

**DRAFT    02/27/90**

**OFFICE OF WATER  
COASTAL WATER PROGRAMS  
HANDBOOK**

**U.S. Environmental Protection Agency  
Office of Water**

**Office of Marine and Estuarine Protection**

**Office of Water Enforcement and Permits**

**Office of Water Regulations and Standards**

**Office of Wetlands Protection**

**Washington, D.C.**

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**Prepared as a manual for  
Near Coastal Water Integrated  
Training Workshops**

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# **1. PURPOSES AND GOALS OF THE NEAR COASTAL WATER INTEGRATED TRAINING WORKSHOP**

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## **WORKSHOP GOAL**

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The overall goal of the Near Coastal Water Integrated Training Workshop is to promote the effective use and integration of a broad range of programs, information, and tools available to the Regions and States for protecting near coastal waters. These include 404 permitting, wetlands protection, technology and water quality-based permitting, criteria and standards development, waste load allocation modelling, effluent guidelines development, permit derivation procedures, enforcement, and nonpoint source programs. A hypothetical case study is presented to provide workshop participants the opportunity to develop an example approach to near coastal water integrated management using the programs, information and tools presented during the workshop.

## **BACKGROUND**

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In 1986, the Environmental Protection Agency (EPA) in its Near Coastal Waters Strategic Options Paper identified several administrative problems and insufficiencies related to managing near coastal waters and preventing their degradation. The problems and insufficiencies identified included lack of interagency coordination, conflicting or overlapping agency programs and responsibilities, single-purpose and reactive programs with few integrated goals for managing the near coastal water environmental, and lack of a national policy for protecting or improving near coastal waters. In September 1988, representatives of EPA's Office of Water (OW) reaffirmed the need for a geographical approach to environmental management of near coastal waters and increased cross-program interaction and coordination. These representatives also recommended that coastal managers receive integrated cross program training to better understand "base" water programs in a more process oriented framework.

Based on this recommendation, the Offices of Water Regulations and Standards, Water Enforcement and Permits, Wetlands Protection, and Marine and Estuarine Protection have jointly developed a generic curriculum for presenting the Near Coastal Water Integrated Training Workshop to coastal Regions and, where appropriate, States. Through a series of presentations reviewing the tools and programs

available to Regions and States to protect near coastal waters followed by group participation in a case study of a problem estuary, EPA hopes to make participants aware of programs that provide the most effective tools for near coastal water management, the use of those programs and tools, and how these programs can be targeted or strengthened to provide increased and more effective near coastal water management. Each workshop is intended to reflect the needs of a particular Region, focusing on a selected geographic area and priority problem for that area. The Workshop is also intended to provide States and Regions with the opportunity to comment on specific near coastal water issues, needs, and problems.

EPA Region III will host the Pilot Workshop in early summer of 1990. Region III staff have provided input to this manual and will also participate in the presentations for the Pilot Workshop.

### **SHIFT TO GEOGRAPHIC APPROACH TO WATER QUALITY MANAGEMENT**

The need for this new focus is consistent with the devolution of water quality programs. This shift, occurring from 1972 to 1990 can be seen in four major areas:

- conventional to toxic pollutants
- engineering focus to focus on science and biology,
- delegation of responsibility changes, and
- water quality to ecosystem protection

Historically, early water pollution control efforts focused on visible conventional pollutants. The shifts in the late 1970's to toxics control and in the mid-1980's to whole effluent limits highlighted the need to deal more broadly with toxic and synergistic effects. There has also been a major shift from the traditional focus on engineering techniques (technology based controls) to the effects of pollutants on living organisms and biological methods (water quality based controls).

New responsibilities have emerged with resources being shifted from EPA Headquarters to the Regions and statutory authority being shifted from EPA to the States. For example, new responsibilities for pretreatment, stormwater, and nonpoint sources, requires local governments to become regulators.

The Clean Water Act of 1972 established uniform technology based standards, regardless of water quality, and the nature of the job was "pollution control." In the 1980's the trend to water quality based permits led to site specific permit requirements based on water quality. The watershed/estuary approach encourages a "mix of uniform/site specific standards, and a mix of point and nonpoint source measures to protect aquatic ecosystems."

These workshops will attempt to present water programs in a more integrated approach which is now essential to assist in water quality management, evidenced by this devolution of programs.

## **WORKSHOP PURPOSES**

The six major purposes of the Near Coastal Water Integrated Training Workshop are to:

- 1) Sensitize Regional and State staff to the need for integrated coastal/estuarine resource management;
- 2) Identify programs that affect the management of near coastal waters;
- 3) Demonstrate the existing and proposed interrelationships between program areas;
- 4) Identify the difficulties in integrating programs;
- 5) Promote awareness of new regulations, enforcement authorities, technical guidance, and other existing information affecting marine and estuarine pollution control; and
- 6) Present a near coastal water management case study.

### **SENSITIZE REGIONAL AND STATE STAFF TO THE NEED FOR INTEGRATED COASTAL/ESTUARINE RESOURCE MANAGEMENT**

Near coastal waters are subject to multiple and overlapping sources of pollution and their resultant impacts. Not only are coastal and estuarine areas subject to direct pollution discharges from point and nonpoint sources, but they are also the ultimate recipient of pollutants discharged into upstream fresh water rivers and streams that eventually empty into near coastal waters. Because of the unique physical and chemical characteristics of estuarine areas, pollutants are often retained in estuarine sediments where they may become available for biological uptake or eventual resuspension into the water column. In addition, the value of coastal and estuarine waters to commercial, recreational, and ecologically important species of finfish and shellfish makes proper management of these areas critical from an economic standpoint. Estuarine and near coastal waters serve as nursery and/or spawning areas for some of the most economically important offshore species of finfish and shellfish, as well as for other aquatic species that serve as vital links in the ecology of economically important species. Many near coastal areas also support significant commercial and recreational fisheries which provide human health as well as economic incentives for the proper management of these areas. The Near Coastal Water Integrated Training Workshop is designed to assist Regional water program staff in understanding the ecological and economic significance of near coastal waters and of the variety of sources of pollution and types of impacts affecting these waters and their implications for ecological integrity and human health.

**IDENTIFY PROGRAMS THAT  
AFFECT THE MANAGEMENT OF  
NEAR COASTAL WATERS**

Several water program areas have a significant interest and impact on the management of near coastal waters. Experts from each of the relevant program areas from both Headquarters and the Regions will be available at each workshop to assist participants in understanding the use of their program "tools" in managing and protecting the quality of near coastal waters.

**DEMONSTRATE EXISTING AND  
PROPOSED  
INTERRELATIONSHIPS  
BETWEEN PROGRAM AREAS**

During their presentations, representatives from each water program area will focus on the opportunities for integration of their program area activities in near coastal waters with the activities of other water programs. These presentations will be designed to encourage Regional and State staff to think in terms of a basin-wide approach to near coastal water management rather than a permit-by-permit approach. Conceptual representations of the traditional regulatory approach to base water quality programs and the potential areas for integration of water program activities under a basin-wide approach to near coastal water management are presented in Figures 1 and 2. Figure 1 shows the traditional approach. Figure 2 illustrates the many potential opportunities for integration of program activities by using existing and developing management tools. These tools and their potential use in the integrated, basin-wide approach to near coastal water management will be discussed by the workshop speakers.

**IDENTIFY DIFFICULTIES IN  
INTEGRATING PROGRAMS**

The potential for integrating program activities in near coastal water management and obstacles preventing full implementation of an integrated management approach are both apparent. In some cases, these obstacles may be socio-political, legal or economic constraints. In other cases, the problems may arise due to a lack of scientific knowledge or technical guidance. Speakers from each of the program areas will discuss the obstacles to a fully integrated, basin-wide approach to near coastal water management from their program area perspective and the steps the agency is taking to remove some of these obstacles. When appropriate, speakers will also discuss approaches Regional and State environmental managers can take to work around these obstacles until such time as new management tools become available for use.

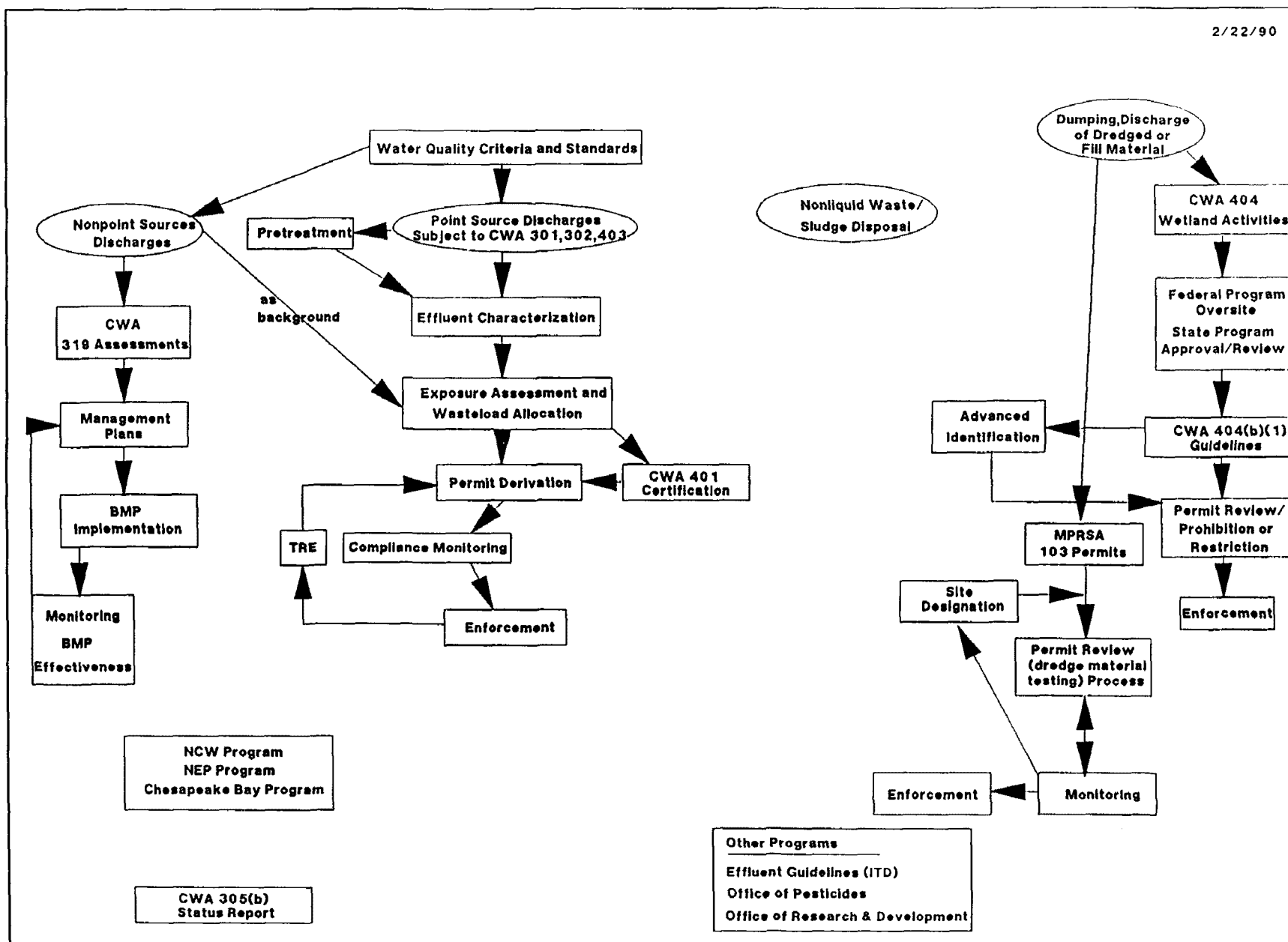
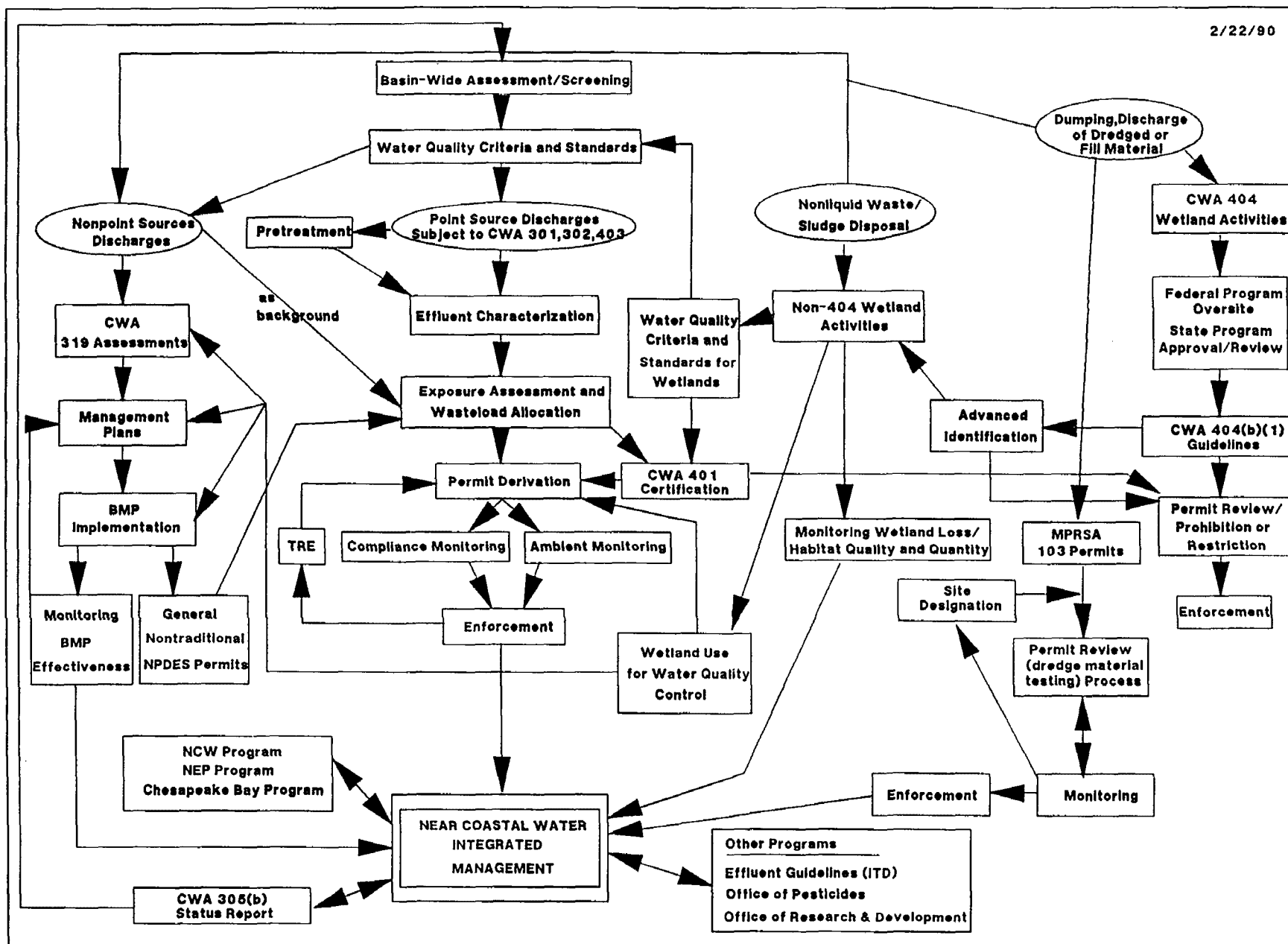


Figure 1. TRADITIONAL REGULATORY APPROACH TO BASE WATER QUALITY PROGRAMS



**PROMOTE AWARENESS OF  
NEW DEVELOPMENTS IN  
REGULATIONS AND TECHNICAL  
GUIDANCE AFFECTING MARINE  
AND ESTUARINE POLLUTION  
CONTROL**

As scientific knowledge of the natural processes and human activities affecting marine and estuarine environments increases, regulations and technical guidance reflecting this increased knowledge are revised by EPA to enable the Regions and States to better manage their environmental resources. Each of the workshop presenters will identify the new initiatives within the program area that have been or are being developed by the Agency that will provide Regional and State managers with additional information and tools for managing their near coastal waters. Presenters will also discuss training opportunities related to near coastal issues that are or will be offered by EPA to Regional and State environmental managers and planners.

**PRESENT A NEAR COASTAL  
WATER MANAGEMENT CASE  
STUDY**

Following the program area presentations in which workshop participants are introduced to the management tools available for the integrated management of near coastal waters, participants will be given the opportunity to apply the knowledge gained during the presentations in a case study exercise. Participants will be presented with the description of a water body, its environmental conditions, living resources, land uses, monitoring and enforcement authorities, and sources of pollution discharges. Maps will also be provided that will identify resources of concern, potential sources of pollution, and areas within the water body with potential environmental quality problems. Workshop participants will be organized into working groups, and each group will be asked to apply what has been learned in the earlier presentations to define the integrated approach they would use to manage the water body. The working groups will focus on three main areas: problem assessment, tool identification, and strategy development.

The first step for each of the working groups will be to conduct an assessment of the problems confronting the hypothetical water body and the likely causes of those problems. Next, the working groups will identify the management tools they would use in addressing the identified problems and causes. Finally, the working groups will develop a strategy for implementing an overall management plan for the water body. This will involve identifying the persons responsible for each step in the management process as well as an approach for integrating the available tools into a coherent management program for the water body. Between each of these steps in the case study evaluation, the working groups will present the results of their analyses to the entire workshop, at which time the results of each group's deliberations will be discussed and ideas will be exchanged.

