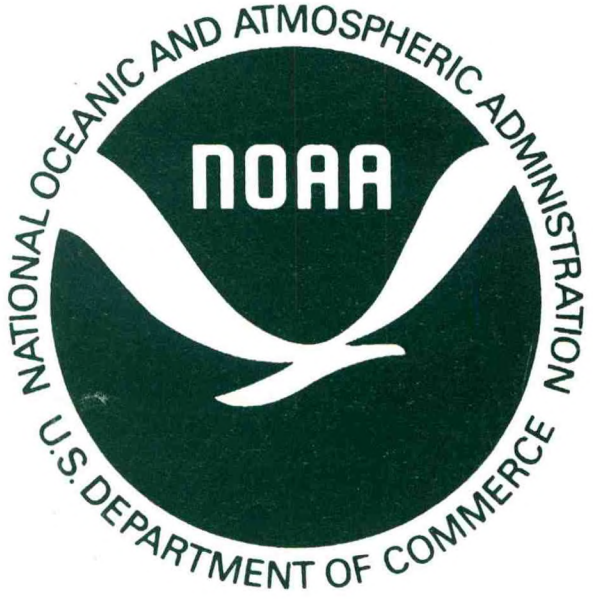
NOAA
ANNUAL OPERATING PLAN
FY 1992



October 1991

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

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NOAA Mission Statement

NOAA, the Nation's Oceanic and Atmospheric Agency, through science and service:

- Describes and predicts changes in the Earth's environment
- Manages the Nation's ocean and coastal resources
- Promotes global stewardship of the world's oceans and atmosphere.

To fulfill this mission, NOAA:

- Conducts oceanic and atmospheric research to improve environmental products and services
- Develops and maintains environmental data bases and disseminates environmental information products
    - Severe storm and flood warnings and weather forecasts
    - Charts of U.S. waters and airspace
    - River flow and water resource forecasts
    - Solar and space environmental forecasts
    - Climate change prediction
    - Ocean and coastal analyses and assessments
- Manages the marine environment
    - Assesses the quality of the marine environment
    - Conserves living and non-living marine resources
    - Administers Federal-State coastal zone management programs
    - Operates marine sanctuaries and estuarine reserves
    - Protects habitat and endangered species
- Operates environmental satellites, ships, aircraft and buoys.

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NOAA-WIDE HIGH-PRIORITY CROSS-CUTTING PROGRAMS

NOAA-wide, high priority cross-cutting programs,
such as Climate and Global Change,
are long-term commitments by the entire agency to address
urgent problems of national concern.
These programs are managed and budgeted in an integrated manner,
and they involve significant efforts by all NOAA components.

NOAA-1

OBJECTIVE: *Design and implement the agency-wide Climate and Global Change Program as NOAA's contribution to the U.S. Global Change Research Program*

BACKGROUND: The long-term goal of NOAA's Climate and Global Change Program is to establish a new national information service based on the achievement of reliable assessments and quantitative predictions of changing global climate with a particular emphasis on time scales ranging from seasons to decades and centuries. NOAA's Climate and Global Change Program is a vital component of the interagency U.S. Global Change Research Program (USGCRP), a high-priority Presidential initiative. The Agency is able to bring its unique talents and special capabilities to bear on some of the Nation's highest scientific priorities identified by the Office of Science and Technology Policy's Committee on Earth and Environmental Sciences (CEES).

In FY 1992, NOAA will maintain its efforts to fulfill its responsibilities in the areas of:

- DOCUMENTING EARTH SYSTEM CHANGE with a particular emphasis on information derived from operational satellite and *in situ* observations and ground-based systems to complement environmental satellite missions.

- UNDERSTANDING EARTH SYSTEM CHANGE through mission-directed research focused on some of the highest priorities in the USGCRP with a particular emphasis on ocean-atmosphere interactions, trace gas studies, the global hydrological cycle, and marine ecosystem response;

- MODELLING, ANALYTICAL STUDIES AND PREDICTION with emphasis on climate prediction on time scales of seasons to decades; and;

- DATA AND INFORMATION MANAGEMENT SYSTEM in support of the USGCRP.

The hallmark of NOAA's Climate and Global Change Program will continue to be the synthesis of individual monitoring, research, modelling and data management projects into higher-order information products and predictive services. NOAA's Climate and Global Change Program will also initiate a new project, economics research related to global change. The results of NOAA's efforts will provide NOAA officials, other agencies, the scientific community, the public and decision-makers at all levels with an integrated view of how the Earth's climate system currently behaves and its likely to change in the future. The following milestones identify some of the high-priority activities that will characterize the Climate and Global Change Program in FY 1992.

PLANNED ACTIONS:

- Provide the focus for NOAA participation in the development and implementation of international scientific activities in support of the U.S. Global Change Research Program (ongoing). Executive Secretary, Climate and Global Change

- Review and provide comments on FY 1992 Climate and Global Change core project proposals with external advisory Panel (10/91). Director, Climate and Global Change

- Allocate FY 1992 core project resources (11/91). Director, Climate and Global Change

- Two additional TOGA TAO observational lines in the tropical Pacific (12/91). TOGA Project Manager

- Conduct annual Climate and Global Change strategic planning meeting with external advisory Panel (2/92). Director, Climate and Global Change

- In preparation for FY 1994 budget initiatives, complete strategic plans for new Climate and Global Change core projects in Solar Variability and the Human Dimensions of Global Change, including Public Education (4/92). Executive Secretary, Climate and Global Change

- Develop, through a dialogue with the Coastal Ocean Program and relevant NOAA line offices, a cohesive, agency-wide scientific strategy for an effective NOAA contribution to studying the global carbon cycle as a high-priority objective of the U.S. Global Change Research Program (5/92). Executive Secretary, Climate and Global Change

- Complete Analysis of current NOAA-wide contributions to the Global Energy and Water Cycle Experiment (GEWEX) (6/92). GEWEX Program Manager

- Conduct annual program review with external advisory Panel; FY 1992 core projects to be reviewed include: Ocean Circulation and Biogeochemistry, Climate Modelling and Analysis, Data Management (6/92).

- Internal review of FY 93 Core Proposals (9/92).

- Sponsor detailed trans-Atlantic sections to measure north-south oceanic heat flux. This will repeat sections made in 1959-1981 and will provide an important measure of the oceans changing role in climate variability (9/92).

- Initiate comprehensive planning effort for key elements of the long-term development of the USGCRP's global observing system. Include in these plans the data management and data base development components needed to support the program (11/92). Director, Climate and Global Change

Because the Climate and Global Change Program is implemented through NOAA's line organizations, each Line Office's Annual Operating Plan addresses specific Climate and Global Change objectives for which it has responsibility (See NOAA-4, NMFS-3, NOS-6, OAR-7, NESDIS-6, and NWS-10). These planned activities support the following Climate and Global Change Major Program Elements: Atmospheric Chemistry, Surface and Upper Ocean Observations, Global Sea Level, Marine Ecosystem Response, Information Management, Measurement Technique Development, TOGA, Ocean Circulation and Biogeochemistry, Climate Dynamics and Experimental Prediction, Atmospheric and Land Surface Processes, Economics, Operational Measurements, Paleoclimate, and Solar Variability.

NOAA-2

OBJECTIVE: *To implement the NOAA Coastal Ocean Program and to strengthen NOAA's marine programs and the scientific basis for coastal environmental decision-making*

BACKGROUND: NOAA's Coastal Ocean Program (COP) has made substantial progress toward identifying and addressing priority marine-related requirements of NOAA line offices. A management structure and protocol is in place to ensure effective development, implementation, and review of program activities. This structure includes the Coastal Ocean Council (Assistant Administrator representatives from each Line Office); a National Academy of Science (NAS) science advisory panel to ensure quality science and appropriate involvement of the academic community; an external user advisory panel to ensure effective response to the needs of users in terms of its products and information delivery; and a series of Theme, or Implementation Teams to construct, propose, and implement major program elements. In addition, this progress is reflected in several near-term products which are being used by scientists and managers at all levels of Government to improve environmental decision-making.

COP is also involved in improving inter-agency coordination of coastal ocean science activities. In December, 1990, a Coastal Ocean Science Working Group (COSWG) under the Committee on Earth and Environmental Sciences (CEES) was formed to develop a Federal Coastal Ocean Science strategy for optimizing the development of a predictive understanding of the interdisciplinary processes associated with the coastal ocean environment (defined as including the estuaries, Great Lakes, and coastal waters out to the shelf break). The COSWG intends to provide a scientific basis for national and international policy-making for the utilization and management of coastal ocean resources and their environment. The COSWG includes representatives from CEES member agencies that have specialized interest in coastal ocean science, and is chaired by the Under Secretary for Oceans and Atmosphere, with COP as Executive Secretariat. This CEES effort demonstrates the desire to improve planning and implementation of Federal coastal ocean science activities.

COP continues to forge constructive relationships to address critical management needs of NOAA, such as with the Coastal Zone Management program, the Habitat Conservation Program, and the Damage Assessment and Restoration Program. In addition, COP continues to undertake NOAA-wide reviews and analyses of coastal-related activities, such as the Habitat Strategic Plan which was completed in FY 1991 and the review of NOAA's participation in the National Estuary Program, to assist the effective coordination of agency efforts to address coastal ocean issues. These relationships and activities will help to ensure that COP and NOAA are responsive to a rapidly changing suite of coastal issues, and to assist the appropriate application of NOAA's coastal ocean science capabilities to environmental policy development.

Since the COP is implemented through NOAA's line organizations, each line organization's Annual Operating Plan addresses specific COP objectives for which it has lead responsibility. (See NOS-8, OAR-8, NESDIS-6, and NWS-9).

The Director, Coastal Ocean Program Office, is responsible for the following planned actions:

PLANNED ACTIONS:

- Establish procedures for ensuring agency-wide oversight and participation in implementing NOAA's responsibilities for the Regional Marine Research Program established in Title IV of the Marine Protection, Research, and Sanctuaries Act (11/91).

- Report accomplishments of FY 1991 efforts and complete implementation plan contracts for FY 1992 projects (12/91).

- Prepare a plan for phased implementation of appropriate elements of the NOAA Strategic Habitat Plan. Work with the Assistant Administrators to articulate functional relationships among NOAA's activities related to contaminants and physical habitat alteration in the coastal ocean (12/91).

- Through dialogue with other agencies on the CEES Coastal Ocean Science Working Group, develop a U.S. Coastal Ocean Science framework that outlines the Nation's strategy for enhancing coastal ocean science (12/91).

- Complete NOAA-wide review of COP's assessment of NOAA's involvement in EPA's National Estuary Program and propose recommendations for future involvement (3/92).

- Establish uniform assessment analysis procedures among COP themes to ensure that the COP delivers information that supports environmental decision-making on short and long-term timescales, and to ensure that COP science "products" are credible, timely, and useful in supporting public policy needs (6/92).

- Develop a plan for incorporating social and economic research within activities of the Coastal Ocean Program (6/92).

- Undertake a strategic review of NOAA's programs related to coastal hazards in the coastal ocean (6/92).

- Conduct periodic Coastal Ocean Program Science Advisory Group and User Advisory Group meetings and incorporate review comments into program guidance and implementation plans (9/92).

NOAA-3

OBJECTIVE: *Begin efforts to implement the mesoscale weather prediction operations of NWS through an integrated NOAA-wide effort*

BACKGROUND: This objective complements the more detailed NWS objectives (4-8), elsewhere in this document, which encompass efforts at specific systems implementation in the NWS Modernization. NOAA's fundamental weather mission is to provide warnings to the public about severe weather and floods. In the past, weather prediction as a science has focused on the large, "synoptic," scale approaching continental dimensions, due to scientific and technological limitations. However, most severe weather events, including hurricanes, occur as atmospheric disturbances of lesser geographical scope, called the storm-scale or mesoscale of weather events.

Currently, the NWS issues severe weather warnings with relative short lead-time for the public to react. However in the modernized NWS of the 1990s, new observing tools such as Doppler radars (NEXRAD, or Next Generation Weather Radar), wind profilers, and more sophisticated satellite sensors will enable earlier detection and public warning of severe weather events. In addition, data from these systems will also be used in numerical weather prediction models to improve local and regional weather forecasts.

Recognizing the enormous social and economic benefits that would be forthcoming from accurate weather forecasts and warnings, NOAA is participating in a national interagency effort (the U.S. Weather Research Program) aimed at: improving weather prediction, increasing scientific knowledge of mesoscale weather, decreasing vulnerability to weather, and enhancing the economic benefits of modernization. During this past year, a Strategic Plan for the U.S. Weather Research Program (USWRP) has been prepared by the agencies, with budget crosscuts, and approved for distribution by the Federal Coordination Council for Science Engineering and Technology (FCCSET). The first major field program, STORM Fronts Experiment and Systems Test (STORMFEST) is planned for a six-week period during winter, 1992. At the same time NOAA, in coordination with other Federal agencies and academia, is initiating Experimental Forecast Facilities at Weather Service Forecast Office (WSFO), Oklahoma City, Oklahoma; Boulder/Denver, Colorado; and at the National Severe Storm Forecast Center (NSSFC), Kansas City, Missouri to improve the transfer of research results into operational practice.

During the 1990s, NOAA must extend its weather prediction service into the mesoscale. Major investments by NWS, NESDIS, and OAR need to be made to upgrade systems, improve understanding of mesoscale weather systems, and implement new operational procedures. Marine weather hazards pose some of the greatest risk to the public, and user groups of NMFS and NOS will also benefit greatly from NOAA's new mesoscale prediction capabilities.

PLANNED ACTIONS:

- Complete planning for NOAA participation in the STORMFEST (February 1 - March 15, 1992) experiment (12/91). Director, NWS Office of Meteorology (OM) and OAR

- Complete NOAA special observations and modelling activities in support of STORMFEST (3/92). Directors NWS OM, NWS National Meteorological Center (NMC) and OAR

- Finalize and publish NWS OM Strategic Plan for Collaborative Research Activities with Universities (11/91). Director, NWS OM

- Complete coordinated final draft of STORM/USWRP Interagency Strategic Plan for Experimental Forecast Facilities (12/91). NOAA OAR

- Implement a NOAA-wide strategy to present NOAA's planned mesoscale weather prediction capabilities to the public and user groups (ongoing). Director, NWS Transition Program Office (TPO) and OAR

- Complete installation of wind profilers in the central U.S. and begin meteorological and engineering assessment, in an operational environment, of their data and system characteristics (Director, Environmental Research Laboratory [ERL]). Continue building and testing prototype components of Integrated Upper-air Sounding system (Directors, ERL, Wave Propagation Laboratory [WPL]). Begin meteorological assessment of wind profiler network data (prelim results 9/92; Directors, Forecast Systems Laboratory [FSL], National Severe Storm Laboratory [NSSL], WPL, NWS OM)

- Deliver first two interactive computer-based learning modules on Doppler Radar and Convective Initiation to NWS field offices by 1/92 and a third on Forecasting Heavy Precipitation (6/92). Director NWS OM

- Begin implementation of an Experimental Forecast Facility (EFF) at the Severe Storms Forecast Center in Kansas city. The EFF will be jointly supported by NWS and FAA and will focus on aviation weather hazards such as icing, turbulence, and severe convection (1/92). Directors NWS, NMC, and NWS OM

- Commence research to improve WSR-88D (NEXRAD) detection capabilities and algorithms for significant severe weather detection (ongoing). Directors, NSSL, NWS Office of Systems Development (OSD).

NOAA-4

OBJECTIVE: *Implement a NOAA-wide Data and Information Management Program as a basis for long-term, coordinated environmental data and information management*

BACKGROUND: As a major earth science-based agency, NOAA routinely collects large quantities of environmental data to provide information and predictive services, as well as to expand the base of knowledge about the Earth. NOAA also utilizes environmental data collected by other domestic and international organizations.

Scientific and operational data management, an activity that is the responsibility of all NOAA program managers, ranges from the preliminary design of environmental observation or sampling to easily accessible stored data. The increase in volume, complexity, and need for continuity over time and space, as well as unprecedented interdisciplinary, interagency, and international requirements, all demand a new approach to NOAA-wide data and information management now to avoid approaching information management disasters.

NOAA has made major progress the past year in identifying and prioritizing the needs for a NOAA-wide data and information management program, and developing the strategy and program development plan for an Earth System Data and Information Management Program initiative. New resources were dedicated last year to commencing the data rescue and data access elements of this program.

PLANNED ACTIONS:

- Coordinate NOAA-wide data and information management planning with data management activities of NOAA Line and Program Offices (ongoing). Deputy Assistant Administrator for Environmental Information Services, NESDIS

- Define and coordinate NOAA-wide data management policies and standards, including scientific networking (ongoing). Deputy Assistant Administrator for Environmental Information Services, NESDIS

- Develop and implement a strategic plan for implementing a NOAA-wide data and information management program (3/92). Deputy Assistant Administrator for Environmental Information Services, NESDIS

- Update a detailed prioritized plan for rescuing environmental data for which NOAA is responsible and is in danger of being lost due to age of the magnetic and other media on which these data are stored, or other factors (6/92). Directors of National Data Centers and NOAA Centers of Data

- Assess the current software and hardware systems available in NOAA to manage and distribute environmental data (8/92). A requirements study was completed in June 1991. A concept plan for replacing or upgrading NOAA's data and information management systems will be developed (2/92). Chief, NESDIS Data Management Systems Division

- Implement an operational NOAA Earth System Data Directory System that was developed as a prototype the last 2 years, and expand its coverage to NOAA data sets (ongoing). Deputy Assistant Administrator for Environmental Information Services, NESDIS

- Prioritize the utility of data archived at NOAA's data centers through periodic reviews by panels of external scientists (ongoing). Project future scientific needs for NOAA's environmental data through evaluation of requirements established by science working groups. NOAA has recently established the Land Surface, Oceanic Variables, and Atmospheric Science Working Groups (ongoing). Deputy Assistant Administrator for Environmental Information Services, NESDIS

- Review the problems of data quality and continuity in NOAA for the Program Development Board; combine its recommendations and those of a previous NOAA-wide meeting on the subject into a set of options for consideration by the NOAA Administrator. Convene an interagency data continuity workshop during the Fall, 1992 to identify existing and potential problems in the continuity of U.S. environmental data sets, and plan an international event to address this issue on a much wider scale (ongoing). Vernon Derr, Office of NOAA Chief Scientist

- Manage and implement the Information Management Program in support of the NOAA Climate and Global Change Program. This program is being developed by a NOAA-wide team under the leadership of the Deputy Assistant Administrator for Environmental Information Services. The Information Management Program provides the organization and focus through which data producers, data managers, and data users actively participate in the design, implementation, and review of data and information management activities supporting the NOAA Climate and Global Change Program (ongoing). Deputy Assistant Administrator for Environmental Information Services, NESDIS

- Work together with the Department of State and other U.S. Government policy organs to promote and seek international reciprocity for U.S. full and open global change data management principles thereby assuring NOAA access to important foreign satellite and *in situ* data (ongoing). Assistant Administrator for Satellite and Information Services, Deputy Assistant Administrator for Environmental Information Services, NESDIS, and Chief, International and Interagency Affairs Office, NESDIS

NOAA-5

OBJECTIVE: *Develop and implement a comprehensive approach to modernization of operational infrastructure for marine programs to improve marine products and services in those cases where improvements are necessary, to seek maximum productivity through automation and streamlining of operations, and to achieve a high level of cost effectiveness.*

BACKGROUND. NOAA's Atmospheric Services Modernization is now well underway, and it is time to begin addressing long-standing deficiencies in NOAA's science services programs dealing with the oceans and the living marine resources within them. NOAA's Strategic Plan calls for the Marine Resources and Oceanic Services 2000 Program to provide an integrated framework for this effort.

Primary responsibility for planning resides with a Task Force comprised of Deputy Assistant Administrators (DAAs) under the Chairmanship of the DAA for NOS.

PLANNED ACTIONS:

- Hold meetings of the Task Force and its Working Group to develop an effective strategy for modernization of marine programs (11/91).
- Write a stand alone strategic plan for the modernization of marine programs (6/92). Deputy AA, NOS
- Work with the fleet modernization team to ensure that their goals complement the goals of the marine program modernization plan (6/92). Deputy AA, NWS modernization
- Work with NESDIS to ensure that satellite remote sensing requirements are met through coordination with the marine program modernization effort (6/92). Deputy AA, NESDIS
- Seek National Academy of Sciences and Engineering advice and counsel (8/92).
- Work with other federal agencies and private organizations to ensure appropriate recommendations within the context of all U.S. coastal and ocean programs (9/92).

NOAA-6

OBJECTIVE: *Complete integration of NOAA components into the Damage Assessment and Restoration Program (DARP) in order to implement fully NOAA's natural resource trustee responsibilities. DARP will continue to employ a three-step process of determining and quantifying injury to trust resources; securing monetary damages; and restoring the injured resources. DARP will publish the proposed new rule for damage assessment and restoration under the Oil Pollution Act of 1990 (OPA).*

BACKGROUND: In FY 1990, NOAA created the Damage Assessment Center within NOS which concentrated on identifying sites of interest and developing scientific capabilities to assess injury. The year culminated with the filing of two major law suits by the newly created General Counsel Natural Resource group.

In FY 1991, the Damage Assessment Center and the General Counsel component concentrated on developing adequate staffing and began negotiations with a number of responsible parties. There has been involvement in over 40 cases and significant settlements were completed in a number of these cases. In addition, the Damage Assessment Regulation Team was created to begin a damage assessment rule making under OPA.

Finally, as settlement dollars became available, it was increasingly obvious that NOAA needed to develop expertise in implementing the restoration mandated by these recoveries. In May of 1990, NOAA created the Restoration Center within the Nation Marine Fisheries Service (NMFS). The Restoration Center draws on the experience and expertise of NOAA scientists, and provides the institutional focus needed to identify and evaluate restoration methodologies and research, and to develop priorities and strategies for successful restoration. The Restoration Center became the final component of DARP, which is NOAA's first trustee organization of its kind.

A multi-disciplinary team governs DARP through a Board of Directors. This Board has voting members from NOS, NMFS and General Counsel and advisory members from the Sea Grant and Coastal Ocean Programs and from the Strategic Planning Staff.

PLANNED ACTIONS:

- Conduct an in-house symposium to focus on issues critical to the continued develop of DARP (10/91).
- Establish the roles and responsibilities of DARP during case selection, case development, negotiations, and implementation of restoration (12/91).
- Develop policies and procedures for administration of NOAA Damage Assessment and Restoration Revolving Fund (12/91).
- Commence pre-spill planning for oil spills at a regional level with other Federal and state trustees, including the development of protocols and damage assessment purposes (12/91).

- Draft a plan for establishing a DARP library (1/92).

- Delineate policy on participation by the responsible parties and public involvement in the various phases of the damage assessment and restoration process (3/92).

- Formulate and begin implementation of strategy to better utilize NOAA laboratories, as appropriate, for damage assessment and restoration (6/92).

- Publish proposed rule required by OPA for the assessment of natural resource damages from oil spills (8/92).

- Initiate five Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cases and respond to any oil spills with the potential to affect significantly NOAA trust resources (9/92).

- Continue involvement in the damage assessment, restoration and litigation aspects of the Exxon Valdez case (ongoing).

- Organize the Second International Symposium on Restoration of Marine Habitat (9/92).

NOAA-7

OBJECTIVE: *The SPO's mission is to collaboratively define, develop, and deliver major systems to meet current and future requirements and to promote an integrated systems architecture.*

BACKGROUND: The application of new technology to NOAA's missions has become an operational imperative. The potential to improve our performance in terms of product effectiveness and resource utilization, however, requires a great investment of talent and capital. The Systems Program Office (SPO) was established to assure that these assets are available NOAA-wide, and in accordance with highest Agency priorities.

The SPO represents the primary facility for assuring that NOAA elements and other agency participants acquire the major systems and related support essential to their activities. As such, the SPO must possess a broad range of operational solutions to concerns impacting the health and safety of our Nation's population and vast resources. Specifically, it is the SPO's responsibility to define,

procure, test, accept, and ultimately transfer its programs to user organizations for operational application. Because of the range of specialized capabilities required by these tasks and the continuing initiative to improve management, the Department—with OMB and Congressional concurrence—established the SPO as an on-going NOAA resource.

The SPO aggregates managerial and technical personnel, specialized procurement staff, performance monitoring and evaluation capabilities, and other appropriate resources at the highest level within the Agency. This affords NOAA's leadership the opportunity to be informed of, and directly influence, critical program developments. Additionally, individual operating elements are relieved of acquiring staff to perform unique functions not among their basic responsibilities.

During FY 1992, the SPO will manage directly the major systems vital to the modernization and restructuring of the National Weather Service, the acquisition of geostationary satellite data, the planning and acquisitions required to modernize NOAA's fleet of ships and vessels, and other programs deemed critical to NOAA and other participating agencies. Additional background on these systems and programs may be found within the discussion of the relevant NOAA operating organizations.

In this first year of operation, the SPO must both manage NOAA's major systems acquisitions and establish itself as a viable organizational entity. To accomplish this, the SPO has developed and endorses the following goals:

- Deliver major systems on time, within budget, and that satisfy customer requirements.

- Ensure a competent and motivated workforce.

- Establish effective and efficient internal systems and processes for: (a) program control (financial management and schedules), (b) program management (reviews, acquisition management), (c) administrative operating procedures.

- Foster a collaborative climate and teamwork as a "way of doing business" internally and externally.

