Federal Workplan

An Agreement Commitment Report from
the Chesapeake Executive Council

Annapolis, Maryland
July 1988

ADOPTION STATEMENT

We, the undersigned, adopt the **Federal Workplan** in fulfillment of Governance Commitment Number 8 of the 1987 Chesapeake Bay Agreement:

> *"...by July 1988, the Environmental Protection Agency, acting for the federal government, will develop a coordinated, federal agency workplan which identifies specific federal programs to be integrated into a coordinated federal effort to support the restoration of the Chesapeake Bay."*

The Federal Workplan describes each participating agency's Bay initiatives, the current level of coordination, outlines a process for expanding that cooperation, and points to future directions for agency efforts in support of the Agreement. Agencies have included projections of potential programs and projects for the future which may be the basis for coordinated, complementary budget proposals.

In adopting the Federal Workplan, we call upon the participating federal agencies to:

1. Review and revise the document annually;

2. Report to the Executive Council annually on progress in implementing the Workplan and in improving coordination among the agencies; and

3. Work with the Implementation Committee to identify opportunities for future federal cooperation and coordination in implementing the 1987 Chesapeake Bay Agreement.

For the Commonwealth of Virginia

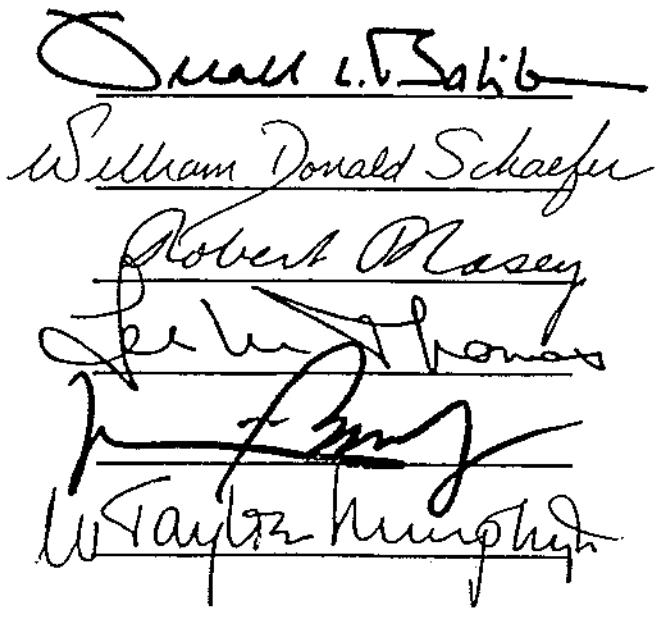
For the State of Maryland

For the Commonwealth of Pennsylvania

For the United States of America

For the District of Columbia

For the Chesapeake Bay Commission



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PREFACE

The Governance Section of the 1987 Chesapeake Bay Agreement contains the commitment: "by July 1988, the Environmental Protection Agency, acting for the Federal government, will develop, a coordinated, federal agency workplan which identifies specific Federal programs to be integrated into a coordinated Federal effort to support the restoration of the Chesapeake Bay."

Before the Agreement was signed in December 1987, the Federal Agencies Committee (FAC) met to begin planning Federal participation in development of all the commitment documents due in 1988, and specifically to plan how they would accomplish the Federal commitments: the work plan and Federal facilities strategy. Members of the FAC are organizations which have signed memoranda of understanding or joint resolutions with the EPA. The same agencies also participate on the Implementation Committee.

The FAC was chosen as the group to develop the Federal work plan because:

- its purpose in part is to encourage and expand interagency cooperation, coordination and communication;
- members are an integral part of the Chesapeake Bay Program infrastructure, participate actively on numerous subgroups, and through the groups formally communicate/cooperate with the states and other Federal agencies.
- members represent the major Federal programs affecting the restoration and protection of the Bay and its living resources.

Through EPA's national capital area group, the Environmental Roundtable, and at Region III federal facilities conferences, additional agencies were invited to participate in development of the Federal Work Plan.

This Draft Federal Work Plan contains contributions from the following agencies: Army Corps of Engineers, U.S. Fish & Wildlife Service, U.S. Geological Survey, Soil Conservation Service, Forest Service, U.S. Environmental Protection Agency, Department of Defense, and National Oceanic and Atmospheric Administration.

Each agency which provided input to the Plan described its overall mission, organization, programs important to the Bay and how those efforts support the Agreement, future plans and method for establishing priorities for funding.

FEDERAL COORDINATION

INTRODUCTION

The individual Federal agencies' workplans that follow this section of the Federal Workplan provide information concerning activities for which separate agencies have budgeted dollars and human resources. Each agency program description includes a matrix or list displaying the relationship of efforts to the Agreement. Table 1, at the end of this chapter, summarizes 1988 and near term planned Federal activities and describes how they support meeting the goals of the 1987 Chesapeake Bay Agreement using the six sections of the Agreement and the categories which appear in the matrices. Some of the numerous projects and activities which are coordinated and carried out through interagency cooperation to increase cost effectiveness and maximize results are described following.

PROJECTS AND PROGRAMS

Examples of Federal cooperation include work in the areas of computer modeling and geographic information systems (GIS) use and development, monitoring, submerged aquatic vegetation studies of distribution and diversity, wetlands, assistance with planning and implementing best management practices, pollution reduction on federal facilities, communications, fisheries management, and special studies.

The Geological Survey (USGS) works cooperatively with several other Federal agencies in collecting hydrologic data and performing water resources investigations in the Chesapeake bay drainage area. The cooperative projects include:

1. Several districts of the U.S. Army Corps of Engineers (CoE) provide funding for the Survey to collect streamflow and water quality data at numerous sites on streams in the Bay drainage area. These data are used for CoE project management such as dam operation, i.e. deciding how much water to release when and at what level of the structure. Such decisions not only affect the extent of erosion along the stream, they also affect salinity, temperature and dissolved oxygen, so they affect the living resources downstream of the structures. In forecasting flooding, the National Oceanic and Atmospheric Administration (NOAA) also uses the data extensively.

2. In cooperation with the Environmental Protection Agency (EPA), USGS is completing a GIS demonstration project in the Elizabeth River area of Virginia. GIS tools are being used to investigate how data on land use patterns and identified contaminant sources can be used by water resource managers making decisions about the Elizabeth River. Plans are now being formulated in cooperation with the Soil Conservation Service (SCS) to extend the use of GIS tools in mapping soil characteristics in the entire drainage basin.

3. USGS is working with several military installations in the drainage basin to investigate site-specific problems. At Aberdeen Proving Ground, Maryland, four studies are underway to identify the extent and movement of contaminants in the local ground water system. Similar studies are underway at Bolling Air Force Base in Maryland and the District of Columbia, and at the Defense

General Supply Center in Richmond, Virginia. Further, data collection has begun on an investigation to identify sources of increasing salinity in ground water supplies in and surrounding the Indian Head Naval Ordnance Station in Maryland.

The Fish & Wildlife Service cooperates with other Federal agencies in several projects within the Bay drainage area:

1. With Corps of Engineers and EPA financial assistance for data collection, the Service continues its monitoring of SAV distribution and diversity. The surveys are conducted annually. They are planned jointly throuth the SAV Work Group of the Monitoring Subcommittee. Reports and maps are jointly prepared, reviewed, used and distributed. NOAA also participates on the Work Group through its National Marine Fisheries Service (NMFS).

2. The Service helped the DoD prepare a management plan for wildlife and habitat at Fort Belvoir in Virginia.

3. The Service also helped DoD to identify wetlands of significant value to the Bay.

4. The Service is working with EPA, the Corps of Engineers and NMFS to develop a policy for the protection of tidal and nontidal wetlands.

5. The Service cooperates with NOAA in collecting and analyzing fishery statistics and has a major program of tagging anfd release of hathery produced striped bass fingerlings. NMFS provides funds and vessel time for the East Coast tagging effort.

6. The Service with NMFS survey fish passage facilities for anadromous fish to remove or improve blockages.

7. The Service, with CoE, USGS and the National Park Service plans and performs annual surveys of Hydrilla in the Potomac River and establishes appropriate harvest regimes on an annual basis.

8. The Service, with the CoE, produces educational material on SAV. The agencies are cooperating in the development and funding of a color identification guide to SAV.

9. The Service assists NOAA to select sites and research within the Bay area for the Estuarine Sanctuary Program.

10. The Service also cooperates with NOAA's Environmental Effects Committee to identify priority research for its Sea Grant efforts in the Bay states.

The Soil Conservation Service has worked with the USGS on the use of GIS to display soil characteristics, land use patterns and pollution loadings. SCS cooperates with numerous other agencies through memoranda of understanding which encourage coordination of efforts such as the Rural Clean Water Program, Resource Conservation and Development Program and Watershed Protection and Flood Prevention Program. SCS has completed soil surveys for Andrews Air Force Base and Bloodsworth Island, and developed soil conservation plans at Cameron Station and the Naval Academy Dairy Farm. SCS has provided a liaison

person to the Bay Program since 1984 when EPA and SCS signed a memorandum of understanding.

Since 1984 when EPA signed memoranda of understanding with the SCS, F&WS, USGS, NOAA and the CoE, and a joint resolution with the DoD, the Bay Program has been the focal point for Federal cooperation and coordination. The EPA works with all Federal agencies involved in the Bay Program through staffing the Implementation Committee and Federal Agencies Committee, and chairing thee task forces responsible for development and implentation of the Federal Facilties Strategy and the Federal Work Plan. The Agency is working with the Corps of Engineers in developing the Time Variable Three Dimensional Model, with USGS on fall line monitoring and use of the GIS, with F&WS on SAV monitoring, with SCS on watershed modeling and implementation/evaluation of best management practices, with DoD on reducing pollution from its facilities. Regional and Headquarters staff members work with all Federal agencies to assist them to improve compliance with EPA laws, regulations and guidelines.

The Department of Defense has received assistance on its facilities from SCS, F&WS (see above), EPA and the CoE. Through the Joint Resolution signed in September 1984, EPA has been working with DoD to strengthen the NPDES permits granted to DoD facilities, insuring that they are up to date and define appropriate discharge levels. Further, the EPA federal facilities coordinator in Region III provides current information on federal facilities compliance requriements through periodic conferences and on-site visits. The Baltimore District of the CoE prepared environmental action plans for Fort Belvoir for the management of underground storage tanks, erosion, sedimentation and stormwater management, and water quality monitoring. The Corps also provided technical contract managment support to the Office of the Secretary for Defense for the study of its 66 Bay area installations (Water Quality Assessment of DoD Installations in the Chesapeake Bay Region). NOAA participated with the National Aeronautics and Space Administration and the Navy to coordinate a high altitude overflight of the Chesapeake Bay area in July 1986 for the purpose of estuarine monitoring.

The Corps of Engineers works cooperatively with other Federal, state and regional agencies in conducting water resources investigations and administering laws for the protection and preservation of navigable waters in the Chesapeake Bay. As part of its water resources development program, the Corps is engaged in a major cost-shared (with the states) study of shoreline erosion around the Bay, as well as the programs mentioned above.

The Corps is working with other Federal agencies in a number of areas within the Bay, including: developing a policy for the protection of tidal and nontidal wetlands with FWS, EPA and NOAA; annual surveys of Hydrilla and other SAV in the Potomac River and executiion of joint Hyrilla management programs with the Metropolitan Washington Council of Governments; annual provision of funds to the USGS for collecing hydrologic data in tributaries of the Bay; and preparation of environmental action plans and a water quality assessment for DoD Bay installations.

The Corps regulatory program is designed to reflect both national and regional concerns regarding the protection and utilization of important Bay resources. Each permit action (over 5,000 in 1987) is coordinated with FWS, EPA, other Federal agencies as approriate, and various resource agencies at the state

level prior to the Corps' taking action.

FUTURE PROGRAMS

When developing their workplans, agencies listed potential future programs and projects, within their mandates, which they believe could further the goals of the Bay Agreement. The Federal Agencies Committee, which intends to continue to function as a group under the 1987 Chesapeake Bay Agreement, will review those lists and attempt to develop future coordinated budget proposals that are complementary and interdependent.

Further the Committee will be working more closely with the Agreement commitment task forces to more closely track the unfilled needs which Federal agencies may be able to plan for and meet. The Federal Agencies Committee will propose a process to the Implementation Committee to improve the effectiveness of the overall Bay restoration and protection program. Task Force Chairmen will be asked to review their documents and the related objectives in the 1987 Agreement to analyze which necessary programs and projects cannot be financed within the resources of the signatory jurisdictions in the 1990s. These lists would be given to the Federal Agencies Committee for discussion and thorough review.

Federal agency representatives would then outline which items fit directly within their mandates or would have potential for funding because they involve high prioirty issues. The Committee would then determine which agency or agencies would attempt to include specific projects in their budget submittals for 1990 and beyond.

TABLE 1
FEDERAL ACTIVITIES IN SUPPORT OF THE 1987 CHESAPEAKE BAY AGREEMENT

LIVING RESOURCES

SAV restoration, protection and enhancement

EPA: Provide funding for FWS survey, states replanting and public information/involvement grants, perform Federal coordination, secretariat services for Federal Committee, and regulatory reviews.

FWS: Participate in trends assessment by conducting research on SAV contaminant tolerance and food value, promoting prioritized nutrient reductions in the Choptank River, protecting through regulatory review processes and planning; produce publications and co-sponsor citizens groundtruthing effort.

DoD: Natural resource management plans and wetlands management plans include guidance for the protection of SAV areas; cooperative SAV planting programs at Aberdeen Proving Grounds since 1980, and at the Annapolis Naval Station.

NOAA: Provide funding for SAV research and restoration/enhancement projects through NOAA's Chesapeake Bay Environmental Effects Committee, MD and VA Sea Grant College Programs, and MD and VA Coastal Resources Management Programs, and Habitat Conservation activities of the National Marine Fisheries Service.

CoE: Implements regulatory permits program consistent with protection and restoration of SAV beds; conducts studies and research activities pertaining to SAV; looks for and implements dredged material disposal actions for SAV restoration and protection where possible and practical; monitors abundance and distribution of SAV in Potomac River on annual basis.

FS: Coordinating Committee (CC) will develop information base for its use and participate in Agreement work.

SCS: Promote the use of vegetation for shoreline protection.

Soil erosion & sedimentation reduction

EPA: Provide and manage NPS implementation grants to states; staff to NPS Subcommittee; regulatory reviews of Federal projects; Federal coordination.

FWS: Assess turbidity problems in the Choptank River; perform shoreline alteration study in Baltimore and Anne Arundel counties; recommendations during routine work under Clean Water Act and F&W Coordination Act; forest buffer pamphlet.

GS: Provides topographic maps and, in cooperation with SCS, digitized soils information; provides collection, analysis and interpretation of stream sediment loads and bed materials.

DoD: Best management practices (BMPs) are written into timber sales agreements and agricultural outleases and included in installation land management plans and soil conservation plans (e.g. stormwater detention basins constructed at Andrews AFB, experimental shore erosion control project at Camp Peary, shore erosion and sediment control projects at NAS Solomons Island, NRL Chesapeake Detachment, NOS Indian Head, and NSWC Dahlgren, soil stabilization and runoff control at Letterkenny Army Depot, Fort Belvoir, and Fort A.P. Hill); potential problem areas are identified during staff assistance visits and environmental audits, and plans are reviewed, upgraded and implemented where needed.

NOAA: Conducts analyses using satellite and aircraft remote sensing data to characterize suspended sediment in surface waters of the Bay and tributaries; supports nonpoint source pollution research and shoreline erosion mitigation projects through National Marine Fisheries Service and Coastal Resource Management and Estuarine Reserve Research Programs in MD and VA.

CoE: Conducts shoreline erosion and streambank erosion studies and constructs erosion control projects which contribute to turbidity reduction in the Bay (e.g. Chesapeake Bay Shoreline erosion study); implements regulatory program consistent with sediment control practices; constructing innovative shoreline protection demonstration sites in Virginia and Maryland Bay waters which may have Baywide application in the future.

FS: CC will participate as "Working Group" in the development of erosion and sedimentation planning elements and provide technical assistance in the implementation stage; provide technical and financial assistance to states to control insect and disease outbreaks which threaten to defoliate or kill standing timber, seriously impairing watershed protection; through State forestry agencies provide wildfire protection for forested watersheds in the Region; provide technical and financial assistance for operating programs promoting establishment of upland forests for erosion reduction, forest buffer strips to filter agricultural pollutants from surface and ground water or maintenance of existing upland or riparian forests for the same purpose.

SCS: Provide funds and support the state soil conservation committee in each state and local conservation district with reducing erosion and sedimentation from agricultural lands in identified living resource priority watersheds; promote participation in the Conservation Reserve Program with emphasis on buffer strips; continue to evaluate grasses and provide stock from the SCS Plant Materials Centers for demonstration of shoreline erosion control, dune stabilization, and other critical area plantings.

Maintain freshwater inflows

EPA: Technical staff performing research re: use of dams as BMPs; perform regulatory review of Federal projects affecting flow.

GS: Measures and reports on network of stream-gauging stations on Bay tributaries and throughout the Bay basin.

DoD: Addressed in installation natural resource management plans as appropriate.

NOAA: Regulatory review of flow diversion and dam projects by the National Marine Fisheries Service; routine transfer of National Weather Service rainfall data and National Ocean Service tide level data to CBP Computer Center for modeling applications.

CoE: Conducting reallocation studies to evaluate effects of changing storage from Susquhanna River reservoirs; allocations and freshwater releases on water resource needs including the Chesapeake Bay; operates Corps reservoirs to meet instream water quality targets in major Bay tributaries.

FS: CC will encourage, support and provide technical assistance in the Agricultural Conservation Program (ACP), Forest Incentives Program (FIP), Conservation Reserve Program (CRP) for the establishment of upland forests or forested buffer strips to filter agricultural pollution from surface and groundwater entering the Bay.

Restore Wildlife and Waterfowl

EPA: Living Resources Subcommittee and task groups membership and staff support; Federal coordination; pretreatment programs and permit activities improve habitat.

FWS: Conducts research on canvasback, black duck and old squaw; works on the Choptank River to promote habitat restoration for waterfowl wintering grounds; summaries of mid-winter waterfowl data over a 40 year period will be used in assessing trends and to produce a brochure.

DoD: Addressed in installation natural resource management plans which are reviewed, upgraded and implemented as needed.

NOAA: Provides staff support to the Living Resources Subcommittee (LRS);

chairs the LRS Resource Management Workgroup and the STAC Living Resources Workgroup; supports wetland mitigation and related habitat restoration projects through Coastal Resource Management Programs in MD and VA; conducts regulatory permit reviews.

CoE: Conducting studies, research and dredged material disposal operations with an eye towards habitat creation, enhancement, and restoration; implements regulatory program consistent with protection of wetland habitat necessary for wildlife and waterfowl.

FS: Wildlife habitat, cover and travel zones establishment or improvement is ancillary to the watershed protection provided by the establishment of new forested tracts, forested buffer strips or the improvement and/or maintenance of existing forests, either in the uplands or along the Region's streams.

SCS: Assist landowners in planning for wildlife habitat areas through the conservation planning process within each local conservation district; provide technical assistance in cooperation with the local conservation district in developing waterfowl habitat.

Policy for protection of tidal and nontidal wetlands

EPA: Participating on Policy development task group; Federal coordination; wetlands permit activities.

FWS: Produced atlas of Chesapeake Bay wetlands; studying the effectiveness of mitigation for Chesapeake Bay wetlands; participating on policy development task group.

NOAA: Provides staff support to Wetland Policy Workgroup; funds projects to produce computerized inventories of wetlands in MD and VA; funds Bay-wide tidal wetland land use characterization and ten-year change study; conducts permit reviews.

CoE: Corps permit program regulates activities in tidal and nontidal wetlands (In 1987, 5,000 applications were processed by Corps on Chesapeake Bay.); institutes Floodplain Management Services Program to help minimize development in floodplain and wetland areas.

SCS: Work with Policy task group to identify new initiatives for protection of nontidal wetlands; support the state conservation committee in each state and administer the wetlands provisions of the Food Security Act of 1985 for protection and restoration of wetlands.

Fish passage; remove blockages

EPA: Participate on task group; perform Federal coordination and regulatory reviews.

FWS: Participate on task group reviewing blockages and recommending removal techniques.

GS: Working with Living Resources Subcommittee to modify several

hydrologic control structures (used to gauge streams) to allow fish passage.

DoD: Potential problem areas are identified during staff assistance visits and environmental audits; work with the Living Resources Subcommittee to identify potential blockages to fish migration, and work to mitigate these impediments.

NOAA: Participates in Fish Passage Workgroup; evaluates Federal Energy Regulatory Commission dam projects; coordinates with COE through an MOU.

CoE: Conducts studies to develop fish passage schemes for blockages in Bay tributaries (i.e., ongoing Rock Creek, D.C. fish passage).

SCS: Work with and support the state conservation committee, as appropriate, as they identify blockages and recommend removal techniques.

Restoration of Shellfish Stocks & commercially important species

EPA: Staff support for monitoring, information transfer; pretreatment program improves habitat and water quality conditions; prevent degradation through NEPA.

FWS: Striped bass tagging effort on hatchery and wild stock fish to improve migratory movements information; identification of inoperative passage facilities to help restore anadromous fish such as shad and alewives.

NOAA: Provides staff support and funding for NOAA-sponsored state/federal Chesapeake Bay Stock Assessment Committee (CBSAC) which compiled the Baywide Stock Assessment Plan; supports applied research to improve stock assessment (e.g. 1988 study to design a Bay-wide trawl survey); transfers fisheries data to CBP Computer Center; provides Sea Grant funding for basic and applied research such as aquaculture development; conducts recreational fishing surveys; coordinates with coastal states to prepare and implement fisheries management plans and anadromous fish restoration plans; and provides funding for shellfish restoration projects in MD and VA through the State/Federal program.

CoE: Implements regulatory program which protects habitat for shellfish and finfish species; conducts studies pertaining to freshwater inflows affected by Corps projects which could beneficially impact species.

Plan for oysters, blue crab and shad

EPA: See last entry

CoE: See last entry.

NOAA: Support stock assessment for these species as part of fisheries management planning process; CBSAC supports population dynamics research on oysters and blue crab.

FWS: Participate in stock assessment, species restoration and research; ensure that federally funded or permitted programs give adequate consideration to fish protection; develop and maintain agreements with states and other non-federal agencies to conserve, develop and enhance anadromous fish; adminsiter grnats in aid to states for fisheries management; collect, develop and tranfer data for fisheries habitats.

WATER QUALITY

Reduce levels of nonpoint source loads

EPA: Provide and manage nonpoint source state implementation grants; reduce pollutant loads through granting and enforcement provisions of the Clean Water Act, FIFRA and the Air Quality Act.

GS: Provides information on constituent loads to the Bay from major tributaries, selected watersheds, and other selected field sites.

DoD: DoD-wide nonpoint source management strategy issued in 1985 includes technical information exchange, planning coordination, and compliance review; the Military Services have issued nonpoint source policy and BMP guidelines to their installations; potential problems are identified during staff assistance visits and environmental audits; impact of nonpoint source pollution is addressed in the water quality assessment of DoD facilities in the Bay region; review, upgrade and implement land management and natural resources management plans as needed and implement specific erosion control projects as required.

NOAA: Transfers climate data (precipitation, air temperature, wind) to CBP Computer Center for use in watershed models; sponsors research dealing with nonpoint source pollution controls in estuarine reserves, and the coastal zone and reviews permits for adequate sediment and erosion control for construction sites.

CoE: Constructs shoreline and streambank protection projects on Chesapeake Bay and its tributaries; conducts major shoreline erosion study of Chesapeake By to identify sources of sediment and recommend solutions in Federal interest; conducts dredged material disposal and dredging operations consistent with turbidity reduction goals; constructs military facilities and civil works practices observing acceptable erosion control practices.

FS: CC will assemble, collate and disseminate information through membership on Agreement groups or by providing technical assistance for ongoing Federal Programs such as the Agricultural Conservation Program (ACP), Forest Incentives Program (FIP) and/or Conservation Reserve Programs (CRP) or for Bay oriented state programs; forest pest suppression activities through State forestry organizations insure control of insects defoliating upland and riparian forests that either help reduce sediment production or filter excess nutrients out of ground and surface water; the Mid-Atlantic Compact, cooperatively supported by the Forest Service and the State forestry organizations of Delaware, Maryland, Pennsylvania, Virginia and West Virginia,

provides both training and, if needed, manpower for wildfire suppression, insuring the maintenance of optimum watershed conditions in the Region's watersheds; Northeastern Area State and Private Forestry, in cooperation with the six states affecting Bay waters, administers various programs that encourage the maintenance and/or improvement of watershed values on existing upland or riparian forests, the conversion of excessively eroding, marginal crop land to forests and the establishment of forested buffer strips to filter suspended soil from surface water and nitrogen and phosphorus from ground water and surface runoff.

SCS: Provide funds and support the state soil conservation committee in each state and local conservation districts for reducing erosion and sedimentation from agricultural lands in priority watersheds; develop plans and implement resource management systems including appropriate BMP's on highly eroding lands to meet requirements of the Food Security Act of 1985; continue providing technical assistance through on-going programs to the local conservation districts for implementing conservation practices; promote participation in the Conservation Reserve Program for establishment of grass and/or trees; cooperate with the State water quality agency in developing the assessment and plan in accordance with the Clean Water Act; maintain detail of SCS personnel to EPA Region 3 to improve communications and coordination; continue to develop a Geographic Information System (GIS) in cooperation with the U. S. Geological Survey to demonstrate usefulness of GIS technology for the Bay Basin; provide a full-time liaison for coordination with the EPA Chesapeake Bay Liaison Office and other cooperating state and federal agencies; continue assignment of SCS personnel to the Chesapeake Bay Liaison Office to assist EPA with the review, update, and use of the Chesapeake Bay Computer Model which helps identify areas for priority assistance; continue assignment of SCS personnel to the Pennsylvania Bureau of Soil and Water Conservation, and the Virginia Division of Soil and Water Conservation to assist with activities such as implementation of state cost-share programs; demonstrations watershed projects; training state and local conservation district technical staffs; and developing standards, specifications, and program guidelines.

Identify/control toxic discharges

EPA: Utilize monitoring grants and implementation grants to identify problems and sources; use regulatory powers under RCRA, FIFRA, the Pesticides Act, TSCA, the pretreatment program and the Air Quality Act to control discharges, and use provisions of Superfund and RCRA to reduce the problems from hazardous waste sites; participate in development of Toxics Strategy.

FWS: A team of biologists conducts impact assessments at contaminant sites (15 are under investigation) using various techniques, including tissue, sediment, histopathological analyses and bioassays; participate in development of Toxics Strategy.

GS: Provide water quality data on major tributaries.

DoD: Abandoned hazardous waste sites are managed by the Defense Environmental Restoration Program (DERP); the Defense Priority Model (DPM) provides a rational, objective means of evaluating the relative need for action at each identified site; 7 Navy CHESDIV wastewater treatment plants are conducting biomonitoring to determine if they are discharging any toxics; all bases have spill prevention control and countermeasures (SPCC) plans; projects such as the major oil spill prevention facility completed at Quantico in 1986 are constructed as required; potential problems are identified during staff assistance visits and environmental audits; potential impact of toxics is addressed in the water quality assessment (Tetra Tech) study. (Many generic and specific recommendations were identified in the Tetra Tech study, and are currently under evaluation. Potential actions being considered for one or more locations which would identify and control toxic discharges include upgrading of oil/water separators, instituting surface water monitoring programs and effluent toxics monitoring programs, upgrading spill prevention control plans and protection measures, constructing conforming storage facilities; implementing hazardous materials and hazardous wastes management plans; testing underground storage tanks for leaks; and conducting confirmation studies at sites identified by the DERP.)

