

PROGRAM CHARTER  
FOR THE  
ECOSYSTEM OBSERVATIONS PROGRAM

Program Manager: Ned Cyr

Ecosystem Goal Team Lead: Steve Murawski

1. EXECUTIVE SUMMARY

Vision: The Ecosystem Observations Program (EOP) provides trusted scientific information to foster healthy marine ecosystems for current and future generations.

Mission: Through monitoring, assessments, and forecasts EOP provides society with timely, precise, and accurate information on the status, trends, and socioeconomic benefits of marine ecosystems and their living resources.

The Ecosystem Assessment Program (<http://www.st.nmfs.gov/eop/>) provides extensive data collection through monitoring and observing activities by NOAA regional facilities throughout the country. The EOP supports the NOAA Strategic Plan Ecosystem Goal to "Protect, Restore and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management." To achieve its Mission and to support the Ecosystem Goal, the EOP works within its five areas of expertise, or "capabilities". Each capability provides the EOP with specific data that directly support ecosystem-based to management. These data allow NOAA the ability to monitor, assess and forecast the status and trends in and around diverse marine ecosystems that affect our economy, our environment and our culture.

The Ecosystem Assessment Program Capabilities are:

Capability 1: Fisheries Monitoring and Assessments

Capability 2: Protected Species Monitoring and Assessment

Capability 3: Ecosystem Monitoring, Assessments and Forecasting

Capability 4: Economic and Sociocultural Monitoring and Assessments

Capability 5: Data Management, Technology Transfer, Education, and Outreach

Capability 6: Habitat Monitoring and Assessments

The EOP capabilities collect data and provide assessments throughout the 3.4 million square nautical miles of the U.S. Exclusive Economic Zone (EEZ) and internationally where NOAA is engaged in an international agreement or obligation. To acquire observations for these assessments, EOP is heavily dependent on NOAA fleet, aircraft and private charter vessels to perform surveys of living marine resources and marine ecosystems. This extensive EOP monitoring and observational network also provides the chief source of ecosystem data to the NOAA Observing System Architecture (NOSA) and the U.S. Integrated Ocean Observing System (IOOS). This network, together with the research provided by the Ecosystem Research Program and other programs of the Ecosystem Goal, forms the principal scientific basis for NOAA's ecosystem-based approaches to management.

The Program is driven by multiple mandates to provide the monitoring and assessments required to ensure the long-term health, quality, and sustainability of living coastal and marine resource populations and their habitats, supporting NOAA's ecosystem-based management

efforts. Examples of our mandates include: U.S. Ocean Action Plan, Magnuson Stevens Fisheries Conservation and Management Reauthorization Act, Marine Mammal Protection Act, Endangered Species Act and the National Coastal Monitoring Act.

The EOP is a partnership among four NOAA Line Offices (NOAA Fisheries Service, NOAA Research, NOAA Ocean Service and NOAA National Environmental Satellite and Data Service). The Program supports collaborative linkages to all Ecosystem Goal Programs (Corals, Habitat, Coastal and Marine Resources, Protected Species, Fisheries Management, Enforcement, Ecosystem Research, and Aquaculture), other Goal Teams (e.g., Climate, Weather and Water), and NOAA Councils (e.g., Observing Council and Ocean Council).

The EOP's compliancy with the Data Management and Communications (DMAC) standards and protocols will ensure the Ecosystem Goal will support interoperability and seamless transmission of ecosystem-based observational data among NOAA Line Offices, intra-agency, state agencies, academia, and others. This will involve the utilization of current and future technologies to access and manage data and information.

The EOP website can be found at <http://www.st.nmfs.gov/eop/>. It contains information about the EOP program and its structure, descriptions of the six Capabilities, links to EOP projects and partners, program contacts and other resources.

**Board of Directors:** The Board is chaired by the Program Manager who has a 51% share of the vote concerning all programmatic decisions. Membership includes the EOP Program Manager and the Managers or their representatives from each of the Ecosystem Goal Team programs. The Board provides the program manager with advice and guidance on program policy, program composition, and reviews, comments on and clears draft program materials produced by the program's Support Team (see below). Membership of the EOP Board includes:

- o Program Manager
- o Ecosystem Research Program Manager or representative
- o Protected Species Program Manager or representative
- o Fisheries Management Program Manager or representative
- o Aquaculture Program Manager or representative
- o Enforcement Program Manager or representative
- o Coastal & Marine Resources Program Manager or representative
- o Habitat Program Manager or representative
- o Corals Program Manager or representative

## 2. PROGRAM REQUIREMENTS

A. Requirement Drivers: Summary of Major Requirements Drivers (Appendix A has complete list)

1) Legislative Authorities:

- a) Magnuson Stevens Fishery Conservation and Management Reauthorization Act (1976, 1996, 2006)

- National Standard 1 “Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.”
- National Standard 2 - Conservation and management measures shall be based upon the best scientific information available. The Secretary is responsible for producing a document that provides Councils with a summary of information concerning the most recent biological condition of stocks and marine ecosystems.  
Fishery Management Plans must specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery)
- National Standard 5 “Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.”
- National Standard 7 “Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.”
- National Standard 8 “Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities”
- Annual catch limits and accountability measures must be implemented: in fishing year 2010 for fisheries determined by the Secretary to be subject to overfishing (MSRA Section 104 (b)(1)(A)); in fishing year 2011 for all other fisheries (MSRA Section 104 (b)(1)(B)).
- The Secretary in consultation with representatives of the recreational fishing industry and experts in statistics, technology, and other appropriate fields, shall establish a program to improve the quality and accuracy of information generated by MRFSS. The program must take into account the 2006 NRC report “Review of Recreational Fisheries Survey Methods.” (MSA 201 37 24)
- Conserve and manage marine and anadromous fishery resources on the U.S. coasts
- Support the implementation and enforcement of international fishery agreements for the conservation and management of highly migratory species
- The Secretary shall, in cooperation with . . . ., develop recommendations for implementation of a standardized fishing vessel registration and information management system on a regional basis
- The Secretary shall establish and implement a regionally based registry program for recreational fishermen in each of the 8 fishery management regions
- The Secretary shall report annually to the Congress and the Councils on the status of fisheries within each Council’s geographical area of authority
- If the Secretary determines that additional information is necessary for developing, implementing, revising, or monitoring a fishery management plan, or for determining whether a fishery is in need of management, the Secretary may, by regulation, implement an information collection or observer program requiring submission of such additional information for the fishery. (Sec 402(a)(2) SECRETARIAL INITIATION)

- Authorizes the placement of observers to collect information needed for fishery management and conservation as well as establishing a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery.
  - Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, the impact of wetland and estuarine degradation, and other factors affecting the abundance and availability of fish.
  - Provides authority to the Secretary to use private sector vessels to survey the fishery resources and to structure competitive solicitations to provide compensation for these surveys. The Act also directs the Secretary to provide a role for commercial fishermen in such research, including involvement in field testing and conservation engineering research. These activities are considered cooperative research with the fishing industry. (Fisheries Research Section 404).
  - The Secretary, in consultation with the Councils, shall establish a cooperative research and management program to address needs identified under this Act and under any other marine resource laws enforced by the Secretary. The program shall be implemented on a regional basis and shall be developed and conducted through partnerships among Federal, State, and Tribal managers and scientists (including interstate fishery commissions), fishing industry participants (including commercial charter or recreational vessels for gathering data), and educational institutions (Cooperative Research and Management Sec. 318)
  - The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research to carry out and further the purposes, policy, and provisions of this Act. Such program shall be designed to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries. Section 404(c)(1), identifies areas of research, and the implicit need for more and better data: • Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, and other factors affecting the abundance and availability of fish.
  - Promote the protection of essential fish habitat and provide a description of essential fish habitat for each fishery.
  - Promote domestic commercial and recreational fishing under sound conservation and management principles
  - Provide for preparation and implementation of fishery management plans to achieve and maintain the optimum yield of each fishery on a continuing basis while preventing overfishing
- b) Marine Mammal Protection Act
- Protect marine mammals and their habitats to maintain sustainable populations as functional components of the ecosystems of which they are a part.