- Establish the SPO as a professional and credible organization.

For its first year of operations, the SPO's responsibilities divide into the following two activities:

Planned Activities for Organizational Development:

- Determine the detailed organizational structure for optimally executing the SPO charter (12/91). Director, SPO

- Identify and install the systems and disciplines for fulfilling the data requirements essential to improve program management and reporting (6/92). Director, SPO

- Acquire the critical core of personnel essential to our mission and support activities (6/92). Director, SPO

- Develop the organizational capabilities and liaisons required to interact effectively within NOAA and Departmental structures in areas of personnel, fiscal information, and administrative management (ongoing). Director, SPO

- Facilitate the maximum contribution of existing SPO personnel through careful consideration of projected staffing needs relative to individual capabilities and preferences (ongoing). Director, SPO

Planned Activities for Program Management:

NEXRAD (See NWS-5):

- Contractually implement the recent comprehensive settlement with Unisys (1/92). NEXRAD Program Manager

- Accept facilities for all limited production sites (3/92). NEXRAD Program Manager

- Complete NEXRAD technical manual verification (6/92). NEXRAD Program Manager

- Test and accept the Operational Support Facility, two training units, four NWS limited production systems, and two Air Force systems (9/92). NEXRAD Program Manager

- Accept facilities for two NWS Full Scale Production sites (9/92). NEXRAD Program Manager

- Complete initial (first 35 systems) provisioning for NEXRAD on-site and depot spares (9/92). NEXRAD Program Manager

AWIPS See (NWS-5):

- Complete the software risk reduction tasks as specified in the current extension of the AWIPS Definition Phase contracts (12/91). AWIPS Program Manager

- Begin the analysis of results from an independent assessment of AWIPS offerors' software development capabilities conducted by USAF Electronics System Division (ESD) (12/91). AWIPS Program Manager

- Re-baseline AWIPS Development Phase and Deployment Phase schedules, taking into account results of ESD software development capabilities assessment and input from AWIPS Requirements Team (2/92). AWIPS Program Manager

ASOS (See NWS-5):

- Complete the deployment of all systems within the Modernization and Associated Restructuring Demonstration area of the Central U.S. (2/92). ASOS Program Manager

- Purchase 118 systems (12/91). ASOS Program Manager

- Complete the installation and acceptance of 55 systems (2/92). ASOS Program Manager

- Complete Deployment Readiness Review for 118 systems (3/92). ASOS Program Manager

- Complete the installation of an additional 53 systems (9/92). ASOS Program Manager

GOES (See NESDIS-2):

- Lead the effort to restructure – with NASA – a GOES program plan leading to the launch of a "near specification-compliant" GOES I spacecraft (2/94). GOES Program Manager

- Work with NESDIS to complete contingency plans for possible gap-filler satellites between GOES-7 and GOES-Next (11/91). GOES Program Manager

- Complete the staffing of the GOES Program Office to provide a critical core staff in accordance with the SPO organizational structure (6/92). GOES Program Manager

- Complete a long-range plan to provide for continuous, robust GOES coverage in the future; this would support the NOAA FY 1994 budget request (6/92). GOES Program Manager

NATIONAL MARINE FISHERIES SERVICE

The mission of the National Marine Fisheries Service is stewardship of the Nation's Living Marine Resources. Through conservation and wise use, these resources and their habitat can be managed to benefit the Nation without jeopardizing options for the future.

NMFS-1

OBJECTIVE: *Rebuild overfished marine fisheries – Implement activities to restore depleted U.S. fishery resources.*

BACKGROUND: Under the Magnuson Fishery Conservation and Management Act goal of "Americanization", the Nation's fishery resources are almost fully utilized, and of 153 species or species groups evaluated recently by NMFS, 64 (42%) are overutilized. Overfishing is a national problem, although it is most severe along the Atlantic Coast and in the Gulf of Mexico. For example, New England groundfish, including haddock, cod, and flounders, have declined about 80 percent since the 1960s; 14,000 jobs have been lost with the decline of this fishery. Other depleted resources are Atlantic swordfish and bluefin tuna, many southeastern U. S. snappers and groupers, Pacific Ocean perch, and summer flounder.

Overfishing is not only a threat to the fishery resource, but it results in a large economic waste. A very few of the overfished species alone accounted for about $1 billion, or 25% of revenue to fishermen, in 1989. But they could account for much more: revenue from New England groundfish alone could be increased by $350 million if depleted stocks were allowed to recover. Another major problem is the nonselectivity of many fishing methods, which results in bycatch of some species, including marine mammals and endangered species, while fishing for other species. Bycatch results in at-sea discarding of a large portion of the catch in some fisheries, including non-target species and juveniles of target species.

Some depleted resources are also valuable for recreational fishing. Their loss wastes potential economic benefits and reduces the quality of life for a significant number of Americans. For example, the opportunity to catch striped bass has been severely limited over the last decade.

This objective tracks NMFS Strategic Plan Goal 1, Rebuild Overfished Marine Fisheries.

PLANNED ACTIONS:

- In accordance with Magnuson Act 602 Guidelines for the Prevention of Overfishing, conduct a national evaluation to determine which fisheries are overfished, including non-FMP (Fishery Management Plan) fisheries (5/30/92). All Regional Directors; Director, Office of Conservation and Management

- Work closely with the Regional Fishery Management Councils and Interstate Marine Fisheries Commissions to implement effective Fishery Management Plans, and with the Coast Guard and States to ensure compliance (Ongoing). All Regional Directors; Director, Office of Conservation and Management; Director, Office of Enforcement

- Prepare analysis of opportunities and risks for major U.S. fisheries, including potential yields under optimal management, and estimated costs of activities needed to achieve potential yields. (5/20/92). Senior Scientist

- Determine the magnitude of bycatch of overfished stocks, and options to reduce it, especially conservation engineering and control of fishing practices (how, when and where fishing takes place) (9/30/92). Senior Scientist, all Science Directors

NMFS-2

OBJECTIVE: *Maintain currently productive fisheries – implement activities to prevent overfishing and preserve the economic benefits of U.S. fisheries.*

BACKGROUND: Productive fisheries become overfished and unproductive for several reasons. It is often economically advantageous for individual fishermen to favor short-term benefits over conservation, a situation reinforced by the open access nature of most fisheries. Management is also complicated by the uncertainty resulting from natural variability in living marine resources, and the scientific complexity of assessing them. In the face of uncertainty and pressure from the fishing industry, fishery managers have often tended to base their decisions on an optimistic view of the condition of fishery resources. These "risk prone" decisions eventually result in overfishing.

Other reasons why productive fisheries may become unproductive include implementing fishery management regulations which are by their very nature difficult to enforce, inadequate enforcement of even well-designed fishery management regulations, habitat degradation, and natural fluctuations in the environment.

There has been widespread concern that current monitoring efforts yield insufficient data, frequently resulting in management regulations that are inadequate to conserve resources, or unnecessarily restrictive. The emergence of advanced management regimes, such as controlled access, and new requirements to provide Stock Assessment and Fishery Evaluation (SAFE) reports, in turn will require improvements in state-Federal, international, and other cooperative data collection and management systems. New management systems will also improve efforts to gain compliance with regulations.

This objective tracks NMFS Strategic Plan Goal 2, Maintain Currently Productive Fisheries.

PLANNED ACTIONS:

- Critically evaluate Fishery Management Plans to determine if they are working, and if not, why (6/30/92). All Regional Directors

- Report findings and develop executive summary on Phase I of the Pacific Groundfish Fishery Individual Transferable Quota (ITQ) Study, designed to develop information on elements necessary for controlled access of this fishery (4/92). Deputy Assistant Administrator for Fisheries

- Report findings and develop executive summary on Phase I of the Atlantic mackerels Fisheries (king and Spanish) ITQ Study, designed to develop information on elements necessary for controlled access of this fishery (4/92). Deputy Assistant Administrator for Fisheries

- Report findings and develop executive summary on Phase I of the Atlantic Sea Scallop Fishery ITQ Study, designed to develop information on elements necessary for controlled access of this fishery (4/92). Deputy Assistant Administrator for Fisheries

- Report findings and develop executive summary on Phase I of the Gulf of Mexico Shrimp Fishery ITQ Study, designed to develop information on elements necessary for controlled access of this fishery (4/92). Deputy Assistant Administrator for Fisheries

- From information in the four completed ITQ studies, evaluate and plan activities that will provide allocation options for implementing controlled access regimes in selected U.S. fisheries (3/92). Deputy Assistant Administrator for Fisheries.

- Review landings data, economic information, and enforcement history of the nation's first controlled access fishery, implemented in 1991 through Amendment 8 to the Atlantic Surf Clam and Ocean Quahog Fishery Management Plan, for evaluation of its success in meeting management objectives (6/92). Director, Office of Conservation and Management; Director, Northeast Region.

- Monitor progress of the Regional Fishery Management Councils in planning and implementing ITQs (12/91; 3/92; 6/92; 9/92). All Regional Directors.

- Implement an ITQ system for the Atlantic Wreckfish Fishery, as approved in an Amendment to the South Atlantic SnapperGrouper Fishery Management Plan (4/92). Director, Southeast Region.

- Monitor the effectiveness of fishery management regulations and activities to improve NMFS science, management and enforcement, through quarterly reports on significant actions to the DOC Office of Planning and Evaluation (12/91; 3/92; 6/92; 9/92). Director, Office of Conservation and Management

- In accordance with standard DOC contracting procedures and published specifications, receive formal technical proposals and cost estimates for the IT-95 national fisheries statistics mainframe computer system (12/91). Director, Office of Research and Environmental Information

- In accordance with standard DOC contracting procedures, determine the initial range of competitive proposals to develop the IT-95 mainframe computer system, evaluate and score the proposals, and make recommendations for contract awards (6/92). Director, Office of Research and Environmental Information

- Award contract for Phase I of the new IT-95 computer system to manage U.S. catch statistics and other information used to manage living marine resources (9/92). Director, Office of Research and Environmental Information

- Improve the knowledge of stock structures and migrations, particularly for species that migrate across international boundaries (Ongoing). All Science Directors

- Increase the precision and accuracy of resource surveys by increasing sampling, using more efficient designs, and improving sampling technology (Ongoing). All Science Directors

- Develop efficient regional fisheries data collection and data management programs, integrating state activities as appropriate (Ongoing). All Science Directors; Director, Office of Research and Environmental Information

- Assess the degree of compliance with fisheries management regulations, and evaluate the factors that have contributed to non-compliance (9/92). Director, Office of Enforcement

- Determine members of the external panel to review the completed NMFS Enforcement Study from among law enforcement agencies and NOAA offices. (12/91)

- Complete site reviews and evaluate findings of the NMFS Enforcement Study review team, and incorporate them into the draft Enforcement Study Final Report (8/92). Director, Office of Enforcement.

- Prepare final report on NMFS Enforcement Efficacy for review and comment by the Assistant Administrator for Fisheries (9/92). Director, Office of Enforcement

- Conduct the second annual Stock Assessment Workshop on stock assessment methods to review state-of-the-art population assessment techniques that can be used to improve the agency's stock evaluation capability (3/92), and complete Annual Status of Stocks Report (9/92). Senior Scientist

NMFS-3

OBJECTIVE: *Advance fishery forecasts and ecosystem models – Implement activities to improve conservation and management of living marine resources by providing information on the physical and biological processes that affect their productivity.*

BACKGROUND: Accurate and precise fishery forecasts and ecosystem models will allow resource management and business decisions to be more proactive and comprehensive. Decision-makers will be able to anticipate opportunities and problems related to environmental and habitat changes, or to fishing, and consider the indirect effects of management on other components of the ecosystem. One important use of better ecosystem models is determining to what degree depleted fisheries and protected species stocks can be rebuilt. For example, if depleted species have been ecologically replaced, which may have happened on Georges Bank where dogfish and skate have offset the reduction in biomass of commercial groundfish, they may not rebuild even if fishing is stopped.

NMFS will participate heavily in NOAA-wide science programs to describe functional relationships and processes that control fishery systems, and develop higher-order forecasting models for living marine resource populations, ecosystems and fishery systems. This objective tracks NMFS Strategic Plan Goal 3, Advance Fishery Forecasts and Ecosystem Models.

PLANNED ACTIONS:

- Participate in NOAA Coastal Ocean Program activities, including leadership of the Toxics Theme Project, and the Estuarine Habitat Theme Project (Ongoing). Senior Scientist

- Participate in NOAA Climate and Global Change activities, including managing the Marine Ecosystem Response Program (Ongoing). Senior Scientist

- Implement ecosystems research activities, as appropriate (Ongoing). Senior Scientist, Science Directors

- Identify NOAA data sets that are of importance to fishery research and management (Ongoing). Director, Office of Research and Environmental Information; all Science Directors

- Develop internal and cooperative Federal/university proposals for ecosystem research (Ongoing). Senior Scientist, all Science Directors

NMFS-4

OBJECTIVE: *Integrate conservation of protected species and fisheries management – Implement measures to reduce impacts of fisheries and other human activities on protected species.*

BACKGROUND: Living marine resources that are afforded protection under the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA) are known as "protected species". Fishery resources and protected species are interactive members of the same ecosystems. Protected species are sometimes taken in fishing operations, and some of these animals eat the same species that fishermen catch. NMFS has legislative mandates to conserve, manage, and protect both fishery resources and protected species. These responsibilities, and the activities that support them, must be integrated to be effective.

Historically, NMFS has focused much of its protected species effort on sea turtles and some marine mammals, especially dolphins. Recently, however, requests for listing several species of Pacific salmonids have been received, and many more such requests are expected. Additionally, concern is growing for the possible effects of the Alaska groundfish trawl fisheries on the Steller sea lion population, which has shown precipitous decline since 1976.

Five major types of activities must be conducted to achieve this goal: (1) identification and resolution of conflicts between MMPA, ESA and fisheries; (2) determination of the status of protected species; (3) monitoring marine mammal "take" by fisheries and assessment of its significance; (4) implementation of Endangered Species Recovery Plans; and (5) reduction of fishery and passive viewing impacts on protected species.

This objective tracks NMFS Strategic Plan Goal 4, Integrate Conservation of Protected Species and Fisheries Management.

PLANNED ACTIONS:

- Expand protected species population assessments (Ongoing). Director, Office of Protected Resources; Science Directors, as appropriate

- Conduct regional data collection programs, through at-sea observer and scientific studies and the exempted fishery program, to establish data bases for determining the status of protected resources (Ongoing). Director, Office of Protected Resources; Science Directors, as appropriate.

- Monitor strandings of protected species and conduct scientific studies on stranded animals to provide information on their population biology and species interactions (Ongoing). Director, Office of Protected Resources; Science Directors, as appropriate

- Determine the status, as necessary of species requested to be listed under the Endangered Species Act (Ongoing). Regional Directors and Science Directors, as appropriate

- Develop and implement recovery plans, as appropriate (Ongoing). Director, Office of Protected Resources

- Develop and implement procedures to regulate interactions between marine mammals and humans that threaten the health of marine mammal populations (Ongoing). Director, Office of Protected Resources; Director, Office of International Affairs

NMFS - 5

OBJECTIVE: *Improve seafood safety—Implement procedures and systems to reduce human health risks associated with fishery resources and enhance the competitiveness of the U.S. seafood products in world markets.*

BACKGROUND: Most seafood is safe, wholesome, and of high quality. However, improper handling and contaminants can lessen quality and threaten human health. The perception of human health risks can cause significant economic loss, for example, as when the perceived contamination following an oil spill reduces consumer demand. Unsafe products may result from contamination by biotoxins, chemicals and bacteria in the environment; by poor handling onboard fishing vessels; during processing, shipping or retailing; or by restaurants and consumers.

Increasing pressure by consumer activists, several trade associations, and the seafood industry concerning seafood safety, wholesomeness, and labeling have resulted in significant seafood inspection legislative proposals. The sale of seafood harvested from polluted waters and of adulterated or mislabeled fishery products is injurious to the public welfare and destroys markets for all fishery products.

Two major types of activities are necessary to achieve the agency's goal of improving seafood safety: (1) implementation of a seafood inspection program, with emphasis on reducing health risks from microbial, biotoxin, and chemical sources, and on providing consumer information about quality; and (2) evaluation of options and establishment of mechanisms other than inspection to reduce human health risk.

This objective tracks NMFS Strategic Plan Goal 5, Improve Seafood Safety.

PLANNED ACTIONS:

- Implement the new voluntary Hazard Analysis Critical Control Points (HACCP) inspection system jointly with the FDA (Ongoing). Director, Office of Trade and Industry Services

- Conduct research on and monitor seafood toxins and contaminants, and the effects of land use on seafood safety (Ongoing). Science Directors, as appropriate.

- Schedule, organize and attend meetings of the Work Group on Harmonization of Fishery Product Standards and Inspection under the U. S.-Canada Free Trade Agreement (FTA); develop and present U. S. priorities, in consultation with industry (Ongoing). Director, Office of Trade and Industry Services

- Provide technology and information transfer for seafood safety (Ongoing). Science Directors, as appropriate; Director, Office of Trade and Industry Services

- Evaluate the legal authority and develop protocols to close fisheries to protect human health (Ongoing). Director, Office of Trade and Industry Services

- Plan a National Shellfish Growing Waters Indicator Study (4/92). Director, Office of Trade and Industry Services

- Monitor and report quarterly progress in the joint NMFS-FDA seafood inspection program, by number of plants, pounds of product, and other pertinent data, for current and prior year periods (9/91;3/92;6/92;9/92). Director, Office of Trade and Industry Services

NMFS - 6

OBJECTIVE: *Protect living marine resource habitat—Fully implement habitat policy: achieve no net loss of living marine resource habitat.*

BACKGROUND: The long-term viability of living marine resources depends on protection of their habitat. The Magnuson Act requires that habitat be considered in FMPs. The Marine Mammal Protection Act, the Endangered Species Act, the Fish and Wildlife Coordination Act, and other legislation require the agency to represent the resources' interests in habitat decisions made by regulatory and development agencies, such as the Environmental Protection Agency and the Army Corps of Engineers. Superfund and the Oil Pollution Act require damage assessment and restoration of habitat. Finally, Presidential policy calls for "no net loss of wetlands."

The effects of habitat degradation are often insidious, and some losses are not well understood. However, some effects are apparent. For example, dams for hydroelectric power generation and

water diversion for agriculture have eliminated valuable anadromous fish runs. Loss of seagrasses and emergent salt marshes has been accompanied by decreases in fisheries, and chemical contaminants in some areas have been shown to cause neoplasms in some regional species.

This objective tracks NMFS Strategic Plan Goal 6, Protect Living Marine Habitat.

PLANNED ACTIONS:

- Establish an Office of Habitat Protection (3/92). Director, Office of Protected Resources

- Implement activities of the new NOAA Habitat Restoration Center, in association with the NOAA Habitat Damage Assessment Center (3/92;6/92;9/92). Director, Office of Habitat Protection

- Conduct activities cooperatively with regulatory and development agencies, and states, to protect and restore coastal habitat (Ongoing). Director, Office of Habitat Protection; all Regional Directors

- Plan effective use of, and apply, Superfund settlements for conservation and restoration of fishery resources (Ongoing). Director, Office of Habitat Protection; Regional Directors, as appropriate

- Assess impacts and monitor trends of habitat contamination under the Coastal Ocean Program (Ongoing). Regional and Science Directors; Director, Office of Habitat Protection

NMFS - 7

OBJECTIVE: *Improve the effectiveness of international fisheries relationships – improve the international framework for the conservation of those transboundary resources that require international cooperation and commitment to maintain their productivity.*

BACKGROUND: Conservation, fishery research, and seafood trade require effective international relationships. The fishery management and protected species jurisdiction of the U. S. is not wide enough to unilaterally conserve all living marine resources important to the Nation. Many living marine resources, such as swordfish, pollock, Pacific halibut, haddock, salmon, tuna, sea turtles and marine mammals are transjurisdictional. In addition, there are important scientific advances that occur outside the U. S., yet the results may be applied to solve America's fishery problems. Events in global seafood markets also affect the competitiveness and economic health of the U. S. fishing industry, and benefit the Nation.

New international management agreements are needed with Pacific Rim nations, Canada, Latin America and many nations that fish the Central Bering Sea. Marine debris cleanup also requires an expanded agreement, and scientific research and communication must be expanded internationally through additional agreements and understandings. Conservation or international allocaton issues ensuing from bycatch of fully utilized species or protected species requires international cooperation to minimize bycatch. Additionally, the U. S. must be positioned to influence international trade negotiations to be more competitive in global seafood markets.

This objective tracks NMFS Strategic Plan Goal 7, Improve the Effectiveness of International Fisheries Relationships.

PLANNED ACTIONS:

- Monitor the effectiveness of existing international agreements (Ongoing). Director, Office of International Affairs; Regional and Science Directors, as appropriate

- Develop mechanisms to coordinate Fishery Management Council Fishery Management Plans with international management agreements (Ongoing). Regional Directors; Director, Office of Conservation and Management; Director, Office of International Affairs

- Advise on issues having serious effects on trade and trade negotiations, including embargoes, through NOAA Issues Reports and NMFS Weekly Reports, to the NOAA Deputy Assistant Secretary for International Interests, and the International Trade Administration (Ongoing). Director, Office of Trade and Industry Services

- Develop contingencies on possible driftnet-related sanctions impacting trade and trade negotiations, in consultation with the NOAA Deputy Assistant Secretary for International Interests and the International Trade Administration (6/30/92). Director, Office of International Affairs

- Evaluate the effectiveness of the agency's organization for handling international research, management and enforcement needs (Ongoing). Senior Scientist; Regional, Science and Office Directors

- Improve international systems to collect and/or obtain access to living marine resource data (Ongoing). Science Directors; Director, Office of International Affairs

- Collect information to improve U. S. competitiveness of fishery products in global markets (Ongoing). Director, Office of Trade and Industry Services; Director, Office of International Affairs

NMFS - 8

OBJECTIVE: *Improve agency management – Implement long-term regional, programmatic and headquarters operations plans to implement the NMFS Strategic Plan and coordinate with other NMFS planning elements.*

BACKGROUND: Rapid expansion of fisheries and other uses of living marine resources, degradation of fishery habitat, increased international relationships and concern for the safety and quality of seafood have led to the development of the NMFS Strategic Plan: Goals and Objectives for 1992-1996. The plan sets forth nine goals, with strategic objectives to accomplish them, to guide the agency's decisions and policies. It seeks to modernize operations, provide efficient administration of research and management activities, including grants programs, and communicate clearly, not only internally but with NOAA, other government agencies, Congress, fisheries constituencies and the general public. It maintains and improves NMFS human capital through leadership development, outlines strategies to train employees and make them ore productive, and addresses development of the technological for competence needed in an increasingly complex management environment. Achieving the goals of the Strategic Plan will require careful coordination of NMFS regional programs, and close linkage with NOAA Administration, Line Offices and Programs, and other organizations that conduct research that supports NMFS' mission.

Although this objective does not directly track a NMFS Strategic Plan goal, activities to achieve agency objectives are specifically directed in the Implementation section of the Plan.

PLANNED ACTIONS:

- Develop regional and national five-year implementation plans to support the NMFS Strategic Plan (5/92). Regional, Science and Office Directors; Senior Scientist

- Develop and implement an agency strategic planning system (6/92). Senior Scientist; Regional, Science and Office Directors

- Develop and implement a national plan to improve NMFS' human resources (6/92). Deputy Assistant Administrator for Fisheries; Regional, Science and Office Directors

- Improve the effectiveness of regional and headquarters Current Year Operating Plans, and develop a system to monitor their effectiveness (9/92). Deputy Assistant Administrator for Fisheries; Regional, Science and Office Directors

- Conduct scientific and peer reviews to evaluate how well NMFS is accomplishing Strategic Plan goals and objectives (Ongoing). Senior Scientist; Regional, Science and Office Directors

- Improve grants management and coordination (Ongoing). Program Management Officer; Regional, Science and Office Directors

National Ocean Service

The mission of the National Ocean Service is to provide scientific and management programs that provide:

* aeronautical and nautical charts and tide tables;

* a network of geodetic control and procedures;

* and, working with state and local governments, programs in physical, biological, and chemical oceanography that assess and preserve the health of the Nation's coastal, marine, and estuarine resources; as well as the monitoring and prediction of the global ocean environment.

NOS-1

OBJECTIVE: *Modernize NOS Program Operations and services. Introduce state-of-the-art technology to improve the quality, timeliness, and cost effectiveness of NOS ocean and coastal products and services.*

BACKGROUND: Investment in new technology to support NOS programs has lagged in recent years; aging systems and equipment are now seriously impacting NOS' ability to meet basic statutory responsibilities. To correct these deficiencies, several program initiatives are underway, foremost among which is a major effort to modernize all phases of the nautical charting program – from data collection through compilation, printing, and distribution, to include the upgrading and expansion of basic oceanographic data collection systems. NOS' modernization efforts will concentrate on acquisition of instrumentation and systems in support of all NOS program activities. In this connection, NOS has undertaken development of the Next Generation of Shipboard Environmental (Data) Acquisition System (SEAS), and of the capability to routinely compare statistics from SEAS reports at the National Centers and take action to remedy discrepancies. Moreover, NOS will assume a leadership role in guiding development of the NOAA-wide Marine 2000 Program.

