



Nearshore Waters and Your Coastal Watershed

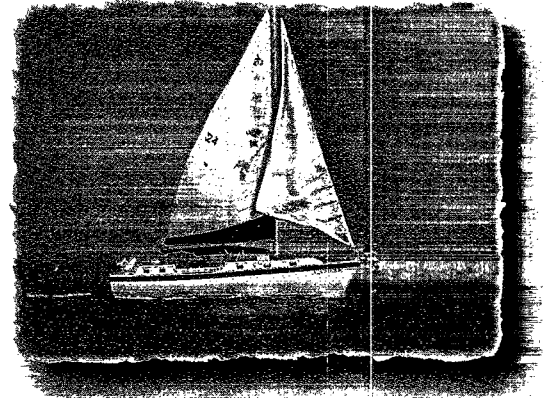
Nearshore waters in lakes, rivers, estuaries, and oceans reflect the conditions and activities within the coastal watershed. They are an important component of that complex and dynamic watershed.

What Are Nearshore Waters and What Do They Do?

Stand on any beach or shoreline and look out toward the water. What you'll see is an area called the nearshore, which is a part of all coastal watersheds. The nearshore is defined as an indefinite zone extending seaward from the shoreline well beyond the breaker zone. It defines the area where the current system is caused primarily by wave action.

Whether marine or freshwater, nearshore waters serve a variety of functions.

- They provide a unique habitat for a variety of plants and animals. Sea grasses and other aquatic plants living in the nearshore waters provide food and shelter for many species of fish and shellfish. Many marine organisms, including most commercially valuable fish species, depend on nearshore waters at some point during their development. Nearshore waters provide habitat for 80 percent of the fish species in the United States.
- Numerous recreational opportunities such as boating, diving, swimming, surfing, snorkeling, and fishing are provided in the nearshore waters.
- Nearshore waters provide countless educational and research opportunities for scientists, students, naturalists, and the curious.



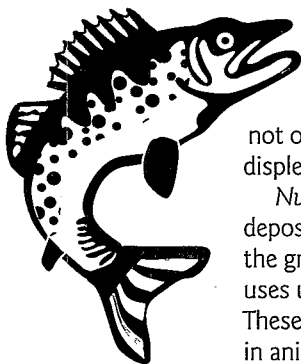
A watershed is an area in which water, sediments, and dissolved material drain to a common outlet, such as a river, lake, bay or ocean.

Some Impacts on the Nearshore Environment

Water quality in most confined waters and some nearshore waters is deteriorating, and this degradation is affecting the plant and animal life inhabiting nearshore areas. Industrial and municipal wastewater, storm water and agricultural runoff, and destruction of important habitat areas such as wetlands can affect water resources and are contributing to the general degradation of nearshore waters.

People using nearshore waters can have an adverse impact on aquatic resources. Recreational uses like boating can cause water quality problems if not carried out in a conscientious manner. Trash dumped from boats can pose a threat to humans and marine species. Boat engines that have not been properly maintained can leak fuel into the nearshore waters, causing water quality degradation. Activities upstream in the watershed can impact these waters. For example, trash washed into city storm sewers might eventually be carried into the nearshore waters. Garbage left on the beach can wash into the waters with the tide. Water quality problems and debris not only harm the sensitive aquatic habitat in the nearshore waters but are aesthetically displeasing as well.

Nutrients from sources such as sewage, fertilizers, detergents, and atmospheric deposition can affect nearshore water quality. At excess levels, nutrients overstimulate the growth of aquatic plants and algae. Excessive growth of these organisms, in turn, uses up dissolved oxygen as they die and decompose and blocks light to deeper waters. These conditions affect the respiration of fish and aquatic invertebrates, lead to a decrease in animal and plant diversity, and affect our use of the water for fishing, swimming, and