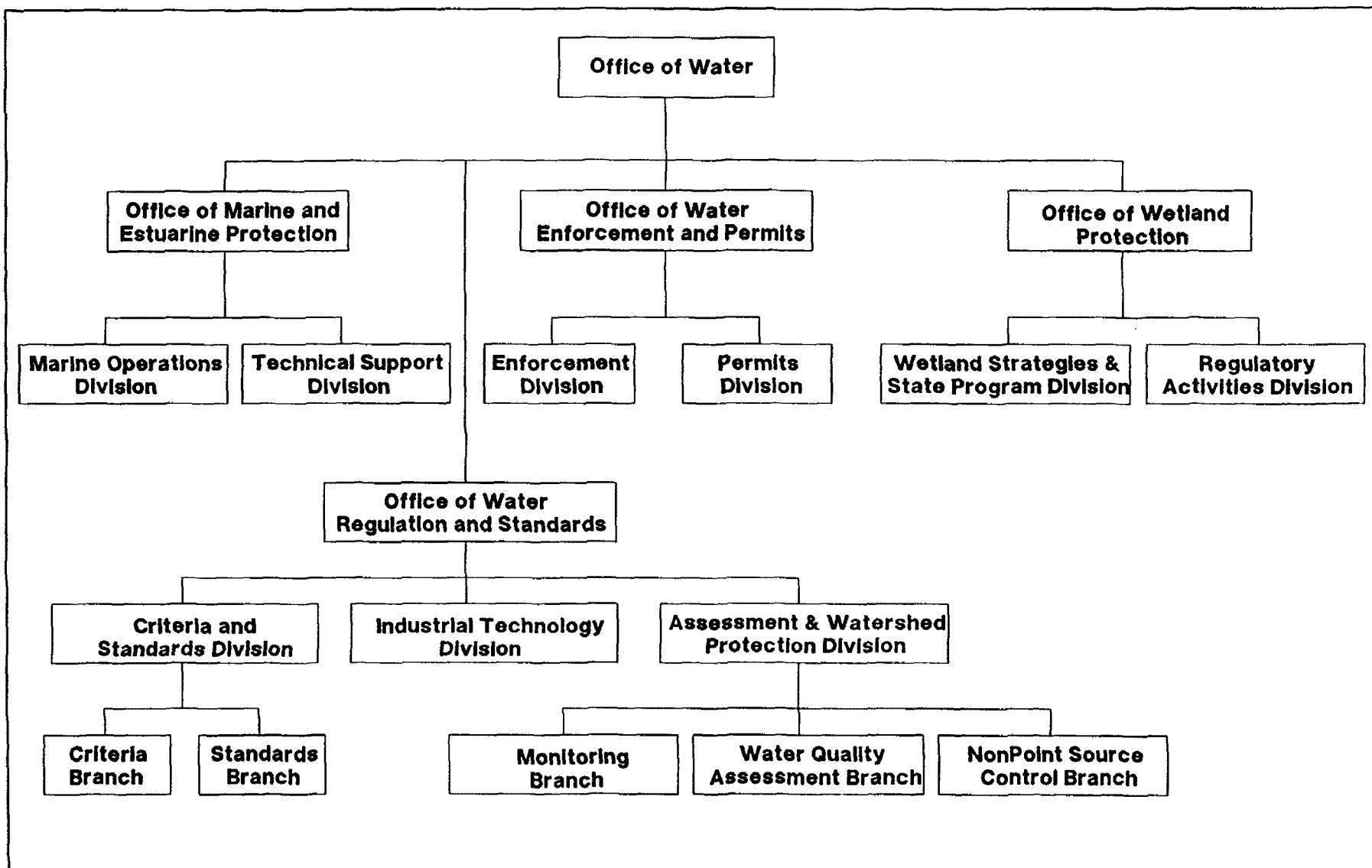




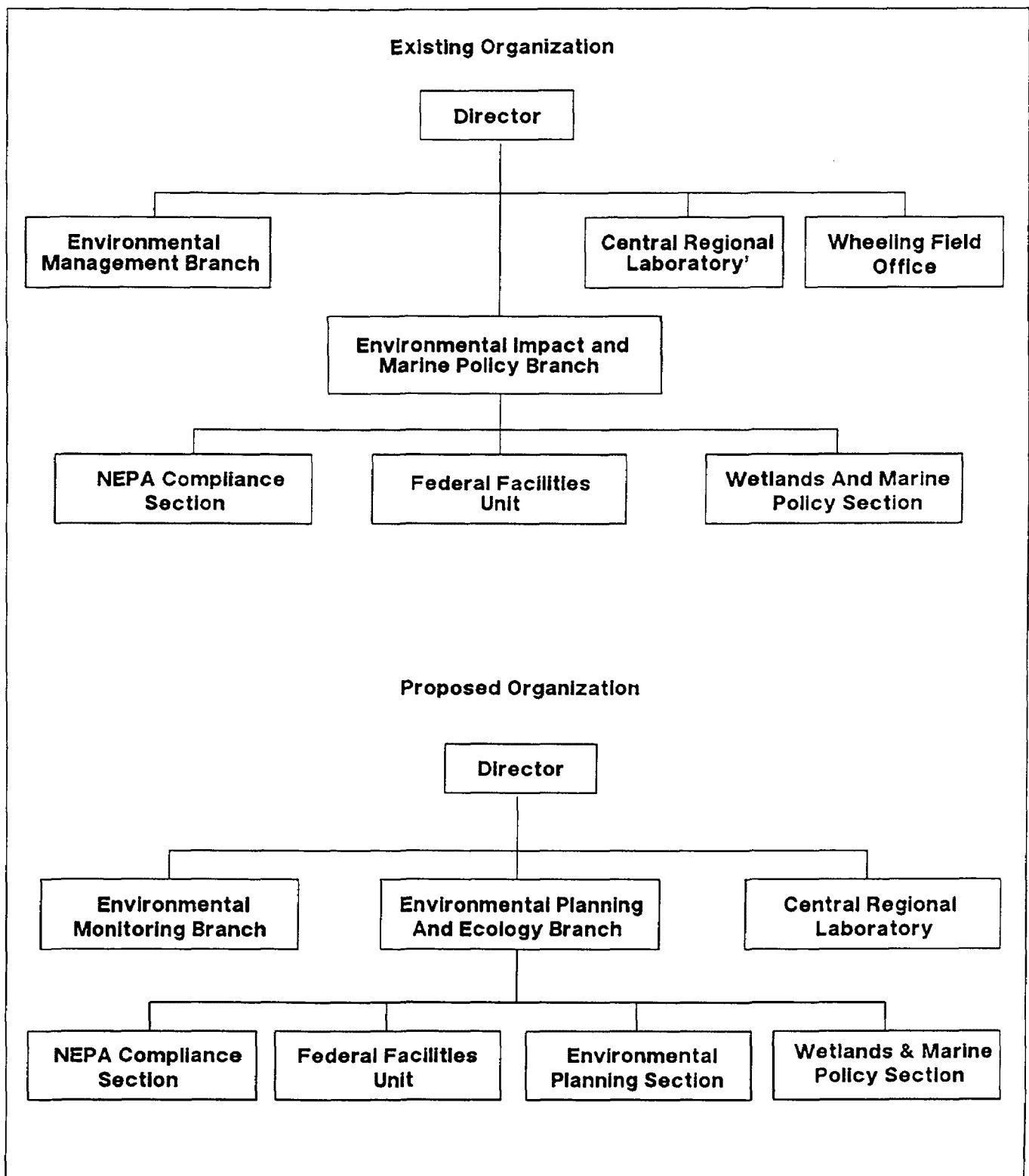
## 2. EPA HEADQUARTERS AND REGION III WATER PROGRAMS

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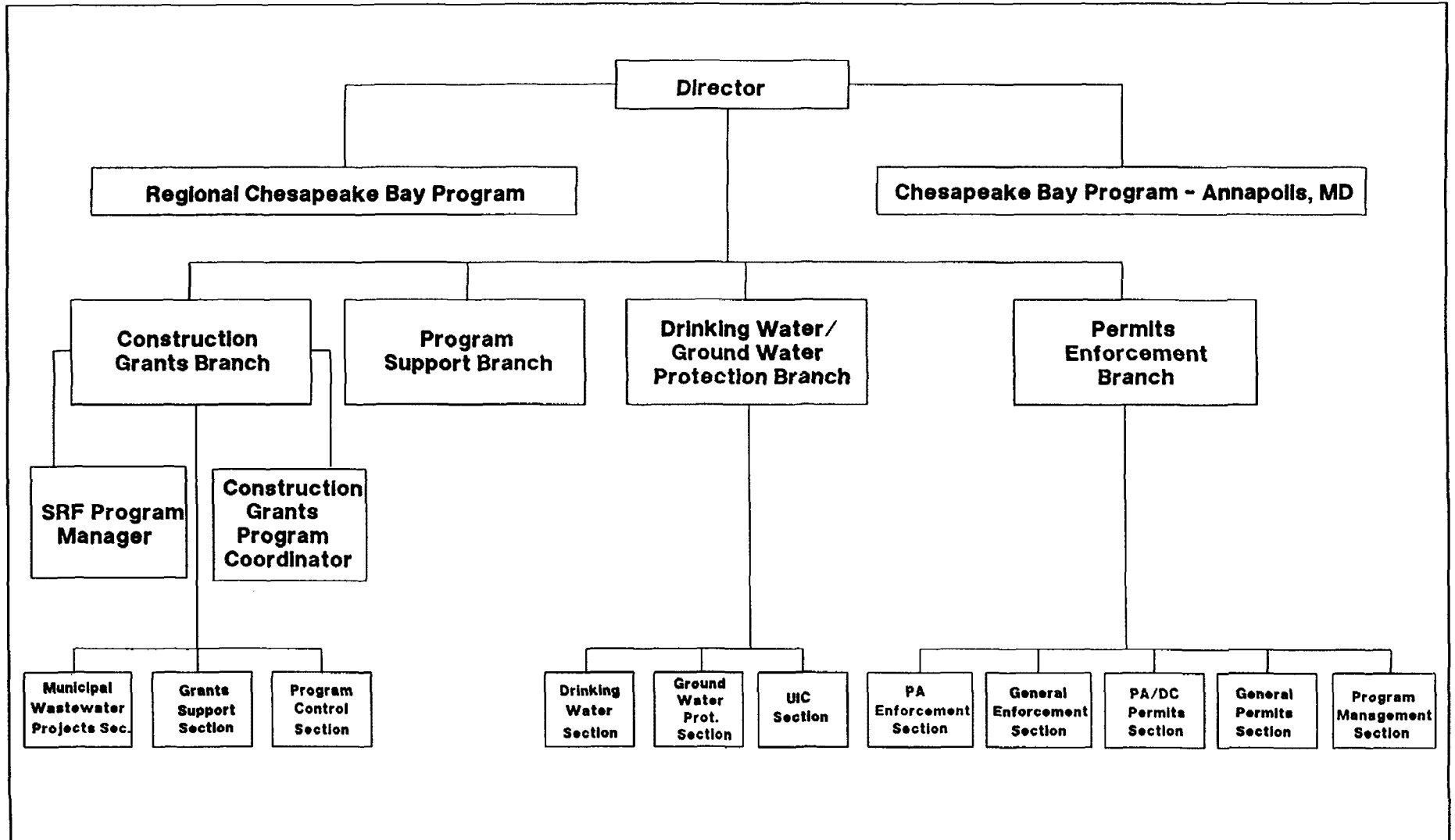
Figure 3 presents the organization of the program areas within EPA Headquarters' Office of Water that have primary responsibility for the management of near coastal waters. Figures 4 and 5 present the organizational structure of Region III's Environmental Services Division and Water Management Division, the two program areas within the Regional Office with primary responsibility for near coastal water management.



**Figure 3. Organization of Program Areas With Primary Responsibility for the Management of Near Coastal Waters Within EPA Headquarters' Office of Water**



**Figure 4. Existing and Proposed Organization of Region III's Environmental Services Division**



**Figure 5. Organization of Region III's Water Management Division**

### 3. EPA'S COASTAL PROTECTION ACTIVITIES

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In 1984, EPA centralized the major Agency programs dealing with coastal and marine resources within the newly created Office of Marine and Estuarine Protection (OMEP). OMEP has the focused responsibility of addressing growing coastal and ocean problems through pollution prevention efforts, geographic-based approaches, and enforcement. OMEP's central mission is to protect, restore, and maintain the Nation's coastal and marine waters to protect human health and sustain living resources.

In January 1989, the Agency released an interim version of its National Coastal and Marine Policy (NCMP), which states the Agency's and OMEP's goals for coastal and marine protection. They include:

- recover full use of shores, beaches, and water,
- restore the nation's shellfisheries and salt-water fisheries,
- minimize the use of coastal and marine water waste disposal,
- improve and expand coastal science, and
- support international efforts to protect coastal and marine resources.

EPA's programs to protect ocean and coastal waters and the Great Lakes from nutrient and toxic pollutants emanating from point and nonpoint sources are implemented under two major laws -- the Clean Water Act (CWA) and the Marine Protection, Research, and Sanctuaries Act (MPRSA) -- as well as the Marine Plastic Pollution Research and Control Act (MPPRCA), the Ocean Dumping Ban Act (which includes the Shore Protection Act), and the Medical Waste Tracking Act. Major OMEP programs include the Near Coastal Waters (NCW) Program, National Estuary Program (NEP), Point Source Controls (the 301(h) and 403(c) programs), and the Ocean Dumping Program.

EPA also oversees several important international program initiatives, including Annex V of the MARPOL Convention Protocol on marine debris, the London Dumping Convention provisions which addresses ocean dumping, and the Great Lakes Water Quality Agreement between the United States and Canada.

**EXISTING  
GEOGRAPHICALLY-BASED  
ACTIVITIES RELEVANT TO  
NEAR COASTAL WATERS**

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**NEAR COASTAL WATERS  
PROGRAM**

The Near Coastal Waters Initiative arose out of EPA's first strategic planning process in 1986. Through the process, OMEP formulated a 10-15 year blueprint for improving the Agency's near coastal water environmental management, and for raising the level of coordination among Federal, State and local NCW program managers.

The strategic plan recognized that the multiple threats to the nation's near coastal waters come from varied sources and require management from a water-body perspective. Ever increasing coastal development imposes more and more of society's wastes on a natural aquatic system decreasingly able to accommodate such wastes. The NCW Program focuses on a waterbody approach that parallels that of the National Estuary Program (NEP), but it moves beyond the selected estuary orientation to protect all endangered near coastal waters. These may include bays, lagoons, coves, the 1,600 mile long freshwater Great Lakes, and other coastal water bodies. The program consists of a limited number of demonstration projects and the development of Regional Strategies to protect near coastal waters. The NCW Program builds upon insights gained in the NEP, Chesapeake Bay, Great Lakes and other programs; develops new techniques; and offers flexibility to apply this knowledge as needed across the nation's vast coastline. The program has no specific legislative basis and is carried out under the general authority of the Clean Water Act.

Since its inception, the NCW Program has worked to promote integrated management and to improve coordination among Federal, State, and local organizations involved in coastal water management. In addition, efforts have been undertaken to assess the condition of near coastal waters to help identify those in greatest jeopardy.

**NCW Assessment**

OMEP's approach for implementing its strategic plan is to identify coastal areas requiring additional management attention, encourage Federal and State managers to use their existing regulatory tools and resources to solve problems more efficiently, and help Federal, State, and local officials implement new management tactics that will achieve measurable environmental improvements in coastal areas. During the development of the plan, however, a striking absence of data about near coastal waters was discovered. Consequently, OMEP undertook a national assessment of the environmental status and trends of all near coastal waters to identify those in need of management attention.

Using existing data from Federal, State (such as 305(b) biennial State water quality reports), local agencies and academia, OMEP has been working with the National Oceanic and Atmospheric Administration (NOAA) to address the lack of near coastal water data. Efforts to date



have included: compiling data on coastal waters in Region 1 (Northeast Case Study) and preparation of susceptibility analyses to screen coastal waters and identify threatened waters. Summary reports on the susceptibility of coastal waters to nutrient discharges have been completed for the Gulf of Mexico, Southeast Coast, and Northeast Coast. NOAA also prepared data atlases of coastal wetlands in the New England Region, and public recreational facilities in coastal areas.

OMEP is also working with EPA Regional Offices and States to "segment" near coastal waters to encourage collection/reporting of environmental information in geographical units to assess environmental conditions and promote understanding of these waters.

#### **NCW Pilot Projects**

In 1988 and 1989, OMEP funded projects to test management approaches for protecting and enhancing NCWs. Projects were selected based upon criteria that required an action focus, applicability to other areas, innovation, and timely completion. A total of seven projects are currently underway around the country that focus on issues including managing nonpoint sources of pathogens responsible for shellfish bed closures in Buzzards Bay, Massachusetts; implementing comprehensive waterbody management plans for the Oregon coast; controlling stormwater runoff responsible for algal blooms in Peconic Bay, NY; and utilizing citizen monitoring teams and multi-state management to protect the NCWs of Perdido Bay, FL/AL.

#### **Gulf of Mexico Program**

This initiative presents a major example of the NCW approach in practice. It promotes the development and implementation of a comprehensive management strategy for protecting resources in the Gulf ecosystem, balancing human needs with marine life preservation and enhancement. The initiative supports enhanced communication among all interested Federal and State agencies and public and private institutions to establish an action framework involving regulatory controls, public and private participation, and research operations. Regions IV and VI and the Gulf Program Office jointly manage the Gulf of Mexico Initiative.

#### **GREAT LAKES PROGRAM**

OMEP oversees the Great Lakes Program which is located in EPA Region V (Chicago) at the Great Lakes National Program Office (GLNPO). The objectives of this program are spelled out in the Great Lakes Water Quality Agreement, signed initially in 1972 by the United States and Canada and renegotiated most recently in 1987. This program monitors United States participation with the International Joint Commission, conducts extensive surveillance of the lakes, promotes inter-and intra-agency coordination, participates in the development of a 5-year lake management plan, and implements a number of demonstration projects.

## THE NATIONAL ESTUARY PROGRAM

Authorized by Congress in 1985, and formally established in 1987 by amendments to the Clean Water Act (CWA), the National Estuary Program (NEP) builds upon the lessons of the Chesapeake Bay, Great Lakes, and other earlier programs in a geographic, basin-wide approach to environmental management. The EPA Administrator selects estuaries for NEP participation through State governor's nominations. Chosen estuaries must demonstrate a likelihood of success and evidence of institutional, financial, and political commitment to solve their problems.

In maintaining the environmental integrity of its participants, this national demonstration program also aims to communicate its lessons to the more than 150 estuaries located along our coasts. Among the environmental problems addressed in the NEP estuaries are the loss of aquatic habitats, toxic contamination of estuarine sediments, increases in nutrient levels, bacterial contamination, and hypoxia.

Twelve estuaries are currently part of the National Estuary Program. They are: Buzzards Bay, MA; Narragansett Bay, RI; Long Island Sound, CT/NY; New York/New Jersey Harbor; Delaware Bay, DE, NJ, and PA; Delaware Inland Bays, DE; Albemarle-Pamlico Sounds, NC; Sarasota Bay, FL; Galveston Bay, TX; Santa Monica Bay, CA; San Francisco Bay, CA; and Puget Sound, WA.

For approved estuaries, the Administrator convenes Management Conferences, a grouping of interested Federal, Regional, State, and local governments, affected industries, scientific and academic institutions, and citizen organizations. Management Conferences strive for an open, consensus-building approach to defining program goals and objectives, identifying problems to address, and designing pollution prevention/control and resource management strategies to meet each objective. Management Conferences are required to create and begin implementation of a Comprehensive Conservation and Management Plan (CCMP) designed to protect and restore the estuary.

To encourage and test early management actions, OMEP has funded Action Plan Demonstration Projects in each of the NEP Management Conferences. With the projects, Management Conferences (MCs) can test on a smaller scale those actions intended to be included in the CCMP for long-term protection of the estuary. The Demonstration Projects allow the MC to take early action rather than waiting until the CCMP is completed, identify potential problems in implementing action plans on a larger scale, build support of the action, and define more specifically the likely cost of the action. Twenty-six projects are currently underway.

In addition, OMEP works with NOAA and State coastal zone management agencies to implement the provision of the Federal Coastal Zone Management Act (CZMA) of 1972 and Amendments. Under this law, NOAA awards grants to States to develop and administer management programs for coastal zones. In September of 1988, EPA and NOAA signed an agreement integrating the Coastal Zone Management and National Estuary Programs. The agreement serves as guidance to

program managers in both agencies as they carry out their respective responsibilities under the CZMA and NEP. Specific areas of coordination are identified, including establishment of mechanisms at the national level to facilitate coordination and/oversight of both programs.

**REGULATORY PROGRAMS FOR  
CONTROL OF POINT SOURCE  
DISCHARGES TO NCWs: 301(h)  
AND 403(c)**

Point source discharges to the nation's waters are controlled under the National Pollutant Discharge Elimination System (NPDES), through issuance and enforcement of permits. The permits set limitations on effluents and define monitoring and reporting requirements. The NPDES program is the responsibility of EPA's Office of Water Enforcement and Permits (OWEP), which is presented in greater detail in another section of this Manual (see Chapter 6). OMEP, however, shares responsibility with OWEP for implementing two programs relating to the control of point source discharges to marine waters.

**301(h) Program**

This program provides for waivers from secondary treatment requirements for publicly owned treatment works discharging to marine waters (including unstressed saline waters of estuaries) if the applicant can demonstrate that the discharge will not degrade water quality from levels that assure protection of public water supplies and protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife, and allows recreational activities in and on the water. The applicant must also conduct a rigorous monitoring program to monitor the impact of the discharge.

To maintain and analyze the required reporting data, OMEP developed the Ocean Data Evaluation System (ODES). In addition to environmental data analysis tools, this system provides for mapping and three-dimensional graphics to be used in analyzing data concerning point source discharges, ambient water conditions, and biological monitoring results. ODES is presently being modified to accept data from OMEP's other programs, such as Ocean Dumping and the NEPs.

OMEP is responsible for reviewing waiver applications and maintaining ODES. Once all waiver decisions are made, OMEP will be responsible for monitoring compliance waivers granted as well as enforcing against unauthorized discharges where a waiver has been denied. The deadline for 301(h) waiver applications has passed. Of 208 applications, 48 POTWS have been granted waivers and 15 decisions are pending. The remainder were declined or withdrew from the program. The 301(h) program is currently evaluating the remaining application for secondary treatment waivers and is also evaluating applications for renewals. OMEP is also developing new regulations to respond to the amendments in the Water Quality Act of 1987.

### 403(c) Program

Section 403(c) requires that all NPDES permitted discharges from point sources into certain waters (the territorial seas, the contiguous zone, and the oceans) must cause no unreasonable degradation to the marine environment. A conclusion of "no unreasonable degradation" can only be made after consideration of the effects of pollutant disposal on human health and welfare, marine life, and aesthetic, recreational, and commercial values; the persistence and permanence of these effects; the effects of varying disposal rates; the alternative disposal or recycling options available; and the effect on alternate uses of the oceans.

The 403(c) program is a fundamentally different decision-making process of pollution controls than required under other provisions of the Clean Water Act, as it allows more stringent control of pollutants known to be persistent and harmful to the marine environment and public health. It is not restricted by engineering attainability, and has no rigorous cost or economic restrictions. It also includes consideration of sediment as well as water column effects, and is intended not only to protect most aquatic species but places special emphasis on unique, sensitive, or ecologically critical species.

OMEP currently is identifying and characterizing dischargers subject to 403(c) criteria and preparing guidance to implement the program. Compliance monitoring and enforcement of 403(c) requirements will also be emphasized.

### OCEAN DUMPING

The Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA) regulates the ocean dumping of all types of materials. Titles I and II of the Act place responsibility for administering MPRSA permitting programs on EPA and the Army Corps of Engineers (COE); for monitoring the effects of ocean dumping on the National Oceanic and Atmospheric Administration (NOAA); and for surveillance on the U.S. Coast Guard. Title III gives the Secretary of Commerce the authority to establish marine sanctuaries. OMEP carries out all of EPA's responsibilities under MPRSA. The MPRSA applies to waters lying seaward of the territorial sea baseline, and thus does not apply to estuarine waters. Disposal of dredged material in estuarine and inland waters is governed by Section 404 of the CWA.

To implement MPRSA and to control dumping in ocean waters, Title I of the Act authorizes EPA to establish a permit program for all materials except dredged material (that is permitted by COE). MPRSA authorizes EPA to designate sites for the dumping of material into the ocean. MPRSA specifies nine factors to be considered in developing the permit review criteria: 1) the effect of the dumping on human health and welfare; 2) its effect on fisheries resources and beaches; 3) its effects on marine ecosystems; 4) the permanence of the effect of dumping; 5) the effect of volumes and concentrations; 6) the appropriate locations and methods of disposal; 7) the effect on alternate uses of the ocean; 8) the need for proposed dumping; and 9) the location of the site beyond the continental shelf.

OMEP plays a significant role internationally in efforts to restrict or control ocean dumping. The MPRSA is also the domestic legislation that implements the provisions of the "Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter," often referred to as the London Dumping Convention. This is the only global agreement concerned solely with the dumping of wastes into the marine environment.

In 1988, Congress passed the Ocean Dumping Ban Act (ODBA) to amend the MPRSA. The primary purpose of this legislation is to end the ocean dumping of sewage sludge and industrial waste. The last dumper of industrial waste ceased dumping in September 1988. With regard to sewage sludge, as required by ODBA, EPA has entered into enforcement agreements with the dumpers to require the phase-out of sewage sludge dumping.