PLANNED ACTIONS:

- Continue the transition from manual to automated cartographic methodologies while delivering the current suite of products to the Nation's users. Implement state-of-the-art technologies in photogrammetry to support nautical chart activities (5/92). Director, Coast and Geodetic Survey

- Complete development of new generation Shipboard Environmental (Data) Acquisition System (SEAS) by replacing hardware and software systems for meteorological and temperature measurements, and increase satellite communication capability. Improve and expand the SEAS program. Improve data tracking capabilities to reduce errors and data losses (5/92). Increase number of global observations by 5000 (9/92). Director, Office of Ocean and Earth Sciences

- Continue implementing the Next Generation Water Level Measurement System (NGWLMS) through the installation of field units (9/92); develop and implement data processing and analysis subsystem with quality control module (3/92). Director, Office of Ocean and Earth Sciences

- Meet all FAA requirements for current chart production and restructure and implement the Advanced Automation System (air traffic control system). Install new aeronautical chart automation equipment (9/92). Director, Coast and Geodetic Survey

- Continue implementing Digital Ice Forecasting and Analysis System (DIFAS) upgrade through installation of new workstations and workstation software to enhance ice analysis capabilities (9/92). Director, Office of Ocean and Earth Sciences

- Produce a strategic plan for the NOAA Marine 2000 initiative. This is a crosscutting initiative to better manage and develop technological advances across NOAA (9/92). Assistant Administrator

- Complete data collection for 50 charts needed for Automated Nautical Charting System (ANCS II) trial production (4/92), and produce digital nautical chart data sets for the U.S. Electronic Chart Testbed Project (3/92). Director, Coast and Geodetic Survey

- Initiate operation of ocean data management and distribution system at Ocean Applications Branch (OAB) to provide on-line access to NOAA offices; other Federal, state, and local government agencies; and the academic and private sectors (1/92). Director, Office of Ocean and Earth Sciences

NOS-2

OBJECTIVE: *Enhance the application of ocean and earth sciences to understanding and management of resources. Apply current scientific knowledge to improve the overall quality and accuracy of NOS ocean and coastal data collection, monitoring, analysis, and prediction activities.*

BACKGROUND: A strong, interdisciplinary oceanographic program is critical to expanding our knowledge base and advancing our understanding of the ocean system. Accordingly, NOS will focus its efforts on development of an improved ocean monitoring and modelling capability; strengthening the scientific programs in our estuarine reserves and marine sanctuaries; and building stronger links among NOS programs and with the academic community. In support of our goal of incorporating the best available scientific understanding and techniques into our operational data collection, monitoring, assessment, and production activities, particular efforts will be directed toward the NOS geodesy, circulation, and global sea-level programs, and the developing global ocean observation network. Cooperative research projects and planning will be undertaken with NOAA research laboratories.

PLANNED ACTIONS:

- Continue maintenance of the National Geodetic Horizontal Control Network by adjusting station measurements from GPS observations and incorporating additional non-Coast and Geodetic Survey (C&GS) stations (ongoing). Director, Coast and Geodetic Survey

- Continue improvement of the National Geodetic Vertical Control Network by performing and processing new leveling surveys to update and enhance North American Vertical Datum 88 (NAVD 88) (ongoing). Director, Coast and Geodetic Survey

- Extend GEOID90 modeling coverage to include Hawaii (9/92) and design an evaluation plan to use GPS with geoid modeling to determine vertical height values (1/92). Director, Coast and Geodetic Survey

- Complete scientific work in Long Island Sound studying circulation. Complete technical reports, and circulation and water level atlas for Long Island Sound (9/92). Director, Office of Ocean and Earth Sciences

- Conduct two ocean minerals environmental research cruises in the Pacific to collect time series benthic data in support of deep seabed mining research (9/92). Director, Office of Ocean and Coastal Resource Management

- Conduct operational demonstrations of the use of Synthetic Aperture Radar (SAR) data for improved ice forecasting and analyses (8/92). Director, Office of Ocean and Earth Sciences

- Coordinate U.S. Intergovernmental Oceanographic Commission (IOC) and Integrated Global Ocean Services System (IGOSS) activities. Provide direct staff support to IOC First Vice Chairman and U.S. IGOSS Representative (ongoing). Chief, International Affairs Staff

- Participate in bilateral and multilateral activities to promote effective ocean and coastal management. Co-chair Pacific Congress on Marine Science and Technology '92 (6/92). Develop and participate in cooperative international programs, workshops, and activities to provide training and assistance to other countries in planning and management of marine-protected areas; sea-level rise vulnerability assessments and appropriate response strategies; coastal disaster response and hazard mitigation; marine ecotourism and comprehensive coastal zone management (ongoing). Chief, International Affairs Staff

- Work with U.S.Geological Survey, through their Joint Office of Mapping and Research (JOMAR), to support development of a scientific and technical program (Pacific Mapping Program) at the University of Hawaii, and to encourage development of a graduate education program in mapping and charting (Ongoing). Assistant Administrator

- Support NOAA involvement with the National Academy Of Science, particularly Marine Board and Ocean Studies Board efforts in marine science (Ongoing). Assistant Administrator

- Develop strategy, plans, and conceptual design for long-term observations related to global change with focus on the climate change and variability module of a Global Ocean Observing System (GOOS) (9/92). Director, Office of Ocean and Earth Sciences

- Analyze satellite altimeter data from ERS-1 and Topex/Poseidon in near real-time and publish monthly mean values in the NOAA Climate Diagnostic Bulletin (9/92). Director, Office of Ocean and Earth Sciences

- Coordinate with Sea Grant and NMFS in development of cooperative research projects at Reserve and Sanctuary Sites (ongoing). Director, Office of Ocean and Coastal Resource Management

NOS-3

OBJECTIVE: *Enhance NOAA's ocean observation and assessment capability. Continue the development and operation of a comprehensive ocean and coastal observing system which includes assessment of the status and trends of the marine environment.*

BACKGROUND: Development of and increasing population pressures in coastal areas have greatly increased requirements for more detailed, timely information for decision-makers at all levels of government. To satisfy this need, NOS will strengthen NOAA's ocean monitoring capability through measurement and assessment of the health of the ocean and coastal environment. NOS will expand its focus and direct its efforts to development of cost effective and easy-to-use systems for disseminating data and information to users. Emphasis will be placed on development of new interactive work stations and Geographic Information Systems (GIS) capabilities, and on establishment of a National Ocean Communications Network for dissemination of products. Examples include the Exclusive Economic Zone (EEZ) Mapping Program, conducted cooperatively with the U.S. Geological Survey, and publication of a series of reports assessing ocean and coastal environmental health.

PLANNED ACTIONS:

- Continue bathymetric mapping program for the U.S. Exclusive Economic Zone (EEZ), including cooperative efforts with the U.S. Geological Survey through JOMAR. Prepare 16 maps for printing , and update the 10-year National EEZ plan (9/92). Director, Coast and Geodetic Survey

- Participate in, and publish proceedings of, Biennial EEZ Symposium, to be co-sponsored by JOMAR and the American Association of State Geologists, and held in Portland, Oregon in November 1991 (7/92). Director, Coast and Geodetic Survey

- As part of NOAA's effort to form effective Federal/state partnerships, expand the National Status and Trends Quality Assurance Program of interlaboratory analytical comparison exercises to include participation of four additional state and Federal agencies monitoring environmental quality of sediments and biota in estuaries and near coastal waters (7/92). Director, Office of Ocean Resources Conservation and Assessment

- Continue joint NOAA and EPA efforts to assess coastal chemical contamination and resource degradation. Establish a Joint Program Office (3/92), and complete an assessment of the Virginian Province (Cape Cod to Cape Henry) (9/92). Director, Office of Ocean Resources Conservation and Assessment

- Evaluate the effects of hazardous substance disposal in Gulf of the Farallones National Marine Sanctuary. Conduct a baseline ecological assessment (5/92) and complete a study design for environmental risk assessment, refining management alternatives, and future monitoring (9/92). Director, Office of Ocean Resources Conservation and Assessment

- Complete three reports in the NOAA Coastal Trends Series: "Agricultural Pesticide Use" (3/92), "Residential and Non-residential Coastal Development" (3/92), and "State of Environmental Quality of the Nation's Coastal Waters, 1992" (8/92). Director, Office of Ocean Resources Conservation and Assessment

- As part of a NOAA, EPA, and U.S.Coast Guard interagency program at Deepwater Dumpsite 106, analyze sediments for sewage-derived contamination (9/92), and complete a report on chemicals in benthic fishes (4/92). Director, Office of Ocean Resources Conservation and Assessment

- Continue Exxon Valdez Shoreline Recovery Study. Complete final report for Year 2 of Study (12/91). Conduct year 3 field operations and report status (9/92). Director, Office of Ocean Resources Conservation and Assessment

- Continue modernizing the National Water Level Observation Network (NWLON) and data processing system; metrify 75% of NGWLMS units (9/92). Produce interim geophysical data records (IGDRs) containing precise orbits and other environmental corrections from ERS-1 altimeter data to monitor tropical sea level (9/92). Director, Office of Ocean and Earth Sciences

- Improve quality control (QC) of NOS analyses and products by installing hardware and software for an improved Quality Improvement Performance System (QUIPS), including an expert system (SMARTQC) (3/92); expand SMARTQC to include subsurface measurements (9/92). Director, Office of Ocean and Earth Sciences

- In cooperation with Scripps, begin producing bi-monthly sampling control analyses to assess present VOS XBT sampling strategy (10/91). Director, Office of Ocean and Earth Sciences

NOS-4

OBJECTIVE: *Ensure effective ocean and coastal management. Promote the balanced development and protection of our Nation's valuable ocean and coastal resources.*

BACKGROUND: NOS will redouble its efforts to build a strong federal-state partnership aimed at attacking our Nation's persistent coastal environmental problems. NOS will carry out new statutory mandates: build closer cooperative ties with other federal agencies having ocean, coastal, and land management responsibilities; and foster closer internal cooperation with the other NOAA Line Offices. Cooperative programs with states such as Texas help in the establishment of local real-time water level measurement networks which help support the State's Coastal Hazards Program and determine its coastal datums. Tailored products provided to EPA have helped in the assessment of toxic pollutants in the marine environment. Support to Navy contributes to its hydrography and charting programs and overall safe navigation of its ships and submarines. Geodetic information (latitudes, longitudes, and heights for several hundred thousand points which can change significantly with time) defines the reference system used for surveying, mapping, engineering, and scientific activities nation-wide.

PLANNED ACTIONS:

- Maintain the National Geodetic Reference System by incorporating high precision state networks for five states: Washington (1/92), Maryland (1/92), Colorado (6/92), California (12/92), and Montana (9/92). Director, Coast and Geodetic Survey

- Assist the states and Canada in programs for the operation and maintenance of tidal stations and the processing of water level data through cooperative programs with Alaska (5/92), Florida (7/92), and Texas (9/92); and by implementing the 1985 International Great Lakes Datum with Canada (2/92). Director, Office of Ocean and Earth Sciences

- Ensure effective implementation of Coastal Zone Act Reauthorization Amendments of 1990 (ongoing). Director, Office of Ocean and Coastal Resource Management

  - Cooperatively with EPA, promulgate and submit draft regulations for Coastal Nonpoint Source Pollution Control (11/92). Submit final guidance for state Coastal Nonpoint Pollution Control Program development and approval (5/92).

  - Conduct a review of state coastal zone inland boundaries to be used in the development of recommend changes required to control nonpoint source pollution (5/92).

  - Submit for clearance Notice of Final Rulemaking for Enhancement Grants Program and Review of Performance (10/91). Determine funding for new FY 1992 enhancement grants, and final criteria for project selection funding (12/91). Make final project determinations (4/92).

- Monitor issues relating to implementation of the Federal Consistency provisions of the CZMA, including changes made in the statute through the Coastal Zone Act Reauthorization Amendments (ongoing). Director, Office of Ocean and Coastal Resource Management

- Submit Biennial Report to Congress on Coastal Zone Management (4/92). Director, Office of Ocean and Coastal Resource Management

- Submit Deep Seabed Mining Report to Congress (12/91). Director, Office of Ocean and Coastal Resource Management

- Develop an Administration bill and/or position on reauthorization of the Marine Sanctuary Program, Title III of the Marine Protection, Research and Sanctuaries Act (ongoing). Director, Office of Ocean and Coastal Resource Management

- Manage the National Marine Sanctuary Program. Give special emphasis to the new Florida Keys National Marine Sanctuary, including continued development of the management plan (ongoing). Marine sanctuaries scheduled for designation in FY 1992 include: Monterey Bay, CA (8/92); Stellwagen Bank, MA (4/92); Olympic Coast, WA (9/92); and Norfolk Canyon, VA (12/92). Director, Office of Ocean and Coastal Resource Management

- Carry out Florida Keys National Marine Sanctuary Mapping Project in cooperation with the Florida Department of Natural Resources (12/92). Directors, Coast and Geodetic Survey, and Office of Ocean Resources Conservation and Assessment

- Revise the National Marine Sanctuary Program's Site Evaluation List by establishing Site Evaluation List Review Committee and publishing revised Site Identification Process (10/92). Director, Office of Ocean and Coastal Resource Management

- Determine the land and sea areas beyond the jurisdictional boundary of the Florida Keys National Marine Sanctuary which directly affect its water and/or habitat quality. Determination will be based on hydrologic and oceanographic processes which influence variability and transport of water masses into and within the Sanctuary (9/92). Director, Office of Ocean Resources Conservation and Assessment

- Manage the National Estuarine Reserve Program. Continue to develop and update Research Reserve Management Plans for Padilla Bay (9/92), South Slough (9/92), Apalachicola (6/92), and Jobos (6/92). Estuarine Research Reserve Designations scheduled for FY 1992 include: Delaware (6/92); South Carolina ACE Basin (8/92); and South Carolina, North Inlet (4/92). Director, Office of Ocean and Coastal Resource Management

- Begin development of Charleston Harbor (South Carolina) Comprehensive Management Plan. Conduct baseline biological studies, assess all point source discharges, and evaluate hydrographic models. Initiate review, linked to development of South Carolina's Nonpoint Source Pollution Control Program, of nonpoint sources of pollution as required by CZMA Reauthorization Amendments of 1990 (9/92). Director, Office of Ocean and Coastal Resource Management

- Provide leadership and represent NOAA and the Department in the development of Federal policies to better manage marine and coastal resources.

  - Participate on the Domestic Policy Task Force on wetlands and the interagency task group developing a National Marine Protection Policy (Ongoing). Assistant Administrator

- Improve interaction and coordination between NOAA programs and other Federal Agencies to strengthen our respective coastal and ocean management efforts.

  - Work toward development of an interagency coastal resource management initiative focused on Federal management activities in habitat protection, contaminated sediments, and non-point source pollution (Ongoing). Director, Office of Ocean and Coastal Resource Management

  - Represent NOAA in coordinating with the Department of Interior's National Water Quality Assessment Program and the Department of Agriculture's Water Quality Program (Ongoing). Director, Science, Planning, and Analysis

NOS-5

OBJECTIVE: *Ensure protection of life and property. Produce accurate and timely products and services, to aid those whose lives and property are at risk in marine and coastal areas from natural and man-induced hazards.*

BACKGROUND: NOS makes an essential contribution to protecting the lives and property of those who live and work around the Nation's coastal and offshore waters, as well as users of our national airspace. Through a wide range of activities which include nautical and aeronautical charting, hazardous materials, tide and water level programs, ice forecasting, and coastal hazards programs, NOS makes our coastal and ocean areas a safe environment. NOS will continue to provide accurate products which portray and forecast atmospheric, ocean, and coastal characteristics and, hazardous phenomena, and will continue to respond to and assist with hazardous situations arising from both man made and natural events. During the year, major emphasis will be directed at updating nautical charts, completing digital compilation of photogrammetric shoreline surveys, expanding support to hazardous spill responses, strengthening coastal hazard planning and coordination, and enhancing monitoring and forecast capabilities.

PLANNED ACTIONS:

- Edit and produce new nautical chart editions for printing and publication in critical area's of the Nation's waterways. Complete digital compilation of photogrammetric shoreline surveys (ongoing). Director, Coast and Geodetic Survey

- Prepare report to the Congress on the impact of user charges on chart sales. The draft narrative will be completed by 7/92; Final report is due 10/92. Director, Coast and Geodetic Survey

- Furnish real-time tide and Great Lakes water level data to NWS forecast and Tsunami warning centers, HAZMAT operations, marine navigators, and the Army Corps of Engineers. Publish and distribute tide and current prediction publications including Tide Tables and Coast Current Tables in support of commerce and safety (ongoing). Director, Office of Ocean and Earth Sciences

- Produce timely and accurate aeronautical charts according to requirements developed by the FAA; create a data base for Enroute Low Altitude Charts (4/92); recompile six FAA Air Traffic Control System Command Center Charts (8/92); and provide civil distribution of Defense Mapping Agency products (ongoing). Director, Coast and Geodetic Survey

- Complete implementation of a coastal real-time monitoring system in Tampa Bay to enhance safety of navigation. Finish a numerical circulation model simulation and a circulation survey report (7/92). Director, Office of Ocean and Earth Sciences

- Transfer Tampa Bay Physical Oceanographic Real-Time System (PORTS) to State of Florida (7/92). Director, Office of Ocean and Earth Sciences

- Participate in bilateral activities to maintain and expand ice forecasting capabilities. Manage activities of the U.S./Canada Joint Ice Working Group (ongoing). Chief, International Affairs

- Expand coverage and services provided by the Joint Ice Center including development and implementation of a 7-day ice forecast verification database and display method for the entire Arctic (12/91). Implement a communications link and failure back-up plan with Ice Centre Environment Canada for exchange of data and products (5/92). Director, Office of Ocean and Earth Sciences

- Develop a comprehensive set of trajectory analysis routines (TARMAC) for major harbors and waterways that will provide both circulation and transport information for use by US Coast Guard and industry during oil spill events or for contingency planning activities (9/92). Director, Office of Ocean Resources Conservation and Assessment

- Develop and implement a prototype state Oil Pollution Act training program for spill response operations. Complete Oil Spill Response Training for the California Office of Oil Spill Prevention and Response (12/91). Director, Office of Ocean Resources Conservation and Assessment

- In cooperation with the U.S. Bureau of the Census, complete the design and prototype of a microcomputer- based rapid mapping program (MARPLOT) that will interface with the nationwide system of digital TIGER/Line (census data) maps (12/91). Complete a MARPLOT program which provides general mapping for coastal planing and management applications developed within HAZMAT or by second party developers (e.g., Marine Spill Response Corporation [MSRC], state and local responders, and Coastal Zone Management [CZM] agencies) (7/92). Director, Office of Ocean Resources Conservation and Assessment

- As a follow-up to studies conducted after Hurricane Hugo, develop an NOS natural disaster response protocol to serve as a prototype for similar efforts in other NOAA components, and possibly be adopted as the formal NOAA Natural Disaster Response Protocol (9/92). Director, Office of Ocean and Coastal Resource Management

- Identify and investigate potential injury to NOAA trust resources, and develop mitigative actions at approximately 500 hazardous waste sites (ongoing). Conduct a complete ecological risk assessment at the high priority Metal Bank of America site located in EPA Region 3 (2/92). Publish NOAA reports on new National Priority List hazardous waste sites and complete additional Preliminary Natural Resource Surveys on identified priority sites (9/92). Director, Office of Ocean Resources Conservation and Assessment

NOS-6

OBJECTIVE: *Implement the technical aspects of NOAA's natural resource trustee responsibilities. Serve as steward and trustee for our ocean and coastal resources to ensure their health and vitality for future generations.*

BACKGROUND: NOS will carry out its responsibilities under Superfund, the Oil Pollution Act of 1990 (OPA), and related statutes. Efforts will be directed at implementing program guidelines and regulations for the conduct of damage assessment and the calculation of economic loss. Under OPA, NOAA is required to take the lead in promulgating regulations for the assessment of natural resource damages resulting from oil discharges in U.S. navigable waters. In implementing NOAA's natural resource trustee responsibilities under the Superfund Act, NOS' Coastal Resource Coordination program has evaluated nearly 500 coastal hazardous waste sites since 1984, and concluded approximately 50% of them might constitute a threat to marine and coastal resources. NOAA's new Damage Assessment and Restoration Center, a joint operation which combines the scientific capabilities of NOS and NMFS with the legal expertise of the Office of General Counsel, in using this information to pursue damage claims against potentially responsible parties.

PLANNED ACTIONS:

- Provide technical assistance to the Office of General Counsel team writing regulations required by the Oil Pollution Act for the assessment of natural resource damages from oil spills (9/92). Director, Office of Ocean Resources Conservation and Assessment

- Develop technical guidance for biological assessment methods used for evaluating contaminated coastal habitats. Complete a bioassessment technical guidance manual for the Superfund remedial process (3/92). Complete a sediment toxicity and sediment chemistry evaluation report (9/92). Director, Office of Ocean Resources Conservation and Assessment

- Initiate pre-spill damage assessment planning at the regional level with other Federal and state trustees of coastal resources (12/91). Director, Office of Ocean Resources Conservation and Assessment

- Initiate up to five natural resource damage investigations at coastal Superfund sites and at oil spills with the potential to affect significantly NOAA trust resources (9/92). Director, Office of Ocean Resources Conservation and Assessment

- Develop recommendations for continuing EXXON VALDEZ damage assessment and restoration projects in coastal Alaska (2/92). Director, Office of Ocean Resources Conservation and Assessment

- Implement damage assessment contingency planning prototype for the National Marine Sanctuaries Program. Implement and test the prototype in the Channel Islands National Marine Sanctuary. Develop and implement improved prototype for either Farallones or Florida Keys (8/92). Director, Office of Ocean and Coastal Resource Management

- Develop a policy governing the expenditure of funds recovered pursuant to the Marine Pollution, Research, and Sanctuaries Act, emphasizing restoration and management of the affected sanctuary (12/91). Director, Office of Ocean and Coastal Resource Management

- In conjunction with NOAA's General Counsel, interpret NOAA's natural reserve trustee responsibilities in the National Estuarine Research Reserves (7/92). Director, Office of Ocean and Coastal Resource Management

- Complete the Injury Determination Plan (11/91), and the Economic Damage Determination Methodology for the Southern California (Montrose) case (6/92). Director, Office of Ocean Resources Conservation and Assessment

NOS-7

OBJECTIVE: *Lead selected elements of the NOAA Climate and Global Change Program. Improve understanding of the role of the oceans in global climate change.*

BACKGROUND: NOS will continue its involvement in the NOAA-wide Climate and Global Change Program and assume lead role in sea level and surface upper ocean-related activated. NOS global ocean observation and monitoring programs provide key scientific data and information to aid researchers in studying changes in the earth system. NOS also provides operational support of the International Tropical Ocean and Global Atmosphere (TOGA) program, collecting Expendable Bathythermograph (XBT) data, and data from ocean buoys and other platforms. NOS initiated, and plans to provide substantial support to, the ocean observation program and will continue deployment of the new global sea level network. Implementation of the International Very Long Baseline Interferometry Global Positioning System networks will continue, as will NOS' technical and administrative support of the International Oceanographic Commission to expedite development and implementation of a Global Ocean Observation System.

PLANNED ACTIONS:

- Continue implementing the in-situ portion of the Global Sea Level (GSL) Program by: installing seven additional stations to the GSL network and constructing a climatology of sea level variability in the tropical oceans (9/92), and completing the first of five phases of digitizing historical tidal data (8/92). Director, Office of Ocean and Earth Sciences

- Continue operation of the Surface Upper Ocean Observing Program (SUOOP), by fully implementing the Atlantic Volunteer Observing Ship (VOS) Program in support of World Ocean Circulation Experiment (WOCE) activities (5/92); developing a sea surface temperature and salinity reporting system for VOS (6/92); and deploying 60 buoys as part of the Drifting Buoy Pilot program (9/92). Director, Office of Ocean and Earth Sciences

- Continue implementing the international Very Long Baseline Interferometry (VLBI)/ Global Positioning System (GPS) networks by: completing construction and beginning routine observations at Brazilian VLBI observatory (9/92); installing Global Positioning System (GPS) receivers in Brazil and Nigeria and making the stations part of the International GPS Network (1/92); and Upgrading GPS receivers at Westford, MA and Richmond, FL to next generation GPS units (4/92). Director, Office of Ocean and Earth Sciences

- Complete next generation absolute gravity meter development and begin operational testing (8/92). Director, Office of Ocean and Earth Sciences

NOS-8

OBJECTIVE: *Lead selected elements of the NOAA Coastal Ocean Program. Advance knowledge of coastal ocean processes.*

BACKGROUND: There is great interest in coastal environmental programs. As pressure for regulation and enforcement increases, so will the need for information about the coastal environment. Systematic monitoring of changes in the coastal ocean environment is essential to documenting natural and human-induced changes and making effective public management decisions addressing problem areas. NOS has led planning for the Coastal Ocean Program's observation and prediction element, whose primary objective is to observe, model, and forecast conditions in the coastal ocean important to commerce, recreation, research, environmental management, and emergency response. For example, in response to a request from the State of North Carolina, NOS will continue its cooperative effort with NMFS to support the study of submerged aquatic vegetation (SAV) with the goal of inventorying and detecting changes in that State's coastal wetlands. SAV habitats are major features of the North Carolina coast.