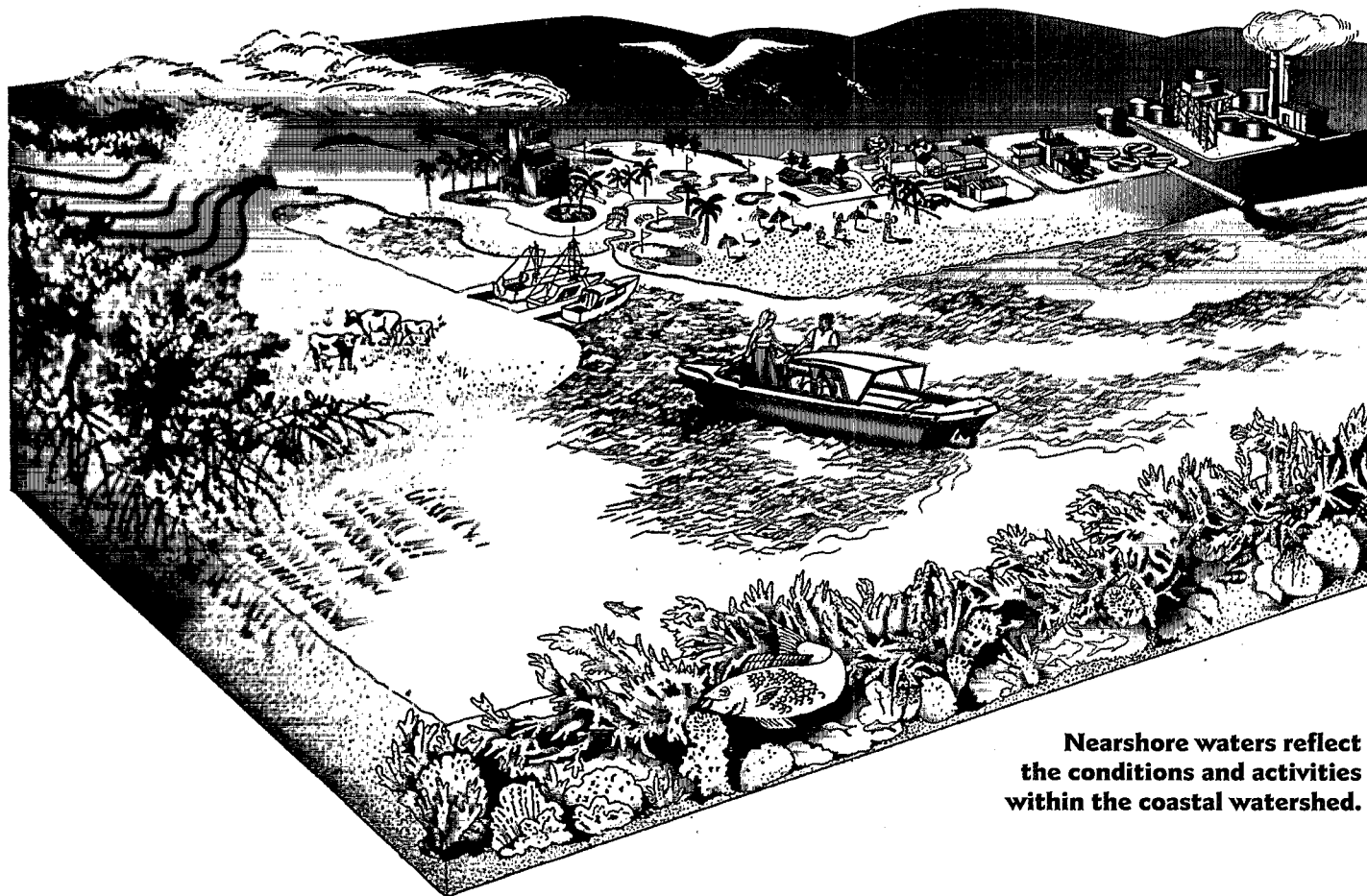


boating. Excess algae can also block industrial intake pipes.

Sediment and other suspended solids can wash off plowed fields, construction and logging sites, urban areas, strip-mined land, and eroded stream banks when it rains. As these sediments enter rivers, lakes, coastal waters, and wetlands, fish respiration is impaired, plant productivity and water depth are reduced, aquatic organisms and their habitats are smothered, and the aesthetic enjoyment of the water is diminished.

