.0	4.2
Remote ARGOS platforms in service end of year (thousands)	5.5	5.8	6.1	6.4

Polar-Orbiting Operational Environmental Satellite System (POES): The base program for POES includes procurement, launching, and operation of the polar-orbiting satellites, and procurement, operation, and maintenance of their associated ground systems. These satellites provide environmental data for a wide range of national and international applications, including weather forecasts and warnings produced by the National Weather Service. This activity also includes processing and analysis of the satellite data, dissemination of the data to users, research to improve the satellite system capabilities, studies to define future system needs, and operation of the Search and Rescue program to locate ships and aircraft in distress.

This activity includes the procurement and launch of the polar-orbiting operational environmental satellites, and procurement of the ground system components which command and control the satellites and acquire data from them. The polar-orbiting system obtains global qualitative and quantitative environmental data. Qualitative data include visible and infrared images of cloud and weather features; quantitative data include measurements of the vertical temperature and moisture profile of the atmosphere, sea surface temperatures, vegetation index, and space environmental data. The principal products derived from polar-orbiting satellite data are: (1) vertical temperature and moisture soundings, (2) sea surface temperature measurements, (3) global cloud cover images and mosaics, (4) crop assessment parameters for agriculture monitoring, (5) search and rescue, (6) total ozone measurements, and (7) global heat balance data for climatological analyses. Data from these satellites are also used to produce snow-cover and sea- and lake-ice maps. The polar-orbiting satellites collect data from buoys, ships, aircraft, and remote platforms and relay them to a central processing and distribution site. They provide a relay function for global emergency signals from aircraft and ships in distress under an international Space System for Search of Vessels in Distress/Search and Rescue Satellite Aided Tracking (COSPAS/SARSAT) program. A key element in the success of this program, in addition to the space hardware segment, is the ground processing segment for receiving, processing, and distributing alert notification and location data. Emergency Locator Transmitters (ELT's) used by U.S. aircraft, and beacons in the U.S. recreational and commercial fleet are served by this program.

NOAA-14, launched in December, 1994 and NOAA-15, launched in May, 1998 are the current operational satellites. The subsequent satellites NOAA L through N' are expected to provide polar-orbiting satellite coverage through the end of the next decade, when the Tri-Agency consolidated program becomes operational. Agreement has been reached with Europe (EUMETSAT) to provide the platform for the morning segment after NOAA-15, currently the last planned NOAA morning satellite. Procurement of the current series of polar-orbiting satellites is a cooperative venture in which NOAA and NASA have key roles. NOAA, as the operating agency, represents the user and defines the basic requirements for the system. NASA, as the agency with multi-disciplinary engineering expertise, develops detailed specifications and procures and arranges for launches of the spacecraft NASA is reimbursed for these services by NOAA. The L and M spacecraft are planned to be launched on USAF Titan launch vehicles procured through NASA. NOAA N & N' satellites will be launched on Delta launch vehicles which will also be procured through NASA unless more cost effective alternatives become available.

The sounder on the satellites through NOAA 14 is comprised of three instruments: the High-Resolution Infrared Radiometric Sounder (HIRS); the Stratospheric Sounding Unit (SSU), which is provided by the United Kingdom; and the Microwave Sounding Unit (MSU). The combination of these three instruments is called the TIROS Operational Vertical Sounder (TOVS). For the NOAA K-N' series of spacecraft, an Advanced Microwave

Sounding Unit (AMSU) replaces both the SSU and the MSU on the TOVS. The AMSU has greatly improved microwave all-weather sounding capability. A portion of the AMSU is furnished by the United Kingdom (UK) for NOAA-15, L, and M and by EUMETSAT for NOAA N and N'.

The contract for the NOAA K, L, and M spacecraft was awarded in July, 1988; the contract for two additional satellites (NOAA-N and N') was awarded in December, 1994. With the exception of the improved sounding unit, AMSU, the functional specifications for the NOAA K-N' series are similar to those of NOAA J. The NOAA K-N' spacecraft will be three-axis stabilized satellites carrying the following instruments:

- TOVS - Advanced Tiros Operational Vertical Sounder; collects atmospheric temperature and water vapor profiles. (All spacecraft beginning with NOAA K include an Advanced Microwave sounding unit which is partly furnished by the UK) for EUMETSAT.

- AVHRR - Advanced Very High Resolution Radiometer; collects medium resolution (4 km) radiometric data over the entire globe for centralized analyses and for global broadcast through the Automatic Picture Transmission (APT) system and tape-recorded relay to NOAA ground stations. It also provides high resolution (1 km) data with direct readout through the High Resolution Picture Transmission (HRPT) system.

- DCPLS - Data Collection and Platform Location System (ARGOS), furnished by France.

- SEM - Space Environment Monitor; measures solar activity.

- SBUV - Solar Backscatter Ultra Violet ozone monitoring instrument; collects global ozone measurements.

- SAR - Search and Rescue Instrument; Canada provides the spacecraft repeater and France provides the onboard processor.

The following launch schedule for the polar-orbiting system is for planning purposes only:

PLANNING LAUNCH SCHEDULE - POLAR SYSTEM

NOAA-L	CY 1999
NOAA-M	CY 2001
NOAA-N	CY 2003
NOAA-N'	CY 2007

Actual replacement launch dates are dependent on performance of previous spacecraft in orbit. The above schedule is based on analyses of in-orbit capabilities and life expectancy estimates. NOAA will manage the NOAA K-N' satellite assets to ensure program continuity until the converged system NPOESS become operational.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
POES and DMSP global temperature and water vapor profiles collected [millions]	158	158	285	400
POES cloud cover images collected	40,000	40,000	40,000	40,000
Collections from remote terrestrial and marine observations from Argos (POES) platforms [millions]	3.8	4.0	4.2	4.4
Remote Argos platforms in service end of year (POES)	5,800	6,100	6,400	6,700
POES Global ozone measurements collected	485,000	485,000	485,000	485,000
Number of global ocean surface winds [millions]	24.0	4.0	52.0	101.0
Number of RADARSAT Ice Products	1,800	2,300	2,700	3,000
Number of CoastWatch Users	450	1,200	2,200	3,200
Upgrade CoastWatch Regional Nodes	0	0	0	0
New coastal hazards types supported	0	1	1	1
Number of derived ocean products (AVHRR CoastWatch)	178	285	285	288
Number of ocean color scenes available to CoastWatch Nodes	0	250	250	1,500
Emergency locator signals collected from aircraft and ships in distress	19,300	20,200	21,200	22,300
Emergency beacons in service at end of year	739,000	771,000	804,000	839,000

Geostationary Operational Environmental Satellite (GOES): The operating objectives of the GOES program are to continue procurement of spacecraft, instruments, launch services, and ground equipment necessary to maintain an uninterrupted, two-satellite, operational geostationary satellite system for the following purposes: (1) provide images of the United States, including adjacent ocean areas, to enable detection of hurricanes and other major weather events, for use in weather forecasts and warnings; (2) obtain quantitative environmental data such as temperature, moisture, wind, radiation flux, and solar energetic particle flux, used in analysis and prediction programs; (3) collect data from remote fixed platforms such as buoys and rain gauges for use in hydrological assessments and numerical weather prediction models; (4) provide continuous, immediate search and rescue detection capabilities to augment the polar-orbiting system; and (5) provide weather information to emergency managers for use in times of severe weather and during other disasters.

This program involves the procurement and launch of the geostationary operational environmental satellites (GOES). GOES 8, launched in April, 1994 and GOES 10, launched in April, 1997 are the two currently operational satellites. GOES 9 is currently in on-orbit storage as a spare. GOES 8 and 9 are the first two satellites of the GOES I-M series. The GOES I-M series satellites each have a five-year design life; however, to assure that replacement satellites are available when needed, the program was structured to have replacement satellites ready three years after the launch of the first two satellites of the series.

The principal products derived from geostationary satellites are: (1) full western hemisphere and sectorized cloud-cover images, (2) derived wind speed and direction, (3) assessments of hurricane motion and intensity, (4) severe thunderstorm and tornado detection and monitoring, (5) warnings of potential flash flooding, and (6) solar radiation information. The geostationary satellites also provide measurements of vertical temperature and moisture, and data from which snow-cover and sea- and lake-ice maps and products to support agriculture and oceanography are produced.

Procurement of the geostationary satellites is a cooperative venture in which NOAA and NASA have key roles. NOAA, as the operating agency represents the user and defines the basic requirements for the system. NASA, as the agency with multi-disciplinary engineering expertise, develops detailed specifications and procures and launches the spacecraft. NASA is reimbursed for these services by NOAA. The contract for the GOES I-K spacecraft was awarded in October 1985; an option for two additional spacecraft (GOES L and GOES M) was exercised in December 1985. GOES I-M is a new series of geostationary spacecraft representing a major development effort and has resulted in major improvements in the ability of National Weather Service (NWS) forecasters to more accurately track and analyze severe weather events. This series, in conjunction with new other major NWS systems such as the NEXRAD networks, will continue to play a major role in providing the Nation with improved weather forecasting through the end of the century. Whereas the previous spacecraft were spin-stabilized, GOES I-M are three-axis stabilized. Instruments on GOES I-M are able to view the Earth continuously, rather than "eyeing" a scene once with each revolution. In addition, GOES I-M are able to provide soundings and images simultaneously; previous GOES systems could only provide either soundings or images at any given time.

GOES N through Q, the series of satellites after GOES-M, is structured for up to four satellites, each with five year operational lifetimes. In FY 1996, a contract was awarded to procure additional imager and sounder instruments for GOES N and O with options for GOES P and Q. In FY 1997, a

contract was awarded for two Solar X-Ray Imagers for the GOES N through Q series. In FY 1998, a contract was awarded for the GOES N and O spacecraft and launch services with options for GOES P and Q.

The GOES satellites carry the following instruments:

- GOES sounder - provides measurements of atmospheric temperature and moisture.
- GOES Imager - provides infrared and visible images of full or specific segments of the Earth disc.
- SEM - Space Environment Monitor; provides measurements of solar radiation data.
- DCS - Data Collection System; collects and relays environmental data measured by a variety of remotely located observing platforms.
- Solar X-Ray Imager - DOD-funded instrument to be flown on GOES M. Jointly funded with DOD on subsequent spacecraft.
- Search and Rescue - 406 MHZ receiver capable of continuously detecting distress signals from ships and aircraft. Complements polar-orbiting SAR, which can locate as well as detect distress signals, but must be in orbit over the signal beacon.
- WEFAX and EMWIN- Retransmission of low-resolution meteorological data and other environmental data. Provides up to date weather information to emergency managers.

The following launch schedule is provided for planning purposes only:

PLANNING LAUNCH SCHEDULE - GEOSTATIONARY SYSTEM

GOES-L	CY 1999
GOES-M	CY 2002
GOES-N	CY 2002
GOES-O	CY 2005
GOES-P	CY 2007
GOES-Q	CY 2010

Actual schedules will be affected by performance of previous spacecraft in orbit.

GOES I-M are launched on Atlas expendable launch vehicles under a commercial launch services contract. The launch services contract for the GOES I-M series was awarded in May 1988. Launch services for GOES N-Q are included in the spacecraft contract and will be compatible with either a Delta-III or Atlas-IIAS Booster.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of quantitative precipitation estimates produced - GOES	1,400	1,400	1,400	1,400
Accuracy of quantitative precipitation estimates - GOES (Percent)	75	75	75	75
Satellite derived atmospheric moisture profiles (GOES) [millions]	12.0	17.52	17.52	17.52
Satellite derived wind velocity estimates - GOES (Western Hemisphere) [millions]	12.2	35.0	35.0	35.0
GOES Atmospheric soundings collected over the US [millions]	17.52	17.52	17.52	17.52
GOES cloud images collected	96,200	96,200	96,200	96,200
Collections from GOES DCS remote platforms [millions]	33.6	33.9	34.2	34.5
GOES DCS platforms in service end of year	14,030	14,590	15,175	15,782
Number of severe weather systems tracked (GOES, POES, and non-NOAA satellites)	180	180	180	180
Percent of time devoted to severe storms tracking (Percent)	30	30	30	30
Number of new CoastWatch product lines added	0	1	0	2

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Systems Acquisition	Pos/BA	180	$560,081	157	$553,499	(23)	($6,582)
	FTE/Obl	180		157			

NEXRAD (Next Generation Weather Radar) (-4 FTEs, +$2,560,000): NOAA requests a decrease of 4 FTEs and an increase of $2,560,000 for this program in the Procurement, Acquisition and Construction (PAC) account to continue the NEXRAD product improvement initiative and continue acquisition closeout activities. An IT plan has been developed to support NEXRAD Planned Product Improvement efforts.

Background: NEXRAD is required to replace existing obsolete weather radars and enhance severe weather and flood warnings.

Proposed Actions: Efforts to migrate the NEXRAD system to an open systems architecture continue in FY 2000, as does funding for the closeout of the acquisition contract.

Benefits: Completion of the NEXRAD system acquisition and deployment has resulted in increased tornado warning lead times from the pre-modernization average of 2 minutes and in some cases zero lead time to 15-20 minutes; and equally important, has reduced false warning rates. To date, fielded NEXRAD radars have already demonstrated improvements in tornado warning lead times to an average of 11 minutes with some warnings issued 20 to 30 minutes in advance. Accurate mapping of precipitation also will be possible on a wide scale, enabling extensive improvements in forecasting river plain flooding and flash floods. The migration of the NEXRAD system to an open systems architecture is expected to result in improved products available from NEXRAD, optimize the efficiency of OSF software maintenance and result in minimized life cycle costs by replacing proprietary hardware components with off-the-shelf technology. The NEXRAD acquisition program supports the goals of the Advance Short-Term Forecasts and Warnings portion of the NOAA Strategic Plan.

Timeliness: Migrating the NEXRAD system to an open systems architecture will support the greater processing capacities which will be required to implement future algorithms and forecasting enhancements. Furthermore, the faster an open systems architecture is deployed, the sooner NWS will be able to achieve operations and maintenance cost savings by replacing proprietary hardware with multiple vendor COTS (Commercial off the Shelf) hardware.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
NEXRADs delivered (NWS systems)	123	123	123	123	123
NEXRADs accepted (NWS systems)	123	123	123	123	123

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
NEXRAD - Systems Acquisition	($8)	($8)	($8)	($8)	($8)
Procurement, Acquisition and Construction	$2,560	$2,060	$2,060	$2,060	$2,060
Total Changes	$2,552	$2,052	$2,052	$2,052	$2,052
Less ORF Systems Acquisition O&M Changes . .	$8	$8	$8	$8	$8
Net Procurement, Acquisition and Construction Change	$2,560	$2,060	$2,060	$2,060	$2,060

NEXRAD Outyear Funding Profile
(Dollar Amounts in Thousands)

	FY 1998 and Prior	FY 1999 Pres. Approp.	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	To Complete	All Years
Procurement, Acquisition and Construction									
Program Management	61,199	930	615	$442	$0	$0	$0	$0	$63,186
Support Contracts	64,617	800	425	58	0	0	0	0	65,900
Acquisition/Deployment	427,750		1,000	1,000	1,000	0	0	0	430,750
Logistics Support	74,631		0	0	0	0	0	0	74,631
Facilities/Land	45,639		0	0	0	0	0	0	45,639
Planned Product Improvement	9,607	5,270	7,520	7,560	8,060	9,060	9,060	0	56,137
Operation & Maintenance	102,321	0	0	0	0	0	0	0	102,321
SAO Acquisition Management	4,364	0	0	0	0	0	0	0	4,364
Subtotal	790,128	7,000	9,560	9,060	9,060	9,060	9,060	0	842,928
Operations Research and Facilities									
Operation & Maintenance	79,636	38,346	39,325	39,325	39,325	39,325	39,325	///	314,607
Subtotal	79,636	38,346	39,325	39,325	39,325	39,325	39,325	///	314,607
PROGRAM TOTAL	$869,764	$45,346	$48,885	$48,385	$48,385	$48,385	$48,385	0	$1,157,535

/// Funding to Continue

Automated Surface Observing System (ASOS) (0 FTE, +$325,000): NOAA requests an increase of 0 FTE and $325,000 for this program in the PAC account to continue product improvement efforts in developing and test new sensor capabilities.

Background: ASOS is required to provide reliable, 24-hour per day, continuous automated surface weather observations.

Proposed Actions: The FY 2000 request supports the following product improvement activities: continuation of the development, testing and integration into ASOS of the dew point sensor, the ice-free wind sensor and the all-weather precipitation accumulation gauge; the continued evaluation of the enhanced precipitation identification sensor; and the initial deployment of the sunshine sensor.

Benefits: Implementation of ASOS into NWS field operations provides continuous weather watch and yields improved staff productivity. Product improvements enable ASOS to meet changing user requirements as well as decrease its maintenance demands.

Timeliness: Implementation of ASOS enhancements are required for NWS to reduce future ASOS maintenance levels and to meet future forecasting requirements.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
ASOS (NWS systems)					
Base					
installed	246	246	246	246	246
accepted	246	246	246	246	246
Additional ASOS (primarily scaled-down versions)					
installed	68	68	68	68	68
accepted	68	68	68	68	68

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
ASOS Product Improvement Activities					
Dewpoint Sensor					
development & testing	x	x			
field tested	0	0	20		
installed	0	40	165	300	950
Ice Free Wind Sensor					
development & testing	x				
field tested	0	0			
installed	0	0	20	100	246
All Weather Precip Gauge					
development & testing	x				
field tested	0	0	0		
installed	0	0	0	20	50
Enhanced Precip Ident Sensor					
development & testing	x	x			
field tested	0	0	0	20	
installed	0	0	0	0	40
Sunshine Sensor					
field tested	20				
installed	20	120	140	140	140

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
ASOS - Systems Acquisition	$240	$240	$240	$240	$240
Procurement, Acquisition and Construction	$325	$2,270	$3,710	$2,800	$1,640
Total Changes	$565	$2,510	$3,950	$3,040	$1,880
Less ORF Systems Acquisition O&M Changes . .	($240)	($240)	$240)	($240)	($240)
Net Procurement, Acquisition and Construction Change	$325	2,270	$3,710	$2,800	$1,640

ASOS Outyear Funding Profile
(Dollar Amounts in Thousands)

	FY 1998 and Prior	FY 1999 Pres. Approp	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	To Complete	All Years
Procurement, Acquisition and Construction									
Program Management*	$31,227	$0	$0	$0	$0	$0	$0	$0	$31,227
Exp. of Alt. Sys. Design*	13,128	0	0	0	0	0	0	0	13,128
Competitive Demonstration*	12,814	0	0	0	0	0	0	0	12,814
Full-scale Development*	5,978	0	0	0	0	0	0	0	5,978
Production/Deployment*	56,889	0	0	0	0	0	0	0	56,889
Planned Product Improvement*	12,952	3,855	4,180	6,125	7,565	6,655	5,495	0	46,827
Operation & Maintenance*	16,070	0	0	0	0	0	0	0	16,070
SAO Acquisition Management*		1,393	0	0	0	0	0	0	0
1,393									
Subtotal	150,451	3,855	4,180	6,125	7,565	6,655	5,495	0	184,326
Operations Research and Facilities									
Operation & Maintenance	9,402	7,116	7,573	7,573	7,573	7,573	7,573	///	54,382
Subtotal	9,402	7,116	7,573	7,573	7,573	7,573	7,573	///	54,382
PROGRAM TOTAL	$159,853	$10,971	$11,753	$13,698	$15,138	$14,228	$13,068	0	$238,709

/// Funding to Continue

AWIPS/NOAAPort (-19 FTEs; -$45,092,000): NOAA requests decreases of 19 FTEs and $45,092,000 for this program in the PAC account to support critical system deployment and ongoing development activities. This amount includes an additional $1,600,000 to procure AWIPS workstations for the proposed new Weather Forecast Offices at Key West, Florida and Caribou, Maine.

Background: AWIPS integrates and displays hydrometeorological data acquired from modernized sensors and local sources, provides computational and display functions at operational sites, and provides an interactive communications system to interconnect NWS operational sites, and disseminate warnings and forecasts in a rapid, highly reliable manner. Deployment of AWIPS is planned for completion by June 1999 incorporating Build 5.0 software. The FY 2000 request reflects the drop-off in procurement activity.

Proposed Actions: The FY 2000 request allows for the currently planned system evolution activities. Funds will be used to procure and install hardware to enable full utilization of NEXRAD data with AWIPS; provide cost effective methods for more efficient data transmission, storage and retrieval; and initiate activities to protect the AWIPS network against catastrophic failure, as recommended in the 1997 National Research Council Assessment on the AWIPS program.

Benefits: AWIPS will substantially improve the productivity of the staff involved with the performance of day-to-day NWS operations and significantly improve the timeliness and accuracy of weather forecasts and warnings.

Timeliness: AWIPS is critical to efficiently and effectively utilize modernized data sets; to replace aging and obsolete systems; and to achieve forecast office and target staffing levels in accordance with the NWS Restructuring and Modernization plan.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
AWIPS installed & accepted	152	154	154	154	154

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
AWIPS - Systems Acquisition	$25,813	$25,813	$25,813	$25,813	$25,813
Procurement, Acquisition and Construction	($45,092)	(46,142)	(59,767)	(64,167)	(65,117)
Total Changes	($19,279)	($20,329)	($33,954)	($38,354)	($39,304)
Less ORF Systems Acquisition O&M Changes . .	$25,813	$25,813	$25,813	$25,813	$25,813
Net Procurement, Acquisition and Construction Change	($45,092)	($46,142)	($59,767)	($64,167)	($65,117)

AWIPS Outyear Funding Profile
(Dollar Amounts in Thousands)

	FY 1998 and Prior	FY 1999 Pres. Approp.	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	To Complete	All Years
Procurement, Acquisition and Construction									
Program Management*	$35,738	$3,432	$2,950	$2,450	$1,950	$1,000	$500	///	$48,020
Exp. of Alt Sys. Design*	18,543	0	0	0	0	0	0	0	18,543
Full-scale Development*	265,746	8,976	0	0	0	0	0	0	274,722
Production, Deployment*	139,454	54,034	1,600	0	0	0	0	0	195,088
System Evolution*	0	250	17,200	18,350	5,450	2,000	2,050	0	45,300
SAO Acquisition Management*		5,995	975	825	725	500	500	0	0
9,520									
Operation & Maintenance*	12,769	0	0	0	0	0	0	0	12,769
Subtotal	478,245	67,667	22,575	21,525	7,900	3,500	2,550	0	603,962
Operations Research and Facilities									
Program Management			0	0	0	0	0		0
Operation & Maintenance	0	12,189	38,002	38,002	38,002	38,002	38,002	///	202,199
Subtotal	0	12,189	38,002	38,002	38,002	38,002	38,002	///	202,199
TOTAL	$478,245	$79,856	$60,577	$59,527	$45,902	$41,502	$40,552	0	$806,161

/// Funding to Continue

Upgrade Central Computer Facility (0 FTE, -$3,400,000): NOAA requests a total of $11,100,000 to make the 2nd lease payment on the Class VIII supercomputer and for operations and maintenance costs. Also included in the request is a transfer of $4,600,000 from the ORF account to the PAC account, for accounting purposes.

Background: The NWS Central Computer Facility provides the main supercomputing capability for the production of numerical weather prediction models, and their associated forecast guidance products used by NWS forecasters. Through continuing investments in supercomputer technology systems with higher data capacities and faster processing speeds, the NWS will be able to improve the accuracy and specificity of forecasts of major storms including hurricanes, severe thunderstorms, and winter storms. The central computer facility upgrade will also continue improvements in larger scale weather guidance products for day two and beyond. Improvements in these larger scale products will allow NWS forecasters to concentrate more on smaller-scale, short-term weather warnings and forecasts.

Proposed Actions: The NWS will make the 2nd lease payment on the Class VIII supercomputer. The NWS will also provide for necessary operations and maintenance costs associated with this supercomputer. These actions will permit NCEP to maintain continuity of its supercomputing capability and to continue implementing improvements in NWS forecast guidance products; especially for hurricane, aviation, and regional small-scale products.

Benefits: The proposed actions will increase public safety and protect property by providing NCEP with computer systems that are capable of: producing more accurate, longer-range forecasts, improving the delivery of forecast products to the field, and providing system users with enhanced productivity. These products and services will lead to significant economic benefits for users, i.e., the agriculture, construction, and transportation industries. The relative economic benefit of the Class VIII computer upgrade over the current C90 is estimated to reach $220 million per year based on planned improvements in numerical weather model prediction accuracy. Specifically, estimated fuel savings to U.S. airlines resulting from an 1% increase in the accuracy of forecast winds at flight level ($100 million); savings in evacuation costs realized by reducing the extent of over-warning for hurricane landfall by 25 kilometers per hurricane ($25 million based on 2 storms); reduced property damage from hurricanes ($63 million); reduced loss in oil and gas facility production in the Gulf of Mexico ($29 million); and reduced petroleum industry evacuation costs in the Gulf of Mexico ($3 million).

In addition to economic benefits, a 3-year operating lease allows NOAA to maximize computing power per dollar spent. Thus, a 3-year lease provides a significantly higher price-performance ratio than a traditional 5-year lease arrangement. Because advances in supercomputing technology are currently made in approximate 18 month cycles, the five-year lease arrangement creates a guaranteed lag between NCEP's capability and the supercomputing performance curve. To correct the lag in performance, the government would have to award a second lease at additional cost while continuing to pay for obsolete equipment with the current lease. The 3-year lease prevents this scenario by allowing the government to obtain the equipment while devoting current budget resources toward the next upgrade cycle.

Timeliness: Sufficient funding must be available to ensure continuity of NCEP's supercomputer operations.

