



WATER RESOURCES

1. **BACKGROUND:** The following provides a brief overview of data and trends related to our community's valuable Water Resources including our drinking water, ponds, estuaries and coastal resources. Links to websites and programs for more in-depth information are embedded throughout the text.

Data/Trends:

Drinking Water:

- Yarmouth pumped an average of 4.37 million gallons per day (mgd) in 2019 including water sales to Barnstable. Permitted average daily water withdrawal is 4.95 mgd, with a maximum daily pumping capacity of 13.2 mgd.
- 24 groundwater wells drawing from Cape Cod's sole source aquifer, currently treated only for corrosion control. Well #9 has been off line for several years due to PCE impacts.
- Drinking water quality is high and in compliance with existing regulations and mandated Maximum Contaminate Levels (MCL). Recent sampling for Manganese showed elevated levels in several wells which may require treatment in the future. PFAS (man-made compounds) were detected in monitoring wells near Wells #6, 7, 8 & 9. Emerging Contaminants, such as pharmaceuticals and PFAS, pose a future threat to our drinking water and health.
- Average Nitrate levels are well below the MCL of 10 parts per million (ppm), however, spiked levels of 6 ppm have been detected in some wells. Nitrates pose significant health risks for pregnant woman and infants. Major sources of Nitrates are fertilizers and septic systems.
- The Town controls 963 acres of land around its wells and aquifer recharge areas (Zone II), but our water supply is susceptible to contamination from land uses in the Zone II, such as residential septic systems, fertilizers at golf courses, industrial facilities, and Route 6.

Ponds:

- 29 freshwater ponds, 8 of which are greater than ten acres in size making them public Great Ponds.
- Testing at Dennis Pond, Greenough Pond, Flax Pond and Long Pond shows acceptable water quality standards. Testing of Tom Matthew's Pond shows unacceptable water quality levels. The majority of small ponds in Town have no water quality testing data.
- There are high water quality bathing beaches at Dennis, Flax, Little Sandy, and Long Pond (tested annually by Barnstable County).
- Phosphorous is a concern for fresh water ponds, with an excess of phosphorous causing algae blooms and decreased oxygen levels. Sources of phosphorous include animal wastes, dead organic matter such as leaves and grass, fertilizer runoff, and septic systems.

Estuaries & Coastal Resources:

- Yarmouth has over 39 miles of salt water shoreline and 8 main salt water beaches (Bayview, Colonial Acres, Englewood, Seagull, Sea View, Parkers River, South Middle, Smugglers, Wilbur Park, Windmill, and Grays Beach on the north side).
- Yarmouth has five sub-watersheds including Bass River, Parkers River, Lewis Bay, Mill Creek and Chase Garden Creek.



- Tidal restrictions impair water quality to Swan Pond, Run Pond, and ponds in the upper reaches of the Bass River including Mill Pond, Follins Pond, Dinah’s Pond and Kelley’s Bay.
- Massachusetts Estuary Program (MEP) has identified Bass River, Parkers River and Lewis Bay estuaries as being impaired due to nitrogen levels and established Total Maximum Daily Loads (TMDLs) for nutrient loading.
- Declining water quality in our estuaries is due to excessive nitrogen mainly from septic systems, but to a lesser degree stormwater runoff and fertilizers.

Studies and Reports: In addition to the [Water Resources Advisory Committee](#) webpage noted below, more detailed information and data can be found at the following links:

- [Open Space & Recreation Plan](#) provides information on our water resources, fisheries and environmental challenges (in addition to information on our open space and recreation areas).
- [State of the Waters: Cape Cod 2019](#) was completed by the Association to Preserve Cape Cod and includes information on the health of Cape Cod’s saltwater embayments and freshwater ponds.
- [Cape Cod Commission Water Resources](#) webpage contains information on the Commission’s water resource initiatives.
- [2019 Yarmouth Annual Drinking Water Quality Report](#): Drinking Water Quality Reports provide an overview of our water system and are mailed out annually to water users and are available on the Town Website.
- [Town of Yarmouth Water Resources Videos](#): The Town has developed a number of videos to help educate the public on the importance of our water resources.

2. EXISTING PROGRAMS/PROJECTS/INITIATIVES: Yarmouth has been working hard on ways to protect our water resources, especially as it relates to nitrogen loading due mainly to our heavy reliance on septic systems for wastewater disposal.