PLANNED ACTIONS:

- Provide support, in the form of products and services, to the study of submerged aquatic vegetation (SAV). Additionally, in cooperation with NMFS, print the third SAV chart in the series, depicting changes in SAV between 1985 and 1988. Photograph SAV in Pamlico Sound, North Carolina, and provide NMFS photographs of that area for use in future SAV chart production (11/91). Director, Coast and Geodetic Survey

- Establish a nutrient overenrichment monitoring program to diagnose the extent and severity of eutrophication and hypoxic/anoxic problems in U.S. estuaries and coastal waters. Develop a program plan, conduct a national workshop, and initiate a pilot program (7/92). Director, Office of Ocean Resources Conservation and Assessment

- Conduct bioeffects surveys and complete progress reports on the magnitude and extent of biological degradation due to toxic contaminants in Tampa Bay, and the Southern California Bight (6/92). Complete an operational plan for a bioeffects survey for the Western Basin of Lake Erie (9/92). Director, Office of Ocean Resources Conservation and Assessment

- Continue implementing "COMPAS" (Coastal Ocean Management, Planning and Assessment System) Desktop Information Study by: completing a cooperative project with the Texas Water Commission to develop a system to improve natural resource management by State agencies (2/92); and initiating the development phase of a cooperative project with Florida, placing highest priority on applications for southern Florida and the Florida Keys NMS (ongoing). Director, Office of Ocean Resources Conservation and Assessment

- Provide satellite and shipboard data and products in an operational mode to CoastWatch sites at Narragansett, La Jolla, Seattle, Bay St. Louis, and Miami (9/92). Director, Office of Ocean and Earth Sciences

- Complete first of two phases of digitizing historical water level data for Coastal Ocean Program (7/92). Director, Office of Ocean and Earth Sciences

NOS-9

OBJECTIVE: *Participate in the NOAA Environmental Data and Information Management Initiative. Support efforts to deal with data recovery and access problems for valuable marine data sets.*

BACKGROUND: NOS processes, maintains, uses, and disseminates an inestimable volume of divergent types of marine data, much of which is valuable, critical, and irreplaceable. NOS will focus its efforts on recovery of and access to key time-series data sets in need of immediate attention.

PLANNED ACTIONS:

- Continue data rescue/access activities begun in FY 1991.
  - Complete rescue of JIC sea ice data via contract with University of Illinois (8/92). Director, Office of Ocean and Earth Sciences
  - Complete digitizing tidal benchmarks for all primary stations (8/92). Director, Office of Ocean and Earth Sciences
  - Convert EEZ multibeam data to appropriate format for distribution to the National Geophysical Data Center (4/92). Director, Coast and Geodetic Survey
  - Prepare procurement specifications for optical character recognition equipment required to convert vertical control data now on deteriorating paper to digital format (10/91). Director, Coast and Geodetic Survey
- Begin new data rescue/access activities funded by ESDIM in FY 1992.
  - Produce detailed data inventory/description of all NOS data holdings (9/92). Directors, Office of Ocean Resources Conservation and Assessment, and Coast and Geodetic Survey
  - Begin rescue of ocean tide/current metadata for all active stations published in NOS Prediction Tables (9/92). Director, Office of Ocean and Earth Sciences
  - Develop GIS-based digital bathymetric and shoreline data set for establishing coastal ocean planning, assessment, and management applications (7/92). Directors, Office of Ocean Resources Conservation and Assessment, and Coast and Geodetic Survey

NOS-10

OBJECTIVE: *Enhance NOS Management and Administration. Pursue efforts to streamline NOS operations to achieve efficiency and effectiveness in the achievement of program goals and objectives.*

BACKGROUND: NOS will undertake a number of efforts aimed at improving administrative processes. Efforts will focus on the implementation of new budget tracking for senior management and better organization of NOS' employee recognition and awards program.

PLANNED ACTIONS:

- Continue to monitor and report progress against the NOS objectives in NOAA's Annual Operating Plan. Enhance the monthly AOP reporting mechanism to include NOS internal supporting objectives (12/91). Director, Office of Management and Budget

- Enhance financial status reporting to NOS management. Provide a new monthly summary depicting the distribution and status of all funds, and alert NOS management to significant budget execution issues (ongoing). Director, Office of Management and Budget

- Improve NOS's capability to monitor personnel resource data and support financial planning. Develop a new mechanism interfacing position control information with full time equivalency data (3/92). Director, Office of Management and Budget

- In consonance with NOAA's emphasis, continue to foster and facilitate development of electronic medium for enhanced communication throughout NOS and with NOAA. Expand NOS use of NOAA's Banyan Network (ongoing). Director, Office of Management and Budget

- Market NOS programs more fully throughout the user community using such mechanisms as ecotourism and the NOS product index identification matrix (ongoing). Chief, International Affairs

- With particular emphasis on the NOS Employee of the Year Award, enhance the NOS employee recognition and award system. Develop and implement new methodologies for publicizing awards and recognizing awardees (1/92). Director, Office of Management and Budget

- Develop a budget strategy for FY 94 emphasizing the value to the Nation of NOS programs (3/92). Director, Office of Management and Budget

- Design and implement a program under which, each year, 2 to 4 GS/GM 12-14 managers, having demonstrated unusually high potential for positions of greater responsibility, are selected for a series of rotational developmental assignments within NOS. These assignments, both line and staff positions, will maximize development of managerial acumen, and provide exposure to the broad spectrum of NOS programs (6/92). Director, Office of Management and Budget

- Revitalize the Upward Mobility Program by encouraging establishment of appropriate upward mobility positions throughout NOS, and ensuring selection of the best qualified candidates (ongoing). EEO Coordinator

- NOS will support the Department and NOAA policy of equal employment opportunity to all persons by working to increase employment and advancement opportunities of those groups showing a manifest imbalance in or a conspicuous absence from the workforce. Furthermore, NOS will continue to cooperate with agency officials in all aspects of the discrimination complaint process (ongoing). EEO Coordinator

- Conduct a schedule of external peer reviews covering the scientific components of selected NOS programs, in cooperation with the NOAA Chief Scientist's office (ongoing). Chief Scientist

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH

OAR's mission is to conduct research and technology developments to improve the prediction of the atmospheric and marine environments and the management of marine resources.

Its comprehensive research programs provide the basis for improvements in NOAA's present services and the direction for meeting the problems of tomorrow.

OAR-1

OBJECTIVE: *Safety of Life and Property from Natural Hazards*

BACKGROUND: NOAA is concerned with providing information regarding natural hazards and other potentially devastating events so that people can take appropriate actions to protect their lives and property from events such as tornadoes, flash floods, hurricanes, volcanic eruptions, and geomagnetic storms. Much of this information is provided in the form of forecasts and warnings. The costs of lost life (e.g., 500 fatalities per year from hazardous weather events) and property (e.g., a potential $3 billion loss from a severe geomagnetic storm) are staggering. NOAA actively seeks to improve the timely and accurate provision of information to the Nation to reduce these costs.

OAR has several programs to better understand the processes behind natural hazards and to make this knowledge useful via improved predictive techniques and models. OAR's large weather research program seeks to understand mesoscale phenomena, develop predictive models, and generate forecast techniques in support of Weather Services Modernization. Also, OAR uniquely provides civilian space environment services, including monitoring solar activity and issuing forecasts and warnings. OAR continually improves these services by seeking information from new data sources, developing new forecasting techniques, and conducting process research to better understand the Earth-Sun system.

PLANNED ACTIONS:

- Weather Research:

  - Prepare the Mesoscale Analysis and Prediction System (MAPS) for the rapid update analysis and prediction cycle (1/92, 3/92, 9/92). Director, Forecast Systems Laboratory (FSL)

  - Simulate squall line behavior with a mesoscale model (2/92). Director, Geophysical Fluid Dynamics Laboratory (GFDL)

  - Evaluate liquid water content obtained from a dual-wavelength radar system for detecting regions of hazardous aircraft icing in winter storms (2/92). Director, Wave Propagation Laboratory (WPL)

  - Complete the Flatland Radar Observatory by adding a 915 MHz lower troposphere radar (3/92). Director, Aeronomy Laboratory (AL)

  - Determine impact of Omega dropwindsondes on hurricane track forecasts (4/92). Director, Atlantic Oceanographic and Meteorological Laboratory (AOML)

  - Participate in the STORMFEST field program (4/92). Director, National Severe Storms Laboratory (NSSL)

  - Report results of the COPS-91 field experiment (4/92). Director, NSSL

- Examine potential vorticity life cycles during extratropical cyclogenesis (5/92). Director, WPL

- Study mesoscale weather systems, heat flux, and clear air turbulence using the Wind Profiler Demonstration Network (6/92, 7/92, 8/92, 9/92). Directors, WPL, NSSL, and FSL

- Develop an airborne computer workstation for improved hurricane forecasting (9/92). Director, AOML

- Develop a three-layer numerical model for hurricane prediction (9/92). Director, AOML

• Solar-Terrestrial:

- Implement a ten-year solar-cycle forecast (12/91). Director, Space Environment Laboratory (SEL)

- Develop a prototype for improved network-user interface (5/92). Director, SEL

- Analyze the thermodynamics of solar flares, jointly with Poland (8/92). Director, SEL and Chief, International Activities Staff (IA)

- Implement real-time data link for the NASA/SWIM satellite (8/92). Director, SEL

- Implement a probability format for geomagnetic forecasts (9/92). Director, SEL

• Emergency Support:

- Provide automated, world-wide volcanic plume forecast visualizations (5/92). Director, Air Resources Laboratory (ARL)

OAR-2

OBJECTIVE: *Economic Efficiency and Competitiveness*

BACKGROUND: Because the ocean and atmosphere affect the national economy in diverse and significant ways, NOAA is committed to improving the Nation's economic efficiency and competitiveness. A broad range of U.S. economic sectors rely on the timely and effective collection and analysis of highly detailed environmental information. To improve the quality of this information, OAR develops instruments for measuring environmental phenomena with greater precision and creates practical, economic applications for environmental information.

PLANNED ACTIONS:

- Technology Development and Enhancement:

  - Work with the University of New Mexico to evaluate the combined use of a Fourier Transform Infrared Spectrometer and scintillometers to measure space-average fluxes of trace gases and water vapor (1/91). Director, WPL

  - Conduct tests and calibrations necessary to use a Fourier Transform Infrared Spectrometer to measure water vapor profiles in the atmosphere (4/92). Director, WPL

  - Collaborate with the U.S. Air Force to assess the feasibility of using existing over-the-horizon defense radars to map surface wind direction in the North Pacific and North Atlantic oceans (4/92). Director, WPL

  - Complete model for improved guidance for design of rubble- mound breakwaters (6/92). Director, Oceanic Research Programs (OR)

  - Complete an assessment on the selectivity of different types of fish netting and survival of netted fish in ground fish trawls used in New England (6/92). Director, OR

  - Test and calibrate a new transportable lidar system capable of improved measurements of trace gases and atmospheric turbulence (7/92). Director, WPL

  - Complete the development of an airborne dual-channel microwave radiometer, conduct laboratory and flight tests of the radiometer system, and evaluate the performance of the system in measuring cloud water and precipitation (8/92). Director, WPL

  - Implement a cooperative program with Taiwan to establish a Program for Regional Observing and Forecasting Services (PROFS) within Taiwan's Central Weather Bureau, including the development of nowcast system workstations and technology support for forecast analysis (8/92). Director, FSL, and Chief, IA

- Design and operate an acoustic test bed for evaluating new approaches to sound reduction in operation of the Radio Acoustic Sounding System (RASS) (9/92). Director, WPL

- Develop, in cooperation with private sector companies, a wind profiling device appropriate for commercial applications (9/92). Director, AL

• Practical Applications of Marine Biotechnology:

- Investigate the potential uses of marine bacteria products in medicine and medical research (10/91). Director, OR

- Compare pharmacological properties of compounds from lower marine vertebrates as a guide to potential new drugs, and determine the structures and properties of marine compounds with potential for development in the chemical or pharmaceutical industries (10/91, 5/92). Director, OR

- Promote and develop a cooperative program for aquaculture and fisheries biology between the United States and the Peoples Republic of China (12/91). Director, OR, and Chief, IA

- Convene a national workshop to address low-level seafood contamination problems associated with certain pathogenic bacteria (12/91). Director, OR

- Collaborate with the seafood industry and the Environmental Protection Agency to develop a national symposium and research strategy for addressing waste management in the seafood processing industry (12/91). Director, OR

- Complete an investigation designed to aid in strain selection of lake trout best suited to restore this species in Lake Ontario (1/92). Director, OR

- Develop an interactive computer program for advising commercial aquacultural producers of new developments in systems for recirculating water (6/92). Director, OR

- Develop gene probes for viruses that cause diseases in aquacultural species (8/92). Director, OR

OAR-3

OBJECTIVE: *Environmental Management*

BACKGROUND: As the twin pressures of population growth and economic development increasingly stress our Nation's natural environment, environmental management is becoming critically important to preserving the quality of life in America. However, environmental management does entail an economic cost, a cost which becomes unacceptably high when control measures are either ineffective or inefficient. NOAA and OAR are uniquely positioned to study the physical processes responsible for environmental problems and to provide a *scientific* basis for developing cost-effective environmental controls.

OAR's air quality research combines atmospheric science and meteorology to develop a monitoring framework to support air quality regulations, and allows prediction of air quality crises through better understanding of their development. Research on atmospheric chemistry is providing critical answers for decision makers on issues of stratospheric ozone depletion, greenhouse gases, and implementation of the Clean Air Act Amendments.

NOAA is legislatively mandated to conduct water quality research and monitoring. These efforts are providing a better understanding of ecosystem function and the stresses on these systems. OAR is also developing new techniques for monitoring water quality and transport of contaminants.

Finally, OAR is aggressively pursuing research on the introduction of non-indigenous species, such as the zebra mussel, which have potentially catastrophic effects on marine ecosystems.

PLANNED ACTIONS:

- Air Quality Research:

  - Study the Kuwaiti oil fire plumes to help understand their environmental and health consequences and assess plume characteristics and variability of the near-source plume chemistry (10/91, 1/92). Director, ARL, and Chief, IA

  - Analyze wind fields at Rocky Flats to assist emergency response to accidental release of noxious compounds (3/92). Director, WPL

  - Model long-term behavior of Chernobyl fallout in Lake Sniardwy, Poland, to describe the behavior of radionuclides in the water column, sediment, and fish (4/92). Director, Great Lakes Environmental Research Laboratory (GLERL), and Chief, IA

  - Apply wind profiler data to regional mesoscale numerical models to support air-quality predictions (6/92, 8/92). Director, WPL

  - Conduct joint US-Poland study on humidity and air circulation in the historical Wieliczska salt mine, famous for its unusual salt carvings (9/92). Director, ARL, and Chief, IA

- Atmospheric Chemistry:

  - Study exchange of ozone and its precursors between the surface and free troposphere to predict ozone distributions, using data from the Rural Oxidants in the Southern Environment (ROSE) experiment (2/92). Director, AL

  - Estimate level of backscattering of solar UV radiation by aerosols formed from anthropogenic emissions (3/92). Director, AL

  - Report on growth and distribution of halons, compounds involved in stratospheric ozone depletion and regulated by the Montreal Protocol (6/92). Director, Climate Monitoring and Dynamics Laboratory (CMDL)

  - Determine the lifetimes and stratospheric ozone depletion potential of potential replacements for chlorofluorocarbons (CFCs) (7/92). Director, AL

  - Investigate the atmospheric fate of perfluorochemicals, long-lived greenhouse gases from industrial processes; determine their global warming potential for regulatory use by EPA and the United Nations (9/92). Director, AL

- Water Quality Research:

  - Continue Chesapeake Bay Environmental Studies: publish results of 5-year study on low dissolved oxygen in the Bay; conduct a workshop on the first year's research on transport, fate, and ecosystem effects of toxics; select and fund projects for Year 3 of the Toxics Program; and develop and distribute maps of plankton chlorophyll and biomass (10/91, 12/91, 5/92, 8/92). Director, OR

  - Describe relationships of seep faunas to one another and growth and mortality of members of these communities (3/92). Director, National Undersea Research Program (NURP)

  - Study the effects of sewage sludge dumping (3/92, 5/92). Director, NURP

  - Complete preliminary studies of "The Point," a unique area of enhanced productivity (5/92). Director, NURP

  - Begin coral-reef ecosystem research: install initial environmental monitoring system in Looe Key Marine Sanctuary and establish biological benthic monitoring protocols (6/92). Director, AOML

  - Conduct joint US-USSR research on the effects of contaminated waters (oil spills, pollution) on diving physiology (6/92). Director, NURP, and Chief, IA

  - Characterize dispersion of ocean outfall wastewater and discharged dredged particulate material using acoustic imaging (9/92). Director, AOML

- Non-Indigenous Species Research

  - Complete and distribute the Sea Grant Non-indigenous Species Task Force Report and expand the existing zebra mussel research program and fund new projects (1/92, 6/92). Director, OR

  - Develop a protocol for controlling the spread and escape of nuisance non-indigenous species from experimental research facilities (3/92). Director, OR

  - Assess the ecological consequences of the exotic cladoceran, *Bytheotrephes*, in Lakes Michigan and Erie (3/92). Director, OR

  - Complete initial investigations of the potential role of the zebra mussel in cycling organic contaminants in the Great Lakes (6/92). Director, GLERL

  - Report on a two-year study on the effects of zebra mussel invasion on the Saginaw Bay ecosystem (9/92). Director, GLERL

OAR-4

OBJECTIVE: *Conservation of Natural Resources*

BACKGROUND: Conservation of the natural resources of our oceans and Great Lakes is a growing national concern. OAR contributes to the conservation of fisheries by identifying and modelling the physical, chemical, and biological parameters that affect survival during early life stages of organisms and the health of the marine environment in which they live. Increased understanding of natural factors behind fluctuations of fish stocks enables managers to predict abundances with greater accuracy and reduces both biologic and economic risk and uncertainty.

Similarly, conservation of the Nation's water resources demands an understanding of natural variability in the hydrologic cycle of water exchange between the ocean, atmosphere, and continents.

Fisheries and water resources constitute two of the most critical resource management problems facing the Nation over the next decade. OAR's elucidation of natural variability addresses a major component of observed changes and is expected to contribute to potential solutions.

PLANNED ACTIONS:

- Fisheries Oceanography:

  - Use time-series fisheries abundance data to determine the critical life stage for setting the year-class size of walleye pollock in the Gulf of Alaska (1/92). Director, Pacific Marine Environmental Laboratory (PMEL)

  - Submit manuscripts describing how fisheries are affected by biological, chemical, and physical processes, including eddies in the Shelikof Strait (1/92). Director, AOML

  - Develop fisheries assessment techniques using submersibles and remote operating vehicles (ROVs) in fisheries research (3/92, 6/92). Director, NURP

  - Describe the relationship of postlarval lobster abundance to oceanographic and meteorological conditions (5/92). Director, NURP

  - Produce a model of juvenile queen conch distributions to predict future recruitment (5/92). Director, NURP

  - Produce guidance for Fishery Management Councils on social impact assessment, especially regarding limited access management plans (7/92). Director, OR

  - Conduct a field study on how biological patterns are physically determined in the Alaskan Coastal Current (8/92). Director, AOML

  - Develop and verify a wind-forced, multilayer circulation model for the Bering Sea (8/92). Director, PMEL

  - Prepare a synthesis of a research effort focused on the Gulf Stream Front's role in larval fish recruitment and survival (8/92). Director, OR

- Hydrology:

  - Determine what water level statistics are needed by Great Lakes resource planners and managers and develop a program to provide the data (7/92). Director, GLERL

  - Apply hydrologic simulation models to the study of potential effects of climate change in the Caspian Sea Basin (9/92). Director, GLERL, and Chief, IA

OAR-5

OBJECTIVE: *Earth Science Research and Education*

BACKGROUND: Research and education in the Earth sciences in the 1990s is important to NOAA and the Nation for several reasons. Advances in the Earth sciences directly translate into opportunities for NOAA to fulfill its national missions. NOAA can stimulate progress in the Earth sciences community through its collection of data, development of models, and publication of research findings. These research activities are intimately linked to the needs of the academic community, and this match helps ensure a continuing supply of the highest caliber scientific and technological talent to industry, government, and academia. Additionally, the effective communication to the public of information developed from NOAA's research in Earth sciences provides for responsive decision making and enhances the role of an informed citizenry.

OAR's role in Earth science research and education focuses on ocean and Great Lakes research, arctic science, direct support of education, and leveraging resources through international cooperation.

PLANNED ACTIONS:

- Ocean and Great Lakes Research

  - Use oceanographic and geodetic data in a dynamic model to determine the true sea level change at Miami, FL (1/92). Director, AOML

  - Develop an integrated undersea research program in the Florida keys (1/92, 2/92, 4/92, 7/92). Director, NURP

  - Establish a system to record T-phase acoustic signals associated with hydrothermal processes and determine settings and controls of hydrothermal activity along the Gorda Ridge (VENTS) (2/92, 9/92). Directors, PMEL and AOML

  - Report on characteristics of hydrothermal features and study hydrothermal processes under the US-France Bilateral Agreement on the Mid-Atlantic Ridge (2/92, 9/92). Director, AOML, and Chief, IA

  - Incorporate additional hydrographic and surface meteorological data into numerical ocean-circulation models for improved oceanic climatologies (7/92). Director, AOML

  - Utilize GEOSAT sea-surface-height data for investigation of Pacific Ocean currents and mesoscale eddies (7/92). Director, AOML

  - Calibrate inorganic carbon measurements from the Equatorial and South Atlantic Radiatively Important Trace Species (RITS)/CO_2 cruise (summer 1991) and report on aqueous inorganic carbon data (7/92). Director, AOML

- Conduct the Lake Michigan thermal fronts study: analyze field measurements of vertical temperature and velocity structure; improve model of springtime thermal stratification regime and associated biological/chemical responses (8/92, 9/92). Director, GLERL

- Arctic Science:

  - Participate in Arctic Leads (LEADEX) Field Program to study the dynamical effects of leads on oceanic and atmospheric boundary layers; conduct synoptic aircraft-based field program (6/92). Directors, WPL and CMDL

  - Report results of the first two years of a joint US-USSR field study to define circulation in the Bering and Chukchi Seas (7/92). Director, PMEL, and Chief, IA

- Education:

  - Complete a Global Change Education long-range planning document for the Office of Global Programs; begin an intensive program to train educators (6/92). Director, OR

  - Educate water users on technologies to control proliferation of zebra mussels (8/92). Director, OR

  - Continue NOAA/National Research Council Research Associateship Program, bringing highly qualified researchers to NOAA for diverse research opportunities (9/92). Director, Environmental Research Laboratories (ERL)

  - Collaborate with universities through the NOAA/ERL Joint Institutes Program (9/92). Director, ERL

- International Scientific Cooperation:

  - Report on a visit to Mongolia to explore cooperative research possibilities including lake studies and atmospheric trace gas monitoring (10/91). Directors, GLERL and CMDL, and Chief, IA

  - Participate in a meeting in Guangzhou, PRC, to continue cooperation under the Marine and Fisheries Agreement, emphasizing fisheries, aquaculture, and the PRC role in the Tropical Ocean-Global Atmosphere / Cooperative Ocean Atmosphere Response Experiment (TOGA/COARE) (1/92). Chief, IA

  - Send a delegation to India to continue developing cooperative research which may add areas in sea level measurement, fisheries, and marine habitat studies (3/92). Chief, IA

- Host a workshop, with NSF and Navy, to formulate a strategy for realistic, collaborative US-USSR ocean science (3/92). Chief, IA

- Host the second meeting of the Joint Committee to continue joint research planning under the US-USSR Ocean Studies Agreement (6/92). Chief, IA

OAR-6

OBJECTIVE: *Modernization of Weather Programs*

BACKGROUND: By the mid 1980s, NOAA recognized that its weather forecast and warning operations needed major changes to be able to satisfy the Nation's weather information requirements for the 1990s. Three major problem areas warranted attention:

(1) The National Weather Service's **equipment** for weather observation, analysis and communications had become obsolete, unreliable, and costly to maintain;

(2) Most of the weather related technologies in NWS field offices were highly **labor intensive** and could not be easily combined into a single operational system; and,

(3) Major **service deficiencies** inherent in the weather technologies limited the effectiveness of severe weather and flood warning operations.

However, recent scientific and technological advances will permit a comprehensive modernization of the NWS that will be able to respond to the above problems during the 1990s.

OAR supports the NWS modernization by strengthening the understanding of weather phenomena, developing new observational techniques, and capitalizing on the deployment of new generation remote observation systems and modernized computing and data processing technologies. This research and development will maximize productivity and efficiency improvements and achieve the prediction potential inherent in the modernized and restructured NWS.