Pathogens are microorganisms such as bacteria and viruses that can cause human health problems. These organisms enter water bodies from sources such as inadequately treated effluent from sewage treatment plants, storm water drains, faulty septic systems, medical waste, runoff from livestock pens, and boats that discharge untreated or poorly treated sewage. When found at unsafe levels in nearshore waters, pathogens can lead to beach and shellfish bed closures.

Toxic substances, such as metals (e.g., mercury and lead) and toxic organic chemicals (e.g., PCBs and dioxin), which originate from industrial discharges, runoff from city streets, mining activities, runoff from landfills, atmospheric deposition, and a variety of other sources, can severely disrupt the nearshore waters habitat. These toxic substances can cause death or reproductive failure in the fish, shellfish, and wildlife that use the habitat. In addition, they can accumulate in animal and fish tissue (leading to fish consumption advisories), become attached to sediments, or find their way into drinking water supplies, posing long-term health risks to humans. Pesticides and herbicides used on farmlands and lawns can be washed into ground and surface waters by rainfall, snowmelt, and irrigation practices and may, ultimately, find their way to nearshore waters. These contaminants are usually very persistent in the environment and can accumulate in fish, shellfish, and wildlife to levels that pose a risk to human health and the environment.



Nearshore waters reflect the conditions and activities within the coastal watershed.

Habitat modification results from activities like development, channelization, dam construction, impacts from storms, and dredging. Shoreline modification can destroy habitat and result in water quality problems. When urban shorelines are hardened or filled, habitat diversity decreases. Typical examples of the effects of habitat modification include loss of streamside vegetation, siltation, smothering of bottom-dwelling organisms, and increased water temperatures. The modification of surrounding lands causes water quality problems that can decrease the number of species capable of living and reproducing in the nearshore waters.

What Is EPA Doing to Protect Nearshore Waters?

EPA works in partnership with other federal agencies, state and local governments, other organizations, and the public to improve and protect nearshore water quality.

EPA's Watershed Approach—EPA, other federal agencies, state, tribal, and local governments, the private sector, and the public have combined their resources to promote the Watershed Approach as a means of restoring and maintaining the biological, chemical, and physical quality of our nation's waters, including nearshore waters. For example, EPA has

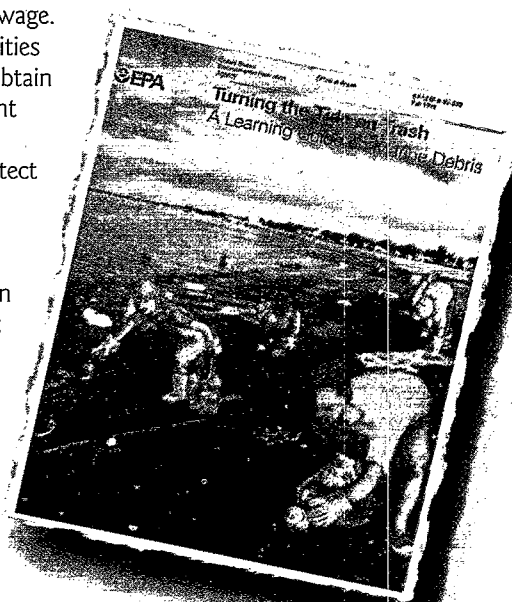
- Increased efforts to assist states in assessing the quality of their watersheds through a variety of programs.
- Applied watershed planning tools to the wetland permitting process to identify areas that are suitable or unsuitable for development.
- Assisted states, territories, and tribes in watershed planning and management activities.

National Estuary Program—Through the National Estuary Program (NEP), federal, state, and local government agencies; industry; environmental organizations; and private citizens work together to create a formal management plan to restore and protect targeted estuaries and other coastal areas. This watershed management approach is supported by EPA's *Coastal Watershed Protection Strategy*, which provides technical assistance and support to priority watersheds and the *Clean Water Action Plan (CWAP)*. CWAP is an interagency plan developed to further protect public health from pollution.

BEACH Program—EPA, through its new Beaches Environmental Assessment, Closure and Health (BEACH) Program, is working with state, tribal, and local governmental partners to make sure nearshore water quality information is available to the public. The BEACH Program provides a framework for local governments to develop equally protective and consistent programs across the country for monitoring the nearshore water quality along beaches and posting warnings or closing beaches when pollutant levels are too high.