- **Clean Water Initiative:** The Water Resources Advisory Committee (WRAC) was appointed in 2018 to investigate ways to involve and educate the community on clean water resource initiatives. They have been working diligently on evaluating options for a municipal wastewater system including the potential for a regional collaboration through a Dennis/Harwich/Yarmouth (DHY) partnership, reviewing financing plans, developing educational materials/videos and conducting public outreach meetings, including regular updates to the Board of Selectmen. The [Water Resources Advisory Committee](#) webpage contains a significant amount of information on the Town’s ongoing municipal wastewater initiative to promote clean water for our community. Funding for wastewater was bolstered by a 2.75% excise tax on traditional lodging and short term rentals dedicated to the Cape Cod & Islands Water Protection Fund which is overseen by the Clean Water Trust and a managing board comprised of one representative from each of the 15 Cape communities.
- **Tidal Restoration Projects:** Tidal restoration projects can restore natural tidal flushing which improves water quality and reduces nitrogen loads in our estuaries. As part of the MassDOT Cape Cod Rail Trail extension, the old railroad bridge over the Bass River was opened up to provide for additional flushing in the upper reaches of the Bass River, however, the Route 6 bridge still remains a significant point of tidal restriction. The Parkers River Tidal Restoration Bridge Replace is currently under construction to widen the bridge from 18’ to 30’ to improve tidal flushing in the upper reaches of the Parkers River Estuary.
- **Water System Master Plan:** The Town conducted a 2019 Water System Master Plan which identified ways to be more proactive in protecting our valuable drinking water.



- **Stormwater Regulations:** As part of the MS4 Stormwater General Permit, the Town is working to adopt more stringent Stormwater Regulations for projects that disturb more than one acre. These standards will address stormwater attenuation, recharge and treatment.
- **Water Quality Monitoring:** A number of fresh and marine waterbodies continue to be tested for nitrogen, fecal coliform and other parameters to develop baseline data that can be used for ecosystem health evaluation and potential public health issues.

3. WHAT'S IN THE WORKS: In addition to the programs, projects and initiatives noted above, there are several water resource related projects in the works:

- **Wastewater:** The major initiative currently in the works is moving forward with a municipal wastewater system with a cost saving regional approach. Anticipated for the 2020 Fall Town Meeting are multiple Articles related to various ways to fund the wastewater initiative. Initial funding for design and permitting of a wastewater system was approved at the 2020 Annual Town Meeting. Design and permitting is estimated to take two years for the first phase of the system which includes the backbone of the collection system along Route 28 and a centralized wastewater treatment facility.
- **Land Acquisitions:** The Town is investigating acquisition of parcels of undeveloped land along Higgins Crowell which are within 1000' of a drinking water well to add this land for wellhead protection.
- **Tidal Restoration:** The Town has partnered with local watershed organization and project leader [Friends of Bass River](#) in a recently awarded \$253,779 Southeast New England Program (SNEP) Watershed Grant for the upper Bass River system. The grant project will conduct a hydrologic study of the system and complete engineering and permitting to reconnect historic cranberry bog wetlands with the riparian system of Bass River by replacing failing road crossings at Weir Road and North Dennis Road. The project will improve coastal resiliency and both freshwater and estuarine habitat through improved water quality and fish passage restoration.
- **Water Testing:** The Friends of Bass River Water Testing Team are gathering weekly samples of the Bass River water at five locations: Mill Pond, Follins Pond, Kelley's Bay, Aunt Julia's Landing and to the south of Uncle Freeman's landing, to get a better understanding of the water quality throughout the Bass River watershed. The Town is also expanding water quality testing to additional fresh and marine waterbodies while continuing the existing testing efforts.

4. THINGS TO THINK ABOUT: Now that you have had an opportunity to learn a little bit about Water Resources in Yarmouth, bring your thoughts and ideas to the Workshops or include them in your Survey responses. Some things to think about include:

- What strengths do we have regarding our Water Resources?
- What water resource initiatives are we doing successfully?
- What challenges do you see related to Water Resources?
- Are there issues and influences holding us back?
- What opportunities could we tap into to address these challenges?
- Is the Town spending its time and resources on the right projects or initiatives?
- If not, where should we be spending our time and resources?
- How will a municipal wastewater system impact your vision for Yarmouth's future?