Central Computer Upgrade Outyear Funding Profile
(Dollar Amounts in Thousands)

	FY 1998 and Prior	FY 1999 Approp	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	To Complete	All Years
Procurement, Acquisition and Construction									
Cray Y-MP8 (Replacement J-916)	2,700	400	0	0	0	0	0	0	3,100
Class VIII Acquisition (Oper Lease) *	0	9,000	0	0	0	0	0	0	9,000
NCEP Communications	0	0	0	985	985	985	985		3,940
Interactive Systems	0	500	500	750	750	750	750	0	4,000
Class VIII Acquisition (Oper Lease)			10,000	10,000	2,800				22,800
Front-End Computer Maint. Savings			(1,000)	(1,000)	(1,000)	(1,000)	(1,000)	0	(5,000)
Class VIII Maintenance & Support			1,600	1,600	1,000				4,200
Class IX Maint & Support			0	0	1,600	1,600	1,600		4,800
Class IX Acquisition			0	500	10,000	10,000	9,500		30,000
NWS Gateway*	2,300	0	0	0	0	0	0	0	2,300
Subtotal	5,000	9,900	11,100	12,835	16,135	12,335	11,835	0	79,140
Operations Research and Facilities									
Cray Y-MP8 (Replacement J-916)	35,062	0	0	0	0	0	0	0	35,062
Class VII Acquisition (C-90 Lease)	41,990	4,000	0	0	0	0	0	0	45,990
Front-End Computer Maint. Savings	(1,500)	(1,000)	0	0	0	0	0	0	(2,500)
Class VIII Maint & Support	0	1,600	0	0	0	0	0	0	1,600
Support Devices	4,426	0	0	0	0	0	0	0	4,426
Power Protection System	1,645	0	0	0	0	0	0	0	1,645
NWS Gateway	5,105	0	0	0	0	0	0	0	5,105
Subtotal	86,728	4,600	0	0	0	0	0	0	91,328
PROGRAM TOTAL	$91,728	$14,500	$11,100	$12,835	$16,135	$12,335	$11,835	0	170,468

* $1.8M used in FY 1999 to extend C90 operations through code conversion effort. Actual Class VIII investment is $30.0 M.

** Prior to FY 1998, all funding shown associated with categories included in the Procurement, Acquisition, and Construction account was provided in the ORF appropriation. The table above illustrates a total cost of Central Computer replacement through the Class IX Computer funding cycle.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Central Comp - Systems Acquisition	$ 0	$ 0	$ 0	$ 0	$ 0
Procurement, Acquisition and Construction	(3,400)	(1,665)	1,635	(2,165)	(2,665)
Total Changes	$ (3,400)	$ (1,665)	$ 1,635	$ (2,165)	$(2,665)

Radiosonde Replacement Network(+ 0 FTE, + $6,350,000): NOAA requests an increase of $6,350,000 for a total of $8,350,000, to continue the replacement of the radiosonde network. The FY 2000 base amount of $2,000,000 is transferred from ORF to the PAC account.

Background: The radiosonde network provides essential upper-air data needed for local to global numerical weather prediction models which generate the NWS central forecast guidance products. The current ground tracking system is obsolete and not maintainable due to the escalating costs of scarce replacement parts, and unavailability of certain components. Repairs have more than doubled over the past 5 years. Only two of the sites have fully functioning transponder decks for tracking the balloon after being carried over the horizon. Wind observations lost by this deficiency have resulted in model analyses misplacing the jet stream on certain occasions. New frequency allocations require bandwidth be reduced on the frequencies used to transmit data from the sonde to the ground. Reallocation of frequency spectrum in 1999 will place the radiosondes at risk of losing data due to interference from other band users, and force radiosondes to use frequencies that will increase interference with meteorological satellite operations. Both the radiosondes used and the ground equipment must be replaced at each of the 102 sites operated or supported by the NWS if the radiosonde program is to continue.

Proposed Actions: The funding request allows NWS to exercise the 1st option year of the replacement system contract to begin full deployment of ground receiving stations. In addition, funding will permit replacement of the remaining IBM PC/XT microcomputers in the network with modern workstations, completion of the software development which has been ongoing since FY 1996, and completion of surface instruments procurements to provide ground based measurements at the point of balloon release.

Benefits: Upper-air observations are essential for the production of accurate forecasts of weather events ranging from blizzards to hurricanes. Without these observations, the accuracy of the NWS weather prediction model output and associated weather forecasts would be seriously degraded. The radiosonde network is currently the primary source of upper-air data. Once the replacement system is operational (planned for 2003-2004), the data

availability will remain above 90 percent and the continuity of data will be ensured. The replacement system will also allow a reduction in the use of the radio frequency spectrum, thereby reducing the risk of interference to and from other users of the spectrum.

Timeliness: Prior to operational implementation of the replacement network, the current network will be subject to increasing risk of deterioration and radio transmission interference. These growing risks may impact the quality and continuity of upper air observations and therefore, basic NWS forecast products.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Radiosonde Replacement Systems Acquisition	$0	$0	$0	$0	$0
Procurement, Acquisition and Construction	+ $6,350	+ $6,350	+ $6,350	+ $6,350	+ $1,000
Total Changes	+ $6,350	+ $6,350	+ $6,350	+ $6,350	+ $1,000
Less ORF Systems Acquisition O&M Changes . .	$0	$0	$0	$0	$0
Net Procurement, Acquisition and Construction Changes	+ $6,350	+ $6,350	+ $6,350	+ $6,350	+ $1,000

High Performance Computing and Communications-GFDL (+ 0 FTEs, + $5,700,000): - NOAA requests an increase of $5,700,000 to lease or purchase a very large, scalable computer system that will provide critical computing, storage, and analysis capabilities to NOAA's Geophysical Fluid Dynamics Laboratory (GFDL). This computing initiative is essential if NOAA is to leverage the world-class research staff and modeling capabilities now in place at GFDL to address important research problems in climate and weather research. The laboratory's on-going model development effort, supported by HPCC, is positioning GFDL to take full advantage of the scalable architectures being developed by the American computer industry.

Background: Since NOAA scientists at GFDL developed the first coupled ocean-atmosphere climate model in 1969, these simulations have become the primary modeling tool for predicting climate behavior on time scales from months to centuries, with NOAA/GFDL research continuing to be at the forefront of this effort. Concern about climate change and the '97-98 El Niño event have spurred interest around the world, including the United States, for the development of national programs to improve climate prediction capabilities. Assuming responsibility for this program is an ambitious

but necessary endeavor for NOAA if we are to have sound, reliable predictions. However, the success of these efforts will depend heavily on physics-based climate modeling and fundamental climate science, two areas in which NOAA/GFDL scientists are among the world's leaders. A sharp increase in computing and archival capabilities is the remaining ingredient required to allow the Laboratory to attack the very difficult problems confronting the climate research community and to support on-going and developing research collaborations within NOAA and with other government agencies, academic institutions, and research centers around the world.

Proposed Actions: NOAA proposes to acquire a comprehensive scalable computer system, including very large computing and storage capacity and the balanced analysis, visualization, and technical support that will be required to make most effective use of state-of-the-art, HPCC-sponsored technology being developed by the American computer industry.

Benefits: This enhanced computational capability is essential for world class scientific talent at NOAA/GFDL to attack some of the most difficult, but critical problems that inhibit progress in decadal-centennial climate change projections, seasonal-interannual climate predictions, and the next-generation hurricane prediction system. These problems include: (1) *Cloud-Radiative Feedback*, the dominant source of uncertainty in today's climate change projections, and which demands a very large increase in computing capability to develop more realistic cloud representations for global climate models; (2) *Model Climate "Drift" and Improved Initialization of the Model Ocean*, one of the most vexing and universal problems in modeling the behavior of the climate system and a major barrier to providing the credible regional climate projections that are a high priority of coming U.S. and IPCC climate assessments; (3) *Physically Consistent Seasonal-Interannual Climate Prediction*, the key to developing improved physically-based model forecasts of El Niño events and gaining a better understanding of the processes controlling these events; (4) *Development of a More Advanced GFDL Hurricane Prediction System*, providing improved prediction of hurricanes, including changes in storm intensity and ocean responses. Progress toward resolving these problems is of great importance to the Nation, given the potential benefit to the national economy of more accurate projections of climate change and better predictions of El Niño events and tropical storms. Given GFDL's outstanding track record for leveraging its computational resources to produce critical scientific breakthroughs, the funding of this computational increase represents one of the best investments that the Nation can make toward the critical effort to improve climate change projections and weather predictions.

Measures of Performance:

The research drivers that are the focus of this initiative involve the very leading edge of research activities in climate and weather. In order to track the progress of these very difficult research efforts, NOAA/GFDL will provide a phased schedule for reporting scientific progress and execution of key modeling experiments over the life of the computing system through FY2004 to address the following four scientific objectives:

- Develop a more realistic model representation of cloud-radiative feedback. This will result in improved regional projections of climate change that will help the broader research community determine the impacts of climate change as part of the U.S. climate research program and the IPCC climate change assessment in 2005.
- Identify and evaluate sources of climate "drift" in long-running, higher resolution, coupled climate models, including investigation of the effects of the deep ocean circulation on model behavior.

- Develop the next-generation GFDL coupled research model using more realistic physics, higher resolution, and full ocean-atmosphere-soil coupling and evaluate its skill for seasonal-interannual climate prediction and its capability for elucidating the processes controlling El-Niño-Southern-Oscillation events.
- Develop a more advanced GFDL Hurricane Prediction System to further improve track forecasting accuracy and to provide improved prediction of wind and precipitation fields, storm surge, and changes in storm intensity.

Performance measures that track system capabilities such as computing and storage capacity will be implemented once the contract is awarded.

Milestones:

FY1999
- Perform market survey of industry, including release for vendor comment of early versions of possible benchmark codes.
- Issue Request For Information to solicit vendor comments regarding draft version of full benchmark suite and statement of needs.

FY2000
- Award contract.
- Complete site preparation and install initial systems.

FY2001
- Evaluate the capabilities of a more advanced GFDL Hurricane Prediction System for providing improved track forecasts as well as predicting other storm features, such as wind and precipitation fields and changes in storm intensity.

FY2002
- Demonstrate progress in improving the capabilities of the next-generation GFDL coupled research model for predicting seasonal-interannual climate and for elucidating some of the processes that control El-Niño-Southern-Oscillation events.

FY2003
- Isolate some sources of climate “drift” and define a strategy for reducing their effect on long-running, higher resolution coupled climate models.

FY2004
- Provide higher resolution projections of climate change, with improved representations of clouds and ocean circulation, to the impacts research community as part of the 2005 IPCC climate change assessment.

High Performance Computing and Communications
Geophysical Fluid Dynamics Laboratory
High Performance Computing System
(Dollar Amounts in Thousands)

	FY 1998 and Prior	FY 1999 Approp.	FY 2000	FY 2001	FY 2002	FY2003	FY2004	To Complete	All Years
Procurement, Acquisition, and Construction									
Lease to Purchase	0	0	4,200	6,500	6,500	6,500	6,500	30,200	30,200
Services	0	0	1,500	1,500	1,500	1,500	1,500	7,500	7,500
Total	0	0	5,700	8,000	8,000	8,000	8,000	37,700	37,700

ACE Follow-on/GEOSTORM (+0 FTE, +$4,340,000): NOAA requests $4,340,000 to acquire the equipment necessary to provide advanced warning of the most severe solar storms. This initiative is a component of the Natural Disaster Reduction Initiative and contributes to the fulfillment of the Department of Commerce's role in the National Space Policy by providing forecast and warning services to minimize the disruption of U.S. technological systems (and the activities they affect) from hazardous space weather. This request is independent of FY 1998 and FY 1999 initiatives which together would provide funding for a forecaster to be on duty 24 hours-a-day, 7 days-a-week during the next solar maximum

Background: Space Weather is a unique natural hazard that can endanger humans and cause disastrous impacts on the performance and reliability of space-borne and ground-based technological systems. On May 2, 1998, a large solar flare caused all high-frequency radio communications on the side of the Earth facing the Sun to fail for several minutes, including frequencies used for air traffic control around Long Island, New York. Intense bursts of radiation from solar flares can also damage satellites and harm astronauts. Fortunately, the pulse on May 2 was not strong enough to be a concern for the Shuttle and Mir crews' but Iridium, the company deploying a 66-satellite communications system scheduled to go into service in September, is looking into whether the storm was the cause of a coincidental satellite failure.

In conjunction with the flare, a large explosion on the sun hurled a tremendous mass of magnetically charged matter toward Earth. NOAA's upstream warning satellite, the Advanced Composition Explorer (ACE) detected the arrival of this solar storm on May 4, 1998, and relayed crucial data to NOAA forecasters. The 40+ minute advanced warning of the storm's impact at the Earth and expected intense geomagnetic activity it would produce gave the power industry enough time to reduce ties to vulnerable systems in Canada, prepare to manually handle system anomalies, and increase the capacity of the power grid to absorb the increase in current caused by the storm. This was critical given that a number of nuclear power plants in the northeast were shut down and unavailable to provide the power needed to regulate anomalies in the transformers. Had this type of advanced warning been available in 1989, the Quebec Province blackout and the destruction of a $10 million transformer in the United States likely could have been avoided.

Proposed Actions: Under this initiative, NOAA proposes to (1) maintain the continuity of an upstream geomagnetic storm warning system by ensuring a follow-on to the Advanced Composition Explorer satellite; (2) double warning lead time; (3) and demonstrate solar sails as viable technology for enabling the use of new orbits (e.g. "polar stationary") and interstellar exploration.

Upstream Warning System: As the recent solar storm on May 2-5, 1998 highlights, the need for continuous, real-time monitoring of space environment conditions upstream of Earth is critical. Not only does the capability provide enough warning time for mitigatory actions to be taken, it also increases our accuracy for predicting these storms from >30% to nearly 100%. The follow-on system to ACE called GEOSTORM will use cutting edge technology to move closer to the sun and double the warning time. Representatives from the communications, navigation, and satellite operations communities joined colleagues from the power industry at a Users Conference held in April, 1998 in advocating an ACE follow-on as the highest priority for NOAA Space Weather Services.

Benefits: The country's expanding reliance on technological systems over the past decade has increased our risk for this form of natural disaster. NOAA's goal is to reduce this risk by improving our ability to predict and provide warning of severe space weather events. The development of a follow-on to the Advanced Composition Explorer was determined to be the top priority by both the National Space Weather Program and Industry.

Even without the multiplier effect, the economic losses from space weather events can be staggering: $3-6 Billion loss in GNP from a region-wide grid collapse; $10M per power transformer destroyed; $20M-$250 + M for a communications or weather satellite replacement; and more than a $1K per second loss by the new LEO and MEO telecommunication satellite constellations. In addition, a recent conservative study estimated that the electric utilities would save $32 million per year if better space weather services were available. NOAA expects that the proposed actions will provide longer warning times which will allow customers to make better decisions on how to protect their assets.

GEOSTORM is not only a NOAA necessity, but also a national one. The program is a keystone component of the National Space Weather Plan and will not only advance NOAA's mission in forecasts and warnings, but will also support: (1) DOC efforts to reduce the costs of disruptive weather; (2) DOC interests in the commercialization of space (Office of Air and Space Commercialization); (3) industry efforts to develop a commercial space weather services industry; (4) international trade in US technologies (Office of Telecommunications, ITA), and (5) manned space flights and the International Space Station by providing better access to health hazard data. Wherever possible efforts have been made to leverage resources from as many sources as possible. The total budget for GEOSTORM will be distributed among at least three separate agencies (NOAA, NASA, and DOD) as the parties combined their respective needs into one interagency proposal.

The May 2-5, 1998 storm was typical of the size and type of space weather disturbance we can expect to see frequently during solar maximum and several years thereafter. Although it was only 1/4 the strength of the superstorms in 1989 and 1991 it produced ominous impacts which demonstrate the vulnerability of our high-tech society. This initiative will not only promote the security and reliability of our systems, but will also position the United States as the world leader in the markets of the new millennium.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Objective: Maintain satellite continuity/Ensure the continuity of real-time solar wind measurements					
Number of operational upstream space weather storm warning satellites	1 (ACE)	1 (ACE)	1 (ACE)	1 (GEOSTORM)	1 (GEOSTORM)
Objective: Enhance environmental observations and predictions/Improve lead time and forecast accuracy for geomagnetic storms					
Warning of Geomagnetic Storm Onset (in minutes)	40-60	40-60	40-60	80-120	80-120

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Change from FY 2000 Base					
ACE Follow-on/GEOSTORM	4,340	6,140	6,580	6,580	6,580

Polar-Orbiting System (+ 0 FTE, + $21,162,000): NOAA request a total increase of $21,162,000 for this program in the Procurement, Acquisition and Construction account to provide for the continuation of the current polar-orbiting satellite acquisition program and for the inclusion of the converged National Polar-Orbiting Environmental Satellite System (NPOESS).

This increase is the net sum of the decease in the current polar K-N' program and an increase to the Polar Convergence program:

NOAA Polar (K-N') (0 FTE, -$8,938,000): NOAA requests a decrease of -$8,938,000 to continue the procurement of the NOAA L through N' satellites, instrument, launch services and ground systems. In FY 2000 these funds are required to maintain spacecraft production at the contractor's Sunnyvale, California facility which was relocated from New Jersey in 1998. The request also includes funds necessary to complete the instruments for the European METOP satellite which will replace NOAA's morning polar orbiting satellite.

In FY 2000 procurement will continue for the new Delta launch vehicle which will be used to launch NOAA-N and N'. The satellites preceding NOAA N will be launched on Titan launch vehicles.

National Polar-Orbiting Environmental Satellite System (NPOESS) (+ 0 FTE, + $30,100,000): NOAA requests an increase of + 0 FTE, and $30,100,000 for the continuation of the polar-orbiting satellite program beyond the NOAA K through N' series.

This FY 2000 request represents NOAA's share of the Converged NOAA/DoD/NASA program. NOAA and DoD contribute equal funding for NPOESS on an annual basis. In FY 2000 funds will be required for the five most technologically challenging NPOESS instruments through Preliminary Design Review and to finalize design efforts for both the Defense Meteorological Satellite Program (DMSP) and the NOAA Polar Orbiting Environmental Satellite (POES) early flights of opportunity. These instruments include: the Visual/Infrared Imaging Radiometer Suite (VIIRS), the Conical Microwave Imaging Sounder (CMIS), the Cross-track Infrared Sounder (CrIS), the Ozone Mapper Profiler Sensor (OMPS) and Global Positioning System Occultation Sensor (GPSOS). Continuation of these contracts is necessary for their timely development, critical to a successful risk reduction strategy for NPOESS and ultimately the availability of the NPOESS system to replace both the DMSP and POES when needed. In addition to continuation of these instrument development contracts, FY 2000 funds will support Internal Government Studies (IGS) among multiple universities and government laboratories to provide proof of concept for instrument techniques and/or methodologies and to investigate feasibility for satisfying the highest priority currently unaccommodated environmental data requirements for the converged system. NPOESS system definition and design efforts involving industry, government, and university talents account for most of the remainder of the FY 2000 request. The converged satellite program combines the requirements of both the civil and national security communities into a single national system. NPOESS through early flights of opportunity will improve the use of existing assets, provide improved data to the national security and the civil users earlier than expected. In addition, NPOESS will defer major system funding commitments until absolutely necessary based on the launch success and health of existing assets, and save the taxpayer substantial funds in both the near and long term. The FY 2000 request will ensure the continued health and success of this vital national program.

Background: NOAA is the civilian satellite agency responsible for providing the Nation with global environmental data. These data are critical input to NOAA's National Weather Service forecasts and warnings, and are used in global climate and other environmental analyses. The polar-orbiting spacecraft also provide one of the two satellite systems that make up the international Search and Rescue program.

Proposed Actions: The proposed funding level continues the procurement of the NOAA L through N' satellites, instruments, launch services, ground systems support to provide coverage until the converged polar-orbiting satellites (NPOESS) become operational. Also included in this request is funding to continue procurement of instruments that will be flown on METOP polar orbiting environmental satellites that is planned to provide morning coverage after NOAA (15). The National Polar-orbiting Operational Environmental Satellite System (NPOESS) program will complete Phase 1 design and development of five key sensors and algorithms, and initiate Phase 2 production of these sensors to meet the civil and national security requirements for acquiring and disseminating global and regional, space based, remotely-sensed environmental data. In addition, Phase 1 design and development of the Space Environmental Sensor Suite will be initiated.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
ORF, Satellite Observing Systems	$0	$0	$0	$0	$0
Procurement, Acquisition and Construction (multi year appropriation)	+ $21,162	+ $28,277	+ $78,336	+ $104,282	+ $194,824
Net Procurement, Acquisition and Construction Change	+ $21,162	+ $28,277	+ $78,336	+ $104,282	+ $194,824

POLAR-ORBITING SYSTEM
(Dollar amounts in thousands)

	FY 98 & Prior	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	TO COMPLETE	ALL YEARS
Procurement, Acquisition and Construction									
NOAA K-N'									
Spacecraft	$871,174	$122,582	$104,218	$75,476	$ 60,371	44,626	35,972	70,619	1,385,038
Launching	132,914	20,985	23,812	26,168	26,932	23,123	19,319	23,392	296,645
Ground Systems	50,896	5,400	11,999	12,000	10,000	5,000	5,000	////	100,295
Dual Pass Opns	2,692	950	950	950	950	950	950	////	8,392
Subtotal	1,057,676	149,917	140,979	114,594	98,253	73,699	61,241	94,011	1,790,370
Polar Convergence	89,500	50,000	80,100	113,600	180,000	230,500	333,500	2,209,750	3,286,950
Total Program	$1,147,176*	$199,917	$221,079	$228,194	$278,253	$304,199	$394,741	$2,303,761	$5,077,320

//// - Funding to be determined.

* Includes the effects of rescissions and reprogrammings.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
POES and DMSP global temperature and water vapor profiles collected [millions]	400	700	900	1,200	1,200
POES cloud cover images collected	40,000	40,000	40,000	40,000	40,000
Collections from remote terrestrial and marine observations from Argos (POES) platforms [millions]	4.4	4.6	4.8	5.0	5.2
Remote Argos platforms in service end of year (POES)	6,700	7,000	7,300	7,600	7,900
POES Global ozone measurements collected	485,000	485,000	485,000	485,000	485,000
Number of global ocean surface winds [millions]	101.0	101.0	101.0	101.0	101.0
Number of RADARSAT Ice Products	3,000	3,200	3,200	3,200	3,200
Number of CoastWatch Users	3,200	4,200	4,500	4,800	5,000
Upgrade CoastWatch Regional Nodes	0	0	0	0	0
New coastal hazards products/services developed and available	1	2	1	0	0
Number of ocean color scenes available to CoastWatch Nodes	1,500	1,500	1,500	2,500	2,500
Emergency locator signals collected from aircraft and ships in distress	22,300	23,400	24,500	25,700	27,000
Emergency beacons in at end of year	839,000	875,000	900,000	935,000	975,000

Geostationary System (+0 FTE, +$1,473,000): NOAA requests a net increase of 0 FTE and +$1,473,000 for this program in the Procurement, Acquisition and Construction account to provide for continued procurement of GOES I-M geostationary satellites and instruments, launch services, ground systems, systems support, and the procurement of additional GOES systems (GOES N-Q) necessary to maintain continuity of geostationary operations.

1) GOES I-M (0 FTE, -$5,294,000): NOAA requests a decrease of 0 FTE and -$5,294,000 to continue production of the GOES L and M satellites, related launch services and ground systems. GOES 8 and 10 are currently providing operational geostationary coverage. GOES K(10) which was launched in April 1997 was serving as an on-orbit spare until July 1998 when it was placed in operations to replace GOES 9. Due to operational problems GOES 9 was placed in storage in August 1998 as a spare with limited capability. GOES L is planned for launch in Spring 1999 and GOES M will be available for launch in Spring of 2000. This requested decrease in funding reflects the normal year-to-year cost variances associated with multi year systems procurements.

2) GOES N-Q (0 FTE, +$6,767,000): Funding is requested in FY 2000 to continue production of up to four additional satellites required beyond the GOES I through M series currently in production. In FY 2000 these funds will be used to continue funding the firm fixed price contract for GOES N-Q spacecraft and launch services which was awarded in January 1998. In addition, under separate contract, production will continue for the Imager and Sounder instruments required for these satellites. The production of the Solar Xray Imager (SXI) instruments will also continue under a third contract. The first in this series of satellites will be available for launch in fall of 2001. Evolutionary improvements to the system will be incorporated to meet National requirements and to exploit technological advances. This request includes funds to begin technical concept designs and studies of what manufactures can cost effectively produce for the next series of GOES instruments, the first set of which will fly on GOES-Q. These instruments will have the additional capabilities required to meet unmet NWS requirements.

This request provides funding for upgrading and replacing aging and deteriorating ground systems to allow for continuation of operations for the remainder of the GOES I-M series through the end of its lifetime in about 2007. This funding will also be used for implementing GOES N-Q ground systems which require solid state transmitters and expansion of the front-end sensor data processing system.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
ORF - Satellite Observing Systems	$0	$0	$0	$0	$0
Procurement, Acquisition and Construction (multi year appropriation)	+ $1,473	+ $39,082	($22,341)	($27,410)	($42,669)
Total Changes	+ $1,473	+ $39,082	($22,341)	($27,410)	($42,669)
Less ORF Satellite Observing Systems Changes . .	(0)	(0)	(0)	(0)	(0)
Net Procurement, Acquisition and Construction Change	+ $1,473	+ $39,082	($22,341)	($27,410)	$(42,669)

GEOSTATIONARY SYSTEM
(Dollar amounts in thousands)

	FY 98 & Prior	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	TO COMPLETE	ALL YEARS
Procurement, Acquisition and Construction									
GOES I-M:									
Spacecraft	$1,243,919	37,376	34,682	18,715	15,460	10,976	8,509	4,922	1,374,559
Launching	315,193	44,500	41,900	39,400	0	0	0	////	440,993
Ground Systems	76,359	0	0	0	0	0	0	0	76,359
Subtotal	1,635,471	81,876	76,582	58,115	15,460	10,976	8,509	4,922	1,891,911
Wallops Backup	7,305	500	500	500	500	500	500	0	10,305
Total I-M/Wallops	1,642,776	82,376	77,082	58,615	15,960	11,476	9,009	4,922	1,902,216
GOES N-Q:									
Spacecraft/Launching	207,249	179,156	177,533	230,609	211,841	211,256	198,464	609,306	2,025,414
Ground Systems	27,440	3,610	12,000	15,000	15,000	15,000	15,000	////	103,050
Subtotal N-Q	234,689	182,766	189,533	245,609	226,841	226,256	213,464	609,306	2,128,464
Total Program	$1,877,465	$265,142	$266,615	$304,224	$242,801	$237,732	$222,473	$614,228	$4,030,680

//// - Funding to be determined.

* Includes the effects of rescissions and reprogrammings.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Number of quantitative precipitation estimates produced (GOES)	1,400	1,400	1,400	1,400	1,400
Accuracy of quantitative precipitation (GOES) [Percent]	75	75	75	75	75
Satellite derived atmospheric moisture profiles GOES [millions]	17.52	17.52	17.52	17.52	17.52
Satellite derived wind velocity estimates (GOES) Western Hemisphere [millions]	35.0	35.0	35.0	35.0	35.0
GOES Atmospheric soundings collected over the US [millions]	17.52	17.52	17.52	17.52	17.52
GOES cloud images collected	96,200	96,200	96,200	96,200	96,200
Collections from GOES DCS remote platforms [millions] 35.7		34.5	34.8	35.1	35.4
GOES DCS platforms in service end of year	15,782	16,413	17,069	17,751	18,460
Number of severe weather system tracked (GOES, POES, and non-NOAA satellites	180	180	180	180	180
Percent of time devoted to severe storms tracking (Percent)	30	30	30	30	30
Number of new CoastWatch product line added	2	0	0	0	0

//// - Funding to be determined.

