

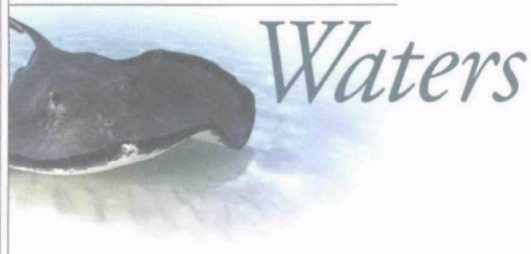


Celebrating 30 Years of Protecting Our Oceans



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Our coastal and ocean waters are critical to the well-being of our quality of life—from ecological, economic, recreation, and esthetic perspectives. Coastal and ocean waters include some of the most biologically diverse and productive habitats on the planet. Marine waters of the United States include over 6,000 square miles of coral reefs, ecosystems that are second in species diversity



only to rainforests. The coastal and near-shore marine areas of the United States provide habitat for almost half of all protected, threatened, and endangered species. At least half of all non-game migratory

birds and almost a third of all migratory waterfowl spend part of their annual cycle in coastal areas. The coastal areas of the United States can also assist in flood control, provide filtration of river-borne pollutants, decrease shoreline erosion, and serve as the first barrier for extraordinary storm events, such as hurricanes.

Our oceans and coasts are also among the most economically productive areas. The coastal recreation and tourism industry is the largest employer in the United States, and the second largest contributor to the gross domestic product. Over 180 million people visit America's coasts for an average of 10 days each year, generating almost \$600 billion in revenue from their trips. In addition, one of every six jobs in the United States is marine related. Two-thirds of all commercial and recreational fishing catch comes from U.S. coastal waters. The commercial fish and

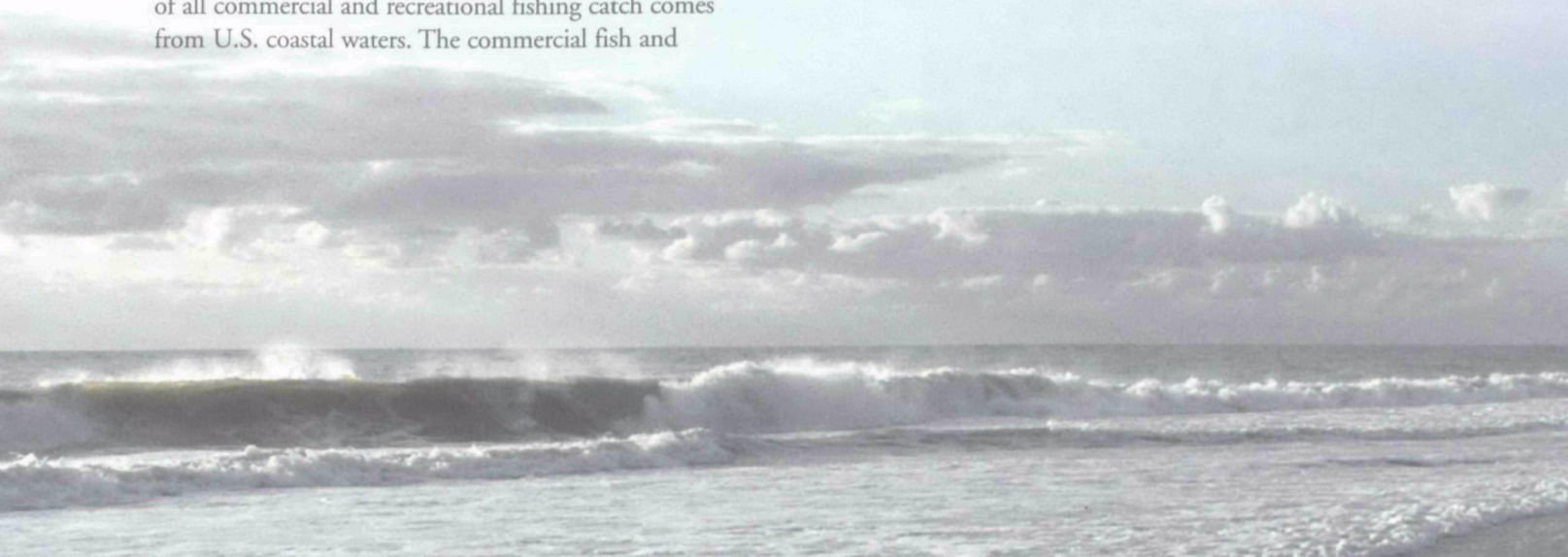


NOAA PHOTO

shellfish industry contributes \$45 billion to the U.S. economy annually; the recreational fishing industry adds another \$30 billion to the economy.