- Directs the Secretary of Commerce (with responsibility delegated to NMFS) to undertake population surveys of whales, dolphins, porpoises, sea lions and seals in U.S. waters and annually report their status in Stock Assessment Reports.
  - Directs the agency to deploy observers on fishing vessels (establishes observer guidelines and duties) or requires vessels to monitor incidental mortality and serious injury of marine mammals during the course of commercial fishing.
  - Directs the Secretary of Commerce to undertake a scientific research program to monitor the health and stability of the Bering Sea marine ecosystem and to resolve uncertainties concerning the causes of population declines of marine mammals, sea birds, and other living resources of that marine ecosystem.
  - Take into account fishery economics when designing Take Reduction Plans, which reduce the incidental mortality or serious injury of marine mammals incidentally taken in the course of commercial fishing
- c) Endangered Species Act
- The ESA requires the Secretary of Commerce (with responsibility delegated to NMFS) to evaluate the status of species (or lower taxons) and determine whether or not the species is threatened or endangered; to designate critical habitat; and to evaluate Federal actions and ensure that these actions do not jeopardize the continued existence of threatened or endangered species or adversely modify critical habitat. The information standard for the ESA is the best available scientific information.
  - Conduct a biological assessment for the purpose of identifying any endangered species or threatened species which is likely to be affected by such action if deemed necessary during a consultation process for a NMFS action (§ 1536)
  - Requires the federal government to protect and conserve species and populations that are endangered, or threatened with extinction. Observers are used to monitor impacts and certify that takes of endangered species do not exceed the authorized incidental take limit, as well as to provide data for recovery plans.
  - Take into consideration the economic impact, and any other relevant impact, of specifying any area as critical habitat.
  - Requires that any United States fishing vessel, either commercial or recreational, which operates within the territorial seas or exclusive economic zone of the United States or on the high seas, or any fishing vessel that is otherwise subject to the jurisdiction of the United States, operating in a fishery that is identified through an annual determination process must carry aboard a NMFS-approved observer upon request by the NMFS Assistant Administrator.
- d) National Environmental Policy Act:
- The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.
- e) National Coastal Monitoring Act (Title V of the Marine Protection, Research, and

- Sanctuaries Act
  - Requires the Administrator of the Environmental Protection Agency and the NOAA Under Secretary, in conjunction with other Federal, state and local authorities, jointly to develop and implement a program for the long-term collection, assimilation, and analysis of scientific data designed to measure the environmental quality of the nation's coastal ecosystems.
- f) Coastal Zone Management Act of 1972 ; Coastal Zone Act Reauthorization Amendments of 1990
  - Protect, develop and enhance coastal zone resources
  - Encourage and assist the states with development and implementation of management programs for coastal areas
- g) Regulatory Flexibility Act
  - Conduct a regulatory flexibility analysis, including analyzing the economic impact on small entities, for every proposed rulemaking and final rule
- 2) Policy Directives, Executive Orders:
  - a) U.S. Ocean Action Plan, released by the Bush Administration on December 17, 2004
    - Support ecosystem-based approaches to management, which requires indicators of ecosystem health and socio-economic benefits to be monitored and assessed.
    - Support a Regional Partnership in the Gulf of Mexico: Administration officials will meet with the appropriate regional representatives in the spring of 2005 to explore partnership opportunities. (pg. 11)
    - Advance Ocean Stewardship through Implementation of Cooperative Conservation Executive Order (pg.11)
    - Develop an Ocean Research Priorities Plan and Implementation Strategy - The Implementation Strategy will identify how the various ocean science sectors (government, academic, industry, and other non-government entities) can and should be engaged, individually or through partnerships. These types of strategies would include cooperative research) (pg12)
    - Build a Global Earth Observation Network, Including Integrated Oceans Observation: Develop a strategy for integration and possible convergence of existing and future requisite coastal observing systems of the IOOS. (pg. 13, 14)
    - Create a National Water Quality Monitoring Network: The National Water Quality Monitoring Council will provide advice and recommendations regarding the design and creation of a coordinated, comprehensive national water quality monitoring network. (pg. 15)
    - Increase Ocean Education Coordination: Data collected through ocean and Earth observations are translated into usable forms for teachers, students, and the general public (pg.16)
    - Support the Ocean Science Initiative at the Smithsonian Institution (pg.17)
    - Harmonize Recreational Fishing Data Acquisition for Fishery Management Purposes (pg.19)
    - Establish Guidelines and Procedures for the Use of Science in Fisheries Management (pg.19)



- Implement New National Bycatch Strategy (p. 22) - Specific mention of the national cooperative research program and coordinator (pg 22)
- Propose New Limits on Atlantic Gill Net Fishing to Protect Dolphins and Sea Turtles - The proposal calls on NOAA to conduct research with the fishing industry into ways to promote safer fishing gear - this would be cooperative research. (pg.22)
- Partnership Creation: White Water to Blue Water Initiative: Assist in the formation of dynamic partnerships that promote sustainable environmental management in the Caribbean region. (pg. 35)
- Support an Integrated Approach to Oceans Management and Reduction of Land-based Pollution (pg.36)
- Advance the Use of Large Marine Ecosystems (pg. 36)
- Link the Global Marine Assessment and Global Earth Observation System of Systems: Seek to create international links between the Global Marine Assessment and Global Earth Observing System of Systems. (pg. 37)
- b) Executive Order 12866 for EPA (1993), as amended by Executive Order 13258 of February 26, 2002 and Executive Order 13422 of January 18, 2007
  - Assess the quantitative and qualitative costs and benefits of all regulations, to maximize the net benefits (economic, environmental, public health and safety, and other advantages; distributive impacts; and equity)
- c) National Spatial Data Infrastructure (E.O.12906, OMB Circular A-16)
  - Develop operational ecosystem data portals that support Ecosystem Goal Programs and IOOS
  - Provide access to the long-term coastal data record to support monitoring, prediction, and analyses
  - Create a unified long-term database of coastal and marine datasets.
- d) The Federal Geographic Data Committee (OMB Circular A-16)
  - Develop operational ecosystem data portals that support Ecosystem Goal Programs and IOOS
  - Provide access to the long-term coastal data record to support monitoring, prediction, and analyses
  - Create a unified long-term database of coastal and marine datasets.
- e) OMB Circular A-16 (Coordination of Geographic Information and Related Spatial Data Activities)
  - To improve management decisions in the coastal environment. Provide access to the long-term coastal data record to support monitoring, prediction, and analyses; to help in the formulation of public policy; to facilitate ecosystem approach to management. Create a unified long-term database of coastal and marine datasets. Create a catalog of coastal and marine data and create a virtual network of distributed nodes re data repositories. Develop operational ecosystem data portals that support Ecosystem Goal Programs and IOOS (Outcomes). Develop, in cooperation with state and local governments (including tribal), and the private sector, a coordinated National Spatial Data Infrastructure (NSDI) to support public and private applications of geospatially-enabled data. Establish a coordinated approach to develop (electronically) the NSDI.

- B. Mission Requirements: Summary of Major Requirements (Appendix A has complete list)
- 1) Provide the Best Available Science to support the conservation and sustainable management of living marine resources (Magnuson Stevens Fishery Conservation and Management Reauthorization Act, Marine Mammal Protection Act, Endangered Species Act, National Environmental Policy Act)
  - 2) Provide Sociocultural data and analysis to allow resource managers to make informed decisions based on societal costs and benefits. Cost-benefit analysis of all regulations will be accomplished and must include "best estimate of the combined aggregate costs and benefits" of all planned regulations. (Magnuson Stevens Fishery Conservation and Management Reauthorization Act, Executive Order 12866, Regulatory Flexibility Act, National Environmental Policy Act)
  - 3) Provide a comprehensive data and information system that allows the EOP and NOAA to manage, archive, and disseminate ecosystem information for NOAA's clients within the agency, as well as the public, private, and NGO sectors (National Spatial Data Infrastructure, The Federal Geographic Data Committee, OMB Circular A-16, Coordination of Geographic Information and Related Spatial Data Activities)
  - 4) Develop and implement a program for the long-term collection, assimilation, and analysis of scientific data designed to measure the environmental quality of the nation's coastal ecosystems and to protect and enhance the coastal zone (National Coastal Monitoring Act; Title V of the Marine Protection, Research, and Sanctuaries Act, Coastal Zone Management Act of 1972 ; Coastal Zone Act Reauthorization Amendments of 1990)
  - 5) Build a Global Earth Observation Network, Including Integrated Oceans Observation: Develop a strategy for integration and possible convergence of existing and future requisite coastal observing systems of the IOOS (U.S. Ocean Action Plan)
  - 6) Support ecosystem-based approaches to management by providing the best available science on the ecosystem components and processes that affect and interact with living marine resources (Magnuson Stevens Fishery Conservation and Management Reauthorization Act, Marine Mammal Protection Act, U.S. Ocean Action Plan)

