Town of Mashpee
Sewer Commission
16 Great Neck Road North
Mashpee, Massachusetts 02649

Mashpee Water Polution Problem

The problem is too many nutrients – nitrogen in our coastal waters and phosphorus in our fresh waters. Algae slicks, fish kills, and offensive odors are a few of the symptoms of degraded water quality caused by too many nutrients. These conditions make it unpleasant for Mashpee residents and visitors to use our local waters for swimming, boating, fishing and shellfishing.

The Mashpee River has been one of the primary focal points of this issue, dating back to concerns raised in the early 1980s that resulted in the Town purchasing conservation land in an effort to slow down the pollution.

Popponesset Bay and Waquoit Bay have been the focus of several studies, including those most recently done as part of the Massachusetts Estuaries Project, that show signs in these areas of low dissolved oxygen, loss of benthic (bottom dweller) communities and habitats, loss of eel grass (home and nursery to fish and other important species) and overall eutrophication (over fertilization / overgrowth of algal and other plant life) that blocks out light and consumes oxygen that native species need to survive.

What Causes the Problem?

Nutrient pollution – or too much nitrogen (in salt water) and too much phosphorus (in fresh water) – hurts our natural environment and the industries that rely on it by negatively impacting water quality. It affects our quality of life and the enjoyment we get from spending time near our precious coastal resources.

Many of us have chosen to live in Mashpee because of its natural resources, but our community's popularity is our estuaries' downfall and these estuaries and the problem of reducing the nitrogen pollution to them is the primary focus of this project.

More homes and businesses mean more nitrogen from human sources is being released into the environment. While nitrogen is present in the environment naturally, in excess it is considered a pollutant. It acts as a fertilizer, causing excess plant and algae growth in the water. This excess growth consumes oxygen and smothers other forms of life. When the plants die they also consume oxygen as they decompose. There is no longer enough oxygen in the water for aquatic life, causing fish kills and harming plants such as eelgrass that serve as a nursery for many important species of fin fish and shell fish. The decomposition of organic matter creates odors and is unsightly, leaving increasingly thick layers of muck on the bottom of our estuaries, impacting recreational uses such as swimming and boating, as well as the economic backbone of the Cape economy – tourism and fishing.

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Who's Responsible?

We all are. If you use a septic system or are connected to a sewer, fertilize your lawn, or don't pick up after your dog – you are part of the problem. Conventional Title 5 septic systems do not remove enough nitrogen, so it is carried to our rivers and estuaries by the ground water. Even if your household sanitary waste is treated at a wastewater treatment plant, you are part of the problem because nitrogen is present in treatment plant effluent. Treatment plants discharge nitrogen, but at much lower levels than conventional septic systems which serve most of the properties in Town.

What Can We Do about Nitrogen Pollution?

The good news is that we can all be part of the solution too! By reducing the amount of nitrogen that we discharge into the ground from our wastewater and stormwater systems, we can prevent or reverse nitrogen pollution. Simple actions such as limiting the use of fertilizer and picking up after your dog help.

Conventional Title 5 septic systems do not remove enough nitrogen from household wastewater – even when properly functioning. In fact, the largest source of nitrogen pollution to Mashpee waters currently comes from Title 5 septic systems. Innovations in septic system design have been made and there are now systems available that provide enhanced nitrogen removal, though not nearly enough to solve our nitrogen problem.

Centralized wastewater treatment plants provide much better nitrogen removal than septic systems. Treatment facilities can be designed to provide greater nitrogen removal during processing. If the correct locations are selected, nitrogen can be removed from our most overstressed watersheds or be located where natural processes which take place in our fresh water systems can provide further nitrogen reduction. Recharging groundwater has the added benefit of keeping water local by returning it to the rivers, streams and estuaries that it came from.

The Town is doing its part to improve and protect Mashpee's waters by implementing the WNMP. It's critical for Mashpee residents and businesses to also be involved in the project. You are part of the problem – and must be part of the solution. You can learn more about the problem with nutrients in Mashpee waters by visiting the Cape Cod Water Protection Collaborative website. Read more about Mashpee's efforts to solve the problem by visiting the About the Project section of this website, participate in Sewer Commission meetings and add your voice to our community's discussion about the options. The Sewer Commission has recommended a plan, which has received county and state approval. Residents will be asked to provide the funds needed to implement the plan, so please stay informed.

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What's at Stake? – Mashpee Waters and Economy

The environment: Algae Blooms form excess nitrogen in Mashpee's bays and estuaries can lead to the destruction of eelgrass beds important as a nursery for young fish and other animals, low oxygen levels, fish kills, unpleasant sights and smells, and other long term damage to the ecosystem. In 2005, for example, the Mashpee River experienced a large-scale die-off of fish and other animals as the result of an algae bloom that consumed all of the dissolved oxygen in the system.

"So on warm summer nights during algal blooms, the dissolved-oxygen concentration sometimes drops too low for the fish, and a die-off can occur. This can occur as a result of purely natural conditions or because of human activity that results in adding nutrients, nitrogen and phosphorus, to water systems. An excess of nutrients tends to speed up the growth of algae and diminish the availability of dissolved oxygen" – United States Geological Service

Real estate and the economy: Residents and visitors alike come to live and play in Mashpee for the shellfishing, boating, swimming, and even for the simple pleasure of digging their toes in the sand or dipping them in the water. Clean water is at the heart of those experiences. A Cape Cod Commission study found 1 per cent decline in water quality led to an average loss in value of 0.61 percent in nearly properties. The study was based in Barnstable, where a nearly 16 percent decrease in water quality was found in the Three Bays area. A similar decline would result in the loss of nearly $50,000 in value for a home in Mashpee with an assessed value of $498,000, the Town's average. A survey conducted as part of the study found a high risk of behavioral changes based on poor water quality, including a reduction in recreational activity. Residents said they might move away from the region and visitors reported they may vacation elsewhere if water quality declined.

"If applied Cape-wide, the study suggests towns could see their tax base decline by hundreds of millions of dollars if nitrogen levels continue to rise; while homeowners would lose equity on their home investment." – Water Quality and Cape Cod's Economic Future: Nitrogen Pollution's Economic Impact on Homes and Communities, Cape Cod Commission 2015