

Areawide Water Quality Management Plan Chapter 1

AREAWIDE OVERVIEW

Executive Summary

An Areawide Overview

The *Areawide Water Quality Management Plan's* purpose is to assist efforts to achieve the “fishable and swimmable” water quality standards of the Clean Water Act. As the word “Areawide” signifies, this Plan takes a comprehensive regional approach to water quality protection. That Areawide region covers Lucas, Ottawa, Sandusky, and Wood Counties in Ohio, and Bedford, Erie, and Whiteford Townships of Monroe County, Michigan — all at the southwest end of Lake Erie.

This first chapter serves three purposes. First, it describes the lay of the land: the region’s geology, geography, and natural resources. The intent is to provide enough background to understand the chapters that follow, and references for further information. Second, it summarizes the state of water quality in our region. Third, this chapter explains the legal basis for the “208” *Areawide Water Quality Management Plan*, and its amendment process.

Physical Setting and Water Quality

Water quality is closely linked to land use. Human activities on land impact Lake Erie through wastewater discharges and stormwater runoff. Habitat, especially in and along waterways, affects the fish and bird populations. Controlling runoff and preserving habitat protect our greatest natural resource: Lake Erie.

The region has four geographical areas:

- Sand Hills, former beach areas of glacial lakes, and include the Oak Openings and prairies.
- Lake Plains, includes the Great Black Swamp. Originally there were many wet prairies, shallow lakes, and forests. After settlers cleared the forests and built artificial drainage, the area has become some of the state’s most productive farmland.
- Uplands, the eastern part of the region, with rocky outcrops. This area generally has good drainage, but it also has sinkholes that can lead surface runoff into the aquifer.
- The fourth geologic area is Lake Erie itself

Water Resources

Lake Erie is the region’s greatest water resource. Indeed, it is Ohio’s greatest water resource. It provides fresh water for drinking, industry, shipping, transportation, recreation, and enjoyment for its own sake. Ultimately the purpose of this entire *Areawide Water Quality Management Plan* is the protection of Lake Erie.

The region has three primary rivers (the Maumee, Portage, and Sandusky) and two secondary rivers (the Ottawa/Tennile and Toussaint). These rivers, and Maumee and Sandusky Bays, are valuable natural resources in their own right, for recreation, fish and wildlife, and commerce. Much of the region is flat, with drainage, but little habitat, provided by man-made ditches.

Roughly 100,000 of the region’s 716,000 residents in 2000 used private wells for drinking water. In addition, eleven villages supply public water from wells. Generally wells provide safe drinking water. About 3% of wells exceed nitrate standards. Many wells produce water that is safe, but very hard, or high in iron or sulfur. There have been areas where septic systems have contaminated stormwater supplies.

Water Quality of the Region

The ultimate measure of water quality is a stream’s ability to support life: how many and what kind of birds and fish can live in and along a stream? Two primary rivers, the Portage and the Sandusky, rate well in this respect. Less than half of the Maumee attains use standards. Small streams generally rate below large streams. The most widespread water quality impacts in our region are non-point source pollution and lack of habitat on small streams.

Fish and Swimming Advisories

Ohio EPA and DNR jointly issue advisories for swimming/wading, and for consumption of fish from some streams. The strongest advisories are for the Ottawa River (Tennile Creek), against swimming or wading, and not to consume any fish. The Lucas County Health Department also

issued an advisory for the Ottawa River due to fecal coliform. OEPA and ODNR advise against consuming any channel catfish from the Maumee River, and any channel catfish over 16 inches long from Lake Erie.

Other advisories are less restrictive. They advise on the amounts of specific fish from specific rivers one may eat. Usually limits are set at one meal per month, or one meal every other month.

All OEPA/ODNR advisories are for PCBs. Two also list mercury, and one lists lead. The streams listed with advisories are Lake Erie, the Maumee, the Portage, the Portage North Branch, and the Sandusky.

Lake Erie Water Quality

“Dead Zones”

Lake Erie’s water quality has improved greatly since its supposed “death” in the late 1960s. Since then EPA wastewater discharge permit (NPDES) requirements have come into effect. “Best Management Practices” to control non-point sources have been promoted through local agencies, especially Soil and Water Conservation Districts.

Although the Cuyahoga River catching on fire caught the headlines, Lake Erie’s problem was one of over-fertilization (eutrophication), notably from phosphorus, and resulting in accelerated nuisance growths (blooms) of “toxic algae” (cyanobacteria). Toxic algae decay at the lake bottom, resulting in “dead zones” (anoxic areas). In recent years the dead zones have re-emerged and the toxic algae blooms have resumed. The International Joint Commission observes that while phosphorus levels have declined for the other four Great Lakes, they have risen in Lake Erie in recent years. There are many theories why this is happening, but no definitive conclusions yet.

Sediment

Sediment is considered a pollutant in its own right. It inhibits flow in ditches and storm sewers, it covers fish habitat. Other pollutants, including bacteria, toxics, and phosphorus, attach to sediment and travel with it. The Maumee is the largest Great Lakes river, and contributes the largest sediment load. River sediment and re-suspended Maumee Bay sediments accumulate in

the Toledo harbor channel, requiring its annual dredging. The harbor is economically important to the region, so keeping it open is a high priority. The question is what to do with the sediment dredged from the channel? The options:

- Put sediments in a Confined Disposal Facility. CDFs have been criticized as covering fish habitat, blocking boat access, or residents’ view of the lake. Using sediments to rebuild eroded islands or other landforms is a possibility.
- Discharge sediments in the bay or lake. Doing so may re-introduce phosphorus to the ecosystem, and may result in having the dredge the same material again next year.
- Re-use dredge material for purposes such as landfill capping or topsoil. As yet, no upland re-uses have proved financially feasible on a large scale.

Bacteria

Fecal bacteria may indicate the presence of pathogens that cause a variety of illnesses. Bacteria are usually measured by one of two tests: fecal coliform or *E. coli*. They may originate from any warm-blooded animal. Common sources are sanitary sewer overflows, discharging septic systems, birds, and stormwater runoff. A recent study shows that bacteria can accumulate in sediments, survive for extended periods, and be resuspended by a storm event.

High fecal bacteria counts result in public beaches being posted by Health Departments. Most of our region’s beaches have ongoing bacteria problems, as do most beaches near urban areas throughout the country. Our region’s efforts have been to identify and eliminate sources, and better understand conditions that lead to high bacterial levels.

Legal Basis of the 208 Plan

The chapter closes with a discussion of the legal basis of this Plan through the Clean Water Act, and the approval amendment process. This text has been moved here from Chapter 3 without changes.