A number of current pharmaceutical products are derived from marine sources, such as algae and other marine plants, snails, sea cucumbers, and corals. A product derived from marine algae and mosses is used to make a vast number of food items, ranging from chocolate milk, to peanut butter, to ice cream and cake batters.

Even though we depend on our oceans and coasts for so many things, some of our coastal areas contain the nation's most degraded watersheds. The "National Coastal Condition Report," released in 2002, found the national overall condition of coastal areas to be only fair to poor. There are fish advisories for nearly three-quarters of the overall coastline of the lower 48 States. The vast majority of the most impaired waters are along the coastline. There is a very large area in the Gulf of Mexico where oxygen levels will not support life. Further, studies have shown that eutrophication (where the flow of increased nutrients to coastal waters can result in adverse effects, such as algal blooms and reduced oxygen levels) is likely to worsen in the majority of the nation's estuarine areas (where freshwater from rivers and streams flows into the ocean) in the foreseeable future.



30 Years of



Progress

In the past, little attention was given to the environmental effects of waste disposal, and even less to reuse, recycling, or other beneficial uses of such materials. The emphasis was on finding convenient disposal places for waste. Because of their immense size and assumed unlimited mixing capacity, coastal and ocean waters became a receptacle for many transportable wastes.

Evidence now demonstrates that the marine environment became increasingly polluted in a number of geographic areas, with high concentrations of heavy metals, inorganic nutrients, chlorinated petrochemicals, and bacteria. In other areas of the sea, the uncontrolled dumping of wastes caused oxygen levels to become severely depressed.

The passage of the Marine Protection, Research, and Sanctuaries Act (MPRSA) in 1972 marked a major milestone in the protection of the marine environment. The 1972 MPRSA banned ocean disposal of radiological, chemical, and biological warfare agents, high-level radioactive waste, and medical waste, and required a permit for the ocean dumping of any other materials. In 1983, the law was amended to make any ocean dumping of low-level radioactive waste require specific approval by Congress. The ocean dumping of sewage sludge and of industrial wastes, such as wastes from plastics and pharmaceutical manufacturing plants and from petrochemical refineries, was prohibited by Congressional amendment in 1988. Today, the vast majority of the material ocean dumped from the United States is dredged material (sediments removed from the bottom of waterbodies to maintain the nation's navigation system). Other, limited disposal consists primarily of fish wastes, vessels, and human remains.

Under the MPRSA, EPA establishes criteria for reviewing and evaluating ocean dumping permit applications that consider the effect of, and need for, the dumping. EPA also establishes criteria for designating sites for ocean disposal of any material. Designated sites must have management and monitoring plans.

The U.S. Army Corps of Engineers issues permits for the disposal of dredged material, subject to EPA concurrence. EPA is the permitting authority for all other materials proposed for ocean dumping. A permit may only be issued where it is determined that the dumping would not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities, and that there is a need for the ocean dumping. Furthermore, notice and opportunity for public comment is required before a permit can be issued.



EPA's Ocean Survey Vessel Peter W. Anderson.

Today, the United States is at the forefront of protecting coastal and ocean waters from adverse impacts due to ocean dumping. The ocean is no longer considered an appropriate disposal location for most wastes. Those few materials that are ocean dumped are carefully evaluated to ensure that they will not pose a danger to human health or the environment and that there are no better alternatives for their reuse or disposal. While many challenges remain to protecting and managing our coastal and ocean resources, including historic contamination and continuing degradation from land-based sources, we can be proud of the great strides we've made under the MPRSA.



Ocean Dumping Before the

MPRSA



While no complete records exist of volumes and types of materials ocean dumped in the United States prior to the 1972 passage of the MPRSA, various reports give some indication of the magnitude of ocean dumping and its effects. For example, a 1970 Report to the President from the Council on Environmental Quality identified the ocean disposal, in 1968, of 38 million tons of dredged material (which, according to the report, was 34 percent polluted), 4.5 million tons of industrial wastes, 4.5 million tons of sewage sludge (which was significantly contaminated with heavy metals), and 0.5 million tons of construction and demolition debris.



Dumping of sewage sludge.