NOAA: Provides funds for research on processes and effects of toxics through the NOAA-sponsored Chesapeake Bay Environmental Effects Committee; collects toxic data (sediment and tissue content) at six locations in the Bay as part of the National Status and Trends Program; sponsors additional toxics research through Sea Grant, Coastal Resources Management and Estuarine Reserve Research Program funding.

FS: Training and certification of pesticide handlers and applicators provides protection from improper application or inappropriate chemical releases.

Minimize water pollution incidents

EPA: Agency administered provisions of the Clean Water Act reduce potential for such incidents.

GS: Provide water quality information for major Bay tributaries and time-of-travel information for the Potomac, Shenandoah and other selected rivers.

DOD: Operator Maintenance and Training Assistance Program (OMTAP): completed and distributed a guidance manual for conducting operator training assistance at DoD wastewater treatment plants; connections to municipal sewage systems are being made whenever feasible (e.g. at Navy Shipyard Portsmouth, Fort Lee, Fort Belvoir); construction of an advanced wastewater treatment plant (AWT) at Fort Meade; construction of ship-to-shore sewage collection systems in the Norfolk area; improvements to industrial waste pretreatment plant, Naval Air Rework Facility (NARF) Norfolk; potential problems are identified during staff assistance visits and environmental audits. (Many generic and specific recommendations were identified in the Tetra Tech study, and are currently under evaluation. Potential actions being considered

for one or more locations are similar to those discussed in the preceding section.)

CoE: Conduct water pollution studies for Department of Defense identifying potential pollution sources and practices to reduce pollution from Chesapeake Bay military facilities.

Manage sewage sludge, dredge spoil, hazardous wastes

EPA: Utilize regulatory authority under Superfund, NEPA, RCRA and the pretreatment program, NPDES and construction grants provisions of the Clean Water Act.

GS: Provide technical information on types of geological settings and soils.

DOD: Sludge disposal programs have been or are being established at seven Navy activities with wastewater treatment plants; application of sludge to forest lands is being initiated at several activities to reduce landfill requirements and promote beneficial use of the sludge; potential actions identified by the Tetra Tech study are being evaluated, including improvements to wastewater treatment plant operations and institution of BMP's to prevent migration of contaminants from sludge lagoons.

NOAA: Conducts reviews of dredge and fill permits; coordinating with COE on study of beneficial uses of dredge spoil; Office of Ocean and Coastal Resource Management recently funded a study to investigate impacts of 6 hazardous waste sites in coastal Virginia.

CoE: Seeks and implements beneficial uses of dredged material in association with Corps navigation projects (i.e., marsh creation, shoreline and beach nourishment); conducted pilot study for others (e.g., D.C. government) on use of sludge for wetland development for purposes of toxics uptake (tech assistance).

FS: Provide for an exchange of information pertaining to the disposal of sewage sludge, livestock wastes and qualifying hazardous wastes on specifically designed forested tracts; assist State water quality organizations in developing BMPs for establishment of these tracts.

SCS: Provide technical assistance through the local conservation district in stabilization of dredged spoil.

Manage ground water to protect water quality

EPA: Support pilot monitoring efforts through nonpoint source implementation grants and national research; integrate Bay efforts with Pesticides Office work; utilize regulatory authority to reduce water quality impacts on ground water and the Bay from hazardous waste sites, point source discharges and specific nonpoint sources.

GS: Provides geologic information, and information on sources, flow,

quantity and quality of ground water systems.

DOD: Abandoned hazardous waste sites are managed by the Defense Environmental Restoration Program (DERP); potential problems are identified during staff assistance visits and environmental audits; (Many generic and specific recommendations were identified in the Tetra Tech report and are currently under evaluation. Potential actions being considered for one or more locations which would help protect groundwater quality include additional confirmation study sampling and testing; implementing control and containment measures identified in previous confirmation study recommendations; upgrading spill prevention control plans and protection measures; and testing underground storage tanks for leaks and removing confirmed leakers.)

CoE: Conducts study of water quality pollution at Department of Defense installations to be used to implement strategies for surface and groundwater protection.

SCS: Cooperates with the Agricultural Research Service, GS and universities in funding ground water studies.

Federal facilities strategy

EPA: Chair Federal Facilities Task Group responsible for development and implementation of the Strategy and preparation of site plans; through Region III coordinator and Headquarters Office of Federal Facilities efforts, provide assistance and guidance to all Federal agencies to help them to understand and comply with EPA laws, regulations and guidelines.

FWS: Assessed Bay sites with point and nonpoint source discharges as the basis for developing FWS site plans.

GS: Only Bay facility is Headquarters at Reston. Determined it does not have a negative impact on Bay water quality.

DoD: Participate with other members of the Federal Agency Committee in developing and implementing the Federal Facilities Strategy using the generic and specific recommendations identified in the Tetra Tech study as the basis for DoD's input to the Strategy.

NOAA: Reviewed Bay facilities (Oxford and Norfolk) and determined there are no impacts on Bay water quality from these facilities.

CoE: Developed Corps input to Federal strategy for Corps lands, reservoirs which drain to Chesapeake Bay.

FS: Technical assistance in all program areas is available for all Federal sites. Assistance is provided either through the State Forester or state & private personnel.

SCS: Complete implementation of resource management plan at the SCS National Plant Materials Center in Beltsville, Maryland and the SCS Plant Materials Center in Big Flats, NY.

Model development

EPA: Coordinate refinement of the Watershed model, development and use of the hydrodynamic water quality model with its sediment component, and the development of the time variable model.

GS: Provide water quality and flow information for major Bay tributaries.

DoD: DoD will work with the States as they reevaluate the 40% reduction target and attempt to implement the most equitable and effective reductions to point source discharges of nutrients.

NOAA: Funds a long-term research effort on oxygen depletion processes and the influence of nutrient enrichment; research findings have already been used in the development of the two-dimensional model.

CoE: Is cost-sharing with EPA ($1.5 million Corps) and is heading technical effort to develop 3-D time variable hydrodynamic and water quality Bay model to be used in 1991 to reevaluate 40% target.

SCS: Provide review for NPS loadings in watershed model; develop land use data for watershed model use.

PUBLIC INFORMATION, EDUCATION, PARTICIPATION

Provide timely information of progress

EPA: Support grant to the Alliance for Chesapeake Bay, Inc. for information development and dissemination; coordinate development and distribution of Program reports and public information; provide updates on regulatory programs; participate in special events.

DoD: The Tetra Tech study provides a detailed description of the current status of DoD's progress and updates on the status of generic and specific recommendations made in the study will be provided on a regular basis; DoD's Chesapeake Bay Communications Plan notes that DoD can best contribute to the Bay's overall public awareness program by focusing efforts on communicating the results of the water quality assessment to elected and regulatory officials, the Bay scientific community, program managers at all levels within DoD, and interested members of the general public and internal communications to enhance the awareness of DoD's employees and their dependents with Bay clean-up programs; specific information is also available on a number of DoD's environmental programs; e.g. the Defense Environmental Restoration Program (DERP), and the Operator Maintenance Training and Assistance Program (OMTAP).

NOAA: Coordinates with EPA to report on NOAA's Bay activities in the Chesapeake Bay Program Annual Report.

CoE: Conducts workshops, public meetings, prepares news release on Corps Bay-related actions and public information documents (brochures,

newsletters); participates on CBP subcommittees to represent Corps and communicate relevance of Corps activities on Bay to Bay community.

FS: Progress reports of individual state and Federal entities comprising the Chesapeake Bay Forestry Coordinating Committee will be collected and issued in collected form; individual progress will be reported.

SCS: Addressed in SCS Chesapeake Bay Communication Plan.

Assure continuing public input process

EPA: Support the grant to the Alliance for Chesapeake Bay; establish and maintain public accountability information supporting public reviews; support staffing for the Citizens Advisory Committee, Scientific and Technical Advisory Committee and Local Government Advisory Committee; establish, fund and develop opportunities for public input through Alliance grant and regulatory processes.

DoD: Addressed in DoD's Chesapeake Bay Communications Plan.

NOAA: Provides funds to Sea Grant College Programs, Coastal Resource Management Programs (including the MD Coastal Resources Advisory Committee), and Estuarine Reserve Research Programs in MD and VA for public education, advisory services, publications, and outreach activities.

CoE: Same as above.

SCS: See last entry.

Enhance education opportunities

EPA: Produce and disseminate public information; provide speakers; provide materials to teachers, teacher trainers and groups; provide exhibits for public events; support citizens monitoring through grant to Alliance for Chesapeake Bay.

FWS: Produce public information for various audiences, including children; provide exhibits; utilize refuge system for education purposes; produce radio announcements for broadcast over 100 region stations; coordinate SAV volunteer groundtruthing program.

DoD: Addressed in DoD's Chesapeake Bay Communications Plan.

NOAA: Supports graduate students through Sea Grant projects; supports educational opportunities through the establishment of Estuarine Reserve Research Program in MD and VA; supports educational efforts in MD and VA through the Coastal Resource Management Programs; runs a summer class with Michigan State Univ. at the NMFS Oxford Lab.

COE: Participates in Baywide public information activities (C.B. Appreciation Day) and other promotions displaying Corps activity and concern on Bay.

FS: Provide pesticide and herbicide training for states. Evaluate new products for safety of application and use; promote wildfire prevention through ongoing Smokey Bear fire prevention campaign; providing information on Fire Management in urbanizing areas; develop or adapt material pertaining to the value of protecting forested watersheds in the Bay Region for Project Learning Tree; through participation in ongoing Forest Service Programs, CC will promote fire prevention and soil and water conservation, develop or adapt material pertaining to the value of protecting forested watersheds in the Bay Region for Project Learning Tree.

SCS: See last entry.

Provide curricula field experience to students

EPA: The document, Introduction to an Ecosystem, is used by many schools throughout the region; Bay Program internships provided.

FWS: Fact sheets series on fish and wildlife and coloring book are used extensively in schools; developing a Chesapeake Bay curriculum.

NOAA: Funds Sea Grant research assistantships; supports summer students at the NMFS Oxford Lab; provides access to estuarine reserves for researchers.

COE: Utilizes "stay in school" and summer program for "biological aides" to Corps environmental programs; many Bay related.

SCS: See last entry.

Produce/disseminate information

EPA: Develop, produce and disseminate public information throughout the Bay region; fund Alliance for Chesapeake Bay for river basin fact sheets, publications, releases.

FWS: Develop, produce and disseminate written material such as forest buffer pamphlet, waterfowl trends report, wetlands atlas, fact sheets and coloring book.

DoD: Addressed in DoD's Chesapeake Bay Communications Plan; individual installations will be responsible for disseminating general information on Chesapeake Bay restoration efforts to their employees and dependents, relying on existing information which is available from many sources; OSD's Environmental Policy Office will provide information on the Tetra Tech study and its follow-up to the Military Services.

NOAA: Supports the production of Sea Grant periodicals, films, and technical reports; Estuarine Programs Office produces the quarterly Estuarine Calendar-Bulletin, proceedings of estuary seminars, annual estuarine projects catalog, and summaries of NOAA involvement in estuaries throughout the country; runs NOAA exhibits at regional

expositions, symposia, and fairs; funds public information/education efforts of Maryland and Virginia Coastal Resource Management Programs.

FS: Provide information flow for Federal, state and local units of government and planning entities, and technical expertise where appropriate, for the development of stable, protected watersheds and riparian forests, the establishment of upland forests or forested filter strip and/or the establishment of forested waste disposal areas; develop an information base which will enable members of the ** CC, through direct activities, to provide information on the value of upland forests and/or forested buffer strips to remove agricultural chemicals or selected hazardous wastes from surface and/or groundwater reaching the Bay.

State/federal communications plan

All agencies participating in the Bay Program are involved in the development and implementation of the Baywide Communications Plan.

EPA: Coordinates development and implementation of the Baywide Plan.

FWS: Developing a data base for multi-agency use to coordinate use of information materials available to the public.

DoD: DoD has provided its input to the Chesapeake Bay Communication Plan.

NOAA: Contributed to the Bay-wide Communication Plan; MD and VA Sea Grant Programs are coordinating with other Bay agencies.

CoE: Has developed Corps component of Communication plan and is in process of implementing it to identify publics and utilize various mechanisms for information dissemination and seeking of inputs from public.

FS: Prepare inputs to respective State and/or Federal Communications Plans and implement technical data base and information system.

SCS: Provide support and coordinate all program activities through the state soil conservation committee and local conservation districts.

POPULATION GROWTH & DEVELOPMENT

Provide local government finance & technical assistance

EPA: Support for the Local Government Advisory Committee and its 1988 conference for local government officials; through states, provide nonpoint source program cost share through conservation districts.

NOAA: Coastal Resources Management Programs in MD and VA, funded by NOAA, include assistance to local governments' coastal planning efforts.

COE: Conducts studies which demonstrate technologies and solutions available to solve water resource problems which are comparable with growth and development and environmentally consistent with Bay needs.

FS: Provide assistance to small towns, boroughs or cities through the Federal Excess Property and Rural Community Fire Protection Programs.

SCS: Provide soil and water resource data for local and state planners.

Ensure government projects meet environmental standards

EPA: Technical staff reviews government sponsored projects under numerous regulatory programs; coordinate federal facilities planning activities.

FWS: Technical staff review and recommend actions under various Federal laws.

NOAA: The States' Coastal Zone Management Plans require that all federally-funded or federally permitted projects and direct federal activities must be consistent with requirements of the plans.

COE: Implements Corps and Army construction projects in compliance with EPA standards and in exemplary fashion as model for others; requires permit applicants to meet environmental requirements for all construction, dredge and fill activities in Bay navigable waters including tidal and nontidal wetlands; water quality monitoring of Corps dredged disposal activities to ensure compliance with pertinent environmental standards.

SCS: Technical staff review and recommend actions under various Federal laws.

FS: Serve as clearing house for forestry elements represented in Environmental Impact Statements developed for Bay Region activities.

Promote techniques to avoid/mitigate adverse impacts of growth

EPA: Through public information techniques, regulatory reviews, conferences and grants, and use of modeling work to persuade others to reduce the adverse effects of growth.

NOAA: Coastal Resource Management Programs in MD an VA, funded by NOAA, include projects to develop and implement mitigation techniques and have incorporated procedures to review projects with potential impacts in the Bay area.

CoE: Conducts studies and is implementing demonstration projects of innovative shoreline protection projects in C.B. to protect vulnerable shorelines; in implementing regulatory program, works with permit applicants to arrive at environmentally acceptable plans which avoid/mitigate impact of activity.

FS: Planning assistance in Urban Forestry, real estate development siting and recreation development available through ongoing state-federal programs; Continue to develop fire management techniques for use by developers in the Urban/Wildland Interface, a cooperative effort of the United States Fire Administration, the National Fire Protection

Association and the Forest Service; transfer data and information developed in the Urban/Rural Initiative now in pilot stage; selection of participating towns will be made in the fall and Request for Proposals To Study has been provided State Foresters.

Strategy for local protection of tidal/nontidal wetlands

EPA: Participate in development of the Wetlands Policy; perform regulatory reviews; support LGAC and CAC activities; exploring use of created wetlands as means to reduce nutrient loads.

NOAA: Coastal Resource Management Programs in MD and VA, funded by NOAA, include projects to assist local governments with updated and computerized information on tidal and nontidal wetlands.

CoE: In implementing regulatory program, condition permits as necessary to require applicant to avoid/protect/mitigate against each impacting on tidal/nontidal wetlands.

FS: Implementation and enforcement of Bay forestry aspects of various state "set back" or soil and water conservation programs at the state level; assistance for private, state or federal ownerships.

SCS: Participate in development of the Wetlands Policy; cooperate with the state soil conservation committee and local conservation districts in providing technical assistance for creating wetlands as means to reduce nutrient loads.

PUBLIC ACCESS

Improve Bay access

EPA: Participate in development of commitment documents; publish access inventory; coordinate federal participation in access inventory.

FWS: Provided information on refuges in Bay region for access inventory and guide.

DoD: DoD's lands generally have restricted access; efforts to improve access for DoD's employees and dependents are addressed in individual installation Natural Resource Management Plans.

NOAA: Coastal Resource Management Programs in MD and VA provide financial assistance to the states and local governments to improve waterfront access; Estuarine Reserve Research Program promotes limited access for school children and researchers.

CoE: Each year, maintains Baywide about 25 Federal navigation projects (critical to public and commercial access to main Bay and its tributaries); studies, designs and constructs shoreline erosion and flood control projects with added features of local access and recreation in cooperation with local interests.

SCS: Provide information on SCS Plant Materials Centers and provide access as appropriate.

Improve recreational and commercial fishing opportunities

EPA: Utilize regulatory reviews under NEPA and public involvement procedures to incorporate such opportunities.

FWS: Conducted survey at National Wildlife Refuges regarding public access for recreational fishing; provided results to states for use in developing guide.

DoD: Efforts to improve recreational fishing opportunities for DoD's employees and dependents are addressed in individual installation Natural Resource Management Plans.

NOAA: National Marine Fisheries Service conducts a national recreational fisheries survey; Coastal Resource Management Programs in MD and VA provide assistance for improving public access for many activities including fishing.

CoE: Conducts Hydrilla management operations in Potomac River consistent with and enhancing recreation and fishing opportunities; see last entry.

Secure acreage to protect habitat/sensitive areas

EPA: Through federal facilities plans work to increase protection.

FWS: In federal facilities strategy identified refuges which are losing valuable habitat to erosion; site specific plans will outlines methods for reducing erosion.

NOAA: Working very closely with MD and VA to nominate and select sites for inclusion into the National Estuarine Reserve Research System so that the system is represented by a range of habitats found in the Chesapeake Bay area; provides opportunity to the Maryland and Virginia Coastal Resource Management Programs to apply for funds to purchase lands or easements for improved public access.

CoE: Has implemented beneficial use of dredged material solutions involving island creation, marsh creation, beach nourishment to create habitat at over 75 locations around the Chesapeake Bay.

FS: Use the Urban Forestry Program, in conjunction with Critical Areas Programs to protect essential wildlife habitat from development for non-wildlife uses.

Comprehensive guide to access facilities

EPA: Participate in development and dissemination of guide; ensure full federal, advisory committee and overall public involvement.

FWS: Contributed information on each FWS facility.

DoD: All DoD installations with potential recreational waterfront access will complete inventory access forms which will be compiled by the Virginia Department of Conservation and Historic Resources (lead agent for this commitment).

NOAA: Funding development of Bay access guide in Maryland and Virginia through Coastal Resource Management Programs.

FS: Promote the development of Public Access Inventories for counties in the Chesapeake Bay Region utilizing methodology developed by Northeastern Forest Experiment Station. "Preparing Directories to Local Outdoor Recreation Facilities".

GOVERNANCE

Coordinate Bay management activities/develop accountability mechanisms

EPA: Support through Bay Program and other grants, regulatory authorities, secretariat and technical support to groups under the Agreement, publications coordination, data management, modeling, publications and public involvement; report regulatory compliance.

GS: Participates in Implementation Committee and Technical Subcommittees, which guide Bay Program technical studies.

NOAA: Approves Maryland and Virginia Coastal Resource Management Plans and negotiates with states on annual grants; supports the Federal/state Chesapeake Bay Stock Assessment Committee to coordinate fisheries stock assessment Baywide.

SCS: Implement an SCS Operational Activities Plan, which provides for a Board of Directors for the six states with the Maryland State Conservationist as chairman, to direct and coordinate all SCS program activities; participate in Implementation Committee and subcommittees, which guide Bay Program activities.

FS: The Chesapeake Bay Forestry Coordinating Committee, consisting of representatives of State forestry organizations from Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia; USDA Forest Service Regions 8 and 9, and Northeastern Area State & Private Forestry; and the Chesapeake Bay Foundation, has been formed. A goal statement and plan of work is being developed.

Track/evaluate activities which impact Bay water quality

EPA: Support monitoring, geographic information system and data management/analysis for bay Program.

GS: Provides hydrologic data and technical assistance to the Bay Program community in the form of interpretive studies and water-quality information.

NOAA: Conducts climatic, hydrodynamic, fisheries, and toxics monitoring

and assessment efforts in the Bay; data are periodically transferred to the CBP.

CoE: Conducts study for DoD which evaluates available monitoring data for all Bay installations; monitors (i.e., Baltimore Harbor Project) dredging and disposal activities to understand pre and post dredging impacts; monitors disposal operations for C&D canal; develops computer models (3-D Bay model; 2-D model of Hampton Roads) to aid in prediction of activities on Bay WQ.

SCS: Cooperate with each state soil conservation committee and local conservation district in tracking and evaluating installation of BMP's.

Develop coordinated Federal Workplan

EPA: Coordinate development and implementation of workplan.

FWS: Provided workplan for 1989 and described coordination efforts with states and other agencies.

GS: Participates in Federal Agency Committee of the Chesapeake Bay Program and provides information on technical activities.

NOAA: Provided sections for the Federal Work Plan; coordinates with other Federal agencies through the Federal Agency Coordination Committee.

CoE: Prepares Corps component to Federal Workplan representing all Chesapeake Bay CoE Districts, including Baltimore, Norfolk and Philadelphia.

FS: Draft has been developed; missing portions will be incorporated when completed.

SCS: Participate in Federal Agency Committee of the Chesapeake Bay Program and provide information on technical activities; provide information appropriate for the implementation of the Federal workplan.

Develop and implement coordinated Bay research plan

EPA: Support funding for the Scientific & Technical Advisory Committee (STAC) which develops the plan and process for prioritizing research for the Bay.

FWS: Working with Maryland on oyster larvae bioassays to determine the impact of toxic contaminants, and with Maryland, Virginia and the CoE on submerged aquatic vegetation studies.

GS: Provides technical review of research plans, makes available information collected by the U. S. Geological Survey.

NOAA: Participated in the development of the plan through STAC membership; Chesapeake Bay Environmental Effects Committee, CBSAC, Coastal

Resource Management Programs, Estuarine Reserve Research Programs, and the MD and VA Sea Grant College Programs plan to use the research plan for guidance in setting their 1989 research priorities.

SCS: Cooperate with the Agricultural Research Service and identify high priority research needs and cooperate with the Scientific & Technical Advisory Committee (STAC) on prioritizing research.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

INTRODUCTION

Under Section 117 of the 1987 Water Quality Act (WQA), the USEPA was given statutory authority to coordinate the protection and restoration of the Chesapeake Bay. The Act calls for the Administrator to "establish and maintain in the Environmental Protection Agency an office, division or branch of Chesapeake Bay Programs to --

1. collect and make available, through publications and other appropriate means, information pertaining to the environmental quality of the Chesapeake Bay;
2. coordinate Federal and State efforts to improve the water quality of the Bay;
3. determine the impact of sediment deposition in the Bay and identify the sources, rates, routes, and distribution patterns of such sediment deposition, and
4. determine the impact of natural and man-induced environmental changes on the living resources of the Bay and the relationships among such changes, with particular emphasis on the impact of pollutant loadings of nutrients, chlorine, acid precipitation, dissolved oxygen, and toxic pollutants, including organic chemicals and heavy metals, and with special attention given to the impact of such changes on striped bass.

The Act also provided specific authority, in Section 117, for EPA to provide States with an up to 50 percent match in grants to implement management mechanisms contained in an interstate plan for the restoration and protection of the Chesapeake Bay.

In addition, the EPA Administrator signed the 1987 Chesapeake Bay Agreement, not for the Agency, but for the Federal Government. It is therefore EPA which is the lead Federal agency coordinating the Federal-State Chesapeake Bay Program. It is also EPA which is party to memoranda of understanding with other Federal Agencies who formally join the Federal-State partnership, and it is EPA who represents the Federal agencies on the Executive Council, the signatories to the 1987 Agreement. (See Figure 1.)

ORGANIZATION

The EPA Administrator participates in implementing the Chesapeake Bay Agreement and, in effect, directs the involvement of personnel in the Bay Program. The Region III Administrator has the delegated authority for the Chesapeake Bay Program because the geographic area covered is served through the Philadelphia Region. The Water Management Division administers all water programs, including the Bay Program.

The Chesapeake Bay Liaison Office (CBLO) in Annapolis, Maryland is a branch of the Water Management Division. Staff members provide administrative, technical and information support to the groups established to implement the Agreement (Figure 1).

FIGURE 1

ORGANIZATIONAL CHART
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CHESAPEAKE BAY PROGRAM

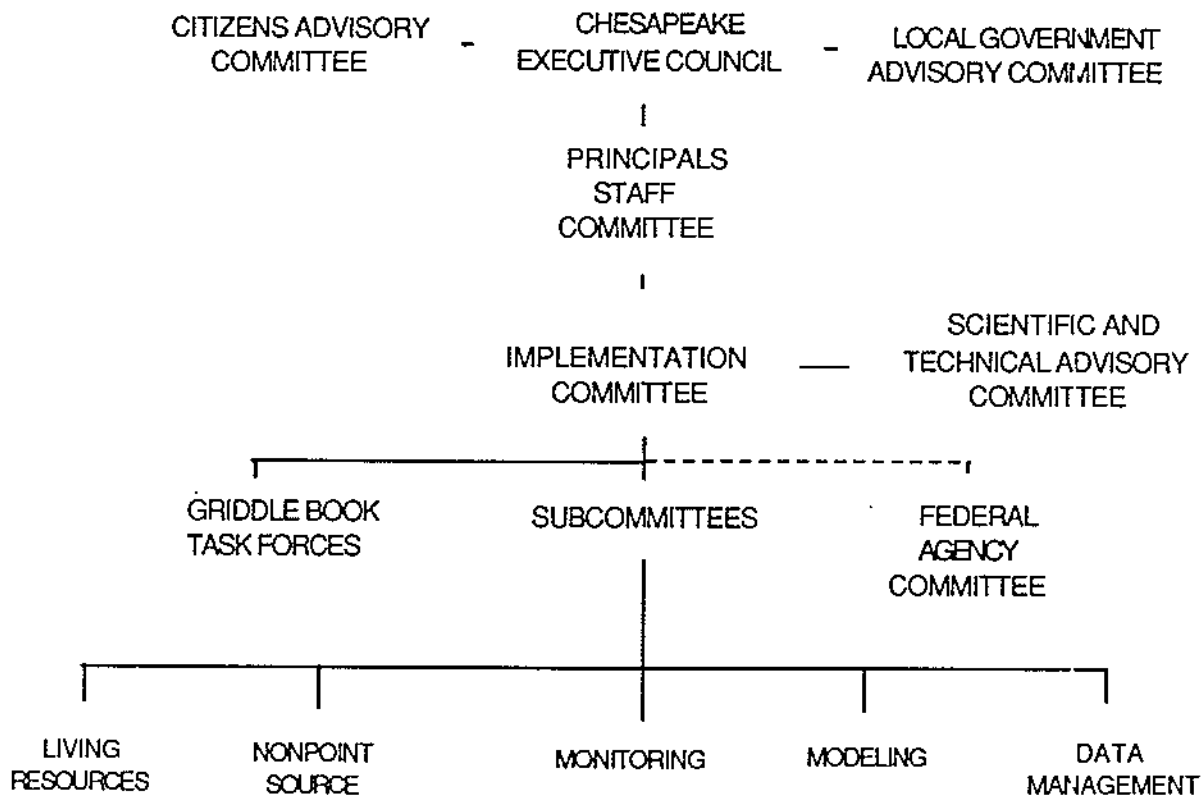
ADMINISTRATOR

REGION III ADMINISTRATOR

WATER DIVISION

CHESAPEAKE BAY LIAISON OFFICE

CHESAPEAKE BAY PROGRAM ORGANIZATIONAL CHART*



* EPA Chesapeake Bay Liaison Office provides support for the Program organizations.