Under the Ocean Dumping Ban Act, OMEP is also responsible for regulating garbage barge operations under the Shore Protection Act, which requires vessels to install handling systems and obtain permits for transportation (i.e. loading, transport, off-loading, and receiving) of municipal or other non-hazardous commercial waste. EPA and the U.S. Coast Guard jointly manage this permitting and enforcement program.

Other provisions make it illegal to dispose of medical waste into the navigable waters of the United States, as well as in coastal waters. Based on public reaction to medical wastes washing ashore during the summer of 1988, Congress enacted the Medical Waste Tracking Act in an effort to further restrict the release of medical waste into the environment.

EPA also has authority to designate sites for the dumping of dredged material, but the Corps is responsible for issuing permits to dump at those sites (using EPA's permit review criteria, and subject to EPA review). A large number of ocean dumping sites existed in 1972 before the MPRSA was enacted. Based on their historical use, EPA designated a few of these sites for disposal of non-dredged material (for sewage sludge, woodburning, fish waste, and acid waste), and a larger number for disposal of dredged material. Designations were made on an interim basis until environmental evaluations could be completed. In 1977, a program was initiated to permanently designate sites pending completion of environmental impact statements or site designation studies. In 1986, OMEP delegated responsibility for designations of dredged material ocean dumping sites to the seven coastal EPA Regional Offices. Regional delegation has enhanced local coordination and expedited decisions about site designation.

To further enhance coordination and cooperation between EPA, the Corps, and permits applicants, OMEP negotiated a national umbrella Memorandum of Understanding (MOU) in 1987 with the Corps of Engineers. This MOU serves as the basis for all MOU's between the EPA Regional Offices and the Corps District Offices that will cover work and funding for final EIS preparation and designation of the remaining sites and for site management. This Agreement makes 1991 the deadline for final action on all existing ocean disposal sites, and

establishes priorities for designating sites at the regional level. EPA also works closely with NOAA to promote coordination between CZMA program activities and EPA's site designation process.

The site designation process (which requires amendment of existing ocean dumping regulation and preparation of an EIS) may take up to 2.5 years, and is designed to minimize adverse environmental effects and to ensure that dumping interferes as little as possible with other activities in the marine environment. OMEP has now completed final designation for approximately 64 sites, of which 50 are for dredged material. Another 49 sites have been given interim designation, all but one for dredged material. Consequently the number of both interim and final dumping sites is approximately 113.

Currently, OMEP and the Office of Wetlands Protection are jointly developing a strategy for risk based management harmonizing the evaluation/disposal of dredged material under MPRSA Section 103 and CWA Section 404.

## MARINE DEBRIS

The Marine Plastic Pollution Research and Control Act (MPPRCA) of 1987 requires that the effects of plastic pollution on the marine environment be identified and the release of plastic material be reduced. Under this law, EPA is studying ways to abate plastic pollution, and OMEP is preparing a Report to Congress that addresses the following:

- a listing of improper disposal practices and specific plastic materials that may injure fish and wildlife, degrade or cause economic loss to coastal waterfront areas, or cause other impacts;
- a description of EPA's authority and ongoing reduction measures to reduce plastics in the marine environment; and
- an evaluation of substitutes for some plastic materials, recycling incentives, and use of degradable materials.

OMEP is working on developing this Report to Congress with other EPA offices. OMEP's primary input relates to solid waste that enters the marine environment. OMEP is also sponsoring several studies to document the types of debris in the marine environment and the sources of this debris, as well as education efforts to bring marine debris to the attention of the general public and show the public what they can do to help reduce marine debris pollution.

The NPPRCA also required the U.S. Coast Guard to develop regulations banning the release of plastics from vessels. These regulations were promulgated in 1989.

In 1988, Congress passed another law dealing with plastic pollution. Commonly called the Degradable Plastic Ring Carrier Act, this legislation directed EPA to require by regulation that plastic ring carriers be made of naturally degradable material that, when discarded, will decompose within a reasonable time.

In addition, the MPPRCA implements Annex V of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships or "MARPOL." This international agreement prohibits discharge into the sea of all plastics, including (but not limited to) synthetic ropes, synthetic fishing nets, and plastic garbage bags. It also prohibits discharge of food wastes and other floating materials within specified distances from land.

## **NEW INITIATIVES AND IMPLICATIONS FOR NEAR COASTAL WATERS**

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### **NEAR COASTAL WATERS PROGRAM**

#### **OW NCW Workgroup**

In an effort to leverage the EPA Office of Water base programs, OMEP joined with other OW offices to identify how existing programs, including standards, permits and enforcement, nonpoint source management and others, could work together to improve NCW quality. This workshop and manual are two outcomes of this effort.

#### **Regional NCW Management Strategies**

During FY1989, OMEP initiated the development of Regional NCW management strategies. The purpose of the strategies is to identify regional needs for NCW management, develop long-term (5 to 10 year) plans for addressing regional NCW problems, and define and implement specific action programs for NCW management. The strategies are intended to promote comprehensive and coordinated management of near coastal waters within a Region and its States. Regions I and X initiated strategies in FY1989 that are scheduled for completion early in 1990. Other Regional Strategies are planned for FY1990.

### **NATIONAL ESTUARY PROGRAM**

OMEP is involved in a number of activities in support of the National Estuary Program. For example, additional Management Conferences will be convened during FY1990. NEP is implementing innovative actions as a national coastal demonstration program.

OMEP will renew their efforts to work with the Regional Offices and States to improve federal consistency in interpreting the NEP guidance, through workshops and other outreach efforts. To support implementation of the CZM/NEP Agreement between EPA and NOAA, during FY1990 OMEP will develop case studies, write fact sheets on State coastal zone management programs, and write a new chapter on coordination with State CZM programs for the NEP Primer.

The Office continues its efforts to bring the electronic bulletin board "COASTNET" on-line to promote information sharing and dissemination among EPA Headquarters and Regional Offices, State agencies,



local officials, and others interested in the NEP. COASTNET includes information on upcoming meetings, announcements of general interest, and program documents which can be uploaded and downloaded by system users.

## **CONTROL OF POINT SOURCES TO NCWS: 301(h) and 403(c)**

### **301(h) Program**

New guidance is being developed in support of new regulations to address the amendments to Section 301(h) in the Water Quality Act of 1987. The guidance will assist permit writers in evaluating compliance with new toxics removal requirements equivalent to that achieved with secondary treatment.

### **403(c) Program**

A national conference on 403(c) that will address both program and technical issues will be convened during FY1990. Also the revision to regulations for ocean discharge criteria will begin in FY1990. In addition, OMEP is assessing Section 403(c)'s potential as a pollution prevention tool and as an enforcement tool against illegal discharges.

EPA is currently responding to a request from Congress concerning the potential implementation of section 403(c) in estuarine waters. In response to this request, the Agency is investigating the potential benefits, problems, and costs that would be associated with implementing section 403(c) in estuarine waters.

## **OCEAN DUMPING**

New ocean dumping guidance that will respond to the ODBA, and new regulations that will respond to several lawsuits concerning dredged material, are being developed by OMEP. The new regulations will continue to protect the oceans by requiring an assessment of the effects of ocean dumping on public health and the ocean environment 1) before disposal sites can be selected, 2) before permits to use the site are issued, and 3) while the site is in use. In addition, the ODBA will increase enforcement activity against discharges that are no longer legal. A marine and estuarine enforcement strategy and action plan is being developed by OMEP to: prioritize enforcement actions, improve enforcement training for marine/coastal protection activities, and develop public education and awareness programs.

## **MARINE DEBRIS**

OMEP is developing a program plan to encompass activities that are mandated by all Acts related to marine debris abatement and control. Of key importance will be planning for problem assessment and control, with emphasis on combined sewer overflows and storm drains and the impacts of debris on harbors and coastlines.

This program includes a public awareness campaign to involve the public in citizen pollution patrols and community action. Such ac-

tivities will heighten compliance and enforcement activity in marine ecosystems.

## **TECHNOLOGY TRANSFER**

The following information is presented to identify OMEP guidance and other reference documents, training opportunities, and agency contacts that can be utilized for NCW management.

### **GUIDANCE/POLICY/REFERENCE DOCUMENTS**

#### **NCW**

- Near Coastal Waters Strategic Options Paper (8/86)
- NCW Pilot Project Program Fact Sheet (2/88)
- NCW Program Fact Sheet (1/89)
- NCW Pilot Project Selection Criteria/Process (10/88)
- NCW Regional Reports (10/88)
- Northeast Case Study Nutrient Chapter (10/88)
- Draft Permit Writers' Guide for Discharges to Estuarine Marine Waters (joint OMEP/OWEP initiative) (3/89)
- NCW Strategy for Office of Water (1989)

#### **NEP**

- Program Policy Governing Award of Federal Financial Assistance Agreement Under the National Estuary Program (3/86)
- National Estuary Program Primer
- NOAA/EPA Guidance on Integration of the National Estuary Program and Coastal Zone Management Program (8/88)
- The National Estuary Program and Final Guidance on the Contents of the Governor's Nomination (draft) (1989)
- Draft Estuary Program Grants Regulation (4/89)
- Policy for Tracking EPA/State Conference Agreements (1989)
- Memorandum of Agreement between EPA and NOAA relating to NEP/CZM Activities (9/88)
- Delegation of grant authority (1989)
- NEP Report to Congress (draft) (1989)

#### **NCMP**

- National Coastal and Marine Policy (1989)

#### **OMEP**

- The OMEP Briefing Book (1/89)
- EPA's Marine and Estuarine Protection Programs and Activities (2/89)
- New Case Studies for Management Handbook: Rhode Island Salt Ponds, Elliott Bay Toxics Action Team, Compensatory Mitigation in Puget Sound

### 301(h)

- Revised Section 301(h) Technical Support Document (1982)
- Design of 301(h) Monitoring Programs for Municipal Wastewater Discharges to Marine Water (1982)
- Ecological Impacts of Sewage Discharges on Coral Reef Communities (1983)
- Summary of U.S. EPA-Approved Methods, Standard Methods, and Other Guidance for 301(h) Monitoring Variables (1985)
- Recommended Biological Indices for 301(h) Monitoring Programs (1985)
- Bioaccumulation Monitoring Guidance including:
  - Estimating the Potential for Bioaccumulation for Priority Pollutants and Pesticides (1985)
  - Selection of Target Species and Review of Available Bioaccumulation Data (1985)
  - Recommended Analytical Detection Limits (1985)
  - Analytical Methods for EPA Priority Pollutants and Pesticides in Tissues from Estuarine and Marine Organisms (1986)
  - Strategies for Sample Replication and Compositioning (1987)
- Evaluation of Coastal Survey Positioning Methods for 301(h) Monitoring Programs (1986)
- Quality Assurance/Quality Control (QA/QC) for 301(h) Monitoring Programs (1986)
- Guidance for Conducting Fish Liver Histopathology Studies During 301(h) Monitoring (1987)
- ODES - Ocean Data Evaluation System (1987)
- ODES User's Guidance (1986)
- ODES Data Submission Manual (1985)
- ODES User's Guide: Supplement A - Description and Use of ODES Tools (1986)
- Technical Support Document for ODES Statistical Power Analysis (1987)
- ODES Data Brief - Reference Information (1987)
- Guidance for Evaluation Effectiveness of 301(h) Monitoring Programs (1987)
- Guidance for Coastal Navigation (1987)
- DECAL Report (1987)

### 403(c)

- Ocean Discharge Criteria Regulations (Vol. 45 No. 194) FR October 3, 1980, pp. 65953

### OCEAN DUMPING

- Ocean Dumping Regulations and Criteria, January 11, 1987
- Medical Waste Anti-Dumping Guidance

- Bioassay Procedures for the Ocean Disposal Permit Program
- Ecological Evaluation of Proposed Discharge of Dredged Material into Ocean Waters
- Memorandums of Understanding between the Department of the Army Corps of Engineers (various Divisions) and the Environmental Protection Agency (various Regions) (on designation of ocean dumping sites)
- Ocean Dumping Site Designation Delegation Handbook for Dredged Material
- Draft Issues Related to the Assessment and Resolution of Problems Associated with Contaminated Sediment
- Draft Decision Document for Managing Contaminated Sediments
- Guidance Document for Ocean Dumping Permit Writers
- Dredged Material Disposal Strategy Document (working draft)
- Report to Congress on Ocean Disposal Monitoring in Response to the Ocean Dumping Ban Act (in press)
- Memorandum of Understanding between the EPA, USCG, and NOAA on Implementation of the Ocean Dumping Ban Act

#### **MARINE DEBRIS**

- Report to Congress on the New York Bight Plastics Study, March 1989
- Report to Congress, Methods to Manage and Control Plastic Waste (draft)
- Marine Debris Bibliography, October 1989
- Coastal Connection Summer 1989

#### **ENFORCEMENT**

- OMEP Enforcement Strategy
- OMEP Compliance and Enforcement Training Materials
- Citizen Monitoring Workshop and Demo Project Manual (FY90-FY91)

#### **TRAINING WORKSHOPS AND CONFERENCES**

- National Coastal Programs Information Transfer Conference
- New Estuary Program Workshop
- ODES User Training
- Annual Joint EPA/COE Ocean Dumping Coordinators Meeting
- Marine Debris Roundtable
- "Green Book" Training Sessions (upcoming)

#### **AGENCY CONTACTS**

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**Enforcement**

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## 4. EPA's CRITERIA AND STANDARDS ACTIVITIES

Water quality standards are State rules or laws that are adopted to protect public health or welfare, to enhance the quality of water and to serve the purposes of the Clean Water Act (CWA or Act). To serve the purposes of the Act, water quality standards provide for, wherever attainable, the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water. In setting standards, States designate uses for the water body and adopt water quality criteria to protect the designated uses. In addition to uses and criteria, State water quality standards must contain an antidegradation policy that, at a minimum, ensures that the State maintains and protects existing uses and water quality necessary to protect those uses. States set standards taking into consideration the use and value of the water body for public water supply; propagation of fish, shellfish, and wildlife; and recreational, agricultural, industrial and navigational purposes. Figure 6 presents an illustration of EPA and State responsibilities for the development of water quality criteria and standards.

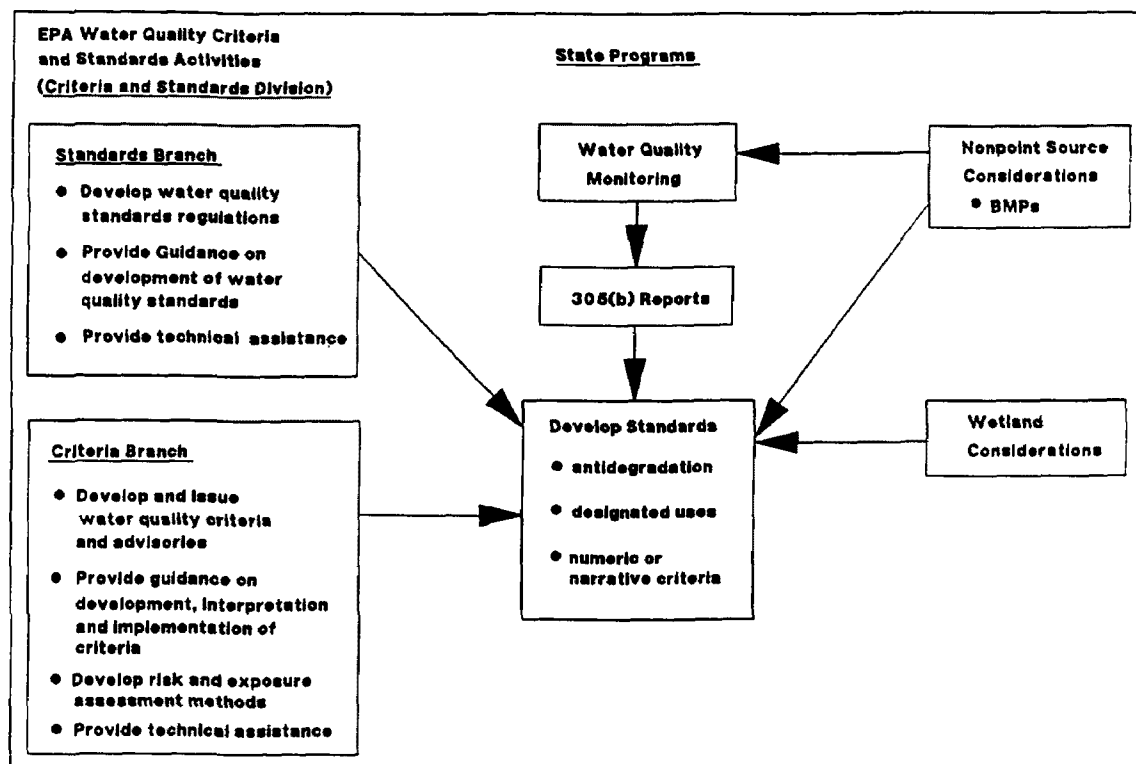


Figure 6. EPA and State Water Quality Criteria and Standards Programs

Water quality standards are adopted for all waters of the United States (including wetlands). At least once every three years, States are to hold public hearings for the purpose of reviewing water quality standards and, as appropriate, modifying and adopting standards.

EPA develops regulations, policies, and guidance to facilitate the implementation of the water quality standards program and reviews, approves or disapproves State water quality standards. When the Agency disapproves State standards and States do not revise the standards to meet the requirements of the Act or when the Administrator determines that a new or revised standard is necessary to meet the requirements of the Act, EPA promulgates Federal standards.

The Criteria and Standards Division (CSD) of the Office of Water Regulations and Standards, EPA Headquarters is responsible for the water quality standards program and for developing water quality criteria. The Standards Branch of CSD is responsible for regulations, guidance, and assistance for implementing provisions of the CWA on water quality standards. The Criteria Branch is responsible for developing criteria under Section 304(a) of the CWA. Two Sections within the Criteria Branch are responsible for carrying out the criteria development process: The Water Quality Criteria Section and the Multi-Media Criteria Section.

EPA publishes chemical-specific water quality criteria that provide the basis on which States adopt numerical criteria into their water quality standards. Rigorous requirements for the development of water quality criteria (45 FR 7934 for human health criteria development guidelines; 50 FR 30784 for aquatic life criteria development guidelines) ensure that data support the published values. EPA has published 109 human health criteria, 30 fresh water aquatic life criteria, and 25 salt water aquatic life criteria. States are also required to have narrative criteria that prohibit toxic pollutants in toxic amounts. Priorities for developing water quality criteria are established based on risk assessments using a quantitative ranking system that addresses a range of factors including exposure, toxicity, bioconcentration, bioaccumulation and persistence in water.

State water quality standards play a critical role in the Nation's water quality improvement programs. By establishing the goals for the water body, water quality standards provide the regulatory and legal basis for water quality-based controls beyond those required by the technological requirements of the Act (i.e., best available technology, pretreatment, and new source performance standards). Water quality standards are enforced through State or EPA issued water quality-based permits and through State nonpoint source control programs.



## CURRENT ACTIVITIES RELEVANT TO NEAR COASTAL WATERS

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### WATER QUALITY MONITORING

Designing control programs based on water quality standards is a multi-step process that starts with monitoring water quality and assessing water quality problems. Water quality monitoring and assessment programs include a broad range of activities that may include periodic grab samples of ambient water, sampling of sediments and fish tissue, intensive surveys, and special studies that focus on a particular pollutant or water body. State 305(b) Reports on the status of water quality in a State summarize information on river segments, lakes, and estuaries not meeting water quality standards, on the pollutants contributing to the water quality problems, and on the source of pollutants, i.e., industrial and municipal discharges or runoff from urban, construction, mining, agricultural, and forestry activities, etc.

States identify the additions or revisions necessary to existing standards based on their 305(b) Reports, other available water quality monitoring data, previous water quality standards reviews, or requests from industry, environmental groups, or the public. Water quality standard reviews and revisions may take many forms, including additions to and modifications in uses, in criteria, in the antidegradation policy, or implementation procedures or other general policies.

### DESIGNATED USES

In designating uses for a water body, States may conduct use attainability analyses to examine the suitability of a water body for a use and must conduct one if attempting to justify a use less than "fishable/swimmable." Suitability depends on the physical, chemical, and biological characteristics of the water body, its geographical setting and scenic qualities, and the socio-economic and cultural characteristics of the surrounding area. Economic considerations may also be included in a use attainability analysis.

Whenever States designate uses for a water body that do not include the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water (the Section 101(a)(2) goals of the Act), States must re-examine the water body every three years to determine if one or more of these uses has been attained. If a use that meets the goals of the Act has been attained, States must revise their water quality standards to reflect the attained use.

If a State designates a use for a water body that has not been attained, the State may examine the appropriateness of the use. If the use is appropriate, no further standards action is taken. However, the State must develop more stringent permit limits or other control programs in order for the water body to meet the water quality standards.

If a State determines that the water body is not suitable for the particular use that is designated but not attained, EPA encourages the State to first subdivide a use into categories that can be attained, such

as a warm water fishery in lieu of a cold water fishery or to designate a seasonal fishery. The Water Quality Standards regulation (40 CFR 131.10(g)) allows States to remove a non-existing, designated use if:

- naturally occurring pollutant concentrations prevent the attainment of the use; or
- natural, ephemeral, intermittent or low flow conditions prevent the attainment of the use; or
- human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
- hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate the modification in a way that would result in the attainment of the use; or
- physical conditions related to the natural features of the water body preclude attainment of aquatic life protection uses; or
- water quality-based controls would result in substantial and widespread economic and social impact.