In the sewage sludge dump site in the New York Bight (the area in the Atlantic Ocean southwest of New York City where sludge and other materials from the city were ocean dumped), the oxygen concentration (determined as percent saturation) in near bottom waters declined from 61 percent in 1949 to 29 percent, measured at the limits of the dump area, and 10 percent, measured in the center of the site, in 1969. These decreases indicated that dumping could result in rapid and substantial degradation of marine water quality and ecosystems.

In 1968, the National Academy of Sciences estimated the annual release to the marine environment, from both dumping and disposal (through a pipe), of 100 million tons of petroleum products, two to four million tons of acid chemical wastes from pulp mills, more than one million tons of heavy metals in industrial wastes, and more than 100,000 tons of organic chemical wastes.



Garbage barge.

EPA records indicate that between 1946 and 1970, more than 55,000 containers of radioactive wastes were ocean dumped at three ocean dump sites in the Pacific Ocean. In addition, almost 34,000 containers of radioactive wastes were ocean dumped at three dump sites off the East Coast of the United States from 1951 to 1962. No permits for low-level radioactive waste have been issued since the passage of the MPRSA in 1972.

The dumping of sewage sludge, industrial wastes, and high-level radioactive wastes is now prohibited by the MPRSA. Other ocean dumping, such as wood burning and the dumping of low-level radioactive wastes and construction and demolition debris, has stopped as a matter of environmentally sound practice.

What's Allowed



Most of the material that is dumped in U.S. oceans today is dredged material (sediments) removed from the bottom of waterbodies to maintain the nation's navigation system for commercial, transportation, national defense, and recreational purposes. Several hundred million cubic yards of sediment are dredged from waterways, ports, and harbors each year for this purpose, and approximately 20 percent of this material is disposed of in the ocean. The remainder of the sediments are disposed of in inland waters, upland areas, or confined disposal areas adjacent to shorelines, or used beneficially. Regulation of dredged material disposal in ocean waters is a shared responsibility of EPA and the U.S. Army Corps of Engineers. The decision to issue a permit (or authorize ocean dumping by the Corps) is made by the Corps using EPA's environmental criteria, and is subject to EPA's concurrence. Dumping that occurs in, or affects, State waters may also be subject to review for consistency with State requirements, such as State water quality standards and enforceable State requirements under the Coastal Zone Management Act.

Other materials that are currently ocean disposed include fish wastes, human remains, and vessels. For these and any other allowable materials (other than dredged material), EPA is responsible for issuing a permit. Some materials, such as high-level radioactive wastes, medical wastes, and radiological, chemical, and biological warfare agents, may not be permitted for ocean dumping under any circumstances.

EPA establishes the environmental criteria for evaluating ocean dumping applications, and designates recommended ocean dumping sites. The ocean dumping criteria consider the environmental impact of the dumping, the need for the dumping, the effect of the dumping on esthetic, recreational, or economic values, and the adverse effects of the dumping on other uses of the ocean.



Dumping from split-hull barge.

Evaluation of Dredged Material

Dredged materials, as well as other materials proposed for ocean disposal, must undergo a series of tests and evaluations to determine whether they meet EPA's environmental criteria for ocean dumping. These criteria consider the environmental impact of the dumping, the need for the dumping, the effect of the dumping on esthetic, recreational, or economic values, and the adverse effects of the dumping on other uses of the ocean. No permit is issued unless there is enough information to make a scientifically sound determination that the ocean dumping will not cause significant harmful effects.

Evaluation and testing of dredged material proposed for ocean dumping is conducted to help protect human health and the marine environment. The sediments dredged from our waterways can be contaminated by chemical and other pollutants. If biologically available, such contaminants can be ingested or absorbed by marine organisms, resulting in toxicity (e.g., death) or accumulation in the organism's tissues (bioaccumulation). The evaluation procedures used are designed to protect against toxicity and bioaccumulation that may adversely impact the marine environment or human health, and to produce information about the potential for these effects, efficiently and reliably.



Clamshell dredge.

The testing procedures used to evaluate ocean dumping must be approved by EPA and the Corps. EPA and the Corps jointly published a testing manual in 1991 that provides guidance for evaluating the environmental acceptability of dredged material proposed to be ocean dumped. EPA Regional and Corps District offices work together to develop Regional implementation manuals that provide site-specific refinements to the national guidance, such as identifying contaminants of concern for particular harbors, and recommending specific species of organisms to be used in testing of dredged material.

