

Pollution & the Hudson River

The Hudson has been an important transportation route since the arrival of Europeans in the early 1600s. As cities and factories were built along the river, they used the river's water to get rid of things they didn't want. Before there were laws or technology to control water pollution, cities and industries dumped all sorts of things in the water, from sewage to toxic chemicals. Seas of floating garbage were reported in the early 1900's within 15 miles of Manhattan. As late as the 1960s, the 20-30 miles below the Troy dam was described as coated in sewage fungus, floating oil, dead animal parts, completely lacking oxygen and fish in summer months, and reeking of sulfide.

The Hudson River's water quality improved after the 1972 Clean Water Act, when the government decided to regulate water pollution and make the nation's waterways "swimmable and drinkable". After the CWA, cities and factories had to obtain a permit before they could release anything into a waterway. The Environmental Protection Agency limits discharge into waters by determining the Total Maximum Daily Load (TMDL) that a water body can receive and still safely meet water quality standards. Debate continues over these TMDLs, with environmental groups arguing that the standards are not strict enough to protect ecosystem and human health. Water bodies are listed by each state as "impaired", depending on that state's water quality standards and the designated use of the water body in question. As of 2008, 24% of the 787 New York state water bodies listed as impaired are due to acid rain, 29% are due to fish consumption advisories (mercury, PCBs, other toxins), and 24% are due to stormwater impacts (sewage). The number one cause of impairment is acid rain, followed by pathogens (usually fecal coliform bacteria), PCBs, nutrient pollution, and mercury.

People are concerned about the health of the river for many reasons, from fishing and recreation to using the water for drinking. Currently, the cities of Poughkeepsie, Waterford, Rhinebeck, and the districts of Port Ewen and Highland obtain their water from the river. There is also a water intake pipe above Beacon, which is used to supply extra water to New York City during times of drought. More and more communities are thinking about using the Hudson River for drinking water as the river becomes cleaner.

Many people have heard about the Hudson River's problem with PCBs, or polychlorinated biphenyls, a group of chemicals used in the electrical industry. They are not very soluble in water and accumulate in sediments, animal and plant fats, so animals that eat other animals have higher pollution levels (called *bioaccumulation*). There is evidence that PCBs can cause liver cancer and neurological and developmental problems in humans, and reproductive abnormalities in animals that live in the water. PCBs remain in the sediment for decades, and some have moved into lower parts of the Hudson with the moving sediment.

The major source of contamination of PCBs came from two General Electric plants near Fort Edward. The plants released as much as 1.1 million pounds of PCBs into the Hudson from the 1940s to the early 1970s. Two hundred miles of the Hudson River was declared a Superfund site in 1984. Superfund, or the Comprehensive Environmental

Response, Compensation, and Liability Act (CERCLA), was signed in 1980 by President Carter as a way to reduce the hazardous waste pollution in the United States. It was designed to force polluters to clean up their messes, and to allow private citizens to sue in Federal court for damages. Once a Superfund site is identified, the government works to find out what health risks exist, who created the pollution, and then creates a plan to clean it up. This process can take years or even decades, as it has with the Hudson River.

Since PCBs degrade so slowly, there has been a lot of debate about what to do. The EPA has decided that GE, who originally dumped the PCBs in the Hudson, is responsible for the cleanup. GE, meanwhile, has maintained that leaving the PCBs buried in the sediment is better for the health of the river than attempting to dredge the sediments, which could worsen the situation by exposing and re-suspending the contaminate sediments. At this point, the Environmental Protection Agency (EPA) has reached an agreement with GE to begin dredging of 150,000 pounds of PCBs from the Hudson in two phases. The first phase, which will remove about 15,000 pounds, is scheduled to begin in early 2009. There are still concerns about this clean-up because GE is allowed to 'opt out' of the second phase of the cleanup without penalty, which means they don't have to finish the entire process, and the EPA would have to finish the work. Other critics say that this isn't enough, since it only cleans up about 10% of the contamination. Stay tuned for future developments!

Acid rain remains a large problem for New York State, with many lakes and ponds suffering from extremely low pH levels (learn more by reading the 'pH' summary). Combined sewage overflows and sewage leaks result in the second highest rate of impairment, pathogens. A recent report by Environmental Advocates of New York found that 90% of facilities in the state do not receive technical scrutiny required by law under the Clean Water Act. Many facilities have permits from the state Department of Environmental Conservation, but the permits have not been reviewed for ten years or longer, mainly because the DEC lacks sufficient staff to do so. According to the report, millions of gallons of untreated wastewater from 1,150 facilities are dumped into the Hudson River on a daily basis.

References:

New York State Section 303(d) List of Impaired Waters Requiring a TMDL, March 2008. Retrieved from DEC website, www.dec.ny.gov .

Sweeney, T. 2007. *Muddying the Waters*. Environmental Advocates of New York.