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Systems Acquisition**
Subactivity: **Systems Acquisition**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	6,270
25.3	Purchases of goods and services from Government accounts	31,573
26	Supplies and materials	4,066
31	Equipment	9,755
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	51,664

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE PERSONNEL DETAIL
(DOLLAR AMOUNTS IN THOUSANDS)

Activity: Procurement, Acquisition and Construction
Subactivity: Systems Acquisition

Title:	Grade	Number	Annual Salary
Physical Scientist	14	(1)	(88,557)
Electrical Engineer	14	(4)	(477,416)
Electrical Engineer	13	(1)	(61,567)
Electrical Engineer	12	(1)	(52,656)
Computer Specialist	14	(3)	(238,644)
Computer Specialist	13	(1)	(65,397)
Program Analyst	12	(1)	(59,626)
Program Analyst	13	(1)	(57,704)
Telecom Specialist	14	(1)	(119,354)
Telecom Specialist	13	(1)	(65,397)
General Engineer	14	(4)	(313,676)
Contract Specialist	13	(1)	(65,397)
Contract Specialist	13	(1)	(57,704)
Budget Analyst	13	(2)	(130,794)
Total		(23)	($1,853,889)

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE PERSONNEL DETAIL
(DOLLAR AMOUNTS IN THOUSANDS)

Activity: Procurement, Acquisition, and Construction
Subactivity: Systems Acquisition

Personnel Data	Number
Full-Time Equivalent Employment	
Full-time permanent	(23)
Other than full-time permanent	0
Total	(23)
Authorized Positions:	
Full-time permanent	(23)
Other than full-time permanent	0
Total	(23)

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Systems Acquisition**
Subactivity: **Systems Acquisition**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	(3,579)
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	(3,579)
12.1	Civilian personnel benefits	(934)
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	(44,795)
25.3	Purchases of goods and services from Government accounts	(8,939)
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(58,247)

PROCUREMENT, ACQUISITION AND CONSTRUCTION (PAC)
CONSTRUCTION
STRATEGIC PLANNING GOALS AND OBJECTIVES

The Construction activity of the Procurement, Acquisition and Construction (PAC) account supports all of NOAA's Strategic Planning Goals, either directly, or as supporting infrastructure. Below is a brief characterization of the PAC account in the context of these goals.

GOAL - ADVANCE SHORT TERM WARNING AND FORECAST SERVICES

NOAA is well underway toward completing the largest modernization and restructuring effort in the history of the NWS. This effort will result in the transition of the current weather office structure to 121 Weather Forecast Offices (WFOs) and 13 River Forecast Centers (RFCs). Infrastructure requirements which support this major undertaking include implementing facilities modernization program; and completing the restructuring of the National Meteorological Center into the National Centers for Environmental Prediction (NCEP).

GOAL - BUILD SUSTAINABLE FISHERIES

In support of the Build Sustainable Fisheries Goal, NOAA has received funding to construct modern research facilities at Santa Cruz, California in order to perform mission-critical work. The Santa Cruz Research Laboratory is needed to replace severely deteriorated facilities at Tiburon, California with modern, safe facility.

GOAL - ALL STRATEGIC PLAN GOALS

The NOAA Strategic Plan, which provides a framework for articulating program goals, forms the basis of the NOAA budget formulation process, from which resource priorities are established. The strategy consists of seven inter-related program goals, which enable the implementation and advancement of national, Department of Commerce, and NOAA objectives. The laboratory being built in Boulder, Colorado supports all seven of these goals.

Construction
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Advance Short-Term Warning and Forecast Services										
Complete NWS Modernization	5	13,823	5	10,376	5	10,376	5	16,912		6,536
Infrastructure		1,285		2,823		2,823				(2,823)
Total ASTWFS	**5**	**15.108**	**5**	**13,199**	**5**	**13,199**	**5**	**16,912**		**3.713**
Implement Seasonal to Interannual Climate Forecast										
Infrastructure		29		64		64				(64)
Total ISICF		**29**		**64**		**64**				**(64)**
Predict and Assess Decadal-to-Centennial Change										
Infrastructure		29		64		64				(64)
Total PADCC		**29**		**64**		**64**				**(64)**
Promote Safe Navigation										
Infrastructure										
Total PSN										
Build Sustainable Fisheries										
Infrastructure		31,472		9,195		9,195		1,000		(8,195)
Total BSF		**31,472**		**9,195**		**9,195**		**1,000**		**(8,195)**
Recover Protected Species										
Infrastructure		254		559		559				(559)
Total RPS		**254**		**559**		**559**				**(559)**
Sustain Healthy Coasts										
Infrastructure		13,030		11,115		11,115		15,000		3,885
Total SHC		**13,030**		**11,115**		**11,115**		**15,000**		**3,885**
Infrastructure										
Construction/Facilities/Env. Compliance										
Total Infra										
Total for Const	**5**	**59,922**	**5**	**34,196**	**5**	**34,196**	**5**	**32,912**		**(1,284)**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINSTRATION
PROCUREMENT, ACQUISITION, AND CONSTRUCTION
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: Construction

Line Item		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Boulder	Pos./BA.	0	2,900	0	6,370	0		0		0	
	FTE/Obl.	0	2,857	0	6,413	0	6,370	0	0	0	(6,370)
NWS WFO Construction	Pos./BA.	5	13,823	5	9,526	5		5		0	
	FTE/Obl.	4	13,740	5	11,134	5	9,526	5	13,367	0	3,841
National Centers for Environmental Prediction	Pos./BA.	0	0	0	850	0		0		0	
	FTE/Obl.	0	805	0	1,045	0	850	0	0	0	(850)
Santa Cruz Research Lab	Pos./BA.	0	15,200	0	4,200	0		0		0	
	FTE/Obl.	0	2,078	0	17,378	0	4,200	0	0	0	(4,200)
Nat'l Estuarine Research Reserve Construction	Pos./BA.	0	8,000	0	7,300	0		0		0	
	FTE/Obl.	0	8,897	0	7,379	0	7,300	0	12,000	0	4,700
Honolulu Fisheries Lab	Pos./BA.	0	2,000	0	0	0		0		0	
	FTE/Obl.	1	820	0	3,439	0	0	0	0	0	0
Gulf Coast Lab	Pos./BA.	0	5,000	0	0	0		0		0	
	FTE/Obl.	0	0	0	6,000	0	0	0	0	0	0
Alaska Facilities Juneau	Pos./BA.	0	8,000	0	0	0		0		0	
	FTE/Obl.	0	3,435	0	11,542	0	0	0	1,000	0	1,000

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINSTRATION
PROCUREMENT, ACQUISITION, AND CONSTRUCTION
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: Construction (Continued)

Line Item		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Pribilof Island Cleanup	Pos./BA.	0	5,000	0	700	0		0		0	
	FTE/Obl.	2	3,383	0	13,959	0	700	0	0	0	(700)
Marine Sanctuaries	Pos./BA.	0	0	0	0	0		0		0	
	FTE/Obl.	0	0	0	0	0	0	0	3,000	0	3,000
NORC Rehabilitation	Pos./BA.	0	0	0	0	0		0		0	
	FTE/Obl.	0	0	0	0	0	0	0	3,545	0	3,545
Charleston/Fort Johnson	Pos./BA.	0	0	0	3,000	0		0		0	
	FTE/Obl.	0	0	0	3,000	0	3,000	0	0	0	(3,000)
Outer Banks Community Foundation	Pos./BA.	0	0	0	750	0		0		0	
	FTE/Obl.	0	0	0	750	0	750	0	0	0	(750)
New York Facilities	Pos./BA.	0	0	0	1,500	0		0		0	
	FTE/Obl.	0	0	0	1,500	0	1,500	0	0	0	(1,500)
Total	Pos./BA	**5**	**59,923**	**5**	**34,196**	**5**		**5**		**0**	
	FTE/OBL.	**7**	**36,015**	**5**	**83,539**	**5**	**34,196**	**5**	**32,912**	**0**	**(1,284)**

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction (PAC)
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Construction**

Background

The objectives of this account are to capture the non-recurring costs of acquiring and/or improving capital assets used by NOAA in carrying out its varied missions. Creation of this account meets the requirement of OMB Circular A-11 as amended, and NOAA's request seeks advanced appropriations for certain assets falling into this category. Advanced appropriations will allow NOAA to realize procurement efficiencies, management accountability, as well as to reflect full cost of acquisition and/or improvement of an asset.

Goal Statement

To provide for land acquisition, the construction of new facilities, and additions to existing facilities in the most economical, efficient and effective manner.

Proposed Legislation

No legislation is proposed for FY 2000.

Base Program

New Construction: The FY 2000 base program for Procurement, Acquisition and Construction (PAC) provides for land acquisition, construction, and related expenses for new facilities, and major additions and/or modifications to existing facilities. The base program also includes projects previously approved for which appropriations were received in prior fiscal years. Although over time the mix of specific projects changes, the purpose of the account is for capital assets acquisition. Below is a description of the base projects funded in the PAC account in FY 2000.

Boulder Laboratory, above-standard costs: This activity includes funds for the construction cost differential between the standard General Services Administration office building and the type of facility needed to perform NOAA's scientific, operational and research and development programs in Boulder, Colorado.

National Weather Service & Weather Forecast Office (WFO) Construction: A major facilities modernization program is nearly complete that will meet National Weather Service (NWS) Weather Forecast Office (WFO) facility requirements supporting the provision of public weather services and the nationwide fielding of NEXRAD systems. The program involves land acquisition, engineering, facility design, and site preparation, modification, and construction of 121 WFOs and 13 collocated River Forecast Centers (RFCs). The facilities effort is structured by the NWS to ensure completion of the WFOs/RFCs in sufficient time to receive the NEXRAD units as contractually scheduled and also ensures retrofit of completed facilities to comply with building codes, safety and maintainability requirements. In addition, this program provides for NWS construction projects located in Alaska and Pacific Region.

National Centers for Environmental Prediction (NCEP): The restructuring of the National Meteorological Center (NMC) into the NCEP requires new facility construction, above standard facility construction, and relocation costs necessary to establish 2 new centers: the Aviation Weather Center in Kansas City, KS and the Storm Prediction Center in Norman, OK. Establishment of these centers is necessary to organize personnel in single locations based on function within the environmental prediction mission. Restructuring NMC into the NCEP was essential to 1) satisfy the growing need for centralized environmental prediction for the Nation, 2) capitalize on the investment in the modernization of the NWS, 3) ensure rapid transfer of new scientific advances into operational prediction and, 4) make cost-effective use of resources.

Santa Cruz Research Laboratory: The construction of a fisheries laboratory at Santa Cruz, California is underway. The Santa Cruz Lab will replace existing facilities at Tiburon, California, which are inadequate for modern laboratory research and are in poor physical condition.

***National Estuarine Research Reserve System*:** The NERRS will expand from its current 22 reserves to a total of 27 within the next two to three years.

***Juneau Laboratory*:** The facility would replace the current outdated Auke Bay lab and expand NMFS groundfish and ecosystem research capabilities significantly, as well as provide for a focal point for national and international conferences and meetings addressing the valuable marine resources of the North Pacific.

***Marine Sanctuaries*:** Projects in FY2000 would include development of a visitor center for NOAA’s Florida Keys NMS that takes advantage of a current opportunity for an interagency partnership (with the National Park Service and U.S. Fish and Wildlife Service) on surplus Navy property in Key West; and development of outreach/education facilities with aquaria for the Monterey Bay and Stellwagen Bank NMSs.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Weather Forecast Offices:				
Build/Lease	110	113	115	119
Occupied	110	113	114	119

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Construction	Pos/BA	5	$34,196	5	$32,912		($1,284)
	FTE/Obl	5					

Boulder Laboratory, above-standard costs (0 FTE, -$6,370,000): NOAA requests a decrease of $6,370,000 in FY 2000 for the Boulder Laboratory construction project in FY 2000, reflecting the fact that the above-standards costs and moving expenses associated with the new research facility in Boulder are a non-recurring expenditure provided for in previous years. Occupancy of the new building is scheduled for February 1999.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total changes (multi year appropriation)	–6,370	–6,370	–6,370	–6,370	–6,370

WFO Construction (0 FTE, +$3,841,000): NOAA requests an increase of $3,841,000 for WFO Construction. This funding will complete the original NWS Facilities Modernization program. Specifically, the request will fund existing WFO leases and retrofit projects, such as meeting safety and fire code requirements, will continue at selected sites. In addition, the request includes funding to continue the NWS/FAA Alaska Employee Housing project, and construct new Weather Forecast Offices in Caribou, Maine and Key West, Florida. The construction of new WFOs in Key West and Caribou were recommended by the Secretary of Commerce in December of 1997, following a special two year study prepared by a team of experts from the Department of Commerce.

Background: The remaining NWS systems are now being deployed, and it is critically important that the facilities keep pace to support the Weather Forecast Office (WFO) transition. The Facilities Modernization Program will provide 121 modernized WFO's and 13 River Forecast Centers at end state.

Proposed Actions: The construction program will continue in FY 2000. The architectural, engineering, administrative, and management efforts associated with construction will likewise ramp down and remaining Government Furnished Equipment (GFE) will be procured. Retrofits to previously completed WFOs will also continue to bring all facilities up to current code, add needed space, and improve maintainability. In FY 2000, the NWS needs to continue:

! WFO Caribou & Key West - Begin preliminary facility architectural design, engineering, and preliminary site work for the new Weather Forecast Offices.

! Retrofit Program - Many completed facilities now require retrofits due to changes in code requirements, safety, conditions, and mission. Major categories of retrofit are:

- Requirements Catch-Up: Build additional storage facilities, expand undersized parking facilities, and the correction of HVAC (Heating, Ventilation, and Air Conditioning) controls and equipment to eliminate temperature fluctuations.

- Safety: Completion of handicap access code items, and UPS modifications.

- Maintainability Investments: Various site improvements (drainage, landscaping), installation of load banks, and energy management improvements.

! Lease Payments - The NWS must continue to pay rent for the 13 WFO facilities which were converted to leases.

! NWS/FAA Alaska Employee Housing - NWS has an agreement with the FAA to join in its employee housing construction project at sites where NWS and FAA housing is co-located. Current housing associated with NWS Weather Service Offices date back to the 1940's, and 1950's, and suffer extensive structural and systems deterioration. Joining the FAA construction efforts will be more cost effective to both agencies than independent efforts to upgrade and retrofit current structures. In conjunction with the current FAA planning for FY 2000, in partnership with the Corps of Engineers, construction of 3 single family units and 1 duplex unit at Barrow, and 3 single family units at McGrath, is required. NWS will continue preliminary architectural and engineering work, and real property acquisition will commence at Nome, Annette, and St. Paul. Under the NWS modernization plan, NWS employees will still maintain a presence at current Alaska sites for weather data collection purposes. Housing must continue to be provided at these locations where residential real estate and leasing markets do not exist.

Benefits: Consolidating the current services and operations of approximately 300 offices into 121 "high-tech" WFOs is a key element toward the transition to modernized weather services.

Timeliness: The NWS must build or otherwise provide up-to-date, code-compliant facilities in time to accommodate all modernization systems (NEXRAD, AWIPS, etc.). Failure to do so could result in programmatic impacts that could adversely affect NWS mission accomplishment.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Weather Forecast Offices:					
Build/Lease	119	121	121	121	121
Occupied	119	121	121	121	121

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total Changes (multi-year appropriation)	+3,841	+2,699	+3,198	–1,974	–990

National Centers for Environmental Prediction (NCEP) (0 FTE, -850,000): NOAA requests a decrease of $850,000 for establishment of the NCEP, reflecting the completion of the Aviation Weather Center in Kansas City.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total Changes (multi-year appropriation)	–850	–850	–850	–850	–850

Santa Cruz Laboratory (0 FTE, -$4,200,000): NOAA requests a decrease of $4,200,000 for the Santa Cruz Laboratory construction project. The $4,200,000 requested in FY 1999 combined with the $15.2 million provided in FY 1998 fully funds the Santa Cruz lab project at $19,400,000. No further funding is needed to complete this project.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total changes (multi year appropriation)	–4,200	–4,200	–4,200	–4,200	–4,200

National Estuarine Research Reserve System (0 FTE, + $4,700,000): NOAA requests a net increase of $4,700,000 for the National Estuarine Research Reserve System (NERRS). As part of the Lands Legacy initiative to Protect and Restore Marine Resources, NOAA requests a total of $12.0 million to meet operational needs for NERRS by providing additional protection of key estuarine habitats through land acquisition and construction of facilities for existing and new reserves. The System will expand from its current 22 reserves to an anticipated total of 27 reserves by the end of FY 2000. Over 540,000 acres of estuarine habitat are currently protected by NERRS, which will increase to over 1,000,000 acres with the addition of five new reserves and ongoing acquisition efforts. However, a majority of reserves have identified additional, near-by critical habitat in need of protection and to serve as places for conducting long-term science, education, and demonstration programs.

Examples of acquisitions that would be accomplished include: wetlands and other habitat slated for development; threatened and endangered species habitat; areas for habitat restoration; additional areas for conducting long-term research on water quality, land uses, and estuarine functions; and sites for construction of NERRS public facilities. Additional funding is also needed for facility construction at each of 5 new reserves (in Alaska, Mississippi, Florida, California, and New York), and for supplementing or updating facilities at the existing 22 reserves. This increase would provide funds to develop construction plans and initiate construction of core facilities at the new reserves. Additions or renovations at existing reserves would be funded based on current needs for implementing core NERRS programs and external opportunities. A decrease of $7.3 million is requested reflecting the discontinuation of funding in the amount of $1.3 million for the Kasitsna Bay Lab & Kachemak Bay NERR and $6.0 million for Great Bay NERR land acquisition, as directed by FY 1999 appropriations.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total changes (multi year appropriation)	+4,700	+4,700	+4,7000	+4,700	+4,700

Juneau Laboratory (0 FTE, +$1,000,000): The request includes $1,000,000 to complete the planning and design of a new state-of-the-art Marine Fisheries Research Laboratory near Juneau, Alaska. The facility would replace the current outdated Auke Bay lab and expand NMFS groundfish and ecosystem research capabilities significantly, as well as provide for a focal point for national and international conferences and meetings addressing the valuable marine resources of the North Pacific.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total changes (multi year appropriation)	+1,000	+15,000	$20,000	0	0

Marine Sanctuaries (0 FTE, +$3,000,000)**:** As part of the Lands Legacy initiative to Protect our Marine Resources, NOAA is requesting an increase of $3.0 million to develop a comprehensive facilities plan for the National Marine Sanctuary (NMS) Program that prioritizes needs and opportunities at individual sites and to construct sanctuary visitor centers and collaborative education projects. One of the most significant hurdles to interpreting and understanding the value of the unique and significant resources of the Sanctuaries is their location off-shore, limiting direct access for most of the public. Crucial to appreciating these resources and their importance is a direct link between the resources and the people. Currently, the program has no means to provide this visitor experience. A central element of the education and outreach strategy will be a network of regional visitors centers, where the public and environmental decision makers can gain direct, objective and focused information on major conservation issues. This would be accomplished when ever possible, through cooperative centers that would take advantage of already existing aquaria, museums, and other appropriate facilities through partnerships. For example, projects in FY2000 would include development of a visitor center for NOAA's Florida Keys NMS that takes advantage of a current opportunity for an interagency partnership (with the National Park Service and U.S. Fish and Wildlife Service) on surplus Navy property in Key West; and development of outreach/education facilities with aquaria for the Monterey Bay and Stellwagen Bank NMSs. The result will be a system of public visitors centers that support an expanded marine education and outreach effort for the nation's most significant marine protected areas.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Program Changes (Outlined above)	+3,000	+3,000	+3,000	+3,000	+$3,000

NOAA NESDIS and NWS Operations Centers Rehabilitation: (0 FTE, +$3,545,000)

NESDIS Program Requirement (+$3,045,000): NOAA requests an increase of $3.0 million for the NOAA Operations Center Rehabilitation at Federal Building #4, Suitland Federal Center, Maryland. NOAA requires these funds for the launch and command of GOES N-Q satellites. NESDIS must have this capability in order to continue support of its GOES satellite data mission. In FY 2000, $3.0 million is required for NESDIS for a minimum level of repair and renovation to existing space to accommodate the 7,000 sf expansion needs for command and control and support activities for the GOES N-Q satellites. The renovation work includes HVAC replacement, rehabilitation of raised flooring, replacement of ceilings/lighting, rehabilitation of windows and asbestos abatement. The GOES N-Q ground system equipment is being acquired through a fixed price contract with delivery scheduled for March 2000. NESDIS must have its facility prepared for the delivery and installation at that time, or it will incur significant delay cost under the contract as well as delay the scheduled launch of the GOES N satellite.

NWS Program Requirement (+$500,000): NOAA requests an increase of $500,000 to begin procurement and installation of a continuous electric backup system for the NWS Central Computer Facility (Class VIII Supercomputer) in FB4. This is a NWS/NCEP requirement to prevent disruption of service due to an electrical outage.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Program Changes (Outlined above)	+3,545	+2,380	0	0	0

Other Requests in the PAC - NOAA requests the following decreases/terminations: Pribilof Islands Environmental Cleanup, $0.7 million; Charleston/Fort Johnson joint lab, $3.0 million; the Outer Banks Community Foundation, $0.8 million; the Long Island Bayshore Aquarium, $1.0 million; the New York Botanical Gardens, $0.5 million; and Fisherman's health care, $1.0 million.

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Procurement, Acquisition and Construction

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Construction**
Subactivity: **Construction**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	$0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting Services	0
25.2	Other services	8,386
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	7,700
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	$16,086

Exhibit 15

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Direct Obligations amounts in thousands)

Activity: **Construction**
Subactivity: **Construction**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	$0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	(925)
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25	Other services	0
26	Supplies and materials	(13,495)
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(2,950)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	($17,370)

Procurement, Acquisition and Construction
FLEET REPLACEMENT
STRATEGIC PLANNING GOALS AND OBJECTIVES

The Fleet Replacement activity of the Procurement, Acquisition and Construction account supports NOAA's Build Sustainable Fisheries Strategic Planning Goals. Below is a brief characterization of the Fleet Replacement account in the context of these goals.

GOAL - BUILD SUSTAINABLE U.S. FISHERIES

The Fleet Replacement activity ensures that NOAA will be able to continue to provide observation and data collection platforms in support of assessing the status of fishery resources, improving fishery predictions, reducing bycatch, and managing fisheries stocks.

Fleet Replacement
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Build Sustainable Fisheries										
Infrastructure								51,567		51,567
Total BSF								**51,567**		**51,567**
Total for Fleet								**51,567**		**51,567**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINSTRATION
PROCUREMENT, ACQUISITION, AND CONSTRUCTION
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: Fleet Replacement

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
Line Item		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fleet Replacement	Pos./BA.	0	0	0	0	0		0		0	
	FTE/Obl.	0	0	0	0	0	0	0	51,567	0	51,567
Total	Pos./BA	**0**	**0**	**0**	**0**	**0**		**0**		**0**	
	FTE/OBL.	**0**		**0**		**0**	**0**	**0**	**51,567**	**0**	**51,567**

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Fleet Replacement**

Background

The objectives of this account are to capture the non-recurring costs of acquiring and/or improving capital assets used by NOAA in carrying out its varied missions. Creation of this account meets the requirement of OMB Circular A-11, as amended and NOAA's request seeks advanced appropriations for assets falling into this category. Advanced appropriations will allow NOAA to realize procurement efficiencies, management accountability, as well as to reflect full cost of acquisition and/or improvement and upgrades of ship systems, subsystems and equipment.

Goal Statement

Modernize NOAA's fisheries, survey, and oceanographic research ship support capability to allow critical data collection requirements to be met effectively well into the 21st century.

Proposed Legislation

No legislation is proposed for this activity.

Base Program

There were no funds requested in this account in FY 1999.

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fleet Replacement	Pos/BA	0	$0		$51,567		$51,567
	FTE/Obl						

New Fisheries Research Vessel (0 FTE, +$51,567,000): NOAA requests an increase of $51,567,000 in the Procurement Acquisition and Construction account for the construction of a new Fisheries Research Vessels. Funding to design this replacement vessel was included in the non-Capital FY 1998 Appropriation. Fisheries research vessels (FRVs) are essential for conducting the stock assessment surveys necessary to monitor species' abundance, recruitment, age composition and their responses to ecological changes and fisheries pressure. The collection of fisheries and marine mammal information at-sea is essential to this mission and to this mission and to the development of sensible regulations governing commercial and recreational fishing activities.

NOAA's nine current fisheries research vessels are reaching the end of their useful lives and are becoming technologically obsolete. Replacement of these existing vessels, combined with chartering university and private commercial sources to the maximum extent possible, will enable NOAA to carry out its responsibilities under the Magnuson-Stevens Fisheries Conservation and Management Act, Marine Mammal Protection Act, and the Endangered Species Act. Ship resources will be devoted to the sea time needed to assess the status of fisheries stock and populations of marine mammals. Significant improvement is anticipated in the quality of the data collected because of the more capable dedicated fisheries research vessels. Reduced error margins resulting from better quality data could allow for higher fishing quotas in many fisheries without jeopardizing the resources.

The vessels needed to support the Build Sustainable Fisheries and Recover Protected Species elements of the NOAA Strategic Plan must be highly capable platforms. They must provide, depending on the mission, varying range and endurance, equipment to conduct bottom and midwater trawls, long lining, and pot hauling, egg and larval studies, bottom grabs, beam trawl operations, and submersible and scuba operations. The ships also require a standard suite of state-of-the-art scientific sensors, e.g., Acoustic Doppler Current Profilers (ADCP), Conductivity, Temperature, and Depth (CTD) instruments. They must have the ability to conduct hydro-acoustic fish surveys, support remote (underwater, aerial, and satellite) sensing operations, and conduct real-time oceanographic and meteorological sampling. The ships must also be highly maneuverable at low speeds and be acoustically "quiet" to minimize avoidance reactions of fish and marine mammals. They must have sufficient and equipped laboratory spaces, uninterruptible power,

and on-board scientific data acquisition and processing systems. They must meet modern safety and habitability standards and international conventions for marine pollution, and have conference space as well as a sufficient number of berths to accommodate the scientific complement and crew.