PLANNED ACTIONS:

- Improve the ability of NEXRAD algorithms to detect severe weather events reliably, with focus on mesocyclone and hail algorithms (3/92). Director, NSSL

- Develop Gridded Representation of Analysis and Forecasts (GRAF) to improve NWS forecaster productivity (3/92). Director, FSL

- Complete installation and acceptance tests for all field components of the Wind Profiler Demonstration Network (WPDN) (3/92). Director, FSL

- Test a new data editor for WPDN data to improve data quality (4/92). Director, WPL

- Identify and solve sources of systematic problems in wind profilers of the WPDN (7/92). Director, FSL

- Establish the accuracy of RASS measurements of virtual temperature profiles by comparison with radiosonde data (7/92). Director, WPL

- Integrate remote sensor data by retrieving individual temperature profiles from ground-based RASS and space-based radiometer data and developing techniques for deriving cloud liquid and water vapor density profiles using lidar ceilometer and two-channel microwave radiometer measurements (8/92). Director, WPL

- Document the synoptic and mesoscale environment of several severe thunderstorm events which affected the Phoenix, AZ, metropolitan area during the 1990 SouthWest Area Monsoon Project (SWAMP) (9/92). Director, NSSL

- Explore a technique for measuring synoptic-scale vertical air motion with a wind profiler (9/92). Director, AL

OAR-7

OBJECTIVE: *Climate and Global Change*

BACKGROUND: Although Earth's climate has fluctuated greatly in the geologic past, increased human influence on the environment over the past century introduces the possibility of creating a change in climate that could surpass that caused by natural forces. This threat has grabbed the attention of world and national leaders because of the significant impacts on society, economics, and national security. The U.S. Global Change Research Program was begun as an integrated Federal effort to resolve the many uncertainties associated with how human activity can change climate and to provide sound, scientific advice to policymakers.

NOAA is a major contributor to the USGCRP, focusing particularly on the global climate system. NOAA seeks to gain a predictive understanding of the climate system that includes natural variability as well as human-induced changes. NOAA's Climate and Global Change Program is built on a strong foundation of observations, process studies, and modelling activities, all covering multiple time and space scales.

OAR performs much of the NOAA research into the global climate system through its base activities in interannual and seasonal climate research and long-term climate research. Long-standing activities include climate modelling (e.g., El Nino and enhanced greenhouse climate), observations (e.g., Tropical Ocean-Global Atmosphere (TOGA) program and Equatorial Pacific Ocean Climate Studies (EPOCS)), and process research (e.g., stratospheric ozone and Radiatively Important Trace Species (RITS)). New areas of research will focus on priority needs of the NOAA program, including atmospheric chemistry, biogeochemical cycles, and oceanic processes.

PLANNED ACTIONS:

- Interannual and Seasonal Climate Research:

  - Determine the effect of El-Ninõ Southern Oscillation (ENSO) on tropical cyclones using the GFDL climate model (11/91). Director, GFDL

  - Deploy drifting buoy arrays in the tropical Pacific for sea surface temperature and current measurement and for irradiance and pigment fluorescence distribution in support of TOGA (2/92, 6/92). Director, AOML

  - Apply remote sensing instrumentation and techniques in TOGA studies, including an integrated sounding system and a shipboard profiler (3/92, 6/92). Director, AL

  - Enhance the TOGA TAO array near the Equator (9/92). Director, PMEL

- Long-term Climate Research:

  - Conduct modelling studies to determine the effect of greenhouse warming on tropical cyclones and to evaluate the models with tracer data (10/91, 5/92). Director, GFDL

- Study atmospheric trends in tropospheric water vapor, methane, and tropical lower-stratosphere temperatures (12/91, 6/92, 9/92). Directors, ARL, CMDL, and AL

- Submit a state-of-the-science review of stratospheric ozone depletion to the United Nations (2/92). Director, AL

- Use remote sensing techniques to investigate aspects of climate, including radar to study non-precipitating clouds, a new methodology for obtaining carbon-dioxide flux, and a lidar to obtain tropospheric ozone data (4/92, 6/92, 7/92). Directors, WPL, ARL, and AL

- Measure species important in the destruction of stratospheric ozone, including the abundance of chlorine dioxide (OCLO) to determine trends in anthropogenic chlorine and bromine input to the atmosphere during the second Arctic Airborne Stratospheric Experiment and ozone changes due to volcanic aerosols (4/92, 7/92). Directors, AL and CMDL

- Report results of several experiments investigating key aspects of atmospheric chemistry, including: the contribution of industrial emissions to the tropospheric ozone budget; ozone, ozone precursors, and sulfur species over the western Pacific; various species investigated during the Atlantic Stratocumulus Transition Experiment; and methane and carbon monoxide emissions from the surface ocean (5/92, 6/92, 8/92, 9/92). Directors, AL, AOML, and PMEL

- Calibrate the cable used to measure Florida Current (6/92). Director, AOML

- Obtain greenhouse-gas measurements from Hungary (7/92). Director, CMDL, and Chief, IA

- Proceed with development of acoustic measurement techniques by establishing the Ascension Island Acoustic Observatory and developing acoustic measurement of ocean rainfall (9/92). Director, AOML

• Climate and Global Change Research:

- Study cirrus properties affecting climate using lidar as part of the measurement techniques project (5/92). Director, WPL

- Develop the Network for Detection of Stratospheric Change (NDSC) prototype instrumentation for ozone and nitrogen dioxide and construct and install NDSC instrumentation at the Mauna Loa Observatory as part of the atmospheric chemistry project (6/92). Director, AL

- Maintain and improve the South American sea-level monitoring system as part of the global sea-level project (7/92). Director, AOML

- Revitalize Volunteer Observing Ships (VOS) program in the eastern tropical Pacific and the Atlantic and develop a sea-surface temperature and salinity reporting system as part of the upper ocean project (7/92, 9/92). Director, AOML

- Continue investigating ocean carbon by studying the influence of dissolved organic matter (DOM) on the nutrient and carbon cycles and by conducting the NOAA/Joint Global Ocean Flux Studies (JGOFS) equatorial Pacific study as part of the biogeochemical cycles project (8/92, 9/92). Directors, AOML and PMEL

- Verify estimates of meridional heat flux in the subtropical North Atlantic Ocean as part of the Atlantic Climate Change Program (9/92). Director, AOML

- Assess the role of thermospheric nitric oxide production by solar and auroral processes (9/92). Director, SEL

OAR-8

OBJECTIVE: *Coastal Ocean Program*

BACKGROUND: NOAA initiated the Coastal Ocean Program (COP) to coordinate and integrate all of NOAA's science capabilities in order to strengthen its stewardship responsibilities for coastal natural resources. The COP addresses three major coastal issues: environmental quality, fishery productivity, and physical impacts. OAR scientists, including those in ERL and those in academic institutions supported through the National Sea Grant College Program, the National Undersea Research Program, and various Cooperative Institutes, play an important role in the COP by conducting research focused on three issues:

(1) Nutrient Enhanced Productivity – Research focuses on the pathways and mechanisms by which excessive nutrient inputs degrade water quality and resource yields, on the contribution of atmospheric input of nutrients to eutrophication, and on harmful algal blooms.

(2) Coastal Fisheries Ecosystems – Research focuses on determining the factors that control the abundance of fish and shellfish in the Nation's coastal and Great Lakes ecosystems, and will attempt to distinguish changes in fish and shellfish abundance caused by man from those caused by natural causes.

(3) Estuarine Habitat Program—The Estuarine Habitat Program (EHP), initiated in fiscal 1990, focuses special attention on seagrass beds and salt marshes because of their importance to the production of living marine resources.

PLANNED ACTIONS:

- Nutrient Enhanced Productivity:

  Nutrient Enhanced Coastal Ocean Productivity - Mississippi-Atchafalaya Rivers (NECOP-MAR):

  - Conduct scientific symposium and progress review of MAR program (11/91). Directors, OR and AOML

  - Evaluate data on stable carbon isotopic composition of dissolved and particulate organic carbon to elucidate transport of carbon from coastal areas of high productivity (3/92). Director, GLERL

  - Conduct a cruise to the Louisiana Shelf in the spring of 1992 to examine the distribution and transport of suspended particulate matter, distribution of nutrients, phytoplankton pigments, and zooplankton biomass and species composition in relation to the hydrographic features and circulation patterns in the region (4/92). Director, AOML

  - Publish and distribute synthesis of first two years of research in the MAR program (6/92). Directors, OR and AOML

  - Evaluate field and laboratory data to determine the importance of remineralization as a source of nitrogen for primary production in the region of study (7/92). Director, GLERL

  Atmospheric Nutrient Input to Coastal Areas (ANICA):

  - Evaluate data on dry deposition of nutrients to Chesapeake Bay watershed to determine the significance of this source to the nutrient budget for the Bay (9/92). Director, ARL

  Causes and Effects of Harmful Algal Blooms (CEHAB):

  - Complete Sea Grant Task Force report on harmful algal bloom research priorities (1/92). Director, OR

  - Complete Program Development Plan for toxic algal bloom research (9/92). Director, OR

- Coastal Fisheries Ecosystems

  - Develop and test a new system for rapid sampling to support surveys of fish egg distribution as part of SABRE (1/92). Director, AOML

  - Conduct a symposium and progress review on NOAA-sponsored fisheries oceanography activities (5/92). Director, OR

  - Complete Project Implementation Plans for the Fishery Oceanography Research and Groundfish Ecology (FORAGE) and Predation and Structure for the Georges Bank Ecosystem projects (6/92). Director, OR

- Estuarine Habitat Program (EHP)

  - Hold a workshop of Principal Investigators (11/91). Director, OR

  - Prepare a report based on the October Principal Investigators workshop summarizing the current status and future directions of EHP research (2/92). Director, OR

  - Publish a monograph on the decline of eelgrass along the East Coast (8/92). Director, OR

  - Publish an estuarine profile of Great Bay, New Hampshire (8/92). Director, OR

- Other Coastal Issues

  - Complete a Sea Grant-sponsored committee report that will provide recommendations to Sea Grant on the topics and scope of research that should be supported in the area of coastal hazards (4/92). Director, OR

  - Produce tsunami inundation map for Hilo, Hawaii, and recover and redeploy the five bottom pressure recorders that make up the tsunami observation network (7/92). Director, PMEL

  - Incorporate interested Federal, state, and local agencies and institutions into the Great Lakes regional CoastWatch network to provide time-critical decision-support in response to coastal environmental issues (9/92). Director, GLERL

OAR-9

OBJECTIVE: *Environmental Data Management Program*

BACKGROUND: As an environmental science agency, NOAA cannot perform its mission without extensive measurements and observations that describe changing environmental conditions. NOAA routinely acquires large amounts of environmental information as part of its responsibilities and indirectly receives data from many outside sources.

Unfortunately, the present state of NOAA's data and information is such that large amounts are inaccessible, incompatible, or have deteriorated to an unusable state. Furthermore, even though NOAA's data management systems are operating at full capacity, they are unable to keep pace with the growing amounts of data over the last few years. This increase in data will continue such that by the year 2000, NOAA will have to manage 10 times more data than it does now.

To help solve these problems, NOAA has initiated the Earth System Data and Information Management (ESDIM) Program. OAR supports the goals of ESDIM through the development of new centralized data centers and improving data access.

PLANNED ACTIONS:

- Make available to the research community: a 12-year archive of monthly mean NMC gridded analyses, a 9-year archive of monthly mean European Center for Medium Range Weather Forecasts (ECMWF) gridded analyses, and the software required for access to these data sets (1/92). Director, CMDL

- Provide the Air Force Space Forecast Center with direct access to the Space Environment Laboratory Data Acquisition and Display System (SELDADS) (2/92). Director, SEL

- Sponsor (with NOAA C&GC), organize, and participate in an international workshop of COADS (Comprehensive Ocean-Atmosphere Data Set) users to be held in Boulder, CO, January 1992 (3/92). Director, CMDL

- Establish a full data path for both the National Weather Service Telecommunications Gateway (NWSTG) and NESDIS data streams to the FSL Facility (3/92). Director, FSL

- Establish and operate a Drifting Buoy Data Assembly Center to manage buoy data collected for the TOGA and WOCE (World Ocean Circulation Experiment) Programs (5/92). Director, AOML

- Complete initial phase of a data distribution system for making FSL data and products available to users employing open, industry-standard workstations (5/92). Director, FSL

- Develop a centralized computer system to track grants and publication activities for the National Sea Grant College Program (NSGCP) and the National Under Sea Research Program (NURP) (9/92). Director, OR

- Complete data management system for gridded meteorological data sets (9/92). Director, FSL

NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

The mission of the National Environmental Satellite, Data, and Information Service
is to provide
monitoring of the Earth's surface and space environment conditions,
near-continuous observations of the Earth's Western Hemisphere,
and improved oceanic and atmospheric observations and data dissemination capabilities.

NESDIS also provides environmental data and information products and services to
the general public, and to federal, state, and local agencies.

NESDIS-1

OBJECTIVE: *Plan long-term program revisions for NOAA operational satellite observation systems, data, and products.*

BACKGROUND: The NOAA Satellite Modernization Task Force develops the plans and policies for considering new satellite instruments and undertakes program reviews at the policy level. It has established the criteria for determining the priorities for new instruments, developed scenarios of alternate futures for NOAA satellite systems, and provided the structure for the NOAA GOES Emergency Task Team.

Areas of special concern in long-term satellite planning include: developing system capabilities that broaden and improve observations supporting non-meteorological needs; controlling the risks and costs of satellite systems; and exploiting opportunities for supporting users with data from instrument sources that are not exclusively operational or non-operational. Relative to the latter, the Global Satellite Data Acquisition Team has been expanded to represent all NOAA line and program offices.

NOAA, on behalf of itself and other U.S. agencies with requirements for operational data will identify and work to acquire access to important foreign satellite data.

PLANNED ACTIONS:

- Complete agreement with Europe (EUMESTAT) for long-term joint backup support plan for geostationary satellite coverage (2/22). Assistant Administrator and Deputy Assistant Administrator for Satellite and Information Services

- Develop a plan to use new approaches, which have the potential for lower risk and cost, when procuring NOAA's satellites (2/92). Director, Office of Systems Development

- Continue to investigate and evaluate the feasibility of acquiring needed data from operators of commercial satellite systems (Solar Warning Satellite, Global Wind Satellite) (2/92). Director, Office of Systems Development and Director, Office of Satellite Data Processing and Distribution

- Lead the Global Satellite Data Acquisition Team by continuing to develop and implement NOAA plans for acquiring, processing, disseminating, and archiving data required by NOAA and obtained from non-NOAA satellites (ongoing). Director, Office of Satellite Data Processing and Distribution and Chief, International and Interagency Affairs Office

NESDIS-2

OBJECTIVE: *Continue NOAA GOES satellite coverage*

BACKGROUND: Given delays in GOES-Next, NOAA is pursuing arrangements with Europe and Japan to obtain use of GOES backup satellite support.

PLANNED ACTIONS:

- Manage operation of GOES 7 so as to conserve fuel and extend its life (9/92). Director, Office of Satellite Operations and Director, Office of Satellite Data Processing and Distribution

- Expand, improve, and fully test the No-GOES Contingency Plan (2/92). Director, Office of Satellite Data Processing and Distribution and Director, Office of Satellite Operations

- Improve NOAA GOES satellite product quality and distribution (ongoing). Director, Office of Research and Applications, Director, Office of Satellite Data Processing and Distribution and Director, Office of Satellite Operations

- Finalize contract arrangements for near-term METEOSAT support over the U.S. (11/91). Assistant Administrator, Deputy Assistant Administrator for Satellite and Information Services, Director, Office of Systems Development, and Director, Office of Satellite Operations.

NESDIS-3

OBJECTIVE: *Continue and selectively expand NOAA polar satellite coverage.*

BACKGROUND: User needs for global data to support both short-term weather forecasting and long-term evaluation of climate and global environment changes will require continuation and selective expansion of the NOAA operational polar satellite program. The increasing variety of data types needed and the complexity of some of the required instrumentation, makes reliance on other national programs for acquisition of some of that data an attractive and fiscally necessary step. This will be a logical extension of existing cooperative efforts under which other nations have made important contributions of instruments and subsystems which are flown on the current series of morning and afternoon NOAA polar orbiters. Consistent with this integrated international approach, NOAA has obtained a preliminary commitment from Europe to assume responsibility for the morning segment of the polar environmental observation mission by providing a series of polar spacecraft on which NOAA operational remote sensing instruments will be flown. This expanded cooperative program with Europe is projected to reduce the cost of the NOAA part of the global polar satellite program by nearly $1 billion through the year 2010.

PLANNED ACTIONS:

- Monitor and track the development of the five polar satellites currently in production. Participate in planning and monitor the orderly development of upgraded and follow-on instruments necessary to maintain continuity in the NOAA polar satellite program (ongoing). Director, Office of Systems Development, Polar Program Manager

- Launch NOAA I in 1992 when required to ensure continued afternoon orbit (primary) coverage (9/92). Director, Office of Systems Development, Polar Program Manager

- Initiate NASA procurement of a polar satellite required to ensure continuity in polar orbit coverage between the last of the current series of NOAA spacecraft in production (NOAA M) and the availability of the first of a new block series of NOAA polar orbiters (NOAA O) (9/92). Director, Office of Systems Development, Polar Program Manager

- Develop detailed plans with the European Space Agency and EUMETSAT for Europe to provide and fund the morning segment of the continuing morning/afternoon polar satellite program with NOAA providing the majority of the operational remote sensing instruments for both segments of the joint program (9/92). Assistant Administrator, Deputy Assistant Administrator for Satellite and Information Services, Chief, International and Interagency Affairs Office, and Director, Office of Systems Development, Polar Program Manager

- Develop detailed plans for new NOAA polar orbiting spacecraft to fly in the late 1990s and beyond, including provisions to accommodate selected high priority additional instruments. Evaluate alternative spacecraft configurations and procurement approaches (9/92). Director, Office of Systems Development, Polar Program Manager

- Improve NOAA polar satellite product quality and distribution (9/92). Director, Office of Research and Applications, Director, Office of Satellite Data Processing and Distribution, Polar Program Manager, and Director, Office of Satellite Operations

NESDIS-4

OBJECTIVE: *Plan and implement NOAA's role in the Landsat Program*

BACKGROUND: NOAA is responsible for assuring continued Landsat operations and spacecraft development through 1997. The Administration has not yet decided on the management and funding for the long-term acquisition of Landsat-type data.

PLANNED ACTIONS:

- Monitor contractor development of Landsat 6, coordinate with the Air Force for its launch, and oversee the contractor's performance in operating Landsat 6, including data distribution (ongoing). Assistant Administrator, Deputy Assistant Administrator for Satellite and Information Services, and Director, Office of Systems Development

- Support the launch of Landsat 6 (7/92). Director, Office of Systems Development

- Maintain international Landsat program relationships for Landsats 4, 5, and 6 (ongoing). Assistant Administrator, Deputy Assistant Administrator for Satellite and Information Services, Director, Office of Systems Development, and Chief, International and Interagency Affairs Office

- Support Landsat 4/5 operations, consistent with available funding (ongoing). Assistant Administrator, Deputy Assistant Administrator for Satellite and Information Services, and Director, Office of Systems Development

- Support the Administration's planning for future acquisition of Landsat-type data (ongoing). Assistant Administrator, Deputy Assistant Administrator for Satellite and Information Services, and Director, Office of Systems Development

NESDIS-5

OBJECTIVE: *Improve the accessibility, storage integrity, and quality control of environmental data and information.*

BACKGROUND: NOAA has assigned a high priority to improving its management of environmental data. The emphasis is on rescuing the large amount of archival environmental data for which NOAA has responsibility so as to assure its long-term storage integrity and to make that data more readily accessible for the full range of operational and research data users.

To accomplish this, it is necessary for NOAA to modernize the information technology systems that support its handling of environmental data, to improve the quality control techniques that are necessary to assure that the data is acceptable to users, and to complete and extend the prototype NOAA Earth Systems Data Directory System.

PLANNED ACTIONS:

- Implement the plan for rescuing environmental data at the National Data Centers. The rescue of endangered satellite data continues as a high priority (ongoing). This plan will also address the resource requirements to accomplish a complete rescue of non-computer readable data by migration to computer readable storage devices (3/92). Deputy Assistant Administrator for Environmental Information Services, and Directors, National Climatic Data Center (NCDC), National Oceanographic Data Center (NODC), National Geophysical Data Center (NGDC)

- Improve the accessibility of both real-time and archived NOAA environmental data through the use of new information technology systems including expanded computer and communications systems (ongoing). Deputy Assistant Administrator for Environmental Information Services, Directors, NCDC, NODC, NGDC, and Director, Office of Satellite Data Processing and Distribution

- Develop science-quality Earth System Reference Data Bases in accordance with priorities established with the guidance of the science community (ongoing). Directors, NCDC, NODC, and NGDC

- Support NEXRAD, Advanced Surface Observing System (ASOS), wind profiler network, and other NOAA modernization programs by arranging for archiving of data from these systems (ongoing). Director, NCDC

- Implement a formal archive maintenance program that will ensure the long-term storage integrity of the NOAA environmental data archives (9/92). Directors, NCDC, NODC, and NGDC

- Improve quality control and documentation procedures at the National Data Centers (8/92). Directors, NCDC, NGDC, and NODC

- Improve access to NOAA's environmental information by providing remote retrieval capability to NOAA Library and Information Center collections (ongoing). Chief, Library and Information Services

- Work together with Department of State and other U.S. Government policy organizations to promote and seek international reciprocity for U.S. full and open global change data management principles thereby assuring NOAA access to important foreign satellite and in situ data (ongoing). Assistant Administrator, Deputy Assistant Administrators, and Chief, International and Interagency Affairs Office

NESDIS-6

OBJECTIVE: *Contribute to NOAA-wide high priority Climate and Global Change and Coastal Ocean programs*

BACKGROUND: Although all NESDIS programs contribute to NOAA's high priority cross-cut programs, special attention is being given to specific NESDIS scientific and supporting activities for the Climate and Global Change and the Coastal Ocean programs.

PLANNED ACTIONS:

- Continue efforts to improve quality of products based on NOAA operational satellite data, working through newly-established product advisory teams. These plans are to include improvements in calibration, data quality, validation, and continuity of long-term monitoring (ongoing). Director, Office of Research and Applications, and Director, Office of Satellite Data Processing and Distribution

- Fully implement the NOAA Paleoclimatology Program in support of NOAA's Climate and Global Change Program, collaborating with the scientific community and all parts of NOAA (ongoing). Director, NGDC

- Improve the quality, storage, integrity, and accessibility of research quality climatological data and information included in regional and global climate baseline and research data sets (ongoing). Director NCDC

- Manage NOAA CoastWatch activities in support of the Coastal Ocean Program, including coordination of regional operations; acquisition, processing and validation; communication and data management; and research and system development (ongoing). Director, NODC; Director, NODC Office of Coastal Programs; Director, Office of Research and Applications; and Director, Office of Satellite Data Processing and Distribution

- Manage and implement the Operational Measurements Project of the NOAA Climate and Global Change Program. The goal of this Project is to develop and generate continuing climate and global change information products from NOAA operational measurement systems, including environmental satellite and in-situ observing systems (ongoing). Director, Office of Research and Applications

- Manage and implement the NOAA portion of the joint NOAA-NASA Pathfinder project. This project will provide the global change research community with climate data sets from selected NOAA and other satellite instruments (ongoing). Director, Office of Satellite Data Processing and Distribution; Director, Office of Research and Applications; and Director, National Climatic Data Center

- Develop the optical buoy instrumentation to validate the national and international satellite programs to measure ocean productivity from space (ongoing). Director, Office of Research and Applications

- Continue development of systems and prototype data sets in support of data management for global change, based on data acquired by NOAA and available to NOAA from other sources (ongoing). Director, Office of Satellite Data Processing and Distribution, and Directors, NCDC, NODC, and NGDC

NATIONAL WEATHER SERVICE

The mission of the National Weather Service is to provide
weather and flood warnings, forecasts, and advisories for all of the United States,
its territories, adjacent waters and ocean areas
primarily for the protection of life and property.

NWS-1

OBJECTIVE: *Forecasting – Maintain Effective Local Warning and Forecast Services*

BACKGROUND: Provision of warnings is critical to the mission of the NWS. One of NWS's important methods of warnings dissemination is through activation of the Emergency Broadcast System (EBS). This system currently requires intensive manual effort by personnel both at NWS and EBS stations. This manual effort cannot be sustained given NWS current and future staffing levels and the large personnel turnover at many EBS stations. The Federal Communications Commission (FCC) is planning to modernize the EBS and has asked the NWS for assistance. The NWS has provided the FCC with information on the NOAA Weather Radio Specific Area Message Encoder (WRSAME) technology for automated EBS activation from NWS offices.

Policy concerning warning and forecast service for winter weather and non-precipitation hazards needs to be updated.

The volcanic eruptions from Mt. Redoubt in Alaska that occurred in 1989 through April 1990, emphasized the serious threat that the ingestion of volcanic ash poses to aviation and must be addressed in real-time. The NOAA program to enhance the capabilities to monitor and forecast the location and extent of volcanic ash has completed a number of data gathering and display milestones. The NWS will continue to develop numerical forecast and trajectory model enhancements.

The existing upper air radiotheodolite tracking systems are becoming increasingly difficult to maintain. A prototype system to replace the radiotheodolite system is under development. To ensure a continuous supply of radiosondes for upper air soundings, the NWS issued a Qualified Products List (QPL) solicitation inviting vendors to submit radiosondes for testing which they believe meet NWS requirements. After testing, the radiosondes meeting the NWS requirements will be put on the QPL that will be used for future procurement of radiosondes.

To ensure continuous operation of the NOAA Weather Radio (NWR) network, the NWS will resolicit a contract for transmitter maintenance and depot repair of transmitter modules. The current contract will be completed in September 1992. The NWR transmitter network is composed of two transmitter types manufactured by Scientific Radio Systems. The difference between the two is in the state of technology used. Due to the increasing difficulty in maintaining and locating spare parts and assemblies to support the older version, the NWR Program implemented an upgrade program to convert 45 units.