Other EPA Programs—EPA works with other federal agencies to protect human health and aquatic habitats by reducing marine debris. The efforts include the establishment of the *National Marine Debris Monitoring Program*, which looks at the origins and amounts of marine debris deposited along U.S. coasts. EPA and the Coast Guard work together to regulate the transportation of municipal and commercial waste on vessels and to issue regulations for the manufacture, maintenance, and efficiency of marine sanitation devices (boat toilets), as well as the establishment of "no discharge zones" for vessel sewage. EPA also regulates the discharge of pollutants from facilities into nearshore waters. The discharging facilities must obtain a permit that ensures the removal of materials that might degrade the nearshore waters. EPA assists states in the development of *water quality standards* designed to protect human health and aquatic life. This assistance includes the development of criteria for water quality that accurately reflect the most up-to-date scientific knowledge about the effects of pollutants on aquatic life and human health. In assisting coastal states with the development of their *Coastal Nonpoint Pollution Control Programs*, EPA and other federal agencies developed guidance specifying management measures for sources of nonpoint pollution (diffuse runoff of pollutants) in coastal and nearshore waters. In its program, a state or territory describes how it will implement nonpoint source pollution controls.

Nearshore waters provide habitat for 80 percent of the fish species in the United States.



What Can You Do to Help Protect Nearshore Waters?

Examine your everyday activities and think about how you might be contributing to nearshore pollution problems. Consider some of these suggestions on how you can make a difference.



- **Be informed and involved.** Learn about water quality issues that affect the communities in which you live and work. Become familiar with your local water resources, whether they be small streams, lakes, or oceans. Be aware if the stream in your backyard drains to nearshore waters. Become a citizen volunteer. As a volunteer monitor, you might be involved in taking water quality measurements, tracking the progress of protection and restoration projects, or reporting special events such as fish kills and storm damage. Visit or contact your NEP office.
- **Take responsibility in your own backyard.** Determine whether additional nutrients are needed before you apply fertilizers. Reduce the use of pesticides and herbicides. Consider selecting plants and grasses with low maintenance requirements. Water your lawn conservatively; the less water you use, the less runoff will eventually find its way into nearshore waters. Preserve existing trees and plant new trees and shrubs to help prevent erosion and promote infiltration of water into the soil. Restore bare patches in your lawn to prevent erosion.
- **Practice good housekeeping.** Learn about procedures for disposing of harmful household wastes so they do not end up in sewage treatment plants that can't handle them or in landfills not designed to receive hazardous materials. Keep litter, pet waste, leaves, and grass clippings out of gutters and storm drains so that they don't drain to nearshore waters. Use the minimum amount of water needed when you wash your car. Never dump any household, automotive, or gardening wastes into a storm drain. Keep your septic system in good working order. Repair or replace dripping faucets or leaky pipes and install water-saving devices in shower heads and toilets. Always follow label directions for the use and disposal of household chemicals. Take used motor oil, paints, and other hazardous household materials to proper collection sites.
- **Respect your nearshore waters.** Maintain safe boat speeds to avoid prop dredging and shore erosion. Avoid entering sensitive habitat areas with your boat or other motorized watercraft. Maintain your boat engine to prevent fuel leaks. Keep all waste produced during your excursions in a safe place to be disposed of properly when you're back on land. Use designated pumpout and dump stations. Maintain and use your marine sanitation devices properly. Maintain your automobile so that oil doesn't leak and the engine is tuned to conserve energy. By conserving energy, harmful air emissions leading to air deposition in nearshore waters are minimized.

For additional information . . .

Call EPA's Oceans and Coastal Protection Division at (202) 260-1952 or visit EPA's web site at <http://www.epa.gov/OWOW/oceans>.

Visit EPA's "National Estuary Program" web site at <http://www.epa.gov/OWOW/estuaries/NEP> for additional information on the National Estuary Program.

Visit EPA's "Beach Watch" web site at <http://www.epa.gov/OST/beaches> for additional information on the BEACH Program.

