

## **OHIO COASTAL MANAGEMENT PROGRAM**

### **ISSUE AREA: WATER QUANTITY**

#### Uses Subject to Management

- Activities involving the diversion of waters out of or into the Lake Erie Basin.
- Activities related to Lake Erie water levels.
- Activities involving water supply planning.

Lake Erie is an interstate and international resource that Ohio shares with Michigan, Pennsylvania, New York and the Canadian Province of Ontario. Lake Erie water supports an array of activities, including commercial navigation, power generation, recreation, and industrial and public water supply. It also provides extensive wildlife and aquatic habitat. Changes in Lake Erie levels can affect these various activities, especially those that rely on in-lake water uses. Fluctuating lake levels and the potential for large-scale transfers of water by out-of-basin interests make it judicious for water managers in the Lake Erie Basin to develop and maintain a comprehensive water use and management plan.

#### Diversions

New and increased water diversion out of the Great Lakes basin has been advocated by some as a means to address high lake levels and replenish water supplies in the arid Great Plains and Southwestern states. The Council of Great Lakes Governors, concerned about the economic and environmental consequences of large-scale diversions of Great Lakes water, adopted a 1983 resolution on such diversions. This resolution encouraged the Great Lakes States and provinces to implement actions to regulate and mitigate potential impacts from large-scale diversions out of the Great Lakes basin. In 1985, the eight governors and two premiers of the region signed the Great Lakes Charter, establishing guidelines and principles for the management of Great Lakes water resources. The states agreed to give prior notice and consultation on future diversions and consumptive uses, and to develop a common data and information exchange system to document management of the Great Lakes water resources. In 1986, Congress passed the Water Resources Development Act, which prohibits the diversion of water out of the Great Lakes Basin without the approval of the governors of all the Great Lakes states.

#### Fluctuating Lake Levels

The Great Lakes are a vast natural freshwater system over which man exerts little control. Lake Erie water levels vary naturally over time in cyclical fluctuations, ranging from the record historical average monthly low of 568.08 feet (IGLD 1985) in February 1936 to the record high of 574.31 feet in June 1986. Long-term average level of Lake Erie is 571.16 (IGLD 1985) feet. Lake level is controlled naturally through precipitation and evaporation in the basin, inflow from the upper Great Lakes via the Detroit River and outflow into the Niagara River. Although four man-made diversions

and two regulatory structures have some effect on Great Lakes water levels in general, no water level control structures exist specifically on Lake Erie. Outflow is naturally constricted at the Niagara River, limiting the rate at which water leaves the lake. Relatively small amounts of water are diverted through the Welland Canal, New York State Barge Canal and Black Rock Lock in the Niagara River.

### Water Supply

Lake Erie water is an abundant resource for public water systems and is routinely transported inland to serve ground water-poor areas in the basin. Approximately 75 percent of the water used in the basin comes from Lake Erie. Because of the lake's shallowness and nearshore water quality problems, water supply withdrawers are required to locate intake structures at least 1,500 feet into the lake.

Industry and public utilities, found primarily around larger cities in the harbor areas, are major users of Lake Erie water. About 89 percent of Lake Erie withdrawals are used for industrial processing and electrical generation. Electrical generation alone accounts for 74 percent of the withdrawals. Along the Ohio Lake Erie shoreline, there are eight coal-fired plants and two nuclear power plants (Davis Besse in Ottawa County and Perry in Lake County).