The upgrade and move of the NWS Telecommunication Gateway and upgrade of the field distribution system will relieve saturated communications systems. Development of a new platform for the Remote Terminal to Automation of Field Offices (AFOS) will be completed as a first step to extend the life cycle of this system and meet NWS transition requirements.

PLANNED ACTIONS:

- Promote and implement WRSAME, including technology for automated EBS activation, within the regions on an office-by-office basis (9/92). Directors, Regional Offices and Office of Meteorology

- Update and Implement a new Winter Weather policy within the regions (8/92). Directors, Regional Offices and Office of Meteorology

- Implement a new Non-precipitation Hazards policy within the NWS (7/92). Directors, Regional Offices and Office of Meteorology

- Continue the enhancements in numerical forecast and trajectory models used in support of volcanic ash dispersion forecasts; implement the evaluation phase of the mesoscale analysis and prediction system and the trajectory model to support volcanic ash dispersion forecasts (12/91). Directors, Office of Meteorology, Alaska Region, National Meteorological Center (NMC)

- Develop a joint center at Weather Service Forecast Office (WSFO) Anchorage involving NMC, the FAA, NESDIS, the U.S. Geological Survey (USGS), and aviation representatives to design products and services dealing with the atmospheric impacts of volcanic eruptions and hazards (9/92). Directors, Office of Meteorology, National Meteorological Center, and Alaska Region

- Complete the operational implementation of the Homer, Alaska Wind Profiler (12/91) and install additional wind profilers (9/92). Directors, Office of Meteorology and Alaska Region

- Execute the option for FY 1992 lease of mobile radar to continue radar monitoring of Mt. Redoubt volcano ash in Alaska (10/91). Directors, Office of Systems Operations and Alaska Region

- Complete qualification of radiosondes submitted by prospective manufacturers for the QPL (8/92). Establish QPL for radiosondes (9/92). Director, Office of Systems Operations

- Complete the transfer of the NWS Telecommunication Gateway operations from the Suitland Federal Center to the new computer facility in Silver Spring Metro Center 2 (4/92). Director, Office of Systems Operations

- Complete the development of a new platform for the Remote Terminal to AFOS (RTA) to ensure that the RTA is maintainable for the life of the AFOS and available to support field office relocations during the Modernization and Restructuring of the NWS (9/92). Director, Office of Systems Operations

- Issue request for proposals for NWR transmitter maintenance and support contract (11/91). Complete B220 NWR transmitter upgrade program (6/92). Director, Office of Systems Operations

- Continue development and implementation of hardware and software (System Z) for upgrading the AFOS to relieve the data product saturation of the field distribution system.

    - Complete field office upgrade at NEXRAD Weather Service Offices and at the 12 CONUS River Forecast Centers (6/92). Directors, Office of Systems Operations and Systems Development

    - Complete implementation of upgrade to the SMCC System A (5/92) and Systems E, F, and J (9/92). Directors, Office of Systems Operations and Systems Development

    - Complete synchronous modem replacement and implementation for AFOS field distribution system (9/92). Directors, Office of Systems Operations and Systems Development

- Procure and implement LARC and other automatic meteorological stations funded through a joint project with the State of Hawaii (7/92). Director, Pacific Region

- Procure and install PC workstations to replace the Zenith Tab Terminals on the WSFO Honolulu Prime computer system (2/92). Director, Pacific Region

- Procure and install 2nd part of network of automatic met stations in the areas within the vicinity of American Samoa funded through a supplemental appropriation (8/92). Director, Pacific Region

- Improve UHF/Packet Radio backup communications at Pacific Region WSOs (6/92). Director, Pacific Region

- Convert the NWS Pacific Region Micronesian Circuit to an FAA/AFTN controlled circuit (7/92). Director, Pacific Region

NWS-2

OBJECTIVE: *Forecasting – provide river and flood forecast services for the protection of life and property and support of the Nation's economy*

BACKGROUND: Reliable supplies of fresh water are increasing in value. Flood damages continue to rise in real dollars. Human capacity to impact the hydrologic cycle remains one of the primary connections between human activities and potential climate change.

Current hydrologic services focus primarily on flood forecasting. There are over 30,000 U.S. flood-prone locations. Of these locations, 3,000 receive site specific flood forecasting services. The remaining sites are served by the NWS county/multi-county flash flood watch and warning program.

The NOAA Hydrologic Services Program operates in an interagency arrangement for data collection and water management decision making. Major cooperating federal departments include the Departments of Interior, Defense, and Agriculture, as well as hundreds of state, local, regional, private, and quasi public-sector organizations.

PLANNED ACTIONS:

- Implement replacement and/or enhancement of operational systems in the Hydrologic Services Program. [Support for some of these systems will be subsumed under Advanced Weather Interactive Processing System (AWIPS) implementation].

  - Complete implementation of the new Remote Job Entry System at 12 RFCs (1/92). Director, Office of Hydrology

  - Complete integrated design of the Next Generation River Forecast Center Gateway system (1/92); and complete prototype demonstration of the Gateway system (9/92). Director, Office of Hydrology

- Implement a national verification program for flood forecasting.

  - Complete baseline software for verification of flood forecasting services (9/92). Director, Office of Hydrology

- Maintain operational readiness of Hydrologic Services Program

  - Provide training on both the operations and calibration of the NWS River Forecast System (NWSRFS) (9/92). Director, Office of Hydrology

  - Begin implementation and continue development of enhancements for the NWSRFS, which include an Antecedent Precipitation Index baseflow model and river rating curve shift model (9/92). Director, Office of Hydrology

- Maintain day-to-day support for the hydrology data acquisition systems, Hydrology operations on the NOAA central computer facility, and for the NWSRFS (9/92). Director, Office of Hydrology

- Implement a computerized dam information catalogue for flood warnings (2/92). Director, Office of Hydrology

NWS-3

OBJECTIVE: *Provide National meteorological guidance products and analysis in support of NOAA and NWS operations.*

BACKGROUND: Numerical weather prediction by state of the art computer models at National Centers provides the underpinnings to NWS forecast operations. Significant economic benefits can be derived from improved forecasting. Increased computer power will reduce error in meteorological forecasts.

Operations of the National Centers are supported by an interim Cray YMP-8. The last Cyber 205 was deactivated for economic reasons leaving the Center without a backup to the Cray YMP-8. The Cray YMP-8 interim computer system has provided continued reliable operations and some limited computer capacity to develop new, improved models that are essential to NWS field operations.

As part of the NWS Modernization and Associated Restructuring, funding has been requested to provide next generation Class VII computers, about five times the speed of the currently installed Cray YMP-8 computer. The Center needs the power of Class VII systems to develop improved numerical models including mesoscale models and coupled ocean/atmosphere models.

Severe storm power interruptions continue to be very disruptive and are impacting NMC's ability to provided needed products as scheduled. Protection from such interruptions is vital to reliable operations. In addition to the mainframe computer, high speed data storage and access systems are essential.

Since the early 1970's, NWS forecasters have used objective statistical guidance to assist in producing public and aviation weather forecasts for the day 1 and day 2 periods. For the last decade, the statistical guidance has been based on an application of the Model Output Statistics (MOS) approach to the Limited-area Fine Mesh Model. Newer, more accurate dynamical models like the Nested Grid Model (NGM) now exist. In addition, automated product formatters require objective forecasts at greater spatial and temporal resolution in order to be initialized. In making the day 3 to

day 5 forecasts, only objective temperature guidance has been available to assist the forecasters. More forecast elements at longer projections are needed to make better medium-range forecasts.

PLANNED ACTIONS:

- Upgrade the Central Computer Facility with a Class VII supercomputer to permit NMC to implement fully the centralized forecast and mesoscale guidance required for NWS modernization (9/92). Director, National Meteorological Center.

- Acquire and install a large capacity on-line storage system to facilitate rapid retrieval of climate and global meteorological data files (7/92). Director, National Meteorological Center.

- Install electrical power conditioning at the Federal Building 4 Computer Center. The power conditioning equipment will prevent unstable and inadequate utility power of short duration from reaching critical devices (4/92). Director, National Meteorological Center.

- Upgrade the Center's workstations. Begin to integrate workstations with main computer output to create forecast guidance products for the Meteorological Operations Division (7/92). Director, National Meteorological Center.

- Expand the NMC coupled ocean-atmosphere model to pull global coverage and begin scheduled execution of 60-day predictions for evaluation and verification (6/92). Director, National Meteorological Center.

- Initiate development of high-resolution wind analysis techniques and development of high resolution shallow water spectral wave forecast models for coastal application (11/91). Director, National Meteorological Center.

- Develop a 15 km horizontal resolution mesoscale model (3/92). Director, National Meteorological Center.

- Begin familiarization with NMC gridpoint data, statistical, and numerical guidance to WSFO Honolulu, with procurement and implementation of a scientific workstation and upgraded communications (4/92). Director, Pacific Region

- Develop recommendations for improved numerical guidance, communications, and satellite imagery to WSO Pago Pago, American Samoa (7/92). Director, Pacific Region

- Develop and implement an NGM-based MOS system to forecast an increased set of weather elements at finer temporal resolution for over 600 stations in the contiguous United States (9/92). Director, Office of Systems Development

- Develop and implement a statistical system based on the Medium Range Forecast Model to predict temperature and probability precipitation for the day 3 to day 7 period (9/92). Director, Office of Systems Development

NWS-4

OBJECTIVE: *Realize service improvements through new and enhanced products and services and associated training for the modernized and restructured National Weather Service*

BACKGROUND: Modernization efforts underway in the National Weather Service, the Federal Aviation Administration, and the Department of Defense weather services are combining to offer a window of opportunity to upgrade services to the aviation community. Six federal agencies are participating in the development of a coordinated National Aviation Weather Program Plan (NAWPP). The Plan will contain a comprehensive review of commercial, military, and private sector aviation weather needs.

The NWS, through the National Center for Atmospheric Research, is developing a replacement upper air system. Its innovation includes state-of-the-art, modular electronics, and navigational-based air (LORAN-C, OMEGA) wind finding capability.

As the NWS proceeds toward a modernized service, major new technologies and scientific advances in meteorology and hydrology with state-of-the-art application software techniques and analysis and prediction algorithms will be introduced to NWS field forecasters. The new technologies will provide forecasters with large volumes of data in new forms and higher frequencies. Advanced data processing application software will be available to assist the forecaster in assimilating these data. However, the benefits to our Nation from the new technologies can only be realized if the forecasters are adequately trained in both the new technologies and the scientific advances that have been, and are continuing to be, developed and applied to the forecast process.

Risk Reduction activities will be pursued to minimize risks associated with the transition of the NWS services programs from its current technology base to the Advanced Weather Interactive Processing System (AWIPS). Risk reduction activities provide a framework from which our understanding of next generation concepts will be refined and expanded.

PLANNED ACTIONS:

- Brief the National Research Council on NWS Aviation Services Transition Plan including the application of new technologies, products and services (10/91). Director, Office of Meteorology

- Identify Aviation Weather Services program gaps and unmet user needs (11/91). Director, Office of Meteorology

- Conduct NOAA Program/External Review of NWS Aviation Services program with selected/invited participants to include representatives from Federal agencies, scientists, and user groups (11/91). Director, Office of Meteorology

- Validate completed final draft of the National Aviation Weather Program Plan (NAWPP) (12/91). Director, Office of Meteorology

- Finalize NAWPP (4/92). Director, Office of Meteorology

- Update and refine the resource guide and one week short course for NWS Warning Coordination Meteorologists (6/92). Director, Office of Meteorology

- Develop a draft Dissemination Transition Plan, with initial emphasis on dissemination to local users (12/91). Directors, Offices of Meteorology and Hydrology

- Issue a detailed NWS Integrated Training and Professional Development Plan for the Modernized Weather Service (3/92). Directors, Offices of Meteorology and Hydrology

- Provide NEXRAD Operations Training for NWS operational meteorologists and hydrologists in Norman, Oklahoma (9/92). Directors, Offices of Meteorology, Hydrology, and Systems Development

- Develop a strategic plan defining future roles of the three NWS training centers in Norman, Oklahoma, Kansas City, Missouri, and Boulder, Colorado (6/92). Directors, Offices of Meteorology and Hydrology, Central Region, and Alaskan Region

- Develop a maintenance transition plan to ensure stable transition to new systems (3/92). Director, Office of Systems Operations

- Complete development of prototype upper air replacement system at National Center for Atmospheric Research (NCAR). Accept delivery of prototype systems and initiate test planning process (9/92). Director, Office of Systems Operations

- Obtain Departmental for the new personnel qualification standard for Hydrometeorologists and forward to OPM for approval (10/91). Director, Office of Hydrology

- Initiate Risk Reduction exercise of Weather Forecast Office/River Forecast Center operations and services at Norman, Oklahoma and at Tulsa, Oklahoma (9/92). Directors, Offices of Systems Development and Hydrology, National Meteorological Center, and Southern Region

- Develop products from the automatic integration of observational data from diverse sources through a Risk Reduction exercise at Sterling, VA (9/92). Directors, Offices of Systems Development and Meteorology, and Eastern Region

- Implement the Science and Operations Officer training program in COMET to instill a new scientific awareness in field meteorological offices (11/91). Director, Office of Meteorology

- Install Professional Development Workstations and provide two interactive instructional videodiscs for on-site training for meteorologists in each Weather Forecast Office (4/92). Director, Office of Meteorology

NWS-5

OBJECTIVE: *Modernization – develop, integrate and deploy new / upgraded systems and facilities required for the modernized and associated restructuring of the National Weather Service.*

BACKGROUND: Major new technical components must be integrated in the 1990's, including Automated Surface Observing Systems (ASOS), Next Generation Weather Radar (NEXRAD), Advanced Weather Interactive Processing System (AWIPS) and Class VII computers as well as advanced geostationary and polar orbiting satellites. Requirements for the future use of aircraft as remote sensing platforms need to be developed.

This year NOAA will complete the deployment of ASOS systems in the Modernization and Associated Restructuring Demonstration area of the central United States, including 17 systems for NOAA, 37 systems in the same proximity for the FAA and 1 system for the Navy. NOAA will purchase 169 additional systems, and begin to install 118 ASOS systems in the conterminous United States for NOAA, FAA, and Navy.

NOAA will also award the AWIPS Development Phase contract [to be managed by NOAA's Systems Program Office (SPO)].
Efforts toward the modernized NWS will also include proceeding with land acquisition, awarding contracts for design and site preparation for NEXRAD, and construction of user facilities.

PLANNED ACTIONS:

- Develop NOAA requirements for future use of aircraft as remote sensing platforms beyond the tropical cyclone arena (9/92). Directors, National Meteorological Center, Office of Hydrology, and Office of Meteorology.

- Develop criteria to confirm the operational readiness of an office at the planned stages of transition (3/92). Directors, Office of Meteorology, Hydrology

- Complete the development of the Integrated Operations and Services Plan which describes the planned changes in NWS operations through the transition and highlights the new products and services (3/92). Director, Office of Meteorology

- Complete the following facilities in preparation for the modernized NWS by 9/92:

    - Modifications: Jackson and Pittsburgh
    - Leases: Tulsa, Sacramento and Central PA
    - Builds: Detroit, Binghamton, Louisville, and Chicago

- Refine "Hydrometeorological Service Operations for the 1990's" based on an extensive organizational review (9/92). Director, Office of Hydrology

- Develop technique specifications for automatically preparing three products in a broadcast ready format for NOAA Weather Radio and a prototype of one product (6/92). Director, Office of System Development

- Complete conditional commissioning of 66 FAA non-towered ASOS sites (9/92). Director, Office of Systems Operations.

- Complete Field Operations Demonstration for FAA non-towered ASOS sites (3/92). Director, Office of Systems Operations.

- Complete conditional commissioning of 29 ASOSs at staffed locations (9/92). Director, Office of Systems Operations.

- Complete Field Operations Demonstrations for NWS and FAA ASOSs at locations with a staff and NWS ASOS locations without a staff (9/92). Director, Office of Systems Operations.

- Accept into NWS control and support, approximately 54 ASOSs in the MARD area for the NWS and FAA sponsored sites and 87 elsewhere of NWS, FAA and U.S. Navy sponsored systems (9/92). Director, Office of Systems Development

- Continue ASOS sensor and algorithm development and manage ASOS Support activities, including training, documentation, communications, maintenance, quality control, backup, data retrieval and archiving (9/92). Director, Office of Systems Development

- Complete the Federal Meteorological Handbook No. 1, ASOS-related guidance and document ASOS Standard Algorithms (9/92). Director, Office of Systems Development

NWS-6

OBJECTIVE: *Modernization – gain Congressional, public and employee acceptance and support for the modernization and associated restructuring of the National Weather Service.*

BACKGROUND: The National Weather Service must continue to inform all affected organizations and individuals about the goals of modernization and associated restructuring.

Targeted audiences include:

- NWS employees and their union
- Congressional and state delegations
- Federal, state and local agencies
- Print and broadcast media
- Private industry
- Academic and scientific community
- Professional societies and trade associations

The Strategic Plan defines the hierarchy of plans required to effect modernization and associated restructuring:

- National Implementation Plan
- Modernization and Associated Restructuring Demonstration (MARD) Implementation and Evaluation Plan
- Regional Transition Plans
- Site Implementation Plans

Structured agency-wide and headquarters Transition Management Meetings are held routinely to set objectives, resolve policy issues, and review progress.

PLANNED ACTIONS:

- Incorporate annual changes to the National Implementation Plan to be submitted to Congress as notification of significant events as required by P.L. 100-685 (10/91). Transition Director

- Continue development and begin implementation of concrete plans to assess the needs of the media, sophisticated emergency management users, and the general emergency management community (12/92). Director, Office of Meteorology, Transition Director

- Initiate first major update of all Regional Transition Plans and Site Implementation Plans (4/92). Transition Director and Directors, Regional Offices

- Implement a plan to brief constituencies on the FY 1992 activities of the Modernization and Associated Restructuring (MAR). Congress, Governors, Regional, State and local officials, other Federal agencies, trade associations and professional societies, academia, private companies, the media and the general public will be briefed. Every constituency will be contacted by personal briefings, workshops, direct mail, conference speakers or by exhibits at public events (9/92). Transition Director

- Continue the contract with the National Research Council (NRC) to study NWS Modernization and Associated Restructuring. Obtain NRC endorsement of NWS plan to conduct and evaluate the MARD, and NWS plan to comply with the certification provision of Public Law 100-685 (4/92). Transition Director

- Begin to provide updated hazard awareness materials, through coordination with FEMA and the Red Cross, in support of modernization goals (9/92). Director, Office of Meteorology.

- Identify the major external NWS user groups and the status of any user group service evaluation surveys (7/92). Director, Office of Meteorology

NWS-7

OBJECTIVE: *Modernization – ensure operational NWS field offices and national centers access to satellite imagery and products critical to the warning and forecast program.*

BACKGROUND: Continued delays in the launch of GOES-I extends the period of one-GOES operations and increases the potential of a no-GOES scenario into the mid-1990's.

Weather Service Modernization and Transition requires operational access of satellite imagery at NEXRAD Weather Service Offices (WSOs). Reliable redundancy or backup of the current operational Satellite Weather Information System (SWIS) is required at Weather Service Forecast Offices (WSFOs).

A well-coordinated effort involving all the NOAA Line Offices is required to effectively address all operational satellite data and product requirements.

PLANNED ACTIONS:

- Monitor and revise as necessary, NOAA and NWS No-GOES plans to reflect changes in the GOES situation. Conduct tests of the NOAA No-GOES contingency Plan and evaluate results. (9/92) Office of Meteorology, Systems Development, Systems Operations

- Coordinate requirements with NESDIS to ensure real-time and unrestricted access to environmental satellite data from other U.S. agencies and foreign governments (9/92) Director, Office of Meteorology

- Procure polar ground stations to meet satellite data requirements for the Western U.S. and the Eastern and Central Pacific (9/92). Directors, Office of Meteorology, Western and Pacific Regions

- Coordinate with NESDIS on all GOES-I activities (9/92). Director, Office of Meteorology

- Develop and implement standalone ground station configured MicroSWIS systems for deployment at Pacific Region WSOs (2/91). Directors, Office of Systems Operations and Pacific Region

NWS-8

OBJECTIVE: *Modernization – Water Resources Forecasting Services (WARFS)*

BACKGROUND: WARFS is an enhanced hydrological forecasting service to improve management of the Nation's Water Resources which can be provided by: (1) capitalizing on the data and computer systems developed by the NWS modernization Initiatives; and (2) integrating these systems with state-of-the-art hydrologic and climatologic forecasting technologies. This integrated approach will also improve flood forecasting services as well as provide support for the NOAA Environmental Data Management, Climate, U.S. Weather Research and Coastal Ocean Programs.

The drought of 1988 highlighted deficiencies of the current information base. Proven techniques exist to provide critical forecast information, including forecast reliability, for risk-based decision making in all water-sensitive sectors.

The Under Secretary for Oceans and Atmosphere has recognized the importance of this program in dealing with the economic and environmental problems of the next decade.
The NWS is a conducting a pilot demonstration project (Colorado Basin) to test the integrated technologies and justify the benefits of enhancing NOAA hydrological forecasting services.

PLANNED ACTIONS:

- Complete implementation plan for the Pilot Demonstration Project (12/91). Director, Office of Hydrology

- Complete definition of hydrologic product outputs, mutual benefits, and relationships between WARFS and the Climate and Global Change and the U.S. Weather Research programs (11/91). Director, Office of Hydrology

- Support estimates of snowpack water equivalent for the WARFS Pilot Demonstration project and enhancements to these estimates for an "optimal" national program.

    - Provide aircraft and satellite snowpack water equivalent estimates for the WARFS Demonstration project in the upper Colorado Basin (4/92). Director, Office of Hydrology

    - Complete an implementation Plan for operational integration of multiple types of snow observations, i.e., from satellite, aircraft, SNOTEL, precipitation gages, and snow courses to estimate water equivalent for an "optimal" national program (12/91). Director, Office of Hydrology

NWS-9

OBJECTIVE: *NOAA-wide support – develop NWS coastal ocean meteorological and oceanographic analysis, modelling, prediction, and warning capabilities to support the NOAA Coastal Ocean Program.*

BACKGROUND: The Coastal Ocean Program is a high-priority NOAA program for improving scientific knowledge and services related to environmental quality, living marine resources, and the protection of life and property. All NOAA Line Offices are interacting in addressing requirements and conducting programs for monitoring, prediction, and services. NWS' Coastal Ocean Program responsibilities are in the area of Coastal Hazards; specifically, modelling and prediction of storm surge and coastal winds and waves.

Over the past few decades there has been a migration to the sun belt and particularly to coastal areas. The resulting building boom has created whole communities within potential storm surge damage area from hurricanes. The time to evacuate these areas has been determined for most communities during the past decade and many of these clearance times exceeds the length of time the National Hurricane Center is able to reliably forecast hurricane landfall. In many areas the housing boom is outstripping the building of highway escape routes and thus the situation is deteriorating. Additionally, the migration has placed people with no hurricane experience in areas of vulnerability to hurricane devastation.

PLANNED ACTIONS:

- Assume Lead Line Office responsibility for Coastal Hazards element of Coastal Oceans Program (12/91). Director, Office of Meteorology

- Update two SLOSH model basins with funds from NOAA's Coastal Oceans Program and develop one new SLOSH model basin (9/92). Director, Office of Systems Development

- Develop and test a preliminary extra-tropical storm surge model based on the SLOSH model and using winds extracted from the NWS's atmospheric prediction models (9/92). Director, Office of System Development

- Improve data collection in the core and on the periphery of hurricanes to improve and extend forecasting accuracy. Provide input to new technology in meteorological satellites and take the lead in future generation reconnaissance aircraft for the Interdepartmental Hurricane Conference (1/92) Director, National Hurricane Center

- Complete a new strike probability model to improve local hurricane risk assessments (5/92). Director, National Hurricane Center

- Improve and update visual aides to clarify risks and tradeoffs for arguments on developing barrier islands with Federal, state, and local governments (4/92) Director, National Hurricane Center

- Prepare and present a vigorous public hurricane awareness program to address professional organizations and citizen groups within the hurricane vulnerable areas (6/92). Director, National Hurricane Center

- In cooperation with FEMA and other NOAA units, maintain the storm surge model basins to support storm surge forecasting and evacuation planning. Complete the Cedar Key basin and the Apalachicola Bay basin (5/92). Director, National Hurricane Center

- Assist FEMA in the preparation of a prototype course to train local Emergency Management Officials and conduct at least one course (6/92). Director, National Hurricane Center

NWS-10

OBJECTIVE: *NOAA-wide support – build a climate services program based on near-real-time climate monitoring, diagnostics, prediction, and the distribution of climate products and information.*

BACKGROUND: Climate services is a natural complement to climate research and is an essential link to the science and user communities. The NOAA Climate Services Program needs to be strengthened across the line offices to meet the need of climate data users in the academic research community, in state and regional offices, and in private industry. The most critical element is the transfer of technology from research into operational methods. Elements of this program exist at the NMC Climate Analysis Center and at the National Climate Data Center; new programs are being developed under the Climate and Global Change Program in remote sensing, and under the Global Energy and Water Balance Experiment (GEWEX) in climate prediction, and in regional applications (Regional Climate Centers).

PLANNED ACTIONS:

- Establish a climate data continuity program to document any bias in the climate record resulting from the implementation of the Automated Surface Observing System (12/91). Director, Office of Meteorology

- Complete the Climate Services Plan (9/92). Directors, National Meteorological Center and National Climatic Data Center

- Prepare a NOAA Climate Assessment and participate in a press briefing (2/92). Director, National Meteorological Center

- Improve the security of the 6-10 day prediction operations and the products which are produced.