#### **ADOPTING CRITERIA**

In adopting criteria to protect the designated uses, States may: (1) adopt the criteria that EPA publishes under Section 304(a) of the Act; (2) modify the 304(a) guidance to reflect site-specific conditions; or (3) use other scientifically defensible methods. Both human health and aquatic life criteria are needed for the protection and propagation of fish and shellfish and for public water supply. As part of their water quality standards review, States may adopt human health or aquatic life criteria, if one of the numbers was not previously adopted, or may adopt criteria for additional pollutants where data indicate that these pollutants may be interfering with attainment of the designated uses or to revise previously adopted criteria to reflect more recent scientific information.

Criteria can be chemical specific numeric limits, or, in the absence of specific numeric criteria for a chemical or biological parameter, can be based on the general narrative criteria (i.e., no toxics in toxic amounts).

When an effluent's constituents are not completely known or where a complex mixture of potentially additive, antagonistic, or synergistic toxic pollutants are discharged, a whole effluent toxicity limitation can be implemented. The whole effluent toxicity approach may also be appropriate when more than one discharger is located in a specific area and the potential exists for effluent mixing and additive toxic effects, and where a chemical specific evaluation is impractical due to a lack of information about the toxic effects of a chemical.

Section 303(c)(2)(B) requires States to adopt criteria for all Section 307(a) toxic pollutants for which the Agency has published criteria under Section 304(a), if the discharge or presence of the pollutant could reasonably be expected to interfere with the designated uses of

the water body, as necessary to support designated uses. The section 307(a) list contains 65 compounds and families of compounds, which the Agency has interpreted to include 126 "priority" toxic pollutants for regulatory purposes. If data indicate that it is reasonable to expect that one or more of the Section 307(a) toxic pollutants will interfere with the attainment of the designated use, or is actually interfering with the designated use, then the State must adopt a numeric limit for the specific pollutant.

Section 303(c)(2)(B) also provides that where EPA-recommended numeric criteria are not available, States shall adopt criteria based on biological monitoring or assessment methods. At a minimum, all point sources thought to be discharging the Section 307(a) pollutants must conduct whole effluent toxicity tests.

## ANTIDEGRADATION

Revisions to water quality standards may include revisions to the State's antidegradation policy or in the procedures through which the State plans to implement the antidegradation policy. Antidegradation policies and procedures must provide that the State maintains and protects existing uses and the quality of water necessary to protect those uses.

Antidegradation policies also must ensure the protection of water quality above that necessary to maintain fish and recreation, unless, after fulfilling public participation requirements, States can demonstrate that lower water quality is necessary for important economic and social development in the vicinity of the water body. However, in no case may a State allow water quality to deteriorate below that necessary to protect existing uses. Finally, antidegradation policies must maintain and protect water quality for any outstanding national resource waters that the State designates. Antidegradation implementation procedures must address how States will ensure that the permits and control programs meet water quality standards and antidegradation requirements. States must provide an opportunity for the public to review and comment on all aspects of water quality standards revisions. Any changes to water quality standards are subject to EPA review and approval.

## TOTAL MAXIMUM DAILY LOAD (WASTE LOAD ALLOCATION/LOAD ALLOCATION)

To determine the reduction in point and nonpoint source pollutant loadings that must occur to meet water quality standards, states develop total maximum daily loads (TMDLs) which consist of wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources (See Chapter 5). Both steady-state and dynamic models are used in the waste load allocation process to determine the total maximum daily load of a pollutant or toxicity that may be discharged into a water body without exceeding the standard or criterion. The standard or criterion used in the TMDL process includes one or more of the following: a chemical-specific numeric criteria or whole effluent toxicity. The TMDL process gives States the

flexibility to allocate pollutant loads among various point and nonpoint sources on an affected water body in order to maximize environmental benefits while keeping control costs to a minimum.

## **NONPOINT SOURCE CONTROL**

States design control programs to achieve water quality standards by reducing the discharge of the pollutants consistent with the waste load allocation. The control programs are implemented through water quality-based permits or through nonpoint source control programs. Nonpoint source control programs may be designed to control pollutants entering a particular water body such as a river, wetland, lake or estuary or to control particular types of activities such as those associated with agriculture, silviculture, construction, mining, etc. In some cases, States impose regulatory nonpoint source control programs; in other cases, States rely on the voluntary cooperation of land owners or operators to implement best management practices.

## **WETLANDS AND WATER QUALITY STANDARDS**

Water quality standards are used to regulate the many activities that impact surface waters, including wetlands. These activities include municipal and industrial point source discharges, nonpoint source discharges, RCRA and CERCLA actions, as well as dredge and fill activities under Section 404 of the CWA. An emerging new tool in the control of Federal activities impacting wetlands is Section 401 certification.

With the assistance of the Criteria and Standards Division, the Office of Wetlands Protection has developed a document entitled, "Wetlands and 401 Certification." State certification under Section 401 of the Clean Water Act gives the States the authority to review and approve, modify, or deny any permit or license issued by Federal government. Activities include for example, Section 404 permits (dredge and fill activities in "waters of the U.S.," including wetlands) issued by the U.S. Army Corps of Engineers and Federal Energy Regulatory Commission licenses (dam construction for hydropower). State water quality standards can play an important role in the 401 certification process by providing the basis for State involvement in Federal activities that impact surface waters, including wetlands. The document describes several examples where the States have used their water quality standards in conjunction with their 401 certification authority to modify or deny these Federal actions.

## **NEW INITIATIVES AND IMPLICATIONS FOR NEAR COASTAL WATERS**

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### **CRITERIA DEVELOPMENT**

#### **Contaminated Sediments**

EPA has been working on the development of methods for assessing risks associated with toxic substances in the sediments of the nations

waters. This includes the development of methods for deriving nationally applicable sediment criteria and establishing standardized bioassays to assess chronic effects and bioaccumulation. Several of the more developed and promising methods for developing sediment criteria have been submitted to the EPA Science Advisory Board for review.

In addition, interim sediment criteria values exist for 12 contaminants and fact sheets containing pertinent information on the physical and toxicity characteristics of 50 compounds commonly found in sediments are being produced in cooperation with the Superfund program.

### **Biological Criteria**

During FY1989, the Criteria Branch developed preliminary program and technical guidance documents for biological criteria based on State and EPA Region experience. A national conference is tentatively scheduled for May 1990 to review both draft documents. The national conference will also serve as a forum for planning future program development and research activities.

### **Wildlife Criteria**

The Criteria Branch co-chaired a workshop sponsored by the Environmental Research Laboratory-Corvallis in November, 1988 titled: Water Quality Criteria to Protect Wildlife Resources. Results of the workshop include recommendations to incorporate wildlife values within current aquatic life water quality criteria.

To follow up on workshop recommendations, the Criteria Branch, in conjunction with the Environmental Research Laboratory-Duluth, conducted a preliminary screening of priority pollutants to flag chemicals likely to be a problem for wildlife species. Further evaluation appears warranted.

The Criteria Branch is working with the Office of Wetlands Protection and the U.S. Fish and Wildlife Service to develop a cooperative agreement for evaluating the need for and nature of wildlife criteria.

## **REGULATORY INITIATIVES**

### **WQS Regulation to Be Revised**

Prompted by the amendments to the Clean Water Act, which deal with State adoption of numeric criteria for toxic pollutants (Section 303(c)(2)(B)), CSD is starting to draft revisions to the standards regulation. The proposal is to develop and consider changes to codify the statutory requirement to adopt numeric criteria for toxics, and to clarify certain other requirements. This is scheduled for publication in the Federal Register in early summer of 1990.

## **STRATEGY DEVELOPMENT**

### **Water Quality Standards Framework**

The Water Quality Standards Framework is a long-term strategy for the water quality standards program that defines the objectives, estab-

lishes the priorities, identifies the products, outlines the timeframes and provides resource estimates. At this time the Framework is undergoing internal Agency review.

The goal of the Framework is to strengthen the scientific, technical, legal, and programmatic foundation of the water quality standards program. The Framework will be used for the operating guidance, budget requests, research priorities and EPA and State water quality standards commitments.

## **GUIDANCE DOCUMENTS**

### **WQS Handbook to be Revised**

The WQS Handbook, which contains guidance to support the regulation, is being revised to reflect various policy and legal interpretations and additional guidance that were developed since its issuance in 1983. The two major additions to the Handbook will be guidance in implementing antidegradation and on conducting economic analyses related to standards. Another noticeable change will be to update all the references to applicable guidance from related EPA programs. The format will also change so that the guidance tracks with the regulation. The Handbook is scheduled to be completed in conjunction with the WQS regulation revisions in early summer of 1990.

### **Ecological Risk Assessment Guidelines**

The Ecotoxicity Subcommittee Aquatic Population Workgroup, chaired by CSD, held a workshop July 18-20, 1989 to develop an annotated outline for ecological risk assessment guidelines at the aquatic population level of organization. A preliminary document, produced by the writing committee in August, is out for review by the workgroup.

## **TECHNOLOGY TRANSFER**

The following information is presented to identify guidance documents, training opportunities, and agency contacts that can be utilized by State and Regional managers in developing and implementing water quality criteria and standards.

## **GUIDANCE DOCUMENTS**

- Biological Criteria Diagnosis and Remediation Strategies
- Revised Technical Support Document for Water Quality Based Toxics Control
- Permit Writers Guide for Marine and Estuarine Discharges
- Wetlands and 401 Certification
- Ambient Water Quality Criteria Documents for Numerous Substances (EPA/OWRS)
- Briefing Report to the EPA Science Advisory Board on the Equilibrium Partitioning Approach to Generating Sediment Quality Criteria (EPA/OWRS)

- Evaluation of Sediment Normalization Theory for Organic Contaminants (EPA/OWRS)
- Guidance for Sampling of and Analyzing for Organic Contaminants in Sediments (EPA/OWRS)
- Protocol for Sediment Toxicity Testing for Nonpolar Organic Compound (EPA/OWRS)
- Final Report - Recalculation of Screening Level Concentrations for Nonpolar Organic Contaminants in Marine Sediments (EPA/OWRS)
- Regulatory Applications of Sediment Criteria (EPA/OWRS)
- Sediment Quality Criteria Methodology Validation: Uncertainty Analysis of Sediment Normalization Theory for Nonpolar Organic Contaminants (EPA/OWRS)
- Sediment Quality Criteria for Metals: II. Review of Methods for Quantitative Determination of Important Absorbents and Sorbed Metals in Sediments (EPA/OWRS)
- Sediment Quality Criteria for Metals: III. Review of Data on Complexation of Trace Metal by Particulate Organic Carbon (EPA/OWRS)
- Sediment Quality Criteria for Metals: IV. Optimization of Extraction Methods for Determining the Quantity of Sorbents and Adsorbed Metals in Sediments (EPA/OWRS)
- Quality Criteria for Water 1986. (Gold Book) (EPA/OWRS)
- Questions and Answers on Antidegradation (EPA/OWRS)
- Nonpoint Source Controls and Water Quality Standards (EPA/OWRS)
- Water Quality Standards for the 21st Century (EPA/OWRS)
- Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analyses (EPA/OWRS)
- Technical Support Manual: Waterbody Surveys and Assessment for Conducting Use Attainability Analyses, Volume II: Estuarine Systems (EPA/OWRS)
- Introduction to Water Quality Standards (EPA/OWRS)
- State Adoption/Proposal of Numeric Criteria for Priority Pollutants as of August 1988 (EPA/OWRS)
- Transmittal of Final "Guidance for State Implementation of Water Quality Standards for CWA Section 303(c)(2)(B)," December 12, 1988 (EPA/OWRS)

#### TRAINING/INFORMATION TRANSFER

- Outreach workshops to discuss standards policies and requirements
- Human health workshops
- Water Quality standards workshops
- Toxics workshops

- National quarterly newsletter to convey program information to States and other interested parties

#### **AGENCY CONTACTS**

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## 5. EPA'S TOTAL MAXIMUM DAILY LOADS AND SURFACE WATER MONITORING ACTIVITIES

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The Environmental Protection Agency, in cooperation with state and local governments and other Federal agencies, is responsible for restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters, including near coastal waters (NCWs). Two key tools for management are the Total Maximum Daily Load (TMDL) process and monitoring. The former is specified in Section 303(d) of the Clean Water Act (CWA). The EPA Office of Water Regulations and Standards, Assessment and Watershed Protection Division (AWPD) is responsible for developing guidance and technical support for TMDL development and monitoring. Although this section focuses on TMDL development and monitoring (Monitoring Branch), the AWPD is also responsible for exposure assessments (e.g., National Bioaccumulation Study), information services (e.g., databases), and special studies through the Water Quality Analysis Branch and the clean lakes program and nonpoint source control through the Nonpoint Source Control Branch.

A TMDL is a quantitative estimate of the waterbody's assimilative capacity. Historically, this evaluation has applied to a waterbody segment such as a river segment, although it is equally applicable to near coastal waters. The assimilative capacity should account for all pollution sources to a water body as well as background inputs. The capacity is then allocated between point (wasteload allocations or WLAs) and nonpoint (load allocations or LAs) sources, allowing for a margin of safety "...which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality." The TMDL process includes six basic components which can be applied to near coastal waters:

- identification and prioritization of waterbodies,
- monitoring to evaluate water quality,
- development of quantitative loadings,
- water quality management plan preparation,
- NPDES permit issuance and nonpoint source (NPS) best management practice (BMP) implementation, and
- monitoring to evaluate effectiveness.

Currently, States are required to develop TMDLs for waterbodies that do not meet water quality standards when using technology-based treatments alone. These waterbodies should be listed in the 303(d) list. TMDL development is a State mandated process. The EPA is responsible for developing TMDLs when States do not exercise their authority. An illustration of the TMDL processes is presented in Figure 7.

EPA (in a monitoring policy) established five overall monitoring goals. They are to:

- meet the full range of current and future Agency needs for environmental data,
- ensure monitoring is technically and scientifically sound,
- ensure environmental monitoring data are managed to facilitate both access and appropriate use in Agency decision making,
- ensure effective and coordinated Agency-wide processes for planning and execution of monitoring activities, and
- ensure that roles and responsibilities are clear in regard to monitoring management and implementation by EPA and State officials.

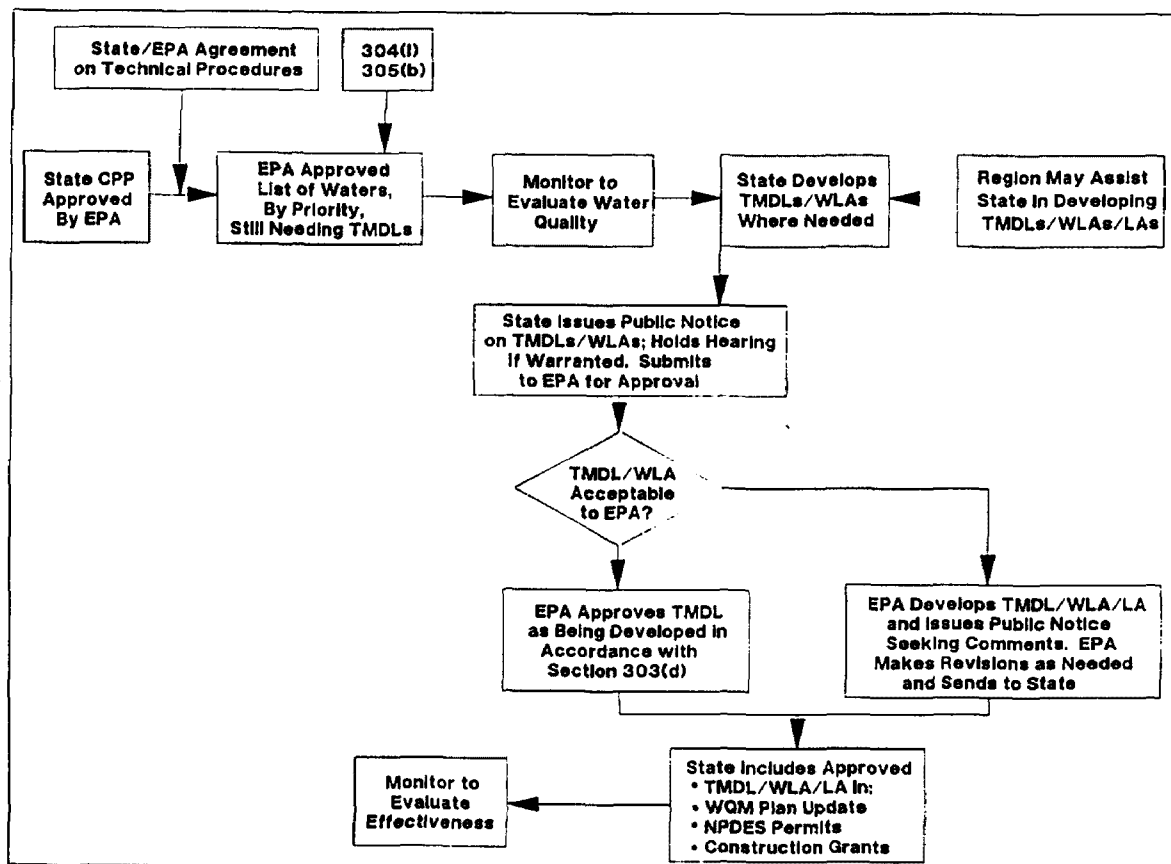


Figure 7. Review/Approval Procedure for State TMDL/WLA/LA

In effect, the monitoring goals are far more involved than simple data collection. The goals imply the need for water quality monitoring to be an information system, directly tying the data collected to the management decisions (objectives) that must be made. In general, the water-quality monitoring objectives have been categorized into four groups:

- to develop baseline information,
- to generate data sufficient for trend analysis,
- to develop and/or verify models, and
- to investigate single incidents or events.

The success of the monitoring plan will generally dictate the success of subsequent processes and the overall project outcome. It is important to recognize that the type of monitoring is different for different types of pollutants, pollutant sources, and water bodies. For example, non-point sources are typically intermittent and may require a different monitoring strategy than monitoring the effluent from a POTW.

## CURRENT ACTIVITIES RELEVANT TO NEAR COASTAL WATERS

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TMDLs and monitoring are two key tools for NCW management. As described earlier, TMDL development is a tool which can be used for allocating assimilative capacity of NCWs. Monitoring supports a large range of activities including TMDL development. The following is a brief discussion of TMDL development and monitoring. The relationship between TMDL development and monitoring (Figure 7) is also discussed.

### TMDL DEVELOPMENT

The type of TMDL, WLA, or LA needed in a near coastal water situation will depend on the nature of the water quality concern(s), whether the concern is localized or basin-wide, and characteristics of the receiving water (i.e., complexity of natural circulation and mixing processes, existence of multiple overlapping discharges, influences from nonpoint sources). A TMDL provides a quantitative relationship between the wasteload and the instream concentrations or effects of concern. The reliability of this relationship depends on the accuracy and completeness of the data, certain characteristics of the model, and the skill and judgment of the modeler. During the development of a TMDL, the user combines the data and model first to describe present conditions and then to extrapolate to possible future conditions. The process is iterative: observed data are used to refine model input (or even model equations) and modeling results are used to guide monitoring efforts.

In many or most cases, conventional water quality concerns in coastal and estuarine waters (i.e., DO depletion, eutrophication, turbidity, elevated bacterial levels) occur over relatively large spatial scales and over long periods of time (seasonal). Thus, it is likely that a basin-wide

approach, including large-scale (far-field) modeling, will be necessary to properly account for many major pollutant sources.

In order to determine an effluent composition that will protect aquatic organisms, the exposure of the aquatic community to the effluent must be determined. Exposure assessments involve predictions of how much of a waterbody is subject to concentrations exceeding water quality criteria, for how long, and how frequently. The spatial and temporal extent of aquatic life exposure to toxicants will vary depending on variations in the assimilative capacity of the receiving water and variations in effluent composition and quantity. Models are used to predict exposure and to calculate the effluent quality required to meet the criteria and protect the beneficial uses of the receiving water. The "Technical Support Document for Water Quality-Based Toxics Control" (TSD) describes the types of modeling types that can be performed during this assessment.

The TSD also discusses EPA's mixing zone policy and explains how this policy affects the allowable toxic load that can be discharged from a treatment plant. In the recent past, most studies have not included mixing zone analyses since they concentrated on conventional pollutants that have their greatest impact downstream (far-field) from the point of complete mixing. Mixing zone modeling has generally been performed only for discharges to large rivers, lakes, or estuaries where water quality problems are confined to the mixing (near-field) area. Now that studies are being widely conducted for toxicants, mixing zone analyses will be needed in more situations since many of these pollutants exert their maximum toxicity close to the point of discharge. The TSD describes the tracer studies and mixing zone models that can be used to: 1) ensure that the discharge conforms to the State's allowable mixing zone dimensions; 2) prevent the mixing area from extending into critical resource areas; and 3) provide boundary conditions for completely mixed models.

Depending on the assumptions being made in the assessment, either steady-state or dynamic models can be used to predict the effect of wastewater discharges on toxicant concentrations in receiving waters. Steady-state models work on the assumption that the effluent concentration is steady and that the duration and frequency with which criteria are exceeded can be reflected entirely by selecting a critical condition in the receiving water of appropriate duration and frequency. For steady state modeling, critical design conditions have been recommended in the TSD for protection of human health as well as aquatic life.