### 3. LINKS TO THE NOAA STRATEGIC PLAN

The EOP was created to represent NOAA's ecosystem observing activities residing within the four NOAA Line Offices that are related to and that support the Ecosystem Mission Goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management"

- A. Goal Outcomes. The EOP contributes to both Ecosystem Goal Outcomes in the following ways:
- 1) Healthy and productive coastal and marine ecosystems that benefit society  
The EOP conducts routine monitoring, assessment and applied forecasts of living marine and coastal resources and their habitats. This includes surveys, monitoring and assessment of the economic and sociocultural aspects of these ecosystems.
  - 2) A well-informed public that acts as a steward of coastal and marine ecosystems.  
The EOP produces scientific and technical publications through the Scientific Publications Office, and provides outreach and education materials to NOAA's constituents. The program also participates in public and other educational information exchange opportunities (e.g., commercial and recreational fishing events, conferences, and meetings, etc., geared towards specific target audiences).
- B. Goal Performance Objectives. The EOP contributes to all of the Ecosystem Goal



Performance Objectives in the following ways:

- 1) Increase the number of fish stocks managed at sustainable levels

As described above, the EOP conducts routine monitoring, assessment, and applied forecasts of living marine and coastal resources and their habitats, including economic and sociocultural monitoring and assessment. The National Status and Trends Program (within the EOP) is specifically focused on coastal ecosystem health, while coastal- and marine-related activities are spread throughout the other EOP Capabilities.

- 2) Increase the number of protected species with stable or increasing populations

The activities described under Ecosystem Goal Objective # 1, above, all support management decisions of protected species to ensure population stability and recovery.

- 3) Improve ecosystem health through conservation and restoration of habitat

The activities described under Ecosystem Goal Objective #1, above, include the monitoring, assessment of habitats to support ecosystem health.

- 4) Advance understanding and characterization of coastal, marine and Great Lakes ecosystem health and associated socioeconomic benefits, and develop forecasting capabilities to meet management needs

The activities described under Ecosystem Goal Objective #1, above, continuously work to improve our understanding of coastal and marine related ecosystems in order to provide the best available scientific information to support management needs.

- 5) Provide tools, technologies and information services that are effectively used by NOAA partners and customers to improve ecosystem based management.

The activities described under Ecosystem Goal Objective #1, above, all directly provide information to support management decisions concerning living marine and coastal resources, both internal and external to NOAA.

- 6) Improve public understanding and stewardship so that ecosystem and sustainable development principles are incorporated into planning management, and use of coastal and marine resources.

As described under Ecosystem Goal Outcome #1, the EOP produces scientific and technical publications through the Scientific Publications Office, and provides outreach and education materials to NOAA's constituents. The program also participates in public and other educational information exchange opportunities (e.g., commercial and recreational fishing events, conferences, and meetings, etc. geared towards specific target audiences).

- C. Goal Strategies. The EOP contributes to all of the Ecosystem Goal Strategies in the following ways:

- 1) Engage and collaborate with our partners to achieve regional objectives by delineating regional ecosystems, forming regional ecosystem councils, and implementing cooperative strategies to improve regional ecosystem health.

The EOP contributes ecosystem information that can be used to delineate regional ecosystems. An example of EOP's cooperative strategies is the Cooperative Research Program. Through this program, the EOP works with the States, academia and industry to monitor living marine resources and related ecosystem phenomena. The EOP also provides funding through grants to groups outside of NOAA to encourage cooperation in improving ecosystem observations and health.

- 2) Manage uses of ecosystems by applying scientifically sound observations, assessments, and research findings to ensure the sustainable use of resources, and to balance competing uses of coastal and marine ecosystems.

The EOP provides routine observations, assessments, and applied forecasts that directly support management decisions related to the sustainable use of living marine and coastal resources and to balance competing uses of coastal and marine ecosystems.

- 3) Improve resource management by advancing our understanding of ecosystems through better simulation and predictive models. Build and advance the capabilities of an ecological component of the NOAA global environmental observing system to monitor, assess, and predict national and regional ecosystem health, as well as to gather information consistent with established social and economic indicators.

The EOP represents a major component of NOAA's ecosystem observing capability (including economic and sociocultural), which provides information that serves as the basis for predictive ecosystem modeling and evaluation of the effects of management actions. The program also provides data that allows the monitoring of ecosystem indicators (e.g., regional-specific species and species groups) being developed within the Ecosystem Goal.

- 4) Develop coordinated regional and national outreach and education efforts to improve public understanding and involvement in stewardship of coastal and marine ecosystems.

As described under Ecosystem Goal Outcome #1, the EOP produces scientific and technical publications through the Scientific Publications Office, and provides outreach and education materials to NOAA's constituents. The program also participates in public and other educational information exchange opportunities (e.g., commercial and recreational fishing events, conferences, and meetings, etc., geared towards specific target audiences).

- 5) Engage in technological and scientific exchange with our domestic and international partners to protect, restore, and manage marine resources within and beyond the Nation's borders.

Through its Capability 5 activities, the EOP participates in technical and scientific information exchange opportunities, both nationally and internationally.

#### 4. PROGRAM GOALS

- A. Maintain and enhance a comprehensive ecosystem observation network
- B. Maintain and enhance a scientific framework for assessments and forecasts
- C. Improve end-to-end management of high quality data and information
- D. Maintain and enhance high quality human (scientific) resources
- E. Maintain and enhance an infrastructure that incorporates emerging technologies
- F. Improve business practices to efficiently and effectively administer EOP
- G. Improve awareness of EOP, its products, their uses, and societal benefits
- H. Enhance our ability to accomplish the mission through collaborative partnerships

#### 5. PROGRAM OUTCOMES

##### A. Long-Term

- 1) A sustained, coordinated, national and international network of observations and analysis that systematically acquires and disseminates data and information on present and future states of the coasts and oceans, meeting the monitoring,

assessment, and forecast needs required by NOAA and society for ecosystem-based management.

- 2) A comprehensive system for NOAA's ecosystem data and information management that includes acquisition, quality control, validation, reprocessing, storage, retrieval, dissemination, and archiving, using innovative technologies.
- 3) A well-informed public that acts as a steward of coastal and marine ecosystems.

#### B. Mid-Term

- 1) Increased understanding and monitoring of fish stocks to support timely and accurate stock assessments and forecasts
- 2) Increased understanding and monitoring of species listed under ESA and MMPA to support timely and accurate assessments and recovery strategies
- 3) Increased integration of ecosystem (e.g., physical, lower trophic) observations into fish and protected species assessments and forecasts
- 4) Increased number of ecosystem parameters that describe the status and trends of coastal ecosystems and are amenable for use in ecological forecasting
- 5) Provide integrated routine indicators to show "status of the ecosystem"
- 6) Increased ability to assess the economic and social impacts of existing policies and proposed management measures on fishermen, shoreside firms, coastal communities, and the affected public
- 7) Support the development of IOOS through contribution of ecosystem data to the "national backbone" and support of Regional Associations (RAs)
- 8) Implementation of new procedures, data systems, and techniques to manage, archive, and disseminate ecosystem information for NOAA's clients within the agency, as well as the public, private, and NGO sectors
- 9) Increased public awareness of ecosystem diversity and function and improved sense of stewardship for ecosystem and living marine resources conservation

## 6. PROGRAM ROLES AND RESPONSIBILITIES

This program is established and managed with the procedures established in the NOAA Business Operations Manual (BOM). Responsibilities of the Program Manager are described in the BOM. Responsibilities of other major participants are summarized below:

#### A. Participating Line Office, Staff Office and Council Responsibilities:

- 1) NOAA Fisheries Service (NMFS) is responsible for the coordination and administration of the agency's contribution to the NOAA 'end-to-end' coastal and oceanic ecological observing system. NMFS components of this system include: fisheries and protected resources surveys, ecosystem surveys, economic and sociocultural surveys, recreational and commercial statistics, fisheries observer coverage, and cooperative research. NMFS is also responsible for science quality assurance of agency observing system products and maintaining collaborative linkages to other Federal and state agencies, stakeholders, and the public.
- 2) National Ocean Service (NOS) is responsible for monitoring and assessment of chemical pollution and effects in coastal and estuarine areas and the Great Lakes, and for working with other federal agencies and entities in the development of a national water quality monitoring network, including action items for which NOAA is the lead agency.
- 3) NOAA Research (OAR) is responsible for providing observation, analysis, and modeling of the physical environment to support operational forecasts.