Beyond the



MPRSA

Ocean waters are susceptible to the impacts of pollution not only from ocean dumping, but also from point source pollution (discharges from pipes), nonpoint source pollution (from rainfall, snowmelt, or irrigation running over land or through the ground, picking up pollutants, and depositing them into rivers, lakes and coastal waters), air deposition (delivery of pollutants from the atmosphere to land or water), discharges and spills from vessels, loss of habitat (especially wetlands), introduction of invasive species, and mixing from adjoining surface and ground waters. A few of EPA's programs to address these sources are discussed below.

Point sources of pollution to coastal and ocean waters are addressed primarily through the National Pollutant Discharge Elimination System (NPDES) permit program, which evaluates permit applications based on technology- and water quality-based requirements. This system is enhanced by the Ocean Discharge Criteria, established by EPA under Section 403 of the Clean Water Act, which provide further requirements for point source discharges to ocean waters. These criteria are intended to ensure that no unreasonable degradation of the marine environment will occur as a result of a discharge and to ensure that sensitive ecological communities are protected. If the ocean discharge criteria are not met, a permit will not be issued for a discharge to ocean waters.

EPA and its Federal, State, Tribal, and local partners are also working hard to control nonpoint sources of pollution to coastal and ocean waters. Under Section 319 of the Clean Water Act, which applies nationwide, each State, Territory, and Tribe has developed and is now implementing an approved and upgraded nonpoint source management program. These programs include a combination of non-regulatory and regulatory tools, planning activities, technical and financial assistance, education, training, technology transfer, monitoring, and demonstration projects. Congress provides funding each year to assist the States, Territories, and Tribes in implementing their approved programs. EPA and the National Oceanic and

Atmospheric Administration (NOAA) also co-administer State Coastal Nonpoint Pollution Control Programs under Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990.

Section 6217 requires all States and Territories with approved coastal management programs to develop coastal nonpoint pollution control programs. These programs must include management measures that are designed to attain and maintain applicable water quality standards under Section 303 of the Clean Water Act. States must also have enforceable policies and mechanisms that can be used to implement the management measures. If implementation of these initial management measures does not adequately protect and/or restore coastal water quality, the State or Territory then must implement additional management measures to address the remaining water quality problems.

EPA is actively supporting habitat protection and restoration efforts. Under the Clean Water Act, EPA and the Corps work together to regulate the discharge of dredged or fill material into wetlands and other waters. EPA has also established the Five Star Restoration Program to work with multiple partners to restore wetlands resources around the country. EPA's National Estuary Program (NEP), which includes 28 estuaries of national significance, is working hard to protect and restore coastal habitats. The NEPs also address other coastal pollution issues in each estuary, including assessing and managing the impacts of invasive species.

EPA has a number of initiatives to assess and address the impacts of air deposition of pollution into the marine environment. These efforts include funding atmospheric deposition monitoring in various coastal areas, convening workshops to focus attention on the issue of atmospheric deposition, and gathering data on the extent of various air pollutants in marine life and the associated risks to human health and the environment.

With respect to pollution from vessels, EPA works with other agencies to regulate discharges such as sewage, oil, air emissions, ballast water, garbage, gray water from cruise ships, and liquid discharges from Armed Forces vessels. EPA also actively participates in international negotiations to control pollution from vessels.



Example of non-point source pollution.

Connection



The MPRSA implements the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, also known as the London Convention. This is an international treaty, established in 1972, under the International Maritime Organization (IMO) to create a global system to protect the marine environment from pollution caused by ocean dumping. The London Convention covers the deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms, and other man-made structures, prohibits the dumping of certain hazardous materials, and requires a permit for dumping other wastes or matter. The United States is a party to the London Convention, and is thus committed to meeting the treaty's requirements.

In 1992, the Parties to the London Convention began a comprehensive review of the Convention, which eventually resulted in the 1996 Protocol, a new, separate treaty. The United States was in the forefront of



those countries negotiating the new Protocol, which is more comprehensive, stringent, and protective of the marine environment than the London Convention. One of the major differences between the two treaties is that the London Conven-

tion allows ocean dumping except for a "blacklist" of prohibited materials (some of which can nevertheless be dumped if they are only present as "trace contaminants"), whereas the Protocol establishes a limited list of materials (called a "reverse list") that may be dumped after careful environmental evaluation (e.g., dredged material). The United States has signed the Protocol and is working toward ratification (by which the United States would become a party to the treaty). Although the Protocol will not be in force until 26 countries ratify it, the United States is already implementing its substantive provisions.

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