# The Magothy and the Chesapeake Bay

The Chesapeake Bay is a body of water and, like a human body, its health depends on what goes into it. But, as everyone knows, the Chesapeake is not as healthy as it once was. The problems stem, in part, from the declining quality of the rivers that feed the Bay. This fact sheet explains how the Magothy River contributes to the Bay and outlines some ways to help you keep the river clean.

## THE MAGOTHY RIVER - PAST AND PRESENT

The Magothy River is relatively small, measuring only six miles in length. It is located in northern Anne Arundel County between the larger Patapsco River to the north and Severn to the south. Like other rivers of the Chesapeake Bay system, the Magothy was formed 10,000 years ago when rising sea level marking the end of the ice age flooded river and creek valleys, creating a series of sub-estuaries.

The rising sea buried the land within the Magothy River valley and, with it, the remains of its earliest inhabitants. We can only speculate about the Indian culture that existed on the inland Broadneck Peninsula (the land between the Magothy and the Severn rivers) dating 10,000 years ago. Artifacts from nomadic tribes who later lived along these shores date back to 5,000 - 1,500 B.C. These Indians wandered the wooded, pristine shores, hunting, fishing, and gathering food. Later, the Algonkin tribes occupied the area until the belligerent Susquehannocks chased them south. In 1652, the Susquehannocks made a peace treaty with Maryland settlers and eventually disappeared from the area as well.

Land around the Magothy River remained relatively undisturbed until the l8th Century. But once the settlers realized this flat, fertile soil was ideal for tobacco and wheat cultivation, trees were cleared and farm land became a defining feature. The proximity of the Chesapeake and her major ports -- Baltimore to the north and Annapolis to the south -- made crop transport efficient and profitable.

As the population grew, farms were sold and subdivided for residential development. Today, the shoreline of the Magothy is dotted with homes. Privately held waterfront property and surrounding developments have closed off virtually all public access to the river.

Since 1980, over 56,000 more people call Anne Arundel County home. Nearly 60% -- or 33,600 -- live in District Three, which includes the Magothy and part of the Severn River watersheds. They have settled in such p]aces as Arnold, Pasadena, and Severna Park. And Cape St. Claire along the south shore, virtually uninhabited during the Seventeenth Century, is today a bustling community of over 2,000 homes.

## THE MAGOTHY AS A RESOURCE

The Magothy's proximity to Annapolis, Washington, and Baltimore makes it a prime target for recreational use. Quiet and serene in the winter months, the river begins to buzz with activity when temperatures climb. In spite of limited public access to the river, more than 3,000 boats occupy the private slips and marinas of the Magothy River system. Its large, open main stem attracts sailors and power boaters alike. Windsurfers, canoeists, and swimmers must often vie for space with highspead boats, water- and jetskiers, inviting danger on any given weekend.

As a result of overcrowding, conflicts often arise between waterfront property owners, boaters, and other users of the river. The Department of Natural Resources Boating Administration, studies and regulates recreational use of Maryland's waterways. Public hearings serve as a forum to resolve conflicts and to establish speed limits and other restrictions for the river.

The allure of white perch, striped bass, bluefish, American eel and -- during spawning season -- herring, shad, and flounder, make fishing a popular activity along the Magothy. While sport fishermen may be found throughout the river and smaller tributaries, most commercial fishing is done near the mouth. Yellow perch, once common here, may be on the comeback thanks to a joint effort by Anne Arundel Community College and the Magothy River Association. Fertilized eggs have been released into the upper waters since 1989 in an effort to bring back this native species.

Shellfish such as oysters and clams, once abundant in tidal waters, have declined as well. Due to high fecal coliform counts, harvesting of many existing shellfish is prohibited. Blue crabs are still caught recreationally throughout the river and its tributaries.

The Magothy watershed also supports other wildlife. In the winter months, birds such as the canvasback duck are found resting and feeding here, while other birds nest on the river year-round. Mallards, black duck, Canada geese, and whistling swan are among the common waterfowl sighted. The Magothy provides an important feeding ground for some not-so-common species: the peregrine falcon and the threatened Diamondback Terrapin -- known to inhabit the brackish portions of the smaller tributaries. Several threatened and endangered plants are supported by the river as well.

Other important resources associated with the river are the Magothy and Aquia aquifers, which supply water accessible by well. The entire north shore of the Magothy serves as the aquifers' recharge area, a valuable underground water source for current and future residents.