  - Install new hardware/software (3/92). Director, National Meteorological Center

  - Develop on-line map files for operational forecasting (9/92). Director, National Meteorological Center

- Prepare a suite of graphical climate products for presentation to the user community, including the Regional Climate Centers and Federal agencies (9/92). Director, National Meteorological Center

- Lead critical activities in support of the GEWEX Continental Scale International Project (GCIP).

  - Complete GCIP Science Plan (1/92). Director, Office of Hydrology

  - Initial draft of GCIP Implementation Plan (1/92); Final baseline GCIP Implementation Plan (6/92). Director, Office of Hydrology

  - Initiate core project for development of an integrated analysis system for precipitation, temperature, and potential evaporation to meet NOAA's required input for GCIP data requirements (11/91). Director, Office of Hydrology

  - Initiate core project to produce assimilated hydrometeorological fields from NMC models to meet NOAA's required input for GCIP data requirements (9/92). Directors, Office of Hydrology and National Meteorological Center

- Complete report on hydrologic input to the NOAA Climate and Global Change Program and interdependencies between Climate and Global Change, WARFS, U.S. Weather Research and GCIP programs (11/91). Director, Office of Hydrology

NWS-11

OBJECTIVE: *NOAA-wide support – establish scientific understanding and technologies necessary to improve and provide capabilities for observing, analyzing, modelling, and predicting significant weather phenomena.*

BACKGROUND: Hazardous weather phenomena and heavy precipitation are not adequately handled by existing science and technology. It is essential to capture smaller spatial scales and shorter life cycles. New observing techniques based on remote sensing must be proven. New data analysis and "4-D data assimilation" techniques are needed.

Large ocean-going ships participating in the international Volunteer Observing Ship (VOS) program have provided worldwide ocean weather observations for decades. Detailed observations are transmitted in a coded form to facilitate use of the data by meteorological processing centers. However, there is a large segment of the marine community that is unable to participate in the VOS program. This segment represents a potential source of data in a less rigorous format, similar to cooperative in-flight observations from the aviation community.

Higher resolution models with improved physics are also needed. Additional data management, diagnostic, and interpretation aids must also be developed.

Reports of individual lightning strikes over the Nation as they occur, have been made possible by recent advances in technology. Real-time national lightning data has proven indispensable for NWS operations both on national and local scales.

A national effort to address mesoscale research needs and opportunities has been defined (STORM Program).

PLANNED ACTIONS:

- Establish the policy and necessary resources, in coordination with the Office of the Chief Scientist, NESDIS and OAR, to obtain ground truth information about significant tornadoes and hurricanes through quick-response aerial surveys (3/92). Director, Office of Meteorology

- Begin implementation, continue development, and evaluate an objective method of obtaining index runoff values needed in enhanced flash flood guidance calculations, using a Geographical Information System (8/92). Director, Office of Hydrology

- Develop and present Hydrometeorology I course to Hydrometeorological Analysis and Support Forecasters, Development and Operations Hydrologists, meteorologists, and hydrologists (8/92). Director, Office of Hydrology

- Complete development and implement baseline software for short-term prediction of precipitation and flash flood potential from WSR-88D data for risk reduction activities in the MARD area (9/92). Director, Office of Hydrology

- Evaluate improved flash flood guidance modelling based on the finer space and time scale data available from the WSR-88Ds (8/92). Director, Office of Hydrology

- Complete the acquisition and initial implementation of real-time national lightning data into NWS operations (4/92). Director, Office of Systems Development

- Assist in the development of an integrated approach to an inter-agency budget initiative for FY 1994 for the National Stormscale Operational and Research Meteorology (STORM) Program (5/92). Director, Office of Meteorology

- Complete design, manage, and report on hydrologic research which will be conducted as part of the U.S. Weather Research Program's STORMFEST experiment (5/92). Director, Office of Hydrology

- Complete initial design of the longer-term hydrologic components of the U.S. Weather Research Program (9/92). Director, Office of Hydrology

- As the Wind Profiler Demonstration Network is installed in the central U.S., begin to assess its operational utility (6/92). Director, Office of Meteorology

- Develop the concept of experimental forecast activities at selected weather forecast offices to engage research scientists more directly in improving operational mesoscale predictions (9/92). Director, Office of Meteorology

- Complete a strategic plan for NWS forecast office collaborative research activities with universities and research institutions (1/92). Directors, Office of Meteorology and Office of Hydrology

NWS-12

OBJECTIVE: *NOAA-wide support—develop and maintain a comprehensive approach to modernization of operational marine programs to improve marine products and services.*

BACKGROUND: Data void and data sparse areas have a significant negative impact on NOAA's warning and forecast services. The Weather Service's real-time forecast and climatological data bases would benefit from data base augmentation that would provide a more accurate data analysis of existing conditions.

Although weather reports from ships are valuable, they do not provide an evenly distributed network of fixed point, continuous high quality (hourly) data needed to monitor storm conditions, develop high resolution wind and wave models, and validate forecast techniques derived from new radar and satellite technology.

PLANNED ACTIONS:

- Develop, coordinate and foster activities to investigate the Doppler radar's application to the coastal maritime environment (9/92). Director, Office of Meteorology and Southern Region

- Develop a program implementation plan for expanding the current operational network of moored data buoys and automated coastal stations to support improved numerical models, warnings and forecasts (6/92). Directors, Office of Meteorology and National Data Buoy Center

- Conduct a demonstration with NOAA Sea Grant and the Coast Guard to determine feasibility of selected Coast Guard communications stations acting as collection centers for Mariner Reports (MAREPs) (9/92). Directors, Office of Meteorology and National Data Buoy Center

NOAA-LEVEL OBJECTIVES

NOAA-Level Objectives include those programs that serve
the Line and Program Offices,
contributing to the success of the entire agency.

DUS-1

OBJECTIVE: *Implement Metric Usage in NOAA's Mission Activities in support of the Department of Commerce Metric Program*

BACKGROUND: U.S. metric policy was established under Public Law 100-418, the Omnibus Trade and Competitiveness Act of August 23, 1988, and Executive Order 12770, Metric usage in the Federal Government, signed by the President on July 25, 1991. The policy requires, to the extent economically feasible, that each Federal Agency incorporate the metric system of measurement into its programs, procurements and grants, and other related business activities by the end of FY92, except where such is impractical or likely to cause significant inefficiencies or loss of market. NOAA and its Line and Administration Offices have formed a Metrication Panel, and developed a draft Metric Transition Plan and schedule for metrication in NOAA. The Plan and schedule should be finalized in the second Quarter of FY 1992. So far, no insurmountable barriers have been identified, and NOAA metrication is proceeding on schedule.

NOAA's Deputy Under Secretary is the responsible official for oversight of the metric transition program.

PLANNED ACTIONS:

- Metric Panel provides NOAA Metric Transition Plan and FY 1992 Metric MBO (Management by Objective) to NOAA and the Department of Commerce (DOC) Metric Program Office (6/30/92). Director, NOS Engineering Staff

- NOS develops and provides nautical charting information pamphlet NOAA Nautical Charts are going Metric!, for public distribution (1/30/92). Director, Coast and Geodetic Survey

- NOS converts 75% of Next Generation Water Level Measurement System tide gauges and processing systems to metric (SI) (9/30/92). Director, Office of Ocean and Earth Science

- NESDIS and NASA make decision to contract for next generation NOAA O, P, and Q satellites using metric specifications and standards (9/30/92). Director, NESDIS

- ONCO makes decision to solicit bids for new ships in (SI) for NOAA Ship Modernization Plan (9/30/92). Director, ONCO

- NWS incorporates METAR aviation weather code coincident with international acceptance of METAR for worldwide implementation (9/1/93). Director, NWS

DAS-1

OBJECTIVE: *Enhance NOAA effectiveness in international affairs; identify and respond to emerging international opportunities for NOAA*

BACKGROUND: Increased NOAA coordination of its international activities will be needed to address major international environmental and scientific events/concerns in 1992. This is likely to include more developing country requests to NOAA for S&T cooperation, technology training and transfer, and environmental assistance, in particular for sustainable development. These concerns will be raised in numerous fora such as bilateral relations, Global Environment Facility, UN Conference on Environment and Development, UN Regional Seas Program, treaty negotiations (climate change and biodiversity) and training opportunities in the IOC.

Cooperation through S&T agreements and other mechanisms including through UN organizations, such as WMO, IOC, IPCC and UNEP, will be increasingly important to NOAA as it attempts to coordinate major international research strategies to address common environmental concerns such as global change.

Trade/environment linkage is becoming an increasingly important issue within the U.S. and internationally in numerous trade and environment fora.

PLANNED ACTIONS:

- Convene representatives of the Line Offices to review and coordinate NOAA-wide International Affairs Coordinating Group (IACG).

- Coordinate those areas of NOAA cooperation with developing countries that involve U.S. Agency for International Development, multilateral development banks, Enterprise for the Americas and United Nations Environment Program. Deputy Assistant Secretary (DAS), all Line Offices, GC, CS.

- Develop and implement an oceans initiative and data management proposals for the 1992 United Nations Conference on Environment and Development. DAS, CS, NMFS, NOS, NESDIS

- Expand and integrate NOAA participation in the Caribbean and South Pacific Regional Environment Programs, including provision for new means for U.S. territories and affiliated states to participate in these international programs, in particular in the South Pacific. DAS, NOS, NMFS

- Lead NOAA participation in U.S. review of the Global Environment Facility's proposed environmental projects and draft proposals for GEF consideration. DAS, Line Offices

- Continue NOAA leadership of the Pacific Island Network, a consortium of Federal agencies providing marine and coastal expertise to U.S. affiliated governments and territories in the Pacific: (a) expand Federal agency participation; and (b) expand outreach of PIN agent in each affiliated state. DAS, NMFS, NOS, OAR

- Establish and implement an international strategy for international scientific cooperation in further studying large marine ecosystems to improve management of marine resources, including seminars (Kenya), cooperation with scientific organizations, e.g. IUCN, and proposals to the Global Environment Facility. DAS, NMFS

- Support NOAA interest in international polar issues through participation in the Antarctic Treaty Consultative meetings, implementation of the Environment Protocol to the Antarctic Treaty and meetings regarding international cooperation in the Arctic region. DAS, GC, all Line Offices

- Develop a comprehensive plan to address the linkages between trade and environment issues such as those under discussion at the Organization for Economic Cooperation and Development, General Agreement on Trade and Tariff, North American Free Trade Agreement, including strengthening international cooperation in the implementation of conservation objectives agreed under multilateral conservation agreements. DA, DAS, GC, NOAA Trade Strategy Group.

NC-1

OBJECTIVE: *Provide ship support to NOAA programs and other activities in accordance with the approved allocation plan.*

BACKGROUND: NOAA ships acquire marine data required for nautical charting, living marine resource assessment and research, environmental monitoring, exclusive economic zone surveys, and oceanographic and atmospheric research programs. The ship time is allocated to these programs annually by NOAA's Fleet Allocation Council (FAC), and the ships are operated in accordance with a Fleet Allocation Plan approved by the FAC.

PLANNED ACTIONS:

- Operate fleet in accordance with approved Fleet Allocation Plan (ongoing). Directors, Atlantic Marine Center and Pacific Marine Center

- Provide report to the FAC on FY 1991 fleet accomplishments (3/92). Director, Office of NOAA Corps Operations (NC)

- Manage the execution of the Fleet Replacement and Modernization Plan. Activities will include new ship construction, service life extensions of existing NOAA vessels, conversions, and leasing/chartering of ships to transition the NOAA fleet from its present state to a modern and efficient fleet capable of meeting NOAA's future program requirements. Director, NC

- Lead development of the FY 9393 Fleet Allocation Plan (5/92). Director, NC

NC-2

OBJECTIVE: *Provide mission-ready airborne platforms and personnel to support NOAA programs and other activities in accordance with the approved allocation plan*

BACKGROUND: NOAA aircraft support NOAA research and service programs as well as those of other federal agencies. Currently these aircraft are involved in hurricane reconnaissance, weather, oceanographic and environmental research, aeronautical charting, coastal mapping, and airport photography. The flight time is allocated by the NOAA Aircraft Allocation Council (NAAC) on an annual basis.

PLANNED ACTIONS:

- Provide aircraft support in accordance with approved Aircraft Allocation Plan (ongoing). Director, Aircraft Operations Center

- Provide report to NAAC on FY 1991 aircraft accomplishments (3/92). Director, NC

- Lead the development of the FY 1993 Aircraft Allocation Plan (4/92). Director, NC

- Participate in the development of the Aircraft Modernization and Maintenance Plan for presentation to Department of Commerce. Plan to assess aircraft requirements for the next 20 years and provide an analysis of options available to meet this demand in the most efficient and cost-effective manner (12/91). NOAA Aircraft Modernization Task Force

NC-3

OBJECTIVE: *Provide technically competent officers to command the ships, pilot the aircraft, and assume positions of leadership in the projects and programs of NOAA.*

BACKGROUND: NOAA Commissioned Officers command and manage NOAA's fleets of ships and aircraft, provide leaders to support NOAA's charting, environmental monitoring, fisheries, oceanographic and atmospheric research and other programs, and provide liaison with the other uniformed services. Officers are assigned to billets in accordance with an approved billets list describing all positions to be filled by NOAA officers and the relative priority of the positions.

PLANNED ACTIONS:

- Update the NOAA Corps billets list, with the advice of NOAA program representatives, to align the billets list with on-board Corps' strength, NOAA program priorities, and officer career development needs (8/92). Director, Commissioned Personnel Center (CPC).

- Implement a micro-graphics archiving system to rapidly access personnel records and to protect personnel files from accidental loss or damage (2/93). Director, CPC

- Update the NOAA Corps Regulations (8/92). Director, NC

- Establish professional/career paths for commissioned officers to follow while serving in various NOAA programs (8/92). Director, NC

- Improve communications among NC senior management and the officers assigned to the NOAA unit (8/92). Director, CPC

- Improve the NOAA Corps assignment process so that NOAA's civilian management better supports Corps assignments to the line organizations (8/92). Director, CPC

- Expand the NOAA Corps' formal education and training programs (8/92). Director, CPC

NC-4

OBJECTIVE: *Fleet modernization – implement a program of ship replacement and modernization to ensure that the NOAA fleet is capable of satisfying the agency's ocean and atmospheric mission into the next century.*

BACKGROUND: NOAA is increasingly being viewed as the Nation's earth system agency with unique responsibilities to improve understanding of the coastal and global oceans through research, assessment, surveying, and long-term monitoring. NOAA depends upon its research and survey fleet to satisfy its ocean missions. This fleet now faces major problems including age, a backlog of deferred maintenance, and in some cases, restriction in functional capability.

NOAA's ships are at an age which the ocean community considers as maximum for research and survey vessels. With the exception of the 125-foot CHAPMAN which was built in 1980, all NOAA vessels predate the establishment of NOAA and are largely a product of major capital investments in the early to mid 1960's. NOAA has never had a systematic capital investment program for its vessels, either for major rehabilitation or for new construction. The base program for marine services (approximately $60 million in FY90), includes only $6 million for routine maintenance and repairs. At present NOAA has a $40 million backlog of critical maintenance items in ship's systems. Added to this is a $50 million backlog for replacement of obsolete instrumentation. Given the age of vessels in NOAA's fleet, the fact that no vessel has had a major service life extension, and the current material condition of the fleet, it is conservatively projected that within seven years NOAA will have less than six ships, and just beyond the end of the decade will not have any vessels capable of sustaining operations.

Also of concern is that some NOAA vessels cannot fully satisfy recognized mission requirements. Virtually all NOAA vessels were built with the technology of the 1960's to satisfy specific oceanographic objectives of that era. Since that time there has been a dramatic evolution in methods for collecting and analyzing oceanographic data. New designs, not incorporated into NOAA ships, will provide efficiency in operations.

Building upon, and incorporating as appropriate, the NOAA Fleet Modernization Study, a comprehensive Fleet Replacement and Modernization Plan was completed and submitted with a FY93 budget request to DOC on May 2, 1991. The 15-year plan includes priorities of mission requirements, life cycle cost estimates, alternative identification, cost/risk/benefit analyses, and an implementation schedule. Revitalization of the NOAA fleet will be accomplished through new ship construction, service life extensions of existing ships, and some ships will be leased or chartered to satisfy program needs. Opportunities to possibly acquire relatively new Navy ships have also materialized and are being investigated. Acquisition of these Navy ships will have a significant impact on NOAA's Fleet Replacement and Modernization Plan.

PLANNED ACTIONS:

- Investigate alternatives for replacing and modernizing NOAA ships by acquiring T-AGOS and/or AGOR type ships from the U. S. Navy.

- Develop specifications for repairs-to-extend and government furnished equipment for the following NOAA ships:

  - OCEANOGRAPHER
  - DISCOVERER
  - FAIRWEATHER

- Initiate design for repairs to extend the life of the NOAA ship DELAWARE II.

- Initiate design for new ships to replace the NOAA ships RUDE and JOHN N. COBB.

- Develop specifications for providing the NOAA Fleet Replacement and Modernization Project Office with contractor support.

- Conduct planning and analysis for new and improved ship capabilities to meet NOAA mission requirements.

COMP-1

OBJECTIVE: *In FY 1992, the Office of the Comptroller will improve services, strengthen processes and necessary controls, and implement new systems in the areas of the NOAA core financial management system (including commitments); audit and internal control program; the Administrator's Distribution Fund (ADF); establishing priorities; program evaluation; control planned overspending and resource management.*

BACKGROUND: NOAA needs to replace/modernize existing financial systems to achieve (1)improved financial controls, improved oversight of resources, better program decisions, and avoidance of fraud, waste, and abuse (2)timely, accurate and easily accessible financial information, (3)a system that is more successful in meeting agency functional requirements, (4)current, structured, thoroughly-documented and more easily maintained software code, (5)improved productivity through the automation of manual processes and the elimination of duplicate systems and (6)processing and data consistency across the agency. Further, a commitment system will be developed which combines commitment data with FIMA obligation data.

It is the Comptroller's intention to increase the priority of, and policy and program level attention to, internal control programs mandated under the Federal Managers' Integrity Act, and Office of the Inspector General audit follow-up.

The Office of the Comptroller will re-establish the ADF process and criteria and provide strict management control and accountability.

In preparing the FY 1994 budget submission, due to DOC June 1, 1992, additional emphasis will be placed on the priority ranking procedure, criteria, and process.

Long-term base funding erosion has created the need to consider termination or diminution of low priority programs. NOAA must begin reviewing those programs as possible trade-offs for new initiatives.

In FY 1992, NOAA will plan in advance of the fiscal year, a mechanism to address NOAA-Wide funding issues.

In FY 1992, the Comptroller's office will intensify its resource management efforts through regular resource status reports to management with emphasis on performance within approved financial operating plans and identification and tracking of known and potential problem areas. Working with the NOAA and DOC Personnel Office, the Comptroller will develop a menu of useful, human resources reports which will be distributed to the Management and Budget (M & B) staffs automatically, and on time.

PLANNED ACTIONS:

- Work with DOC in the preparation of a Request For Proposals (RFP) to obtain a contractor to support the planning, design, construction, testing and implementation of a Core Financial Management System. (End 6/92). Comptroller/Chief, Financial Management Division

- Begin capturing commitment data. (10/91). Chief, Financial Management Division, Line and Staff Offices

- Provide the Assistant Secretary for Administration quarterly reports on the implementation status of Office of Inspector General and GAO audit recommendations. (10/92). Chief, Audit and Internal Control Branch

- Revise procedures and issue guidance for review, recommendation, and approval of ADF requests (11/91). Budget Officer

- Develop innovative ways to rank/display NOAA's FY 1994 priorities (4/92). Comptroller, Budget Officer

- Complete program evaluations with highest payoff potential and chance for quick success (6/92). Chief, Programs Analysis Division

- Determine method for funding NOAA-Wide problems in consultation with M & B chiefs (9/91). Budget Officer

- Develop a menu and process for obtaining meaningful personnel data from DOC's automated personnel system and provide top management with and overview of resource status at MORs (1/92 & Ongoing). Comptroller, Chief, Resource Management Division

LEO/IAG-1

OBJECTIVE: *Develop, and in coordination with other NOAA staff, implement a plan for strengthening the agency's relationships with its partners in federal, state, and local government and organizations of related interests.*

BACKGROUND: State and local governments traditionally have been the primary beneficiaries of NOAA's applied research and technical expertise in ocean and atmospheric science, the products of which have provided useful information to the American public about the weather and natural hazards, the resources of the Nation's coastal areas, and the waterways used by commercial and recreational boaters and mariners. Other Federal agencies have relied as well on NOAA's data products and technical services in support of national policies affecting the Nation's interests in trade and economic development, environmental protection, and public safety. Recognizing the importance of and the need for strengthening such partnerships which bring together NOAA science and its constituencies in government, the agency created a separate staff function within the Office of Legislation, Education, Outreach and Intergovernmental Affairs (LEO) to develop and implement its intergovernmental agenda.

In coordination with relevant NOAA staff, the Intergovernmental Affairs Division (IAD) Chief is responsible for the following:

PLANNED ACTIONS:

- Review, and where necessary, revise the IAD Program Development and Operations Plan to respond to changes in NOAA policies, priorities, and program objectives (11/91). Coordination: Assistant Administrators and Staff Office Directors.

- Update and prepare a NOAA Sourcebook and profiles of NOAA-state facilities and operations that describe the agency's major programs in ocean and atmospheric research and investments (12/91). Coordination: Assistant Administrators, Regional Offices, and Staff Office Directors.

- Establish a network and computer-based data base ("FEDNET") of Federal agency counterparts to the IAD who share similar intergovernmental roles and responsibilities (2/92). Coordination: Director, DOC Office of Intergovernmental Affairs.

- Evaluate the benefits for establishing a computer-based system ("NOAANET") for cataloging and retrieving information contained in the NOAA Sourcebook, state profiles, and Product Information Catalog, including the costs associated with various hardware and software designs (3/92). Coordination: Chief, Educational Affairs Division.

LEO/IAG-2

OBJECTIVE: *Promote NOAA-wide cooperation in the implementation of the IAD program development and operations plan by strengthening the collaborative relationship between the IAD and other NOAA Staff and Line Offices through early consultation and coordination.*

BACKGROUND: Requisite to the establishment of a successful NOAA intergovernmental outreach activity is the need for developing a solid foundation of NOAA-wide support. To achieve this end, the IAD must first be successful in promoting its services and staff capabilities within the NOAA family, gaining the confidence of NOAA senior managers, and ultimately the full commitment and participation of program staff in carrying out the agency's intergovernmental agenda.

In coordination with relevant NOAA staff and other listed interests, the Intergovernmental Affairs Division Chief is responsible for the following:

PLANNED ACTIONS:

- Conduct briefings for NOAA senior managers and program staff to: (1) Describe the major elements of the IAD Program Development and Operations Plan; (2) Discuss their needs and suggestions for improving the intergovernmental agenda, including the participation of NOAA regional office staff; and (3) Establishing a protocol for initiating and coordinating discussions and activities, including participation in the NOAA-State Partnership Program, with State and local governments (12/91). Coordination: Assistant Secretary, Deputy Under Secretary, AAs, Program Directors, and Staff Office Directors.

- In consultation with NOAA regional offices and other relevant interests, prepare a series of Regional Action Plans to be used in identifying priority interests and opportunities for shaping the IAD's activities with regional governments and constituencies (4/92). Coordination: Assistant Administrators, Staff Office Directors, NOAA regional staff, and regional governors' organizations.

- At the request of NOAA Staff and Line Offices identify or create opportunities for promoting NOAA science and its benefits to the agency's constituencies in Federal, State, and local government (ongoing). Coordination: Assistant Administrators and Staff Office Directors.

- Advise NOAA Staff and Line Offices concerning opportunities for cooperative relationships with State and local government, some of which might include possible cost sharing arrangements (ongoing). Coordination: Assistant Administrators and Staff Office Directors.

LEO/IAG-3

OBJECTIVE: *Develop and promote NOAA partnership roles with state and local government, associations of government officials, and the nation's business community which emphasize information exchange and technology transfer, NOAA product utility, user community input and feedback, and regional priorities.*

BACKGROUND: Consistent with its prescribed mission, the IAD is assigned the principal action for treating issues and problems involving "Federal, State, and local governments and agencies that affect NOAA's programs or are impacted by NOAA's activities." Responding to this challenge, the IAD plans to administer and, in coordination with other NOAA Staff and Line Offices, carry out an effective communications and outreach program, as prescribed in its Program Development and Operations Plan, with NOAA's constituencies in government and related external communities.

In coordination with relevant NOAA staff and other listed interests, the Intergovernmental Affairs Division Chief is responsible for the following:

PLANNED ACTIONS:

- Revise list of target states and performance trajectories for the NOAA-State Partnership Program (12/91). Coordination: Assistant Administrators, Staff Office Directors, and LEO Division Chiefs.

- Implement the NOAA-State Partnership Program in accordance with established program procedures and performance trajectories (As prescribed). Coordination: Assistant Administrators, Staff Office Directors, LEO Division Chiefs, and State governments.