- 4) NOAA Satellites and Information (NESDIS) is responsible for data management, archiving, and information services provided by the NOAA National Data Center infrastructure to support ecosystem goal objectives. Additionally, NESDIS provides technical support and leadership in integration of information services located within ecosystem observation programs to achieve NOAA-wide objectives for IOOS, GEOSS, and related end-to-end data system integration efforts.
  - 5) NOAA Marine and Aviation Operations (NMAO) is responsible for providing ship and aircraft support to the EOP.
  - 6) NOAA Observing System Council is responsible for coordinating observational and data management activities across NOAA, proposing priorities and investment strategies for observation related initiatives, and identifying programs that might benefit most from integration. The Council is also as the principal advisory body to the Administrator for the agency's observing system activities and interests.
  - 7) NOAA Oceans Council is responsible for coordinating ocean activities across NOAA; proposing priorities and investment strategies for ocean-related initiatives, identifying ocean and coastal programs that might benefit most from integration, and coordinating NOAA's participation in the interagency National Oceanographic Partnership Program (NOPP). The NOC is also authorized to develop a strategy and serve as the agency focal point for responding to and implementing the recommendations of the U.S. Commission on Ocean Policy.
  - 8) Climate Goal: Coordinate with the Climate and Ecosystems Program of the Climate Goal on the investigation of physical oceanographic processes that affect long and short term biological productivity in the oceans, particularly for living marine resources.
- B. External Agency/Organization Responsibilities:
- 1) EPA is one of the other federal agencies/entities that is required to be a leader in the development and operation of a national water quality monitoring network
  - 2) USGS is one of the other federal agencies/entities that is required to be a leader in the development and operation of a national water quality monitoring network
  - 3) Cooperative Ecosystem Studies Unit (CESU) Network is a partnership program of 18 federal agencies, including NMFS, and over 200 universities. There are 18 separate regional CESUs that make up the national network, each with the objective of developing partnerships among federal agencies and universities to develop programs that involves the biological, physical, social, and cultural sciences needed to address resource issues and interdisciplinary problem-solving at multiple scales and in an ecosystem context. Special emphasis is placed on working collaboratively and in partnership on joint research projects.
7. END USERS OR BENEFICIARIES OF PROGRAM
- A. NOAA: A successful Ecosystem Assessment Program will provide the routine monitoring, assessment, and forecasting information and analysis products required for NOAA to meet its science and management mandates. Within the Ecosystem Goal, the EOP directly supports the Fisheries Management Program, Protected Species Management Program, Habitat Program, Corals Program, Aquaculture Program, Coastal and Marine Resources Program, Ecosystem Research Program and Enforcement. The EOP supports programs in other Goals including the Climate and Ecosystems Program.
- B. Management Community (beyond NOAA):
- 1) Fishery Management Councils
  - 2) Other Federal Agencies

- 3) State and Local Governments
- 4) International Organizations

Accurate and timely information on the status of NOAA's trust living marine resources and their habitats will allow resource managers to develop and plan activities and management actions that are in compliance and consistent with federal laws and regulations. Specifically, this information will benefit decision-making for the conservation and management of living marine resources and the habitats on which they depend.

- C. General Public: The implementation of successful, science-based conservation and management programs will ensure the availability of living marine resources and habitats for the benefit (both tangible and non tangible) of society. These programs will also avoid costly use restrictions and prohibitions necessary for the recovery of depleted living marine resources and restoration of ocean and coastal habitats.
- D. Environmental Non-government Organizations (NGOs): Environmental NGOs use the monitoring, assessment and forecast information (data and synthesized products) produced by the EOP to monitor the status of living marine resources and their environment. The NGOs also use the economic and socio-cultural information collected and produced by the EOP. In some cases, NGOs use the information provided by the EOP to make management decisions (e.g., for planning and implementing resource and habitat management and restoration projects).
- E. Research Community: Providing public access to EOP data and products provides the research community with up-to-date, quality information on living marine resources and their environment. The Fisheries Information System, Marine Recreational Fisheries Systems, and services provided by the National Oceanographic Data Center (NODC), and the National Coastal Data Development Center (NCDDC) are examples of EOP venues for such data.
- F. Industry: The EOP's monitoring, assessment, and forecasting functions are crucial for sustainable management and conservation of living coastal and marine resources and their environments. Industries related to the marine environment (e.g., fisheries and tourism) are reliant on the EOP for these reasons. Industry may also participate in EOP activities through cooperative research programs.

APPENDIX A

ECOSYSTEM OBSERVATIONS PROGRAM (EOP) REQUIREMENTS AND DRIVERS

CAPABILITIES	REQUIREMENT DRIVERS	REQUIREMENTS
1. Fisheries Monitoring, Assessment, and Forecasts	1. Magnuson Stevens Fishery Conservation and Management Reauthorization Act (1976, 1996, 2006)	<p>1a. Conserve and manage marine and anadromous fishery resources on the U.S. coasts</p> <p>1b. Support the implementation and enforcement of international fishery agreements for the conservation and management of highly migratory species</p> <p>1c. Promote domestic commercial and recreational fishing under sound conservation and management principles</p> <p>1d. Provide for preparation and implementation of fishery management plans to achieve and maintain the optimum yield of each fishery on a continuing basis while preventing overfishing</p> <p>1e. National Standard 2 - Conservation and management measures shall be based upon the best scientific information available.                      The Secretary is responsible for producing a document that provides Councils with a summary of information concerning the most recent biological condition of stocks and marine ecosystems.                      Fishery Management Plans must specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery)</p>



1f. The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research to carry out and further the purposes, policy, and provisions of this Act. Such program shall be designed to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries. Section 404(c)(1), identifies areas of research, and the implicit need for more and better data: ·Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, and other factors affecting the abundance and availability of fish.

1g. The Secretary shall, in cooperation with, develop recommendations for implementation of a standardized fishing vessel registration and information management system on a regional basis.

1h. The Secretary shall report annually to the Congress and the Councils on the status of fisheries within each Council's geographical area of authority.

1i. Annual catch limits and accountability measures must be implemented in fishing year 2010 for fisheries determined by the Secretary to be subject to overfishing (MSRA Section 104 (b)(1)(A))

1j. Annual catch limits and accountability measures must be implemented in fishing year 2011 for all other fisheries (MSRA Section 104 (b)(1)(B))

1k. The Secretary in consultation with representatives of the recreational fishing industry and experts in statistics, technology, and other appropriate fields, shall establish a program to improve the quality and accuracy of information generated by MRFSS. The program must take into account the 2006 NRC report "Review of Recreational Fisheries Survey Methods."

1l. The Secretary shall establish and implement a regionally based registry program for recreational fishermen in each of the 8 fishery management regions

2. National Environmental Policy Act	2a. The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.
3. American Fisheries Act	3a. Implement the fishing allocations specified for the Bering Sea Aleutian Islands pollock fishery
4. Anadromous Fish Conservation Act	4a. Conduct investigations, engineering and biological surveys, and research to carry out the program and stream clearance activities; construct, install, maintain, and operate devices and structures to improve feeding and spawning conditions, protection, control of sea lamprey, and fish hatcheries; conduct studies and make recommendations regarding the development and management of any body of water for the conservation and enhancement of anadromous fishery resources and the fish in the Great Lakes and Lake Champlain that ascend streams to spawn (§ 757b)
5. Atlantic Coastal Fisheries Cooperative Management Act of 1993	5a. The 1996 amendments make special provision for American lobster. The Secretary of Commerce, in cooperation with the Secretary of the Interior, must develop and implement a program to support the Atlantic States Marine Fisheries Commission in interstate fishery management. The program must include activities to support state cooperation in the collection, management and analysis of fishery data; law enforcement; habitat conservation; fishery research; and fishery management planning. The Commission must prepare and adopt coastal fishery management plans for the conservation of coastal fishery resources.
6. Coastal Ocean Program, § 201(c) of Public Law 102-567	6a. Authorizes a Coastal Ocean Program. "Such program shall augment and integrate existing programs of the National Oceanic and Atmospheric Administration and shall include efforts to improve predictions of fish stocks, to better conserve and manage living marine resources . . ."