The WQA authorized up to $13 million per year for the Bay Program through 1992. Up to $10 million may be used for grants to the States; the remainder is to support the CBLO activities which include: all technical and administrative staff support to the Agreement structure, including support to advisory committees; development and dissemination of publications; support for state mainstem monitoring programs; limited research; modeling; data management and provision for public information and involvement.

The staff of the Annapolis Office perform or ensure secretariat functions for the Executive Council, Implementation Committee, Federal Agencies Committee, Living Resources, Monitoring, Modeling, Nonpoint and Data Management subcommittees and their subgroups, and participate on all task groups which are responsible for preparation of Agreement Commitment documents. In addition, the Scientific and Technical Advisory and Citizens Advisory committees (STAC and CAC) are provided support through grants funded by the CBLO. Technical and administrative support, coordination of Bay Program publications and public sector liaison are performed by CBLO staff.

States fund their own tributary monitoring effort, but the CBLO budget provides a portion of the funding for mainstem monitoring through grants to the States. Funding is provided to the Fish & Wildlife Service in partial support of its submerged aquatic vegetation surveys, to the Washington D.C. Metropolitan Council of Governments and to the Interstate Commission on the Potomac River Basin for work relating to the Potomac and Anacostia rivers. Special studies such as those to investigate and determine the levels of tributyltin in the Bay (1986) and to research the presence of toxic substances in the microlayer (1988) are also funded through the CBLO.

The data management function, performed under contracts funded through the CBLO budget, enables the States, Federal agencies and others to coordinate and analyze research and monitoring data to determine the state of the Bay and its living resources. The computer center within the CBLO is the central repository of monitoring data for the region. Using these data and mathematical models, the Program's capability to predict the results of pollution reducing actions, population growth and technological improvements has and will continue to improve.

Through a grant to the Alliance for Chesapeake Bay (formally the Citizens Program for Chesapeake Bay, Inc.), EPA has supported public information, education and public participation activities since 1977. Beginning in 1984, the grant has provided support for the Executive Council's CAC and work to establish volunteer monitoring programs. The CAC played a significant role in the development and review of the 1987 Chesapeake Bay Agreement and will continue to exert strong influence in the implementation of that Agreement. A grant to the Chesapeake Research Consortium provides support for the STAC's work, which has included development of important and influential reports in the areas of nutrient reduction, technology assessment and research.

The CBLO has actively sought to increase the involvement of Federal agencies in the Bay Program, including the involvement of other EPA programs. EPA offices of Pesticides Programs and Marine and Estuarine Protection, the Nonpoint Sources Branch, the Central Regional and Wheeling West Virginia

laboratories have detailed staff to the Bay Program to lend their expertise and to utilize the Bay Program as a resource to develop pilot projects and policies with the potential for national application.

Grants to the states are funded up to 50 percent and generally support agricultural nonpoint source control programs, though urban and other nonpoint sources are also being addressed. Programs are built upon a combination of technical assistance, research and demonstration, education, financial incentives and watershed assessments to assure cost-effective targeting of programs. The states provide funding to farmers through the soil and water conservation districts to assist them with the installation and maintenance of best management practices which reduce soil erosion, improve manure management, and decrease the loadings of nutrients and chemicals to the Bay and its tributaries. Other EPA programs which contribute to the achievement of Chesapeake Bay Agreement goals are profiled in Table 2.

TABLE 2

EPA PROGRAMS WHICH HELP ACHIEVE CHESAPEAKE BAY AGREEMENT GOALS

1. The National Pollutants Discharge Elimination System (NPDES) requires that permits be issued for all municipal, industrial and federal dischargers (over 5,000). In Region III the states have been partially delegated permitting authority. EPA receives reports on the compliance of dischargers with their permit requirements and has the authority to take action if the States do not fully enforce their authority. Through NPDES, nutrient and toxic substance loadings to the Bay and its tributaries are reduced. Region III also reviews and approves the states' water quality standards which are used to set permit conditions.

2. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA - Superfund) gives EPA authority to clean up or require clean up of uncontrolled hazardous waste sites. Under it the States are required to track wastes from generation to disposal. EPA investigates reports of sites, provides short term measures to protect public health and plans, implements and oversees clean-up. Cleaning up waste sites which affect the Bay reduces potential for toxic substances to affect living resources.

3. Nonpoint source pollution is a national concern and major priority for EPA. Under the WQA Section 205(j)5, states receive grants to develop Assessment Reports which identify the sources of pollution, and to prepare management programs to control identified sources.

4. Ground water protection is a growing challenge and is being addressed in the Region through the ground water program, provisions of the Drinking Water Act, the Underground Injection Control Program, Underground Storage Tanks Program, and the Resource Conservation and Recovery Act (RCRA). In 1987 Region III identified waste sites below the fall line and those which significantly affect ground or surface waters feeding the Chesapeake. In 1988 EPA is assuring that sources to the Bay are addressed and is working with the States on RCRA permit

applications for facilities which are land-based, in environmentally sensitive areas, or which had reported releases. EPA is conducting a pesticides survey in three Bay counties to determine the amount/type of pesticides.

5. Wetlands protection through Section 404 of the Clean Water Act requires permits to be obtained before actions are taken which could have an adverse impact on the area being considered for development. Region III staff conduct approximately 1000 Section 404 reviews annually, more than half have been in the Bay drainage basin. Enforcement actions are taken in cases where no permit has been issued for an activity already begun.

6. Water quality planning efforts are financed in Region III through the Continuing Planning Process which is funded through Clean Water Act grants under Sections 106 (support for administration of water quality programs such as NPDES, ground water and monitoring in the states), 205(g) excess (support to NPDES and nonpoint source programs) and 205(j) 1 & 5 (support for water quality assessments, plan development, water quality studies and nonpoint sources). Such planning can assist the Bay States to develop information to enable them to set priorities for their pollution control efforts.

7. Municipal wastewater treatment plant construction and upgrading, operator training, advanced treatment and combined sewer overflow problem correction are financed in part under the Clean Water Act.

8. Under provisions of the National Environmental Policy Act (NEPA) Region III staff review draft Environmental Impact Statements of federally funded projects within the Bay States.

9. Provisions of the 1978 Pesticides Act (Federal Insecticide, Fungicide and Rodenticide Act as amended) require registration of all pesticides sold or distributed in the United States, registration of all producers and also the keeping of detailed records, including records of testing. Products are classified for general or restricted use and are to be used and labeled accordingly. EPA may take specific actions and impose penalties when the law is violated. EPA also encourages use of techniques such as Integrated Pest Management (IPM) within the Bay drainage basin.

10. Enforcement under the Clean Air Act also reduces loadings to the Bay.

Meeting Agreement Commitments

Table 3 (matrix) displays the relationship of EPA activities to the achievement of Chesapeake Bay Agreement goals.

ESTABLISHING PRIORITIES

The EPA has procedures for priority setting within the Agency. The Chesapeake Bay Liaison Office develops its budget for the year and submits it to the Region which reviews it and, in turn, provides its budget to EPA Headquarters.

TABLE 3 RELATIONSHIP OF ENVIRONMENTAL PROTECTION AGENCY ACTIVITIES TO AGREEMENT GOALS

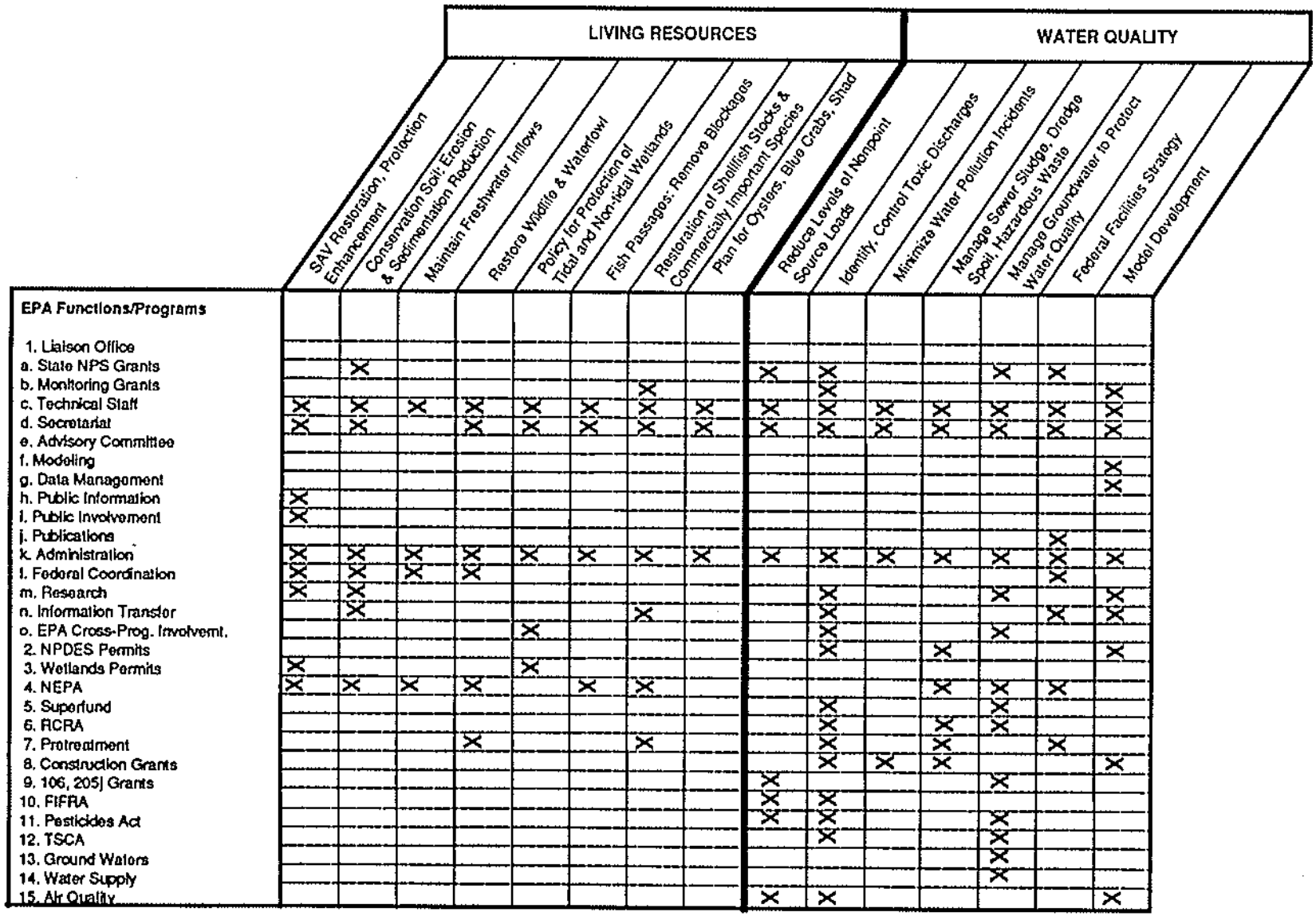
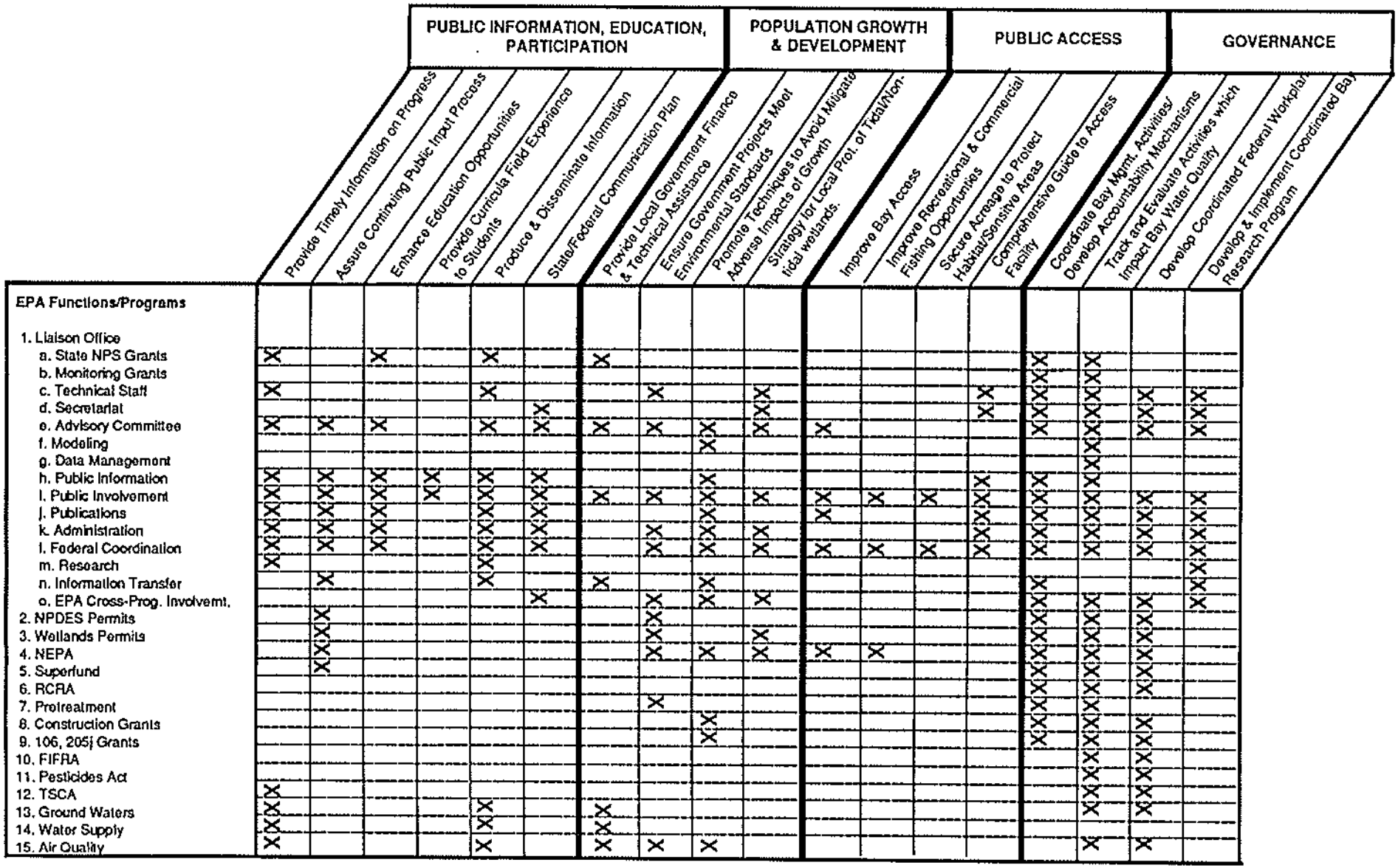


TABLE 3 CONTINUED



The Office of Management and Budget, the Administration, and the Congress make the final decisions regarding national priorities and Agency funding.

The Bay Program is unique in one aspect of its funding process because the Implementation Committee, composed of members from the involved State and Federal Bay Agreement participants, and advisory committee representatives has the opportunity to review and change the CBLO budget submittal to EPA. In addition, the Citizens Advisory Committee as a whole also reviews and comments on the budget. A subgroup of the Implementation Committee was formed in 1987 to participate in the development and approval of the future budgets.

FUTURE PROGRAMS

EPA's national/Region III programs which relate to the Bay Program will continue as funding permits, and will continue to focus attention on the potential of their efforts to achieve the objectives of the Bay Program. The CBLO will continue to provide support for the infrastructure of the Bay Agreement (including advisory committees), monitoring, public information/ education and involvement, data management, nonpoint source control programs, special projects and modeling. Additional efforts will be focused on evaluating the effectiveness of nonpoint source programs, determining the extent of the pesticides problem, biomonitoring and modeling. Though nutrient reduction will continue to be a focus of the Bay Program, there will be increasing emphasis on assessing the magnitude and sources of the toxic contaminants problems of the Bay and its living resources, and devising plans to reduce levels of contamination. Table 4 outlines potential directions which the EPA Bay efforts may take in the future.

TABLE 4
POTENTIAL EPA ACTIVITIES RELATED TO THE CHESAPEAKE BAY

1. Refinement of the Watershed Model
2. Financial support, with the Army Corps of Engineers for three dimensional time variable hydrologic modeling
3. Support to the Alliance for Chesapeake Bay for information/participation activities for the Bay Program, including staffing for the CAC and continued citizens monitoring
5. Mainbay water quality and living resource monitoring in cooperation with the states of Maryland and Virginia
6. Implementation grants to the signatory jurisdictions to support projects and programs within the Interstate Development Plan, particularly emphasizing nonpoint source agricultural and urban best management practices
7. Pesticides usage inventory
8. Biomonitoring work with the states
9. Application of the habitat requirements criteria in review and revision of water quality standards
10. Continued support of the computer center in EPA's Liaison Office in Annapolis
11. Working with the states to improve nonpoint source targeting through application of GIS tool to focus on living resource habitat locations
12. Increased integration of the Chesapeake Bay Agreement objectives within

the other programs in Region III (including wetlands, Superfund, RCRA, NPDES permits, ground water)

13. Analysis of living resource data sets
14. Sediment/water column nutrient flux studies
15. Microlayer studies
16. Evaluation of BMP effectiveness
17. Sediment monitoring to provide a toxics data base necessary for determining toxic risk to indigenous fish and shellfish and the people consuming them
18. Monitoring the atmospheric deposition of nutrients and toxic contaminants
19. Staff support to the 2020 Panel and Local Government Advisory Committee
20. Support for a Local Government Conference
21. Evaluation and analysis of monitoring data and techniques to enable cost efficient, cost effective monitoring to support Agreement strategies
22. Support to the Scientific and Technical Advisory Committee and its work including efforts in the areas of toxics, research plan development and implementation, technology assessment, evaluation of best management practices
23. Support for an all-agencies Federal Agencies meeting to facilitate the development and implementation of federal facilities plans
24. Development and signing of additional memoranda of understanding between EPA and other Federal agencies
25. Support for Fish & Wildlife Service work in SAV monitoring
26. Support for technical workshops of the Living Resources Subcommittee
27. Publications development and dissemination
28. Technical assistance and coordination with the Department of Defense to assist installations to develop and implement federal facilities plans
29. EPA staff participation on all Agreement Commitment Task Groups
30. Secretariat support to the Implementation Committee and its subcommittees, work groups and task forces
31. Conduct annual conferences/workshops to evaluate and update research priorities
32. Financial support for demonstration projects of engineered wetlands
33. Studies of the chronic effects of low level concentrations of toxic substances on the supporting food webs of living resources
34. Participation with NOAA on the CBSAC and its Chesapeake Bay Environmental Effects Committee (Sea Grant funding priority setting)
35. Studies to determine how the Conowingo dam can be managed to improve Bay water quality

U.S. GEOLOGICAL SURVEY

INTRODUCTION

The U.S. Geological Survey (USGS), of the Department of Interior, is unique among government organizations because it has neither regulatory nor developmental authority -- its sole product is technical information which is made available equally to all interested parties. Through the accomplishment of its mission, USGS continues to provide technical earth science information to the nation. The USGS effort encompasses a broad range of scientific investigations involving hydrology, geology and mapping. Much of the information is being collected within the drainage boundary of the Chesapeake Bay. In addition, USGS has a number of technical efforts underway that have been initiated as a direct result of the Bay Agreements of 1983 and 1987.

ORGANIZATION

The Geological Survey has five divisions: Administrative, Information Systems, Geologic, National Mapping and Water Resources. The last three divisions are active in the Chesapeake Bay restoration and protection effort. The three divisions provide data and the expertise to interpret them.

The Geologic Division (GD) conducts a program of field and laboratory research on environmental geology, earthquakes, mineral and energy resources, geochemistry and geophysics, and marine geology. The National Mapping Division (NMD) prepares topographic and other maps at various scales from field studies, photographs and other remotely sensed data, and from other cartographic and geographic sources. The Water Resources Division (WRD) has principal responsibility within the federal government for providing hydrologic information and appraising the nation's water resources.

PROGRAMS IMPORTANT TO THE BAY

A major effort of GD, as part of its coastal program, is to collect seismic-reflection data in Chesapeake Bay. The data are being used to study the history and evolution of the Bay and will provide information for management and planning decisions such as those related to waste disposal, pollution control and clean-up, dredging-spoil disposal, and the sand, gravel and biological resources of the Bay. GD also continues its work in delineating the stratigraphy and structure of the Maryland and Virginia coastal plain deposits. A well-defined geologic framework is critical for a regional assessment of the quantity of and direction of flow of ground water, which is an important consideration in the quality of Bay water.

NMD continues its mission of producing and revising map products of all kinds. In addition to its routine map production, NMD products include digital line graphs and digital evaluation models of 1:24,000 and 1:100,000 scales. USGS has been one of the leaders in researching the applications of Geographic Information Systems (GIS) as it applies to solving earth science problems. Under an NMD initiative, the Elizabeth River Basin (Norfolk harbor) in Virginia was chosen as a pilot study area for demonstration of GIS as a tool for managing and merging different data bases in order to make more informed

management decisions. This project, in its third and final year, is a joint effort of NMD, WRD, and GD. NMD, through its EROS Data Center, in a cooperative effort with the U.S. Soil Conservation Service, is developing a State General Soil Geographic Data Base (STATSGO). This is a planned national effort in which the Chesapeake Bay drainage basin was chosen as the pilot study. This information, in digital format, will prove useful in making decisions regarding agricultural best management practices as soil erosion has been identified as a factor in the decline of water quality of the Bay.

The WRD continues, as part of its mission, to collect hydrologic data, conduct interpretive hydrologic studies and conduct basic hydrologic research, much of which is done within the Chesapeake Bay drainage area. This work, within Bay drainage, is being done in offices in the states of New York, Pennsylvania, West Virginia, Maryland, Delaware, and Virginia as well as in the Northeastern Region Research Center in Reston, Virginia.

A great deal of effort by WRD has been committed to evaluating the hydrologic effects of implementing agricultural best management practices (BMP), especially in Pennsylvania and Maryland. These data collection and interpretive projects evaluate the effects of various type of BMPs such as no-till farming, contour cropping, terracing and nutrient management on surface water and ground water. Major constituents being monitored are flow, nutrients, sediment, metals and in some cases pesticides. Data are being collected before, during and after implementation of BMPs. Studies are being done in Conestoga Creek, Pennsylvania (carbonate), small streams in York and Adams counties, Pennsylvania (non-carbonate), and the Patuxent River, Maryland (Piedmont and Coastal Plain). It is hoped that transfer value will be attained by the distribution of the sites by geological province.

The WRD in Maryland is conducting a project to evaluate the effects on ground water quality from stormwater infiltration ponds. Stormwater infiltration ponds are used to reduce surface water runoff from urban areas such as shopping centers and subdivisions. The water is detained in ponds and allowed to infiltrate into the ground. Three sites have been instrumented to monitor surface water and ground water as well as the quality of both. Sampling is being done for a major suite of water quality parameters including nutrients, metals, and organics. Two sites are at shopping centers, one in the Piedmont province and one in the coastal plain. In addition, a porous pavement site is being monitored.

The Pennsylvania District is conducting a project to determine which of the watersheds within the Susquehanna River Basin contribute what percentages of water quality loads. Major tributaries are systematically being monitored for water quality loads during base flow and storm flow events.

The Maryland Office of the Mid-Atlantic District continues to collect water quality load information at three major tributaries to the Chesapeake Bay: Susquehanna River at Conowingo, MD., Patuxent River at Bowie, MD., and Choptank River at Greensboro, MD. In addition to the collection and reporting of this information, USGS is also in the process of developing better methods for estimating loads of major constituents.

The Northeastern Regional Research Group continues to pursue basic research efforts in the Potomac Estuary. Research is being conducted in benthic

geochemical processes, submerged aquatic macrophytes, microbiological geochemical models and benthic biological communities.

Meeting Agreement Commitments

The USGS participates in work to achieve many of the commitments of the 1987 Chesapeake Bay Agreement either cooperatively or individually and focuses attention specifically on those commitments associated with water quality. The participation is primarily in the form of technical expertise and the providing of hydrologic information. Table 5 displays the relationship of USGS work to the Agreement.

ESTABLISHING PRIORITIES

USGS establishes priorities for funding study programs based on national needs. Examples are the national geologic mapping program and the coastal program of the GD. Similarly, NMD has a program for developing and updating map products on a national basis. WRD has national programs such as the Regional Aquifer Systems Analysis program and the National Water Quality Assessment program (NWQA), among others. These large nationwide programs cannot be accomplished uniformly at the same time and thus must be done in segments. This provides the opportunity to select areas for pilot studies where there is a particular technical need or a major issue at hand. USGS has picked the Chesapeake Bay drainage or locations within Bay drainage for several pilot studies since the 1983 Bay Agreement. The previously mentioned STATSGO and Elizabeth River GIS projects are examples. In addition, the Delmarva Peninsula has been selected as one of the three pilot studies to assess ground water quality in the nation.

WRD also has the Federal/State Cooperative Program for funding water resources interpretive investigation. The program is based on at least a 50 percent financial contribution to the investigation by a state or local agency. WRD then matches all/part of the state contribution and conducts the investigation. Funding of these investigations is based on broad national priorities such as ground water quality, stream quality or wetlands, lakes, and estuaries. Most of the Chesapeake Bay water quality projects discussed in the previous sections are funded under this program.