Another means of modeling exposure is to use computer models that incorporate the variability of the individual inputs (such as effluent flow and concentration, receiving water flow, temperature, background concentration, etc.). These models are termed dynamic models and are more accurate than steady-state models in reflecting or predicting exposure provided adequate data exist. The acceptable effluent condition derived using these models is expressed as the effluent long-term average (LTA) and variance, which greatly simplifies derivation of permit limits. Three dynamic modeling approaches are described in the TSD along with instructions for their use.

The amount of data needed for a given problem is hard to completely specify a priori and in most instances past experience is crucial. As a general rule, the more complicated the model, the more data is needed to properly calibrate and verify the model. The same rule is equally applicable to the increased complexity of the waterbody or pollutant source. Due to the complex loadings commonly associated with NCWs, one would generally expect that more data would be necessary to model these waterbodies. The data need is intensified for waterbodies with major NPS pollution loads.

Recent advances in environmental toxicology may allow the calculation or simulation of bioaccumulation and toxicity for some classes of chemicals. These procedures are still in the developmental stage and are not recommended for most situations without a careful evaluation of site specific conditions. To simulate bioaccumulation by individual fish (or a local species of fish), the user must specify an exposure scenario plus a few physiological parameters. Although literature values for the parameters are available, monitoring data should be used for site-specific calibration. Direct toxicity to neutral hydrophobic organic chemicals by narcosis can be predicted. To simulate food chain bioaccumulation, the user must define the main components of the local food web (who eats whom), and calibrate the physiological parameters for each.

## MONITORING ACTIVITIES

Monitoring is an information gathering tool for almost all water quality analyses. Monitoring can be used to help identify NCWs needing TMDLs, quantify loads, verify models, and evaluate overall water quality management (including BMP) implementation and effectiveness. Once TMDLs, WLAs, and LAs have been developed for a given waterbody it is critical to follow-up with monitoring to document improvement. Again, due to the complex nature of NCWs, one cannot expect improvements immediately. According to the Rural Clean Water Program, it took nearly ten years before improvements were detected in watersheds (not NCWs) which were primarily associated with nonpoint source pollution. Since TMDL development is iterative, monitoring data can provide a means for updating and revising current TMDLs, WLAs, and LAs.

In addition to providing information for allocation of assimilative capacities, monitoring can be used for setting permit conditions, compliance, enforcement, detecting new problems and trends, etc. In general, the design of a monitoring network is a function of pollutant type, source, and extent as well as the management decisions which will be made. Monitoring efforts must be designed to account for the spatial and temporal variability of the water quality random variable. In concert with answering key questions such as what, when, where, and how often to sample, appropriate quality assurance/quality control, data handling and management, data analysis, and information reporting must be integrated into monitoring strategies.

Biological indices are an excellent integrator of time and space. As a result, biological monitoring has been included in more recent studies to identify water quality limited segments. This is probably even more appropriate for NCWs due to the wide variety of finfish and shellfish

present. These indices are perhaps the more useful (than chemical surrogates) in determining absolute use attainment (e.g., fishable and swimmable). The information gained here concerning use attainment is a key step to identifying and prioritizing waterbodies. Strong support for biological monitoring is not to say that chemical and physical data are not useful -- they are critical for quantifying load estimations and verifying/calibrating transport models.

Other advances in monitoring include ecoregion approaches. Ecoregions may provide a logical basis for characterizing ranges of ecosystem conditions or water qualities realistically attainable. Several states, for example, have used ecoregion classifications to find reference sites, which are then used to help adjust local water quality standards to realistic levels for disturbed water bodies. Nonpoint source BMPs may also be more easily evaluated by comparing two watersheds in the same ecoregion (as long as anthropogenic factors were similar).

There are two primary mechanisms for reporting monitoring results in addition to the 303(d) list. These are the 304(l) lists and 305(b) reports. The 304(l) lists identify waters that are not meeting their designated uses. There are three parts to the 304(l) lists.

- "Long" list - State waters impaired by any pollutant due to either point or nonpoint sources.
- "Short" list - State waters which do not meet either numeric or narrative water quality standards for the 126 priority toxic pollutants primarily due to point sources. This list has been a high priority.
- "Mini" list - State waters which do not meet a numeric water quality standards (adopted since the Water Quality Act of 1987) for a priority pollutant due to either point or nonpoint sources.

These lists would be particularly helpful in identifying waters which need TMDLs. The 305(b) reports are a convenient place for States to report the ambient environmental status of their waterbodies. These reports can provide an important mechanism for States to disseminate information to managers and the public concerning the current status and improvements of NCW programs.

## NEW INITIATIVES AND IMPLICATIONS FOR NEAR COASTAL WATERS

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### REVISED TMDL POLICY GUIDANCE

The TMDL process is currently under revision, reflecting the similar reasoning which is being incorporated into the NCW program. The current revised program guidance (under development) is headed by a policy statement which proposes to broaden the definition of the TMDL process to include policy-based TMDLs and to use water body approaches for their development. The revised policy guidance is a

recognition of common data and technical limitations for near coastal waters. In some instances, there is not adequate data to support numerical TMDL development. In effect, timely management of impaired water bodies is hampered. This is not uncommon since monitoring activities in the past have often focused on permitted discharges and evaluating the controls placed on point sources. In addition, the monitoring requirements may, in some instances, be too intensive. This may be a common problem for near coastal waters that are largely impacted by nonpoint sources. In some instances, the technical tools (i.e., nonpoint source models) were not designed to deal with the complex technical aspects of NCWs.

The revised policy guidance is headed by a policy statement which includes some key points for NCWs.

- The revised policy recommends developing numerical assimilative capacities whenever feasible. For waterbodies in which it is not feasible to develop numerical capacities, basin-wide BMPs could be appropriate alternatives, as could be focused monitoring of toxic "hot spots" for source identification.
- Basin wide TMDLs, WLAs, and LAs should be used. This expectation is allowed some variance according to pollutant type, source, and water quality impairment.
- TMDLs must address nonpoint sources. The revised policy encourages proactive TMDL development (e.g., this is a mechanism for addressing threatened good quality waters).
- TMDLs are not meant for all pollutants (e.g., TMDLs may not be appropriate for bioaccumulative pollutants).
- TMDLs should be reviewed on a regular schedule (e.g., another mechanism for institutionalizing a regular review of NCW management plans).

#### TMDL/WLA GUIDANCE MANUAL FOR ESTUARIES

"Book III: Estuaries" of the technical guidance manual for TMDLs/WLAs is under development. It consists of four parts. Part 1 describes estuaries and related TMDL/WLA models, Part 2 describes use of models to perform TMDLs/WLAs/LAs with a number of examples, Part 3 includes critical reviews of estuarine modeling work done in the past, and Part 4 describes mixing zone models. Parts 1 and 2 are currently available in draft final form, and Parts 3 and 4 are available in initial draft form.

#### SURFACE WATER MONITORING PROGRAM GUIDANCE

AWPD, with the cooperation and assistance of other Office of Water programs and the States, is currently developing guidance for the States to help them define an appropriate surface water monitoring program. The purpose of the guidance is to improve the use of ambient data (physical, chemical, biological) by program managers, and to

improve reporting to the public. One section of the guidance document will discuss a monitoring framework for estuaries.

## **CITIZEN MONITORING**

EPA's Office of Water is currently encouraging State, Regional, and local program managers to recruit citizens to assist in the monitoring of significant water conditions and biota in inland, estuarine, and marine waters. Several States have used citizen volunteers in environmental monitoring since the early 1970s. Experience with citizen monitoring programs has demonstrated that volunteers can successfully undertake formal, technical monitoring as well as non-technical projects to assist the States in this effort, EPA is developing a citizen monitoring strategy and guidance to aid the States with forming citizen monitoring programs.

## **DATA BASES**

AWPD now maintains several data bases capable of accessing various water quality and environmental data and producing reports and graphics from these data. These data bases include:

- STORET
- Mapping and Data Display Manager (MDDM)
- Environmental Data Display Manager (EDDM)
- Water Quality Analysis Interactive Procedures (available to users of EPA's IBM 3090 mainframe computer)

These data bases provide access to information on municipal and industrial facilities, stream flow, water quality, reach, biological parameters, drinking water supplies, monitoring sites, and other information.

## **TECHNOLOGY TRANSFER**

The following information is presented to identify guidance documents, training opportunities, and agency contacts that can be utilized by State managers in implementing their near coastal water programs.

## **GUIDANCE/POLICY DOCUMENTS**

- Program Guidance for development of TMDLs/WLAs/LAs (EPA/AWPD, In Preparation)
- Technical Guidance Manual for Performing Wasteload Allocations, Book III: Estuaries (EPA/AWPD, In Preparation)
- Monitoring Framework (EPA/AWPD, In Preparation)
- Water Quality Analysis Interactive Procedures
- Mapping and Data Display Manager (MDDM) User's Guide
- Environmental Data Display Manager (EDDM) User's Guide
- STORET - Water Quality Analysis System



**TRAINING**

- Waste Load Allocation, Modeling and Permitting Workshop (2-3/year)
- Waste Load Allocation and TOXIWASP Modeling Workshop (2/year)
- OWRS/ERL Athens Water Quality Standards and Waste Load Allocation Modeling/Mixing Zones Analyses for Complex Estuarine Discharge Situations (2/year)
- Mixing Zone Modeling Workshop (under development)
- Citizens Monitoring Workshop (1/year)

**AGENCY CONTACTS****Assessment and Watershed Protection Division****WLA modeling**

Hiranmay Biswas 382-7012

**Monitoring management**

Mary Belefski 382-7056

**Monitoring analyses**

Bruce Newton 382-7060



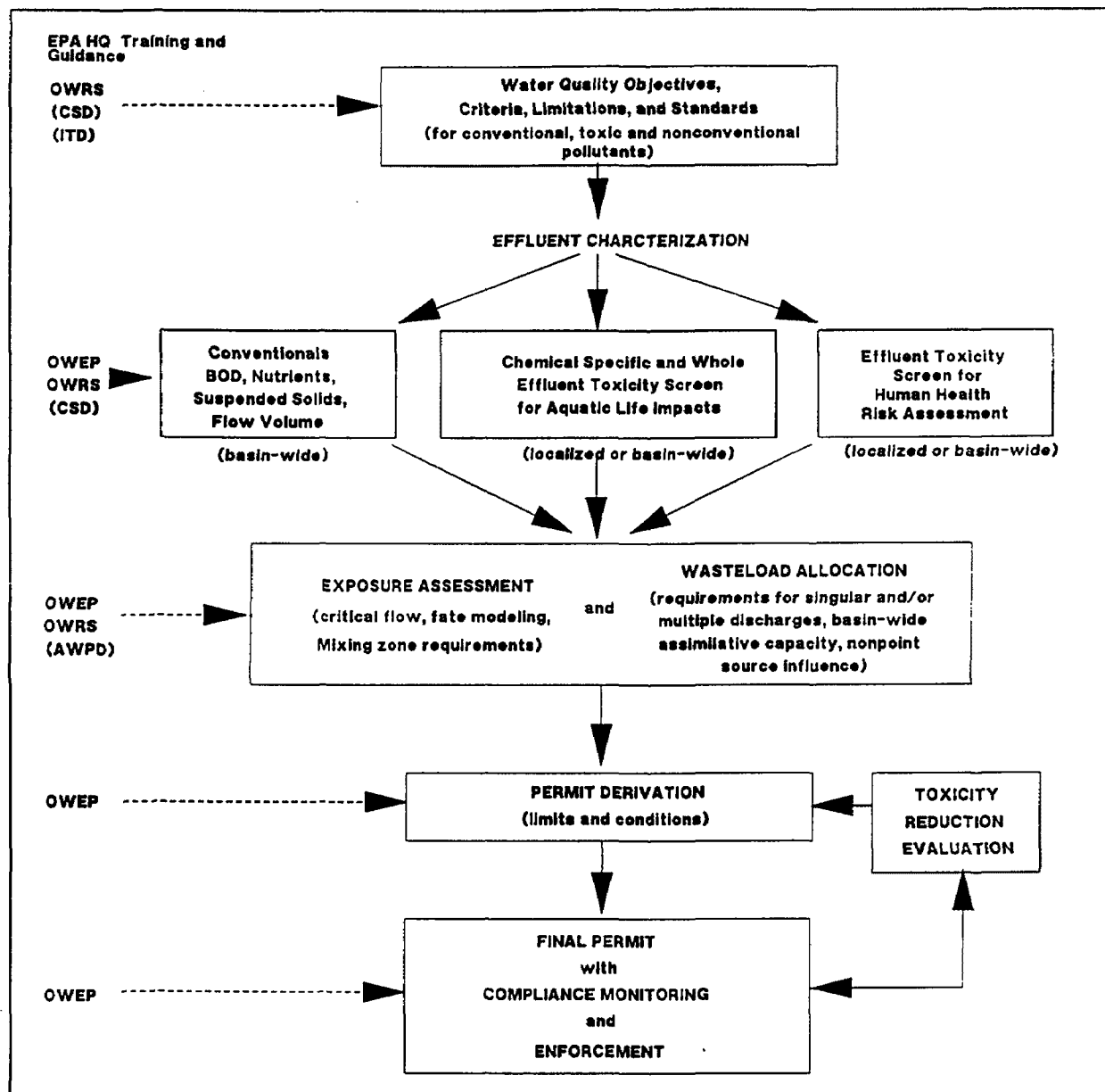
## **6. EPA'S WATER QUALITY-BASED PERMITTING ACTIVITIES FOR POINT SOURCES (AND CSOs/STORM DRAINS)**

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Section 402 of the Clean Water Act (CWA) and its implementing regulations established the National Pollutant Discharge Elimination System (NPDES) for permits issued to point source discharges into waters of the United States. The regulatory framework provides a two-pronged approach for controlling point source discharges. The first, reliance on "technology-based" standards, consists of developing national minimum treatment requirements based on an assessment of the achievability of control technologies by individual categories of dischargers. The second, a "water quality-based" approach, stresses water quality criteria, water quality standards, and the setting of pollutant effluent limitations that are intended to maintain receiving surface water quality at a level sufficient to protect the classified designated uses. Figure 8 provides an overview of EPA's water quality-based approach for the control of point source discharges to near coastal waters. The approach shown is essentially the same as that utilized by EPA and the States to develop permits for discharges to fresh waters.

Under the water quality-based permitting, pollution control is achieved through an integrated approach of chemical specific and whole effluent controls. The chemical specific approach limits specific pollutants (including conventional and toxic pollutants) based on applicable water quality (numeric) criteria and standards. The whole effluent approach is especially applicable when specific pollutants in complex wastes have not or can not be identified or their interactions assessed. In this case the determination of effluent limitations or controls is based on toxicity of the whole effluent in addition to that of a specific chemical, in order to address numeric or narrative State standards such as the "no toxics in toxic amounts" standard common to all State water quality standards.

Overall coordination of EPA's implementation of the NPDES water quality-based permitting program is carried out primarily by two offices within the Headquarter's Office of Water - the Office of Water Enforcement and Permits (OWEP), and the Office of Water Regulations and Standards (OWRS). These activities are supported by Water Management Division staff in the ten Regional Offices. OWEP is primarily responsible for the overall NPDES permit program im-



**Figure 8. Overview of Water Quality-Based Approach for Point Source Discharge to Near Coastal Waters**

plementation, including the development of permit limitations, permit tracking and monitoring, performance of toxicity reduction evaluations (TREs), and permit enforcement. OWRs supports the NPDES activities through three divisions - Criteria and Standards Division (CSD), Assessment and Watershed Protection Division (AWPD), and Industrial Technology Division (ITD). CSD is responsible for the development and review of national water quality criteria, and supports and oversees the process of setting water quality standards by the States. A more detailed description of CSD's program is provided in Chapter 4 of this manual. AWPD (Monitoring Branch) provides policy and technical guidance for implementing CWA Sections 303(d)

(wasteload allocation program) and CWA Section 304(l) (impaired waters listings), both important elements to the NPDES program. In addition, the Monitoring Branch provides directions for monitoring to States. More detailed descriptions of the waste load allocation processes and monitoring requirements are provided in Chapter 5 of this manual. AWPD also includes the Nonpoint Source Control Branch, whose program is described more fully in Chapter 7 of this manual. ITD is responsible for development and promulgation of technology-based effluent guidelines and standards for industrial dischargers.

## CURRENT NPDES ACTIVITIES IN NEAR COASTAL WATERS

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The issuance and enforcement of discharge permits under the NPDES program is one of EPA's most important activities affecting the water quality and living resource conditions in the nation's near coastal waters. Estuaries are of particular concern because they represent highly productive ecosystems at risk, and because these waters tend to act as natural "sinks" for both point and nonpoint source discharges coming from land, rivers, and streams.

The water quality-based approach is designed to address a wide variety of potential water quality concerns in near coastal waters. These may include:

- toxics
- pathogens
- dissolved oxygen depletion
- nutrient enrichment and overproduction and
- bioaccumulation and exposure to humans.

Addressing each of these concerns may require a somewhat different approach depending on applicable water quality criteria and standards, pollutant source location(s) and characteristics, characteristics of the receiving waters, and interaction with other sources (e.g., nonpoint sources). For example, if dissolved oxygen depletion and eutrophication are of concern, the problems most likely involve both point and nonpoint source influences on a relatively large spatial scale. Developing controls would require a basin-wide assessment and management approach including wasteload allocation modeling for either the entire estuary or a large portion thereof. If impacts from toxic substances including whole effluent toxicity are of concern on a larger scale (i.e., multiple industrial discharges, urban runoff), it will be necessary to perform a wasteload allocation through a more sophisticated modeling exercise which incorporates the potential overlapping, cumulative influences of all discharges on water quality/sediment toxicity, bioaccumulation, and resultant human health risk.

Substantial policy and technical guidance have been developed to assist the Regions and States (for those States that are authorized to implement the NPDES program) in writing permits under the water

quality-based approach. Central to this strategy are two guidance documents: "Technical Support Document for Water Quality-Based Toxics Control" (EPA 440/4-85-032, September 1985) and the "Permit Writer's Guide to Water Quality-Based Permitting for Toxic Pollutants" (EPA 440/4-87-005, July 1987). The Technical Support Document (TSD) provides technical recommendations for each step in the water quality-based toxics control process. The Permit Writer's Guide gives State and Federal NPDES permit writers a methodology for deriving water quality-based effluent limits. The TSD is presently being revised and updated (in part) for developing permits for dischargers to marine waters. In addition, a "Permit Writer's Guide for Marine and Estuarine Discharges" is being developed. A summary of the proposed changes to the Technical Support Document relevant to near coastal water issues and a summary of the draft Permit Writers Guide for Marine and Estuarine Discharges are presented in separate sections of this manual. The major chapters of the current TSD are summarized in the following sections, which serves to highlight the approach currently used for marine discharges.

## **MARINE WATER QUALITY STANDARDS AND CRITERIA (CHAPTER 2 OF TSD)**

State water quality criteria and standards are the basis for NPDES permits. A State's standards are made up of a specific chemical criteria and a waterbody's designated use. For both the chemical specific and whole effluent approaches, limitations are developed which specify allowable concentrations of pollutants within and at the edge of the mixing zone in the receiving water. This section provides a summary of the criteria and standards development process. A more complete discussion of the development of criteria and standards is presented in Chapter 4 of this manual.

Individual pollutants are regulated on a chemical-specific basis, i.e., criteria are developed for individual chemicals. Where specific numerical criteria for a chemical are absent, compliance with the standards must be based on the general narrative criteria (i.e., no toxics in toxic amounts) and on protection of the designated use. If a State lacks a specific chemical criteria, EPA criteria may be used.

The whole effluent approach to toxics control involves the use of ambient criteria for the parameter toxicity and the use of toxicity tests to determine the toxicity of wastewater discharges to various test organisms. The measure of whole effluent toxicity can be used to assess the toxicity of effluents, based on the concentration of the effluent that is determined not to cause a specified effect, either a LC50 (effluent concentration at which 50% of test organisms are killed) or a NOEC (highest effluent concentration at which no unacceptable effect will occur, even at continuous exposure).

Aquatic impacts are a function of magnitude, and duration and frequency with which criteria are exceeded. EPA's recommended criteria for both individual toxicants and whole-effluent toxicity are specified as two numbers: the criteria continuous concentration (CCC), applied as a four-day average concentration for chronic ef-

fects; and the criteria maximum concentration (CMC) for acute effects, applied as a one-hour average concentration.

The water quality standard and criteria specify water quality limits that are not to be violated as a result of any and all discharges to a water body. This means that the standards apply to nonpoint as well as point source discharges. Therefore, consideration of water quality standards and criteria should be included in the States' nonpoint source (Section 319) management plans, as described in the nonpoint source section of this manual (see Chapter 7).

In addition to setting criteria and standards for what have traditionally been considered water bodies, EPA is also developing a plan for the development of water quality criteria for wetlands. EPA is also encouraging States to make use of the various components of water quality standards (use classification, antidegradation, and narrative criteria) as a means of protecting wetlands from point source discharges. These EPA activities are discussed in more detail in the wetland section of this manual (see Chapter 8).

## EFFLUENT CHARACTERIZATION (CHAPTER 3 OF TSD)

The purpose of effluent characterization is to provide the data needed to determine whether or not a discharge has the potential to cause an adverse impact to the biota of the receiving water system, and/or creates potential conditions for adverse human health hazards. Although the TSD focuses on testing procedures for toxic pollutants, assessments of conventional pollutants (i.e., BOD, nutrients, total suspended solids, coliform bacteria) should also be conducted. The permitting authority can then develop wasteload allocations for one or more discharges into waters exhibiting the potential for localized or basin-wide dissolved oxygen deficits or eutrophication conditions in conjunction with the background influences of nonpoint sources and in-place sediment fluxes. Detailed discussions of the recommended approaches for controlling the discharge of conventional pollutants in estuaries will be presented in EPA's soon to be released technical guidance manual on performing wasteload allocations in estuaries.

