



Eastham's Freshwater Ponds

At the point where one can cross our narrow land in 1.5 miles from Bay to Ocean, Eastham's 12 precious kettle ponds lie cradled. Herring and Bridge Ponds on the west receive salt water inflow from the First Encounter area, and Salt Pond, on the east from the Ocean. Each of these ponds has its own character: Jemima is traditionally a skating and fishing pond; Depot was the site of the railroad station when the trains came through in 1875; Great was the home of an ice house and a small meat packing plant one hundred twenty five years ago: tiny Little Depot, now home to Eastham's biggest cormorant flock, was created when the railroad sliced a piece off of Depot to allow a straight run of track.

As Cape Cod kettle ponds (ponds formed when the glacier deposited blocks of ice in the sandy soil), these jewels have remained ecologically healthy for millennia, home to diverse flora and fauna, including in the late 20th century, the rebounding osprey. We have loved them! And in that lies the problem.

Although through many millennia ponds naturally eutrophy, or revert to land, our love for them has hastened that process. Just as nitrogen entering our saltwater estuaries has supplied an excess of nutrient, causing overgrowth of algae and decline of oxygen, phosphorus entering ponds has done the same. Land used lightly for hundreds of years began to be used intensively in the 20th century, speeding the process of eutrophication.

In 2001, as a result of a call to action by the Cape Cod Commission, volunteers across the Cape were trained by scientists to take water quality samples and readings. Eastham volunteers have now studied our ponds for 12 years. The raw numbers, showing a decline in clarity, a decline in oxygen and an increase in phosphorus, seem to support what pond lovers have observed: many ponds contain ropes of algae so thick that swimming, wading, fishing and even kayaking have become problematic.



In 2009 Eastham received two important reports. The first was an analysis by the Cape Cod Commission's water quality department in which water quality scientists evaluated pond data collected from 2001 through 2006. Again, the analysis supported what our observations had made obvious: few of our ponds are ecologically healthy. The authors



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suggested preventive measures to curtail additional flow of phosphorus into the ponds. The best management practices they recommended included curtailing fertilizer, installing buffer zones of native plants at water's edge, curing run off which flows directly into water bodies from streets and from properties to streets . However, these beneficial actions only prevent a small amount of phosphorus deposit because the bulk of the phosphorus comes from humans directly through our septic systems.

The authors also pointed out that phosphorus travels very slowly, so slowly that the phosphorus entering the ponds now may have been deposited 75 years ago, and phosphorus entering the groundwater now from our septic systems will be causing serious problems for many years to come.

The second important report which Eastham received in 2009 was the Stearns and Wheler wastewater management plan. This study grouped the ponds into one watershed and told us that we will be required to remove 100% of the phosphorus in that watershed. It also reiterated the fact we already knew: Unfortunately, Title 5 septic systems were designed to protect human health, not the environment. As of this date, there is no innovative septic system which has been proven to remove phosphorus. This leaves us with advanced treatment of some type to prevent the bulk of phosphorus from flowing into the groundwater and on into the ponds. Because Eastham believes this cure is many years away, we have decided to try to alleviate the symptoms.

In 2011 we received a third report, a ponds water quality action plan. Consultant EcoLogics took the data from the several previous reports, did some further testing which volunteer s are not equipped to do, ranked the ponds for urgency of action, and recommended appropriate actions the town could take to do in-pond treatment while enacting commonly accepted best management practices as described above. Our most degraded pond is Herring, and for many reasons, the consultant recommended treating it with alum. This work was completed in mid-November; we await summer 2013 to determine if this process has been successful. Meanwhile, the Water Management Committee is devising a ponds water quality policy for use by town boards and concerned citizens.