FUTURE PROGRAMS

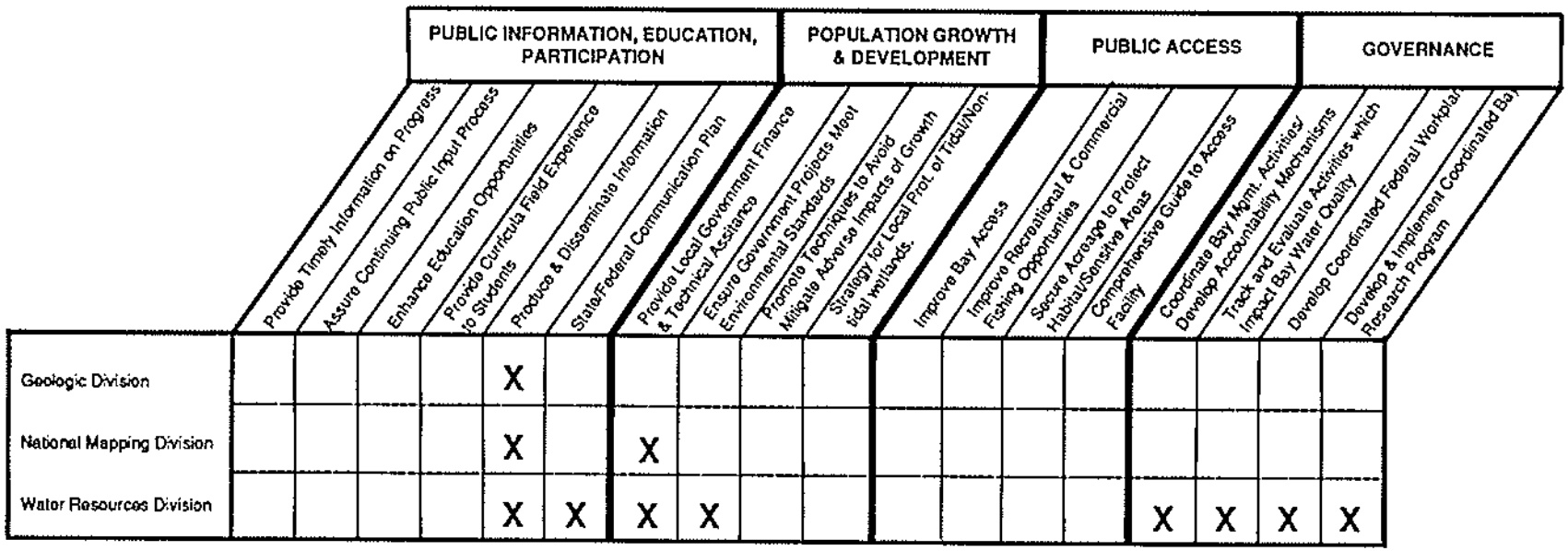
USGS, in its support of the Chesapeake Bay Restoration effort, will continue most of the technical efforts mentioned. Most of the projects associated with collecting and interpreting water quality data are scheduled to continue for several more years. In addition to ongoing efforts, the Virginia Office of the Mid-Atlantic District will begin collecting water quality load information at the James and Rappahannock rivers beginning in July 1988.

The Elizabeth River GIS demonstration project will end in September 1988. It is planned that the many data bases developed by that project will be transferred to the Chesapeake Bay Program computer in Annapolis, for continued use by the Bay Program. It is hoped that USGS will continue to be involved in GIS efforts in Chesapeake Bay. This is, however, totally

TABLE 5 RELATIONSHIP OF UNITED STATES GEOLOGICAL SURVEY ACTIVITIES TO AGREEMENT GOALS

	LIVING RESOURCES								WATER QUALITY						
	SAV Restoration, Protection Enhancement	Conservation Soil Erosion & Sedimentation Reduction	Maintain Freshwater Inflows	Restore Wildlife & Waterfowl	Policy for Protection of Tidal and Non-tidal Wetlands	Fish Passages; Remove Blockages	Restoration of Shellfish Stocks & Commercially Important Species	Plan for Oysters, Blue Crabs, Shad	Reduce Levels of Nonpoint Source Loads	Identify, Control Toxic Discharges	Minimize Water Pollution Incidents	Manage Sewer Sludge, Dredge Spoil, Hazardous Waste	Manage Groundwater to Protect Water Quality	Federal Facilities Strategy	Model Development
Geologic Division												X	X	X	
National Mapping Division		X												X	
Water Resources Division		X	X			X			X	X	X		X	X	X

TABLE 5 Continued



USGS plans to pursue more investigations in the role of ground water and how it affects the Chesapeake Bay from a quantity standpoint as well as a carrier of water quality contaminants during base flow. Although not initiated because of the Chesapeake Bay Program, WRD is starting a large, long-term study of the Appalachian-Piedmont aquifer system. This is part of WRD's 10-year old Regional Aquifer Systems Analysis (RASA) program. A large part of the Bay's drainage is in the Piedmont province and the increased knowledge of this complex system would benefit the understanding of how it interacts with the Bay. WRD would also like to study in more detail the role of the dams and reservoirs on the lower Susquehanna River as they affect the loads of suspended sediment into the Bay. USGS programs to carry out its mission within Chesapeake Bay drainage in fiscal year 1988 total about $11,500,00. This funding is derived from USGS, State and local agencies, and other Federal agencies. In addition, about $1,400,000 more will be spent on programs that are being conducted specifically because of the Chesapeake Bay Restoration Program.

U.S. FISH AND WILDLIFE SERVICE

INTRODUCTION

The United States Fish & Wildlife Service (Service), of the Department of the Interior, has many responsibilities for the protection and management of the nation's fish and wildlife and their habitats, water resource planning, research and monitoring of problems and trends, wildlife refuge development and management, technical assistance for water and wildlife management projects, review of permits and licences and determination of environmental impacts.

ORGANIZATION

The Chesapeake Bay activities of the Fish & Wildlife Service are conducted mainly by the Annapolis Field Office (Field Office); however, as the next section describes, numerous other groups within the Service (See Figure 2) participate in the Bay Program.

PROGRAMS IMPORTANT TO THE BAY

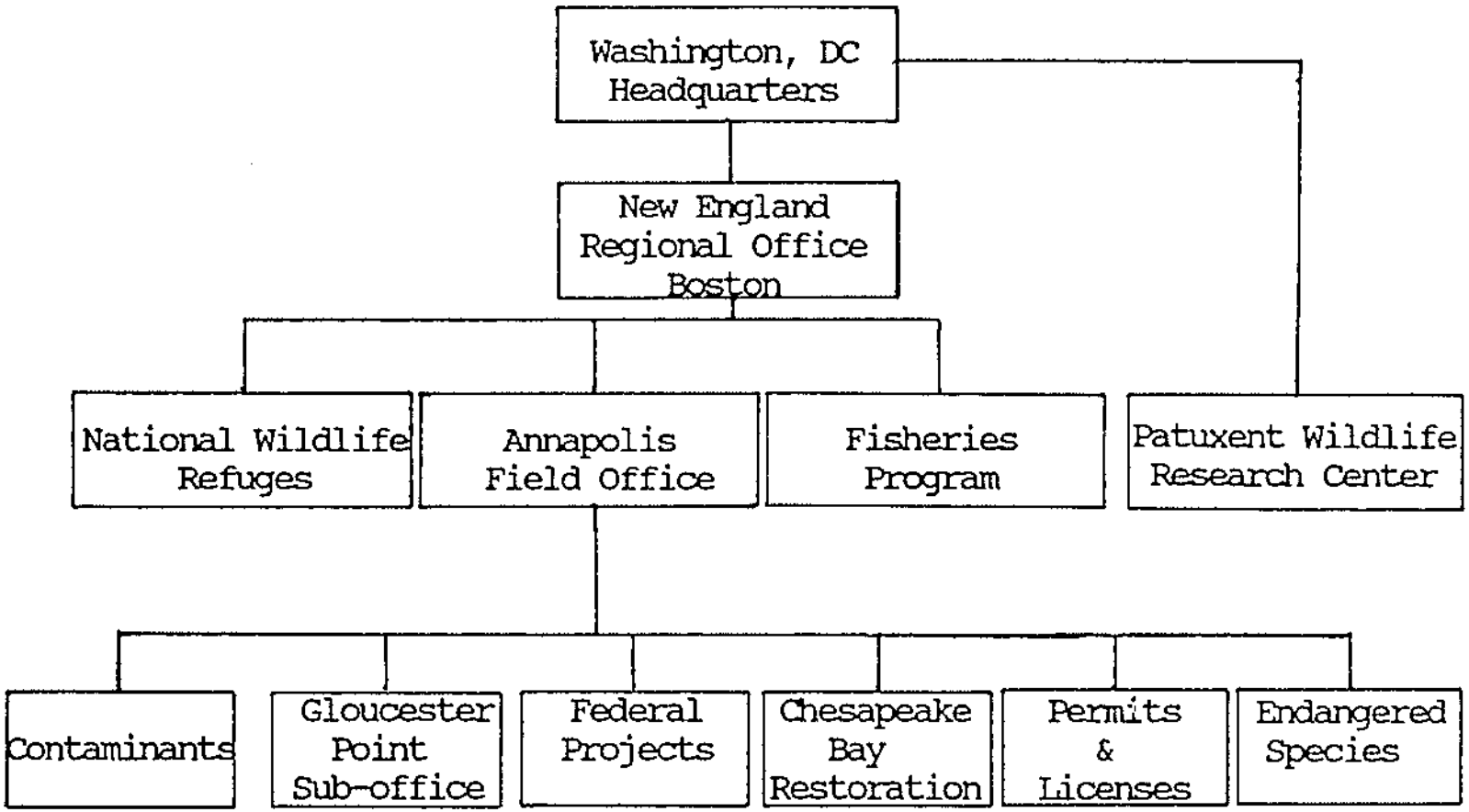
The Service continues its role in the Chesapeake Bay Restoration Program, which began with the Memorandum of understanding signed in 1984 with the Environmental Protection Agency and continues under the new 1987 Chesapeake Bay Agreement. Activities that link directly to the multi-agency program are carried out by the Annapolis Field Office (Figure 2). In addition the Service's role in the restoration of striped bass breeding stocks is being carried out by the Service's fisheries program. Research on Bay flora and fauna is being conducted at the Patuxent Wildlife Research Center. To meet the goals and objectives of the Agreement, the Service continues to concentrate on habitat-oriented measures to conserve and enhance living resources.

To assist in nonpoint pollution reduction, the Field Office conducted an assessment of nonpoint source (NPS) pollution and impacts within the Choptank River. Reports discussing land uses, water quality and living resources have been completed or will be completed during 1988. Under the point source objective, the Field Office identified several NPDES regulated point sources for contaminant assessments and analyses: Indianhead, MD (Navy facility) and Chesterfield, VA (Power station). Two NPDES sites are under investigation. A report of these investigations will be completed soon.

The Field Office has committed much of its efforts to Submerged Aquatic Vegetation (SAV). Submerged aquatic vegetation continues to be recognized as an important connection between water quality in shallow depths and primary and secondary productivity and as an important food source for waterfowl. Efforts are directed at SAV monitoring (with other agencies), research, field guide development, transplanting, SAV/Sediment relationships, and management.

An important component in the restoration of the Bay is the information transfer objective. Without the support and understanding by the public of the overall program, efforts to continue funding and extend support will be

FIGURE 2 FISH & WILDLIFE SERVICE ORGANIZATION CHART



extremely difficult. The Field Office undertook a variety of activities such as "Fact Sheets" that discussed various species, a Chesapeake Bay story book featuring "Chessie" for schools and special events, public service announcements, and others. These activities are intended to inform the public of the efforts and activities in the restoration of the Bay. Table 6 outlines the budget for Service programs.

An important aspect of the restoration program is the recovery of the fishery resources of the Bay, especially striped bass. Service personnel are continuing to assist the striped bass recovery program in Maryland and Virginia. Over 1.3 million juvenile striped bass raised in state and Federal hatcheries have been released in the Bay since 1985. The tagging of juvenile and adult striped bass continued with the release of 800,000 tagged fish in 1987. This tagging effort will assist in identifying the survival rate of young fish and the movement of adult fish. The Service has an active research program on migratory birds and contaminants. Table 6 outlines the budget for Service programs.

TABLE6
U.S. FISH WILDLIFE SERVICE CHESAPEAKE BAY ACTIVITIES

Programs and activities of the Service support a wide range of Bay living resources including fisheries, waterfowl, wetlands, and submerged aquatic vegetation.

	FY'86	FY'87	FY'88
Core Funded Program.....	$ 980,000	$ 980,000	$ 980,000
Staff (FTE).....	8	 8	8

Nonpoint Source - $200,000
- o Choptank River water quality assessment
- o Nutrient dynamics with UM Horn Point
- o Choptank 208 Plan review
- o Forest Buffer Pamphlet

Point Source - $200,000
- o Point Source assessment (Indianhead, Nuodex, Chesterfield, Hopewell)
- o Histopathological examinations
- o Oyster larvae bioassay

Resource Trends - $200,000
- o SAV monitoring and research
- o Waterfowl Trends report
- o Wetland Atlas/Wetlands Trends
- o Wetland Policy

Public Awareness - $100,000
- o Fact sheets, Posters, and Brochures
- o Educational displays
- o Chessie Coloring Books
- o Public Service Announcements
- o Public School Curricula

Liaison - $230,000
- o Field Office Staff involved in various workgroups and serve as chair on the SAV workgroup and Habitat Requirement workgroup.

Fisheries - $50,000

- o Cooperative hatchery program on striped bass with Maryland and Virginia
- o Fish Passage

Research - Unknown

- o Contaminants on Oldsquaw Creek
- o Contaminant impact on SAV
- o Canvasback survival, radio telemetry

FWS Facilities - Unknown

- o Federal Facilities Plan
- o Refuge education
- o Bay Access

The Service (Field Office) also has regulatory activities that promote Bay restoration. Approximately $625,000 is devoted to this activity, of which 85 percent ($531,000) is Bay related. Activities such as permit, license and Federal projects review are conducted. There is also $200,000 for contaminants work and $100,000 for endangered species investigations.

Meeting Agreement Commitments

The Fish and Wildlife Service participates in many of the commitments identified in the Chesapeake Bay Agreement either cooperatively or individually, and focuses attention on commitments directly related to the restoration of living resources. Through contact with the Fish and Wildlife facilities in the Chesapeake Bay basin, the Field Office participates in the coordination and development of a Federal Facilities Plan and provides information on Fish and Wildlife Service facilities that have access to the Bay. Involvement in the overall Agreement infrastructure is extensive as the Service is represented on almost all committees, subcommittees, work groups and task groups developing responses to the commitments made by the signatories in December 1987. Table 7 displays the relationship of Fish & Wildlife programs to the achievement of Chesapeake Bay Agreement goals.

ESTABLISHING PRIORITIES

The Fish and Wildlife Service has management procedures to establish priorities. These procedures follow well defined lines of communication from the Field Office through the Regional Office and finally to the Washington Office. Specific activities related to the Chesapeake Bay and associated funding levels are identified through discussions at all these levels, and the budget goes through approval sequences within the Service, Department of Interior, Office of Management & Budget, and Congress (Figure 3).

FUTURE PROGRAMS

The Service, based on the effort expended under the nonpoint source pollution objective in the Choptank River Watershed, will encourage better land use throughout the Bay in support of water quality. The Field Office recognizes that land use is an important aspect in the quality of water that enters the Bay. A stronger focus will be directed towards use of streamside forests, wetlands and submerged aquatic vegetation as direct approaches to improve water quality for living resources. The Field office will pursue the opportunities to develop training for agricultural personnel. Interest in

TABLE 7 RELATIONSHIP OF FISH & WILDLIFE SERVICE ACTIVITIES TO AGREEMENT GOALS

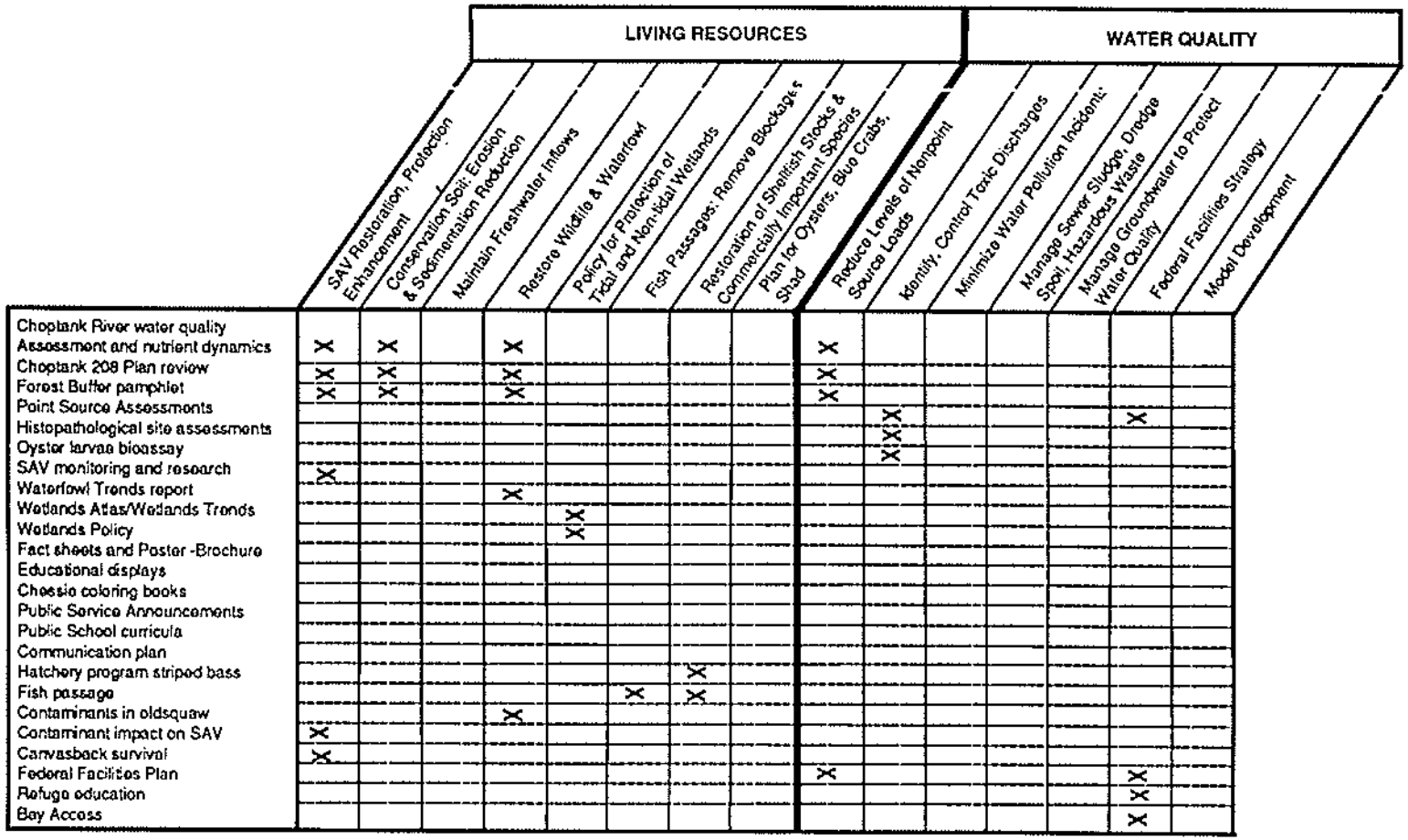
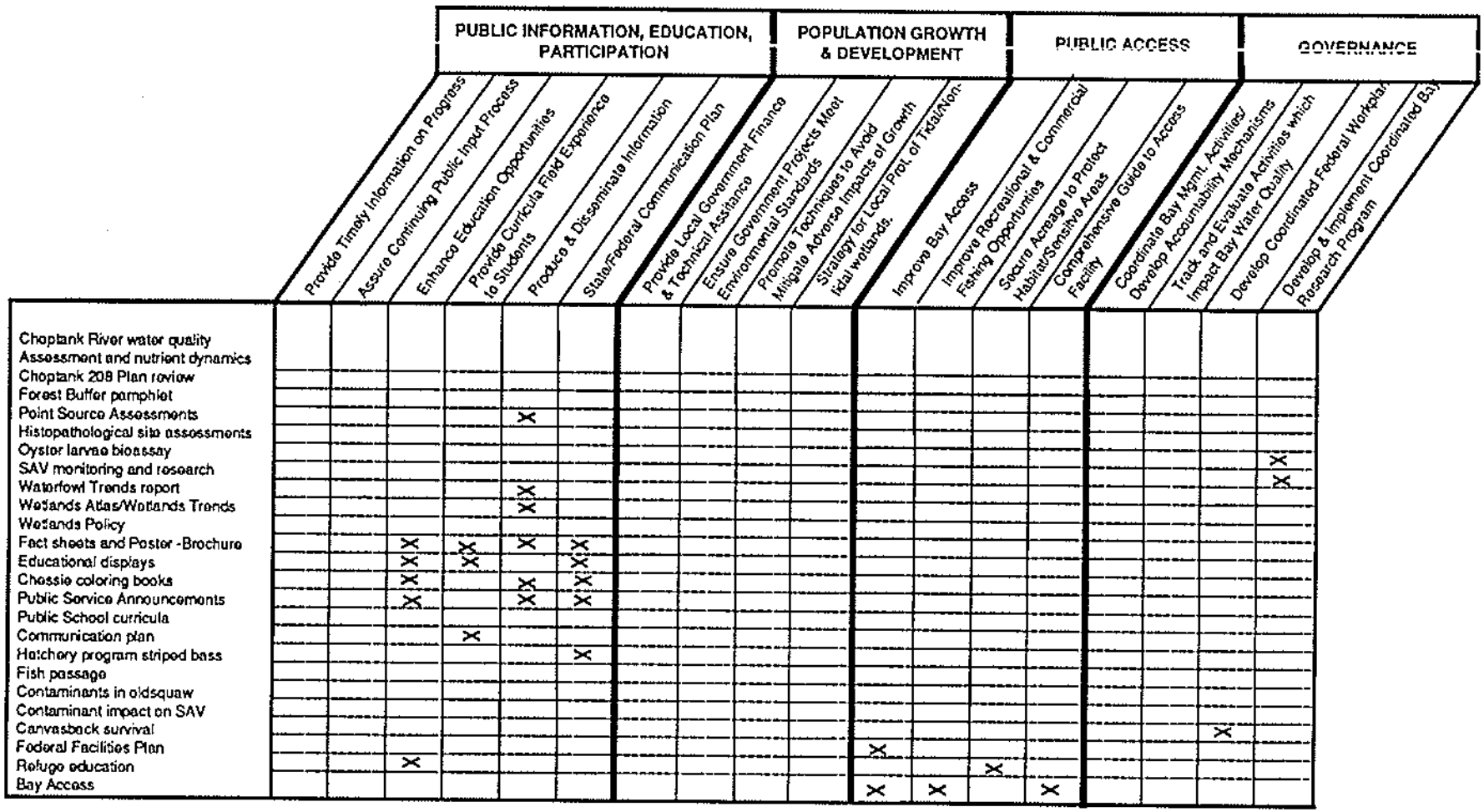
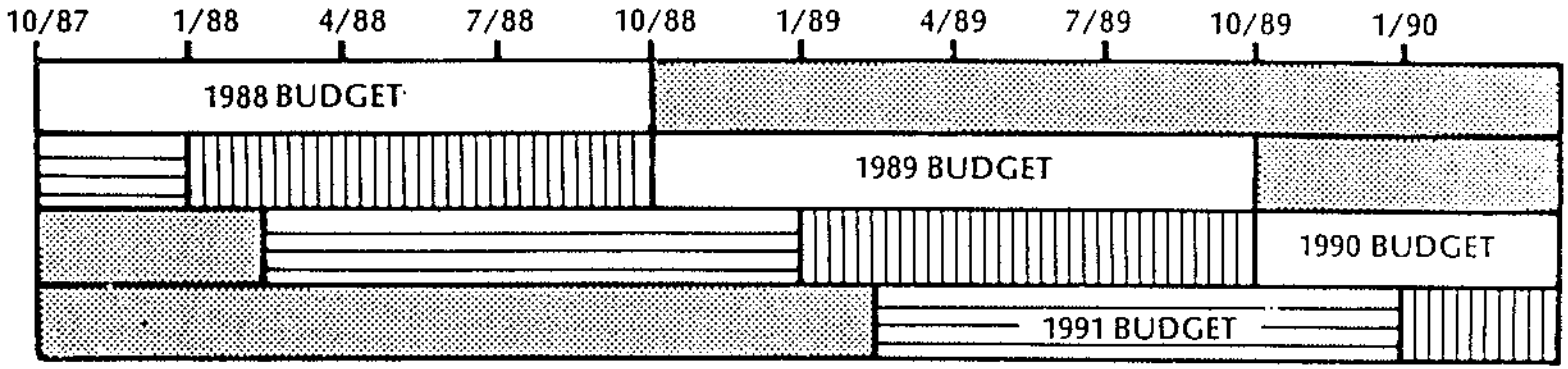


TABLE 7 Continued



PHASES OF THE BUDGET PROCESS



BUDGET FORMULATION

- Agency Budgets Prepared
- OMB Circular A-11 Issued
- OMB Review of Agency Budget
- OMB Recommendations to President
- Agency Revisions to Budget Request

CONGRESSIONAL ACTION

- President's Budget Presented to Congress
- Agency Presentation to Appropriation Sub-Committees
- Congressional Enactment of Appropriations

BUDGET EXECUTION

- Apportionment and Allotment of Funds
- Deferral or Recission Messages
- President's Sequestration Order
- Reports onProgram/Financial Performance
- Reports of Anti-deficiency Act Violations

AUDIT AND REVIEW

- Agency Evaluation of Programs and Finances
- Inspector General Investigations of Departmental Operations
- GAO Conducts Audits; Prepares Reports

wetlands will also be directed to improving water quality and the living resources that use the wetland habitat around the Bay.

The Field Office will continue to focus efforts on SAV, waterfowl, nutrient reduction, contaminant assessment, and striped bass production. Field Office effort will continue to inform the public and schools through "Fact Sheets" and other instructive material for schools. The funding level is expected to remain at the current level. Activities will be adjusted as funding levels change. Planned activity relative to striped bass will be a continuation of tagging hatchery reared fish for at least two years. The tagging of coastal adult striped bass will continue indefinitely to obtain fishing mortality rates and a better understanding of the migratory routes of the Chesapeake Bay striped bass. Table 8 lists areas of potential future activities which may be undertaken by the Service in the Chesapeake Bay watershed.

TABLE 8

POTENTIAL FISH & WILDLIFE ACTIVITIES RELATED TO THE CHESAPEAKE BAY AGREEMENT

1. Promote the restoration and protection of living resources.
2. Establish separate watershed strategies linking specific water quality criteria to SAV production.
3. Set up a permanently funded multi-agency program to monitor SAV.
4. Investigate unknown aspects of the life history of SAV.
5. Promote use of forested buffer strips through education and incentives.
6. Develop minimum sampling strategy for tributary water quality assessment.
7. Develop and encourage suitable structures for anadromous fish passage.
8. Contribute to the development and implementation of the toxic control strategy aimed at living resources' needs.
9. Investigate priority fish and wildlife areas for biomonitoring for toxic impacts.
10. Expand fish and wildlife research role in the Bay (waterfowl, toxics and wetlands).
11. Include Bay restoration measures in management plans for military installations.
12. Establish adequate contaminant standards to protect fish and wildlife resources.
13. Establish an on-going data base for Baywide waterfowl trends.
14. Promote strong protection for non-tidal wetlands.
15. Enhance public education about living resources through innovative techniques.

USDA SOIL CONSERVATION SERVICE

INTRODUCTION

The Soil Conservation Service (SCS) is the technical arm of the U.S. Department of Agriculture (USDA) which plans and carries out a national program to protect and develop the soil, water, plant, and related natural resources on privately owned lands. The SCS gives technical and financial help on request to individuals, groups, organizations and units of government to aid them in using natural resources according to their capabilities and needs. All SCS programs are in cooperation with appropriate state conservation committees or commissions and local conservation districts.