To maintain the consistency and continuity of the time-series data, it is imperative that an effort to replace the existing platforms begin immediately. Many time-series assessments, using known gear and vessels for decades, provide the very foundation of our advice to managers. To maintain time-series continuity, new vessels will operate parallel to existing platforms to calibrate the new ships prior to the existing vessels decommissioning.

Measures of Performance

	2000 Estimate	2001 Estimate	2002 Estimate	2003 Estimate	2004 Estimate
Construction of Fishery Research Vessels Funded by FY (of 4 total)	1	1	1	1	0
# of Fishery Research Vessels delivered (of 4 total)	0/4	0/4	0/4	1/4	2/4

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total changes (multi year appropriation)	+ $51,567	+ $51,000	+ $39,778	+ $40,226	+ $2,060

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction

PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: **Fleet Replacement**
Subactivity: **Fleet Replacement**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.1	Consulting services	0
25.2	Other services	40,266
26	Supplies and materials	1,970
31	Equipment	9,331
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	0
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	51,567

Other PAC
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Build Sustainable Fisheries										
Infrastructure				1,000		1,000				(1,000)
Total BSF				**1,000**		**1,000**				**(1,000)**
Total for Other PAC				**1,000**		**1,000**				**(1,000)**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINSTRATION
PROCUREMENT, ACQUISITION, AND CONSTRUCTION
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: Other Procurement, Acquisition, and Construction

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease)	
Line Item		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fishermen's Health Care	Pos./BA.	0	0	0	1,000	0		0		0	
	FTE/Obl.	0	0	0	1,000	0	1,000	0	0	0	(1,000)
Total	Pos./BA	**0**	**0**	**0**	**1,000**	**0**		**0**		**0**	
	FTE/OBL.	**0**		**0**		**0**	**1,000**	**0**	**0**	**0**	**(1,000)**

Activity: **Other Procurement, Acquisition, and Construction**

Proposed Legislation

No legislation is proposed for this activity.

Base Program

Funding of $1,000,000 was provided in FY 1999 for fishermen's health care. This funding was allocated to the eligible fishermen in the states of New Hampshire, Rhode Island, Maine, and Massachusetts.

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fishermen's Health Care	Pos/BA	0		0		0	
	FTE/Obl	0	$1,000	0	$0	0	($1,000)

Fishermen's Health Care (0 FTE, –$1,000,000): NOAA requests a decrease of $1,000,000 in the Procurement Acquisition and Construction account for Fishermen's Health Care.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total changes (multi year appropriation)	–$1,000	–$1,000	–$1,000	–$1,000	–$1,000

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Procurement, Acquisition, and Construction

PROGRAM CHANGE DETAIL BY OBJECT CLASS

Activity: **Other Procurement, Acquisition, and Construction**
Subactivity: **Fishermen's Health Care**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.2	Other services	0
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(1,000)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(1,000)

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent	15,341	11,754	11,754	8,175	(3,579)
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	15,341	11,754	11,754	8,175	(3,579)
0	Civilian personnel benefits	3,760	2,785	2,785	1,851	(934)
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	1,095	997	997	997	0
22	Transportation of things	24	24	24	24	0
23.1	Rental payments to GSA	0	925	925	0	(925)
23.2	Rental payments to others	3,500	0	0	0	0
23.3	Commun., util., misc. charges	3,790	337	337	337	0
24	Printing and reproduction	44	44	44	44	0
25.1	Consulting services	0	0	0	0	0
25.2	Other services	244,755	334,222	275,571	272,203	(3,368)
25.3	Purchase of goods and services from Government accounts	237,962	286,423	286,423	309,058	22,635
26	Supplies and materials	1,559	6,837	6,837	12,873	6,036
31	Equipment	11,401	6,027	6,027	25,113	19,086
32	Lands and structures	18,158	3,553	3,553	3,553	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	23,935	0	0	3,750	3,750
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	565,324	653,928	595,277	637,978	42,701

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Less prior year recoveries		(4,000)	(7,400)	(7,400)	
Unobligated balance, start of year	(138,966)	(65,251)	0		
Unobligated balance, end of year	65,251				
Total Budget Authority	491,609	584,677	587,877	630,578	42,701
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	239	185	185	162	(23)
Other than full-time permanent				0	0
Total	239	185	185	162	(23)
Authorized Positions:					
Full-time permanent	239	185	185	162	(23)
Other than full-time permanent				0	0
Total	239	185	185	162	(23)

Exhibit 17

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	2000 ATBs	2000 Base	2000 Estimate	Increase/ (Decrease)
11	Personnel compensation				
11.1	Full-time permanent	0	11,754	8,175	(3,579)
11.3	Other than full-time permanent	0	0	0	0
11.5	Other personnel compensation	0	0	0	0
11.8	Special personnel services payments	0	0	0	0
11.9	Total personnel compensation	0	11,754	8,175	(3,579)
12.1	Civilian personnel benefits	0	556	475	(81)
	Civil service retirement	0	0	0	0
	Federal Employee Retirement	0	920	256	(664)
	Medicare	0	119	102	(17)
	Thrift savings plan	0	153	131	(22)
	Federal insurance contribution act	0	498	426	(72)
	Health insurance	0	515	440	(75)
	Life insurance	0	24	21	(3)
	Subtotal	0	2,785	1,851	(934)
13.0	Benefits for former personnel	0	0	0	0
21	Travel and transportation of persons	0	997	997	0
22	Transportation of things	0	24	24	0
23.1	Rental payments to GSA	0	925	0	(925)
23.2	Rental payments to others	0	0	0	0
23.3	Communications, utilities and miscellaneous ch	0	337	337	0
24	Printing and reproduction	0	44	44	0
25.1	Consulting services	0	0	0	0
25.2	Other services	6,600	275,571	272,203	(3,368)

Exhibit 17

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	2000 ATBs	2000 Base	2000 Estimate	Increase/ (Decrease)
25.3	Purchases of goods & services from Gov't acc	0	286,423	309,058	22,635
25.4	Operation of GOCOs	0	0	0	0
25.5	Research and development contracts	0	0	0	0
26	Supplies and materials	0	6,837	12,873	6,036
31	Equipment				
	Office machines and equipment	0	0	0	0
	ADP hardware	0	0	0	0
	Other capitalized	0	6,027	25,113	19,086
	Depreciation on capitalized equipment	0	0	0	0
	Non-capitalized	0	0	0	0
	Subtotal	0	6,027	25,113	19,086
32	Lands and structures				
	Building and Other Structures	0	3,553	3,553	0
33	Investments and loans	0	0	0	0
41	Grants, subsidies and contributions	0	0	3,750	3,750
42	Insurance claims and indemnities	0	0	0	0
43	Interest/dividends..	0	0	0	0
44	Refunds	0	0	0	0
99	**Total Direct Obligations**	6,600	595,277	637,978	42,701

Exhibit 17

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

Object Class	2000 ATBs	2000 Base	2000 Estimate	Increase/ (Decrease)
Less prior year recoveries	(3,400)	(7,400)	(7,400)	0
Less unobligated balance, start of year				
Less unobligated balance, transfer				
Plus unobligated balance, end of year				
Budget Authority	3,200	587,877	630,578	42,701
Discretionary Budget Authority	3,200	587,877	630,578	42,701
FTE	0	185	162	(23)
Positions	0	185	162	(23)

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Procurement, Acquisition and Construction Account
APPROPRIATION SUMMARY STATEMENT

For procurement, acquisition and construction of capital assets, including alteration and modification costs, of the National Oceanic and Atmospheric Administration, [$584,677,000, to remain available until expended: *Provided*, That not to exceed $67,667,000 is available for the advanced weather interactive processing system, and may be available for obligation and expenditure only pursuant to a certification by the Secretary of Commerce that the total cost to complete the acquisition and deployment of the advanced weather interactive processing system through Build 4.2 and NOAA Port system, including program management, operations, and maintenance costs through deployment, will not exceed $71,790,000: *Provided further,] to become available on October 1 of the fiscal year specified and remain available until expended: fiscal year 2000, $630,578,000 of which $15,000,000 shall be derived from the Land and Water Conservation Fund, and of which $51,567,000 is available for the construction of a fisheries research vessel; fiscal year 2001, $610,674,000; fiscal year 2002, $586,757,000; fiscal year 2003, $586,559,000; fiscal year 2004, $654,866,000; fiscal year 2005, $275,108,000; fiscal year 2006, $263,685,000; fiscal year 2007, $263,685,000; fiscal year 2008, $263,685,000; fiscal year 2009, $263,687,000; fiscal year 2010, $244,882,000; fiscal year 2011, $244,884,000; fiscal year 2012, $157,839,000; fiscal year 2013, $157,839,000: fiscal year 2014, $157,839,000; fiscal year 2015, $157,839,000; fiscal year 2016, $157,839,000; fiscal year 2017, $157,839,000; fiscal year 2018, $157,839,000: Provided, That such funds are available for next generation weather radars; the automated surface observing system network; the advanced weather interactive processing system; central computer facility upgrades; polar-orbiting operational environmental satellites (K-N' series); national polar-orbiting operational environmental satellite system; geostationary operational environmental satellites (I-M and N-O series); the Boulder laboratory above-standard cost construction items; National Weather Service weather forecast offices; facilities that house the National Centers for Environmental Prediction; the National Marine Fisheries Service Research Laboratory at Santa Cruz; the Radiosonde Replacement Program; the General Dynamic Laboratory Supercomputer; the ACE Follow-on/GEOSTORM satellites; the National Estuarine Research Reserve; the Juneau, Alaska facilities; Marine Sanctuaries; and the NOAA Operation Research Center Rehabilitation*: *Provided*

further, That unexpended balances of amounts previously made available in the "Operations, Research, and Facilities" account for activities funded under this heading may be transferred to and merged with this account, to remain available until expended for the purposes for which the funds were originally appropriated. (*Department of Commerce and related Agencies Appropriations Act, 1999, as included in Public Law 105-277, section 101(b).)*

PROMOTE AND DEVELOP FISHERY PRODUCTS AND RESEARCH PERTAINING TO AMERICAN FISHERIES

All unobligated balances available in the Fisheries Promotional Fund are rescinded: Provided, that all obligated balances are transferred to the "Operations, Research, and Facilities" account.

COASTAL ZONE MANAGEMENT FUND

Of amounts collected pursuant to section 308 of the Coastal Zone Management Act of 1972 (16 U.S.C. 1456a), not to exceed $4,000,000 [, for purposes set forth in sections 308(b)(2)(A), 308(b)(2)(B)(v), and 315(e) of such Act], *shall be transferred to the Operations, Research, and Facilities account to pay the administrative costs of implementing such Act. (Department of Commerce and Related Agencies Appropriations Act, 1999, as included in Public Law 105-277, section 101(b).)*

FISHERIES FINANCE PROGRAM ACCOUNT

For the cost of direct loans, [$338,000] *$238,000,* as authorized by the Merchant Marine Act of 1936, as amended: *Provided,* That such costs, including the cost of modifying such loans, shall be as defined in section 502 of the Congressional Budget Act of 1974: *Provided further,* That none of the funds made available under this heading ma be used for direct loans for any new fishing vessel that will increase the harvesting capacity in any United States fishery.

For the administrative expenses of carrying out the direct loan program, $1,700,000.

For carrying out a vessel buyout program in the full-time scallop fishery in the Northeast $8,320,000, as authorized by the Magnuson-Stevens Fishery Conservation and Management Act, as amended, of which $8,000,000 is available for direct payments in such vessel buyout program; and of which $320,000 is available for the cost of direct loans to finance that portion of such vessel buyout program not funded through direct payments, including the cost of modifying such loans: Provided That such direct loan obligations shall be repaid by fees established b the Secretary of Commerce as authorized by the Magnuson-Stevens Fishery Conservation of Management Act. (Department of Commerce and Related Agencies Appropriations Act, 1999, as included in Public Law 105-277, section 101(b).)

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Appropriation Language and Code Citations:
Procurement, Acquisition and Construction Account

1. For necessary expenses of activities authorized by law for the National Oceanic and Atmospheric Administration,

5 USC 5348	15 USC 1517	16 USC 1531	33 USC 853 et seq.
7 USC 1622	15 USC 1537-40	16 USC 1801 et seq.	33 USC 1251
12 USC 1715m	15 USC 2901 et seq.	16 USC 4101	33 USC 1441-44
15 USC 313	15 USC 5601 et seq.	16 USC 4701	33 USC 2706
15 USC 313a	16 USC 661 et seq.	16 USC 5001 et seq.	33 USC 2801 et seq.
15 USC 313b	16 USC 757a et seq.	30 USC 1412	42 USC 8902-05
15 USC 313nt	16 USC 1361	30 USC 1419	42 USC 9601 et seq.
15 USC 325	16 USC 1431 et seq.	30 USC 1424	43 USC 1347e
15 USC 330b	16 USC 1444	30 USC 1428	44 USC 1307
15 USC 330e	16 USC 1447a et seq.	30 USC 1469	49 USC 44720
15 USC 1511d	16 USC 1451 et seq.	30 USC 1470	
44 USC 1307	16 USC 1464	33 USC 706 et seq.	

Organizations and Employees

5 USC 5348 - Crews of Vessels.

"…the pay of officers and members of crews of vessels excepted from chapter 51 of this title by section 5102(c)(8) of this title shall be fixed and adjusted from time to time as nearly as is consistent with the public interest in accordance with prevailing rates and practices in the maritime industry."

Agriculture

7 USC 1622 - Distribution and Marketing of Agricultural Products

"The Secretary … is directed and authorized: …

(a) to determine the needs and develop or assist in the development of plans for the proper assembly, processing, transportation, storage, distribution, and handling of agricultural (fish) products.

(f) to conduct and cooperate in consumer education for the more effective utilization and greater consumption of agricultural products (fish)…

(g) to collect and disseminate marketing information… for the purpose of … bringing about a balance between production and utilization of agricultural (fish) products.

(h) to inspect, certify, and identify the class, quality, quantity and condition of agricultural (fish) products …

(m) to conduct … research … to determine the most efficient … processes for the handling, storing, preserving, protecting…of agricultural (fish) commodities …"

(h) - Duties of Secretary relating to agricultural products; penalties

"Whoever knowingly shall falsely make, issue, alter, forge, or counterfeit any official certificate, memorandum, or other identification, with respect to inspection, class, grade, quality, size, quantity, or condition, issued or authorized under this section or knowingly cause or procure, or aid assist in, or be a party to, such false making, issuing, altering, forging, or counterfeiting, or whoever knowingly shall possess, without promptly notifying the Secretary (of Commerce) or his representative, utter, published, or used as true, any such falsely made, altered forged, or counterfeited official certificate, memorandum, mark, identification, or device, or whoever knowingly represents that an agricultural product has been officially inspected or graded…when in fact such commodity has not been so graded or inspected shall be fined not more than $1,000 or imprisoned not more than one year, or both."

Banks and Banking

12 USC 1715m - Mortgage Insurance for Servicemen [NOAA Corps].

This section authorizes payment of Federal Housing Administration (FHA) home mortgage insurance premiums to NOAA Corps Officers.

Commerce and Trade

15 USC 313 - Duties of Secretary of Commerce [National Weather Service].

"The Secretary of Commerce…shall have charge of the forecasting of weather,…issue of storm warnings,…weather and flood signals,… gauging and reporting of rivers,…collection and transmission of marine intelligence…,…reporting of temperature and rainfall conditions…, the display of frost and cold-wave signals, the distribution of meteorological information…, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States, or as are essential for the proper execution of the foregoing duties."

15 USC 313 note - Weather Service Modernization Act

"(a) As part of the budget justification documents submitted to Congress in support of the annual budget request for the Department of Commerce, the Secretary shall include a National Implementation Plan for modernization of the National Weather Service" setting for specified modernization actions for the following two fiscal years."

15 U.S.C. 313a - Establishment of meteorological observation stations in the Arctic region.

"… The Secretary of Commerce shall … take such actions as may be necessary in the development of an international basic meteorological reporting network in the Arctic region of the Western Hemisphere…"

15 USC 313b - Institute for Aviation Weather Prediction

"The Administrator of the National Oceanic and Atmospheric Administration shall establish an Institute for Aviation Weather Prediction that shall provide forecasts, weather warnings, and other weather services to the United States aviation community…."

15 USC 330b - Duties of Secretary relating to Weather Modification Activities or Attempts - Reporting Requirement.

(a) "The Secretary shall maintain a record of weather modification activities, including attempts, which take place in the United States and shall publish summaries thereof from time to time as he determines."

15 USC 330e - Authorization of Appropriations relating to Weather Modification Activities or Attempts - Reporting Requirement.

This section provides funding authority to support the reporting requirements specified in this chapter.

15 USC 1511d - NOAA Estuarine Programs Office.

"… The Estuarine Programs Office shall develop, coordinate, and implement the estuarine activities of the administration with the activities of other Federal and State agencies. There are authorized to be appropriated to the Administration not to exceed $560,000 for fiscal year 1989, and $600,000 for fiscal year 1990."

15 USC 1514 - Basic authority for performance of certain functions and activities of Department.

"Appropriations are authorized for the following activities of the Department of Commerce:

(a) furnishing to employees…and their dependents, in Alaska and other points outside the continental United States, free emergency medical services…and supplies;

(b) …purchasing, transporting, storing, and distributing food and other subsistence supplies for resale to employees…and their dependents, in Alaska and other points outside the continental United States at a reasonable value…; the proceeds from such resales to be credited to the appropriation from which the expenditure was made;

(c) …establishment, maintenance, and operation of messing facilities, by contract or otherwise, in Alaska and other points outside the continental United States…, such service to be furnished to employees…and their dependents,…

(d) reimbursement…of officers or employees in or under the Department…for food, clothing, medicines, and other supplies furnished by them in emergencies for the temporary relief of dislocated persons in remote localities;

(e) providing motion-picture equipment and film for recreation of crews of vessels…, for…employees in remote localities…, and for training purposes;

(f) erecting, altering, repairing, equipping, furnishing, and maintaining…such living quarters and facilities as may be necessary to carry out its authorized work at remote localities not on foreign soil where such living and working accommodations are not otherwise available."

15 USC 1517 - Transfer of statistical or scientific work.

"The President is authorized, by order in writing, to transfer at any time the whole or any part of any office, bureau, division, or other branch of the public service engaged in statistical or scientific work, from the Department of State, the Department of the Treasury, the Department of Defense, the Department of Justice, the United States Postal Service, or the Department of the Interior, to the Department of Commerce; and in every such case the duties and authority performed by and conferred by law upon such office, bureau, division, or other branch of the public service, or the part thereof so transferred, shall be thereby transferred with such office, bureau, division, or other branch of the public service, or the part thereof which is so transferred. All power and authority conferred by law, both supervisory and appellate, upon the department from which such transfer is made, or the Secretary thereof, in relation to the said office, bureau, division, or other branch of the public service, or the part thereof so transferred, shall immediately, when such transfer is so ordered by the President,

be fully conferred upon and vested in the Department of Commerce, or the Secretary thereof, as the case may be, as to the whole or part of such office, bureau, division, or other branch of the public service so transferred."

15 USC 1537 - 1540 Needs Assessment for Data Management.

"Not later than 12 months after October 29, 1992, and at least biennially thereafter, the Secretary of Commerce shall complete an assessment of the adequacy of the environmental data and information systems of NOAA"

Conservation

16 USC 661 et seq.- Declaration of purpose; cooperation of agencies; surveys and investigations; donations.

"…the Secretary of the Interior is authorized (1) to provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat, in controlling losses of the same from disease or other causes, in minimizing damages from overabundant species, in providing public shooting and fishing areas, including easements across public lands for access thereto, and in carrying out other measures necessary to effectuate the purposes of said sections; (2) to make surveys and investigations of the wildlife of the public domain, including lands and waters or interests therein acquired or controlled by any agency of the United States; and (3) to accept donations of land and contributions of funds in furtherance of the purposes of said sections."

16 USC 757a et seq.

The Act authorizes cooperative agreements with States "that are concerned with the development, conservation, and enhancement of [anadromous] fish" (section 757a(a)). Section 757d authorizes $4,250,000 for each of fiscal years 1998, 1999, and 2000.

16 USC 1361 - Congressional Findings.

"The Congress finds that - (1) certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man's activities;"

> "The Secretary is authorized to make grants, or to provide financial assistance in such other form as he deems appropriate, to any Federal or State agency, public or private institution, or other person for the purpose of assisting such agency, institution, or person to undertake research in subjects which are relevant to the protection and conservation of marine mammals, and shall provide

financial assistance for, research into new methods of locating and catching yellow-fin tuna without the incidental taking of marine mammals."

16 UCS 1431 et seq. - Findings, Purposes, and Policies [The National Marine Sanctuaries Act, as amended].

(b) Purposes and Policies

"The purposes and policies of this title are -

(1) to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance;
(2) to provide authority for … conservation and management of these marine areas …
(3) to support, promote, and coordinate scientific research on, an monitoring of,. the resources of these marine areas…
(4) to enhance public awareness, understanding, appreciation, and wise use of the marine environment;
(5) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;
(6) to develop and implement coordinated plans for the protection and management of these areas…;
(7) to create models of, and incentives for, ways to conserve and manage these areas…"
(8) to cooperate with global programs …; and
(9) to maintain, restore, and enhance living resources …"

16 USC 1444 - Authorization of Appropriations.

"There are authorized to be appropriated to the Secretary" -

(1) $12,000,000 for fiscal year 1997;
(2) $15,000,000 for fiscal year 1998; and
(3) $18,000,000 for fiscal year 1999.

16 USC 1447a et seq. - Regional Marine Research Programs

Authorizes NOAA/EPA and Governors of certain states to appoint members to a number of regional marine research boards. Each board is to develop a comprehensive four year marine research plan and "the Administrator of the National Oceanic and Atmospheric Administration shall administer a grant program to support the administrative functions of each Board."

Authorization for the Boards expires on October 1, 1999. The authorization for appropriations expired at the end of fiscal year 1996.

16 USC 1451 et seq. - Findings, Purposes, and Policies [Coastal Zone Management Act]

Establishes a voluntary partnership between the Federal Government and coastal States. It also establishes the National Estuarine Reserve Research program, in which the Secretary of Commerce may designate an estuarine area as a national estuarine research reserve in consultation with governor of affected state.

16 USC 1464 - Authorization of Appropriations.

"(a) There are authorized to be appropriated to the Secretary- (1) for grants under sections 306, 306A, and 309 - (A) $47,600,000 for fiscal year 1997; (B) $49,000,000 for fiscal year 1998; and (C) $50,500,500 for fiscal year 1999; (2) for grants under section 315-(A) $4,400,00 for fiscal 1997; (B) $4,500,000 for fiscal year 1998; and (C) $4,600,000 for fiscal year 1999.

16 USC 1531 et seq.

The purposes of the Act are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in [the statute]" (section 11531(b)).

16 USC 1801 et seq,

Magnuson-Stevens Fishery conservation and Management Act.

The primary purpose of the Act is "to take immediate action to conserve and manage the fishery resources found off the coasts of the United States (section 1801(b)(1)).

16 USC 4101 et seq.

"The purposes of this chapter are - (1) to promote and encourage State activities in support of the management of interjurisdictional fishery resources, and (2) to promote and encourage management of interjurisdictional fishery resources through their range" (section 4101). Section 4107(a) authorizes $4,400,000 for each of fiscal years 1998, 1999, and 2000.

16 USC 4701 - Aquatic Nuisance Prevention and Control

Establishes an interagency Aquatic Nuisance species Task Force, of which the Administrator of NOAA is a co-chair. The task force's responsibilities include developing and implementing "a program for waters of the United States to prevent introduction and dispersal of aquatic nuisance species; to monitor, control and study such species; and to disseminate related information."

16 USC 5001 et seq. - Purpose of Convention.

"It is the purpose … to implement the Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean, signed in Moscow, February 11, 1992."

Mineral Lands and Mining

30 USC 1412 - Licenses for exploration and permits for commercial recovery

"The Administrator shall issue to applicants who are eligible therefore licences for exploration and permits for commercial recovery."

30 USC 1419 - Protection of the Environment

The Administrator shall assess the effects on the environment from deep seabed hard mineral resources exploration and commercial recovery activities … and shall conduct a continuing program of ocean research.

30 USC 1424 - Monitoring Exploration and Commercial Recovery

Authorizes the Administrator to place observers aboard vessels engaged in the exploration or commercial recovery of deep seabed hard mineral resources.

30 USC 1428 - Reciprocating States

Provides a mechanism for the Administrator of NOAA, in consultations with the Secretary of State, to designate as reciprocating States, nations that recognize U.S. licenses under the DSHMRA and have compatible regulatory regimes.

30 USC 1469 - Biennial Report

The Administrator shall submit to the Congress not later than December 31 of each second year after September 30, 1981, a report on the administration of the Deep Seabed Hard Mineral Resources Act.

30 USC 1470 - Authorization of Appropriations

Authorizes appropriations for NOAA through FY 94 to carry out provisions of the Deep Seabed Hard Mineral Resources Act.

Navigation and Navigable Waters

33 USC 706 et seq. - Department of Commerce; current precipitation information; appropriation.

"There is authorized an expenditure as required,…, for the establishment, operation, and maintenance by the Secretary of Commerce of a network of recording and non-recording precipitation stations, known as the Hydroclimatic Network, whenever…such service is advisable…"

33 USC 883a et seq. - Surveys and other activities.

"…the Secretary…is authorized to conduct the following activities:

(1) Hydrographic and topographic surveys;
(2) Tide and current observations;
(3) Geodetic-control surveys;
(4) Field surveys for aeronautical charts;
(5) Geomagnetic, seismological, gravity, and related geophysical measurements and investigations, and observations …"

33 USC 883b - Dissemination of data; further activities.

"…the Secretary is authorized to conduct the following activities:

(1) Analysis and prediction of tide and current data;
(2) Processing and publication of data…;
(3) Compilation and printing of aeronautical charts…;
(4) Compilation and printing of nautical charts…;
(5) Distribution of aeronautical charts…;
(6) Distribution of nautical charts…"

33 USC 883c - Geomagnetic data; collection; correlation, and dissemination.

"To provide for the orderly collection of geomagnetic data…the Secretary … is authorized to collect, correlate, and disseminate such data."

33 USC 883d - Improvement of methods, instruments, and equipments; investigations and research.

"…the Secretary … is authorized to conduct developmental work for the improvement of surveying and cartographic methods, instruments, and equipments; and to conduct investigations and research in geophysical sciences…"

33 USC 883e - Cooperative Agreements for Surveys and Investigations; contribution of costs incurred by National Oceanic and Atmospheric Administration.