7. Columbia Basin Fishery Development Act (Mitchell Act)	7a. Authorizes the Secretary of Commerce to conduct investigations, surveys and experiments for the conservation of fishery resources; construction and installation of devices to improve feeding, spawning and migration; other activities needed for fish conservation. (16 U.S.C. §§ 755-757)
8. Dolphin Protection Consumer Information Act (1990-1997)	8a. Establishes dolphin-safe standards for fisheries
9. Fish and Wildlife Act of 1956	9a. Inquiries into whether a diminution in the number of the food fishes of the U.S. coast and lakes has taken place, the extent of the diminution, what causes the diminution and whether protective or precautionary measures should be adopted. Conduct training programs and undertake research and development activities to improve fish and wildlife law enforcement
10. Fish and Wildlife Coordination Act	10a. Requires that wildlife, including fish, receive equal consideration and be coordinated with other aspects of water resource development. Requires consultation with the FWS and NMFS whenever any body of water is proposed to be modified in any way and a Federal permit or license is required. This consultation determines the possible harm to fish and wildlife resources, and the measures that are needed to both prevent the damage to and loss of these resources, and to develop and improve the resources, in connection with water resource development.
11. Government Performance and Results Act	11a. The Government Performance and Results Act (GPRA) requires federal agencies to develop and implement an accountability system based on performance measurement, including setting goals and objectives and measuring progress toward achieving them.
12. Interjurisdictional Fisheries Act	12a. The Interjurisdictional Fisheries Act promotes and encourages State activities in support of the management of interjurisdictional fishery resources throughout their range. The Act provides the Secretary of Commerce to assist states manage their interjurisdictional fishery resources. The Act authorizes

appropriations for ...the three interstate fishery commissions

13. Lacey Act Amendments  
of 1981

13a. Conduct marine forensic research to support NOAA enforcement mission including best techniques to allow identification of stock, species or taxon from a variety of fresh, decomposed, cooked, or preserved tissues or specimens (marine forensics) for trade or impact of human activities management. No specified end-time. Internal planning sessions are used which included analysis of solicited external opinions, reviews and recommendations for scientific research focus. Coastal Monitoring and Assessment /Enforcement (NOS).

14. National Sea Grant  
College Program Act

14a. The objective of the Sea Grant Act is "to increase the understanding, assessment, development, utilization, and conservation of the Nation's ocean, coastal, and Great Lakes resources by providing assistance to promote a strong educational base, responsive research and training activities, broad and prompt dissemination of knowledge and techniques, and multidisciplinary approaches to environmental problems." The Act directs the Secretary of Commerce to ". . . provide support for . . . national strategic investments in fields relating to ocean, coastal, and Great Lakes resources..." The Act funds a national sea grant network with 30 Sea Grant state programs, which include fisheries extensions.

15. Antarctic Marine Living  
Resources Convention Act

15a. The Antarctic Marine Living Resources Convention Act implements the *Convention on the Conservation of Antarctic Marine Living Resources*. The Act makes it unlawful to harvest marine species in a way that would damage ecological relationships among harvested, dependent, and related populations.

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| 16. Convention for Inter-American Tropical Tuna Commission  | 16a. Conservation and management of yellowfin, skipjack, and other tunas in the Eastern Pacific Ocean   |
| 17. Convention on Future Multilateral Cooperation of Northwest Atlantic Fisheries                       | 17a. An international organization whose object shall be to contribute through consultation and cooperation to the optimum utilization, rational management and conservation of the fishery resources of the Convention Area. This organization shall be known as the Northwest Atlantic Fisheries Organization   |
| 18. Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea (1994) | 18a. To establish an international regime for conservation, management, and optimum utilization of pollock resources in the Convention Area; to restore and maintain the pollock resources in the Bering Sea at levels which will permit their maximum sustainable yield; to cooperate in the gathering and examining of factual information concerning pollock and other living marine resources in the Bering Sea; and to provide, if the Parties agree, a forum in which to consider the establishment of necessary conservation and management measures for living marine resources other than pollock in the Convention Area as may be required in the future. |
| 19. Atlantic Tunas Convention Act of 1975   | 20a. Conservation and management of Atlantic bluefin tuna in the Atlantic Ocean and the Mediterranean Sea. The associated International Commission for the Conservation of Atlantic Tunas submits a biennial report on bluefin tuna that includes information on U.S. catches and the status of stocks  |
| 20. Northern Pacific Halibut Act  | 23a. The Northern Pacific Halibut Act authorizes the Secretary of Commerce to enforce the terms of the Convention between the U.S. and Canada for the <i>Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea</i> . Upon request of the Commission, conduct scientific and other programs to assist the Commission in carrying out its duties under the Convention.   |

21. Pacific Salmon Treaty Act of 1985
- 24a. The Pacific Salmon Treaty Act implements the *Pacific Salmon Treaty* signed between the U.S. and Canada in 1985. Prepare all statements, reports and information required by the treaty, and submit them to the Secretary of State. Agencies of the U.S. may cooperate with scientific and other programs to assist the Commission and Panels in carrying out their treaty responsibilities.
22. South Pacific Tuna Act of 1988
- 26a. The South Pacific Tuna Act implements the *Treaty on Fisheries between the Governments of Certain Pacific Island States and the U.S.* signed in 1987. The Act authorizes the Secretary of Commerce to issue and enforce regulations necessary to implement the Treaty. The Secretary operates a permitting system for fishing within the Treaty waters.
23. Tuna Conventions Act of 1950
- 27a. The Tuna Conventions Act implements the *Convention for the Establishment of an International Commission for the Scientific Investigation of Tuna* and the *Convention for the Establishment of an Inter-American Tropical Tuna Commission (IATTC)*. Divide Convention waters into areas, establish open or closed seasons, limit the size and quantity of the permissible catch, limit or prohibit incidental catch of regulated species, require vessel clearance certificates, and take other measures deemed necessary to implement IATTC recommendations; as necessary.
24. Whaling Convention Act
- 28a. The Whaling Convention Act authorizes the Secretary of Commerce to enforce the provisions of the *International Convention for the Regulation of Whaling*. *Undertake comprehensive studies of all whales found in waters subject to the jurisdiction of the U.S. and provide the recommendations to the U.S. Commissioner*
25. Executive Order 13158 regarding Marine Protected Areas (2000)
- 29a. Help protect the significant natural and cultural resources within the marine environment for the benefit of present and future generations by strengthening and expanding the Nation's system of marine protected areas (MPAs). To this end, .... (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources;



	26. GAO 04-606 Pacific Groundfish Assessments	The Secretary of Commerce, through the National Marine Fisheries Service, has taken action to implement the following GAO recommendations: 30a. Collect additional data necessary to produce reliable stock assessments; Establish a standard approach to assuring data quality of non-NMFS data used in assessments; Enhance assessment models to present quantitative estimates of uncertainty; Develop a comprehensive plan to integrate the NMFS Stock Assessment Improvement Plan with other plans and budget requests.
	27. U.S. Ocean Action Plan	31. See list of recommendations at end of file: USAOP#1 (pg11), USOAP#4 (pg13,14), USAOP#7 (pg16), USAOP#8 (pg17), USAOP#9 (pg19), USAOP#10 (pg19), USAOP#14 (pg36)
	28. Fisheries Information System Plan	33a. To create an umbrella program that coordinates techniques to gather and disseminate data nationally while accounting for the unique characteristics of regional commercial and recreational fisheries.
	29. Marine Fish Stock Assessment Improvement Plan (2001)	34a. Description of the overall goals, associated resource needs, and development of performance measures for improving data collections, and assigning new FTEs to stock assessment activities. Used as basis for Capability 1 FTE needs
	30. Ship Recapitalization Plan (2008)	Using a systematic approach to link requirements drivers to at-sea data requirements to ship operating day requirements, this plan articulates the national benefit gained from the products and services that NOAA delivers and the management activities that it performs.
2.Protected Species Monitoring, Assessment and Forecasts	1. Antarctic Marine Living Resources Convention Act	1a. The Antarctic Marine Living Resources Convention Act implements the <i>Convention on the Conservation of Antarctic Marine Living Resources</i> . The Act makes it unlawful to harvest marine species in a way that would damage ecological relationships among harvested, dependent, and related populations.
	2. Convention for Inter-American Tropical Tuna Commission	2a. Conservation and management of yellowfin, skipjack, and other tunas in the Eastern Pacific Ocean

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| 3. Whaling Convention Act  | 7a. The Whaling Convention Act authorizes the Secretary of Commerce to enforce the provisions of the <i>International Convention for the Regulation of Whaling</i> . Undertake comprehensive studies of all whales found in waters subject to the jurisdiction of the U.S. and provide the recommendations to the U.S. Commissioner  |
| 4. Executive Order 13158 regarding Marine Protected Areas (2000) | 8a. Help protect the significant natural and cultural resources within the marine environment for the benefit of present and future generations by strengthening and expanding the Nation's system of marine protected areas (MPAs). To this end ... (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources; |
| 5. Dolphin Protection Consumer Information Act (1990-1997)       | 9a. Establishes dolphin-safe standards for fisheries   |
| 6. Government Performance and Results Act                        | 10a. The Government Performance and Results Act (GPRA) requires federal agencies to develop and implement an accountability system based on performance measurement, including setting goals and objectives and measuring progress toward achieving them.  |
| 7. National Environmental Policy Act                             | 11a. The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.   |