ORGANIZATION

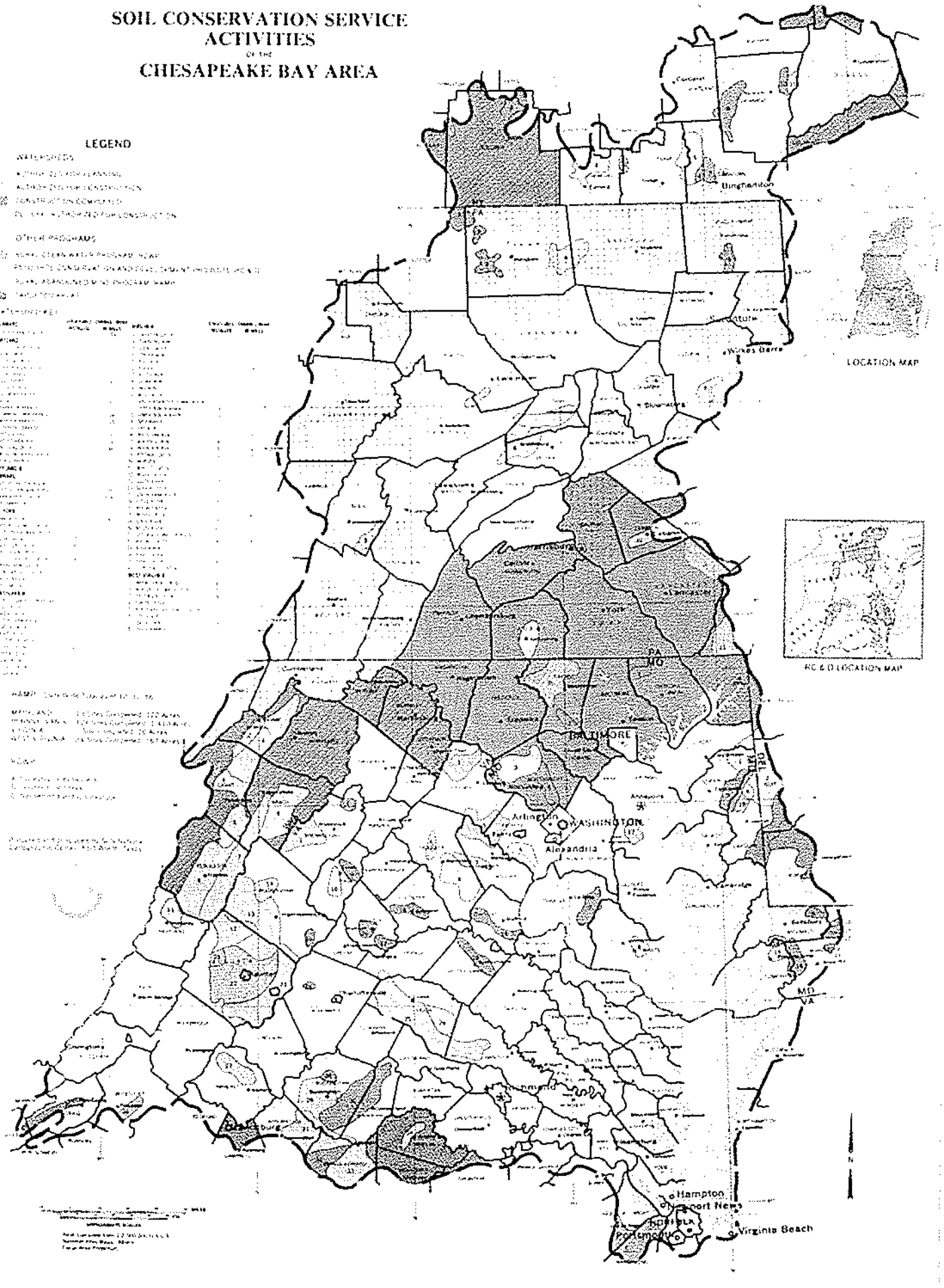
The State Conservationist, under the direction of the Chief of SCS, manages and administers the SCS programs through a line and staff organization. The District Conservationist (DC) is the line officer responsible for providing technical assistance at the field level for conservation districts. SCS staff available to the DC may include soil conservationists, soil scientists, economists, engineers, agronomists, biologists, foresters, plant materials specialists, geologists, hydrologists, and resource planning specialists.

PROGRAMS IMPORTANT TO THE BAY

Activities of SCS in six states and the District of Columbia affect the Chesapeake Bay through erosion control, water and nutrient management programs. (See SCS Activities Map, Figure 4.) The six states are Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia. In concert with the signing of the Memorandum of Understanding between SCS and the Environmental Protection Agency (EPA) in November 1984, resources for accelerated activities have been provided to Maryland, Pennsylvania, and Virginia. Thirty-one positions and $1,140,000 are allocated to SCS State Conservationists as follows: Maryland 13 positions and $470,000; Pennsylvania 13 positions and $490,000; and Virginia 5 positions and $180,000. In addition to accelerated resources for the Chesapeake Bay Program, SCS obligated the following for ongoing programs in direct support of water quality activities in the six states and the District of Columbia which benefit the Chesapeake Bay watershed:

Fiscal Year	Staff Years	Funds
1984	159	$9,259,600
1985	189	$14,730,600
1986	215	$17,785,000
1987	187	$9,410,000
1988 (allocated)	205	$12,500,000

The first priority clientele are farmers participating in the Food Security Act of 1985. Farmers are provided individual assistance in developing and applying soil and water conservation plans for their farms on highly erodible lands. These plans may contain nutrient management systems when livestock or poultry are part of the farm operation.


SOIL CONSERVATION SERVICE
ACTIVITIES
OF THE
CHESAPEAKE BAY AREA
LEGEND
LOCATION MAP
R.C. & D. LOCATION MAP
Binghamton
Wilkes Barre
York
PA
MD
BALTIMORE
DEL
Arlington
WASHINGTON
Alexandria
MD
VA
Hampton
Newport News
Norfolk
Portsmouth
Virginia Beach
N

The Soil Conservation Service recognizes its responsibility in working with users of the land to reduce soil erosion, surface water runoff, sedimentation and ground water contamination. It further recognizes that no one agency can do the job alone and desires to work cooperatively whenever and wherever the opportunity exists.

Accelerated technical assistance during fiscal year 1987 in the States of Maryland, Pennsylvania, and Virginia provided an estimated reduction of 15.4 million pounds of nitrogen and 3.1 million pounds of phosphorus from entering the Bay annually. Other assistance included planting of grasses from the SCS Plant Materials Centers to demonstrate shoreline erosion control, dune stabilization, and for other critical area plantings; cooperating with U.S. Geological Survey in the development of a Geographic Information System (GIS); cooperating with other federal and state agencies, universities, and environmental organizations in developing informational material and exhibits to promote reduction of nonpoint source pollution. Further, SCS is cooperating with other agencies by providing full-time liaison for the Chesapeake Bay, a resource conservationist detailed to the Liaison Office to assist EPA with the review, update, and use of the Computer Model, and numerous details to state agencies in Virginia, Pennsylvania, and Maryland. Sharing of technical expertise benefits activities such as implementation of state cost-share programs, demonstration watershed programs, training state and local conservation district technical staff, and developing standards, specifications, and program guidelines.

Meeting Agreement Commitments

The SCS participates in many of the Chesapeake Bay Agreement commitments at the Chesapeake Bay Liaison Office and within the states with the appropriate agencies and organizations. SCS, the technical assistance arm of USDA, is committed to being an active partner in the Chesapeake Bay Program. The elements of the Chesapeake Bay Agreement favorably impacted by SCS programs are as follows:

LIVING RESOURCES:
-Erosion and Sedimentation Reduction
-Protection and Restoration of Wetlands

WATER QUALITY:
-Reduce Levels of Nonpoint Source Loads for protection of surface and ground water
-Reduce Levels of Toxic Discharges from Agricultural Lands

PUBLIC INFORMATION, EDUCATION, PARTICIPATION:
-Provide Timely Information on Progress
-Assure Continuing Public Input to Process
-Produce and Disseminate Information
-State/Federal Communication Plan

POPULATION GROWTH & DEVELOPMENT:
-Provide Local Government Technical Information on Soil and Water

PUBLIC ACCESS:
-Provide Technical Assistance through the Resource Conservation and Development Program

GOVERNANCE:
-Coordinate Bay Management Activities
-Track and Evaluate Activities which Impact Bay Water Quality
-Develop Coordinated Federal Work Plan

ESTABLISHING PRIORITIES

SCS has procedures to establish priorities within each state and with each conservation district through memoranda of understanding. The State Conservationist has responsibility for coordinating, as appropriate within the state, all USDA and SCS policies. Effective October 1, 1988, the operations responsibility for all SCS Chesapeake Bay protection and restoration activities will be assigned to State Conservationists. A "Charter" was established by six Bay State Conservationists, the Northeast Assistant Chief, and the Deputy Chief for Programs to create a "Board of Directors" initially consisting of the State Conservationists of Maryland, Pennsylvania and Virginia, to accelerate SCS Chesapeake Bay Program operations. The Deputy Chief for Programs will establish staff leadership and coordination to those broader responsibilities of national liaison with EPA and other Federal agencies concerning the Chesapeake Bay Program.

FUTURE PROGRAMS

The Food Security Act of 1985 has added a number of new initiatives that contribute significantly to the Bay cleanup effort. These include the Conservation Reserve Program, Conservation Compliance on highly erodible soils, and Wetland Provisions. By 1995, all farming on highly erodible lands will have to be in accordance with approved conservation plans if the farmer is to be eligible for the benefits of other USDA price support, farm loan, crop insurance, and disaster payment programs.

It is significant to note that all planned work is in cooperation with the appropriate state conservation committee or commission and the local conservation district. Therefore, the approach taken by SCS incorporates priorities of each respective state in the Chesapeake Bay basin.

One of the unique aspects of SCS is its array of programs and the cooperation with other agencies that compliments the efforts of the Chesapeake Bay cleanup. SCS assists in developing conservation plans for implementing Resource Management Systems (RMS). These systems include numerous conservation practices (BMPs), under programs such as the Agricultural Conservation Program (ACP), Rural Clean Water Program (RCWP), Clean Lakes Program, Resource Conservation and Development Program (RC&D), Rural Abandoned Mine Program (RAMP), Watershed Protection and Flood Prevention Program (PL-566), and the state's Agricultural Cost-Share Program.

UNITED STATES ARMY CORPS OF ENGINEERS

INTRODUCTION

The Corps of Engineers (CoE) is the Federal government's largest water resources development agency. It has both civil and military support functions which relate to Chesapeake Bay restoration and protection activities. Under the Civil Works Program, the Corps is responsible for:

a. Investigating, developing and maintaining the nation's water and related land resources;
b. Constructing and operating navigation projects;
c. Flood control and major drainage;
d. Streambank erosion protection;
e. Shore and beach restoration and protection;
f. Hurricane protection;
g. Hydroelectric power production;
h. Water supply;
i. Water quality control;
j. Fish and wildlife conservation and enhancement;
k. Outdoor recreation;
l. Emergency response activities associated with natural disasters;
m. Administering laws for the protection and preservation of navigable waters;
n. Conducting research and development related to Civil Works planning, design, construction, operation and maintenance and regulatory activities, and, for the Military program,
o. Acquiring, managing and disposing real estate for Civil Works activities;
p. Engineering and construction support for the EPA Superfund Toxic Waste Clean-up Program;
q. Construction support for the EPA Wastewater Grants Program, and for the Military Program (1) construction of military facilities, (2) preparation of engineering studies, plans and designs, and (3) acquiring, managing and disposing of military real estate.

ORGANIZATION

The Chief of Engineers, under the direction and supervision of the Secretary of the Army, manages and administers the CoE Civil Works Program. The Corps Program as it affects the Bay involves three districts: Baltimore, Norfolk and Philadelphia which are under the jurisdiction of the Division Commander, North Atlantic Division in New York City. Figure 5 is an organization Chart. Figure 6 shows the District and Division boundaries.

FIGURE 5

U.S. Army Corps of Engineers Organizational Structure

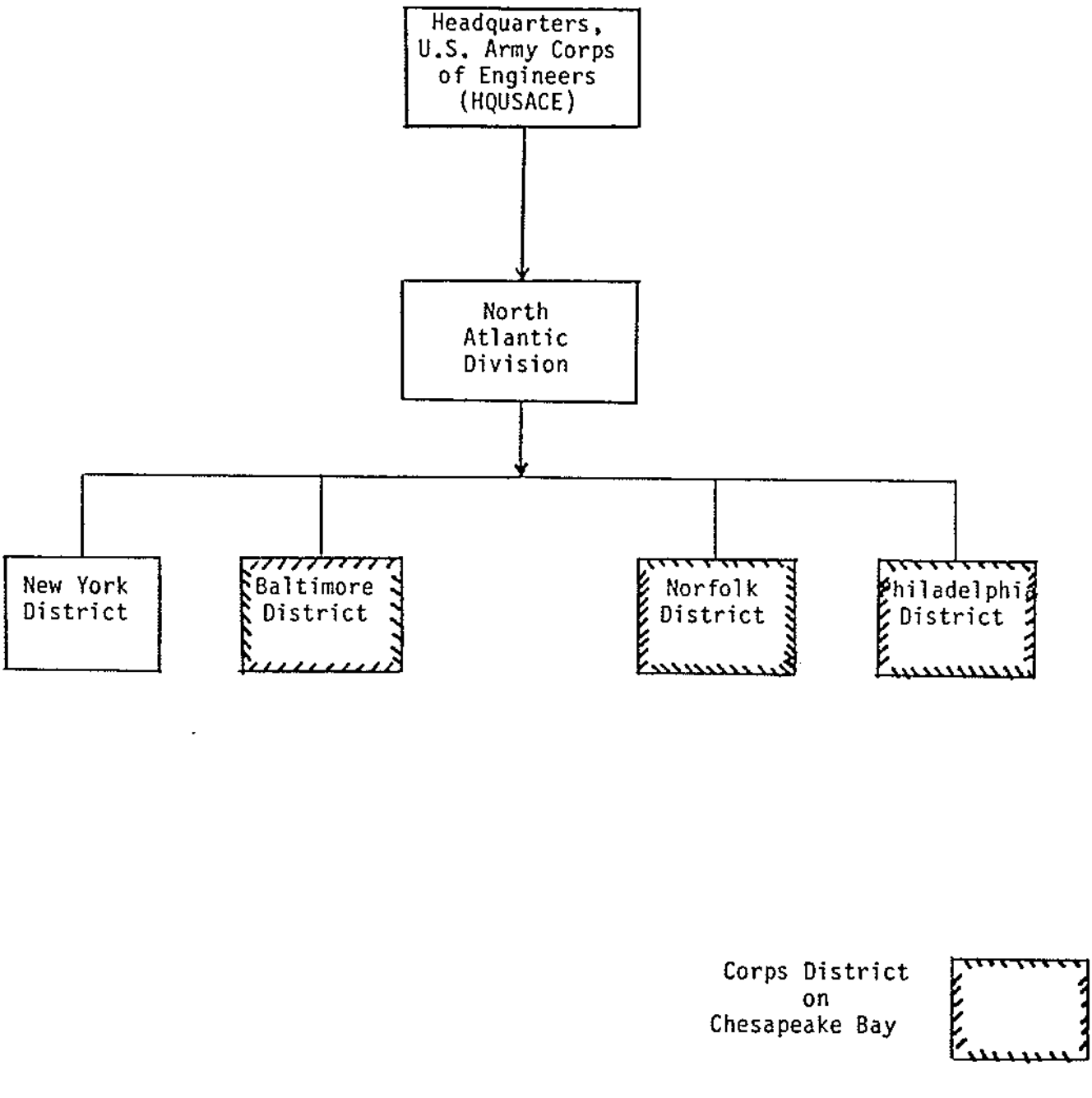
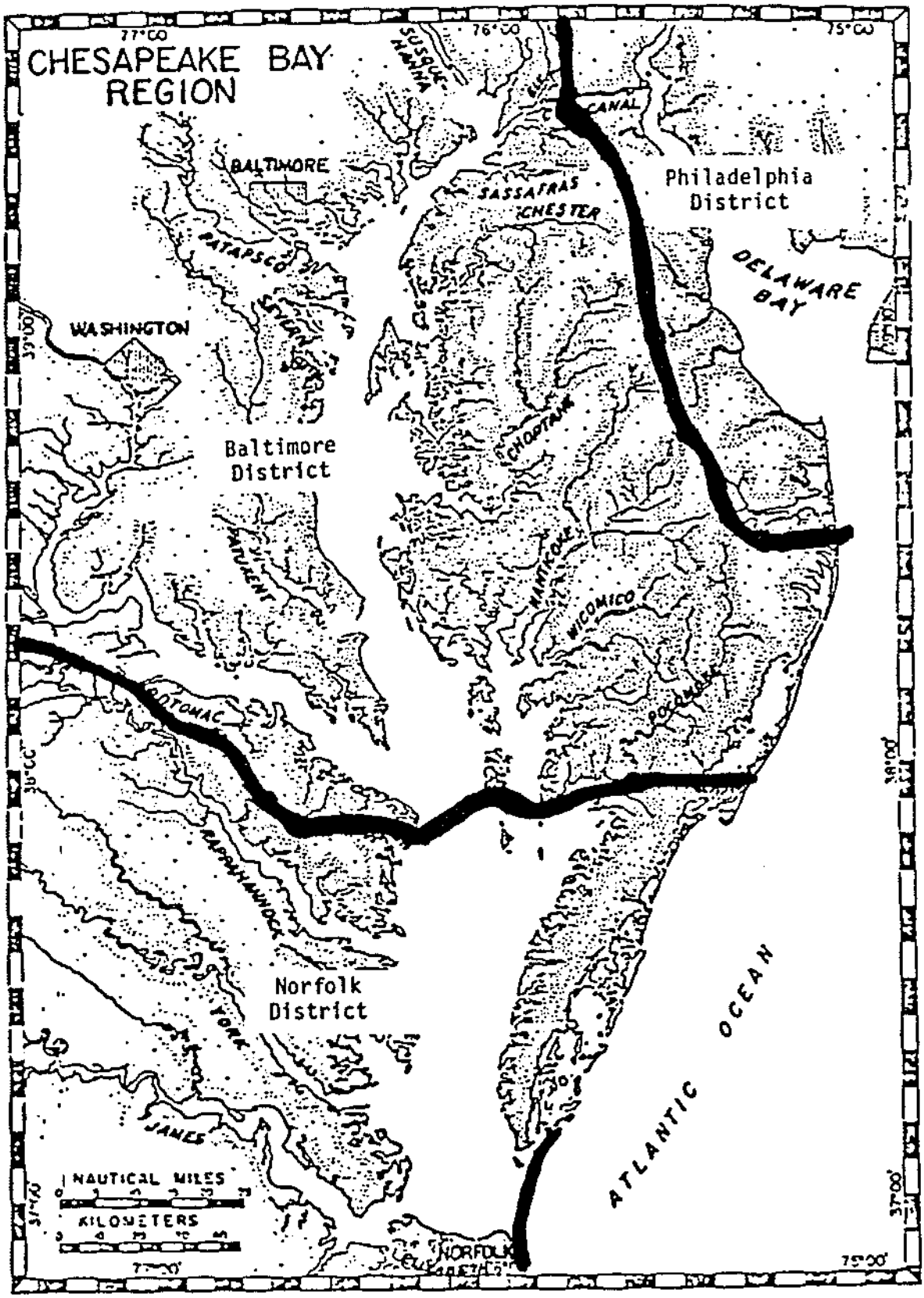


FIGURE 6
U.S. Army Corps of Engineers Boundaries on
the Chesapeake Bay



PROGRAMS IMPORTANT TO THE BAY

The Corps Districts execute several programs which contain specific elements oriented toward Bay restoration and protection:

Planning: The Planning Program primarily involves the undertaking of site specific and comprehensive water resources studies. Typical studies include those concerning shoreline protection, tidal flooding, water supply, water quality, recreation, navigation, hydroelectric power, submerged aquatic vegetation, and floodplain management. Physical and mathematical modeling, as well as environmental support to military installations are also accomplished as part of the Planning Program.

Operations: The Operations Program includes operation and maintenance of all federally maintained flood control and navigation projects, administration of all dredging and river and harbor construction work, and regulatory activities affecting waters of the United States, including navigable waters.

Real Estate: These activities include acquisition or disposal of properties for the civil and military program; management of Government owned lands and facilities, and development of plans and studies concerning use or disposal of government real estate for public use.

Public Affairs: The Corps' Public Affairs Offices disseminate information about the Corps' programs and projects to area news media and the public. A coordinated Corps communications plan for the Bay Districts was prepared in fulfillment of the 1987 Bay Agreement requirement.

Engineering and Construction: Design and construction of civil works and military (Department of Army) projects are major responsibilities of the Corps. The Corps coordinates with EPA to ensure compliance with federal regulations.

Research and Development: Operating Districts can request consulting services for support of their civil and military functions from Corps laboratories which conduct engineering and scientific investigation and studies. For example, the U.S. Army Waterways Experiment Station is developing the 3-D time variable model of Chesapeake Bay.

Washington Aqueduct Division: This Division is responsible for the collection, purification and distribution of potable water to over 1,000,000 consumers in the District of Columbia, Northern Virginia and to various government installations.

A number of specific studies and activities are being conducted. A broad range of activities are underway which benefit the Bay. They are detailed in Table 9.

TABLE 9

U.S. ARMY CORPS OF ENGINEERS

CHESAPEAKE BAY PROGRAM - SPECIFIC ACTIVITIES
(Existing)

PLANNING

Item 1:	Chesapeake Bay 3-D Model
Lead District:	Baltimore
Participating District:	Norfolk, Philadelphia
Scope:	n/a
Brief Description:	Development of numerical 3-D time variable hydrodynamic and water quality model of Chesapeake Bay to be used as predictive tool for Bay decision makers.
Funding or Activity Level:	$3.2 million
Initiated:	Sep 1987
Scheduled for Completion:	Mar 1991
Major Contribution:	Tool to evaluate 40% reduction of nutrients to the Bay in Dec 1991.
Remarks:	Cost shared - Corps-$1.5 million EPA-$1.7 million
Item 2:	Chesapeake Bay & Tributaries Reallocation Study
Lead District:	Baltimore
Participating District:	n/a
Scope:	Reconnaissance Study
Brief Description:	Review of existing and potential reservoirs and their ability to meet water resources needs including freshwater inflows to the Chesapeake Bay.
Funding or Activity Level:	$453,000
Initiated:	Dec 1985
Scheduled for Completion:	Dec 1988
Major Contribution:	Maintain freshwater flow regimes for estuarine habitats and wildlife.
Remarks:	Continuation to feasibility phase or expanded study requires additional non-Corps funding.
Item 3:	Chesapeake Bay Shoreline Protection Study
Lead District:	Baltimore
Participating District:	Norfolk
Scope:	Feasibility Study
Brief Description:	Evaluation of potential for Federal shoreline protection and erosion control projects. Includes construction and monitoring of innovative shore protection field modeling sites.
Funding or Activity Level:	$3.47 million
Initiated:	Oct 1984
Scheduled for Completion:	Nov 1990

Major Contribution:	Conserve soil resources and reduce erosion and sedimentation to protect Bay habitats. Protects, enhances, restores physical systems important to water quality and habitat. Loss of public lands and public access. Reduces non-point pollution.
Remarks:	Cost shared - Corps-$2.47 million MD, VA-$1.485 million
Item 4:	Floodplain Management Services
Lead District:	Baltimore, Norfolk, Philadelphia
Participating District:	n/a
Scope:	n/a
Brief Description:	The Corps is authorized by Section 206 of the 1960 Flood Control Act to provide information, technical assistance, and guidance upon request to identify flood hazards and to plan wise use of the floodplain. Each District exercises to fullest extent implementation of Executive Orders 11988 and 11990 during planning studies to reduce and minimize development in flood plains and wetland areas.
Funding or Activity Level:	n/a
Initiated:	Annual Program
Scheduled for Completion:	n/a
Major Contribution:	Protection, enhancement, and restoration of wetlands. Plans for and manages the adverse environmental effects of human growth and land development in the Chesapeake Bay watershed.
Remarks:	none
Item 5:	Potomac River Dredged Material Disposal Site Study
Lead District:	Baltimore
Participating District:	n/a
Scope:	In-house Reconnaissance
Brief Description:	Examination of upland/open water and beneficial use disposal options for dredged material from the Federally authorized channel.
Funding or Activity Level:	$38,000
Initiated:	Feb 1988
Scheduled for Completion:	Sep 1988
Major Contribution:	Restoration and protection of living resources and their habitats.
Remarks:	none
Item 6:	Water Quality Assessment
Lead District:	Baltimore
Participating District:	n/a
Scope:	Assessment
Brief Description:	Identification and evaluation of DoD installations on Chesapeake Bay to determine levels of adverse impacts on water quality. Recommendations provided for improvements to enhance Bay water quality conditions.

Funding or Activity Level:	$735,000
Initiated:	Aug 1985
Scheduled for Completion:	Nov 1987 (Completed)
Major Contribution:	Identification and potential control of hazardous wastes and toxic discharges to Bay. Provides base information for DoD to take subsequent remedial actions to reduce adverse impacts on Bay living resources and water quality.
Remarks:	Study was undertaken by the Baltimore District for the Department of Defense. Entirely funded by DoD.

Item 7:	Wetland Development/Demonstration for Potomac/ Anacostia Rivers
Lead District:	Baltimore
Participating District:	n/a
Scope:	Technical Assistance
Brief Description:	Develop plan for demonstration projects for wetlands creation for the purpose of toxics uptake and fisheries enhancement.
Funding or Activity Level:	$15,000
Initiated:	Jun 1987
Scheduled for Completion:	Jul 1988
Major Contribution:	Advances knowledge on methods for toxics mitigation and wetland, habitat, and water quality improvement.
Remarks:	Conducted for District of Columbia under Section 22 - Planning Assistance to the States Program

Item 8:	Study of Rock Creek Anadromous Fish Passage
Lead District:	Baltimore
Participating District:	n/a
Scope:	Technical Assistance
Brief Description:	Study will develop strategies to assist anadromous fish in overcoming blockages in Rock Creek (District of Columbia) during low flow periods. Results will be used by DC to support a request for project funding.
Funding or Activity Level:	$20,000 (estimated)
Initiated:	Apr 1988
Scheduled for Completion:	Sep 1988
Major Contribution:	Contributes directly to fish passage commitment and commercial species goals in Agreement.
Remarks:	Conducted under Section 22 - Planning Assistance to the States Program

Item 9:	Continuing Authorities Program (small projects)
Lead Districts:	Baltimore, Norfolk, Philadelphia
Participating District:	n/a
Scope:	Planning studies, design, and construction
Brief Description:	Program provides Corps with authority to develop and construct small projects needed for flood control, navigation, streambank erosion, beach erosion, and shoreline protection. Must meet specific Corps eligibility criteria. Initial request must come from non-Federal interest.