"(1) The Secretary of Commerce is authorized to enter into cooperative agreements with, and to receive and expand funds made available by… for surveys or investigations… or for performing related surveying and mapping activities… and for the preparation and publication of the results thereof."

"(2) The Secretary of Commerce is authorized to establish the terms of any cooperative agreement entered into … including the amount of funds to be received … which the Secretary determines represents the amount of benefits derived … from the cooperative agreement."

33 USC 883f - Contracts with qualified organizations.

"The Secretary is authorized to contract with qualified organizations for the performance of any part of the authorized functions of the National Ocean Survey…"

33 USC 883h - Employment of public vessels.

"The President is authorized to cause to be employed such of the public vessels as he deems it expedient to employ, and to give such instructions for regulating their conduct as he deems proper in order to carry out the provisions of this chapter."

33 USC 883i - Authorization of Appropriations.

"There are hereby authorized to be appropriated such funds as may be necessary to acquire, construct, maintain, and operate ships, stations, equipment, and facilities and for such other expenditures, including personal services at the seat of government and elsewhere and including the erection of temporary observatory buildings and lease of sites therefore as may be necessary…"

33 USC 891 et seq. - Fleet Replacement and Modernization Program

"The Secretary is authorized to implement… a 15-year program to replace and Modernize the NOAA fleet."

33 USC 1121-1131 - National Sea Grant College Program Act.

The Sea Grant Act authorizes the awarding of grants and contracts to initiate and support programs at Sea Grant colleges and other institutions for research, education, and advisory services in any field related to the conservation and development of marine resources.

The authorization for appropriation expired at the end of FY 1995.

33 USC 1251- Water Pollution Prevention and Control

Through the National Shellfish Indicator Program, authorizes the Secretary of Commerce, in cooperation with the Secretary of Health and Human Services and the Administrator of EPA, to establish and administer a 5-year national shellfish research program for the purpose of improving existing classification systems for shellfish growing waters using the latest technological advancements in microbiology and epidemiological methods.

33 USC 1321 - Oil and Hazardous Substances [Clean Water Act]

Authorizes the recovery of damages to natural resources in the event of an oil spill in waters of the United States. This authority has been delegated to several Federal agencies, including the Department, pursuant to an Executive Order.

33 USC 1441 - Monitoring and Research Program [Marine Protection, Research and Sanctuaries Act]

Authorizes the Secretary of Commerce, in coordination with other agencies, to initiate a comprehensive and continuing program of monitoring and research regarding the effects of the dumping of material into ocean waters or other coastal waters where the tide ebbs and flows or into the Great Lakes or their connecting waters.

33 USC 1442 - Research program respecting possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems

Authorizes the Secretary of Commerce, in consultation with other agencies, to … "initiate a comprehensive and continuing program of research with respect to the possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems."

33 USC 1443 - Regional management plans for waste disposal in coastal areas.

Authorizes the Secretary of Commerce to assist the Environmental Protection Agency in assessing "the feasibility in coastal areas of regional management plans for the disposal of waste materials."

33 USC 1444 - Annual Report

Requires the Secretary of Commerce to provide Congress with an annual report on the Department's activities to monitor ocean dumping and research the long-range effects of pollution on ocean ecosystems.

33 USC 2706 - Natural Resources [NOAA Oil and Hazardous Substance Spill Cost Reimbursement].

"…the National Oceanic and Atmospheric Administration acts as trustee of said marine environment and/or resources, shall be deposited in the Damage Assessment and Restoration Revolving Fund … for purposes of obligation and expenditure in fiscal year 1991 and thereafter, sums available in the Damage Assessment and Restoration Revolving Fund may be transferred, upon the approval of the Secretary …, to the Operations, Research, and Facilities appropriation of the National Oceanic and Atmospheric Administration."

33 USC 2801 et seq. - National Coastal Monitoring Act.

"The purposes of this chapter are to -

(1) establish a comprehensive national program for consistent monitoring of the Nation's coastal ecosystems;
(2) establish long-term water quality assessment and monitoring programs for high priority coastal waters that will enhance the ability of Federal, State, and local authorities to develop and implement effective remedial programs for those waters;
(3) establish a system for reviewing and evaluating the scientific, analytical, and technological means that are available for monitoring the environmental quality of coastal ecosystems;
(4) establish methods for identifying uniform indicators of coastal ecosystem quality;
(5) provide for periodic, comprehensive reports to Congress concerning the quality of the Nation's coastal ecosystems;
(6) establish a coastal environment information program to distribute coastal monitoring information;
(7) provide state programs authorized under the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.) with information necessary to design land use plans and coastal zone regulations that will contribute to the protection of coastal ecosystems; and
(8) provide certain water pollution control programs authorized under the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) with information necessary to design and implement effective coastal water pollution controls."

The Public Health and Welfare

42 USC 8902 et seq. - Acid Precipitation Program

Authorized the Administrator of NOAA to serve as co-chair of a task force to prepare a comprehensive research plan for a program to study the causes and effects of acid precipitation. Also authorizes the Administrator of NOAA to serve as the director of a related research program.

42 USC 9601 et seq. (CERCLA)

Through associated regulations and delegations, authorizes the Administrator to provide technical assistance to the Administrator, EPA, for hazardous waste response under CERCLA and the National Contingency Plan and authorizes the Administrator to act as a natural resource trustee with authority to bring a cause of action for damages resulting from an injury to, destruction of or loss of resources under NOAA's jurisdiction.

Public Lands

43 USC 1347 - Safety and Health Regulations

Authorizes the Secretary of Commerce in cooperation with other Federal entities, to conduct studies of underwater diving techniques and equipment "suitable for protection of human safety and improvement of diver performance…."

Public Printing and Documents

44 USC 1307 - Sale and Distribution of NOAA Nautical and Aeronautical Products.

"All nautical and aeronautical products created or published … shall be sold at … prices … the Secretary of Commerce shall establish annually … so as to recover all costs attributable to data base management, compilation, printing, and distribution of such products."

Transportation

49 USC 44720 - Meteorological services

The Administrator of the Federal Aviation Administration shall make recommendations to the Secretary of Commerce on providing meteorological services necessary for the safe and efficient movement of aircraft in air commerce. In providing the services, the Secretary shall cooperate with the Administrator and give complete consideration to those recommendations.

"To promote safety and efficiency in air navigation to the highest possible degree, the Secretary shall -(1)observe, measure, investigate, and study atmospheric phenomena, and maintain meteorological stations and offices…(2) provide reports to the Administrator (3)cooperate with persons engaged in air commerce in meteorological services…(4)maintain and coordinate international exchanges of meteorological information… (5) participate in developing an international basic meteorological reporting network…(6)coordinate meteorological requirements in the United States to maintain standard observations…;(7)promote and develop meteorological science….

Interjurisdictional Fisheries Act

97 Stat. 1409

Authorizes NMFS fisheries programs not otherwise authorized by law, including research to reduce entanglement of marine mammals in fishing gear, development of habitat restoration techniques, restoration of Chesapeake Bay, and conservation of Antarctic living marine resources.

Exhibit 5

Department of Commerce

National Oceanic and Atmospheric Administration

Construction

SUMMARY OF RESOURCE REQUIREMENTS

(Dollar amounts in thousands)

Page No.		FTE	Budget Authority	Direct Obligations
	FY 1999 Currently Available	0	0	0
	less: Obligations from prior years			
	2000 Base	0	0	0
	plus: 2000 program changes	0		0
	2000 Estimate	0	0	0

	1998 Actuals		1999 President's Budget		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity/subactivity:	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Construction	0	0	0	0	0	0	0	0	0	0
Direct Obligations	0	0	0	0	0	0	0	0	0	0
Adjustments for:										
Recoveries		0		0		0	0	0	0	0
Unobligated Balance, start of year		(55,099)		0		0	0	0	0	0
Unobligated balance transferred		55,099		0						
Unobligated Balance, end of year		0		0		0	0	0	0	0
Financing from offsetting collections:										
Non-Federal Sources		0								
Unavailable Balance (prior year)		0								
Financing from transfers:										
Transfer from other accounts										
Transfer to other accounts										
Appropriation	0	0	0	0	0	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Construction
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	1998 Actual	1999 President's Request	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations	0	0	0	0	0
Offsetting collections from:					
Federal funds					
Trust funds					
Non-Federal sources					
Recoveries	0	0	0	0	0
Unobligated balance, start of year	(55,099)	0	0	0	0
Unobligated balance transferred	55,099	0			
Unobligated balance, end of year		0	0	0	0
Budget Authority	0	0	0	0	0
Appropriation	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Construction
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Construction**
Subactivity: **Construction**

Goal Statement

To provide for land acquisition, the construction of new facilities, for repairs, preventive actions, modifications and additions to existing facilities, for facilities maintenance, environmental compliance, safety and health, and for facilities consolidation, in the most economical, efficient and effective manner.

Proposed Legislation

No legislation is proposed for this activity.

Base Program

The FY 1998 appropriation language included funding for the projects previously funded in Construction in FY 1997 in either the Operations, Research & Facilities (ORF) account or the new Procurement, Acquisition and Construction account. With the creation of the Procurement, Acquisition and Construction account (PAC), the Construction account was eliminated beginning in FY 1998 and any unobligated balances were transferred to ORF.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1998 Actual	1999 President's Request	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent					
	Other than full-time permanent					
11.5	Other personnel compensation					
11.8	Special personnel services payments					
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits					
13	Benefits for former personnel					
21	Travel and transportation of persons					
22	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Commun., util., misc. charges					
24	Printing and reproduction					
25.1	Consulting services					
25.2	Other services					
25.3	Purchase of goods and services from Gov't accounts					
25.4	Operation of GOCOs					
25.5	Research and development contracts					
26	Supplies and materials					
31	Equipment					
32	Lands and structures					
33	Investments and loans					
41	Grants, subsidies and contributions					
42	Insurance claims and indemnities					
43	Interest and dividends					
44	Refunds					
99	**Total Obligations**	0	0	0	0	0

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	1998 Actual	1999 President's Request	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Recoveries					
Unobligated Balance, SOY	(55,099)	0			
Unobligated Balance, transferred	55,099	0			
Unobligated Balance, EOY					
Total Budget Authority	0	0	0	0	0
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent					
Other than full-time permanent					
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent					
Other than full-time permanent					
Total	0	0	0	0	0

Fisheries Finance, Program Account
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Build Sustainable Fisheries										
Managing for Economic Growth		338		28,338						
Eliminate & Prevent Overfishing						28,338	24	10,258	24	(18,080)
Total BSF		**338**		**28,338**		**28,338**	**24**	**10,258**	**24**	**(18,080)**
Total for FFPA		**338**		**28,338**		**28,338**	**24**	**10,258**	**24**	**(18,080)**

Exhibit 5

Department of Commerce

National Oceanic and Atmospheric Administration

Fisheries Finance, Program Account

SUMMARY OF RESOURCE REQUIREMENTS

(dollar amounts in thousands)

Page No.		Positions	Budget Authority	FTE	Direct Obligations
	Appropriation Available, 1999	0	28,338	0	28,360
	less: Obligations from prior years	0	0	0	(22)
	plus: 2000 adjustments to base	0	0	0	0
	less: Prior year recoveries	0	0	0	0
	2000 Base	0	28,338	0	28,338
	plus: 2000 program changes	24	(18,080)	24	(18,080)
	2000 Estimate	24	10,258	24	10,258

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity:		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Vessel Buy Out -	Pos./BA	0	0	0	20,000	0	20,000	0	8,000	0	(12,000)
Direct Payment	FTE/Obl.	0	0	0	20,000	0	20,000	0	8,000	0	(12,000)
American Fisheries Act	Pos./BA	0	0	0	6,000	0	6,000	0	0	0	(6,000)
Implementation	FTE/Obl.	0	0	0	6,000	0	6,000	0	0	0	(6,000)
Cost of Loan Subsidy	Pos./BA	0	338	0	2,338	0	2,338	0	558	0	(1,780)
	FTE/Obl.	0	398	0	2,360	0	2,338	0	558	0	(1,780)
Program Administration	Pos./BA	0	0	0	0	0	0	24	1,700	24	1,700
	FTE/Obl.	0	0	0	0	0	0	24	1,700	24	1,700
Direct Obligations	Pos./BA	0	338	0	28,338	0	28,338	24	10,258	24	(18,080)
	FTE/Obl.	0	398	0	28,360	0	28,338	24	10,258	24	(18,080)
Adjustments to Obligations:											
Recoveries			(75)		0		0		0	0	0
Unobligated Balance, start of year			(8)		(22)		0		0	0	0
Unobligated Balance, end of year			22		0		0		0	0	0
Financing from transfers:											
Transfer from other accounts (-)											
Transfer to other accounts (+)											
Appropriation		0	338	0	28,338	0	28,338	24	10,258	24	(18,080)

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance, Program Account
SUMMARY OF FINANCING
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations	398	28,360	28,338	10,258	(18,080)
Offsetting collections from:					
Federal funds					
Trust funds					
Non-Federal sources					
Recoveries	(75)	0	0	0	0
Unobligated balance, start of year	(8)	(22)	0	0	0
Unobligated balance transferred					
Unobligated balance, end of year	22	0	0	0	0
Unobligated balance, unavailable					
Budget Authority	338	28,338	28,338	10,258	(18,080)
Financing:					
Transfer from other accounts					
Transfer to other accounts					
Appropriation	338	28,338	28,338	10,258	(18,080)

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance, Program Account
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Fisheries Finance, Program Account (former Fishing Vessel Obligation Guarantee)**
Subactivity: **Fisheries Finance, Program Account (former Fishing Vessel Obligation Guarantee)**

Appropriation Summary Statement

The reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act (the Sustainable Fisheries Act), P.L. 104-297 changed this program from loan guarantees to direct loans. The Fisheries Finance Program is subject to the Federal Credit Reform Act of 1990, P.L. 101-508 (FCRA). Before the FCRA, loan capital for all direct loan programs was appropriated. Since the FCRA, loan capital for all direct loan programs has been borrowed from the U.S. Treasury and only the net Government cost (FCRA cost) of loan activity is appropriated. The Sustainable Fisheries Act provided the authority to double this program's income by increasing its fee to 2% above the cost of borrowing loan capital from the U.S. Treasury.

Goal Statement

Induce more soundly managed and capitalized non-aquacultural fisheries by reducing existing fishing capacity and stretching debt service for the remaining existing capacity over longer maturities more consistent with fisheries income cycles and the cost of reducing capacity. Help develop the aquacultural industry by providing long-term capital financing at reasonable rates.

Proposed Legislation

No proposed legislation in this account.

Base Program

Title XI of the Merchant Marine Act, 1936, authorizes this Program. "Traditional" loans under the program are capacity neutral. Capacity-neutral vessel loans are for purposes like refinancing existing vessel debt or financing used vessel transfers. Shoreside loans (including aquaculture) finance or refinance constructing new facilities and refurbishing or transferring used ones. Eligible shoreside facilities include everything needed to grow, unload, process, hold, or distribute fish. Regular Program financing and refinancing helps to stabilize non-aquacultural vessels and shoreside facilities

by providing longer-term debt service more consistent with the economically useful lives of production equipment and the fisheries' economic variability. Soundly capitalized fisheries are better able to accommodate needed fishery conservation and management measures. The Program's rules prevent it from financing the construction of any non-aquacultural vessels in any fishery. For non-aquacultural vessels, the Program only refinances existing vessels (and existing vessels cannot add to fisheries capitalization).

The Sustainable Fisheries Act amendments to the Magnuson-Stevens Act provided the Fisheries Finance Program authority to earn interest income at a rate of 2% above its interest cost of borrowing loan capital from the U.S. Treasury. The Program income prior to the Magnuson-Stevens reauthorization was 1%, and the assumed subsidy rate was 1%. This 1% subsidy, per the Federal Credit Reform Act, has been appropriated annually. The FY 2000 President's Request is based upon the 1% subsidy rate and therefore an appropriation is requested.

Section 303(a) of the Sustainable Fisheries Act amendments to the Magnuson-Stevens Act also added a new section 1111 to Title XI of the Merchant Marine Act, 1936, that allows this Program to finance the cost of capacity reduction. Under this provision, the Program would finance the cost of reducing capacity by lending the capital to pay existing fishermen to scrap their vessels and surrender their fishing permits. All fishermen remaining in the fishery after capacity reduction repay this financing by a statutory levy on the gross value of the fish they catch. The first shoreside purchasers of the post-reduction fishermen's catches deduct this levy from what they would otherwise have paid those fishermen for their catches, and forward the levy revenues to the Program to repay the capacity reduction financing. These levies continue on every catch landed by every fishermen in the fishery until the capacity reduction financing is repaid. Before the Program can finance capacity reduction, a Fishery Management Council must propose, and two-thirds of the fishermen in the fishery involved must vote in favor of both the capacity reduction and the landing-fee levy. Capacity reduction financing is a way of allowing long-term fishermen to organize and finance the removal of excess competition from their fishery. This form of fisheries decapitalization requires the beneficiaries of decapitalization to repay its cost.

In accordance with the FCRA, the Program's administrative expenses are provided in NOAA Fisheries' Operations, Research, and Facilities account.

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Finance, Program Accounts	Pos/BA	0	$28,338	24	$10,258	24	($18,080)
	FTE/Obl	0	$28,338	24	$10,258	24	($18,080)

Fisheries Finance Program (+24 FTE, –$18,080,000): NOAA requests an increase of 24 FTE and a decrease of $18,080,000 for the Fisheries Finance Program account.

The loans requested under the Fisheries Finance Program (FFP) account will provide the financial assistance authorized under the 1996 Sustainable Fisheries Act (SFA) amended Title XI of the Merchant Marine Act, 1936, as amended, and the Magnuson-Stevens Fishery Conservation and Management Act.

NOAA requests an increase of $8,000,000 to reduce the harvesting capacity in the Northeast full-time scallop fishery. The $8.0 million in direct payments will support a proposed $40.0 million scallop vessel buyout program: This partially industry-funded buyout will reduce the overcapitalization in this fishery. An additional $320,000 will be used as a loan subsidy rate to authorize a $32.0 million loan for the buyout.

NOAA requests an increase of 24 FTE and $1,700,000 to cover the administrative expenses of the Federal Ship Financing Fund incurred in this program. The Product Quality and Safety program in the Operations Research and Facilities appropriation has been reduced to offset this increase.

A decrease of $28,000,000 is requested for funds provided in FY 1999 to implement the American Fisheries Act. NOAA does not propose continuing this program in FY 2000.

A decrease of $100,000 is requested for entry level and small vessel Individual Fishing Quota (IFQ) obligation guarantees in the halibut and sable fish fisheries off the coast of Alaska. The program was funded in FY 1999 above the President's budget request.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total Changes	–$18,080	–$18,080	–$18,080	–$18,080	–$18,080

Exhibit 14

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance, Program Account
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Fisheries Finance, Program Account

Title:		Grade	Number	Annual Salary	Total Salaries
Fisheries Biologist		Various	24	56,542	1,357,000
Total			24		1,357,000
Less Lapse	0.0%		0		0
Total full-time permanent (FTE)			24		1,357,000
FY 2000 Pay Adjustment (0 %)					0
Total					1,357,000

Personnel Data	
Full-Time Equivalent Employment	
Full-time permanent	24
Other than full-time permanent	0
Total	24
Authorized Positions:	
Full-time permanent	24
Other than full-time permanent	0
Total	24

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Fisheries Finance, Program Account

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Fisheries Finance, Program Account**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	1,357
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	1,357
12.1	Civilian personnel benefits	343
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.2	Other services	8,000
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	320
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	10,020

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Fisheries Finance, Program Account

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Fisheries Finance, Program Account**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.2	Other services	(26,000)
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(2,100)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(28,100)

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance, Program Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	1,357	1,357
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	1,357	1,357
12.1	Civilian personnel benefits	0	0	0	343	343
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services	0	26,000	26,000	8,000	(18,000)
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	398	2,360	2,338	558	(1,780)
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	398	28,360	28,338	10,258	(18,080)
	Less prior year recoveries	(75)				
	Less unobligated balance, SOY	(8)	(22)			
	Plus unobligated balance, EOY	22				
	Total Budget Authority	338	28,338	28,338	10,258	(18,080)

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance, Program Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	0	0	0	24	24
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	24	24
Authorized Positions:					
Full-time permanent	0	0	0	24	24
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	24	24

FLEET MODERNIZATION, SHIPBUILDING AND CONVERSION
STRATEGIC PLANNING GOALS AND OBJECTIVES

The Fleet Modernization, Shipbuilding and Conversion account, as funded in the FY 1997 appropriations act, supports six of NOAA's Strategic Planning goals as supporting infrastructure. Below is a brief characterization of Fleet Modernization, Shipbuilding and Conversion activities in the context of these Goals.

Goal - Implement Seasonal to Interannual Climate Forecasts

The Fleet Modernization, Shipbuilding and Conversion activity ensures that NOAA will be able to continue to provide observation and data collection platforms in support of TAO Observing Systems, prediction systems, and process research leading to improved predictions of temperature and rainfall distributions.

Goal - Predict and Assess Decadal to Centennial Change

The Fleet Modernization, Shipbuilding and Conversion activity ensures that NOAA will be able to continue to provide observation and data collection platforms in support of research on climate and global change as well as health of the atmosphere.

Goal - Promote Safe Navigation

The Fleet Modernization, Shipbuilding and Conversion activity ensures that NOAA will be able to continue to provide observation and data collection platforms in support of enhancing navigation products and services and safe marine commerce.

Goal - Build Sustainable U.S. Fisheries

The Fleet Modernization, Shipbuilding and Conversion activity ensures that NOAA will be able to continue to provide observation and data collection platforms in support of assessing the status of fishery resources, improving fishery predictions, reducing bycatch, and managing fisheries stocks.

Goal - Recover Protected Species

The Fleet Modernization, Shipbuilding and Conversion activity ensures that NOAA will be able to continue to provide observation and data collection platforms in support of conservation and recovery of depleted marine mammals and endangered and threatened species, and of limiting the scope of restrictions.

Goal - Sustain Healthy Coasts

The Fleet Modernization, Shipbuilding and Conversion activity ensures that NOAA will be able to continue to provide observation and data collection platforms in support of coastal ecosystem management.

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Fleet Modernization, Shipbuildidng and Conversion
SUMMARY OF RESOURCE REQUIREMENTS
(dollar amounts in thousands)

Page No.		FTE	Budget Authority	Direct Obligations
	FY 1999 President's Request	0	0	0
	less: Recoveries from prior years	0	0	0
	plus: 2000 Adjustments to Base	0	0	0
	2000 Base	0	0	0
	2000 Estimate	0	0	0

	1998 Currently Available		1999 President's Budget		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity:	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Fleet Modernization, Shipbuilding & Conversion	0	0	0	0	0	0	0	0	0	0
Direct Obligations	0	0	0	0	0	0	0	0	0	0
Adjustments for										
Recoveries		0	0	0		0	0	0	0	0
Unobligated Balance, start of year		(6,659)	0	0		0	0	0	0	0
Unobligated balance transferred		6,659	0	0		0	0	0	0	0
Unobligated Balance, end of year		0	0	0		0	0	0	0	0
Unobligated Balance, unavailable		0	0	0		0	0	0	0	0
Budget Authority pursuant to P.L. 103-317		0	0	0		0	0	0	0	0
Financing from offsetting collections:										
Non-Federal Sources										
Unavailable Balance (prior year)										
Financing from transfers:										
Transfer from other accounts (-)										
Transfer to other accounts (+)										
Appropriation	0	0	0	0	0	0	0	0	0	0

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Fleet Modernization, Shipbuilding and Conversion
SUMMARY OF FINANCING
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ Over 2000 Base
Total Obligations	0	0	0	0	0
Offsetting collections from:					
Federal funds					
Trust funds					
Non-Federal sources					
Recoveries	0	0	0	0	0
Unobligated balance, start of year	(6,659)	0	0	0	0
Unobligated balance transferred	6,659				
Unobligated balance, end of year	0	0	0	0	0
Budget Authority	0	0	0	0	0
Financing:					
Transfer from other accounts					
Transfer to other accounts					
Appropriation	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Fleet Modernization, Shipbuilding and Conversion
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: Fleet Modernization, Shipbuilding and Conversion
Subactivity: Fleet Modernization, Shipbuilding and Conversion

Goal Statement

The goal of the fund was to modernize NOAA's current fisheries, survey, and oceanographic research ship support capability, and to plan for future capability to allow critical data collection requirements to be met effectively well into the 21st century.

Proposed Legislation

No legislation is proposed for this activity.

Base Program

This fund provided for expenses necessary for the repair, charter, conversion, leasing, or construction of vessels, including related equipment and small craft, as part of NOAA's program to modernize the Agency's fisheries, survey and oceanographic ship support capability. The activities included outsourcing, ship maintenance and repairs, replacement and upgrades of ship systems, subsystems and equipment.

