

A Brief History of the Long Island Sound, Part 2

As the railroads and automobiles made Long Island more accessible in the early 1900's, farms and forests gave way to suburban development. Population began to climb. In 1920 Nassau County had 126,000 residents, which became 1.5 million by 1970. Suffolk County increased by a million in the same time frame. This increase was also occurring in Westchester and communities along the Connecticut shore

As homes and businesses replaced natural areas this dramatically altered the flow of sediments, pollutants and nitrogen to the Sound. Plants and soil that once absorbed rainfall and snow melt were replaced with impervious surfaces, buildings and pavement. Run off was directed into streets and then into an extensive system of pipes to the nearest waterbody, streams, ponds, bays and harbors. Shorelines were hardened and vegetative buffers removed to allow homeowners more expansive views. This was a double whammy, pouring runoff polluted with everything on lawns, streets and other surfaces into surface waters and depriving our sole source aquifer of recharge.

Along with the increasing suburbs came the obsession with a perfect green lawn. Lawn Guyland put down more nitrogen in the form of fertilizer than agricultural counties up state. In the case of nitrogen, a necessary element for growth and life, more is not a good thing.

Another source of nitrogen is human sewage. Treated sewage - and millions of gallons of fresh water - are discharged into bays every day. 90% of the unsewered areas in Nassau County are along the north shore; Kings Point, Manhasset, the Plandomes, Sands Point, Glen Head, Lattintown, Mill Neck, and Bayville, mainly discharge into cesspools which are essentially poop injection pits. Suffolk County is 70% unsewered.

Unlimited growth is not a good thing. Like a cancer, massive amounts of nitrogen cause algae blooms. As the algae dies and decomposes, this process extracts oxygen from the water causing a condition called Hypoxia. Just like land dwellers, organisms that live underwater also require oxygen. Hypoxic conditions lead to fish kills, particularly in the western Sound which gets less infusion of oxygen rich waters from the ocean. It is a late summer event, typically occurring in August and September

Scientists were aware of increasing low oxygen events as early as the 1950's, but it wasn't until 1985 that NOAA authorized a study of the Sound. In 1987 Congress created the National Estuary Program as part of the Clean Water Act. The Sound was chosen as one of the 28 estuaries of national significance, with the program being overseen by the EPA. The EPA created the Long Island Sound Study (LISS) office and a bi-state Management Committee. A Citizen's Advisory Committee (CAC) was established in 1988, open to stakeholders and interested parties. The early LISS often saw power struggles between environmentalists and developers.

While this positive step of creating the LISS was taking place, the Sound had reached a tipping point. In 1987 and 1989 massive kills of fish, lobsters, clams and other creatures took place due to severe hypoxic conditions.

With this impetus, the LISS began work on a Comprehensive Conservation and Management Plan (CCMP) which was published in 1994. Recognizing nitrogen as a major culprit in the degrading of the Sound, it established Total Maximum Daily Loads (TMDLs) which would require significant reductions in nitrogen output from the over 80 plants discharging into the Sound, with New York City the 900-pound

gorilla at the western narrows. The estimates for upgrading ran into billions. Funding was a critical issue for municipalities. It seemed like an impossible task. But over time, with community and political will to invest in the health of the Sound, the reduction goal came closer. In 2017 NYC, with a billion-dollar investment, reached the target of 58% reduction.

The CCMP was not just about nitrogen but also set goals for protecting natural lands, restoring salt marshes, and developing a deeper understanding of the intricate workings of the Sound. The LISS and the CAC were not resting on their laurels. In 2015 a new CCMP was developed and published. Many goals of the original CCMP had been achieved but 20 years of science and practical experience had led to deeper understanding and to new targets.

Progress can be measured in many ways. Sewage treatment plants around the Sound have been upgraded. Suffolk and Nassau county are working on the thorny issue of septic systems. The return of osprey and eagles reflects an abundance of healthy fish stocks.

There are still challenges to face. Climate change with rising sea level and water temperatures are already impacting the Sound. Temperature has been implicated as a factor in hypoxia. Cold water creatures like northern lobster and winter flounder may not find the warmer waters survivable. Sea level rise threatens buffering salt marshes as does continued development. But progress has been made and the return of whales, dolphins and seals to the western Sound speaks of that change.

Learn More:

Know your septic system <http://www.getpumpedli.org/>

This Fine Piece of Water by Tom Anderson

The Long Island Sound Study: <https://longislandsoundstudy.net/>