Funding or Activity Level:	Funding limits range from $500,000 to $5 million.
Initiated:	Ongoing
Scheduled for Completion:	Ongoing
Major Contribution:	Conserves soil resources and reduced sedimentation. Reduction in the loss of public lands and enhanced public assess. Reduces non-point pollution.
Remarks:	n/a

OPERATIONS

Item 1:	Potomac River and Tributaries Hydrilla Management
Lead District:	Baltimore
Participating District:	n/a
Scope:	Annual Program
Brief Description:	Management and control of hydrilla and other SAV in the Potomac River above Rt. 301 bridge for the purposes of access and navigation. Methods of control enhance recreation opportunities. Annual SAV aerial surveys and mapping conducted for monitoring purposes.
Funding or Activity Level:	n/a
Initiated:	Summer 1985
Scheduled for Completion:	Ongoing
Major Contribution:	Manages SAV. Improves opportunities for recreational and commercial fishing. Improves and maintains access to main stem Potomac River and Chesapeake Bay. Supportive of Chesapeake Bay environmental monitoring.
Remarks:	Cost shared Corps/Virginia/Maryland/District of Columbia

Item 2:	Regulatory Program
Lead District:	Baltimore, Norfolk, Philadelphia
Participating District:	n/a
Scope:	Annual Program
Brief Description:	Corps permit program regulates, by Federal law, activities in navigable waters including tidal and non-tidal wetlands. As part of this activity, periodic aerial photography of the Bay shoreline is undertaken for wetland and SAV identification.
Funding or Activity Level:	In 1987, Norfolk processed over 2,000 and Baltimore 3,000 applications for work in waterways and adjacent wetlands. Over $3.5 billion worth of projects were evaluated in the Baltimore District alone.
Initiated:	Ongoing
Scheduled for Completion:	Ongoing

Major Contribution:	Regulation and protection of wetlands and their living resources. Regulation of development in Bay non-tidal and tidal wetlands. Regulation of tidal wetlands which serve important role in preserving Bay water quality. Monitoring distribution and abundance of SAV. Public knowledge of importance of wetlands increased through over 5,000 pre-application site visits in 1987 alone.
Remarks:	Aerial photography work coordinated jointly with VIMS, MdDNR, USEPA, USFWS, and NOAA (1984-86).
Item 3:	Navigation
Lead District:	Baltimore, Norfolk, Philadelphia
Participating District:	n/a
Scope:	Annual Program
Brief Description:	Each year approximately 25 navigation projects are maintained to authorized channel dimensions. These waterways are critical to allow public and commercial access to the Chesapeake Bay and its resources.
Funding or Activity Level:	Variable
Initiated:	Ongoing
Scheduled for Completion:	Ongoing
Major Contribution:	Public access for commercial and recreational opportunities via channels. Land/water access in most cases required of local sponsors in form of public docking facilities.
Remarks:	For most projects, local sponsors are responsible for identifying disposal sites for dredged material. Approximately 175 projects are authorized for Federal navigation in the Bay and its tributaries.
Item 4:	Beneficial Uses of Dredged Material
Lead District:	Baltimore, Norfolk, Philadelphia
Participating District:	n/a
Scope:	Annual Program
Brief Description:	During the first level of review of dredged material disposal options for Corps navigation projects, beneficial uses are given first option and are implemented if economically viable. The dredging programs have created wetlands, least tern habitat, improved oyster grounds, SAV beds, beach/dune nourishment, sanitary landfill covering, and replenishment of the littoral zone. Over 75 projects involving beneficial uses have been implemented around the Bay.
Funding or Activity Level:	Variable
Initiated:	Ongoing
Scheduled for Completion:	Ongoing
Major Contribution:	Protects, enhances and restores wetlands. Restoration of living resources and their habitats. Conserves soil resources and reduces erosion and sedimentation to protect Bay habitats.

Remarks:	Department of Army has MOA with NOAA National Marine Fisheries Service regarding beneficial uses of dredged material for fishery resources.
Item 5:	Chesapeake and Delaware Canal Maintenance and Disposal Monitoring
Lead District:	Philadelphia
Participating District:	n/a
Scope:	Annual Activity
Brief Description:	Most of material dredged from Canal's western approach channel is placed in Chesapeake Bay open water disposal areas. Environmental windows for disposal are utilized in coordination with state, Federal agencies, and public. Effects of open water disposal are jointly monitored by the State of Maryland and the Philadelphia District.
Funding or Activity Level:	Annual
Initiated:	Ongoing
Scheduled for Completion:	Ongoing
Major Contribution:	The navigation project provides access for recreation and commerce. Digested sewage sludge was utilized in stabilization of upland disposal areas in Delaware along the Canal proper to encourage vegetative growth and reduce erosion. Erosion in Canal is also controlled through bank stabilization structures thus contributing to water quality improvement.
Remarks:	None

PUBLIC INFORMATION

Item 1:	Chesapeake Bay Federal Communications Plan
Lead District:	Baltimore
Participating District:	Norfolk, Philadelphia
Scope:	n/a
Brief Description:	Development of Corps of Engineers Communication Plan to be integrated into Bay-wide communication plan for all Federal and state agencies. Plan to include specific target dates for execution of public involvement activities.
Funding or Activity Level:	n/a
Initiated:	Jan 1988
Scheduled for Completion:	Mar 1988
Major Contribution:	Promotes greater understanding of Federal activities on Bay and provides increased opportunities for citizen participation.
Remarks:	None

RESEARCH AND DEVELOPMENT

Item 1:	Dredged Material Research Program (DMRP)
Lead District:	Baltimore, Norfolk, Philadelphia
Participating District:	Lead District requests and funds the Corps Waterways Experiment Station (WES) to conduct research on an as needed basis.
Scope:	Variable
Brief Description:	Research expertise from WES DMRP are used as necessary in selecting and managing disposal areas and assessing and testing for contaminants at Corps disposal sites. Research is encouraged and funded by Corps Bay Districts.
Funding or Activity Level:	Variable
Initiated:	n/a
Scheduled for Completion:	n/a
Major Contribution:	Research undertaken under this program is consistent and contributes technical and scientific information necessary to support management decisions regarding water quality and living resources.
Remarks:	None

Item 2:	Dredging Operations Technical Support Program (DOTS)
Lead District:	Baltimore, Norfolk, Philadelphia
Participating District:	Lead District requests WES to conduct research on an as needed basis.
Scope:	Variable
Brief Description:	The WES can provide to the Corps or other state and Federal agencies (only at District's request) its expertise including on-site visits up to one week. The Corps has used the program in Chesapeake Bay to evaluate alternate breakwater designs and various beneficial use demonstrations.
Funding or Activity Level:	Variable
Initiated:	n/a
Scheduled for Completion:	n/a
Major Contribution:	Research undertaken under this program is consistent with and contributes technical and scientific information necessary to support management decisions regarding water quality and living resources.
Remarks:	None

Item 3:	Aquatic Plant Control Research Program
Lead District:	Baltimore, Norfolk, Philadelphia
Participating District:	Lead District requests and funds WES to conduct research pertinent to aquatic plant control and management problems in their area.
Scope:	Variable
Brief Description:	WES can provide laboratory and field research pertaining to aquatic plant growth and reproduction, competition, and control and management measures.
Funding or Activity Level:	Variable
Initiated:	n/a
Scheduled for Completion:	n/a
Major Contribution:	The Aquatic Plant Control Research Program has been used to further the understanding of the growth and spread of hydrilla in the Potomac River as well as provide valuable insights into the ecological relationships for growth of aquatic plants in this estuary.
Remarks:	None

Item 4:	3-D Modeling of Upper Chesapeake Bay
Lead District:	WES is under contract to the State of Maryland
Participating District:	n/a
Scope:	The WES Hydraulics Laboratory has been contracted by the Maryland Tidewater Administration to develop a fine grid 3-D hydraulic model of the Chesapeake Bay above the Chesapeake Bay Bridge (Maryland).
Brief Description:	n/a
Funding or Activity Level:	$200,000
Initiated:	FY 86
Scheduled for Completion:	FY 89
Major Contribution:	Maryland plans to utilize the model to evaluate larval transport, regulation of Conowingo Dam on the Susquehanna River, and the effluent from Hart-Miller Island (containment transport). Results of the model will be useful for the Corps/EPA full Bay 3-D water quality and hydrodynamic modeling effort.
Remarks:	n/a

Item 5:	2-D Modeling in Hampton Roads Harbor
Lead District:	WES under contract by Norfolk District
Participating District:	n/a
Scope:	The WES Hydraulics Laboratory was contracted by Norfolk District to develop a fine grid 2-D numerical model to assess general changes in circulation, currents, and sedimentation associated with various expansion geometries of Craney Island Disposal Area.
Brief Description:	n/a
Funding or Activity Level:	$135,000
Initiated:	FY 85
Scheduled for Completion:	FY 88
Major Contribution:	Findings of this study will provide information required to make management decisions regarding alternatives least impacting water quality and living resources of the lower Bay.
Remarks:	None

Meeting Agreement Commitments

Table 10 summarizes various goals, objectives and commitments from the 1987 Chesapeake Bay Agreement to which the Corps ongoing activities contribute.

ESTABLISHING PRIORITIES

Execution of the continuing and future program for the Chesapeake Bay is subject to administrative, budgetary and time constraints internal to the Corps of Engineers as well as those imposed by the United States Congress in establishing national priorities. National trends towards federalism, fiscal constraint, and joint ventures and partnerships will have a major impact on the implementation of Civil Works studies and projects in the future. Public Law 99-662, the Water Resources Development Act of 1986, for example, requires increased cost-sharing in development of water resource projects between the Corps and its non-federal partners. The legislation also provides for long-term opportunities in the implementation of Corps programs in response to changing national emphasis.

The Congressional authorization and appropriation process involves multiple actions among Corps Districts, Division and Headquarters, the Assistant Secretary of the Army for Civil Works, and the Office of Management and Budget. The budget process starts approximately 18 months prior to the actual release of funds by the OMB. Figure 7 schematically illustrates the steps normally undertaken in the budget process for authorized projects. This timeline is important because it explains the lead time required before new activities can be performed by a District. Unlike other elements of the Army and the Federal government, Corps Districts are primarily funded on a project by project basis; therefore flexibility is limited in allocating funds for activities which are not specifically funded by Congress.

FUTURE PROGRAMS

The Corps expertise and programs can benefit the Bay in many ways beyond the continuing programs. Programs, studies and other activities consistent with Administration priorities have the best chance for new and continued funding. Table 9 is a checklist for future programs and activities to which the Corps could potentially contribute.

TABLE 10 RELATIONSHIP OF ARMY CORPS OF ENGINEERS TO AGREEMENT GOALS

	LIVING RESOURCES								WATER QUALITY						
	SAV Restoration, Protection Enhancement	Conservation Soil Erosion & Sedimentation Reduction	Maintain Freshwater Inflows	Restore Wildlife & Waterfowl	Policy for Protection of Tidal and Non-tidal Wetlands	Fish Passages: Remove Blockages	Restoration of Shellfish Stocks & Commercially Important Species	Plan for Oysters, Blue Crabs, Shad	Reduce Levels of Nonpoint Source Loads	Identify, Control Toxic Discharges	Minimize Water Pollution Incidents	Manage Sewer Sludge, Dredge Spoil, Hazardous Waste	Manage Groundwater to Protect Water Quality	Federal Facilities Strategy	Model Development
Planning															
1. Chesapeake Bay 3-D Model	X	X	X	X	X		X	X	X						X
2. Chesapeake Bay & Tributaries Relocation Study			X	X			X	X							
3. Chesapeake Bay Shoreline Erosion Study	X	X		X			X		X						
4. Flood Plan Management Services Program		X			X								X		
5. Potomac River Dredged Material Disposal Site Study	X			X								X			
6. Water Quality Assesment of DoD Facilities									X	X	X	X	X	X	X
7. Wetland Development / Demonstration for Potomac / Anacostia Rivers	X			X						X		X			
8. Rock Creek Anadromous Fish Passage Study				X		X	X	X							
9. Continuing Authorities Program		X							X						

TABLE 10 Continued

Operations	LIVING RESOURCES								WATER QUALITY						
	SAV Restoration, Protection Enhancement	Conservation Soil Erosion & Sedimentation Reduction	Maintain Freshwater Inflows	Restore Wildlife & Waterfowl	Policy for Protection of Tidal and Non-tidal Wetlands	Fish Passages: Remove Blockages	Restoration of Shellfish Stocks & Commercially Important Species	Plan for Oysters, Blue Crabs, Shad	Reduce Levels of Nonpoint Source Loads	Identify, Control Toxic Discharges	Minimize Water Pollution Incidents	Manage Sewer Sludge, Dredge Spoil, Hazardous Waste	Manage Groundwater to Protect Water Quality	Federal Facilities Strategy	Model Development
1. Potomac River & Tributaries Hydrilla Management	X			X											
2. Regulatory Program	X	X		X	X		X		X	X		X		X	
3. Navigation Program (Maintenance & Operation)		X										X			
4. Beneficial Uses of Dredged Material Projects	X	X		X	X		X					X			
5. C&D Canal Maintenance & Disposal Monitoring		X		X					X			X			
6. 2-D Modeling of Hampton Roads Harbor				X								X			

TABLE 10 CONTINUED

	PUBLIC INFORMATION, EDUCATION, PARTICIPATION						POPULATION GROWTH & DEVELOPMENT				PUBLIC ACCESS				GOVERNANCE			
	Provide Timely Information on Progress	Assure Continuing Public Input Process	Enhance Education Opportunities	Provide Curricula Field Experience to Students	Produce & Disseminate Information	State/Federal Communication Plan	Provide Local Government Finance & Technical Assitance	Ensure Government Projects Meet Environmental Standards	Promote Techniques to Avoid Mitigate Adverse Impacts of Growth	Strategy for Local Prot. of Tidal/Non-tidal wetlands.	Improve Bay Access	Improve Recreational & Commercial Fishing Opportunities	Secure Acreage to Protect Habitat/Sensitive Areas	Comprehensive Guide to Access Facility	Coordinate Bay Mgmt. Activities/ Develop Accountability Mechanisms	Track and Evaluate Activities which Impact Bay Water Quality	Develop Coordinated Federal Workplan	Develop & Implement Coordinated Bay Research Program
Planning																		
1. Chesapeake Bay 3-D Model	X	X																
2. Chesapeake Bay & Tributaries Reallocation Study	X	X			X			X								X		
3. Chesapeake Bay Shoreline Erosion Study	X	X		X	X		X		X		X							
4. Flood Plain Management Service Program							X	X										
5. Potomac River Dredged Material Disposal Site Study								X										
6. Water Quality Assesment of DoD Facilities								X								X		
7. Wetland Development / Demostration for Potomac / Anacostia Rivers							X	X										
8. Rock Creek Anadromous Fish Passage Study												X						
9. Continuing Authorities Program											X	X						

TABLE 10 Continued

Operations	PUBLIC INFORMATION, EDUCATION, PARTICIPATION						POPULATION GROWTH & DEVELOPMENT				PUBLIC ACCESS				GOVERNANCE			
	Provide Timely Information on Progress	Assure Continuing Public Input Process	Enhance Education Opportunities	Provide Curricula Field Experience to Students	Produce & Disseminate Information	State/Federal Communication Plan	Provide Local Government Finance & Technical Assistance	Ensure Government Projects Meet Environmental Standards	Promote Techniques to Avoid Mitigate Adverse Impacts of Growth	Strategy for Local Prot. of Tidal/Non-tidal wetlands.	Improve Bay Access	Improve Recreational & Commercial Fishing Opportunities	Secure Acreage to Protect Habitat/Sensitive Areas	Comprehensive Guide to Access Facility	Coordinate Bay Mgmt. Activities/ Develop Accountability Mechanisms	Track and Evaluate Activities which Impact Bay Water Quality	Develop Coordinated Federal Workplan	Develop & Implement Coordinated Bay Research Program
1. Potomac River & Tributaries Hydrilla Management	X	X									X	X						
2. Regulatory Program	X	X			X			X										
3. Navigation Program (Maintenance & Operation)	X	X		X	X		X		X		X	X						
4. Beneficial Uses of Dredged Material Projects							X	X				X						
5. C&D Canal Maintenance & Disposal Monitoring								X								X		
6. 2-D Modeling of Hampton Roads Harbor											X					X		

FIGURE 7

Civil Works Budget Timeline

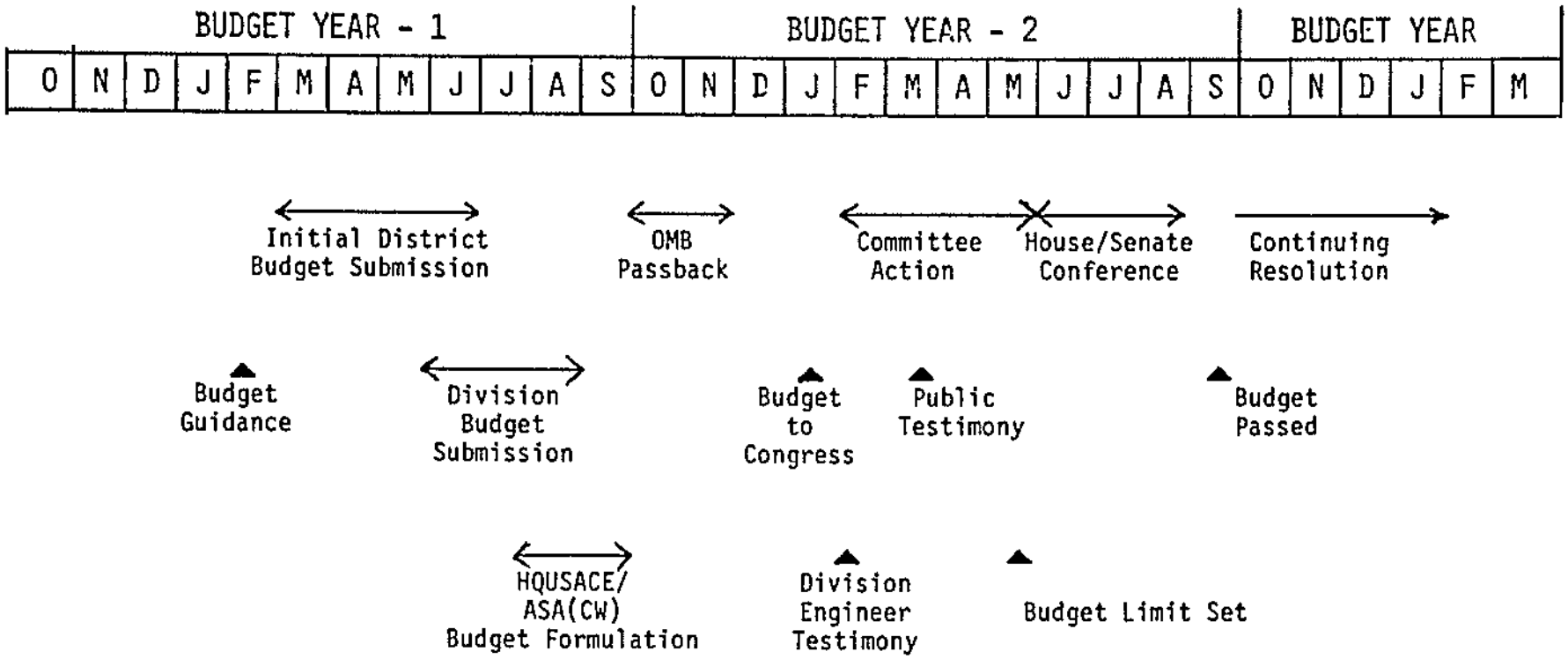


TABLE 11

POTENTIAL CORPS ACTIVITIES RELATED TO THE CHESAPEAKE BAY

1. SAV Protection and Development Planning
2. Development of Chesapeake Bay Shoreline Strategies
3. Pursue Understanding of Sea Level Rise Impacts on Chesapeake Bay
4. Sediment Transport Evaluations
5. Section 606 Streambank and Shoreline Erosion Projects (WRDA86)
6. Section 821 - Planning, Engineering and Design for Anacostia River and Tributaries (WRDA86)
7. Database Mapping Systems for Bay Resources
8. Evaluation of Streambank Erosion Problems in the Potomac River
9. Pursue Development of Economic Evaluation Procedures and Techniques Related to Bay Land Valuation, Population Growth and Development, and Shoreline Property Development
10. Evaluation of Freshwater Inflows to the Chesapeake Bay
11. Pursue Wetlands Development in Association with Dredged Material Disposal at Corps Navigation Projects
12. Regulatory Strategies for Mitigation of Selected Species
13. Monitoring/Compliance Procedures - Tidal Wetlands
14. Special Area Management Plans (Regulatory)
15. Modifications to Stream Obstructions for Anadromous Fish Passage
16. Pursue Development of Long-Term Management Strategies for Disposal of Dredged Material
17. Evaluations for Dredged Material Disposal of Toxic Sediments
18. Toxics Monitoring for Military Installations
19. Evaluation of Bay Groundwater Resources from a Quantity and Quality Standpoint
20. Review of BMP's at Military Construction Sites
21. Review of BMP's at Civil Works Construction Sites
22. Review of BMP's for Leased Agricultural Lands at Corps Reservoirs
23. Review of Military Master Plans for Wetlands
24. Implementation of Corps Bay Communications Plan
25. Evaluation of DoD Facilities, Lands, and Bay Access Potential
26. Review of Shoreline and Navigation Access at Federal Projects
27. Review Opportunities for Craney Island Disposal Area Recreation Enhancement
28. Review of Opportunities for Aquatic Plant Control Recreation Enhancement

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

INTRODUCTION

NOAA has a national mission to observe the state of the nation's coastal and estuarine waters; to prepare and issue warnings and forecasts; to insure the protection of life and property; to operate environmental satellites and archives for the nation; to manage and conserve marine and anadromous fish and other living resources; to manage with the states the coastal zone; to promote research in support of all of these activities; and to provide research and services to users and managers of coastal estuarine waters and the coastal zone.

ORGANIZATION

NOAA is a division of the U.S. Department of Commerce, headed by the Under Secretary of Commerce for Oceans and Atmosphere. There are five major line organizations under the Office of the Under Secretary, including the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), the Office of Oceans and Atmospheric Research (OAR), the National Weather Service (NWS), and the National Environmental, Satellite, Data, and Information Service (NESDIS). In addition, the Office of the Chief Scientist, within the Under Secretary's Office, contains the Estuarine Programs Office (EPO) designed to coordinate estuarine activities across all line organizations of NOAA. Two offices with particularly important roles in the Chesapeake Bay include the OAR Office of Sea Grant and Extramural Programs which administers grants to the Sea Grant College Programs in Maryland and Virginia and the NOS Office of Ocean and Coastal Resource Management (OCRM) which administers grants for the coastal zone management and estuarine reserve research programs in Maryland and Virginia. The National Oceanographic Data Center (NODC) maintains worldwide oceanographic data files including current velocity, temperature, and salinity data for the Chesapeake Bay. The NOS Office of Oceanography and Marine Assessment (OMA) includes the Strategic Assessment Branch, which is compiling the National Estuarine Inventory and conducts the National Status and Trends Program.

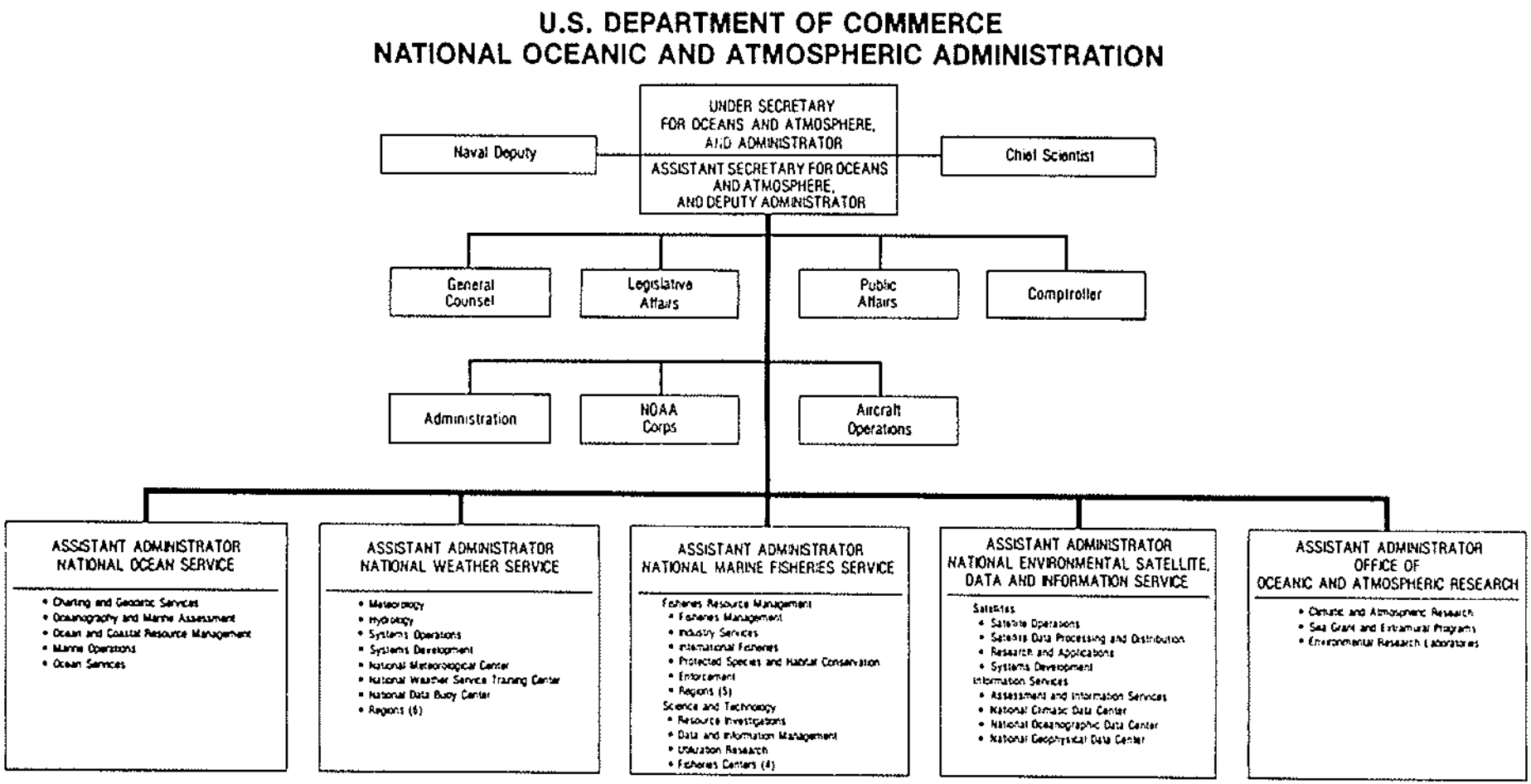
Figure 8 illustrates NOAA's organization.

PROGRAMS IMPORTANT TO THE BAY

Chesapeake Bay Study

NOAA receives approximately $1,500,000 for studies related to the improvement of fisheries statistics, fisheries stock assessment, oxygen depletion, and data management. The Estuarine Programs Office coordinates these efforts. The NOAA Chesapeake Bay Study Plan was written in 1985 to guide the use of these funds.

FIGURE 8 NOAA ORGANIZATION CHART



The Chesapeake Bay Stock Assessment Committee (CBSAC), a federal and state organization, was set up in 1985 to develop cooperative agreements with the four jurisdictions (Maryland, Virginia, District of Columbia, and Pennsylvania) for addressing fisheries statistics and stock assessment priorities. CBSAC is developing a Bay-wide fisheries stock assessment plan by July 1988, pursuant to the Living Resources commitment in the 1987 Chesapeake Bay Agreement. A matrix and companion bibliography on the status of stock knowledge was completed in March 1988 by CBSAC's Status of Stocks Knowledge Work Group. A document with more detail on the status of each major fish species in the Bay will be available in the summer of 1988. The Data Identification and Interpretation Work Group has completed a pilot stock assessment of white perch in the Choptank and York Rivers. Approximately 53 percent of the NOAA Chesapeake Bay funding has been spent on stock assessment studies, and another 9 percent on the improvement of fisheries statistics.