The FY 1998 appropriation language transferred funding for the projects previously funded in Fleet Modernization, Shipbuilding and Conversion to the new Fleet Maintenance and Planning line item in the Operations, Research & Facilities (ORF) account. All unobligated balances are transferred to ORF. Future requests for funding replacement vessels will be included under the Procurement, Acquisition and Construction (PAC) account.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Fleet Modernization, Shipbuilding & Conversion
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent					
11.3	Other than full-time permanent					
11.5	Other personnel compensation					
11.8	Special personnel services payments					
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits					
13	Benefits for former personnel					
21	Travel and transportation of persons					
22	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Commun., util., misc. charges					
24	Printing and reproduction					
25.1	Consulting services					
25.2	Other services					
25.3	Purchase of goods and services from Gov't accounts					
26	Supplies and materials					
31	Equipment					
32	Lands and structures					
33	Investments and loans					
41	Grants, subsidies and contributions					
42	Insurance claims and indemnities					
43	Interest and dividends					
44	Refunds					
99	**Total Obligations**	0	0	0		0

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Fleet Modernization, Shipbuilding & Conversion
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Prior year recoveries					
Unobligated balance, start of year	(6,659)	0			
Unobligated balance transferred	6,659	0			
Unobligated balance, end of year					
Unobligated balance expiring					
Financing from Offsetting collections:					
Non-Federal Funds					
Trust Funds					
Total Budget Authority	0	0			
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent					
Other than full-time permanent					
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent					0
Other than full-time permanent					0
Total	0	0	0	0	0

Promote and Develop Fisheries Products
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Build Sustainable Fisheries										
Develop Sound Aquaculture						472		233		(239)
Managing for Economic Growth	5	2,313	5	2,101						
Provide Research and Service		1,040		944						
Eliminate & Prevent Overfishing					5	2,101	5	1,034		(1,067)
Attain Economic Sustainability in Communities						472		233		(239)
Total BSF	**5**	**3.353**	**5**	**3.045**	**5**	**3.045**	**5**	**1.500**		**(1.545)**
Total for P&D	**5**	**3,353**	**5**	**3,045**	**5**	**3,045**	**5**	**1,500**		**(1,545)**

Exhibit 5

Department of Commerce

National Oceanic and Atmospheric Administration

Promote and Develop Fisheries Products and Research Pertaining to American Fisheries

SUMMARY OF RESOURCE REQUIREMENTS

(dollar amounts in thousands)

Page No.		Positions	Budget Authority	FTE	Direct Obligations
	Appropriation Available, 1999	5	3,045	5	4,220
	less: Obligations from prior years	0	0	0	(1,175)
	plus: 2000 adjustments to base	0	0	0	0
	less: Prior year recoveries	0	0	0	0
	2000 Base	5	3,045	5	3,045
	plus: 2000 program changes	0	(1,545)	0	(1,545)
	2000 Estimate	5	1,500	5	1,500

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity:		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Promote and Develop Fishery	Pos./BA	5	3,353	5	3,045	5	3,045	5	1,500	0	(1,545)
Products and Research	FTE/Obl.	5	3,876	5	4,220	5	3,045	5	1,500	0	(1,545)
Direct Obligations	Pos./BA	5	3,353	5	3,045	5	3,045	5	1,500	0	(1,545)
	FTE/Obl.	5	3,876	5	4,220	5	3,045	5	1,500	0	(1,545)
Adjustments to Obligations:											
Recoveries			(699)		0		0		0	0	0
Unobligated Balance, start of year			(996)		(1,175)		0		0	0	0
Unobligated balance transferred			0		0		0		0	0	
Unobligated Balance, end of year			1,175		0		0		0	0	0
Unobligated Balance, unavailable			0		0		0		0	0	0
Financing from offsetting collections:											
Federal Sources			(2)								
Unavailable Balance (prior year)											
Financing from transfers:											
Transfer from other accounts (-)		(5)	(65,734)	(5)	(66,426)	(5)	(66,426)	(5)	(66,426)	0	0
Transfer to other accounts (+)			62,381		63,381		63,381		64,926	0	1,545
Appropriation		0	0	0	0	0	0	0	0	0	0

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Fisheries Products and Research Pertaining to American Fisheries
SUMMARY OF FINANCING
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations	3,876	4,220	3,045	1,500	(1,545)
Offsetting collections from:					
Federal funds	(2)				
Trust funds					
Non-Federal sources					
Recoveries	(699)	0	0	0	0
Unobligated balance, start of year	(996)	(1,175)	0	0	0
Unobligated balance transferred					
Unobligated balance, end of year	1,175	0	0	0	0
Unobligated balance, unavailable					
Budget Authority	3,353	3,045	3,045	1,500	(1,545)
Financing:					
Transfer from other accounts	(65,734)	(66,426)	(66,426)	(66,426)	0
Transfer to other accounts	62,381	63,381	63,381	64,926	1,545
Appropriation	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Fisheries Products and Research Pertaining to American Fisheries
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Promote and Develop Fisheries Products**
Subactivity: **Promote and Develop Fisheries Products**

Goal Statement

To promote and develop fishery-based industries in the United States.

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

The American Fisheries Promotion Act (AFPA) of 1980 authorized a grants program for fisheries research and development projects and a National Fisheries Research and Development Program to be carried out with Saltonstall-Kennedy (S-K) funds. S-K funds are derived from a transfer from the Department of Agriculture to NOAA of duties on imported fisheries products. An amount equal to 30% of these duties is made available to NOAA and, subject to appropriation, are available to carry out the purposes of the AFPA. The S-K grants program has provided substantial assistance to address impediments in the management, development, and utilization of the Nation's living marine resources. Each year a Federal Register notice is printed announcing the upcoming year's grant cycle. The annual notice outlines areas of emphasis for that grant cycle, such as research on reduction/elimination of bycatch, biotechnology research, and aquaculture. If funds are available, a nationwide competitive National Fisheries Research and Development Program is conducted.

The remainder of the funds transferred are used to offset the appropriation requirements of the Operations, Research and Facilities (ORF) account.

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Promote and Develop Fisheries Products	Pos/BA	5	$3,045	5	$1,500	0	($1,545)
	FTE/Obl	5	$3,045	5	$1,500	0	($1,545)

Promote and Develop Fisheries Products (0 FTE, –$1,545,000): NOAA requests a decrease of $1,545,000 for the Promote and Develop Fisheries Account for the Saltonstall-Kennedy (S-K) grant. The (S-K) Grant program will continue to emphasize reduction and elimination of bycatch, biotechnology research and aquaculture in support of the strategic plan goal to Build Sustainable Fisheries.

The amount transferred from the Department of Agriculture is expected to be $66,426,288 in FY 1999. NOAA proposes a Saltonstall-Kennedy Grant program of $1,500,000; with the remaining $64,926,288 offsetting the Operations, Research and Facilities (ORF) account.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total Changes	–$1,545	–$1,545	–$1,545	–$1,545	–$1,545

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Fisheries Finance Program Account

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Fisheries Finance Program Account**

	Object Class	2000 Decrease
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.2	Other services	0
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	(1,545)
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	(1,545)

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Products and Research Pertaining to American Fisheries
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent	295	295	295	295	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	295	295	295	295	0
12.1	Civilian personnel benefits	65	65	65	65	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	29	29	29	29	0
22	Transportation of things	1	1	1	1	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services	365	365	365	365	0
26	Supplies and materials	18	18	18	18	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	3,103	3,447	2,272	727	(1,545)
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	3,876	4,220	3,045	1,500	(1,545)
	Less prior year recoveries	(699)				
	Less unobligated balance, SOY	(996)	(1,175)			
	Offsetting collections	(2)				
	Plus unobligated balance, EOY	1,175				
	Total Budget Authority	3,353	3,045	3,045	1,500	(1,545)

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Products and Research Pertaining to American Fisheries
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	5	5	5	5	0
Other than full-time permanent	0	0	0	0	0
Total	5	5	5	5	0
Authorized Positions:					
Full-time permanent	5	5	5	5	0
Other than full-time permanent	0	0	0	0	0
Total	5	5	5	5	0

Exhibit 5

Department of Commerce

National Oceanic and Atmospheric Administration

Fishing Vessel and Gear Damage Compensation Fund

SUMMARY OF RESOURCE REQUIREMENTS

(dollar amounts in thousands)

Page No.		Positions	Budget Authority	FTE	Direct Obligations
	Currently Available, 1999	0	0	0	5
	less: Obligations from prior years	0	0	0	(5)
	plus: 2000 adjustments to base	0	0	0	0
	less: Prior year recoveries	0	0	0	0
	2000 Base	0	0	0	0
	plus: 2000 program changes	0	0	0	0
	2000 Estimate	0	0	0	0

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity:		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fishing Vessel and Gear Damag	Pos./BA	0	0	0	0	0	0	0	0	0	0
Compensation Fund	FTE/Obl.	0	76	0	5	0	0	0	0	0	0
Direct Obligations	Pos./BA	0	0	0	0	0	0	0	0	0	0
	FTE/Obl.	0	76	0	5	0	0	0	0	0	0
Adjustments to Obligations:											
Recoveries			0		0		0		0	0	0
Unobligated Balance, start of year			(81)		(5)		0		0	0	0
Unobligated balance, transferred			0		0		0		0	0	0
Unobligated Balance, end of year			5		0		0		0	0	0
Unobligated Balance, unavailable			0		0		0		0	0	0
Financing from offsetting collections:											
Non-Federal Sources			(1)								
Unavailable Balance (prior year)											
Financing from transfers:											
Transfer from other accounts (-)											
Transfer to other accounts (+)											
Appropriation		0	0	0	0	0	0	0	0	0	0

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Fishing Vessel and Gear Damange Compensation Fund
SUMMARY OF FINANCING
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations	76	5	0	0	0
Offsetting collections from:					
Federal funds					
Trust funds					
Non-Federal sources	(1)				
Recoveries		0	0	0	0
Unobligated balance, start of year	(81)	(5)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	5	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	0	0	0	0	0
Financing:					
Transfer from other accounts					
Transfer to other accounts					
Appropriation	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Fishing Vessel and Gear Damage Compensation Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Fishing Vessel and Gear Damage Compensation Fund**
Subactivity: **Fishing Vessel and Gear Damage Compensation Fund**

Appropriation Summary Statement

The Fisherman's Protective Act of 1967, as amended by P.L. 95-376, Section 10 (f) (1), September 18, 1978 and P.L. 96-561 of 1980, required that the Secretary of Commerce provide compensation to fishing vessel owners who sustain losses or damage to their gear or vessels while engaged in any fishery subject to the exclusive fishery management authority of the United States under the provisions of the Magnuson-Stevens Fishery Conservation and Management Act of 1976, provided that the vessel loss is attributable to any foreign vessel, or its crew, or its fishing gear or the gear loss is attributable to the actions of any other vessel whether foreign or domestic.

The appropriation shall be derived from: (1) all sums recovered in the exercise of rights subrogated under subsection (d) (5) of the Act; (2) administrative fees collected from applicants for compensation; (3) all surcharges imposed upon foreign fishing permit fees not to exceed 20 percent; (4) revenue obtained through the investment of funds collected and not currently needed; and (5) any revenue acquired by borrowing from the Treasury.

Goal Statement

The goals of this appropriation are to compensate domestic fishermen and vessel owners whose fishing vessels have been lost, damaged or destroyed by foreign vessel operations in the United States' Exclusive Economic Zone (EEZ) or whose fishing gear has been lost, damaged, or destroyed in the EEZ by foreign or domestic vessels, to provide for timely resolution of claims by vessel owners, and to administer the Fund's resources efficiently and effectively.

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

The Fishing Vessel and Gear Damage Compensation Fund is authorized by Section 10 of the Fishermen's Protective Act of 1967, as amended (P.L. 95-376 and P.L. 96-561). It compensates U.S. fishermen whose gear has been lost, damaged, or destroyed by foreign or domestic vessels or whose vessel casualties are attributable to foreign vessels or their crew or gear. NOAA administers the Fund and indemnifies domestic fishermen against the commercially uninsurable loss of fishing gear caused by foreign or domestic vessels and a portion of the associated economic loss. The risk of losing expensive fishing gear is a major destabilizing factor in some fisheries. Monies paid into this Fund include: (1) surcharges not to exceed 20 percent of the fee imposed for any foreign fishing vessel permit issued under the Magnuson-Stevens Fishery Conservation and Management Act; (2) administrative fees paid by claimants; (3) revenues from deposits or investments of Fund balances not immediately required; (4) funds not to exceed $5 million borrowed from the Treasury in the event the Fund balance is insufficient to pay claims; and (5) funds acquired from offending vessels through subrogation. Disbursements can be made only to the extent authorized by appropriation acts.

The existing balances of the fund will be expended in FY 1998. NOAA does not request to borrow funds from the Treasury to continue to pay claims, therefore no funding is requested in FY 2000.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of claims received	30	0	0	0
Number of claims processed	25	0	0	0

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Fishing Vessel and Gear Damage Compensation Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	76	5	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	76	5	0	0	0
	Offsetting collections	(1)				
	Less unobligated balance, SOY	(81)	(5)			
	Plus unobligated balance, EOY	5				
	Total Budget Authority	0	0	0	0	0

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Fishing Vessel and Gear Damage Compensation Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

Fishermen's Contingency Fund
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Build Sustainable Fisheries										
Managing for Economic Growth	1	953	1	953						
Eliminate & Prevent Overfishing					1	953	1	953		
Total BSF	**1**	**953**	**1**	**953**	**1**	**953**	**1**	**953**		
Total for FCF	**1**	**953**	**1**	**953**	**1**	**953**	**1**	**953**		

Exhibit 5

Department of Commerce

National Oceanic and Atmospheric Administration

Fishermen's Contingency Fund

SUMMARY OF RESOURCE REQUIREMENTS

(dollar amounts in thousands)

Page No.		Positions	Budget Authority	FTE	Direct Obligations
	Appropriation Available, 1999	1	953	1	2,485
	less: Obligations from prior years	0	0	0	(1,532)
	plus: 2000 adjustments to base	0	0	0	0
	less: Prior year recoveries	0	0	0	0
	2000 Base	1	953	1	953
	plus: 2000 program changes	0	0	0	0
	2000 Estimate	1	953	1	953

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity:		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fishermen's Contingency Fund	Pos./BA	1	194	1	953	1	953	1	953	0	0
	FTE/Obl.	1	409	1	2,485	1	953	1	953	0	0
Direct Obligations	Pos./BA	1	194	1	953	1	953	1	953	0	0
	FTE/Obl.	1	409	1	2,485	1	953	1	953	0	0
Adjustments to Obligations:											
Recoveries			0		0		0		0	0	0
Unobligated Balance, start of year			(1,736)		(1,532)		0		0	0	0
Unobligated balance transferred			0		0		0		0	0	0
Unobligated Balance, end of year			1,532		0		0		0	0	0
Financing from offsetting collections:											
Federal Sources			(10)								
Unavailable Balance (prior year)											
Financing from transfers:											
Transfer from other accounts (-)											
Transfer to other accounts (+)											
Appropriation		1	194	1	953	1	953	1	953	0	0

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
SUMMARY OF FINANCING
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations	409	2,485	953	953	0
Offsetting collections from:					
Federal funds	(10)				
Trust funds					
Non-Federal sources					
Recoveries	0	0	0	0	0
Unobligated balance, start of year	(1,736)	(1,532)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	1,532	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	194	953	953	953	0
Financing:					
Transfer from other accounts					
Transfer to other accounts					
Appropriation	194	953	953	953	0

Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Fishermen's Contingency Fund**
Subactivity: **Fishermen's Contingency Fund**

Appropriation Summary Statement

Title IV of the Outer Continental Shelf Lands Act Amendments of September 18, 1978, (P.L. 95-372, Section 402) as amended, established the Fishermen's Contingency Fund. The Fund is to be used by the Secretary of Commerce to compensate domestic fishermen for the damage or loss of fishing gear or fishing vessels (up to a reasonable insurance deductible), and any resulting economic loss due to natural obstructions or man-made obstructions related to oil and gas exploration, development, and production in any area of the Outer Continental Shelf.

For purposes of administration, the Secretary of Commerce was authorized to establish the Fishermen's Contingency Fund to pay claims and to request assessment by the Secretary of the Interior of the oil and gas industry to capitalize the Fund. Any holder of a lease, an exploration permit, easement, or right of way on the Outer Continental Shelf is required to pay to the Secretary of the Interior an amount not to exceed $5,000 per lease, permit, easement, or right of way per calendar year. The Secretary of the Interior deposits these collections in the Fishermen's Contingency Fund established by the Secretary of Commerce.

Title IV stipulates that amounts available can be disbursed only to the extent provided for by appropriations acts.

Goal Statement

This fund compensates domestic fishermen for damage or loss of fishing gear or vessels due to obstructions related to oil or gas exploration, development, and production on the Outer Continental Shelf (OCS). It minimizes financial instability of the fishing industry caused by competing uses of the OCS, and provides for timely resolution of claims by vessel owners.

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

The Fishermen's Contingency Fund is authorized under Section 402 of Title IV of the Outer Continental Shelf Lands Act Amendments of 1978. NOAA compensates U.S. commercial fishermen for damage or loss of fishing gear, vessels, and resulting economic loss caused by obstructions related to oil and gas exploration, development, and production in any area of the Outer Continental Shelf. The funds used to provide this compensation are derived from fees collected on an annual basis by the Secretary of the Interior from the holders of leases, exploration permits, easements, or rights-of-way on the OCS.

This activity is funded totally through user fees. Disbursements can be made only to the extent authorized in appropriation acts.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Number of claims received	75	140	140	140
Number of claims processed	43	120	120	120

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent	66	67	67	67	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	66	67	67	67	0
12.1	Civilian personnel benefits	14	14	14	14	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	329	2,404	872	872	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	409	2,485	953	953	0
	Financing from offsetting collections, Federal Sources	(10)				
	Less unobligated balance, SOY	(1,736)	(1,532)			
	Plus unobligated balance, EOY	1,532				
	Total Budget Authority	194	953	953	953	0

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	1	1	1	1	0
Other than full-time permanent	0	0	0	0	0
Total	1	1	1	1	0
Authorized Positions:					
Full-time permanent	1	1	1	1	0
Other than full-time permanent	0	0	0	0	0
Total	1	1	1	1	0

Foreign Fishing Observer Fund
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Build Sustainable Fisheries										
Managing for Economic Growth		189		189						
Eliminate & Prevent Overfishing						189		189		
Total BSF		**189**		**189**		**189**		**189**		
Total for FFOF		**189**		**189**		**189**		**189**		

Exhibit 5

Department of Commerce

National Oceanic and Atmospheric Administration

Foreign Fishing Observer Fund

SUMMARY OF RESOURCE REQUIREMENTS

(dollar amounts in thousands)

Page No.		Positions	Budget Authority	FTE	Direct Obligations
	Appropriation Available, 1999	0	189	0	1,596
	less: Obligations from prior years	0	0	0	(1,407)
	plus: 2000 adjustments to base	0	0	0	0
	less: Prior year recoveries	0	0	0	0
	2000 Base	0	189	0	189
	plus: 2000 program changes	0	0	0	0
	2000 Estimate	0	189	0	189

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity:		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Foreign Fishing Observer Fund	Pos./BA	0	154	0	189	0	189	0	189	0	0
	FTE/Obl.	0	54	0	1,596	0	189	0	189	0	0
Direct Obligations	Pos./BA	0	154	0	189	0	189	0	189	0	0
	FTE/Obl.	0	54	0	1,596	0	189	0	189	0	0
Adjustments to Obligations:											
Recoveries			0		0		0		0	0	0
Unobligated Balance, start of year			(1,307)		(1,407)		0		0	0	0
Unobligated balance transferred			0		0		0		0	0	0
Unobligated Balance, end of year			1,407		0		0		0	0	0
Unobligated Balance, unavailable			0		0		0		0	0	0
Financing from offsetting collections:											
Non-Federal Sources											
Unavailable Balance (prior year)											
Financing from transfers:											
Transfer from other accounts (-)											
Transfer to other accounts (+)											
Appropriation		0	154	0	189	0	189	0	189	0	0

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Foreign Fishing Observer Fund
SUMMARY OF FINANCING
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations	54	1,596	189	189	0
Offsetting collections from:					
Federal funds					
Trust funds					
Non-Federal sources					
Recoveries	0	0	0	0	0
					0
Unobligated balance, start of year	(1,307)	(1,407)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	1,407	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	154	189	189	189	0
Financing:					
Transfer from other accounts					
Transfer to other accounts					
Appropriation	154	189	189	189	0

Department of Commerce
National Oceanic and Atmospheric Administration
Foreign Fishing Observer Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Foreign Fishing Observer Fund**
Subactivity: **Foreign Fishing Observer Fund**

Appropriation Summary Statement

The Foreign Fishing Observer Fund was originally established by Public Law 96-339, which amended the Atlantic Tunas Convention Act of 1975. The Fund includes the Foreign Fishery Observer Program provided for by the Magnuson-Stevens Fishery Conservation and Management Act, as amended (P.L. 104-297). Under these laws, U.S. observers are placed aboard foreign fishing vessels fishing within the Exclusive Economic Zone (EEZ) of the United States to monitor compliance with U.S. fishery laws and to collect data for the management of U.S. fisheries. The fund is financed through fees imposed on owners and operators of the foreign fishing vessels that fish within the EEZ. The Foreign Fishing Observer Fund is to be used by the Secretary of Commerce to pay salaries, administrative costs, and data management costs associated with full observer coverage aboard foreign vessels. Beginning in FY 1985, foreign fishermen were also permitted to contract with NMFS approved contractors to obtain observers (Supplemental Observer Program).

The Magnuson-Stevens Act stipulates that the amounts available in the Fund can be disbursed only to the extent and in the amounts provided for in advance in appropriation acts.

Goal Statement

The goals of this fund are to provide 100 percent observer coverage aboard foreign vessels fishing within the United States' EEZ; to increase compliance with fishery regulations and requirements; to support balanced conservation and management measures to achieve and maintain the optimum use of our living marine resources; to collect data to determine foreign compliance with fishery regulations and the status of fish stocks within the EEZ of the United States; and to administer the base and supplemental observer programs in a cost-effective manner.

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

The Foreign Fishing Observer Fund is financed through fees collected from owners and operators of foreign fishing vessels fishing within the Exclusive Economic Zone (EEZ) of the United States (such fishing requires a permit issued under the Magnuson-Stevens Fishery Conservation and Management Act). This includes long-line vessels fishing in the Atlantic billfish and shark fishery and other foreign vessels fishing in the EEZ. The fund is used by NOAA to pay salaries, administrative costs, data editing and entry costs, and other costs incurred in placing observers aboard foreign fishing vessels. The observer program is conducted primarily through contracts with the private sector. NOAA/NMFS places these observers aboard foreign fishing vessels to monitor compliance with U.S. fishery laws and to collect fishery management data. Amounts available in the Fund can be disbursed only to the extent and in amounts provided in appropriation acts.

In FY 1985 Congress approved the establishment of a supplemental observer program. The program provided that foreign vessels without Federally-funded observers are required to obtain the services of private contractors certified by the Secretary of Commerce.

Measures of Performance

	1997 Actual	1998 Actual	1999 Estimate	2000 Estimate
Percent observer coverage of foreign fishing within the U.S. EEZ	100	100	100	100

NOTE: This performance data represents the combined impact of appropriated funds and direct contracting by foreign governments.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Foreign Fishing Observer Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services	54	1,596	189	189	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	54	1,596	189	189	0
	Less prior year recoveries	0				
	Less unobligated balance, SOY	(1,307)	(1,407)			
	Plus unobligated balance, EOY	1,407				
	Total Budget Authority	154	189	189	189	0

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Foreign Fishing Observer Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

Coastal Zone Management Fund
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Sustain Healthy Coasts										
Protect, conserve and restore habitats	37	3,120	37	880						
Promote clean coastal waters	9	1,950	9	550						
Foster well-planned and revitalized coastal communities	3	2,730	3	2,570						
Total SHC	**49**	**7,800**	**49**	**4,000**						
Total for CZMF	**49**	**7,800**	**49**	**4,000**						

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Coastal Zone Management Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

Page No.		Positions	FTE	Budget Authority	Direct Obligations
	FY 1999 Currently Available	51	49	0	4,593
	less: Obligations from prior years				(593)
	plus: FY 2000 Adjustments to base	(51)	(49)	0	(4,000)
	less: Prior year recoveries				
	2000 Base	0	0	0	0
	plus: 2000 program changes			0	0
	2000 Estimate	0	0	0	0

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ Decrease) over 2000 Base	
Comparison by activity/subactivity:		FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
CZMF	Pos./BA	51	7,212	51	4,000	0	0	0	0	0	0
	FTE/Obl.	49	7,212	49	4,000 1/	0	0	0	0	0	0
Totals BA	Pos./BA	51	7,212	51	4,000	0	0	0	0	0	0
	FTE/Obl.	49	7,212	49	4,000	0	0	0		0	
Adjustments for:											
Unobligated Balance, start of year			(4,239)		(593)		(593)		(593)	0	0
Unobligated Balance, end of year			593		593		593		593	0	0
Financing from offsetting collections:											
Prior yr. balance			(451)		0		0		0	0	0
Non Federal Funds		(49)	(3,115)	(49)	(4,000)	(49)	(4,000)	(49)	(4,000)	0	0
Transfer to ORF			0		0	49	4000	49	4000		0
Appropriation 2/		0	0	0	0	0	0	0	0	0	0

1/ Net of limitation on obligation of $4.000 million
2/ Account has appropriation in FY 2000 and will be transferred to ORF.

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Coastal Zone Management Fund
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations/Discretionary BA	7,212	4,000	4,000	0	(4,000)
Offsetting collections from:					
Federal funds					
Trust funds					
Non-Federal sources	(3,115)	(4,000)	(4,000)	(4,000)	0
Transfer to ORF				4,000	4,000
Recoveries	(451)	0	0	0	0
Unobligated balance, start of year	(4,239)	(593)	(593)	(593)	0
Unobligated balance transferred					
Unobligated balance, end of year	593	593	593	593	0
Appropriation	0	0	0	0	0
Total Net Budget Authority	4,097	0	0	0	0

**CZMF transferred to ORF in FY 2000

Exhibit 8

Department of Commerce
National Oceanic and Atmospheric Administration
Coastal Zone Management Fund
CHANGES TO BASE
(Dollar amounts in thousands)

	FTE	Amount
Adjustment		
Transfer to ORF to fund activities under CZMF	(49)	(4,000)
		0
Subtotal, adjustments to base	(49)	(4,000)
ATB's Absorbed		0
Total, Changes to base	(49)	(4,000)

Department of Commerce
National Oceanic and Atmospheric Administration
Coastal Zone Management Fund
JUSTIFICATION OF CHANGES TO BASE

Adjustments		
	(49)	(4,000)
Transfer to ORF to fund activities under the CZMF section 308 including 49 FTEs to manage the fund. Collections of less than 4 million have contributed to the funds declining balance. Funds are no longer sufficient to cover all the specific purposes of the CZMA. NOAA will work with the Congress in FY 1999 to re-authorize the CZMA.		
Subtotal, Adjustments to Base Total	(49)	(4,000)
ATB's absorbed		
Total, Changes to Base	(49)	(4,000)

Department of Commerce
National Oceanic and Atmospheric Administration
Coastal Zone Management Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Coastal Zone Management Fund**
Subactivity: **Coastal Zone Management Fund**

Goal Statement

The Coastal Zone Management Fund (CZMF) was created by the 1990 amendments to the Coastal Zone Management Act. The purposes for which the funds can be used are set forth in Sec. 308 of that Act. In summary, Sec. 308 authorizes the use of the loan repayments from the former Coastal Energy Impact Program (CEIP) for the administrative costs of the Coastal Zone Management Program and if any funds remain, for other purposes as set forth below.

Proposed Legislation

NOAA will be working with Congress in FY 1999 to reauthorize the CZMA. During this process, NOAA will propose to use the Fund as a general offset to the costs of implementing the CZMA by transferring any amounts collected under the Fund to the ORF account. Declining balances collected under the Fund are no longer sufficient to cover all of the specific purposes designated by the CZMA

Base Program

Section 308 of the Coastal Zone Management Act authorizes the CZMF to be used for the following purposes:

(1) Expenses incident to the administration of the Coastal Zone Management Act;
(2) Projects to address management issues which are regional in scope, including interstate projects;
(3) Demonstration projects which have high potential for improving coastal zone management, especially at the local level;
(4) Emergency grants to State coastal zone management agencies to address unforseen or disaster-related circumstances;
(5) Appropriate awards recognizing excellence in coastal management;
(6) Program Development Grants; and
(7) Financial support to coastal States for use in investigating and applying the public trust doctrine to implement State management programs.