The TSD presents a screening system to identify potential problem dischargers for toxicity impacts. The screening system is based on either chemical-specific or whole-effluent toxicity tests (or both) using the projected receiving water concentration as the decision criteria.

It is noted that for many discharges, EPA expects that the recommended screening methods will allow permit limitations to be developed on a site-specific basis, using simple water quality models. However, conditions most conducive to creating overlapping and additive toxic effects from multiple discharges are expected to occur in estuarine systems. In such cases, exposure and wasteload allocation modeling is recommended for toxic pollutants and toxicity similar to the procedure for conventional pollutants.

Some sources of pollution that have traditionally been considered as nonpoint sources will now require NPDES permits. These sources include storm sewers and combined sewer overflows. The effluents

from these sources will now need to be characterized and controlled in a similar manner to more traditional point source discharges.

Ingestion of fish that have accumulated toxic chemicals in the tissue (e.g., bioaccumulation) is the primary concern for human health risk related to effluent discharges. Chemicals that bioaccumulate include metals, organic compounds, and organometallic compounds. Some of these chemicals can accumulate to hazardous levels in fish even when the concentration in the water is below a toxic level (i.e., below numeric water quality criteria for aquatic life protection). Therefore, effluents that have an acceptable level of toxicity may still contain hazardous concentrations of bioaccumulative pollutants. The current TSD does not provide quantitative screening methods for determining the bioaccumulation potential for human health risk, making it difficult to address this aspect of pollution control. However, EPA will soon release the "Permit Writer's Guide to Identification and Control of Bioconcentratable Pollutants in Complex Effluents," currently in draft form. This guide contains procedures to evaluate the bioconcentration potential of complex effluents, identify and quantify individual bioconcentratable pollutants, and develop criteria, wasteload allocations, and effluent limitations for these pollutants. (This information will also be excerpted in the revised TSD.) Guidance addressing toxic fish tissue residues and procedures for performing health risk assessments for consumption of contaminated fish and shellfish is also presented in EPA's recently released "Guidance Manual for Assessing Human Health Issues from Chemically Contaminated Fish and Shellfish."

#### **EXPOSURE AND WASTELOAD ALLOCATION (CHAPTER 5 OF TSD)**

Section 303(d) of the CWA requires that States shall establish Total Maximum Daily Loads (TMDLs) for those waterbodies where technology-based treatment is insufficient to allow compliance with water quality standards. Point sources, nonpoint sources, and natural background sources all contribute to the total load of a pollutant in a waterbody. Allocation of the TMDL, otherwise known as a wasteload allocation (WLA), is the process of using models to allocate the available assimilative capacity of the waterbody among all the point and nonpoint sources in consideration of technical, socioeconomic, institutional, and political constraints. Chapter 5 presents a more detailed description of the process of developing WLAs and of conducting monitoring activities to help identify near coastal waters needing TMDLs, quantify loads, verify WLA models, and evaluate overall water quality management, (including best management practices for control of nonpoint sources) implementation, and effectiveness.

#### **PERMIT REQUIREMENTS (CHAPTER 6 IN TSD)**

The requirements of a WLA must be incorporated in the NPDES permit. In many cases, permit limits will be different than the WLA to reflect different assumptions and means of expressing effluent quality. Three types of WLA outputs are identified in the TSD, and recommendations are provided for deriving permit limits to properly enforce each



type of WLA. Other permit-related issues such as data collection, limit expression, and compliance schedules are also discussed.

## COMPLIANCE MONITORING (CHAPTER 7 IN TSD)

For important parameters, at least once per week monitoring is recommended. A phased monitoring approach is discussed in the TSD in which monitoring frequency is reduced after continuing compliance is demonstrated. Unique considerations for enforcement of water quality-based permits are discussed.

## NPDES ENFORCEMENT

EPA's water enforcement program is designed to identify instances of noncompliance, return the violator to compliance, recover any economic advantage obtained by the violator's noncompliance, and deter other regulated facilities from noncompliance. The enforcement tools available to the agency include an extensive network of compliance monitoring techniques and protocols to screen compliance information, a permit compliance management system, and enforcement response strategies.

Permit violators are generally detected through the monitoring requirements of the NPDES permitting program. Two forms of monitoring are generally conducted, self monitoring by the permittee and compliance inspection by the State or EPA. Public complaints can also trigger follow-up actions by the enforcement authority to see whether a violation has occurred. The general types of violations considered as noncompliance by NPDES permittees includes permit effluent limits, compliance or construction schedules, permit required reporting, enforcement order requirements, and other permit requirement violations.

Discharge Monitoring Reports, or DMRs, which compile effluent data, are completed by NPDES permittees, and data from the DMRs are entered into EPA's Permit Compliance System (PCS), a database management system that tracks individual facility permit compliance and the status of enforcement activity against violations. PCS enables the States and Regions to automatically list major facilities not in compliance with their NPDES permits or enforcement action requirements. Violations and enforcement activity are reported in the Quarterly Noncompliance Report. Permit violations are prioritized to determine which violations should be acted upon first (usually those violations considered to be Significant Noncompliance (SNC)).

In response to violations, the States or Regions can take either administrative or judicial action depending upon the severity of the violation and the violation history of the facility. Administrative actions can be either in the form of a notice of violation or an Administrative Order. A notice of violation is issued to a permittee to inform the permittee that a violation was detected and that it should be corrected. An Administrative Order requires a permittee to take specific actions which must include at least meeting compliance schedule milestones, ceasing and desisting from a particular activity, and/or showing cause for a particular violation and how the permittee intends on correcting

it. Administrative penalties can also be assessed by a Region. Class I violations can be assessed at \$10,000 per day of violation, up to \$25,000. Class II violations can be assessed at \$10,000 per day of violation, up to \$125,000. The other form of enforcement action, judicial action, can be either civil or criminal. These cases are typically forwarded to EPA's Office of Enforcement and Compliance Monitoring and OWEP to review. The case is then referred to the Justice Department which actually files the action in the District Court where the violation occurred. Civil actions can assess up to \$25,000 per day. Criminal actions can assess \$25,000 per day for the first violation or \$50,000 per day for a second violation for negligence. Any person who knowingly violates a permit condition is subject to \$50,000 or \$100,000 per day. If a discharger knowingly endangers the environment as a result of a discharge violation, the discharger is subject to a fine of \$250,000 (for an individual) to \$1M (for an organization).

OWEP's major responsibilities related to enforcement include providing enforcement case review and support, developing and overseeing implementation of penalty policies, reviewing citizen suits, managing the NPDES enforcement program and State oversight, and developing enforcement criteria and enforcing pretreatment requirements against POTWs.

## TOXICITY REDUCTION EVALUATIONS

The Clean Water Act and NPDES regulations require that point source permits include toxicity limits designed to achieve designated state water quality standards. EPA has identified toxicity reduction evaluations (TREs) as an effective means of ensuring that permitted dischargers meet these toxicity requirements.

When toxicity testing of an effluent demonstrates that a discharge contains toxicity at unacceptable levels, the permitting agency should require the permittee to reduce toxicity to prevent harmful effects to living resources and human health impacts. It is solely the permittee's responsibility to reduce effluent toxicity to acceptable levels. One method is by conducting a TRE.

A TRE is a step-wise process that combines toxicity testing and analysis of physical and chemical characteristics of the effluent to isolate the causative toxicants or manufacturing processes that produce the chemicals of concern, identify control options and determine the effectiveness of each option, and identify a compliance monitoring indicator and demonstrate its effectiveness. A TRE may entail a series of simple tests that identify simple remedial actions, such as "housekeeping," or it may involve an extensive investigation to identify toxicants of concern and/or cost-effective treatment or source reduction options. In all cases, a TRE should not be considered complete until the permittee has attained compliance with the effluent toxicity limitation of the permit.

Because of differences in the operations of discharging facilities, the characteristics and variability of their effluents, and existing wastewater treatment systems, approaches to conducting TREs are facility specific. However, to assist in developing proven, cost-effective TRE

methodologies, EPA is sponsoring research to determine the effectiveness of various treatment options and to develop some of the tools that will be useful to permitting agencies and permittees during the conduct of TRES.

## OTHER PROGRAMS

### Effluent Guidelines

EPA publishes effluent guidelines and standards for industrial dischargers. These are uniform technology-based limitations for industrial facilities discharging directly into the nation's waters and pretreatment for those who discharge into POTWs.

During the effluent guideline promulgation process, EPA develops a profile of the industry to determine pollutant loadings of untreated wastewater for which effluent limitations guidelines are being developed. Pollutants of concern and technologies for treating them are then identified. EPA prepares estimates of total investment and operation and maintenance costs of complying with each technology option, and evaluates the regulatory options, both technically and economically, to select a technology as the basis of the guidelines.

Effluent limitations, standards and guidelines are established for three types of industrial pollutants: conventional, toxic, and nonconventional. Effluent guidelines generally limit the pollutants that can be discharged at an individual facility. The numerical limits of the guidelines are determined using the treatability data for the selected technology.

CWA Section 304(m) mandates EPA to develop a biennial plan to review and revise effluent guidelines, identify industrial categories for effluent guidelines development, and establish a schedule for promulgation of new guidelines. In January 1990, EPA's OWRS Industrial Technology Division published a schedule for the next round of effluent guidelines development, revision, and review. (55 FR 80-103). New guidelines will be developed for five industrial categories: Pesticide Chemicals Manufacturing subcategory (1992), Offshore Oil and Gas Extraction (1992), Pesticide Chemicals formulating/packaging subcategory (1993), Hazardous Waste Treatment, Phase I (1995), Machinery Manufacturing and Rebuilding (1995), and Coastal Oil and Gas Extraction (1995). Other listed categories/subcategories will undergo revisions or review, and others will be studied for possible future action.

### Pretreatment

Under the General Pretreatment Regulations for Existing and New Sources of Pollution, EPA established general prohibitions to prevent the release of any pollutant from any non-domestic source into Publicly Owned Treatment Works (POTWs) which interfere with, passed through untreated, or are otherwise incompatible with the POTW, and specific prohibitions against the introduction of pollutants from any non-domestic source into a POTW which could cause fire/explosion hazards, corrosive (pH) damage, interference that obstructs flow, or interference due to heat damage.

In addition, EPA established national categorical pretreatment standards applicable to specific industrial subcategories, and required POTWs to develop specific local limits to implement the general prohibitions on interference and pass through. The local limits developed are deemed to be Federal standards for the purposes of the prohibition under Section 307 of the Clean Water Act against violating pretreatment standards, and thus are considered to be Federally enforceable.

The categorical pretreatment standards developed by EPA regulate pollutants commonly discharged by a specific industrial category. These categorical industries must comply with technology-based effluent limitations, operate and maintain the appropriate control technology to achieve compliance, and monitor discharges to achieve and maintain compliance with the standards. Federal categorical standards therefore provide a minimum, uniform level of pollution control of all dischargers in similar industrial categories.

Under the General Pretreatment Regulations, any POTW with a design flow of more than 5 MGD, and smaller POTWs receiving industrial discharges causing pass through or interference, must establish an approved local pretreatment program. POTWs administering local pretreatment programs must develop and enforce site-specific local limits to implement the earlier noted general and specific prohibitions. Local discharge limits may be set by industrial category, by specific pollutants, or by individual industrial facility once industrial discharges are identified which: contain toxic priority pollutants or prohibited discharges (i.e., heat, explosive/fire hazards, corrosive agents), interfere with POTW operations, pass through the POTW treatment system and adversely affect receiving water quality, contaminate POTW sludge, or create a health/safety hazards for workers in the POTW.

Therefore, for categorical industries, pretreatment standards may consist of a combination of prohibited discharge standards, Federal categorical pretreatment standards, and local pretreatment limits. Upon promulgation of the Federal categorical standards, the more stringent of the two discharge limits (local or Federal) apply. All categorical industries must comply with categorical standards even if they discharge to a POTW without a federally approved local pretreatment program. For non-categorical industries, pretreatment standards may consist of prohibited discharge standards and local discharge limits. POTWs must ensure that their pretreatment programs are effectively implemented and enforced so as to prevent violations of their NPDES permit conditions.

## **NEW INITIATIVES AND IMPLICATIONS FOR NEAR COASTAL WATERS**

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As a result of new and better scientific knowledge concerning the impacts of pollution in aquatic environments and new legislative mandates required under the 1987 Water Quality Act Amendments to the Federal Water Pollution Control Act, EPA has developed new policies and guidance for the management of the nation's waters. Some of these

new initiatives will have a direct impact on the way near coastal waters are managed under the NPDES permitting program. The most relevant of these initiatives to near coastal water issues are presented below. New initiatives related primarily to criteria and standards development and wasteload allocation and monitoring procedures are presented in Chapters 4 and 5 of this manual.

## STRATEGY INITIATIVES

### Combined Sewer Overflow Strategy

EPA recently developed a national strategy for controlling combined sewer overflows (CSOs). The strategy requires that all CSOs be identified and categorized according to their status of compliance with technology and water quality-based regulations. The strategy objectives are to ensure that all CSO discharges occur only as a result of wet weather, to bring all wet weather CSO discharge points into compliance with the technology-based requirements of the CWA and applicable State water quality standards, and to minimize water quality, aquatic biota, and human health impacts from wet weather overflows that do occur. A guidance document to implement the strategy is currently being developed.

## GUIDANCE DEVELOPMENT INITIATIVES

### Revised Technical Support Document

EPA is currently revising the "Technical Support Document for Water Quality-Based Toxic Control" (TSD) that was originally issued by the Agency in 1985. The purpose of the TSD is to provide the States and Regions with an encyclopedia of procedures and guidance to be used in water quality-based control of toxic pollutants. The revised TSD provides additional explanations and rationales based on accumulated experience and data for the various recommendations made in the original document. A number of important substantive changes have also been made in the revised TSD, which are summarized in Table 1.

### Permit Writers Guide for Marine and Estuarine Discharges

This document is currently being developed by EPA. It is designed to provide State and Regional NPDES permit writers with guidance for deriving water quality-based effluent limits for marine and estuarine waters. The Permit Writer's Guide also identifies models that can be applied to waste load allocation in marine waters and includes guidance on assessing bioconcentration. A summary of the major topics included in the Permit Writer's Guide is presented in Table 2.

### Bioconcentratable Pollutants

The Agency has released a draft of the "Permit Writer's Guide to Identification and Control of Bioconcentratable Pollutants in Complex Effluents." This guidance will include procedures to evaluate the bioconcentration potential of complex effluents, identify and quan-

**Table 1.**  
**Summary: Revised Technical Support Document for**  
**Water Quality-Based Toxics Control**

**PURPOSE OF DOCUMENT**

- Provide States and Regions with reference of procedures and guidance to be used in water quality-based control of toxic pollutants
- Provide additional explanations and rationales based on accumulated experience and data for the various recommendations made in the original TSD
- Incorporate important substantive changes to the original TSD based on new approaches and methods to be used in controlling toxic pollutants

**SUMMARY OF REVISIONS**

- Discussion of the approach to water quality-based toxics control, supported by new documentation and explanations based on experience gained over the last 5 years
- Presentation of equations for developing acceptable ambient concentrations (AACs) and discussion of legal basis for establishing AACs in terms of reliance on both numerical and narrative State water quality standards
- Streamlined procedures for predicting likely impact of toxic effluents on aquatic life
- Revised effluent characterization procedures for assessing potential human health impacts focus on control of bioconcentratable chemicals
- More discussion of mixing zones and their calculation
- Ambient criteria to control acute toxicity to aquatic life now allowable for any type of outfall for which monitoring data indicate that the criteria maximum concentration (CMC) is met within the short distances specified by the TSD
- Suggest that allowing mixing zones for bioaccumulative pollutants may be inappropriate in certain circumstances
- Presents additional explanations and discussions of material related to permit requirements and compliance monitoring

**SCHEDULE**

- First draft completed in September 1989
- Second draft by December 1989
- Final draft by the end of the second quarter of FY 1990 following review by "blue ribbon panel"

**Table 2.**  
**Summary: Permit Writers Guide for Marine and Estuarine Dischargers**

### PURPOSE OF DOCUMENT

- Assist State & Regional NPDES permit writers in issuance of water quality-based permits for coastal dischargers
- Supplement the Basic Permit Writer's Guide and the Technical Support Document. Document assumes reader has basic understanding of NPDES program and toxics control for freshwater discharges

### SUMMARY OF CONTENTS

- Description of appropriate toxicity testing methods for various discharge scenarios (i.e., fresh v. saline effluent entering bay, absolute v. relative toxicity) and test organisms for given salinity and temperature ranges one each coast
- Description of physical characteristics of coastal environments that affect mixing (including worst case examples) and summary of estuarine classification systems
- Introduction to models of varying levels of complexity available for exposure assessment leading to wasteload allocations, and a discussion of which types of numeric models are best suited for different classes of estuaries
- Description of steps in the permitting process applicable to coastal discharges, but not freshwater discharges, specifically reviews by a State Coastal Zone Management Program for consistency with CZM policies, and ocean discharge criteria evaluations under Section 403(c) of the Clean Water Act
- Appendices contain list of pollutants of concern, State Numeric and Narrative Standards and Mixing Zone Standards for marine and estuarine waters, index of pollution susceptibility for estuaries (developed by NOAA), and sample calculations using various models.

### SCHEDULE

- Currently have workgroup draft
- Draft for Regional comments expected 12/89
- Final document expected publication date 6/90

titate individual bioconcentratable pollutants, and develop criteria, wasteload allocations, and effluent limitations for these pollutants.

### **Human Health and Fish Tissue Contamination**

EPA recently released the "Guidance Manual for Assessing Human Health Issues from Chemically Contaminated Fish and Shellfish." This document provides guidance for addressing the issue of toxic fish tissue residues and procedures for performing health risk assessments for consumption of contaminated fish and shellfish. A summary of the manual is presented in Table 3.

**Table 3**  
**Summary: Guidance Manual for Assessing Human Health Issues from Chemically Contaminated Fish and Shellfish**  
**September 1989**

#### **PURPOSE OF DOCUMENT**

- Provide guidance for health risk assessment related primarily to chemically contaminated recreational fisheries.
- Describe the steps of a health risk assessment procedure for consumption of contaminated fish and shellfish
- The conceptual basis for standard toxicological variables (e.g., Carcinogenic Potency Factors or Reference Doses (RfD) for chemicals) and criteria (e.g., U.S. Food and Drug Administration (FDA) action levels) related to risk assessment, and information sources for updating these values
- Provide guidance on presentation of fish assessment results
- Summarize assumptions and uncertainties of the recommended procedures for risk assessment.

#### **SUMMARY OF CONTENTS**

- Overview of risk assessment and risk management
- Hazard identification
- Dose-response assessment
- Exposure assessment
- Risk characterization
- Presentation and interpretation of results



## REGULATORY INITIATIVES

### Control of Surface Water Toxics

In June of 1989, EPA issued final regulations for the control of surface water toxics under provisions of CWA NPDES permits. The regulations clarify EPA's surface water toxics control program and incorporate Section 308(a) of the 1987 Water Quality Act. Section 308(a) of the Water Quality Act added Section 304(l) to the CWA. The purpose of the proposed regulations are to amend and clarify EPA's existing surface water toxics control program, describe the requirements for identifying and listing water bodies under Section 304(l), discuss the requirements for preparing and reviewing Individual Control Strategies (ICSs) and discuss the procedures for reviewing and approving or disapproving the lists and ICSs.

### Upcoming Regulations

EPA will soon be coming out with new regulations for the control of storm water discharges.

## TECHNOLOGY TRANSFER

The following information is presented to identify guidance documents, training opportunities, and agency contacts that can be utilized by State and Regional permit writers and resource managers. The technology transfer activities of the Criteria and Standards Division and Assessment and Watershed Protection Division are presented in Chapters 4 and 5 of this manual.