EPO has worked with the National Sea Grant Program Office and the Maryland and Virginia Sea Grant Programs to conduct cooperative research efforts related to the problem of oxygen depletion in Chesapeake Bay. About 26 percent of NOAA Chesapeake Bay funds were used to support these projects. A report entitled, Dissolved Oxygen: Processes and Effects, was released in December 1987, and it includes papers summarizing research findings to date. The Chesapeake Bay Environmental Effects Committee was set up in 1988 to direct the research priorities for this extra Sea Grant funding. This committee includes scientific representatives from all the jurisdictions in the Chesapeake Bay Program.

Projects related to Chesapeake Bay data management, remote sensing, and modeling have also been conducted by NESDIS through this source of funding. The report, Chesapeake Bay Environmental Data Directory, was also published in December 1987. Produced in cooperation with NESDIS, it contains descriptions of environmental data collected throughout the Chesapeake Bay and where one can obtain the data. Three other NESDIS projects in the last year include 1) the development of a microcomputer-based coastal information system for displaying and analyzing environmental data, 2) the application of a numerical circulation model of the Bay to trace the drift of larval blue crabs at the Bay mouth, and 3) the application of AVHRR satellite data to estimate suspended sediment and chlorophyll data in surface waters of the Bay. The proceedings of a workshop sponsored by EPO, Remote Sensing of Estuaries, was distributed in September 1987. About 12 percent of the Chesapeake Bay funds were distributed to NESDIS for these projects and others.

Sea Grant

Sea Grant College Programs in Maryland and Virginia received over $2 million from NOAA in Fiscal Year (FY) 1987, in addition to the $383,000 they received from NOAA's Chesapeake Bay funds. These programs include program management and communications, environmental research, seafood technology development, marine advisory services, and educational support. The Sea Grant system supports scientific and technical projects that are of national and regional importance, and supports communicators and advisory specialists to convey findings to

resource managers, elected officials, private industry, and the public. Many of the advisory services, publications, and other outreach activities are described in the Baywide Communications Plan. Current research topics include larval blue crab dynamics, shellfish and finfish disease, pollutant impacts, oyster hatchery operations, other aquaculture research, water quality, and submerged aquatic vegetation.

Coastal Zone Management and Estuarine Research Reserves

Both Maryland and Virginia have approved coastal zone management programs and receive funding from NOAA, through Section 306 of the Coastal Zone Management Act (CZMA), to manage their coastal resources. In addition, NOAA has provided funding under Section 309 of the CZMA to assist Maryland, Virginia, and Pennsylvania to implement a Chesapeake Bay Data Management and Monitoring Program.

Virginia's Coastal Resources Management Program is relatively young, approved by NOAA in September 1986, whereas Maryland's was approved in 1978. Virginia's program links existing responsibilities in fisheries management, wetlands management, dunes management, nonpoint source pollution control, shoreline sanitation, and air pollution; approximately one-third of Virginia's funding is transferred to local governments and regional planning districts to manage local coastal permitting programs. For Fiscal Year 1987, Virginia received $1.8 million for its program.

Maryland's Coastal Resources Management Program has funded activities related to striped bass, coastal county geographic information system (MIPS), nontidal wetland mapping, wetland functional-value assessment modeling, revegetation of submerged aquatic vegetation, management of areas with significant plant and wildlife, and economic impacts of critical area legislation. In FY 87, Maryland received $2.25 million.

Under Section 315 of the CZMA, states are provided with 50 percent matching grants for acquiring, developing, or operating estuarine research reserves. Maryland has received funds to develop a five-site estuarine research reserve system throughout the Maryland Bay. A site has been established at Monie Bay, on the Eastern Shore, encompassing 3,348 acres of tidal creeks, salt marshes, submerged aquatic vegetation beds, upland and swamp pine forests, and a great blue heron rookery. It is located adjacent to the Maryland Department of Natural Resources Deal Island Wildlife Management Area which is administered for public recreation and waterfowl hunting. NOAA has funded a project to examine the effects of waterfowl ponds on the long-term productivity of marshes and ultimately fisheries productivity.

Selection of additional reserve sites in Maryland has been completed with the exception of a middle Bay site to be nominated for consideration later this year. The three additional sites approved by NOAA include Jug Bay on the Patuxent River, Adkins Marsh on the Choptank River, and Otter Point Creek in Harford County. Development of a draft Environmental Impact Statement and draft Management Plan, which precedes site designation, is in progress. Site designation by NOAA is anticipated in the summer of 1989.

In Virginia, four sites located in Mobjack Bay and along the York

River are being considered for inclusion in the estuarine reserve research program. As in the Maryland estuarine reserve system, the Virginia system is intended to include a system of sites that are representative of the estuarine ecosystems found in the Chesapeake Bay and its tributaries, which are also suitable for long-term research.

National Status and Trends (NS&T) Program

National Status and Trends (NS&T) Program: The NS&T Program was initiated in 1984 to describe the current status and future trends of selected contaminants in sediments, fish, and shellfish at sites around the country. A major product of the NS&T Program will be a national data base to aid in assessing trends of pollutant levels and their effects on living resources. The Program has two major components: the Benthic Surveillance and Mussel Watch Projects. Sediments and demersal finfish are sampled annually at up to five sites in the Chesapeake Bay as part of the Benthic Surveillance Project. Fish are examined for external abnormalities, and selected tissues are examined for evidence of lesions or other disorders. Livers and bile are analyzed for toxic contamination. At the six Mussel Watch sites, oysters and sediments are also analyzed once per year for toxicants. Preliminary findings place Chesapeake Bay near the top of the list of contaminated estuaries in the U.S.

National Marine Fisheries Service: NOAA's fishery organization has scientific and management responsibilities over the nation's commercial and recreational fisheries. Three areas which have the most relevance to Chesapeake Bay are described below, although there are many other programs funded by the National Marine Fisheries Service.

Fisheries Statistics - Through the Commercial Fisheries Research and Development Act, NOAA provides funds to Maryland and Virginia to conduct research and to collect fisheries statistics. Commercial catch and effort data are collected by the states and are used by both NOAA and the states for predicting total catch, assessing trends, and developing fishery management measures. NOAA also conducts the National Marine Recreational Fisheries Survey, used to estimate recreational fish catch and effort data, in the Bay region. The states periodically supplement this survey to provide additional data for better regional estimates. NOAA funds research on the effects that recreational fishing has on annual fishing patterns and on socio-economic effects of sport fishing in the Chesapeake Bay.

Protected Species and Habitat Conservation - NOAA participates in environmental decision-making in cooperation with other federal and state agencies involved in water resource planning and development around the Chesapeake Bay. To prevent or reduce damage to fishery resources and their habitats, NOAA reviews dredge and fill proposals, and permits for waste discharge and construction in navigable waters. From January 1981 to December 1985, NOAA reviewed approximately 3,000 applications for construction permits and hydro-electric licensing associated with proposals in the Chesapeake Bay and its tributaries.

Additionally, NOAA participates in planning and technical committees to

addressed. NOAA recommends mitigation measures to alleviate impacts on fisheries resources associated with these development activities.

- Interjurisdictional Fisheries Management

The Anadromous Fish Conservation Act enables NOAA to fund the states in the Bay region to answer questions about the striped bass, shad, and river herring. With these grants, Maryland is characterizing the sex, age, size, and composition of striped bass to determine indices of relative abundance. Virginia is also examining the stock composition and year class for striped bass, shad, and river herring stocks as well as comparing the current status of shad stocks to previous years in the James, York, and Rappahannock rivers.

NOAA is an active participant in the Atlantic States Marine Fisheries Commission, a coast-wide organization designed to coordinate the management of coastal fisheries stocks. Like migratory coastal fish, offshore fisheries (3-200 miles offshore) often include species that are periodic residents of Chesapeake Bay. The Mid-Atlantic Fishery Management Council, funded under the Fishery Conservation and Management Act, approves federal fishery management plans for offshore fisheries.

Meeting Agreement Commitments

The relationship of NOAA's programs to meeting the Commitments of the Chesapeake Bay Agreement of 1987 is displayed in the matrix which is Table 12.

ESTABLISHING PRIORITIES

Funding for NOAA's Chesapeake Bay Project is administered through the National Marine Fisheries Service. Priorities for allocating the budget among the three main funding categories (stock assessment and fisheries statistics, environmental effects, and data management) are coordinated by the Estuarine Programs Office. EPO works with the Chesapeake Bay Stock Assessment Committee, Chesapeake Bay Environmental Effect Committee, and NESDIS personnel to set priorities for funding within each budget category.

FUTURE PROGRAMS

Within the Estuarine Programs Office, an Estuarine Research Framework was developed in 1987 to set goals for future research on estuarine processes. Areas of focus include freshwater inflow, habitat modifications, nutrient processes, and toxic contamination. A technical development plan was completed in February 1987 which recommends funding specific research projects related to the functioning of submerged aquatic vegetation ecosystems.

Future goals for the Chesapeake Bay Project include the initiation of research on toxic chemical effects on living resources in the Bay. The Chesapeake Bay Environmental Effects Committee recently decided to continue at least one more year of coordinated research studies on low dissolved oxygen before considering funding a research program on toxics. The Committee plans to use

TABLE 12 RELATIONSHIP OF NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ACTIVITIES TO AGREEMENT GOALS

	LIVING RESOURCES								WATER QUALITY						
	SAV Restoration, Protection Enhancement	Conservation Soil: Erosion & Sedimentation Reduction	Maintain Freshwater Inflows	Restore Wildlife & Waterfowl	Policy for Protection of Tidal and Non-tidal Wetlands	Fish Passages: Remove Blockages	Restoration of Shellfish Stocks & Commercially Important Species	Plan for Oysters, Blue Crabs, Shad	Reduce Levels of Nonpoint Source Loads	Identify, Control Toxic Discharges	Minimize Water Pollution Incidents	Manage Sewer Sludge, Dredge Spoil, Hazardous Waste	Manage Groundwater to Protect Water Quality	Federal Facilities Strategy	Model Development
I. NOAA Chesapeake Bay Study															
A. Stock Assessment Committee							X	X							
B. Environmental Effects Committee	X			X			X			X					X
C. Data Management, Remote Sensing, and Modeling		X	X				X		X						
D. Coordination with CBP				X		X	X	X						X	
II. Sea Grant Core Programs	X						X			X					
III. Coastal Resource Management and Estuarine Reserve Research Programs	X	X		X	X				X	X	X				
IV. National Status and Trends Program										X					
V. National Marine Fisheries Service Programs	X	X	X		X	X	X	X	X			X			

TABLE 12 CONTINUED

	PUBLIC INFORMATION, EDUCATION, PARTICIPATION						POPULATION GROWTH & DEVELOPMENT				PUBLIC ACCESS				GOVERNANCE				
	Provide Timely Information on Progress	Assure Continuing Public Input Process	Enhance Education Opportunities	Provide Curricula Field Experience to Students	Produce & Disseminate Information	State/Federal Communication Plan	Provide Local Government Finance & Technical Assistance	Ensure Government Projects Meet Environmental Standards	Promote Techniques to Avoid Mitigate Adverse Impacts of Growth	Strategy for Local Prot. of Tidal/Non-tidal wetlands.	Improve Bay Access	Improve Recreational & Commercial Fishing Opportunities	Secure Acreage to Protect Habitat/Sensitive Areas	Comprehensive Guide to Access Facility	Coordinate Bay Mgmt. Activities/ Develop Accountability Mechanisms	Track and Evaluate Activities which Impact Bay Water Quality	Develop Coordinated Federal Workplan	Develop & Implement Coordinated Bay Research Program	Living Resource Monitoring Plan
I. NOAA Chesapeake Bay Study																			
A. Stock Assessment Committee					X										X				X
B. Environmental Effects Committee					X													X	
C. Data Management, Remote Sensing, Modeling					X													X	
D. CBP Coordination	X				X	X									X		X		
II. Sea Grant Core Programs	X		X	X	X	X						X						X	
III. Coastal Resource Management & Estuarine Reserve Research Programs		X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	
IV. National Status and Trends Program					X											X			
V. National Marine Fisheries Service Programs				X	X							X							X

considering funding a research program on toxics. The Committee plans to use the Chesapeake Bay Research Plan, under development by the Chesapeake Bay Program's (CBP) Scientific and Technical Advisory Committee, for its decisions on FY 89 research priorities.

The Chesapeake Bay Stock Assessment Committee plans to follow through on its recommendations for long-term Bay-wide data collection programs for stock assessment and fisheries monitoring and short-term studies on fishery recruitment processes and biological effects. The first objective is to complete the design of a fishery-independent data collection effort, which includes a Bay-wide trawl survey, beach-seining in Bay headwaters and tributaries, and other gears. Studies are on-going for developing consistent methodologies for the trawl survey, and beach-seine methodologies are already in place Bay-wide. Technical workshops are planned within the next year for developing the Bay-wide fishery-independent sampling program. Studies may also be initiated next year to develop improved measures of recreational catch and effort in the Chesapeake Bay.

NOAA has much expertise in the field of remote sensing and the application of satellite imagery for monitoring and modeling. The Remote Sensing of Estuaries workshop sponsored by EPO in 1985, developed specific recommendations for improving remote sensing technology for estuarine research and management applications. NOAA hopes that, through its participation in and support of the Remote Sensing Working Group of the CBP Scientific and Technical Advisory Committee, some of the workshop's recommendations will be carried out.

With a range of plans being developed as part of the Chesapeake Bay Agreement, many recommendations will be put forth for improving the coordination of research, planning, management, and public involvement activities throughout the Bay. NOAA is committed to improve the coordination of its Coastal Resource Management grants, Sea Grant funding, and Chesapeake Bay project funding so that their priorities are consistent with the Chesapeake Bay Agreement and the plans adopted by the Chesapeake Executive Council.

DEPARTMENT OF DEFENSE

INTRODUCTION

Helping to restore and protect the Chesapeake Bay has been a long-standing Department of Defense (DoD) goal. Since 1974, the Department has spent more than $235 million on pollution abatement projects and natural resource programs in the Bay region. For example, many wastewater treatment plants have been upgraded with such advanced treatment techniques as nitrification, phosphorus removal, and ultraviolet disinfection.

Defense was the first federal agency to enter into a formal agreement with EPA, pledging to study all DOD installations in the Bay area, and to implement land management and point source controls when needed. DoD also agreed to work with EPA to insure that all permits are up-to-date and to define appropriate discharge levels. Even when not required by existing permits, DoD strives to minimize discharges of nutrients, toxics, and sediments.

DoD recently completed a two-year, three-phase study to determine the relative impact of its activities on the water quality and living resources of the Bay and its tributaries. Sixty-six DoD installations were evaluated to determine which have the potential to impact the Bay's water quality by virtue of their size, their proximity to the Bay, or the types of activities which they perform.

The study found that the region of influence of military activities in the Bay area generally appears to be limited to the immediate vicinity of each facility. Military installations contribute relatively insignificant loadings of both point and nonpoint conventional pollutants to the Bay.

Three major program recommendations are identified: additional monitoring of conventional pollutants and toxics; a systematic evaluation of nonpoint source runoff control measures; and further emphasis on the management of hazardous and toxic materials.

DoD is using this water quality assessment study to develop a comprehensive management strategy for future actions in the Bay region. The study is also being used as the basis for DoD's input to the Federal Facilities Plan and to this Coordinated Work Plan.

ORGANIZATION

Overall policy direction for DoD's Chesapeake Bay Program is provided by the Office of the Deputy Assistant Secretary of Defense for Environment. Program management is provided by the Military Services, through the environmental offices of their Headquarters and major commands. Day-to-day operation of DoD's environmental programs is normally carried out by the engineering and

housing division at each installation. (See Figure 9.)

DOD ENVIRONMENTAL PROGRAMS IMPORTANT TO THE BAY

The water quality assessment of DoD installations in the Chesapeake Bay drainage basin identified these programs as being "particularly beneficial to water quality conditions" in the Bay area:

o Defense Environmental Restoration Program - A systematic program to identify and clean up abandoned toxic and hazardous waste sites has been established for all Military Services. Preliminary site investigations have been conducted at installations in the Bay region, and follow-up actions are being performed as required.

o Advanced Wastewater Treatment (AWT) Upgrades - A number of installations have upgraded their sewage treatment plants by incorporating AWT practices such as denitrification, phosphorus removal, ultraviolet disinfection, and multimedia sand filters. Another active program has involved the tie-in of sewage lines directly to local municipal systems for treatment.

o OMTAP - DoD's Operation Maintenance and Training Assistance Program is a pilot program designed to enhance sewage treatment plant operations at selected facilities through site-specific evaluation, analysis and assistance. OMTAP uses a detailed on-site evaluation of each management, support, and operating function of a STP to identify both short-term and long-term problems, and to recommend changes to improve the operations and effectiveness of the plant.

o Environmental Assistance Programs - The Military Services provide additional environmental engineering assistance to installations as needed through a number of programs designed to deal with specific health-related problems, ranging from laboratory analyses of suspected toxic materials to full-scale environmental audits and preparation of environmental impact statements.

o DoD Environmental Audit Program - Environmental audits help assess an installation's water quality needs and can also help to prioritize the needs of an installation.

o Defense Environmental Status Reports (DESR) - Through this tracking mechanism, the Military Services report on progress they are making to achieve goals of their environmental programs. DESR can prioritize areas needing attention and can aid in the funding of necessary projects.

o Hazardous Waste Storage and Handling - DoD is making great progress in upgrading hazardous storage and handling facilities and in reducing the incidence of spills at these facilities.

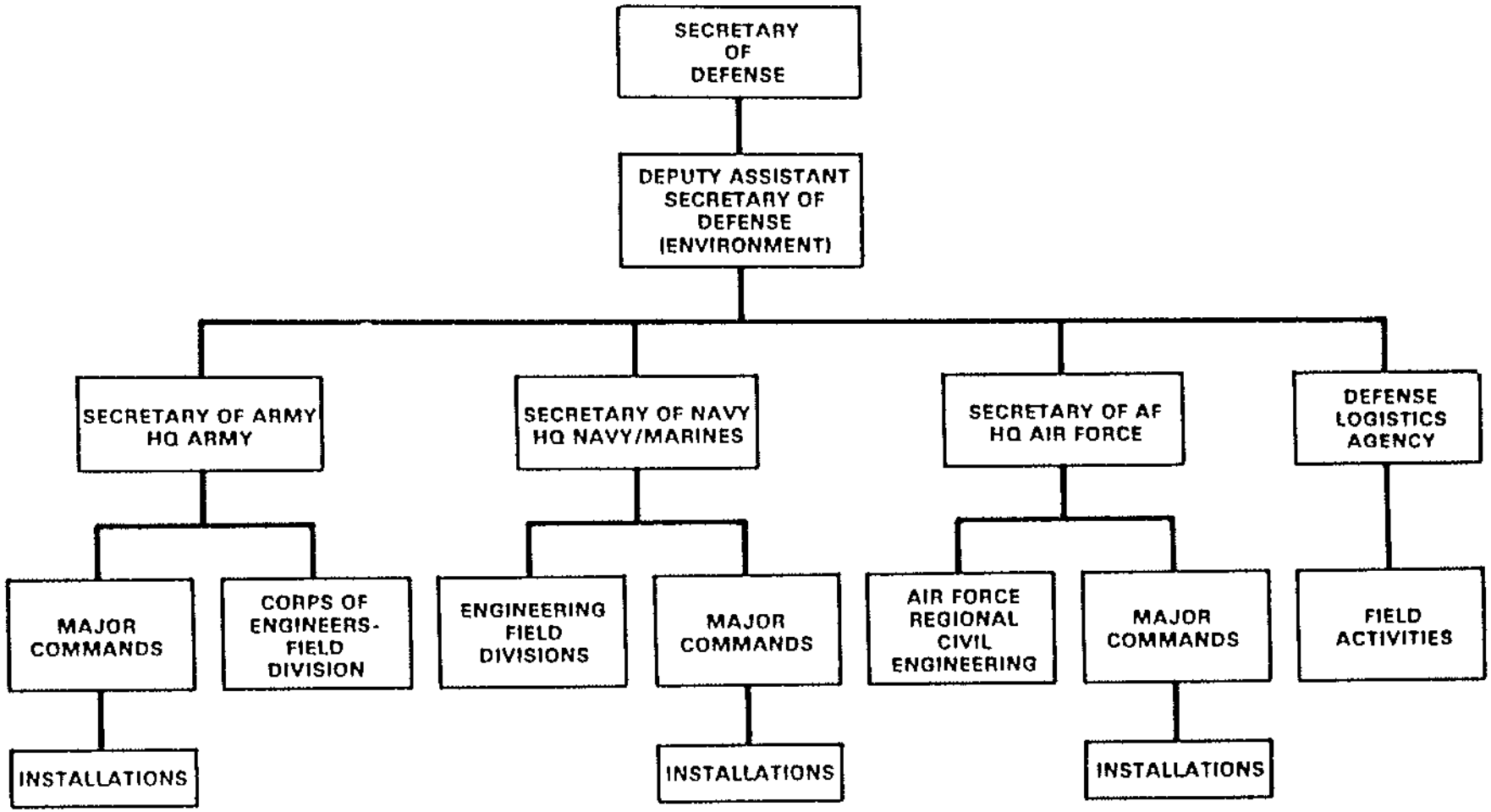
o Natural resource programs, soil conservation plans, wetlands management programs and forestry management plans - These programs provide mechanisms to insure best management practices (BMPs) are implemented. They also enhance the living resources on DoD's installations.

o Preservation of Undeveloped Land - The large amount of undisturbed land

FIGURE 9

DEPARTMENT OF DEFENSE ORGANIZATION CHART

DoD ENVIRONMENTAL ENGINEERING
FUNCTIONAL RELATIONSHIPS



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on DoD's installations stabilizes the soil, reduces surface runoff of-pollutants, and slows erosion rates.

Programs In The Chesapeake Bay Region

Background

DoD's primary involvement in the restoration and protection of the Chesapeake Bay is with pollution abatement projects which mitigate the adverse impacts of activities on its military installations, or through ongoing enhancement efforts of its natural resource programs. Since 1974, DoD has spent more than $235 million to support these efforts in the Chesapeake Bay drainage basin.

Special initiatives

o Completed a two-year, three-phase water quality assessment of the impact of all 66 DoD installations in the Chesapeake Bay drainage basin - $570,000.

o Completed and distributed a guidance manual for conducting operator training assistance at DoD wastewater treatment plants. The Army conducted operator assistance programs at five Chesapeake Bay installations in 1987.

o Developed action plans for underground storage tank management, erosion and stormwater management, and water quality monitoring for two Bay-area army installations.

o A pilot program of environmental audits was conducted at eight DoD installations in 1985-86. Environmental engineering surveys were completed at five Navy and Marine Corps installations during the same time period.

Core funded

The examples cited below are representative of the wide range of pollution control projects, mitigation measures, and O&M activities which DoD has completed since the signing of the 1983 Bay Agreement.

Actions completed in FY87

o The Navy conducted a pilot study to develop best available technology for treatment of ordinance and explosive wastewater.

o Sludge disposal programs have been or are being established at seven Navy activities with wastewater treatment plants. Application of sludge to forest lands is being initiated at several activities to reduce landfill requirements and promote beneficial use of the sludge.

o Three stormwater detention basins which collect sediment from construction sites were completed at Andrews AFB, Air Force 1 Complex- $655,000

o An experimental shoreline erosion control project using gaped gabion breakwaters was installed at Camp Peary, VA - $24,000

o Aberdeen Proving Ground (APG) has developed over the past several years a computerized system to manage its habitats and track changes to them. It will be used on site with a GIS system.

o Sewage system improvements at NOS Indian Head - $6.1 million.

o Seven Navy CHESDIV wastewater treatment plants are conducting biomonitoring to determine if they are discharging any toxics. A toxics reduction study to identify the source of any toxicants identified will be performed.

o Cleanup of PCB contamination site at NAD Norfolk - $4.49 million.

o Shoreline erosion and sedimentation control projects at NAS Solomons Island Annex, NRL Chesapeake Bay Detachment, NOS Indian Head, and NSWC Dahlgren - $122,000.

o Soil stabilization and runoff control projects at Letterkenny and Fort Belvoir - $212,000.

o Replacement of sewage pumping station and construction of oil-water separator for stormwater, Fort Monroe - $135,000.

Actions completed in FY85-86

o Repair storm drainage at Andrews AFB and Langley AFB - $625,000.

o Replace sewer lines, New Cumberland Army Depot - $40,000.

o Construction of oil spill prevention facility, Quantico - $6.5 million.

o Alterations to sanitary sewer, NWS Yorktown - $35,000.

o Sewage system improvements, NSWC Dahlgren - $264,000.

o Modifications to sewage treatment plant, Naval Station, Annapolis - $42,000.

o Revegetation and terracing of 60 acre demolition site, Letterkenny Army Depot.

o Renovation and seeding of 400 acres of bare ground, Fort A.P. Hill.

Actions completed in FY84-85

o Municipal sewage connection, Naval Shipyard Portsmouth - $8 million.

o Construction and improvements to industrial waste pretreatment plant, Naval Air Rework Facility, Norfolk - $7 million.

o Construction of an advanced wastewater treatment plant, Fort Meade - $23 million.

o Municipal sewage connections, Fort Lee and Fort Belvoir - $7 million.

o Upgrade of every unit process in NRL Chesapeake Bay Detachment wastewater treatment plant, including installation of ultraviolet radiation disinfection unit.

Ongoing actions

o Navy spill response equipment located at Chesapeake Bay activities is valued at $15 million. Another $15 million has been spent maintaining and replacing this equipment.

o The Navy also has a $65 million investment of ship salvage and oil spill response equipment located in Williamsburg, VA.

o SAV planting has been conducted at Aberdeen Proving Grounds since 1980.

Meeting Agreement Commitments

The relationship of DoD's efforts to Bay Agreement commitments is displayed in Table 13. The table also indicates the plans/strategies in which DoD is participating.

ESTABLISHING PRIORITIES

DoD is working with the Services and EPA Region III to identify which potential projects identified by the water quality assessment have received funding, which have been programmed for funding consideration, and which have not as yet been submitted for consideration. Once the evaluation has been completed, recommended projects not currently identified by the Services will be submitted for future funding consideration.

Funding decisions for pollution abatement projects and hazardous waste cleanup projects are made on the basis of relative need. Projects at DoD installations in the Chesapeake Bay area compete with others nationwide for available funding. Projects not funded in a given year are deferred for future consideration when a continuing need exists. The FY90 budget is currently being developed.

FUTURE PROGRAMS

DoD will continue the environmental enhancement programs described above. In addition, the water quality assessment identified both generic and specific recommendations for improvements. The former address water quality related program areas common to many of DoD's Bay-area installations, and cover such topics as long-term monitoring needs, nonpoint source runoff control, hazardous and toxic materials management, and sewage treatment system improvements. The latter focus on specific installation needs. Estimated costs and potential benefits are also described. The Military Services are reviewing these recommendations, and will identify those which will be programmed for future action. Recommendations currently being evaluated for future implementation by DoD's Bay-area installations are presented in the Federal Facilities Strategy.

