

WHO IS MONITORING OUR WATER QUALITY?

The condition of the water in a certain place – your swimming pool, your faucet, underground, in the rivers leading to the bay – is measured for healthiness to protect humans and the many species living in our waterways. Just because the water looks clear, is it really clean? Many groups and agencies in South Alabama have made it their mission to monitor the water and educate us on its quality.

THE ENVIRONMENTAL PROTECTION AGENCY (www.epa.gov/emap/nca/) is conducting the National Coastal Assessment, a five-year comprehensive monitoring program to survey the condition of the nation's coastal resources. Types of data collected include water column parameters, sediment chemistry and toxicity, benthic communities, fish, and tissue contaminants.

THE UNITED STATES GEOLOGICAL SURVEY (water.usgs.gov/nawqa/) has a National Water Quality Assessment Program to develop long-term, consistent and comparable information on streams, ground water, and aquatic ecosystems. The Mobile Basin is a primary research site.

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (www.adem.state.al.us/FieldOps/Monitoring/monitoring.htm) ADEM regulates discharges to state waters and then monitors waterways throughout the Mobile Bay area. ADEM partners with the other agencies and organizations to manage the collection and integration of data on the water column, sediment, bacteria, macro invertebrates, land use data, topographic characteristics, wetlands and beach monitoring at a number of public recreational areas. These samples are analyzed for bacteriological indicators of potential human pathogens.

THE ALABAMA DEPARTMENT OF PUBLIC HEALTH (www.adph.org) issues Fish and Shellfish Advisories to the public to understand both the benefits and risks of different types of seafood. Sampling of animals and water provides the information needed for issuing advisories.

THE GEOLOGICAL SURVEY OF ALABAMA (www.gsa.state.al.us/), established in 1848, gathers data on a host of scientific parameters, such as shoreline erosion, water well usage, ground-water levels, and surface water quality. Three new conductivity sensors, purchased by the Mobile Bay NEP, monitor wells in Gulf Shores and the Fort Morgan Peninsula for saltwater intrusion.

THE COASTAL ALABAMA CLEAN WATER PARTNERSHIP (www.ag.auburn.edu/dept/faa/aumerc/Extension/clean_water_partnership/Index.htm) is part of a statewide effort working on TMDLs (see side bar). Local stakeholders

strive to identify water quality improvement projects through community participation.

THE ALABAMA WATER WATCH (www.alabamawaterwatch.org) is a statewide volunteer network promoting citizen-led water quality monitoring programs and increasing awareness of water resource conditions and trends. Local monitoring is coordinated with the following groups:

THE ALABAMA COASTAL FOUNDATION (www.alcoastalfoundation.org/) is a nonprofit organization with the area's oldest volunteer water monitoring program, Coastwatch. ACF also began monitoring recreational beaches in 2002.

THE DOG RIVER CLEARWATER REVIVAL (dogriver.southalabama.edu) is a grassroots group concerned with environmental issues affecting Dog River. One of their main programs is organizing volunteer water quality monitoring in the Dog River watershed.

THE WEEKS BAY NATIONAL ESTUARINE RESEARCH RESERVE (www.weeksbay.org) has two water monitoring stations continually collecting data such as water temperature, pH, dissolved oxygen and salinity. Connected to the reserve is Weeks Bay Water Watch, an active volunteer group with 34 monitoring sites in the Weeks Bay watershed.

THE MOBILE BAY NEP along with the Dauphin Island Sea Lab and Weeks Bay National Estuarine Research Reserve are establishing long term monitors in Mobile Bay as part of a multi-state network with Louisiana and Texas.

A partnership has formed to study the impact caused by dams and the Causeway on the Mobile Tensaw Delta. Water temperature, salinity and dissolved oxygen will be monitored to determine the salinity regime, hydrological conditions, and better define habitats for a variety of species. Current partners include ADEM, Alabama Power, the Mobile Register, Mobile Bay Watch, The Nature Conservancy and the Scenic Causeway Coalition. More partners are needed.

Industry, businesses, and municipalities are required to monitor discharges and public water supplies. This information is reported to ADEM on a regular basis.

Mobile Bay Watch, the Dauphin Island Sea Lab, Mobile Bay NEP, and the Coastal Alabama Clean Water Partnership are developing internet accessible databases to house research, monitoring information, industry data, and more.

Diana Sturm, PhD, Program Scientist Mobile Bay NEP

The Clean Water Act (CWA) addresses pollution in waters of the United States through various grants, planning, voluntary and regulatory programs. The Act envisions a cooperative effort between States and the federal government to assure the waters of the United States support fishing and swimming uses. An important part of the CWA is the wastewater discharge permitting program. Technology based treatment levels form the basic permit requirements, set for existing and new dischargers. Greater levels of treatment are required where basic levels are insufficient to meet water quality standards. The Act largely uses voluntary, grant and loan programs to address nonpoint sources of pollution. Use of technology based best management practices is envisioned for nonpoint pollution.

An important new thrust in implementing the Clean Water Act is the requirement for states or EPA to develop total maximum daily loads for streams. (TMDLs, see sidebar). Recent court decisions have required EPA and States to focus great attention on developing these TMDLs.

The CWA also created the 404 wetlands program. Persons wishing to fill wetlands must obtain a permit and meet established criteria. The Corps of Engineers issues permits and EPA oversees the program.

TMDL

THE EPA DEFINES A TOTAL MAXIMUM DAILY LOAD (TMDL) as, "a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards." Water quality standards for Alabama are set by ADEM. They classify water bodies according to use (such as public water supply, recreation, and Outstanding Alabama Waters.) ADEM also sets scientific criteria to ensure the water quality will continue to support that use.

The TMDL program is designed to be locally driven by citizens and businesses. The program follows a four-step process to clean up water quality. First, Alabama must develop a water quality standard for all bodies of water from streams to rivers to lakes. Second, the State determines what bodies of water are not meeting these standards for water quality. Third, these water bodies are prioritized. The State of Alabama, at the forefront, is now working with local citizens, communities and industries to determine the actions required for healthy waters.

NONPOINT SOURCE POLLUTION

Nonpoint source pollution cannot be traced back to a single point location. Water running across the ground picks up pollutants from natural processes and human activity. Material may come from households, marinas, agricultural lands, industrial sites, paved surfaces, or timber operations. The water carrying various pollutants eventually makes its way to streams, rivers and the Bay. Up to 50% of the water pollution in the United States comes from nonpoint source pollution. Controlling nonpoint source pollution is one of the last remaining hurdles to restoring water quality in many impaired bodies of water. The unique aspect of nonpoint source pollution is that everyone contributes to it.