**THREATS TO THE RIVER**

Although the watershed is not at risk from industrial and agricultural activity, residential development continues to threaten the river and its resources. Problems associated with development include sedimentation, shoreline erosion, stormwater runnoff, septic and municipal sewage system failure, and excess nutrients from lawn fertilizer.

Because much of the soil in the Magothy watershed is sandy, it easily erodes and washes into the river, especially during clearing and construction activities. Shoreline erosion continues to plague the river, exacerbated by heavy recreational use. The wakes created by boats on the Magothy have the same effect as wind-generated waves. In the past, a startling 94% of the land along the water's edge eroded up to one foot per year. Now, bulkheads, jetties, and groins reinforce more than one-half of the river's 21.5-mile shoreline, helping reduce this loss. Certain areas, such as Dobbins and Gibson Islands, still lose as much as one to three feet per year. Innovative erosion reduction techniques, such as deposited spoil material, offer promise but must be carefully evaluated for their potential impacts on wildlife and habitat.

Erosion results in increased sediment in the water, which harms underwater life and reduces water depth. Sediment increases turbidity (cloudiness), thus reducing the light penetration necessary for plant survival. Turbidity, according to a 1988 National Park Service report, affects up to 75% of the river, threatening the future of already scarce submerged aquatic vegetation (SAV).

Another consequence of development is run-off. Paved surfaces allow stormwater to travel quickly to the river rather than slowly infiltrating the ground, often carrying pollutants such as motor oil, antifreeze, trash, and fertilizer with it.

Wastewater management is an important environmental issue in all residential areas. Sewage pumping stations carry large volumes of wastewater to a treatment plant. When malfunctions occur due to electrical or mechanical failure, water can overflow into nearby streams. Between 1982 and 1986, 27 overflows or spills occurred in the Magothy watershed, washing an estimated 1,000,000 gallons of sewage into the river system.

Faulty or overworked private septic systems can also pose a threat to water quality. The potential danger from coliform bacteria has prompted beach closings in the past in such places as Chelsea Beach.

Nutrients from excess fertilizer applied to residential lawns ultimately end up in the river. According to the Chesapeake Bay Monitoring Program, nutrients such as nitrogen and phosphorus are present in quantities high enough to stimulate algal blooms. The result: a severe depletion of dissolved oxygen in the deeper waters of the Magothy during the summer months. This loss of oxygen equals loss of habitat for fish and other aquatic life.

**REMEDIES**

Dedicated volunteers and other caring residents of the Magothy River watershed are working together to protect and restore this precious resource. This is important since the Magothy is a small river system, particularly vulnerable to the activities of area residents.

The Magothy River Association, founded in 19~6, is comprised of individuals and communities who are deeply committed to its restoration and preservation. The Association actively participates in legislative issues, provides assistance to governing bodies, educates, and conducts volunteer programs. A stream survey project helps the county pinpoint potential environmental problems. And an oyster growing project hopes to reestablish natural oyster bars in the Magothy -- to filter water and thus improve the river's health.

In 1983, Anne Arundel Community College, in cooperation with the Magothy River Association, began a water clarity study of the Magothy. That study helped pave the way for a volunteer monitoring program, begun four years later. Today, about 20 volunteers conduct chemical monitoring on the river, collecting data about dissolved oxygen, pH, temperature and salinity.

Another group of residents, the Magothy River Land Trust, is working to protect the river from development. The Trust encourages landowners to legally forfeit development rights in exchange for substantial tax breaks.

**WHAT YOU CAN DO**

Protection measures must be stepped up if the Magothy River is to remain a viable resource. Here are just a few ways you can help:

- *Reduce the use of fertilizer and pesticides on your lawn. Carefully follow application instructions and avoid applying near sidewalks and driveways where it can be easily washed into nearby storm drains.*
- *If your home has a septic system, make sure it's routinely cleaned and maintained.*
- *Recycle motor oil from your cars and boats. Antifreeze can also be recycled, thanks to the Maryland Environmental Service. There are several recycling centers convenient to Magothy boaters and residents.*
- *Whenever possible, replace solid paving with gravel or vegetation that will reduce stormwater runoff.*
- *Use marine sanitation devices on your boat and empty them at marina pumpout facilities.*