TABLE 13 RELATIONSHIP OF DoD ACTIVITIES TO AGREEMENT GOALS

	LIVING RESOURCES								WATER QUALITY						
	SAV Restoration, Protection Enhancement	Conservation Soil Erosion & Sedimentation Reduction	Maintain Freshwater Inflows	Restore Wildlife & Waterfowl	Policy for Protection of Tidal and Non-tidal Wetlands	Fish Passages: Remove Blockages	Restoration of Shellfish Stocks & Commercially Important Species	Plan for Oysters, Blue Crabs, Shad	Reduce Levels of Nonpoint Source Loads	Identify, Control Toxic Discharges	Minimize Water Pollution Incidents	Manage Sewer Sludge, Dredge Spoil, Hazardous Waste	Manage Groundwater to Protect Water Quality	Federal Facilities Strategy	Model Development
I. CONTINUING ENVIRONMENTAL ENHANCEMENT PROGRAMS															
1. Defense Environmental Restriction Program (DERP)										X	X		X	X	
2. Advanced Wastewater Treatment (AWT) Upgrades											X			X	X
3. Operation Maintenance and Training Assistance Program (OMTAP)											X			X	X
4. Environmental Assistance/ Environmental Audits		X		X		X			X	X	X	X	X	X	X
5. Natural Resources Management Programs	X	X	X	X		X									

TABLE 13 CONTINUED

	PUBLIC INFORMATION, EDUCATION, PARTICIPATION						POPULATION GROWTH & DEVELOPMENT				PUBLIC ACCESS				GOVERNANCE			
	Provide Timely Information on Progress	Assure Continuing Public Input Process	Enhance Education Opportunities	Provide Curricula Field Experience to Students	Produce & Disseminate Information	State/Federal Communication Plan	Provide Local Government Finance & Technical Assitance	Ensure Government Projects Meet Environmental Standards	Promote Techniques to Avoid Mitigate Adverse Impacts of Growth	Strategy for Local Prot. of Tidal/Non-tidal wetlands.	Improve Bay Access	Improve Recreational & Commercial Fishing Opportunities	Secure Acreage to Protect Habitat/Sensitive Areas	Comprehensive Guide to Access Facility	Coordinate Bay Mgmt. Activities/ Develop Accountability Mechanisms	Track and Evaluate Activities which Impact Bay Water Quality	Develop Coordinated Federal Workplan	Develop & Implement Coordinated Bay Research Program
I. CONTINUING ENVIRONMENTAL ENHANCEMENT PROGRAMS																		
1. Defense Environmental Restriction Program (DERP)	X	X		X														
2. Advanced Wastewater Treatment (AWT) Upgrades	X																	
3. Operation Maintenance and Training Assistance Program (OMTAP)	X			X														
4. Environmental Assistance/ Environmental Audits																		
5. Natural Resources Management Programs	X										X							
II. AGREEMENT COMMITMENTS																		
1. Bay Communications Plan	X	X	X		X	X												
2. Bay Access Inventory	X	X		X														

TABLE 13 CONTINUED

III. Generic Recommendations from Water Quality Assessment (currently under evaluation)	LIVING RESOURCES								WATER QUALITY						
	SAV Restoration, Protection Enhancement	Conservation Soil Erosion & Sedimentation Reduction	Maintain Freshwater Inflows	Restore Wildlife & Waterfowl	Policy for Protection of Tidal and Non-tidal Wetlands	Fish Passages; Remove Blockages	Restoration of Shellfish Stocks & Commercially Important Species	Plan for Oysters, Blue Crabs, Shad	Reduce Levels of Nonpoint Source Loads	Identify, Control Toxic Discharges	Minimize Water Pollution Incidents	Manage Sewer Sludge, Dredge Spoil, Hazardous Waste	Manage Groundwater to Protect Water Quality	Federal Facilities Strategy	Model Development
1. Erosion/Sedimentation Control		X							X	X	X		X		
2. Impervious Area Runoff - oil/water separators - surface monitoring									X	X	X		X		
3. Combined Storm Drains - discharge to STP for treatment - effluent monitoring									X	X	X		X		
4. Shoreline Erosion Control		X							X	X	X				
5. Sewage Treatment - correct design/operational inadequacies - eliminate Cl residual										X	X	X	X		
6. Industrial Waste Treatment - monitor discharges (NPDES) - install/upgrade oil/water separators - install/upgrade pretreatment system - review pretreatment process / operations - effluent toxics monitoring										X	X		X		
7. Intermittent/Remote Sewage Treatment											X		X		
8. Refueling Operations - SPCC measures											X		X		
9. Munitions Operations - monitoring runoff										X	X		X		

TABLE 13 CONTINUED

	LIVING RESOURCES								WATER QUALITY						
	SAV Restoration, Protection Enhancement	Conservation Soil Erosion & Sedimentation Reduction	Maintain Freshwater Inflows	Restore Wildlife & Waterfowl	Policy for Protection of Tidal and Non-tidal Wetlands	Fish Passages: Remove Blockages	Restoration of Shellfish Stocks & Commercially Important Species	Plan for Oysters, Blue Crabs, Shad	Reduce Levels of Nonpoint Source Loads	Identify, Control Toxic Discharges	Minimize Water Pollution Incidents	Manage Sewage Sludge, Dredge Spoil, Hazardous Waste	Manage Groundwater to Protect Water Quality	Federal Facilities Strategy	Model Development
10. Chemical Operations - monitoring										X	X		X		
11. Pesticides - monitoring - BMPs										X	X		X		
12. Ship Maintenance - BMPs										X	X	X	X		
13. Solid Waste Disposal - monitor landfill leachate - BMPs to stop contaminant migration										X	X		X		
14. Hazardous Waste - implement HM/HW management plans - conforming HW storage - sludge disposal										X	X	X	X		
15. SPCC Status - update SPCC plans										X	X		X		
16. Abandoned Sites - confirmation studies - leachate control/treatment - containment measures										X	X		X		
17. UST Status - test USTs - remove tanks/soils - cleanup measures											X		X		
18. Forestry Management - timber sales BMPs		X							X		X				
19. Wildlife Management / Enhancement Plans				X											

TABLE 13 CONTINUED

	LIVING RESOURCES								WATER QUALITY							
	SAV Restoration, Protection Enhancement	Conservation Soil: Erosion & Sedimentation Reduction	Maintain Freshwater Inflows	Restore Wildlife & Waterfowl	Policy for Protection of Tidal and Non-tidal Wetlands	Fish Passages: Remove Blockages	Restoration of Shellfish Stocks & Commercially Important Species	Plan for Oysters, Blue Crabs, Shad	Reduce Levels of Nonpoint Source Loads	Identify, Control Toxic Discharges	Minimize Water Pollution Incidents	Manage Sewer Sludge, Dredge Spoil, Hazardous Waste	Manage Groundwater to Protect Water Quality	Federal Facilities Strategy	Model Development
20. Soil Conservation Plan - BMPs - develop plans		X							X		X				
21. Stormwater Management Plans										X	X		X		
22. Wetlands Management Plans	X			X					X	X	X		X		
23. Shoreline Erosion Plans		X													

FOREST SERVICE

INTRODUCTION

The Forest Service is a leader in the conservation and wise use of the Nation's forests and rangelands. Under its direction 156 National Forests, 19 Grasslands and 16 Land Utilization Projects are managed to produce wood fiber, forage, recreation, wildlife and quality water for the growing population of the Nation.

Recognizing the diversity of the Nation, these lands are managed to produce the greatest good for the greatest number of people in the long run. Portions of National Forests may be dedicated wilderness, or wild and scenic rivers or recreation areas. Under such management they hold something for everyone. Portions of three National Forests occur in the Chesapeake Bay Region: the George Washington, comprising 475,000 acres and the Jefferson, comprising 248,600 acres, both in Virginia, and the Monongahela comprising 101,123 acres in West Virginia.

In addition to its specific land and water management responsibilities the Forest Service also cooperates with the States in helping private forest land owners apply good forest practices on their lands.

Yet a third element of the Forest Service is dedicated to the conduct of research to expand the scientific basis for forestry, range and natural resources management. Significant progress is being made in the areas of acid rain, insect and disease control, wood utilization, water quality, fire behavior, and better ways to manage forests and rangelands for all their value.

PROGRAMS IMPORTANT TO THE BAY

While the Forest Service is not charged with programs specific to the Bay, the Administration of National Forest System lands and programs administered by State and Private Forestry, or in which they assist other agencies, can affect the Bay and its environs:

Planning:

National Forest System : UNDER DEVELOPMENT

Cooperative Programs:

Northeastern Area State and Private Forestry provides assistance to the six states with land in the Bay Region to develop State Forest Resource Plans which will enhance State capability for providing forest resource data for other planning efforts which affect natural resources, enhance the capabilities of the states to identify opportunities to provide guidance for the efficient investment of public and private funds to benefit the Bay

Program and enhance the states' capability to develop or provide inputs for an operational model that integrates the functions of planning, implementation and control.

Operations:

National Forest System: UNDER DEVELOPMENT

Cooperative Programs:

Northeastern Area Forest Pest Management Staff is directly responsible for reducing damage caused by pests on all Federal forest and range lands and indirectly responsible for this work on State and private lands. Toward this end, the FPM Staff unit provides financial and technical assistance to control and suppress forest pests, such as the gypsy moth and spruce budworm; conducts forest surveys to detect the presence of pests and to evaluate their potential for causing loss; trains Federal and State employees in the latest forest pest management techniques; designs special projects and conducts demonstrations to expedite the development and dissemination of new techniques into the hands of the user; conducts training courses in the use and handling of herbicides and pesticides.

The Fire Protection Staff lends its expertise, leadership and financial support to State Foresters and to local fire departments so they can deliver effective forest fire protection to State and private lands in the Region. They perform this role by enabling states to obtain equipment and vehicles through Federal Excess Property Program for use by rural fire departments; helping states to improve protection of rural property and lives through the Rural Community Fire Protection Program; providing advanced fire training for State fire protection employees and specific to the Bay Region, assisting in fire training within the Mid Atlantic Forest Fire Protection Compact.

The Forest Management and Utilization Staff extends technical assistance, training, expertise, and funding to State and private landowners in managing their forest lands. Support is provided in such categories as silviculture, forest genetics, forest seedling and nursery management, forest management, wildlife habitat management, soil and water protection, urban forestry, reclamation of surface mined areas, recreation and taxation. This staff also cooperates with other USDA Agencies in providing guidance for the Forest Incentives Program (FIP), Agricultural Conservation Program (ACP), Conservation Reserve Program (CRP), Small Watershed Program, Potomac Flood Prevention Program and Emergency Watershed Protection Program. Urban Forestry experts provide direction to landowners and loggers in harvesting wood products while protecting the environment, guidance to municipalities in urban tree removal, recycling for energy, and regulations on the use and disposal of wood products.

For the past several years Northeastern Area State And Private Forestry has been coordinating Chesapeake Bay forestry activities between the Forest Service and the State Foresters of Maryland, Pennsylvania and New York. Through the combined efforts of the three State forestry agencies in the Susquehanna River Initiative, increased Chesapeake Bay Program funding was made available to Maryland and Pennsylvania. Through its Focused Funding

Program, Northeastern Area made $50,000 available to New York Department of Environmental Conservation, Division of Lands and Forests, to promote the establishment of permanent vegetation on highly erosive cropland in the headwaters area of the Susquehanna River Basin.

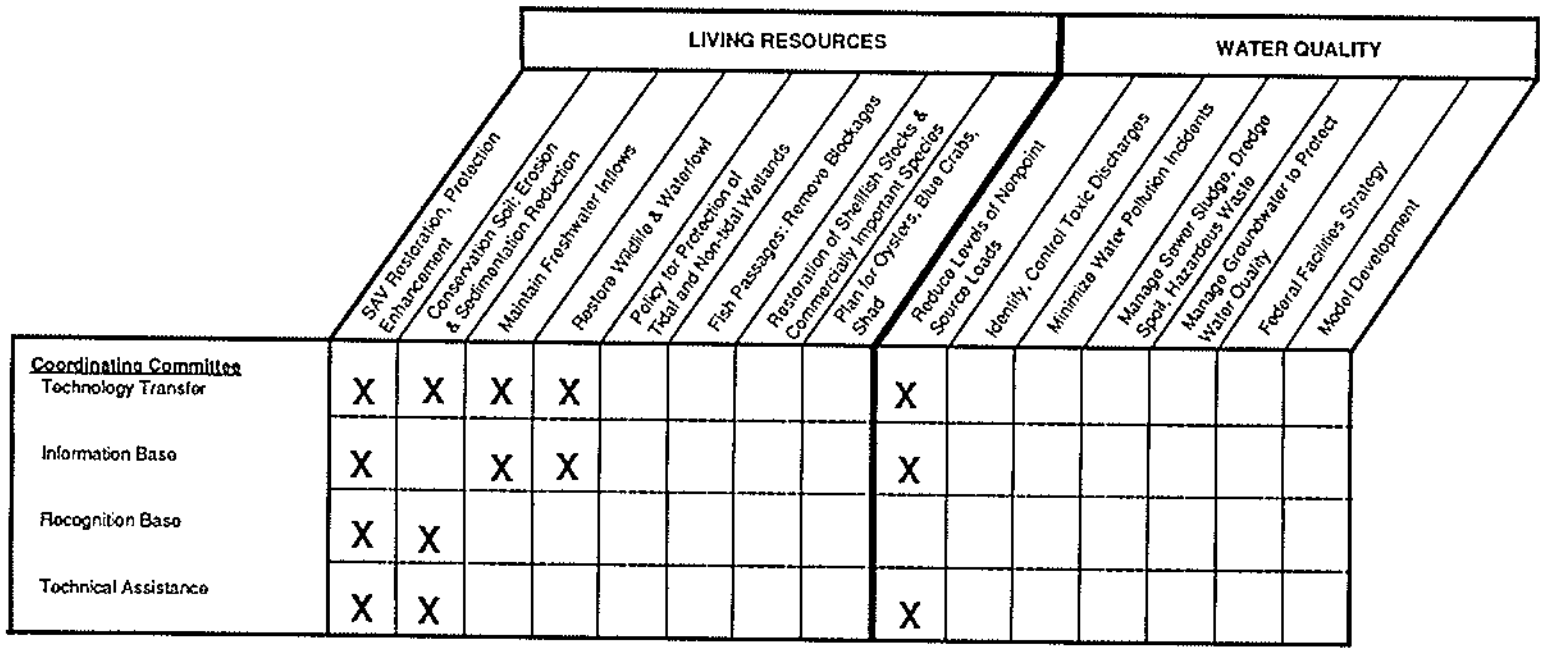
The Chesapeake Bay Forestry Coordinating Committee, an expansion of the original partnership of three State forestry agencies and Northeastern Area, has been established. This committee, representing the State Foresters of Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia,, Forest Service Regions 8 and 9, the Chesapeake Bay Foundation and Northeastern Area, is preparing a Forestry Plan of Action. Elements of this plan will address goals and priorities developed in the 1987 Agreement and establish a coordinated course of action specific to each unit represented while meeting the needs of the whole. As this plan develops, inputs to respective State, Federal, and local plans as well as Agreement strategies and plans will be provided.

At the first meeting of a subgroup, the Chesapeake Bay Forestry Task Force, held in Annapolis on April 28-29, 1988, draft goal statements were developed for consideration. A Task Force goal statement will be available in October 1988. The Task Force is particularly concerned with the collection, collation and dissemination of information pertinent to the benefits forestry can provide for the Bay and its living resources. It also wished to recognize the worthwhile forest conservation activities of state and local government and the private sector. The Task Force has prepared a draft communications plan which it fully expects will be modified as its members continue to interact and respond to the committees and task forces established under the Bay Agreement.

Meeting Agreement Commitments

An assessment of the potential for Forest Service activities to impact the goals and objectives established in the 1987 Agreement is included in Table 14.

TABLE 14 RELATIONSHIP OF FOREST SERVICE ACTIVITIES TO AGREEMENT GOALS

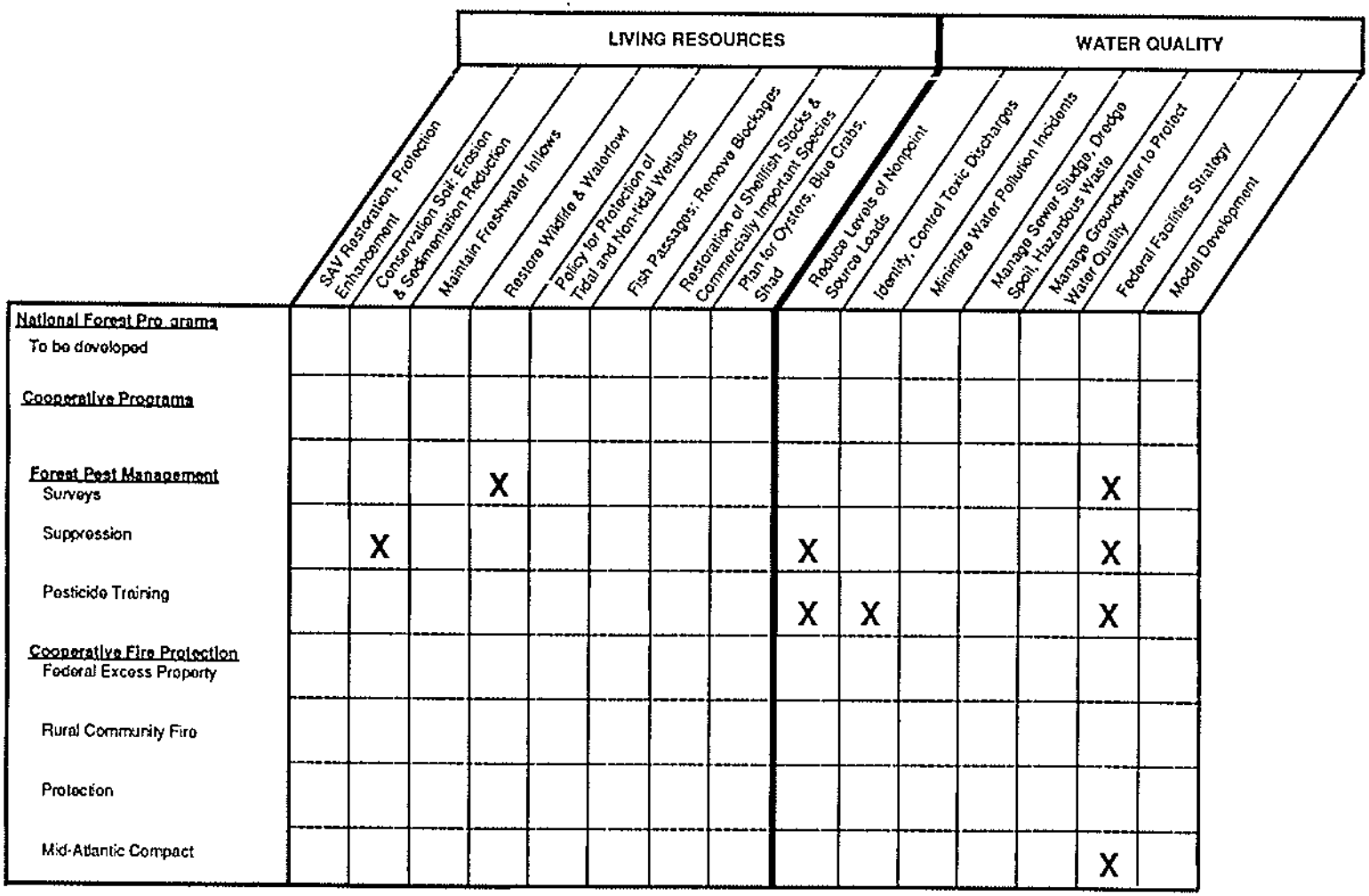


	LIVING RESOURCES								WATER QUALITY						
	SAV Restoration, Protection Enhancement	Conservation Soil, Erosion & Sedimentation Reduction	Maintain Freshwater Inflows	Restore Wildlife & Waterfowl	Policy for Protection of Tidal and Non-tidal Wetlands	Fish Passages: Remove Blockages	Restoration of Shellfish Stocks & Commercially Important Species	Plan for Oysters, Blue Crabs, Shad	Reduce Levels of Nonpoint Source Loads	Identify, Control Toxic Discharges	Minimize Water Pollution Incidents	Manage Sewer Sludge, Dredge Spoil, Hazardous Waste	Manage Groundwater to Protect Water Quality	Federal Facilities Strategy	Model Development
Coordinating Committee Technology Transfer	X	X	X	X					X						
Information Base	X		X	X					X						
Recognition Base	X	X													
Technical Assistance	X	X							X						

TABLE 14 CONTINUED

	LIVING RESOURCES										WATER QUALITY					
	SAV Restoration, Protection Enhancement	Conservation Soil: Erosion & Sedimentation Reduction	Maintain Freshwater Inflows	Restore Wildlife & Waterfowl	Policy for Protection of Tidal and Non-tidal Wetlands	Fish Passages: Remove Blockages	Restoration of Shellfish Stocks & Commercially Important Species	Plan for Oysters, Blue Crabs, Shad	Reduce Levels of Nonpoint Source Loads	Identify, Control Toxic Discharges	Minimize Water Pollution Incidents	Manage Sewer Sludge, Dredge Spoil, Hazardous Waste	Manage Groundwater to Protect Water Quality	Federal Facilities Strategy	Model Development
Forest Management & Utilization															
Forest Incentives Program		X		X					X						
Agricultural Conservation Program		X		X					X			X	X	X	
Conservation Reserve Program		X		X					X		X			X	
Stripaint Reclamation		X		X					X		X			X	
Wildlife Habitat Imp.				X										X	
Nursery & Tree Imp.														X	
Urban Forestry		X												X	
Timber Harvesting		X							X				X		
Potomac Flood Prevention Program		X							X						
Small Watersheds Program									X				X		
Management Assistance													X		

TABLE 14 CONTINUED


LIVING RESOURCES
WATER QUALITY
SAV Restoration, Protection Enhancement
Conservation Soil Erosion & Sedimentation Reduction
Maintain Freshwater Inflows
Restore Wildlife & Waterfowl
Policy for Protection of Tidal and Nontidal Wetlands
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Plan for Oysters, Blue Crabs, Shad
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Identify, Control Toxic Discharges
Minimize Water Pollution Incidents
Manage Sewer Sludge, Dredge Spoil, Hazardous Waste
Manage Groundwater to Protect Water Quality
Federal Facilities Strategy
Model Development
National Forest Pro gramg
To be developed
Cooperative Programs
Forest Pest Management
Surveys
Suppression
Pesticide Training
Cooperative Fire Protection
Federal Excess Property
Rural Community Fire
Protection
Mid-Atlantic Compact
X
X
X

TABLE 14 CONTINUED

	PUBLIC INFORMATION, EDUCATION, PARTICIPATION						POPULATION GROWTH & DEVELOPMENT				PUBLIC ACCESS				GOVERNANCE			
	Provide Timely Information on Progress	Assure Continuing Public Input Process	Enhance Education Opportunities	Provide Curricula Field Experience to Students	Produce & Disseminate Information	State/Federal Communication Plan	Provide Local Government Finance & Technical Assistance	Ensure Government Projects Meet Environmental Standards	Promote Techniques to Avoid Mitigate Adverse Impacts of Growth	Strategy for Local Prot. of Tidal/Non-tidal wetlands.	Improve Bay Access	Improve Recreational & Commercial Fishing Opportunities	Secure Acreage to Protect Habitat/Sensitive Areas	Comprehensive Guide to Access Facility	Coordinate Bay Mgmt. Activities/ Develop Accountability Mechanisms	Track and Evaluate Activities which Impact Bay Water Quality	Develop Coordinated Federal Workplan	Develop & Implement Coordinated Bay Research Program
Forest Management & Utilization																		
Forest Incentives Program					X													
Agricultural Conservation Program																		
Conservation Reserve Program																		
Stripmine Reclamation																		
Wildlife Habitat Imp.																		
Nursery & Tree Imp.																		
Urban Forestry	X					X		X	X				X	X				
Timber Harvesting																		
Potomac Flood Prevention Program																		
Small Watersheds Program																		
Management Assistance															X		X	

TABLE 14 CONTINUED

	PUBLIC INFORMATION, EDUCATION, PARTICIPATION						POPULATION GROWTH & DEVELOPMENT				PUBLIC ACCESS				GOVERNANCE			
	Provide Timely Information on Progress	Assure Continuing Public Input Process	Enhance Education Opportunities	Provide Curricula Field Experience to Students	Produce & Disseminate Information	State/Federal Communication Plan	Provide Local Government Finance & Technical Assistance	Ensure Government Projects Meet Environmental Standards	Promote Techniques to Avoid Mitigate Adverse Impacts of Growth	Strategy for Local Prot. of Tidal/Non-tidal wetlands.	Improve Bay Access	Improve Recreational & Commercial Fishing Opportunities	Secure Acreage to Protect Habitat/Sensitive Areas	Comprehensive Guide to Access Facility	Coordinate Bay Mgmt. Activities/ Develop Accountability Mechanisms	Track and Evaluate Activities which Impact Bay Water Quality	Develop Coordinated Federal Workplan	Develop & Implement Coordinated Bay Research Program
Coordinating Committee Technology Transfer									X	X								
Information Base	X		X		X	X			X	X					X	X		
Recogniton Base			X		X				X	X					X	X		
Technical Assistance			X		X				X	X					X			

TABLE 14 Continued

	PUBLIC INFORMATION, EDUCATION, PARTICIPATION						POPULATION GROWTH & DEVELOPMENT				PUBLIC ACCESS				GOVERNANCE			
	Provide Timely Information on Progress	Assure Continuing Public Input Process	Enhance Education Opportunities	Provide Curricula Field Experience to Students	Produce & Disseminate Information	State/Federal Communication Plan	Provide Local Government Finance & Technical Assitance	Ensure Government Projects Meet Environmental Standards	Promote Techniques to Avoid Mitigate Adverse Impacts of Growth	Strategy for Local Prot. of Tidal/Non-tidal wetlands.	Improve Bay Access	Improve Recreational & Commercial Fishing Opportunities	Secure Acreage to Protect Habitat/Sensitive Areas	Comprehensive Guide to Access Facility	Coordinate Bay Mgmt. Activities/ Develop Accountability Mechanisms	Track and Evaluate Activities which Impact Bay Water Quality	Develop Coordinated Federal Workplan	Develop & Implement Coordinated Bay Research Program
National Forest Program To be developed																		
Cooperative Programs																		
Forest Pest Management Surveys																		
Suppression																		
Pesticide Training			X															
Cooperative Fire Protection Federal Exess Property							X											
Rural Community Fire Protection																		
Mid-Atlantic Compact																		

OTHER FEDERAL AGENCIES WITH PROGRAMS AFFECTING THE CHESAPEAKE BAY

Additional Federal agencies have been invited to contribute information about their programs to future revisions of this plan. Submittals are expected from agencies which are developing new memoranda of understanding with the EPA Bay Program, and from other federal organizations which have expressed interest in participating in achieving the goals of the 1987 Chesapeake Bay Agreement.