### GUIDANCE/POLICY DOCUMENTS

- Revised Technical Support Document for Water Quality-Based Toxics Control (EPA/OWEP - in preparation)
- Permit Writer's Guide for Marine and Estuarine Discharges (EPA/OWEP - in preparation)
- Permit Writer's Guide to Identification and Control of Bioconcentratable Pollutants in Complex Effluents (EPA/OWEP - in preparation)
- Guidance Manual for Assessing Human Health Issues from Chemically Contaminated Fish and Shellfish (EPA/OWEP in preparation)
- Effluent Guidelines Development Manual (EPA/ITD - in preparation)
- Generalized Methodology for conducting Industrial Toxicity Reduction Evaluations (EPA/Risk Reduction Engineering/Laboratory)
- Pretreatment Implementation Policy (EPA/OWEP)
- Pretreatment Compliance Monitoring and Enforcement Guidance (EPA/OWEP)
- Guidance Manual for POTW Pretreatment Program Development (EPA/OWEP)

- . Permit Writer's Guide to Water Quality-Based Permitting for Toxic Pollutants (EPA/OW)
- . Quarterly Non-Compliance Reports (QNCR)(EPA/OWEP)
- . QNCR Guidance Manual (EPA/OWEP)
- . QNCR QA Manual and Analyst Guide (EPA/OWEP)
- . Managers Guide to Automated QNCR (EPA/OWEP)
- . Managers Guide to the Permit Compliance System (PCS)(EPA/OWEP)
- . PCS Near Coastal Water Designation of Facilities
- . Water Enforcement National Data Base (WENDB) required data elements for PCS
- . Definitions of SNC/RNC for Pretreatment Violations
- . Definitions of SNC/RNC for Whole Effluent Violations
- . Administrative Penalty Policy (EPA/OWEP)

#### **TRAINING**

- . Basic Permit Writing (four times/year)
- . Water Quality-Based Permitting (six-eight times/year)
- . TRE Workshops (10 times/year)
- . OWEP/OWRS/OWEP Joint Estuarine Modeling, WLA, and Permitting Workshops

#### **AGENCY CONTACTS**

##### **Industrial Technology Division**

Mark Luttner: Effluent Guidelines  
382-5397

Eric Strassler: Effluent Guidelines  
382-7120

##### **Office of Water Enforcement and Permits**

Jim Taft: Permits  
475-9536

Hap Thron: Permit Writers Training  
475-9537

Jeff Lape: Pretreatment  
475-9525

Margaret Heber: Enforcement  
475-8299

Mary Gair: Enforcement  
475-8557

## 7. EPA's NONPOINT SOURCE ACTIVITIES

The major Federal tool for protecting surface waters from NPS pollution is Section 319 of the Clean Water Act (CWA), which requires each State to identify and assess waters impaired due to nonpoint source pollution and to develop a management program for these waters. Figure 9 illustrates the process implemented by EPA and the States to manage nonpoint source pollution.

The 319 Assessment Report identifies those waters in the State which, without additional action to control nonpoint sources, cannot reasonably be expected to attain or maintain applicable water quality standards or the goals and requirements of the Act. The report also identifies the categories, subcategories, and particular nonpoint sources of pollution which contribute to this impairment. This report is a Statewide inventory, and is updated biannually in conjunction with the State's Water Quality Assessment Report required under Section 305(b) of the Act.

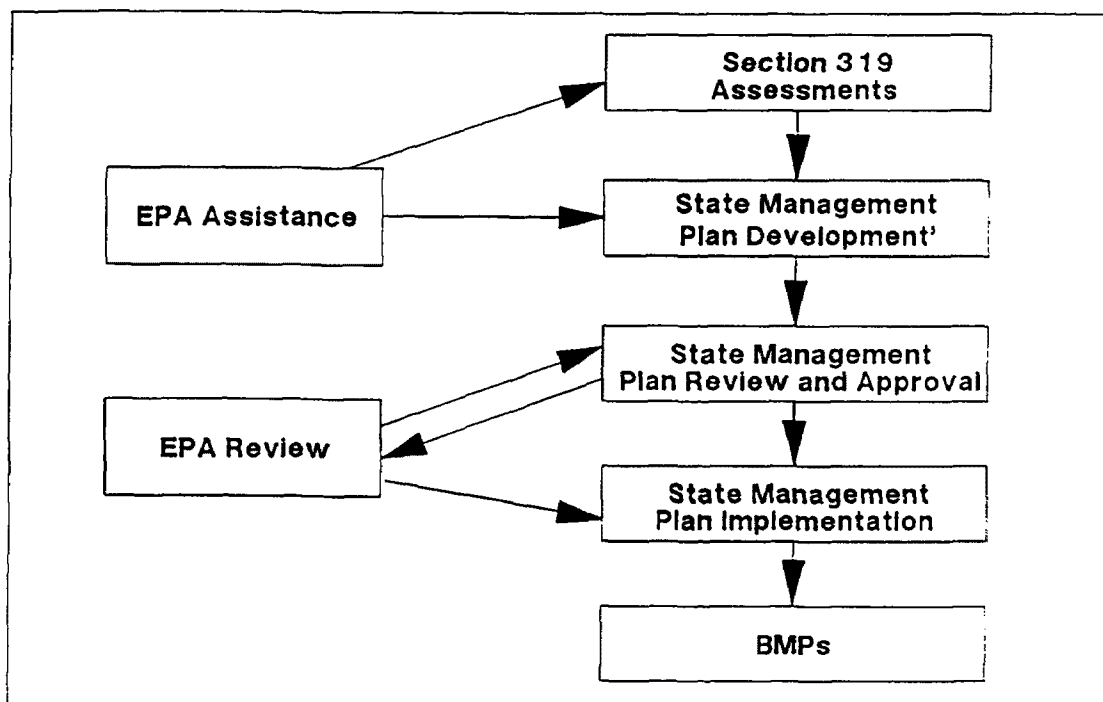


Figure 9. EPA/State Nonpoint Source Control Program

The State NPS Management Programs are based on the Assessment Reports, and cover NPS management and pollution control actions that the State intends to undertake over the succeeding four fiscal years. Management Programs may be reviewed annually in conjunction with the submittal of Grant Applications. Specifically, the State NPS Management Programs should contain and result in:

- the identification of the best management practices (BMPs) for the control and reduction of specifically identified nonpoint sources of pollution and the improvement of water quality,
- the achievement and maintenance of State water quality standards, the measure of success of NPS Management Programs,
- the setting of action priorities as among categories of NPS pollution and watersheds,
- the utilization of a variety of programmatic actions to achieve the implementation of Management Programs,
- a schedule containing annual implementation milestones and provisions for implementing BMPs at the earliest possible date, and
- the option of identifying those Federal programs and projects that the State wants to review for their consistency with the State's Management Program.

As states begin implementing their State NPS Management Programs, they will have to assist, encourage, or require individuals and entities to adopt specific Best Management Practices (BMPs) and measures to prevent or control NPS pollution. A major EPA role will be to encourage the sharing of information on new BMPs with demonstrated effectiveness. Additionally, EPA will maintain a special interest in: 1) use of wetlands to provide an NPS control function, and (2) land conservancy as a NPS BMP.

EPA's NPS activities are carried out by the Nonpoint Source Control Branch (NPSCB) in EPA's Office of Water Regulations and Standards (OWRS), Assessment and Watershed Protection Division (AWPD). Field activities and State program approval are carried out by staff in EPA's ten regional offices.

## **CURRENT ACTIVITIES RELEVANT TO NEAR COASTAL WATERS**

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Near Coastal Waters (NCWs) are the recipients of large quantities of nonpoint source pollution, particularly from runoff containing pesticides, herbicides, metals, and nutrients flowing from agricultural and urban sources. NCWs are also the final repository of large nutrient and toxic loads from major river systems. Since pollution from nonpoint sources is a major problem for NCWs, strategies and tools to control and prevent NPS pollution will be an integral part of any strategy to protect NCWs from pollution. The NPS Management Program developed by each State should address the NPS-related problems of NCWs, and thus should be an important part of the Agency's overall strategy to protect NCWs.

## NEW INITIATIVES AND IMPLICATIONS FOR NEAR COASTAL WATERS

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In January 1989, EPA's Office of Water issued its "Nonpoint Sources: Agenda for the Future," which sets forth EPA's commitment to a national NPS program during the next five years and outlines the actions the Agency deems necessary to solve the problem of NPS pollution of the nation's rivers, lakes, and streams. Most of the initiatives presented below were identified in the draft NPS strategy that is being developed by EPA to address the issues identified in Nonpoint Sources Agenda.

### PLANNING INITIATIVES

#### Nonpoint Source Strategy:

NPSCB is developing a strategy for implementing the Nonpoint Sources Agenda. Each program in the Agency with an interest in controlling NPS pollution will submit an action plan for implementing the Agenda in their particular program. The NPS Strategy will be a compendium of these action plans. Components of the strategy will include: public awareness, successful solution, economic forces and incentives, regulatory program, and good science. Potential participants include: the Office of Ground-Water Protection (OGWP), the Office of Water Regulations and Standard (OWRS), the Office of Marine and Estuarine Protection (OMEP), the Office of Wetlands Protection (OWP), the Office of Water Enforcement and Permits (OWEP), the Office of Policy, Planning and Evaluation (OPPE), the Office of Municipal Pollution Control (OMPC), and the Office of Drinking water (ODW). The NPS Strategy is currently in draft form and is undergoing Agency review.

#### General Nontraditional NPDES Permits:

General permit authority is available to NPDES States. The program is an administrative tool to simplify and reduce the burden of regulating certain types of similar discharges (e.g., stormwater). General NPDES permits may be a formidable tool to manage coastal nonpoint source pollution, and may include structural or non-structural BMPs, but should include requirements for monitoring. While they have not been widely used in the U.S., some States have incorporated the concept of general nonpoint source permits into the State regulatory structure. Examples include: South Florida Water Management District (to control surface water storage and attendant runoff problems); the Pennsylvania Department of Environmental Resources (for earth disturbance permits over 25 acres in size a permit is necessary, while some activities may be exempt with a sediment control plan); and Maryland's erosion sediment control plan, which weaves the erosion and sediment control plan into the permitting process for a variety of operating permits.

In February, 1988, the Permits Division of OWEP issued the General Permits Program Guidance to facilitate State program approval. EPA

is now issuing this document, which is intended to outline the Federal general permits program requirements and necessary submissions for state program approvals.

### **INITIATIVES TO INCREASE STATE/LOCAL ROLE IN CONTROL OF NPS POLLUTION**

#### **Implement Cooperative State 402/319 Programs**

The draft NPS Strategy proposes developing an approach to network requirements established under Section 319 and 402(p) to address urban stormwater runoff.

#### **Incorporate BMPs into other Permits**

The draft NPS Strategy proposes the issuance of guidance on urban Best Management Practices (BMPs), including planning and design, pollutant removal, stormwater management for new development, feasibility, maintenance, and cost and benefits.

### **INITIATIVES FOR INTER-AND INTRA-AGENCY COOPERATION**

#### **Intra-Agency Cooperation**

The draft NPS Strategy proposes cooperation with other EPA Offices to improve the NPS program. An example of such a cooperation is a proposed joint agenda between OGWP and OWRS on program linkages regarding NPS and ground-water activities which require close coordination. The purpose of this joint agenda would be to study surface and ground water interrelationships and to assess the effects of surface water BMPs on ground water.

#### **Inter-Agency Cooperation**

The draft NPS Strategy proposes cooperation with other Federal agencies to improve the NPS program. Such cooperation includes full involvement in the 1990 Farm Bill Reauthorization and Agency AG Policy Committee, and working with the Conservation Reserve Program and Small Watershed Program in the U.S. Department of Agriculture.

### **INFORMATION AND EDUCATION INITIATIVES**

#### **Brochures and Handbooks**

The draft NPS Strategy calls for disseminating information about NPS pollution to the general public. Tools proposed include: brochures on NPS pollution, a National public awareness campaign (including written and audiovisual materials), and advisories on NPS solutions. The purpose of these items is to describe the NPS problems to laymen and illustrate what they can do to prevent and solve NPS problems.

## Information Clearinghouses

The draft NPS Strategy also calls for the establishment of clearinghouses and/or catalogs through public/private cooperation arrangements to provide information to the public and to other organizations in need of NPS information. Proposed Clearinghouses include: Established Lakes Clearinghouse; NPS Clearinghouse; a Solutions Clearinghouse; and a Clearinghouse on NPS financing and regulatory solutions.

## TECHNOLOGY TRANSFER

The following information is presented to identify guidance documents, training opportunities, and agency contacts that can be utilized by state NPS managers in developing and implementing NPS management programs.

## GUIDANCE/POLICY/REFERENCE DOCUMENTS

State Clean Water Strategies: Meeting the Challenges of the Future, U.S. EPA, Washington, DC, December, 1987.

Nonpoint Source Guidance, U.S. EPA, Washington, DC, December, 1987.

Guidelines for the Preparation of the 1990 State Water Quality Assessment (305(b) report), U.S. EPA, Washington, DC, February, 1989.

Memorandum: Regional Review and Approval of State Nonpoint Source Management Program, From Rebecca Hanmer, Acting Assistant Administrator Office of Water, October 17, 1988.

Memorandum: Approval of Section 319 State Assessment Reports and Management Programs, From Martha G. Prothro, Director, OWRS, June 20, 1989.

Memorandum: Use of 205(j)(5) Funds to Implement NPS Management Programs, From Martha G. Prothro, Director, OWRS, February 17, 1989.

Transmittal Note Conveying a Copy of the OWRS Paper on CWA Funding Sources for the Implementation of State Nonpoint Source Management Programs, From Jim Meek, Chief, NPS Branch, January 25, 1989.

Memorandum: Guidance on Nonpoint Source Grants Management Issues, From Martha G. Prothro, Director, OPWRS, July 12, 1988.

Memorandum: Additional Guidance Regarding NPS Grants Under Section 319, From Carl F. Myers, Chief, NPS Branch, September 8, 1988.

Memorandum: Section 205(j)(5) Funding for NPS Development and Implementation, From Martha G. Prothro, Director, OWRS, 1988 (NPS:FY-88-56)

Memorandum: Use of Nonpoint Funds for Development and Implementation, From Martha G. Prothro, Director, OWRS, September 25, 1989.

Memorandum: Using FY87 201 (g)(1)(B) finds for NPS-Region VIII, From Carl F. Myers, Chief, NPS Branch, September 9, 1988.

Water Quality Standards Handbook, EPA, Washington, DC, December 1983.

Creating Successful Nonpoint Source Programs: The Innovative Touch, EPA, Washington, DC, August, 1988.

Section 305(b) Waterbody System User's Guide, Second Edition, EPA, Washington, DC, September 1988.

Setting Priorities: The Key to Nonpoint Source Control, EPA, Washington, DC, July 1987.

Water Quality Planning and Management, 40 CFR Part 130, January 11, 1985.

Water Quality Standards and Regulations, 40 CFR Part 131, November 8, 1983.

#### **TRAINING: WORKSHOPS AND CONFERENCES**

- Annual multi-Region workshops on NPS (e.g., Lake Management Workshops)
- AWPD has held the following conferences:
  - "Making NPS Pollution Control Programs Work" (St. Louis, MO) April 23-26, 1989
  - National Symposium on Lake and Reservoir Management (St. Louis, MO - Nov. 15-19, 1989, and Austin, TX - Nov. 7-11, 1989)
  - National Conference on Wetlands and Lake Management (sponsored jointly with OWP), May 3-5, 1989
  - National Conference on Low Input Agriculture (Omaha, NE), planned for later in 1990
  - National Conference on Stormwater and Lake Management (sponsored jointly with OWEP)

#### **AGENCY CONTACTS**

##### **Nonpoint Source Control Branch**

Steve Dressing: Water Quality Monitoring; Report to Congress  
382-7110

Lynne Kolze: Information and Education  
382-7104

Ed Richards: Grants  
475-7314

Stu Tuller: General Permits; Stormwater  
382-7108



Ann Beier: Stormwater; Reports to Congress

382-7107

Hal Wise: Nonpoint Source Control

382-7109



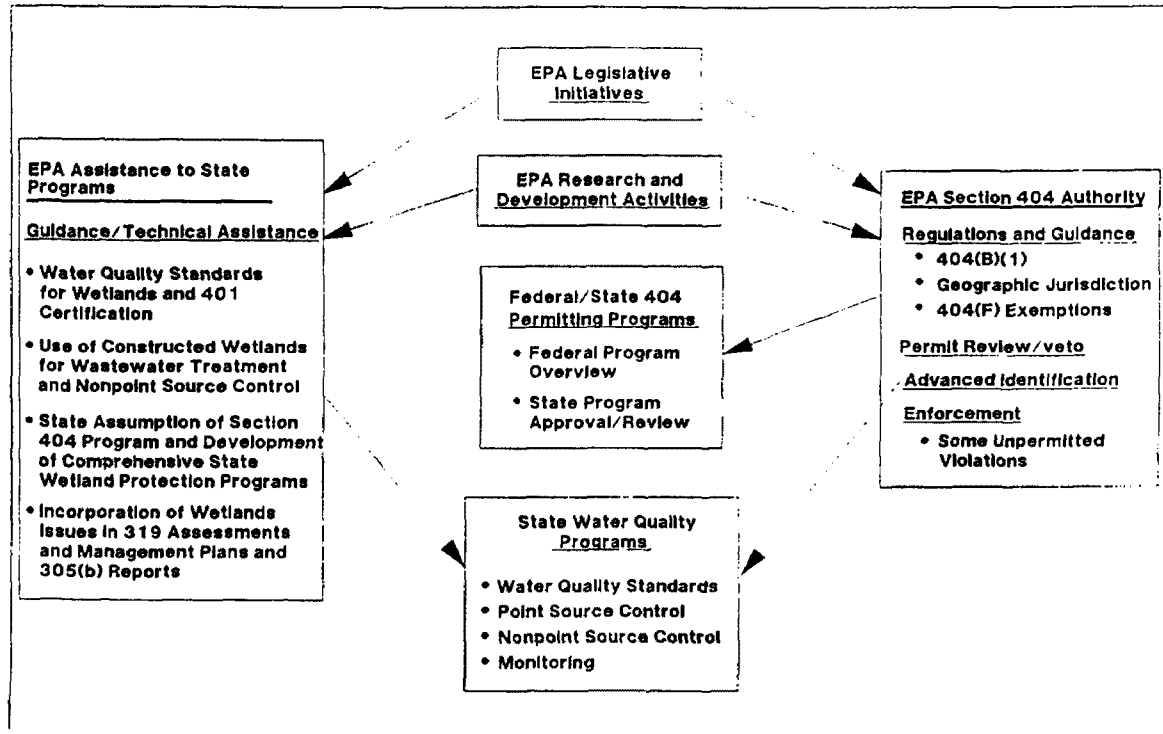
## 8. EPA's LIVING RESOURCES PROTECTION ACTIVITIES

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Many of the program areas within EPA's Office of Water are concerned with the impacts of pollution on living resources. Water quality, sediment, and biological criteria and standards are designed, in part, to protect aquatic organisms from the adverse impacts of contaminant discharges. Permitting decisions are based, in part, on a determination of whether or not a discharge will violate aquatic life criteria and standards. Ecological assessments are conducted, in part, to estimate the potential impacts to aquatic life resulting from industrial and municipal dischargers and non-point sources of pollution, and to estimate the potential benefit to aquatic life resulting from additional controls on discharges and better management practices.

However, of all the Headquarters' Office of Water programs, only the Office of Wetlands Protection is mandated to solely address the issues related to living resources, specifically wetlands. Many of the living resource-related activities of the other program areas have been discussed in the previous chapters of this manual. Therefore, this chapter focuses primarily on the NCW-related activities of the Office of Wetlands Protection.

The Environmental Protection Agency, in cooperation with state and local governments and other Federal agencies, is responsible for restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. These agencies are also responsible for protecting the nation's wetland resources which are an integral part of those waters. The major Federal regulatory tool for protecting wetlands is Section 404 of the Clean Water Act, which establishes a permitting program to regulate the discharge of dredged or fill material into the waters of the United States, including most wetlands. However, many activities that adversely affect wetlands are not adequately regulated under Section 404. Therefore, EPA's Office of Wetland Protection is supplementing its regulatory activities under Section 404 with important efforts in other areas, such as working with state and local governments to encourage the implementation of other wetland protection methods, enhancing public awareness of wetland values, and conducting wetland research in key scientific areas where current knowledge is lacking. In addition, EPA is exploring and working with other laws, regulations, and other nonregulatory approaches to enhance their implementation to protect wetlands, as well as investigating innovative ways to make the traditional Section 404 program more efficient, predictable, consistently applied across the country, and environmentally effective. Figure 10 presents an overview of EPA's current wetland-related activities.



**Figure 10. EPA Wetland Initiatives**

EPA's wetland protection activities are carried out primarily by two divisions of the Headquarters' Office of Wetland Protection (OWP) and the wetlands staff in the ten Regional Offices. OWP's Regulatory Activities Division manages all Section 404 activities except state program assumption. The Wetlands Strategies and State Programs Division of OWP manages state and local program development activities and all other non-regulatory functions. Field activities are carried out by wetlands staff in the ten Regional Offices. Each Region has a designated "Wetlands Coordinator" who serves as the general point of contact for wetland issues in the Region.

Other offices in EPA also play a key role in the Agency's wetlands protection activities, including the Office of Marine and Estuarine Protection (OMEP) (also in the Office of Water), and the Office of Environmental Processes and Effects Research (OEPER) under the Office of Research and Development (ORD). OMEP cooperates with OWP in its wetland protection activities by, among other things, identifying opportunities to test innovative and cooperative techniques for protecting critical aquatic habitats and working with state and local governments to build a commitment to identify and protect wetland areas. OEPER administers EPA's Wetland Research Program, while the actual wetland field work is managed by the Corvallis Environmental Research Laboratory in Oregon.

## CURRENT ACTIVITIES RELEVANT TO NEAR COASTAL WATERS

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### Section 404 Program

EPA's regulatory authority under Section 404 of the Clean Water Act is the cornerstone of the Agency's efforts in wetlands protection. The Section 404 program is jointly administered by EPA and the Army Corps of Engineers (Corps). EPA has two major functions under Section 404. The first is to develop guidelines, in cooperation with the Corps, that serve as the environmental standards that the Corps must apply when evaluating a permit application for a discharge of dredged or fill material into the waters of the United States, including wetlands. These guidelines were first issued in September 1975 and were revised in December 1980. All future programmatic guidance, interpretations, and regulations will be developed by EPA with input from the Corps. Secondly, EPA is authorized to prohibit (veto) or restrict a Corps permit for a discharge of dredged or fill material in a wetland if it determines that the proposed discharge will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishing areas, wildlife, or recreational areas. EPA is also authorized to identify areas suitable and/or unsuitable for discharge in advance of any permit application (advanced identification). Other EPA responsibilities under Section 404 include determining what areas are wetlands subject to protection under CWA (jurisdictional authority), defining activities that may be exempt from permitting (404(f) exemptions), and approving and overseeing assumption by the states of responsibility for the Section 404 program.

