

**OHIO COASTAL MANAGEMENT PROGRAM**  
**ISSUE AREA: WATER QUALITY**

Uses Subject to Management

- Activities involving public water supplies, to ensure that a sufficient and safe public water supply is available for the population along Lake Erie.
- Activities involving any process, system, or practice that may be a source of water quality degradation.
- Activities causing nonpoint or diffuse source of water pollution.
- Activities addressed by Remedial Action Plans (RAPs) for Ohio's four International Joint Commission-designated Areas of Concern (AOCs), the Maumee, Black, Cuyahoga and Ashtabula Rivers.
- Activities affecting ground water.

One of the most serious problems that adversely affects the Ohio coastline is the pollution of Lake Erie and its tributaries. Water pollution has greatly accelerated the Lake's natural eutrophication process. Even without human interference, however, Lake Erie would be considerably more eutrophic than other Great Lakes due to its shallowness, relative warmth, and the high fertility of the surrounding basin's soils. The two factors of human activities and local, natural conditions, have resulted in a Lake Erie characterized by excessive plant nutrients, over-abundant plankton and algae populations, extensive areas with low levels of dissolved oxygen, areas with high quantities of toxic chemicals and diminished fisheries.

By the 1960s and early 1970s, water quality had become so poor that nearly the entire hypolimnion (lowermost layer of colder water in a thermally-stratified lake) of the central basin was devoid of oxygen during summer months. Massive algal blooms were common in the western basin. However, in recent years, the water quality of Lake Erie has improved. Almost all beaches have reopened, and fish populations are rebounding. Evidence documents that nutrient enrichment of the lake and oxygen depletion in the central basin have decreased. Algal blooms once prevalent in the western basin have been nonexistent in recent years. Since 1970, open lake phytoplankton abundance has decreased and species composition has shifted more toward that of mesotrophic lakes.

Toxics, however, remain a serious concern. Tumors have been found on fish in several of Lake Erie's tributaries. Although most Lake Erie fish pose no health risk for the majority of people, Maumee Bay catfish should not be eaten, and limitations on consumption of other species are advised. There are 42 sites in the Great Lakes basin designated as AOCs by the International Joint Commission (IJC). AOCs are specific areas that suffer from severe environmental degradation that has negatively impacted water quality and has limited beneficial uses of the area. Four such areas have been designated in Ohio: the lower reaches of the Maumee River, the Black River, the Cuyahoga River and the Ashtabula River.

Nutrient enrichment, particularly from phosphorus, presented a water quality problem needing specific attention. More than 78 percent of this nutrient originates from nonpoint sources such as agriculture, livestock waste, urban runoff, on-site disposal systems and the atmosphere. Sewage treatment plants are the second major source of phosphorus, contributing approximately 20 percent. High nutrient levels have far-reaching consequences, including foul-tasting drinking water and reduced fish populations. Sewage treatment facilities are being improved with expenditures of more than \$1 billion in the Lake Erie basin. The goal of reducing the average phosphorus concentration of certain targeted municipal wastewater treatment facilities has nearly been achieved.

Many Lake Erie tributaries deliver heavy sediment loads to Lake Erie. ODNR estimates of sediment loads for Ohio's portion of Lake Erie indicate that roughly 2 million tons are derived annually from tributaries and 1.6 million tons from the shoreline. Fined-grained sediments from certain watersheds clog shipping channels, damage fish habitat, complicate water supply treatment, contribute to nutrient enrichment and adversely affect recreational use of the lake. In Ohio alone, the U. S. Army Corps of Engineers spends approximately \$10 million annually to dredge an estimated 2 million cubic yards of sediments from the shipping channels and harbors of Lake Erie.

In 1972, Congress amended the Federal Water Pollution Control Act (FWPCA P.L. 92-500, 33 U.S.C. 1251 et seq., renamed the Clean Water Act in 1977), establishing as its objective the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. This includes the national goals of eliminating the discharge of pollutants into navigable waters; wherever attainable, achieving safe water quality levels for fish, shellfish, wildlife and recreational users, and eliminating the discharge of toxic pollutants in toxic amounts. Further, the governments of the United States and Canada entered into the Great Lakes Water Quality Agreement (GLWQA) in the same year. The agreement provides for the restoration and enhancement of water quality in the Great Lakes system. Similar to the FWPCA, the GLWQA and its subsequent revisions called for the prohibition of toxic discharges in toxic amounts and for the virtual elimination of the discharge of all persistent toxic substances. Inherent in both the FWPCA and the GLWQA was the development of coordinated planning processes, the development of best management practices and the utilization of the best available technologies for controlling pollution.

As required by the Great Lakes Water Quality Agreement and the Great Lakes Critical Programs Act of 1990 amending the Clean Water Act, a lake-wide management plan (LaMP) is being developed for Lake Erie. The main purpose of the LaMP is to assess and reduce the impacts and loadings of toxics into the lake, but it will address other sources of stress to Lake Erie as well. Some of these other issues include the impacts of exotic species, loss of habitat and nutrient dynamics.

Under the leadership of U.S. EPA and Environment Canada, Ohio, as the lead state, has been working with a binational group of state, federal and provincial agencies to develop the Lake Erie LaMP. The geographic boundaries will include the lake proper, nearshore, bays and river mouths. The institutional structure of the LaMP consists of a Management Committee (senior managers), a technical work group, public forum and several subcommittees to address specific issues. The LaMP is currently working to complete a beneficial use impairment assessment, calculate loads and potential sources of the Lake Erie critical pollutants, develop ecosystem objectives and promote and solicit public review and participation.

A Status Report highlighting the progress of the LaMP thus far is available in hard copy or on the Lake Erie LaMP web site. Most of the background support documents are also available on the web site. There are many programs that already focus on improving and restoring Lake Erie. The LaMP will work with the existing programs and identify the additional actions needed to restore all beneficial uses to the lake.

A beneficial use impairment assessment is currently under way to assess which of the 14 beneficial uses listed in the Great Lakes Water Quality Agreement are impaired. An initial LaMP report is scheduled for completion in March, 1997.