- Coordinate the development of mechanisms for: (1) Promoting exchanges between NOAA and users of its products whose feedback could be used to benefit the agency's outputs; or (2) Informing representatives from industry and the business community who might benefit from an improved understanding of NOAA science and its practical value when applied to their decisionmaking (4/92). Coordination: Assistant Secretary, Deputy Under Secretary, Assistant Administrators, Staff Office Directors, LEO Division Chiefs, Intergovernmental Affairs Office/DOC, National Governors' Association, and State governments.

OA-1

OBJECTIVE: *Improve both grants preparation and processes and, therefore, better serve the program offices and award recipients.*

BACKGROUND: The establishment of a work group comprised of Office of Administration and Line Office staff to address problems and issues of grant policy will be a major factor in improving NOAA grants administration.

PLANNED ACTIONS:

- Establish Financial Assistance Group in NOAA and indicate goals and objectives (11/91). Director, Office of Administration; Line Office representatives

- Report to Group on workload results of first quarter – awards, monitoring, close-outs, *etc.* (1/92). Chief, Grants Management Division

- Obtain working recommendations from Group for achieving established goals and objectives (1/92). Chief, Grants Management Division

- Report to Group on workload results of second quarter (4/92). Chief, Grants Management Division

- Group to review progress to date, make additions, modifications, *etc.* in recommendations (4/92). Office of Administration representatives; Line Office representatives

- Report to Group on workload results of third quarter (7/92). Chief, Grants Management Division

- Group to review progress to date, make additions, modifications, *etc.* in its recommendations (7/92). Office of Administration representatives, Line Office representatives

- Report to Group on workload results of fourth quarter (10/92). Chief, Grants Management Division

- Group to make final assessment of implementation of its recommendations in FY 1992 (10/92). Office of Administration representatives, Line Office representatives

OA-2A

OBJECTIVE: *Ensure timely administrative support for the modernization and reorganization activities of the National Weather Service, Central and Southern Regions.*

BACKGROUND: Modernization of the National Weather Service involves an extensive process of developing new weather service locations and radar systems across the U.S. and bringing them up to operational status. In that process, physical sites will be purchased, buildings constructed, personnel transferred, and new employees hired. All of this requires extensive administrative support. In fact, adherence to the planned schedule is to a large part dependent on the administrative actions that must be taken by the Administrative Support Centers (ASCs). In FY 92, much of this activity will be concentrated in the central part of the country; therefore only the Central Administrative Support Center (CASC) and the Mountain Administrative Support Center (MASC) are being tracked in this year's initiative. A great deal of coordination is needed to ensure that each administrative action is timed to coordinate with other specific activities. For example, personnel transfers must be completed before new facilities can go on line, and acquisition of land and construction of buildings must correspond with the plan to shut down existing weather forecast centers and open replacement locations. The schedule is subject to last minute changes dependent upon delivery of equipment and systems to a particular site. Close communication and coordination between the staff at CASC and MASC and officials in the Southern and Central Regions of NWS is paramount to the success of this effort.

PLANNED ACTIONS:

- Directors, CASC and MASC will meet with Director and Deputy Director, NWS CR and SR respectively to identify required actions (11/91). Directors, Central Administrative Support Center and Mountain Administrative Support Center

- Develop and agree on initial time schedule for actions needed by ASCs (12/91). Directors, Central Administrative Support Center and Mountain Administrative Support Center

- Identify potential pitfalls (actions with a high probability of delay) (12/91). Directors, Central Administrative Support Center and Mountain Administrative Support Center

- Tracking and adjustment of schedule (Ongoing). Directors, Central Administrative Support Center and Mountain Administrative Support Center

OA-2B

OBJECTIVE: *Meet the accelerated schedule for NEXRAD facilities*

BACKGROUND: The recent Unisys agreement accelerated the schedule for NEXRAD equipment delivery. The facilities must be ready in time to meet the equipment delivery date in order for NOAA to avoid substantial monetary penalties. In the process, economic analyses must be prepared, land must be acquired and facilities must be designed, constructed and equipped on time. Coordination between the staffs at the NWS, the SPO, the ASCs, CASC SEPO and Procurement and the professional services contractor is critical to acquire property and make site and budgetary decisions.

PLANNED ACTIONS:

Director, CASC Special Engineering Program Office and CASC Chief, Procurement Division

- Complete the remaining 5 economic analyses for original sites (12/91).
- Complete 9 economic analyses to accommodate the change from MLOS to T-1 (1/92).
- Acquire real property systems as follows:

1st Qtr - 6	3rd Qtr - 8
2nd Qtr - 11	4th Qtr - 5

- Complete 3 Prototype WFO and WFO/RFC facilities as follows:

Design	System	Due Date
91I-18	New York City	3/6/92
WFO/RFC	Boston	3/27/92
91I-12	Sioux Falls	4/17/92

- Initiate 33 designs to reflect the adjustments in Master Schedule to accommodate recovery for the sites with scheduling problems as follows:

Type	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
91I-12			2	3
91I-14	4	2	3	4
91I-18		1	1	1
WFO/RFC	1	3		
Unique		1	1	
Modify	2			
Lessor Mod	1	2	1	

- Complete 28 designs to reflect the adjustments in the Master Schedule to accommodate recovery for the sites with scheduling problems:

Type	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
91I-12			1	
91I-14	1	2	6	
91I-18		1	1	
WFO/RFC		1	1	3
Unique		3		
Modify		1	1	
Lessor Mod	2	2	2	

- Manage 5 continuing (FY 91) and 18 new (FY 92) construction contracts. The facilities currently under construction are Tulsa, Detroit, Central Pennsylvania, Binghampton, and Louisville. The schedule for new contracts is shown in below.

- Award 18 new construction contracts per the following schedule:

Type	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
91I-12			1	1
91I-14			1	2
91I-18				2
WFO/RFC				2
Unique			1	2
Modify				2
Lessor Mod	1	1	1	1

- Negotiate and award a new contract for professional services in support of the NWS modernization (4/15/92).

OA-3

OBJECTIVE: *Implement an effective information technology security program to assure continutiy of service and protection of sensitive information in NOAA.*

BACKGROUND: NOAA is implementing this program in accordance with P.L. 100-235, OMB Circular 130, OMB Bulletin 90-08, and the Department's Information Technology Security Handbook. Major accomplishments to date include:

- Development of an Information Technology (IT) Security Directive describing overall programmatic objectives.

- Development of a security awareness program provided to new employees upon Entrance to Duty.

- Development of disaster recovery plans and contingency plans have been developed for all NOAA sensitive systems.

- Distribution of guidelines, procedures, and virus detection software throughout NOAA to cope with computer viruses and malicious software.

- Provision of training to NOAA personnel through workshops and seminars on computer viruses, disaster recovery, risk analysis and security planning.

For Fiscal Year 1992 our principal goals are to complete development of the set of tools and methodologies necessary to support basic program objectives and effect much broader based involvement in NOAA program offices. Efforts are underway to enhance existing risk analysis methodologies, to develop a standard training package for remote field locations, and to implement a programmatic tracking program.

Due to an FY 1991 change to OMB and DOC guidelines the number of NOAA sensitive systems (those for which a formal security plan is required) has increased from 27 to 227. At the same time, the Department has made a commitment to remove the IT Security material internal weakness designation through a formal accreditation program. In order to meet accreditation, verification, and review requirements for a much broader set of systems, NOAA Line and program Offices will have to undertake a more active role in the coming year. The Office of Administration will oversee and guide the program in conjunction with those offices.

PLANNED ACTIONS:

- Conduct Computer Workshop. Conduct computer security program management workshop. This workshop will provide guidance on preparing security plans on sensitive system (10/91). Chief, Systems Division, ISFO

- Update Existing Security Plans. Complete updated security plans for NOAA's Sensitive systems. These plans are the basis for further evaluation of security measures and controls for significant systems (1/92). Chief, Systems Division, ISFO

- Develop Security Plans for New Systems. Security plans will be prepared in the required format for all sensitive systems and submitted to the Department for approval (1/92). Chief, Systems Division, ISFO

- Implement a Management Tracking System. Implement a management process to assure compliance with program objectives. This process will utilize an automated tracking system shared among the NOAA Information Technology (IT) Security Office and Line Office IT Security Officers. A key element of this will include developing an updated IT systems list and using that information to populate the tracking system. The tracking system will include the system unique name, system identification number if assigned, organization/location, system category, system classification, hardware category with manufacturer and model number, general description/type of data and responsible person/ telephone number (1/92). Chief, Systems Division, ISFO

- Review New Plans and Submit to DOC. The NOAA's Line Office Information Technology Security Officer (ITSO) will review security plans as submitted, making appropriate written comments which will be sent to the originator for corrective action. Within 30 days, the originator will make all corrections to the plan and resubmit it to the Line Office ITSO. The plan will then be sent to the NOAA ADP Security Officer for review and comment. The plan will be forwarded to the Department IT Security Manager for incorporation into the official Department records and tracking system (3/ 92). Chief, Systems Division, ISFO

- Develop Verification Process. Develop a verification process for NOAA and all Line Offices to schedule reviews of NOAA's sensitive systems, to verify that the information contained in the sensitive system security plans, and to ensure that the controls in place and planned are adequate for the system being reviewed. This process will assure that security plans are being implemented as stated. This process will entail site documentation reviews by NOAA and Line Office IT Security Officers (6/92). Chief, Systems Division, ISFO

- Develop Tutorial Program. Develop and disseminate a computer aided tutorial which will provide a uniform standard for ADP Security Awareness training to NOAA field locations (8/92). Chief, Systems Division, ISFO

- Implement Risk Analysis Methodology. This will include automated tools and evaluation guidelines for medium and large systems (8/92). Chief, Systems Division, ISFO

- Accreditation Policy Implementation. NOAA will implement the Department's Accreditation policy that will assure proper security of systems that are designated as sensitive or classified systems or applications (9/92). Chief, Systems Division, ISFO

- Security Verification Reviews. NOAA's review program shall be in line with the Department program and verify the implementation of controls identified in the sensitive system security plans. NOAA will conduct at least one verification review during FY92. The reviews will be based upon system life cycle milestones and the Security Plans (Ongoing). Chief, Systems Division, ISFO

OA-4

OBJECTIVE: *Consolidation of NOAA Headquarters operations*

BACKGROUND: Since its formation in 1970, NOAA Headquarters has been housed in various facilities disbursed throughout the Washington Metropolitan area. Duplicative administrative systems have been required to provide services to the Line Organizations. Attendance at meetings is time consuming and interaction across Line Organizations is challenging at best. In fact, the perception exists that NOAA is little more than a loosely structured consortium of environmentally-related programs as opposed to a unified representative of the scientific community. The Consolidation effort is intended to remedy each of these organizational obstacles.

PLANNED ACTIVITIES:

- Develop installation drawings for approximately 50% of all systems furniture for SSMC 3 and SSMC 4 (9/92). Director, Procurement, Grants and Administrative Services

- Review all construction drawings for the two buildings and provide comments to the contractor and GSA (6/92). Director, Procurement, Grants and Administrative Services

- Complete all telecommunications planning for both buildings and survey of clients (9/92). Director, Procurement, Grants and Administrative Services

- Initiate and complete all Federal Supply Service furniture requotes (6/92). Director, Procurement, Grants and Administrative Services

- Establish contracts for completion of 90% of the building amenity space to be included in the two buildings (9/92). Director, Procurement, Grants and Administrative Services

OA-5

OBJECTIVE: *Evaluate NOAA financial and administrative systems and procedures in preparation for audited financial statements.*

BACKGROUND: As a result of the Chief Financial Officers (CFO) Act, NOAA will undergo a complete and thorough investigation of its financial statements in fiscal year (FY) 1993. The Office of Inspector General (OIG) will conduct the audit based on FY 1992 data. In anticipation of the audit, our goal will be to identify areas of potential vulnerability early in FY 1992 and to strive to improve the most critical areas. We will also make NOAA management and staff aware of potential financial weaknesses and present options to improve financial management of NOAA and its resources. Successful completion of this objective will create areas of financial improvements prior to the audited financial statements. The Office of the Comptroller and the Office of Administration will work in conjunction to identify weaknesses and suggest ways to improve the financial and administrative procedures and systems in NOAA.

PLANNED ACTIONS:

Office of the Comptroller/Office of Information Systems and Finance:

- Identify potential areas of financial vulnerability for upcoming financial audit (12/91).
- Present list of vulnerable area to NOAA management for information (1/92).
- Develop recommendations to address areas of financial vulnerability (3/92).
- Present recommendations to NOAA management for review and further actions (4/92).
- Begin implementation of approved actions to improve NOAA management of financial resources (5/92).
- Follow-up on implementation of suggested improvement actions (8/92).
- Report to NOAA management on the status of implementation of suggested improvement actions (9/92).

PA-1

OBJECTIVE: *To continue to raise NOAA's public profile as the leading-edge federal science agency.*

BACKGROUND: Important advances have been made the past several years in gaining additional media and public recognition for NOAA's mission and diverse scientific expertise. Nonetheless, much remains to be done to see that the important work of the agency and its employees reaches an even broader segment of the population.

PLANNED ACTIONS:

- Assist in fine-tuning communications planning process to meld media outreach with that to constituent, educational and other external groups.

- Create positive media awareness and public support for startup of Weather Service Modernization with media/community relations programs in all five NWS regions focused on early NEXRAD installations. Coordinate media and community events at key sites. Equip MIC's and other WFO personnel with "how to" media guide and other tools. Use NEXRAD-equipped WFO's to parley other positive national, regional and local coverage for upcoming sitings.

- Utilize high-profile National Marine Sanctuary designations, including Monterey Bay, Flower Garden Banks and Florida Keys, to boost NOAA awareness on all coasts. Coordinate with White House press office possible Presidential visit to Monterey Bay. Coordinate ongoing media activities with regard to designation of Florida Keys, including special event for placement of NOAA habitat and utilization of habitat as media showcase. Increase awareness of NOAA's overall role in the Nation's coastal zone.

- Continue with proactive media plan for GOES backup. Build media plans and support for launch of LANDSAT-6 and NOAA 1, stressing their importance to global change research. Bolster specialized media and public awareness of SARSAT command center and lifesaving applications of SARSAT.

- Plan and coordinate media events/briefings to maximize positive NOAA/NMFS exposure for noteworthy fishery management actions such as potential salmon listings, shark management plan, gray-whale de-listing.

- Compile and publish a quarterly NOAA Sea Grant News digest to be distributed to environmental reporters publicizing significant or noteworthy results of SeaGrant College Program research, build an increased NOAA public presence in major west coast media outlets including San Francisco, Los Angeles, San Diego and Portland through more aggressive media relations in those markets.

- Bolster NOAA/NWS reputation for improved warnings and forecasts based on selected NEXRAD advances and promote such advances through groups such as Broadcast meteorologists. Explore NOAA/private relationships to achieve wide ownership and distribution for NOAA weather radio.

NOAA-WIDE PLANED ACTIONS:

- Budget permitting, allocate full-time public affairs officer to promote work of NOAA program and staff offices, including Office of the Chief Scientist and ONCO. Currently, lone line office PA officers are split off from regular duties to handle these offices, whose important and newsworthy work is growing rapidly. Damage assessment and restoration, fleet modernization, global change research results from extramural scientists, Coastwatch, and the NOAA Chief Scientist's activities all augur for such a position.

- Continue to work to improve media coordination relationships with Department. Persuade new Departmental press personnel on positive NOAA media opportunities the Secretary and involve them wherever possible. Continue to work to reform Departmental publications review process. Reinstitute weekly NOAA report, which was ordered stopped by Departmental Committee.

- Conduct signing ceremony and attendant publicity for NOAA/Audobon Society IMAX Film "Whales, Sharks and Things in the Dark." Assist Audobon in development and fundraising, wherever possible, in order to assure early production and distribution of film.

- Complete production of, and plan and host, gala premiere for new NOAA video.

- Reach growing numbers of science and environmental writers through outreach efforts such as hosting them for meetings and briefings and build these relationships. Seek out opportunities for positive NOAA exposure in new, non-traditional media such as niche cable outlets, motion picture and theater distribution, airline news programming, video rental firms, all news and talk radio, children's publications and others.

- Help coordinate and plan positive U.S. international coverage on environmental matters by maintaining close working relationships with State Department planning process for the United Nations Conference on Environment and Development in June 1992.

- Explore other public/private opportunities such as NOAA/TIMES MIRROR and NOAA/ AUDOBON agreements to leverage NOAA exposure within current budget constraints.

ACRONYMS

AA	Assistant Administrator
ADF	Administrator's Discretionary Fund
AFOS	Automation of Field Operations
AGOR	A specific ship model used by the U.S. Navy for Oceanographic Research
AL	Aeronomy Laboratory
ANICA	Atmospheric Nutrient Input to Coastal Areas
ANCS II	Automated Nautical Charting System
AOML	Atlantic Oceanographic and Meteorological Laboratory
AOP	Annual Operating Plan
ARL	Air Resources Laboratory
ASCs	Administrative Support Centers
ASOS	Advanced Surface Observating System
AVHRR	Advanced Very High Resolution Radiometer
AWIPS	Advanced Weather Interactive Processing System
C&GS	Coast and Geodetic Survey
CASC	Central Administrative Support Center
CEES	(White House) Committee on Earth and Environmental Sciences
CEHAB	Causes and Effects of Harmful Algal Blooms
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFCs	Chlorofluorocarbons
CFO	Chief Financial Officer
CMDL	Climate Monitoring and Dynamics Laboratory
COADS	Comprehensive Ocean-Atmosphere Data Set
COAP	Center for Ocean Analysis and Prediction
CONUS	Continential U.S.
COPS-91	Cooperative Oklahoma Profiler Studies-91
COMET	Cooperative Program for Operational Meteorological laboratory
COMPAS	Coastal Ocean Management, Planning and Assessment System
COSWG	Coastal Ocean Science Working Group
CPC	Commissioned Personnel Center
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
DAA	Deputy Assistant Administrator
DARP	Damage Assessment and Restroration Program
DAS	Deputy Assistant Secretary
DIFAS	Digital Ice Forecasting and Analysis System
DOC	Department of Commerce
DOM	Dissolved Organic Matter
EBS	Emergency Broadcast System
ECMWR	European Center for Medium Range Weather Forecasts
EEO	Equal Employment Opportunity
EEZ	Exclusive Economic Zone
EHP	Estuarine Habitat Program
ENSO	El Nino Southern Oscillation
EPA	Environmental Protection Agency
EPOCS	Equatorial Pacific Ocean Climate Studies
ESA	Endangered Species Act
ERS-1	ESA (European Satellite Agency) Remote-Sensing Satellite-1
ESDIM	Earth System Data and Information Management program
ESD	(USAF) Electronics System Division
EUMETSAT	The European Consortion for Meteorological Satellite

FAA	Federal Aviation Administration
FAA/AFTN	FAA Aeronautical Fixed Telecommunications Network
FAC	Fleet Allocation Council
FCC	Federal Communications Commission
FCCSET	Federal Coordination Council for Science Engineering and Technology
FEMA	Federal Emergency Management Agency
FIMA	computer system for FInancial MAnagement
FMP	Fishery Management Plan
FSL	Forecast Systems Laboratory
FROAGE	Fishery Oceanography Research and Groundfish Ecology
GAO	General Accounting Office
GC	General Counsel
GCIP	GEWEX Continental Scale International Project
GEF	Global Environmental Facilities
GEOID90	geoid height computation
GEOSAT	Geostationary Satellite
GEWEX	Global Energy Water Balance Experiment
GFDL	Geophysical Fluid Dynamics Laboratory
GIS	Geographic Information System
GLAMIS	Grant and Loan Accounting Management Information System
GLERL	Great Lakes Environmental Research Laboratory
GMD	Grants Management Division
GOES	Geostationary (Statellite)
GOOS	Global Ocean Observation System
GPS	Global Positioning System
GRAF	Gridded Representation of Analysis and Forecasts
GSA	General Services Administration
GSL	Global Sea Level
HACCP	Hazardous Analysis Critical Control Point
HAZMAT	Hazardous Materials; also commonly used to refer to HMRAD
HMRAD	Hazardous Materials Response and Assessment Division
IA	International Activities staff, OAR
IAD	Interngovernmental Affairs Division
IAGC	Interrnational Affairs Coordinating Group
IGDR	Interim Geophysical Data Record
IGOSS	Integrated Global Ocean Services System
IMAX	Film Company that produced *The Blue Planet*
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
ISFO	Information Systems and Finance Office
IT	Information Technology
ITCs	Information Technology Coordinators
ITSO	Information Technology Securtiy Officer
IUCN	International Union for the Conservation of Nature and Natural Resources
ITQ	Individual Transferable Quota
JGOFS	Joint Global Ocean Flux Studies
JIC	Joint Ice Center
JOMAR	Joint Office of Mapping and Research
LARC	Limited Automated Remote Collector
LEO	Legislation, Education, Outreach and Intergovernmental Affairs
M&B	Management and Budget
MAPS	Mesoscale Analysis and Prediction System
MAR	Modernization and Associated Restructuring
MARD	Modernization and Associated Restructuring Demonstration
MAREPs	MARiner REPorts

MARPLOT	a microcomputer-based rapid mapping program
MASC	Mountain Administrative Support Center
MBO	Management By Objective
METAR	Meteorological Aviation Report
MMPA	Marine Mammal Protection Act
MOR	Monthly Operating Review
MOS	Model Output Statistics
MSRC	Marine Spill Response Corporation
NAAC	NOAA Aircraft Allocation Council
NAS	National Academy of Sciences
NASA	National Aeronautics and Space Adminstration
NAVD88	North American Vertical Datum 88
NAWPP	National Aviation Weather Program Plan
NCAR	National Center for Atmospheric Research
NCDC	National Climatic Data Center
NDSC	Network for Detection of Stratospheric Change
NECOP	Nutrient Enhanced Coastal Ocean Productivity
NESDIS	National Environmental Data and Information System
NGDC	National Geophysical Data Center
NGM	Nested Grid Model
NGWLMS	Next Generation Water Level Measurement System
NMC	National Meteorological Center
NMS	National Marine Sanctuary
NODC	National Oceanographic Data Center
NOS	National Ocean Service
NRC	National Research Council
NSF	National Science Foundation
NSGCP	National Sea Grant College Program
NSSL	National Severe Storm Lab
NURP	National Undersea Research Program
NWLON	National Water Level Observation Network
NWR	NOAA Weather Radio
NWS	National Weather Service
NWSRFC	National Weather Service River Forecast Center
NWSRFS	National Weather Service River Forecast System
NWSTG	National Weather Service Telecommunications Gateway
OAB	Ocean Applications Branch
OAR	(Office of) Oceanic and Atmospheric Research
OIG	Office of the Inspector General
OM	Office of Meteorology
OMB	Office of Management and Budget
OMEGA	low-frequency navigation system
ONCO	Office of NOAA Corps Operations
OPA	Oil Pollution Act of 1990
OPM	Office of Personnel Management
OR	Oceanic Research programs, OAR
OSD	Office of Systems Development
OSF	Operational Support Facility (for NEXRAD)
PIN	Pacific Island Network
PMEL	Pacific Marine Environmental Laboratory
PORTS	Physical Oceanographic Real Time System
PROFS	Program for Regional Observing and Forecasting Services
QC	Quality Control
QUIPS	Quality Improvement Performance Systems
QPL	Qualified Products List

RASS	Radio Acoustic Sounding System
RFC	River Forecast Center
RFP	Request for Proposals
RITS	Radiatively Important Trace Species
ROSE	Rural Oxidants in the Southern Environment experiment
ROV	Remote Operating Vehicle
RTA	Remote Terminal to AFOS
S&T	Status and Trends
SAR	Synthetic Aperture Radar
SARSAT	Synthetic Aperture Radar Satellite
SAV	Submerged Aquatic Vegetation
SEAS	Shipboard Environmental (Data) Acquisition
SEL	Space Environmental Laboratory
SELDADS	Space Environnmental Laboratory Data Acquisition and Display System
SLOSH	Sea, Lake, and Overland Surges from Hurricanes
SMARTQC	System for Marine Analysis and Real Time Quality Control
SMCC	Systems Monitoring and Coordination Center
SNOTEL	Snow Telemetry System
SPO	Systems Program Office
STORM	National Stromscale Operational and Research Meteorology
STORMFEST	STORM Fronts Experimental Systems Test
SUOOP	Surface Upper Ocean Observing Program
SWAMP	Southwest Area Monsoon Project
SWIS	Satellite Weather Information System
TARMAC	Trajectory Analysis Routines for the MAC
TIROS	Television Infra-Red Observational Satellite
TOGA	Tropical Ocean Global Atmosphere
TOGA COARE	TOGA / Coupled Ocean-Atmosphere Response Experiment
TOVS	TIROS Operational Vertical Sounder
UN	United Nations
UNEP	United Nations Environmental Program
USGS	U.S. Geological Survey
USWRP	U.S. Weather Research Program
VENTS	hydrothermal venting program
VISSR	Visible and Infrared Spin Scan Radiometer
VLBI	Very Long Baseline Interferometry
VOS	Volunteer Observing Ship
WARFS	Water Resources Forecasting Services
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment
WPDN	Wind Profiler Demonstration Network
WPL	Wave Propagation Laboratory
WRSAME	Weather Radio Specific Area Message Encoder
WSFO	Weather System Forecast Office
WSR-88Ds	Weather Service Radar 88D
WSO	Weather Service Office
XBT	Expendable Bathythermograph
YMP-8	model of Cray computer