	8. Endangered Species Act	16a. The ESA requires the Secretary of Commerce (with responsibility delegated to NMFS) to evaluate the status of species (or lower taxons) and determine whether or not the species is threatened or endangered; to designate critical habitat; and to evaluate Federal actions and ensure that these actions do not jeopardize the continued existence of threatened or endangered species or adversely modify critical habitat. The information standard for the ESA is the best available scientific information. Conduct a biological assessment for the purpose of identifying any endangered species or threatened species which is likely to be affected by such action if deemed necessary during a consultation process for a NMFS action (§ 1536)
	9. International Dolphin Conservation Program (1997)	17a. Establishes dolphin-safe standards for fisheries
	10. Marine Mammal Protection Act	18a. Protect marine mammals and their habitats to maintain sustainable populations
	11. U.S. Ocean Action Plan	19. See list of recommendations at end of file: USAOP#1 (pg11), USOAP#4 (pg13,14), USAOP#7 (pg16), USAOP#10 (pg19), USAOP#14 (pg36)
3. Ecosystems Monitoring, Assessment, and Forecasts	1. Magnuson Stevens Fishery Conservation and Management Act (1976, 1996)	<p>1f. Authorizes the placement of observers to collect information needed for fishery management and conservation as well as establishing a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery.</p> <p>16 USC 1881c: FISHERIES RESEARCH</p> <p>(a) In general - The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research ... to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries.</p> <p>(c) Areas of research - Areas of research are as follows:</p>

(1) Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, the impact of wetland and estuarine degradation, and other factors affecting the abundance and availability of fish.

1h. Provides authority to the Secretary to use private sector vessels to survey the fishery resources and to structure competitive solicitations to provide compensation for these surveys. The Act also directs the Secretary to provide a role for commercial fishermen in such research, including involvement in field testing and conservation engineering research. These activities are considered cooperative research with the fishing industry.

National Standard 2 - Conservation and management measures shall be based upon the best scientific information available. The Secretary is responsible for producing a document that provides Councils with a summary of information concerning the most recent biological condition of stocks and marine ecosystems. Fishery Management Plans must specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery)

The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research to carry out and further the purposes, policy, and provisions of this Act. Such program shall be designed to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries.

Section 404(c)(1), identifies areas of research, and the implicit need for more and better data: · Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, and other factors affecting the abundance and availability of fish. Promote the protection of essential fish habitat and provide a description of essential fish habitat for each fishery.

The Secretary, in consultation with the Councils, shall establish a cooperative research and management program to address needs identified under this Act and under any other marine resource laws enforced by the Secretary. The program shall be implemented on a regional basis and shall be developed and

conducted through partnerships among Federal, State, and Tribal managers and scientists (including interstate fishery commissions), fishing industry participants (including commercial charter or recreational vessels for gathering data), and educational institutions (Cooperative Research and Management Sec. 318)

2. Marine Mammal Protection Act

2a. Directs the agency to deploy observers on fishing vessels (establishes observer guidelines and duties) or requires vessels to monitor incidental mortality and serious injury of marine mammals during the course of commercial fishing.

2b. 16 USC 1380: Marine Mammal Research Grants

2c. (d) BERING SEA ECOSYSTEM PROTECTION

(1) The Secretary of Commerce, in consultation with the Secretary of the Interior, the Marine Mammal Commission, the State of Alaska, and Alaska Native organizations, shall ... undertake a scientific research program to monitor the health and stability of the Bering Sea marine ecosystem and to resolve uncertainties concerning the causes of population declines of marine mammals, sea birds, and other living resources of that marine ecosystem. The program shall address the research recommendations developed by previous workshops on Bering Sea living marine resources, and shall include research on subsistence uses of such resources and ways to provide for the continued opportunity for such uses.

(2) To the maximum extent practicable, the research program undertaken pursuant to paragraph (1) shall be conducted in Alaska. The Secretary of Commerce shall utilize, where appropriate, traditional local knowledge and may contract with a qualified Alaska Native organization to conduct such research.

(3) The Secretary of Commerce, the Secretary of the Interior, and the Commission shall address the status and findings of the research program in their annual reports to Congress required by sections 1373 (f) and 1404 of this title.

2c. Protect marine mammals and their habitats to maintain sustainable populations

3. Endangered Species Act

3a. Requires the federal government to protect and conserve species and populations that are endangered, or threatened with extinction. Observers are used to monitor impacts and certify that takes of endangered species do not exceed the authorized incidental take limit, as well as to provide data for recovery plans. Allows the agency to deploy observers aboard fishing vessels in fisheries

identified through an annual determination process to monitor incidental mortality and serious injury of sea turtles during the course of commercial fishing.

4. Court Orders  
(Conservation Law Foundation v. Evans, No. 00-1134 (D.D.C.); Conservation Law Foundation and American Oceans Campaign v. Evans, et al., Fisheries Survival Fund, No. 01-10927 (D.Mass.); Natural Resources Defense Council (NRDC), et al. v. Evans, et al., No. 01-0421 (N.D. Cal.); Natural Resources Defense Council, et al. v. Evans, et al., No. 01-0637 (N.D. Cal.); Pacific Marine Conservation Council, et al. v. Evans, et al., No. 01-2506 (N.D. Cal.); Natural Resources Defense Council, et al. v. National Marine Fisheries Service, et al., No. 02-1650 (N.D. Cal.); Center for Marine Conservation v. National Marine Fisheries Service, No. 99-00152 DAE, 2001 WL 340077401 (D.Hawaii 2001).

4a. Legislates mandatory placement of at-sea observers aboard vessels operating in certain fisheries



5. Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)

5a. Authorizes or directs the collection of data by fisheries observers

6. International Convention for the Conservation of Atlantic Tunas (1966)

6a. The associated International Commission for the Conservation of Atlantic Tunas (ICCAT) authorizes or directs the collection of data by fisheries observers

7. Convention for the establishment of an inter-American tropical tuna commission

7a. The associated Inter-American Tropical Tuna Convention (IATTC) authorizes or directs the collection of data by fisheries observers

8. FAO International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries

8a. Authorizes or directs the collection of data by fisheries observers

9. PICES Treaty (North Pacific Marine Science Organization), ratified December 6, 1991

9a. Article III Purpose of the Organization - The purpose of the Organization shall be:

(a) to promote and coordinate marine scientific research in order to advance scientific knowledge of the area concerned and of its living resources, including but not necessarily limited to research with respect to the ocean environment and its interactions with land and atmosphere, its role in and response to global weather and climate change, its flora, fauna and ecosystems, its uses and resources, and impacts upon it from human activities; and

(b) to promote the collection and exchange of information and data related to marine scientific research in the area concerned.

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| 10. Ocean Dumping Act (Title II of the Marine Protection, Research, and Sanctuaries Act; 33 U.S.C. §1401 et seq.)            | 10a. Establishes a comprehensive monitoring and research program, to be undertaken by the Secretary of Commerce in coordination with the EPA and Coast Guard on the effects of ocean dumping  |
| 11. National Coastal Monitoring Act (Title V of the Marine Protection, Research, and Sanctuaries Act; 33 U.S.C. § 2801-2805) | 11a.Requires the Administrator of the Environmental Protection Agency and the NOAA Under Secretary, in conjunction with other Federal, state and local authorities, jointly to develop and implement a program for the long-term collection, assimilation, and analysis of scientific data designed to measure the environmental quality of the nation=s coastal ecosystems. 33 U.S.C. ' 2803 |
| 12. National Oceanic and Atmospheric Administration Authorization Act of 1992  | 12a.Provides funding for NOAA's ocean and coastal programs under broad categories of observations and assessment in the National Ocean Service, including funding of programs under Title II of MPRSA   |
| 13. Water Resources Development Act of 1992  | 13a. Section 503 states that the Administrator of the U.S. Environmental Protection Agency, in consultation with the Administrator of the National Oceanic and Atmospheric Administration, shall conduct a comprehensive national survey of data regarding aquatic sediment quality in the United States.   |
| 14. U.S. Ocean Action Plan   | 14. See list of recommendations at end of file: USAOP#1 (pg11), USAOP#2 (pg11), USAOP#3 (pg12), USOAP#4 (pg13,14), USAOP#5 (pg15), USAOP#6 (pg16), USAOP#7 (pg16), USAOP#11 (pg22), USAOP#12 (pg22), USAOP#13 (pg35), USAOP#14 (pg36), USAOP#15 (pg36)  |