### Section 404 Enforcement

EPA also has enforcement authority for violations of wetland protection requirements by some persons who discharge fill material into wetlands without the necessary permit. EPA has enforcement responsibilities when an unpermitted discharge involves repeat violators or flagrant violations, where EPA requests a class of cases or a particular case, or when the Corps recommends that EPA administrative penalty or action may be warranted.

### NON-SECTION 404 ACTIVITIES

EPA has recently undertaken new initiatives to provide protection of wetlands through programs outside the purview of its Section 404 responsibilities. Through these initiatives, EPA is encouraging the states to incorporate wetland protection measures into existing water programs such as the NPDES permitting program (water quality standards and 401 certification), nonpoint source program, advanced identification, and 305(b) water quality status reports.

### 401 Certification and Water Quality Standards for Wetlands

EPA is encouraging states to develop a program that fully includes wetlands in their water quality certification process. OWP, with the

support of ORD and OWRS, is supporting several activities to assist states in the establishment of such a program for wetlands.

Existing numeric water quality criteria which focus primarily on chemical contamination, are inadequate to address certain impacts to wetlands, such as biological and hydrological impacts. Therefore, EPA's Office of Research and Development has developed a plan for the development of criteria for wetlands over the next several years. Development of such criteria will be a long-term effort, and therefore EPA has encouraged states to make use of the other components of water quality standards (use classification, antidegradation, and narrative criteria) as a means of providing wetland protection.

A recent survey of state water quality standards revealed that nearly half of the states did not mention wetlands in their definition of "waters of the United States," and even fewer have developed a use classification system for wetlands or designated wetlands for protection under their antidegradation policy. EPA is encouraging states to include wetlands in their definition of waters of the United States and is providing direct assistance and guidance to the states in the application of water quality standards and, specifically, use classification, narrative criteria, and antidegradation policies for wetland protection. As part of this process, the states are also encouraged to initiate or improve upon existing inventories of wetland resources.

Strong water quality standards for wetlands can provide the states with the basis for the review of Federal permits and licenses under their CWA Section 401 certification authority. The potential for use of the 401 certification process for wetland protection and guidance to the states in its use has been described in the EPA handbook, "Wetlands and 401 Certification, Opportunities and Guidelines for States and Eligible Indian Tribes." In this handbook, EPA identified key steps for states to make 401 certification an effective tool for wetlands protection. EPA recommends that the states incorporate 401 certification for wetlands into their water quality management planning process and integrate wetland resource information with different water management programs affecting wetlands (including coastal zone management, nonpoint source and wastewater programs).

OWRS and OWP are developing guidelines providing a framework for states to incorporate wetlands into their water quality standards. These guidelines will require states to include wetlands as "waters of the United States," provide methods to designate wetland uses that recognize differences in wetland types and function, address some chemical-specific and narrative biological criteria for wetlands, and discuss implementation of state antidegradation policies.

#### **Wetlands Use in Water Quality Control**

EPA has issued guidance on the use of wetlands for municipal wastewater treatment and disposal. Numerous studies have indicated that wetlands are able to provide a high level of wastewater treatment, and in some areas of the country this has prompted support for wetland preservation and creation. However, some concern has also been raised concerning the harmful effects on wetlands of discharges of toxic

materials and pathogens. Not all wetlands have a high capacity for improving water quality and are clearly not appropriate for use in wastewater treatment. Discharges in these wetlands could potentially alter the natural chemical and biological properties of the wetland resulting in the loss of some of the other valuable functions performed by wetlands, such as their wildlife values and importance as nursery areas for many commercially and recreationally important fisheries. Even a wetland well suited for use in wastewater treatment has a limited capacity to assimilate large volumes and certain types of discharges.

The EPA guidance document describes the requirements for use of wetlands, both natural and created, for the treatment of municipal wastewater. The intent of the guidance is to encourage the expansion of wetland resources through the creation of engineered wetlands while allowing the use of natural wetlands for wastewater treatment only under limited conditions.

Wetlands can serve an important function in water quality control for nonpoint source pollution as well as for point sources. However, the same concerns regarding the impact of point source impacts on wetlands is true for nonpoint sources. Most states failed to address wetlands in their 319 assessment reports and management plans for nonpoint source control measures. EPA is, however, encouraging the states to incorporate wetland issues in their assessment and planning process. As a first step toward this goal, OWP is providing the Regions and states with a list of total acreage of their wetlands to serve as a basis for the states to address wetlands in their 319 assessment and planning process, both in terms of potential impacts resulting from nonpoint source pollution and for incorporation in best management practices for controlling nonpoint sources. OWP is also interested in providing technical guidance to the Regions and states for identifying those areas where protection of wetlands can maintain and improve the quality and quantity of groundwater.

While there is a need to continue monitoring and conducting research to ensure that wetlands are not adversely affected when they are used to buffer sources of pollution, it appears that the use of existing and artificially created wetlands can be a cost-effective means of nonpoint source control.

#### Nonliquid Waste/Sludge Disposal in Wetlands

Historically, wetlands have been used as dumping sites for hazardous materials and sewage sludge. These activities have had serious impacts on the wetlands in which they have occurred and also have the potential for causing impairment of water quality through leachate and storm water runoff.

EPA is currently considering new initiatives to address the issue of waste disposal in wetland areas. OWP is conducting a pilot project to identify Superfund sites that are impacting wetlands. OWP will be working with the Superfund program to develop a "Superfund Environmental Evaluation Manual" as a technical guide for evaluating ecological damage at Superfund sites.

## **Advance Identification**

The concept of advanced identification (ADID) was developed as a mechanism for EPA to identify, in advance of a permit request, those wetland areas that are generally suitable or unsuitable for disposal site specification as well as possible future disposal sites under Section 404. ADID is addressed in Section 230.80 of the 404(b)(1) guidelines. ADID is a cooperative program that is conducted jointly by EPA and the U.S. Army Corps of Engineers in consultation with the affected State. Other Federal, State, local, tribal, and private agencies and organizations are encouraged to participate in the ADID processes. EPA is now encouraging states to use advanced identification in other planning areas to assist in identification of wetland areas that serve important water quality improvement functions (e.g., nonpoint source control, groundwater recharge), as well as those of particular ecological significance that could be identified as outstanding resource waters requiring the maintenance of water quality according to EPA's regulation on anti-degradation (no degradation for any purpose allowed except for short-term changes which have no long-term consequences). The results of advanced identification could also be used by other government agencies and private organizations as part of their wetland protection activities. For example, wetlands of high value identified as unsuitable for disposal of dredged and fill material can be further protected by State and local authorities by the development of wetland protection statutes and zoning. Private organizations can purchase properties or easements to protect the most valuable wetland sites.

EPA encourages the Regional Offices to work with other Office of Water programs to incorporate advanced identification into their estuary protection planning and state nonpoint source pollution management plans. An advanced identification guidance document has been prepared by OWP and will be available in FY 1990.

## **305(b) Status Reports**

Most states historically have not reported on wetlands as part of their 305(b) water quality status reports. However, EPA is currently attempting to persuade the states to include wetlands in their 1990 reports. To assist the states in this effort, EPA has included a section in the 305(b) guidelines on reporting wetland status. The Agency is asking the states to provide information on wetland acreage, trends in wetland loss, and wetland management programs.

## **NEW INITIATIVES AND IMPLICATIONS FOR NEAR COASTAL WATERS**

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In January 1989, OWP issued its "Wetlands Action Plan" outlining some major objectives and steps that EPA has underway or plans to initiate to strengthen its wetlands protection program. This action plan was developed in response to a report produced by the National Wetlands Policy Forum. The forum was convened by the Conservation Foundation at the request of EPA's Administrator, and was charged with recommending specific actions that should be taken by all levels of government and the private sector to protect the nation's wetlands.



Most of the new initiatives presented below were identified in the Wetlands Action Plan.

## LEGISLATIVE INITIATIVES

EPA will examine the following legislative areas and will work with other agencies and Congress to see that needed changes are made:

- Recommendations to improve the water quality and wetlands protection benefits of farm programs (particularly Swampbuster and Conservation Reserve programs) in the reauthorization of the Farm Bill in 1990.
- Important legislative issues associated with the Clean Water Act including: expanding the activities covered by the permit program; providing adequate incentives for the states to assume the entire permit program; and providing a statutory framework for the planning requirements suggested by the National Wetlands Policy Forum.
- Expansion of the areas set aside under the Coastal Barrier Resources Act (CBRA) to include wetlands and other critical aquatic habitats, and other undeveloped coastal areas.
- As part of the Resource Conservation and Recovery Act (RCRA) reauthorization process, amendments to improve our ability to protect wetlands and other waters of the United States from ecological damages due to discharge of solid waste. EPA will also explore amendments to the Superfund Amendments and Reauthorization Act of 1986 to allow access to the Superfund for the purpose of restoring ecological damages to wetlands at Superfund sites.
- Recommendations to improve EPA's ability to monitor and control marine debris.

## PLANNING INITIATIVES

OWP and the Regional wetland offices are increasing their current wetland resource planning efforts by providing technical support to the states and by participating in the actual application of planning approaches to protect wetlands. These efforts include the following:

- Increase the use of EPA Advance Identification; encourage and, where possible, participate in other wetlands planning actions across the country.
- Provide seed money to test innovative planning approaches for wetlands. The Administration has requested grant money for states in FY 1990 for state pilots.
- Issue Advance Identification (ADID) guidance for EPA regions and an ADID information "kit" for state and local governments.
- Conduct case studies evaluating wetlands planning efforts.
- Host workshops and training sessions in planning and negotiation, and in river corridor management.

## **INITIATIVES TO INCREASE STATE/LOCAL ROLE IN WETLANDS PROTECTION**

- Use Section 404(c) in advance of individual permit applications to protect significant aquatic resources which are identified through the planning processes.
- Develop criteria for the design and approval of State Wetlands Conservation Plans. Provide models for incorporating wetlands into geographic specific state and local plans which implement the goals of State Wetlands Conservation Plans.

- EPA is working with states to improve application of Section 401 water quality certification to protect wetlands. EPA will help states assess the impacts of certifying reissued or new general permits.
- The Administration has requested grant money for states in FY 1990 for program development (including studies to prepare for assumption of Section 404) and program operation for Sections 404 and 401, and other state wetlands protection programs. EPA will develop regulations and guidance for distributing these grants.
- OWP, along with the ORD and OWRS, will assess how well current water quality criteria protect wetlands. EPA will develop short term guidance for the states on developing wetland-specific water quality standards. ORD is developing a long range plan to develop water quality criteria appropriate for wetlands.
- EPA will host regional workshops of EPA/state/local officials, and increase assistance and information to help state and local governments protect their wetlands.
- EPA has developed regulations to treat tribes as states under the Section 404 program.
- OMEP will develop an appendix to their National Estuary Program Primer on protection of ecologically sensitive areas which will focus on wetlands.
- OWP will continue to work with other water programs and the Office of Solid Waste to help ensure that wetlands are properly protected in relevant regulatory and nonregulatory programs.

## **Initiatives to Improve the Section 404 Program**

- OWP has completed a Memorandum of Agreement with the Army Corps of Engineers to clarify enforcement roles and implementation of the new administrative penalty authority.
- OWP will conduct enforcement training for our regional field staffs.
- EPA will aggressively enforce against violations of Section 404 by increasing the number of administrative enforcement actions, and civil and criminal judicial referrals.
- EPA will encourage voluntary compliance with the Section 404 program through its public outreach and education efforts.

- EPA will work with the Corps to reduce gaps in the Section 404 regulatory program by:
  - Developing a joint definition of fill material;
  - Addressing the regulation of pilings and placement of other structures that have the effect of fill;
  - Clarifying the appropriate application of the Section 404 permit program to discharges involving the removal or excavation of soil or the destruction of vegetation.
- OWP will develop and conduct regulatory course for EPA regional staff.
- OWP will develop regulatory guidance on key provisions of the Section 404(b)(1) Guidelines and other EPA Section 404 statutory responsibilities including:
  - Streamline Section 404(c) procedures to restrict or prohibit the use of sites for the discharge of dredged or fill material.
  - Develop guidance on the application of Section 404(f) exemptions.
- OWP will, in conjunction with the Corps, develop guidance under the Section 404(b)(1) Guidelines for determining the availability of alternatives to a proposed project.
- OWP, the Corps, Fish & Wildlife Service, and Soil Conservation Service recently agreed to a single method for identifying wetlands and determining wetland boundaries. The agencies will issue the joint manual for the method.
- These four agencies will develop a training program on the application of the joint wetlands identification and delineation methodology.
- The interagency group will also work with the Society of Wetland Scientists to develop a certification program for application of the methodology.

## MITIGATION INITIATIVES

- EPA and the Department of the Army signed a Memorandum of Agreement (MOA) concerning the determination of mitigation under the CWA Section 404(b)(1) guidelines in November, 1989. This MOA is limited to the Section 404 Regulatory Program and focuses on mitigation requirements for standard dredge or fill permits. The MOA incorporates the decision sequencing of avoiding the impact first, then designing ways to minimize the impact, and finally compensating for unavoidable impacts. The policy recognizes that there are certain circumstances where the impacts of the project are so significant that even if alternatives are not available, the discharge may not be permitted regardless of the compensatory mitigation proposed.
- In order to ensure a nationally consistent strategy for disposal of dredged material, OMEP and OWP are developing a Dredged Material Disposal Strategy Document. The document will present the various alternatives and factors to be considered for each alternative. It will also present a framework

or matrix for reaching a disposal decision for upland and aquatic (fresh and marine) sites.

- OWP will work with the Office of Federal Activities to identify potential approaches to pursue sound mitigation practices through EPA's Section 309 Clean Air Act authority to review Environmental Impact Statements (EIS). EPA's EIS reviews will specifically consider potential wetland impacts and state the need to avoid, minimize, and finally compensate for unavoidable impacts in Section 309 review letters. The Office of Federal Activities is drafting regional guidance on how to track the progress of mitigation commitments made in Environmental Impact Statements.
- OWP will work with the Office of Policy, Planning, and Evaluation (OPPE) to both explore existing mitigation banking efforts and determine acceptable conditions for their implementation. OWP and OPPE will host a workshop on these issues next year.
- The Office of Research and Development is developing a "Mitigation Handbook" to provide guidelines to evaluate the likelihood that a proposed mitigation project will succeed; to formulate permit conditions or goals for the project; and to determine if a project met the goals. OWP will coordinate with ORD to provide training for EPA regional staff.

#### INFORMATION AND EDUCATION INITIATIVES

- Planned projects of OWP and the Regional offices include: slide shows; poster sessions; wetlands brochures; videos on wetlands mitigation and creation, general wetlands values and trends, and key wetland areas; citizen's guide to 404 program; publishing cases of wetlands planning efforts.
- EPA will begin preparations to sponsor a public awareness effort, "Year of the Wetlands" for 1991 in coordination with other federal, state, and local agencies and private organizations.

#### INITIATIVES TO ASSESS CUMULATIVE AND LONG-TERM IMPACTS

- OWP has drafted Section 404 guidance for enhancing the protection of bottomland hardwoods which have been severely depleted through cumulative losses. OWP is addressing comments from the Corps and plans to issue final guidance in 1989.
- OWP has completed a pilot test of the cumulative impact assessment procedure for bottomland hardwood wetlands in the Tensas River Basin in Louisiana. OWP, ORD and Regions IV and VI have initiated an Advanced Identification effort in the Pearl River Basin of Mississippi and Louisiana which will apply this assessment method.
- ORD is developing a general assessment method to anticipate the cumulative ecological effects of wetland loss on landscape functions and to consider these impacts in the permit process.

A draft method is currently being tested and the final methodology is scheduled to be completed by 1991.

- Planning by ORD is currently underway to develop indicators to monitor the environmental health of wetland ecosystems and establish a program in coordination with the U.S. Fish and Wildlife Service to track changes over time. These efforts will focus on the development of biological criteria for wetlands.

## WETLAND RESTORATION INITIATIVES

- OWP is conducting a pilot project to identify Superfund sites which are located in, or impact, wetlands. OWP will work with the Superfund program to develop their "Superfund Environmental Evaluation Manual" as technical guidance to evaluate ecological damage at Superfund sites.
- Through its participation in Advance Identification and other advance planning processes, EPA will encourage and assist in identifying potential sites for restoring wetlands. EPA will consider the cumulative impacts of wetland losses within that watershed when making these recommendations.
- EPA will support demonstration projects creating wetlands for wastewater treatment which could help offset past losses due to the municipal wastewater construction program. EPA will also evaluate the creation and restoration of wetlands as a strategy for managing stormwater runoff in a manner which provides other wetland functions as well. ORD has requested funding to evaluate the effectiveness of wetlands constructed for wastewater treatment in 1990.
- EPA will continue to provide technical support to the Des Plaines River Wetlands Restoration project to restore wetlands along a stretch of the river. The sites will be used as an outdoor laboratory to test the potential and limitations of wetlands to moderate nonpoint and point source pollution.
- ORD will conduct its third pilot study comparing created or restored wetlands with naturally occurring wetlands. Techniques for evaluating specific wetland components will be incorporated into a wetlands characterization manual.

## TECHNOLOGY TRANSFER

The following information is presented to identify guidance documents, training opportunities, and agency contacts that can be utilized by state wetland managers in implementing wetland protection measures and developing a wetland protection/management program.

## GUIDANCE/POLICY DOCUMENTS

Wetlands and Water Quality: EPA's Research and Monitoring Implementation Plan for the Years 1989-1993 (EPA/ORD)

**Protecting America's Wetlands: An Action Agenda, the Final Report of the National Wetlands Policy Forum (The Conservation Foundation)**

**Wetland Evaluation Technique (U.S. Army Corps of Engineer and U.S. Department of Transportation)**

**Wetlands: The Corps of Engineers' Administration of the Section 404 Program (United States General Accounting Office)**

**Advance Identification: Guidance to EPA Regional Offices on the Use of Advanced Identification Authorities Under Section 404 of the Clean Water Act (EPA/OW - in preparation)**

**Wetlands and 401 Certification: Opportunities and Guidelines for States and Eligible Indian Tribes (EPA/OWP)**

**Coastal Wetland Management: Strengthening EPA's Role (EPA/OW)**

**Report on the Use of Wetlands for Municipal Wastewater Treatment and Disposal (EPA/OMPC)**

**OW Guidance to Supplement the October 1987 Burdick "Report on the Use of Wetlands for Municipal Wastewater Treatment and Disposal" (EPA/OW)**

**Wetlands Action Plan: EPA's Short-term Agenda in Response to Recommendations of the National Wetlands Policy Forum (EPA/OWP)**

**Wetlands Protection. EPA Bibliographic Series (EPA/Information Management and Services Division)**

**Highlights of Section 404: Federal Regulatory Program to Protect Waters of the U.S. (EPA/OWP)**

**Guidelines for the Preparation of the 1990 State Water Quality Assessment (305(b) Report)**

## **TRAINING**

- . Training for Regions and States on environmental planning/negotiation for protecting wetland resources
- . Wetlands workshops for Federal land managers
- . Training for state and local technical staff on wetland delineation
- . Training on the Regulatory Program - Section 404 and Enforcements

## **AGENCY CONTACTS**

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## 9. NCW INTEGRATED TRAINING WORKSHOPS HYPOTHETICAL CASE STUDY

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### BACKGROUND

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One purpose of the NCW Integrated Training Workshops is to introduce Headquarters and Regional staff to the broad range of programs and tools that are available to manage NCWs and to promote using these tools in a more integrated way. A case study on an estuary is being prepared to help workshop participants consider how to apply the programs and tools.

### CASE STUDY

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As currently planned, a hypothetical case study will be developed using information available from the Delaware River Estuary and other Region III near coastal waters. Additional information and problems will be added as needed to provide an exercise that encompasses many of the programs and tools.

The case study will include brief descriptions of the waterbody and its environmental conditions. Information on land use and discharges to the waterbody will also be included. Maps will be included that identify as much of the descriptive information as possible.

### Using the Case Study

Workgroups would convene on the second day of the workshop to discuss problem solving for the hypothetical case study. Each group will include a cross-section of program perspectives (e.g., a person from permits, from criteria and standards, from nonpoint sources, etc.) led by a workgroup leader. A discussion guide will help direct the discussion on the hypothetical case study. This will consist of a list of questions which will be developed with the Region before the workshop to ensure that the issues of most importance to the region are discussed. There will be three sessions of the workgroups;

- problem assessment
- stool identification, and
- strategy development.

The workgroups will reconvene after each session to share results midway through the process. The groups will then be asked to provide a report to the larger group on the result of their work.

## **APPENDIX: LIST OF CASE EXAMPLES TO BE PROVIDED WITH THE HYPOTHETICAL CASE STUDY**

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To complement the information provided during the workshop, brief descriptions of near coastal water management programs conducted around the country will be provided with the case study. Topics for which descriptions are being prepared are listed below.

- Puget Sound Contaminated Sediments
- Nonpoint Source Best Management Practices in Chesapeake Bay
- Living Resource Criteria for Chesapeake Bay
- Wetlands in Puget Sound, San Francisco Bay, and Chesapeake Bay
- Great Lakes Remediation Plan
- Narragansett Bay Pretreatment
- 304(l) and 319 list development
- Puget Sound Urban Bay Action Teams