Damage Assessment & Restoration Revolving Fund
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Sustain Healthy Coasts										
Protect, conserve and restore habitats						2,684		2,684		
Total SHC						**2,684**		**2,684**		
Total for DARRF						**2,684**		**2,684**		

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

Page No.		Positions	FTE	Budget Authority	Direct Obligations
	FY 1999 Currently Available	0	0	(1,500)	0
	less: Obligations from prior years			0	0
	plus: 2000 Adjustments to base			1,500	
	less: Prior year recoveries				
	2000 Base	0	0	0	0
	2000 Estimate	0	0	0	0

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity/subactivity:		FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
DARRF	BA	0	(1,162)		(1,500)		0		0		0
	FTE/Obl.	0	0	0	7,793	0	4,184	0	4,184	0	0
TOTALS	BA	0	(1,162)		(1,500)		0		0		0
	Obl.	0	0	0	7,793	0	4,184	0	4,184	0	0
Adjustments for:											
Recoveries			0		0		0		0		
Unobligated Balance, start of year			(3,086)		(7,793)		0		0		
Unobligated balance transferred			0		0		0				
Unobligated Balance, end of year			7,793		0		0		0		
Financing from offsetting collections:											
Non-Federal Sources			(5,627)		(1,500)		(1,500)		(1,500)		0
Receivables from Federal Sources			0		0		0		0		
Financing from transfers:											
Unobligated Balances											
From DOI			(5,392)		(4,097)		(2,684)		(2,684)		
To ORF			5,150		4,097		0		0		
Total BA			(1,162)		(1,500)						
Budget Authority											
Transfer to ORF			1,162		1,500		0		0		0
Appropriation			0		0		0		0		0

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations	0	7,793	4,184	4,184	0
Offsetting collections from:					
Federal funds					
Unavailable Balance (prior year)	0	0	0	0	
Non-Federal sources	(5,627)	(1,500)	(1,500)	(1,500)	0
Receivables from Federal Sources	0	0	0	0	0
Recoveries	0	0	0	0	0
Unobligated Balance: Transfer					
From DOI	(5,392)	(4,097)	(2,684)	(2,684)	
To ORF	5,150	4,097	0	0	
Unobligated balance, start of year	(3,086)	(7,793)	0	0	0
Unobligated balance, end of year	7,793	0	0	0	0
Budget Authority	(1,162)	(1,500)	0	0	0
Financing:					
Transfer to ORF					
B.A.	1,162	1,500	0	0	0
Transfer from Dept of Interior					
B.A.	0	0	0	0	0
Appropriation	0	0	0	0	0

Exhibit 8

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment & Restoration Revolving fund
CHANGES TO BASE
(Dollar amounts in thousands)

	FTE	Amount
Adjustment	0	
Terminate transfer to Estuarine and Coastal Assessment, (ORF)		1,500,000
		0
Subtotal, adjustments to base	0	1,500,000
Total, Changes to base	0	1,500,000

Exhibit 9

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment & Restoration Revolving Fund
JUSTIFICATION OF CHANGES TO BASE

	FTE	Amount
Transfer		
Terminate transfer to Estuarine and Coastal Assessment, DARRF)		**1,500,000**
	0	
Subtotal, Adjustments to Base Total		1,500,000
ATB's absorbed		0
Total, Changes to Base		1,500,000

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Damage Assessment and Restoration Revolving Fund**
Subactivity: **Damage Assessment and Restoration Revolving Fund**

Goal Statement

Facilitate the spill response, damage assessment, and natural resource restoration activities of the National Oceanic and Atmospheric Administration.

Proposed Legislation

No legislation proposed for this subactivity.

Base Program

A National Oceanic and Atmospheric Administration (NOAA) Damage Assessment and Restoration Revolving Fund was established, under Section 1012(a) of the Oil Pollution Act of 1990, for deposit of sums provided by any party or governmental entity for response to discharges of oil or releases of hazardous substances, for assessment of damages to NOAA trust resources resulting from those discharges and releases, and for the restoration of the injured natural resources.

- Retain funds that are recovered through settlement or awarded by a court for restoration of injured natural resources, and retain reasonable costs of conducting spill response and damage assessment that are recovered by NOAA through negotiated settlement, court award, or other reimbursement.

- Ensure funds so deposited shall remain available to the trustee, without further appropriation, until expended to pay costs associated with response, damage assessment, and restoration of natural resources.

The NOAA Damage Assessment and Restoration Revolving Fund facilitates and sustains: (1) oil and hazardous materials contingency planning and response, automated spill assessment, and countermeasure capabilities; (2) natural resource damage assessment while the Departments of Commerce and Justice seek full reimbursement from potentially responsible parties; and (3) restoration, replacement or acquisition of the equivalent of injured or lost natural resources, including resources of National Marine Sanctuaries and National Estuarine Research Reserves, tidal wetlands and other habitats, for which NOAA is trustee. These program functions are conducted jointly within NOAA by the Office of General Counsel, the National Ocean Service, and the National Marine Fisheries Service.

Hazardous Materials Response Program - As the scientific support coordinator to the U.S. Coast Guard's Federal on-scene coordinator at coastal and marine spills of oil and hazardous materials, NOAA provides critical information on spill trajectory, chemical hazard analyses, and assessments of the sensitivity of marine and estuarine habitats. The program's substantial involvement in response activities related to the EXXON VALDEZ oil spill continues. The program provides similar support to the environmental hazardous waste sites in coastal areas.

Damage Assessment Program - To fulfill its responsibility as a Federal trustee for living natural resources under the Superfund, Clean Water, and Oil Pollution Acts, NOAA conducts comprehensive assessments of damages to trust resources from discharges of oil or releases of hazardous substances in coastal and marine areas. These assessments enable the Federal Government to file claims against the potentially responsible parties. The first such claim was filed in 1983 for damages resulting from PCB contamination in New Bedford Harbor, Massachusetts. The Damage Assessment Center is currently involved in 27 damage assessments in various stages of completion.

Natural Resources Restoration Program - The program uses recovered damages to restore injured resources, monitors the restoration to assess its effectiveness, conducts basic and applied research on restoration methodologies, applies these techniques to restoration of resource habitats, and provides guidance to habitat managers for selecting among restoration approaches.

Measures of Performance

Establish, maintain, and operate a system of financial accounting for said Revolving Fund to ensure status reports of fund activities and conformation to all applicable Federal regulations.

Provide to the Under Secretary for Oceans and Atmosphere an annual summary of deposit, transfer, and withdrawal activities by program area.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent					
11.3	Other than full-time permanent					
11.5	Other personnel compensation					
11.8	Special personnel services payments					
11.9	Total personnel compensation					
12.1	Civilian personnel benefits					
13	Benefits for former personnel					
21	Travel and transportation of persons					
22	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Commun., util., misc. charges					
24	Printing and reproduction					
25.1	Consulting services					
25.2	Other services	0	7,793	4,184	4,184	0
26	Supplies and materials					
31	Equipment					
32	Lands and structures					
33	Investments and loans					
41	Grants, subsidies and contributions					
42	Insurance claims and indemnities					
43	Interest and dividends					
44	Refunds					
99	**Total Obligations**	0	7,793	4,184	4,184	0
	Recoveries					
	Unobligated Balance, SOY	(3,086)	(7,793)	0	0	0
	Unobligated Balance, EOY	7,793	0	0	0	0
	Financing from offsetting collections:					
	Non-Federal sources	(5,627)	(1,500)	(1,500)	(1,500)	0
	Receivables from Federal Sources	0				

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Financing from Transfers:					
Unobligated Balances					
From DOI	(5,392)	(4,097)	(2,684)	(2,684)	0
To ORF	5,150	4,097	0	0	0
Budget Authority	(1,162)	(1,500)	0	0	0
Transfers:					
From DOI	0	0	0	0	0
To ORF	1,162	1,500	0	0	0
Appropriation	0	0	0	0	0
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent					
Other than full-time permanent					
Total					
Authorized Positions:					
Full-time permanent					
Other than full-time permanent					
Total					

Federal Ship Financing Fund, Administration
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Build Sustainable Fisheries										
Managing for Economic Growth		700								
Total BSF		**700**								
Total for FSFF		**700**								

Exhibit 5

Department of Commerce

National Oceanic and Atmospheric Administration

Federal Ship Financing Fund

SUMMARY OF RESOURCE REQUIREMENTS

(dollar amounts in thousands)

Page No.		Positions	Budget Authority	FTE	Direct Obligations
	Appropriation Available, 1999	0	0	0	0
	less: Obligations from prior years	0	0	0	0
	plus: 2000 adjustments to base	0	0	0	0
	less: Prior year recoveries	0	0	0	0
	2000 Base	0	0	0	0
	plus: 2000 program changes	0	0	0	0
	2000 Estimate	0	0	0	0

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity:		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Federal Ship Financing Fund	Pos./BA	0	700	0	0	0	0	0	0	0	0
	FTE/Obl.	0	2,465	0	0	0	0	0	0	0	0
Direct Obligations	Pos./BA	0	700	0	0	0	0	0	0	0	0
	FTE/Obl.	0	2,465	0	0	0	0	0	0	0	0
Adjustments to Obligations:											
Recoveries			(244)		0		0		0	0	0
Unobligated Balance, start of year			(14,832)		(3,179)		0		0	0	0
Unobligated balance, transferred pursuant to P.L. 105-33			15,232		3,179		0		0	0	0
Unobligated Balance, end of year			3,179		0		0		0	0	0
Unobligated Balance, unavailable			0		0		0		0	0	0
Financing from offsetting collections:											
Non-Federal Sources			(5,100)								
Unavailable Balance (prior year)											
Financing from transfers:											
Transfer from other accounts (-)											
Transfer to other accounts (+)											
Indefinite Appropriation (FCRA of 1990)		0	700	0	0	0	0	0	0	0	0

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Federal Ship Financing Fund
SUMMARY OF FINANCING
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations	2,465	0	0	0	0
Offsetting collections from:					
Federal funds					
Trust funds					
Non-Federal sources	(5,100)				
Recoveries	(244)	0	0	0	0
Unobligated balance, start of year	(14,832)	(3,179)	0	0	0
Unobligated balance transferred persuent to P.L. 105-33	15,232	3,179			
Unobligated balance, end of year	3,179	0	0	0	0
Unobligated balance, unavailable					
Budget Authority	700	0	0	0	0
Financing:					
Transfer from other accounts					
Transfer to other accounts					
Appropriation	700	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Federal Ship Financing Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Federal Ship Financing Fund**
Subactivity: **Federal Ship Financing Fund**

Proposed Legislation

No legislation is proposed for this subactivity.

Base Program

The Federal Ship Financing Fund (FSFF) manages the loan guarantee portfolio that existed prior to FY 1992. Administrative expenses for management of the loan guarantee portfolio were charged to the Federal Ship Financing Fund prior to the enactment of the Credit Reform Act of 1990; they were then charged to the Operations, Research and Facilities (ORF) account until FY 1996. In FY 1996, FY 1997, and FY 1998 Congress directed that administrative expenses of $1,700,000 for the FSFF be paid from existing balances of the fund rather than from the ORF account. The FY 1999 President's Budget requested within the ORF account (Conservation and Management Operations) to once again charge these expenses to the ORF account. The FY 2000 budget proposes to charge these expenses from within the Fisheries Finance Program Account.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Federal Ship Financing Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	2,465	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	2,465	0	0	0	0
	Less prior year recoveries	(244)				
	Less unobligated balance, SOY	(14,832)	(3,179)			
	Plus unobligated balance, transferred persuent to P.L. 105-33	15,232	3,179			
	Plus unobligated balance, EOY	3,179				

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Federal Ship Financing Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Financing from offsetting collections					
Non-Federal funds	(5,100)				
Total Budget Authority	700	0	0	0	0
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

Exhibit 5

Department of Commerce
National Oceanic and Atmospheric Administration
Aircraft Procurement and Modernization
SUMMARY OF RESOURCE REQUIREMENTS
(dollar amounts in thousands)

Page No.		FTE	Budget Authority	Direct Obligations
	FY 1999 Currently available	0	0	144
	less: Obligations from prior years	0	0	(144)
	less: Obligations from prior years	0	0	0
	2000 Base	0	0	0
	less: FY 2000 Program changes			
	2000 Estimate	0	0	0

	1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity:	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Aircraft Procurement and Modernization	0	110	0	144	0	0	0	0	0	0
Direct Obligations	0	110	0	144	0	0	0	0	0	0
Adjustments for										
Recoveries		(32)		0		0		0	0	0
Unobligated Balance, start of year		(222)		(144)		0		0	0	0
Unobligated balance transferred		0		0		0		0	0	
Unobligated Balance, end of year		144		0		0		0	0	0
Unobligated Balance, unavailable		0		0		0		0	0	
		0		0		0		0	0	0
Financing from offsetting collections:										
Non-Federal Sources										
Unavailable Balance (prior year)										
Financing from transfers:										
Transfer from other accounts (-)										
Transfer to other accounts (+)										
Appropriation	0	0	0	0	0	0	0	0	0	0

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Aircraft Procurement and Modernization
SUMMARY OF FINANCING
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) Over 2000 Base
Total Obligations	110	144	0	0	0
Offsetting collections from:					
Federal funds					
Trust funds					
Non-Federal sources					
Recoveries	(32)				
Unobligated balance, start of year	(222)	(144)			
Unobligated balance transferred					
Unobligated balance, end of year	144				
Unobligated balance expiring					
Budget Authority	0	0	0	0	0
Financing:					
Transfer from other accounts					
Transfer to other accounts	0	0	0	0	0
Appropriation	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Aircraft Procurement and Modernization
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Aircraft Procurement and Modernization**
Subactivity: **Aircraft Procurement and Modernization**

Goal Statement

Provide a next generation reconnaissance aircraft for both hurricane and severe storm forecasting and atmospheric research.

Proposed Legislation

No legislation is proposed.

Base Program

In FY 1994, this appropriation provided for the procurement and modification of a mid-size aircraft and scientific equipment to provide a reconnaissance system for hurricane and severe storm forecasting and atmospheric research. The aircraft will be used to perform advanced hurricane research and environmental missions in climate and global change, air chemistry, remote sensor development, satellite validation, and severe weather research. There is no request for funding in FY 2000.

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Aircraft Procurement & Modernization
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent					
11.3	Other than full-time permanent					
11.5	Other personnel compensation					
11.8	Special personnel services payments					
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits					
13	Benefits for former personnel					
21	Travel and transportation of persons					
22	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Commun., util., misc. charges					
24	Printing and reproduction					
25.1	Consulting services					
25.2	Other services	110	144			
25.3	Purchase of goods and services from Gov't accounts					
26	Supplies and materials					
31	Equipment					
32	Lands and structures					
33	Investments and loans					
41	Grants, subsidies and contributions					
42	Insurance claims and indemnities					
43	Interest and dividends					
44	Refunds					
99	**Total Obligations**	110	144	0		0

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Aircraft Procurement & Modernization
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Prior year recoveries	(32)				
Unobligated balance, start of year	(222)	(144)			
Unobligated balance transferred					
Unobligated balance, end of year	144				
Unobligated balance expiring					
Financing from Offsetting collections:					
Non-Federal Funds					
Trust Funds					
Total Budget Authority	0	0			
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent					
Other than full-time permanent					
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent					0
Other than full-time permanent					0
Total	0	0	0	0	0

Fisheries Promotional Fund
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Build Sustainable Fisheries										
Managing for Economic Growth										
Eliminate & Prevent Overfishing								(1,186)		(1,186)
Total BSF								**(1,186)**		**(1,186)**
Total for FPF								**(1,186)**		**(1,186)**

Exhibit 5

Department of Commerce

National Oceanic and Atmospheric Administration

Fisheries Promotional Fund

SUMMARY OF RESOURCE REQUIREMENTS

(dollar amounts in thousands)

Page No.		Positions	Budget Authority	FTE	Direct Obligations
	Appropriation Available, 1999	0	0	0	0
	less: Obligations from prior years	0	0	0	0
	plus: 2000 adjustments to base	0	0	0	0
	less: Rescission	0	(1,186)	0	(1,186)
	less: Prior year recoveries	0	0	0	0
	2000 Base	0	(1,186)	0	(1,186)
	plus: 2000 program changes	0	0	0	0
	2000 Estimate	0	(1,186)	0	(1,186)

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity:		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Promotional Fund	Pos./BA	0	0	0	0	0	0	0	0	0	0
	FTE/Obl.	0	0	0	0	0	0	0	0	0	0
Direct Obligations	Pos./BA	0	0	0	0	0	0	0	0	0	0
	FTE/Obl.	0	0	0	0	0	0	0	0	0	0
Adjustments to Obligations:											
Recoveries			(10)		0		0		0	0	0
Unobligated Balance, start of year			(1,081)		(1,186)		(1,186)		(1,186)	0	0
Unobligated Balance, end of year			1,186		1,186		0		0	0	0
Financing from offsetting collections:											
Non-Federal Sources											
Federal Sources			(95)								
Financing from transfers:											
Transfer from other accounts (-)											
Transfer to other accounts (+)											
Appropriation		0	0	0	0	0	(1,186)	0	(1,186)	0	0

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Promotional Fund
SUMMARY OF FINANCING
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations	0	0	0	0	0
Offsetting collections from:					
Federal funds	(95)				
Trust funds					
Non-Federal sources					
Recoveries	(10)	0	0	0	0
Unobligated balance, start of year	(1,081)	(1,186)	(1,186)	(1,186)	0
Unobligated balance, end of year	1,186	1,186	0	0	0
Unobligated balance, unavailable					
Budget Authority	0	0	(1,186)	(1,186)	0
Financing:					
Transfer from other accounts					
Transfer to other accounts					
Appropriation	0	0	(1,186)	(1,186)	0

Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Promotional Fund
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Fisheries Promotional Fund**
Subactivity: **Fisheries Promotional Fund**

Goal Statement

To strengthen the competitive position of the United States commercial fishing industry in the domestic and international marketplace through the National Fish and Seafood Promotional Council.

Base Program

Title II of Public Law 99-659, the Fish and Seafood Promotion Act of 1986, enacted November 14, 1986, established the Fisheries Promotional Fund (FPF) and a National Fish and Seafood Promotional Council. The FPF was to provide funding for the Council. Funding for the FPF was from the transfer of Saltonstall-Kennedy funds authorized by the Act and were subject to appropriation. The National Council was charged with marketing seafood products and fostering their sales nationally. The objectives of the activity were to: encourage the development and utilization of all species of fish available for harvest by the United States fishing industry; encourage the utilization of domestically-produced fish through enhancement of markets and promotion; help the United States' fishing industry develop methods to improve quality and efficiency in the marketplace; educate and inform consumers on the use of fish; develop better coordination of fisheries marketing and promotion activities with commercial fisheries research and development programs; and educate and inform the public about the nutritional value of fish in the diet.

The Fish and Seafood Promotion Act expired on December 31, 1991 and the National Fish and Seafood Promotional Council was terminated. Reauthorization of the Fish and Seafood Promotion Act is not proposed and unobligated balances of $1,186,000 are being proposed for rescission from this account.

Pacific Coastal Salmon Recovery Account
Contribution to the NOAA Strategic Planning Goals and Objectives

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Recover Protected Species										
Prevent Extinction								100,000		100,000
Total RPS								**100,000**		**100,000**
Total for PCSR								**100,000**		**100,000**

Exhibit 5

Department of Commerce

National Oceanic and Atmospheric Administration

Pacific Coastal Salmon Recovery Account

SUMMARY OF RESOURCE REQUIREMENTS

(dollar amounts in thousands)

Page No.		Positions	Budget Authority	FTE	Direct Obligations
	Appropriation Available, 1999	0	0	0	0
	less: Obligations from prior years	0	0	0	0
	plus: 2000 adjustments to base	0	0	0	0
	less: Prior year recoveries	0	0	0	0
	2000 Base	0	0	0	0
	plus: 2000 program changes	0	100,000	0	100,000
	2000 Estimate	0	100,000	0	100,000

		1998 Actual		1999 Currently Available		2000 Base		2000 Estimate		Increase/ (Decrease) over 2000 Base	
Comparison by activity:		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Pacific Coastal Salmon Recovery	Pos./BA	0	0	0	0	0	0	0	100,000	0	100,000
	FTE/Obl.	0	0	0	0	0	0	0	100,000	0	100,000
Direct Obligations	Pos./BA	0	0	0	0	0	0	0	100,000	0	100,000
	FTE/Obl.	0	0	0	0	0	0	0	100,000	0	100,000
Adjustments to Obligations:											
Recoveries			0		0		0		0	0	0
Unobligated Balance, start of year			0		0		0		0	0	0
Unobligated balance, transferred			0		0		0		0	0	0
Unobligated Balance, end of year			0		0		0		0	0	0
Unobligated Balance, unavailable			0		0		0		0	0	0
Financing from offsetting collections:											
Non-Federal Sources											
Unavailable Balance (prior year)											
Financing from transfers:											
Transfer from other accounts (-)											
Transfer to other accounts (+)											
Appropriation		0	0	0	0	0	0	0	100,000	0	100,000

Exhibit 7

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Account
SUMMARY OF FINANCING
(dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ Decrease/ over 2000 Base
Total Obligations	0	0	0	100,000	100,000
Offsetting collections from:					
Federal funds					
Trust funds					
Non-Federal sources					
Recoveries	0	0	0	0	0
Unobligated balance, start of year	0	0	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	0	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	0	0	0	100,000	100,000
Financing:					
Transfer from other accounts					
Transfer to other accounts					
Appropriation	0	0	0	100,000	100,000

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Account
JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: **Pacific Coastal Salmon Recovery**
Subactivity: **Pacific Coastal Salmon Recovery**

Proposed Legislation

Establish a new account to address the recovery of Pacific Coastal Salmon.

Base Program

This account is new for FY 2000 and does not include base funds.

CHANGES FOR 2000

(Dollar amounts in thousands)

		2000 Base		2000 Estimate		Increase/(Decrease)	
		Personnel	Amount	Personnel	Amount	Personnel	Amount
Pacific Coastal Salmon Recovery	Pos/BA	0	$0	0	$100,000	0	$100,000
	FTE/Obl	0	$0	0	$100,000	0	$100,000

Pacific Coastal Salmon Recovery Account (+0 FTE, +$100,000,000): NOAA requests an increase of $100,000,000 to establish the Pacific Coastal Salmon Recovery account as part of the Resource Protection initiative within the Ocean 2000 cross-cut.

This account will be established to support a new Pacific Salmon Recovery account for the purpose of helping share the costs of state, tribal and local conservation initiatives. This fund is NOAA's contribution to a broad interdepartmental initiative bolstering and deploying existing and new Federal capabilities to assist in the conservation of at-risk Pacific salmon runs in the western states of California, Oregon, Washington, and Alaska. The requested $100,000,000 for grants will be matched dollar for dollar with non-Federal contributions. The Fund will be established under existing authorities by the Secretary of Commerce and made available through agreements with the Governors of each of the four states for distribution to assist state, tribal and local conservation efforts. The Secretary will establish terms and conditions for the effective use of the funds and specific reporting requirements appropriate to ensure full accountability.