15. National Environmental Policy Act
- 15a. The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.
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- 17a. To establish an international regime for conservation, management, and optimum utilization of pollock resources in the Convention Area; to restore and maintain the pollock resources in the Bering Sea at levels which will permit their maximum sustainable yield; to cooperate in the gathering and examining of factual information concerning pollock and other living marine resources in the Bering Sea; and to provide, if the Parties agree, a forum in which to consider the establishment of necessary conservation and management measures for living marine resources other than pollock in the Convention Area as may be required in the future.
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- 23a. The Whaling Convention Act authorizes the Secretary of Commerce to enforce the provisions of the *International Convention for the Regulation of Whaling*. *Undertake comprehensive studies of all whales found in waters subject to the jurisdiction of the U.S. and provide the recommendations to the U.S. Commissioner*
19. Executive Order 13158 regarding Marine Protected Areas (2000)
- 24a. Help protect the significant natural and cultural resources within the marine environment for the benefit of present and future generations by strengthening and expanding the Nation's system of marine protected areas (MPAs). To this end, .... (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources;

20. Coastal Ocean Program, § 201(c) of Public Law 102-567	25a. Authorizes a Coastal Ocean Program. "Such program shall augment and integrate existing programs of the National Oceanic and Atmospheric Administration and shall include efforts to improve predictions of fish stocks, to better conserve and manage living marine resources . . .".
21. Government Performance and Results Act	26a. The Government Performance and Results Act (GPRA) requires federal agencies to develop and implement an accountability system based on performance measurement, including setting goals and objectives and measuring progress toward achieving them.
22. National Sea Grant College Program Act	27a. The objective of the Sea Grant Act is "to increase the understanding, assessment, development, utilization, and conservation of the Nation's ocean, coastal, and Great Lakes resources by providing assistance to promote a strong educational base, responsive research and training activities, broad and prompt dissemination of knowledge and techniques, and multidisciplinary approaches to environmental problems." The Act directs the Secretary of Commerce to ". . . provide support for . . . national strategic investments in fields relating to ocean, coastal, and Great Lakes resources..." The Act funds a national sea grant network with 30 Sea Grant state programs, which include fisheries extensions.
23. Marine Fish Stock Assessment Improvement Plan (2001)	28a. Description of the overall goals, associated resource needs, and development of performance measures for improving data collections, and assigning new FTEs to stock assessment activities. Used as basis for Capability 1 FTE needs
24. Ship Recapitalization Plan (2008)	Using a systematic approach to link requirements drivers to at-sea data requirements to ship operating day requirements, this plan articulates the national benefit gained from the products and services that NOAA delivers and the management activities that it performs.

25. Coastal Wetlands Planning, Protection, and Restoration Act

37a. The Coastal Wetlands Planning, Protection and Restoration Act supports and funds coastal wetlands restoration and conservation projects, with particular emphasis on the state of Louisiana

26. Coastal Zone Management Act of 1972 ; Coastal Zone Act Reauthorization Amendments of 1990

38a. Protect, develop and enhance coastal zone resources

38b. Encourage and assist the states with development and implementation of management programs for coastal areas

27. Comprehensive Environmental Response, Compensation, And Liability Act

39a. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) addresses the cleanup of hazardous waste sites. Under the Act, federal and state governments are directed to categorize hazardous waste sites and prioritize cleanup responses. CERCLA provides authority for NOAA to act as natural resource trustees for releases of hazardous substances. Establish necessary contracts, cooperative agreements to conduct cleanup activities

28. Estuary Restoration Act

40a. Cooperate in carrying out scientific and other programs necessary to carry out the Act, including providing facilities and personnel. Especially for the Chesapeake Bay region.

29. Global Change Research Act

41.a Establish NOAA as an internationally recognized leader with credible scientific expertise in oceans and human health science and policy and to fund external and internal research, training and outreach and establishing NOAA Centers of Excellence. (OAR and NOS)

	30. Harmful Algal Bloom and Hypoxia Research and Control Act of 1998	42a. The Task Force, in cooperation with .... shall complete and submit to the Congress an assessment which examines the ecological and economic consequences of harmful algal blooms, alternatives for reducing, mitigating, and controlling harmful algal blooms, and the social and economic costs and benefits of such alternatives.
	31. Marine Protection, Research, and Sanctuaries Act of 1972	43a. Authorizes the Secretary of Commerce to “support, promote, and coordinate research on, and long-term monitoring of, sanctuary resources and natural processes that occur in National Marine Sanctuaries, including exploration, mapping, and environmental and socioeconomic assessment...”
	32. National Materials and Minerals Policy Research and Development Act	44a. Fundamental ocean research and discovery focused on gaining an understanding of the impacts of hydrothermal vents on virtually all major components of the global ocean environment. Maintain ongoing in situ biological, physical, and chemical time-series observations in and around representative active submarine volcanic and hydrothermal regions, coupled with remote monitoring using acoustic technology. (OAR-VENTS)
	33. Oil Pollution Act	45a. Assess damages for the natural resources under their trusteeship; develop and implement a plan for the restoration, rehabilitation, replacement, or acquisition of the equivalent of, the natural resources under their trusteeship.
	34. NMFS Strategic Plan for 2005-2010	46a. Manage uses of ecosystems by applying scientifically sound observations, assessments, and research findings to ensure the sustainable use of resources and to balance competing uses of coastal and marine ecosystems.
4. Economic and Social Science Monitoring, Assessment and Forecasts	1. Magnuson Stevens Fishery Conservation and Management Act	1a. National Standard 8 “(8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities

1b. National Standard 1 “(1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.”

1c. National Standard 5 “(5) Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.”

1d. National Standard 7 “(7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.”

1e. Conserve and manage the fishery resource off the U.S. coasts and U.S. anadromous species and Continental Shelf fishery resources

1f. Promote domestic commercial and recreational fishing under sound conservation and management principles

1g. Provide for preparation and implementation of fishery management plans to achieve and maintain the optimum yield of each fishery on a continuing basis

1h. National Standard 2 - Conservation and management measures shall be based upon the best scientific information available.

The Secretary is responsible for producing a document that provides Councils with a summary of information concerning the most recent biological condition of stocks and marine ecosystems. Fishery Management Plans must specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery)

1i. The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research to carry out and further the purposes, policy, and provisions of this Act. Such program shall be designed to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries. Section 404(c)(1), identifies areas of research, and the implicit need for more and better data: · Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, and other factors affecting the abundance and availability of fish.

1j. The Secretary shall, in cooperation with . . . ., develop recommendations for implementation of a standardized fishing vessel registration and information management system on a regional basis.

1k. The Secretary shall report annually to the Congress and the Councils on the status of fisheries within each Council's geographical area of authority

2. Marine Mammal Protection Act

2. Take into account fishery economics when designing Take Reduction Plans, which reduce the incidental mortality or serious injury of marine mammals incidentally taken in the course of commercial fishing

3. Endangered Species Act

3. Take into consideration the economic impact, and any other relevant impact, of specifying any area as critical habitat.

4. Executive Order 12866 for EPA (1993)

4. Assess the quantitative and qualitative costs and benefits of all regulations, to maximize the net benefits (economic, environmental, public health and safety, and other advantages; distributive impacts; and equity)

5. Regulatory Flexibility Act

5. Conduct a regulatory flexibility analysis, including analyzing the economic impact on small entities, for every proposed rulemaking and final rule

6. National Environmental Policy Act.

6a. Utilize a systematic, interdisciplinary approach, which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making that may have an impact on man's environment;

7. American Fisheries Act

8a. Implement the fishing allocations specified for the Bering Sea Aleutian Islands pollock fishery



8. Government Performance and Results Act	9a. The Government Performance and Results Act (GPRA) requires federal agencies to develop and implement an accountability system based on performance measurement, including setting goals and objectives and measuring progress toward achieving them.
9. Interjurisdictional Fisheries Act	10a. The Interjurisdictional Fisheries Act promotes and encourages State activities in support of the management of interjurisdictional fishery resources throughout their range. The Act provides the Secretary of Commerce to assist states manage their interjurisdictional fishery resources. The Act authorizes appropriations for ...the three interstate fishery commissions
10. National Sea Grant College Program Act	11a. The objective of the Sea Grant Act is "to increase the understanding, assessment, development, utilization, and conservation of the Nation's ocean, coastal, and Great Lakes resources by providing assistance to promote a strong educational base, responsive research and training activities, broad and prompt dissemination of knowledge and techniques, and multidisciplinary approaches to environmental problems." The Act directs the Secretary of Commerce to ". . . provide support for . . . national strategic investments in fields relating to ocean, coastal, and Great Lakes resources..." The Act funds a national sea grant network with 30 Sea Grant state programs, which include fisheries extensions.
11. Fisheries Information System Plan	12a. To create an umbrella program that coordinates techniques to gather and disseminate data nationally while accounting for the unique characteristics of regional commercial and recreational fisheries.
12. Administrative Procedures Act	17a. The Administrative Procedure Act requires federal agencies to keep the public informed of their organization, procedures and rules; to develop standards for rule making process, and allow for the public's participation in the rule making process; and to restate the law of judicial review.
13. U.S. Ocean Action Plan	18. See list of recommendations at end of file: USAOP#1 (pg11), USOAP#4 (pg13,14), USAOP#7 (pg16), USAOP#10 (pg19), USAOP#14 (pg36)

5. Data Management, Technology Transfer, Education and Outreach	1. 33 U.S.C 883d	1a. Conduct investigations and research in the geophysical sciences (including oceanography) in order to increase engineering and scientific knowledge. [collection, processing, storage and analysis of such data are a necessary adjunct to these functions]
	2. 33 U.S.C 883j	2a. Perform duties as necessary to assure the future availability and usefulness of ocean satellite data to the maritime community [collection, processing, storage and analysis of such data are a necessary adjunct to these functions]
	3. Executive Order No. 11564, dated October 6, 1970 (35 F.R. 15801) and in implementation of Reorganization Plan No. 4 of 1970,	3a. President Nixon transferred the National Oceanographic Data Center (NODC) to NOAA from the Department of the Navy. The Executive Order provided all of the power and authority related or incidental to, in support of, or necessary for, the operation of NODC may be utilized by the Secretary of Commerce for the operation of the program.
	4. Department Organization Order 25-5,	4a. The Office of the Assistant Administrator of NESDIS is responsible for operating an environmental service center in which oceanographic data and information are collected, processed, stored, analyzed, applied, and disseminated to the public and specialized users. Section 9.02e. NODC is directed to develop and maintain a national marine environmental data base generated by domestic and foreign activities. Section 9.08. In addition, NODC is tasked with the operation of the ICSU World Data Center-A for Oceanography, providing expertise as necessary for Intergovernmental Oceanographic Commission programs. Section 9.08d.
	5. Executive Order 12906	5a. Coordinating Geographic Data Acquisition and Access
	6. Public Law 102-567	9a. Requires a report to Congress on the status of data management capacity

7. Public Law 102-567 section 106 (c) and (2) 10a. Every two years NOAA will assess whether there is adequate capacity to: \* manage, archive, and disseminate environmental data and information collected, processed, or expected to be collected, processed, by NOAA and other appropriate departments and agencies
8. U.S. Ocean Action Plan 11. See list of recommendations at end of file: USAOP#1 (pg11), USOAP#4 (pg13,14), USAOP#5 (pg15), USAOP#6 (pg16), USAOP#13 (pg35), USAOP#14 (pg36), USAOP#16 (pg37)
9. National Environmental Policy Act 14a. The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.
10. U.S. Ocean Action Plan USOAP.1 Support a Regional Partnership in the Gulf of Mexico: Administration officials will meet with the appropriate regional representatives in the spring of 2005 to explore partnership opportunities. (pg. 11)
- USOAP.2 Advance Ocean Stewardship through Implementation of Cooperative Conservation Executive Order (pg.11)
- USOAP.3 Develop an Ocean Research Priorities Plan and Implementation Strategy - The Implementation Strategy will identify how the various ocean science sectors (government, academic, industry, and other non-government entities) can and should be engaged, individually or through partnerships. These types of strategies would include cooperative research) (pg12)
- USOAP.4 Build a Global Earth Observation Network, Including Integrated Oceans Observation: Develop a strategy for integration and possible convergence of existing and future requisite coastal observing systems of the IOOS. (pg. 13, 14)

USOAP.5 Create a National Water Quality Monitoring Network: The National Water Quality Monitoring Council will provide advice and recommendations regarding the design and creation of a coordinated, comprehensive national water quality monitoring network. (pg. 15)

USOAP.6 Implement New Legislation on Harmful Algal Blooms and Hypoxia: Reconvene the Interagency Task Force established under the Harmful Algal Bloom and Hypoxia Amendments Act of 2004, to coordinate research and actions on harmful algal blooms and hypoxia. (pg. 16)

USOAP.7 Increase Ocean Education Coordination: Data collected through ocean and Earth observations are translated into usable forms for teachers, students, and the general public (pg.16)

USOAP.8 Support the Ocean Science Initiative at the Smithsonian Institution (pg.17)

USOAP.9 Harmonize Recreational Fishing Data Acquisition for Fishery Management Purposes (pg.19)

USOAP.10 Establish Guidelines and Procedures for the Use of Science in Fisheries Management (pg.19)

USOAP.11 Implement New National Bycatch Strategy (p. 22) - Specific mention of the national cooperative research program and coordinator (pg 22)

USOAP.12 Propose New Limits on Atlantic Gill Net Fishing to Protect Dolphins and Sea Turtles - The proposal calls on NOAA to conduct research with the fishing industry into ways to promote safer fishing gear - this would be cooperative research. (pg.22)

USOAP.13 Partnership Creation: White Water to Blue Water Initiative: Assist in the formation of dynamic partnerships that promote sustainable environmental management in the Caribbean region. (pg. 35)

USOAP.14 Advance the Use of Large Marine Ecosystems (pg. 36)

USOAP.15 Support an Integrated Approach to Oceans Management and Reduction of Land-based Pollution (pg.36)

USOAP.16 Link the Global Marine Assessment and Global Earth Observation System of Systems: Seek to create international links between the Global Marine Assessment and Global Earth Observing System of Systems. (pg. 37)

6. Habitat Monitoring  
and Assessments

1. Magnuson Stevens Fishery  
Conservation and  
Management Reauthorization  
Act (1976, 1996, 2006)

1a. Conserve and manage marine and anadromous fishery resources on the U.S. coasts

1b. Support the implementation and enforcement of international fishery agreements for the conservation and management of highly migratory species

1c. Promote domestic commercial and recreational fishing under sound conservation and management principles

1d. Provide for preparation and implementation of fishery management plans to achieve and maintain the optimum yield of each fishery on a continuing basis while preventing overfishing

1e. National Standard 2 - Conservation and management measures shall be based upon the best scientific information available.

The Secretary is responsible for producing a document that provides Councils with a summary of information concerning the most recent biological condition of stocks and marine ecosystems.

Fishery Management Plans must specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery)

1f. The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research to carry out and further the purposes, policy, and provisions of this Act. Such program shall be designed to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries. Section 404(c)(1), identifies areas of research, and the implicit need for more and better data: ·Research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, and other factors affecting the abundance and availability of fish.

1g. The Secretary shall, in cooperation with, develop recommendations for implementation of a standardized fishing vessel registration and information management system on a regional basis.

1h. The Secretary shall report annually to the Congress and the Councils on the status of fisheries within each Council's geographical area of authority.

1i. Annual catch limits and accountability measures must be implemented in fishing year 2010 for fisheries determined by the Secretary to be subject to overfishing (MSRA Section 104 (b)(1)(A))

1j. Annual catch limits and accountability measures must be implemented in fishing year 2011 for all other fisheries (MSRA Section 104 (b)(1)(B))

1k. The Secretary in consultation with representatives of the recreational fishing industry and experts in statistics, technology, and other appropriate fields, shall establish a program to improve the quality and accuracy of information generated by MRFSS. The program must take into account the 2006 NRC report "Review of Recreational Fisheries Survey Methods."

1l. The Secretary shall establish and implement a regionally based registry program for recreational fishermen in each of the 8 fishery management regions

## 2. National Environmental Policy Act

2a. The NEPA requires each federal agency to assess the impact of alternatives for their actions (including activities conducted, funded or permitted by the agency) on the human environment. The cumulative impacts of each activity in combination with other natural and anthropogenic phenomena are included among the analyses.