OUTYEAR CHANGE ESTIMATES

Funding Requirements to Accomplish These Performance Measures

	2000	2001	2002	2003	2004
Changes from FY 2000 Base (BA in Thousands)					
Total Changes	+$100,000	+$100,000	+$100,000	+$100,000	+$100,000

Exhibit 15

Department of Commerce

National Oceanic and Atmospheric Administration

Pacific Coastal Salmon Recovery Account

PROGRAM CHANGE DETAIL BY OBJECT CLASS

(Direct Obligations amounts in thousands)

Activity: **Pacific Coastal Salmon Recovery**

	Object Class	2000 Increase
11	Personnel compensation	
11.1	Full-time permanent	0
11.3	Other than full-time permanent	0
11.5	Other personnel compensation	0
11.8	Special personnel services payments	0
11.9	**Total personnel compensation**	0
12.1	Civilian personnel benefits	0
13	Benefits for former personnel	0
21	Travel and transportation of persons	0
22	Transportation of things	0
23.1	Rental payments to GSA	0
23.2	Rental payments to others	0
23.3	Commun., util., misc. charges	0
24	Printing and reproduction	0
25.2	Other services	0
26	Supplies and materials	0
31	Equipment	0
32	Lands and structures	0
33	Investments and loans	0
41	Grants, subsidies and contributions	100,000
42	Insurance claims and indemnities	0
43	Interest and dividends	0
44	Refunds	0
99	**Total obligations**	100,000

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	Object Class	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	100,000	100,000
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	**Total Obligations**	0	0	0	100,000	100,000
	Less prior year recoveries	0				
	Less unobligated balance, SOY	0	0			
	Plus unobligated balance, EOY	0				
	Total Budget Authority	0	0	0	100,000	100,000

Exhibit 16

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

	1998 Actual	1999 Currently Available	2000 Base	2000 Estimate	Increase/ (Decrease) over 2000 Base
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

NOAA FY 2000 President's Request by Strategic Plan

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Advance Short-Term Warning and Forecast Services										
Complete NWS Modernization										
Operations, Research and Facilities										
NWS	4,648	504,657	4,669	545,828	4,669	564,218	4,490	601,320	(179)	37,102
NESDIS										
Prog Sup	36	1,420	9	700	9	962	9	962		
Facilities		1,000		3,000						
Total ORF	**4,684**	**507,077**	**4,678**	**549,528**	**4,678**	**565,180**	**4,499**	**602,282**	**(179)**	**37,102**
Procurement Acquisition & Construction										
Systems	154	237,920	100	170,798	100	175,398	77	124,497	(23)	(50,901)
Construction	5	13,823	5	10,376	5	10,376	5	16,912		6,536
Total PAC	**159**	**251,743**	**105**	**181,174**	**105**	**185,774**	**82**	**141,409**	**(23)**	**(44,365)**
Construction										
Const										
Total Const										
GOES Contingency Fund										
GOES										
Total GOES										
Total Modernization	**4,843**	**758,820**	**4,783**	**730,702**	**4,783**	**750,954**	**4,581**	**743,691**	**(202)**	**(7,263)**
Satellite Continuity										
Operations, Research and Facilities										
NESDIS	507	85,432	507	54,385	507	55,135	507	56,321		1,186
Prog Sup										
Total ORF	**507**	**85,432**	**507**	**54,385**	**507**	**55,135**	**507**	**56,321**		**1,186**
Procurement Acquisition & Construction										
Systems	80	193,766	80	382,683	80	382,683	80	410,612		27,929
Total PAC	**80**	**193,766**	**80**	**382,683**	**80**	**382,683**	**80**	**410,612**		**27,929**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Total Sat Continuity	**587**	**279,198**	**587**	**437,068**	**587**	**437,818**	**587**	**466,933**		**29,115**
Enhance Observations & Predictions										
Operations, Research and Facilities										
NOS		100								
OAR	273	46,781	272	47,680	272	47,435	272	45,135		(2,300)
NWS		2,730		2,000				2,200		2,200
NESDIS										
Prog Sup	55	8,364	60	6,453	60	7,326	64	7,676	4	350
Total ORF	**328**	**57,975**	**332**	**56,133**	**332**	**54,761**	**336**	**55,011**	**4**	**250**
Procurement Acquisition & Construction										
Systems						2,000		12,690		10,690
Total PAC						**2,000**		**12,690**		**10,690**
Aircraft Procurement and Modernization										
Aircraft										
Total Aircraft										
Total Enh Obs/Pred	**328**	**57,975**	**332**	**56,133**	**332**	**56,761**	**336**	**67,701**	**4**	**10,940**
Improve Service Communication and Utilization										
Operations, Research and Facilities										
OAR	21	6,442	21	1,870	21	1,915	21	1,915		
NWS										
NESDIS										
Total ORF	**21**	**6,442**	**21**	**1,870**	**21**	**1,915**	**21**	**1,915**		
Total Imp Serv/Comm	**21**	**6,442**	**21**	**1,870**	**21**	**1,915**	**21**	**1,915**		

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Infrastructure										
Operations, Research and Facilities										
OAR	2	2,763	3	7,263	3	7,263	3	8,763		1,500
Prog Sup	621	33,766	621	33,194	621	34,970	621	34,970		
Fac	4	647	4	647	4	653	4	1,478		825
Total ORF	**627**	**37,176**	**628**	**41,104**	**628**	**42,886**	**628**	**45,211**		**2,325**
Procurement Acquisition & Construction										
Systems										
Const		1,285		2,823		2,823				(2,823)
Total PAC		**1,285**		**2,823**		**2,823**				**(2,823)**
Construction										
Const										
Total Const										
Total Infra	**627**	**38,461**	**628**	**43,927**	**628**	**45,709**	**628**	**45,211**		**(498)**
Total ASTWFS	**6,406**	**1,140,896**	**6,351**	**1,269,700**	**6,351**	**1,293,157**	**6,153**	**1,325,451**	**(198)**	**32,294**

Implement Seasonal to Interannual Climate Forecast

Implement Prediction Systems

Operations, Research and Facilities										
NOS										
OAR	19	10,728	20	13,728	20	13,728	20	13,728		
NWS	54	4,688	54	4,688	54	4,688	54	4,688		
NESDIS										
Prog Sup				150		150		150		
Total ORF	**73**	**15,416**	**74**	**18,566**	**74**	**18,566**	**74**	**18,566**		
Total Predict Sys	**73**	**15,416**	**74**	**18,566**	**74**	**18,566**	**74**	**18,566**		

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Maintain and Improve Observing and Data Delivery Systems										
Operations, Research & Facilities										
NOS		2,500								
OAR	71	18,532	77	18,118	90	18,476	90	22,476		4,000
NWS										
NESDIS	266	36,158	266	39,958	266	40,443	266	34,625		(5,818)
Prog Sup										
Fleet	1	300	1	542	1	774	1	774		
Total ORF	**338**	**57,490**	**344**	**58,618**	**357**	**59,693**	**357**	**57,875**		**(1,818)**
Total Observe & Data	**338**	**57,490**	**344**	**58,618**	**357**	**59,693**	**357**	**57,875**		**(1,818)**
Conduct Research for Improved Climate Predictions										
Operations, Research and Facilities										
OAR	73	27,701	77	29,701	77	29,761	77	31,361		1,600
Prog Sup						250		250		
Total ORF	**73**	**27,701**	**77**	**29,701**	**77**	**30,011**	**77**	**31,611**		**1,600**
Aircraft Procurement and Modernization										
Aircraft										
Total Aircraft										
Total Research	**73**	**27,701**	**77**	**29,701**	**77**	**30,011**	**77**	**31,611**		**1,600**
Deliver Climate Services and Assess Socio-economic Impacts										
Operations, Research and Facilities										
OAR		1,122		1,122		422		422		
Total ORF		**1,122**		**1,122**		**422**		**422**		
Total Serv & Impact		**1,122**		**1,122**		**422**		**422**		

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Infrastructure										
Operations, Research and Facilities										
OAR		930		930		930		930		
Prog Sup	54	2,952	54	2,902	54	3,057	54	3,057		
Fac		72		72		73		165		92
Total ORF	**54**	**3,954**	**54**	**3,904**	**54**	**4,060**	**54**	**4,152**		**92**
Procurement Acquisition & Construction										
Systems										
Const		29		64		64				(64)
Total PAC		**29**		**64**		**64**				**(64)**
Construction										
Const										
Total Const										
Fleet Modernization, Shipbuilding & Conversion										
Fleet										
Total Fleet										
Total Infra	**54**	**3,983**	**54**	**3,968**	**54**	**4,124**	**54**	**4,152**		**28**
Total ISICF	**538**	**105,712**	**549**	**111,975**	**562**	**112,816**	**562**	**112,626**		**(190)**

Predict and Assess Decadal-to-Centennial Change

Characterize Global Climate Forcing Agents

Operations, Research and Facilities										
NOS										
OAR	44	7,387	44	7,237	44	7,305	44	10,405		3,100
NESDIS										
Prog Sup										
Total ORF	**44**	**7,387**	**44**	**7,237**	**44**	**7,305**	**44**	**10,405**		**3,100**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Aircraft Procurement and Modernization										
Aircraft										
Total Aircraft										
Total Climate Forcing	**44**	**7,387**	**44**	**7,237**	**44**	**7,305**	**44**	**10,405**		**3,100**
Understand the Role of Oceans in Global Change										
Operations, Research and Facilities										
NOS										
OAR	196	30,101	211	29,221	211	30,644	211	32,344		1,700
Prog Sup										
Total ORF	**196**	**30,101**	**211**	**29,221**	**211**	**30,644**	**211**	**32,344**		**1,700**
Total Role Oceans	**196**	**30,101**	**211**	**29,221**	**211**	**30,644**	**211**	**32,344**		**1,700**
Guide the Rehabilitation of the Ozone Layer										
Operations, Research and Facilities										
NOS										
OAR	42	7,183	44	7,033	44	7,099	44	7,099		
Prog Sup										
Total ORF	**42**	**7,183**	**44**	**7,033**	**44**	**7,099**	**44**	**7,099**		
Total Rehab Ozone	**42**	**7,183**	**44**	**7,033**	**44**	**7,099**	**44**	**7,099**		
Provide Prediction, Assessment, & Human Impact Info.										
Operations, Research and Facilities										
NOS										
OAR	40	7,498	40	7,348	40	7,408	40	8,608		1,200
Prog Sup			1	1,608	1	1,610	1	1,610		
Total ORF	**40**	**7,498**	**41**	**8,956**	**41**	**9,018**	**41**	**10,218**		**1,200**
Total Pred/Ass/Imp	**40**	**7,498**	**41**	**8,956**	**41**	**9,018**	**41**	**10,218**		**1,200**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Ensure a Long-Term Climate Record										
Operations, Research and Facilities										
NOS										
OAR	20	8,231	20	7,717	20	7,717	20	7,717		
NWS	55	8,189	55	8,189	55	8,189	55	9,689		1,500
NESDIS		5,719		8,219		8,219		4,719		(3,500)
Total ORF	**75**	**22,139**	**75**	**24,125**	**75**	**24,125**	**75**	**22,125**		**(2,000)**
Total Climate Rec	**75**	**22,139**	**75**	**24,125**	**75**	**24,125**	**75**	**22,125**		**(2,000)**
Provide the Scientific Basis for Improved Air Quality										
Operations, Research and Facilities										
OAR		4,064	3	5,412	3	5,412	3	5,799		387
Total ORF		**4,064**	**3**	**5,412**	**3**	**5,412**	**3**	**5,799**		**387**
Total Air Quality		**4,064**	**3**	**5,412**	**3**	**5,412**	**3**	**5,799**		**387**
GLOBE										
Operations, Research and Facilities										
OAR	9	5,000	9	2,500	9	2,500	9	5,000		2,500
Total ORF	**9**	**5,000**	**9**	**2,500**	**9**	**2,500**	**9**	**5,000**		**2,500**
Total GLOBE	**9**	**5,000**	**9**	**2,500**	**9**	**2,500**	**9**	**5,000**		**2,500**
Infrastructure										
Operations, Research & Facilities										
OAR	2	1,468	3	1,468	3	1,468	3	1,468		
Prog Sup	54	2,900	54	2,851	54	3,004	54	3,004		
Fac		83		83		84		190		106
Fleet	1	107	1	542	1	414	1	414		
Total ORF	**57**	**4,558**	**58**	**4,944**	**58**	**4,970**	**58**	**5,076**		**106**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Procurement Acquisition & Construction										
Systems								5,700		5,700
Const		29		64		64				(64)
Total PAC		**29**		**64**		**64**		**5,700**		**5,636**
Construction										
Const										
Total Const										
Fleet Modernization, Shipbuilding & Conversion										
Fleet										
Total Fleet										
Total Infra	**57**	**4,587**	**58**	**5,008**	**58**	**5,034**	**58**	**10,776**		**5,742**
Total PADCC	**463**	**87,959**	**485**	**89,492**	**485**	**91,137**	**485**	**103,766**		**12,629**
Promote Safe Navigation										
Build Nautical Charting Database										
Operations, Research and Facilities										
NOS	175	21,950	175	23,950	175	24,123	175	25,123		1,000
Total ORF	**175**	**21,950**	**175**	**23,950**	**175**	**24,123**	**175**	**25,123**		**1,000**
Total Naut Database	**175**	**21,950**	**175**	**23,950**	**175**	**24,123**	**175**	**25,123**		**1,000**
Update Nautical Surveys										
Operations, Research and Facilities										
NOS	294	17,029	294	19,328	294	19,570	294	17,410		(2,160)
Prog Sup	24	968	25	1,211	25	1,251	25	1,251		
Total ORF	**318**	**17,997**	**319**	**20,539**	**319**	**20,821**	**319**	**18,661**		**(2,160)**
Total Naut Surveys	**318**	**17,997**	**319**	**20,539**	**319**	**20,821**	**319**	**18,661**		**(2,160)**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Provide Marine Predictions										
Operations, Research and Facilities										
NOS	141	11,350	141	12,000	141	12,133	141	14,883		2,750
Prog Sup										
Total ORF	**141**	**11,350**	**141**	**12,000**	**141**	**12,133**	**141**	**14,883**		**2,750**
Total Marine Predict	**141**	**11,350**	**141**	**12,000**	**141**	**12,133**	**141**	**14,883**		**2,750**
Establish National Spatial Reference System										
Operations, Research and Facilities										
NOS	197	20,700	197	19,659	197	19,849	197	19,849		
Total ORF	**197**	**20,700**	**197**	**19,659**	**197**	**19,849**	**197**	**19,849**		
Total Spatial Ref	**197**	**20,700**	**197**	**19,659**	**197**	**19,849**	**197**	**19,849**		
Define National Shoreline										
Operations, Research and Facilities										
NOS		3,311		3,311		3,311		3,311		
Total ORF		**3,311**		**3,311**		**3,311**		**3,311**		
Total Nat'l Shoreline		**3,311**		**3,311**		**3,311**		**3,311**		
Infrastructure										
Operations, Research & Facilities										
OAR		389		389		389		389		
Prog Sup	44	2,361	44	2,321	44	2,445	44	2,445		
Fac		68		68		69		156		87
Fleet	2	759	2	1,327	2	1,357	2	1,357		
Total ORF	**46**	**3,577**	**46**	**4,105**	**46**	**4,260**	**46**	**4,347**		**87**
Procurement Acquisition & Construction										
Systems										
Const										
Total PAC										

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Construction										
Const										
Total Const										
Fleet Modernization, Shipbuilding & Conversion										
Fleet										
Total Fleet										
Total Infra	**46**	**3,577**	**46**	**4,105**	**46**	**4,260**	**46**	**4,347**		**87**
Address Survey Backlog/Contracts										
Operations, Research and Facilities										
NOS		13,900		14,000		14,000		14,900		900
Total ORF		**13,900**		**14,000**		**14,000**		**14,900**		**900**
Total Backlog/Contracts		**13,900**		**14,000**		**14,000**		**14,900**		**900**
Total PSN	**877**	**92,785**	**878**	**97,564**	**878**	**98,497**	**878**	**101,074**		**2,577**
Build Sustainable Fisheries										
Develop Sound Aquaculture										
Operations, Research and Facilities										
NMFS						14,350	10	11,300	10	(3,050)
OAR					7	13,935	7	14,719		784
Total ORF					**7**	**28,285**	**17**	**26,019**	**10**	**(2,266)**
Promote and Develop Fisheries Products										
P&D						472		233		(239)
Total P&D						**472**		**233**		**(239)**
Total Aquaculture					**7**	**28,757**	**17**	**26,252**	**10**	**(2,505)**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Assess the Status of Fishery Resources										
Operations, Research and Facilities										
NMFS	1,390	166,351	1,476	184,197						
OAR	16	6,199	16	5,883						
NESDIS										
Prog Sup	9	812								
Total ORF	**1,415**	**173,362**	**1,492**	**190,080**						
Total Assess	**1,415**	**173,362**	**1,492**	**190,080**						
Advance Fishery Prediction										
Operations, Research and Facilities										
NOS	14	8,600	14	9,200						
NMFS		601		601						
OAR	2	7,832	3	11,149						
Prog Sup										
Total ORF	**16**	**17,033**	**17**	**20,950**						
Total Advance	**16**	**17,033**	**17**	**20,950**						
Managing for Economic Growth										
Operations, Research and Facilities										
NMFS	325	77,957	377	85,352						
OAR	2	4,492	1	1,050						
Total ORF	**327**	**82,449**	**378**	**86,402**						
Fisheries Finance, Program Account										
FFPA		338		28,338						
Total FFPA		**338**		**28,338**						
Fisheries Promotional Fund										
FPF										
Total FPF										
Promote and Develop Fisheries Products										
P&D	5	2,313	5	2,101						
Total P&D	**5**	**2,313**	**5**	**2,101**						

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Fishing Vessel and Gear Damage Fund										
FVGDCF										
Total FVGDF										
Fishermen's Contingency Fund										
FCF	1	953	1	953						
Total FCF	**1**	**953**	**1**	**953**						
Foreign Fishing Observer Fund										
FFOF		189		189						
Total FFOF		**189**		**189**						
Federal Ship Financing Fund, Administration										
FSFF		700								
Total FSFF		**700**								
Mandatory Fish Fees										
Fish Fees										
Total Fish Fees										
North Pacific Observer Fund										
N. Pac. Obs.										
Total N. Pac. Obs.										
Total Manage	**333**	**86,942**	**384**	**117,983**						
Ensuring Adequate Compliance										
Operations, Research and Facilities										
NMFS	171	17,600	181	17,775						
Total ORF	**171**	**17,600**	**181**	**17,775**						
Total Compliance	**171**	**17,600**	**181**	**17,775**						
Provide Research and Service										
Operations, Research and Facilities										
NMFS	43	3,448	43	3,448						
OAR	4	14,198	4	13,858						
Prog Sup										
Total ORF	**47**	**17,646**	**47**	**17,306**						

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Promote and Develop Fisheries Products										
P&D		1,040		944						
Total P&D		**1,040**		**944**						
Total Res & Serv	**47**	**18,686**	**47**	**18,250**						
Infrastructure										
Operations, Research & Facilities										
NMFS						6,465		6,465		
OAR		2,505		3,205		805		805		
Prog Sup	196	10,553	196	10,374	196	11,179	196	11,179		
Facilities	8	8,985	8	8,535	8	2,093	8	5,300		3,207
Fleet	5	11,366	5	7,315	5	6,627	5	4,227		(2,400)
Total ORF	**209**	**33,409**	**209**	**29,429**	**209**	**27,169**	**209**	**27,976**		**807**
Procurement Acquisition & Construction										
Systems										
Construction		31,472		9,195		9,195		1,000		(8,195)
Fleet								51,567		51,567
Other PAC				1,000		1,000				(1,000)
Total PAC		**31,472**		**10,195**		**10,195**		**52,567**		**42,372**
Construction										
Const										
Total Const										
Fleet Modernization, Shipbuilding & Conversion										
Fleet										
Total Fleet										
Total Infra	**209**	**64,881**	**209**	**39,624**	**209**	**37,364**	**209**	**80,543**		**43,179**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Eliminate & Prevent Overfishing										
Operations, Research and Facilities										
NOS					14	9,220	14	11,820		2,600
NMFS					1,815	229,119	1,801	231,622	(14)	2,503
OAR					17	15,305	17	13,812		(1,493)
NESDIS										
Prog Sup										
Total ORF					**1,846**	**253,644**	**1,832**	**257,254**	**(14)**	**3,610**
Fisheries Finance, Program Account										
FFPA						28,338	24	10,258	24	(18,080)
Total FFPA						**28,338**	**24**	**10,258**	**24**	**(18,080)**
Fisheries Promotional Fund										
FPF								(1,186)		(1,186)
Total FPF								**(1,186)**		**(1,186)**
Promote and Develop Fisheries Products										
P&D					5	2,101	5	1,034		(1,067)
Total P&D					**5**	**2,101**	**5**	**1,034**		**(1,067)**
Fishermen's Contingency Fund										
FCF					1	953	1	953		
Total FCF					**1**	**953**	**1**	**953**		
Foreign Fishing Observer Fund										
FFOF						189		189		
Total FFOF						**189**		**189**		
Total Overfishing					**1,852**	**285,225**	**1,862**	**268,502**	**10**	**(16,723)**
Attain Economic Sustainability in Communities										
Operations, Research and Facilities										
NMFS					262	44,565	283	48,765	21	4,200
OAR						2,050		2,050		
Total ORF					**262**	**46,615**	**283**	**50,815**	**21**	**4,200**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Promote and Develop Fisheries Products										
P&D						472		233		(239)
Total P&D						**472**		**233**		**(239)**
Total Attain					**262**	**47,087**	**283**	**51,048**	**21**	**3,961**
Total BSF	**2,191**	**378,504**	**2,330**	**404,662**	**2,330**	**398,433**	**2,371**	**426,345**	**41**	**27,912**
Recover Protected Species										
Assess Status and Impacts										
Operations, Research and Facilities										
NMFS	328	35,808	331	36,516						
NESDIS		1,202		1,202						
Prog Sup	18	256	20	150						
Total ORF	**346**	**37,266**	**351**	**37,868**						
Total Assess	**346**	**37,266**	**351**	**37,868**						
Implement Conservation Plans										
Operations, Research and Facilities										
NMFS	59	30,580	199	37,557						
Total ORF	**59**	**30,580**	**199**	**37,557**						
Total Cons Plans	**59**	**30,580**	**199**	**37,557**						
Infrastructure										
Operations, Research & Facilities										
OAR		340		340		340		340		
Prog Sup	21	1,204	21	1,184	21	1,247	21	1,247		
Fac	2	747	2	747	2	754	2	1,705		951
Fleet	2	611	2	1,379	2	2,057	2	2,057		
Total ORF	**25**	**2,902**	**25**	**3,650**	**25**	**4,398**	**25**	**5,349**		**951**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Procurement Acquisition & Construction										
Systems										
Const		254		559		559				(559)
Total PAC		**254**		**559**		**559**				**(559)**
Construction										
Const										
Total Const										
Total Infra	**25**	**3,156**	**25**	**4,209**	**25**	**4,957**	**25**	**5,349**		**392**
Maintain Healthy Species & Ecosystems										
Operations, Research and Facilities										
NOS								3,000		3,000
NMFS					340	30,684	349	33,157	9	2,473
OAR										
NESDIS						1,202		1,202		
Prog Sup					20	182	20	182		
Total ORF					**360**	**32,068**	**369**	**37,541**	**9**	**5,473**
Total Healthy Species					**360**	**32,068**	**369**	**37,541**	**9**	**5,473**
Prevent Extinction										
Operations, Research and Facilities										
NMFS					190	44,237	327	70,449	137	26,212
Total ORF					**190**	**44,237**	**327**	**70,449**	**137**	**26,212**
Pacific Coastal Salmon Recovery Account										
PCSR								100,000		100,000
Total PCSR								**100,000**		**100,000**
Total Prevent Ext.					**190**	**44,237**	**327**	**170,449**	**137**	**126,212**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Total RPS	**430**	**71,002**	**575**	**79,634**	**575**	**81,262**	**721**	**213,339**	**146**	**132,077**
Sustain Healthy Coasts										
Protect, conserve and restore habitats										
Operations, Research and Facilities										
NOS	137	60,883	294	73,984	370	82,429	408	104,061	38	21,632
NMFS	192	16,110	143	14,474	143	14,683	159	16,108	16	1,425
OAR	64	20,556	65	22,075	5	16,132	5	13,814		(2,318)
NESDIS	9	4,971	9	4,771	9	4,825	9	4,825		
Prog Sup				928		150		150		
Total ORF	**402**	**102,520**	**511**	**116,232**	**527**	**118,219**	**581**	**138,958**	**54**	**20,739**
Coastal Zone Management Fund										
CZMF	37	3,120	37	880						
Total CZMF	**37**	**3,120**	**37**	**880**						
Damage Assessment & Restoration Revolving Fund										
DARRF						2,684		2,684		
Total DARRF						**2,684**		**2,684**		
Total Habitats	**439**	**105,640**	**548**	**117,112**	**527**	**120,903**	**581**	**141,642**	**54**	**20,739**
Promote clean coastal waters										
Operations, Research & Facilities										
NOS	243	48,241	135	53,027	152	48,880	154	54,214	2	5,334
NMFS	27	2,630	27	2,630	27	2,681	27	2,566		(115)
OAR	40	16,753	42	19,724	29	21,437	29	15,256		(6,181)
Prog Sup										
Fleet	1	357	1	495	1	414	1	414		
Total ORF	**311**	**67,981**	**205**	**75,876**	**209**	**73,412**	**211**	**72,450**	**2**	**(962)**

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Coastal Zone Management Fund										
CZMF	9	1,950	9	550						
Total CZMF	**9**	**1,950**	**9**	**550**						
Total Water	**320**	**69,931**	**214**	**76,426**	**209**	**73,412**	**211**	**72,450**	**2**	**(962)**
Foster well-planned and revitalized coastal communities										
Operations, Research and Facilities										
NOS	19	25,131	19	25,648	35	26,988	46	59,972	11	32,984
NMFS										
OAR	8	17,741	8	20,584	8	21,202	8	17,410		(3,792)
NESDIS		1,200		1,400		1,400		1,400		
Prog Sup						250		250		
Total ORF	**27**	**44,072**	**27**	**47,632**	**43**	**49,840**	**54**	**79,032**	**11**	**29,192**
Coastal Zone Management Fund										
CZMF	3	2,730	3	2,570						
Total CZMF	**3**	**2,730**	**3**	**2,570**						
Total Communities	**30**	**46,802**	**30**	**50,202**	**43**	**49,840**	**54**	**79,032**	**11**	**29,192**
Infrastructure										
Operations, Research and Facilities										
OAR		805		805		805		805		
Prog Sup	97	5,314	97	5,224	97	5,504	97	5,504		
Fac	1	563	1	113	1	118	1	835		717
Total ORF	**98**	**6,682**	**98**	**6,142**	**98**	**6,427**	**98**	**7,144**		**717**
Procurement Acquisition & Construction										
Systems										
Construction		13,030		11,115		11,115		15,000		3,885
Total PAC		**13,030**		**11,115**		**11,115**		**15,000**		**3,885**
Construction										
Const										
Total Const										

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Fleet Modernization, Shipbuilding & Conversion										
Fleet										
Total Fleet										
Total Infra	**98**	**19,712**	**98**	**17,257**	**98**	**17,542**	**98**	**22,144**		**4,602**
Total SHC	**887**	**242,085**	**890**	**260,997**	**877**	**261,697**	**944**	**315,268**	**67**	**53,571**

Infrastructure

Administration

Operations, Research and Facilities										
Prog Sup										
Total ORF										
Procurement Acquisition & Construction										
Systems										
Total PAC										
Total Admin										

Construction/Facilities/Env. Compliance

Operations, Research and Facilities										
NMFS										
Facilities										
NOAA-wide		(4,656)						(4,656)		(4,656)
Total ORF		**(4,656)**						**(4,656)**		**(4,656)**
Procurement Acquisition & Construction										
Construction										
Total PAC										
Construction										
Const										
Total Const										

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Pribilof Island Environmental Cleanup										
Prib										
Total Prib Fnd										
Total Const/EC		**(4,656)**						**(4,656)**		**(4,656)**
High Performance Computing										
Operations, Research and Facilities										
OAR										
Total ORF										
Total HPCC										
Total Infra		**(4,656)**						**(4,656)**		**(4,656)**
NOAA										
All goals										
Operations, Research and Facilities										
NOAA-wide		(21,500)				13,900		(20,100)		(34,000)
Total ORF		**(21,500)**				**13,900**		**(20,100)**		**(34,000)**
Total All goals		**(21,500)**				**13,900**		**(20,100)**		**(34,000)**
Supports no goals										
Construction										
Const										
Total Const										
Total none										

	FY 1998 Enacted		FY 1999 Enacted		FY 2000 Base		FY 2000 Request		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Total NOAA		**(21,500)**				**13,900**		**(20,100)**		**(34,000)**
Total obligations	**11,792**	**2,092,787**	**12,058**	**2,314,024**	**12,058**	**2,350,899**	**12,114**	**2,573,113**	**56**	**222,214**

Obligations from above	2,573,113
Prior Year Recoveries,ORF and PAC	(40,400)
Unobligated Balance Rescission	(3,400)
DARRF Unobligated Balance	(2,684)
Offsetting Collections, CZMF	(4,000)
Total Budget Authority	**2,522,629**
Mandatory Payment	(13,900)
Transfer from Agriculture for P & D	(66,426)
Mandatory Spending Authority from Collections	4,000
Discretionary Budget Authority	**2,446,303**