It’s All Connected: Nitrogen and Water Quality

Update: 09/18/2021

Nitrogen is the #1 Threat to Water Quality

- Too much nitrogen causes faster algae growth than what the ecosystem can handle.
- Check out this [NOAA Story Map on harmful algal blooms](https://www.noaa.gov/)
- About 80% of the nitrogen in Cape Cod’s watersheds is from septic systems.

True or False

⇒ Septic Systems remove all nitrogen.
  ⇒ **False!** Most Title 5 systems only remove bacteria. Some advanced septic systems, or IA systems, remove nitrogen, but not all nitrogen is removed.

⇒ Only people who live on the coast need to worry about Nitrogen Pollution.
  ⇒ **False!** On Cape Cod, everyone contributes to the same aquifer that is the source of our drinking water. Reducing nitrogen pollution is a shared problem with shared solutions.

⇒ There is nothing we can do to stop Nitrogen Pollution.
  ⇒ **False!** There is a lot you can do to reverse nitrogen pollution starting today. Head to the [EPA Nutrient Pollution webpage](https://www.epa.gov/) to see what you can do in your home and in your yard. Check the [Town CWMP webpage](https://www.townofbourne.com/) to see what you can do in your community.
It’s All Connected: Onsite Systems and Nitrogen Removal

**How much nitrogen does each on-site system remove?**

- **0%**
- **25%**  
- **30—60%**

- **CESSPOOL**
  - A cesspool is a pit which provides wastewater a place for both the solids to settle and also for liquid to disperse to the surrounding soil.
  - *Cesspools are Title 5 NON-COMPLIANT*

- **SEPTIC SYSTEM**
  - A septic system is a combination of components beginning when wastewater from a home enters a septic tank. Solids settle to the bottom of the tank and begin to break down and scum, made up of fats, floats. The liquid in between the solids and floating scum then move to a distribution box which disperses the liquid into the leaching field (also known as the soil absorption system) where organisms in the soil break down the liquid further.

- **INNOVATIVE/ALTERNATIVE I/A SEPTIC SYSTEM**
  - An innovative/alternative (I/A) septic system is a variation of a septic system with either more or fewer parts/components than a conventional septic system and which provides higher treatment by promoting advantageous bacterial growth.
  - Barnstable County also has the Massachusetts Alternative Septic System Test Center (MASSTC) where new technology is tested out to find more ways to treat wastewater.
  - Visit www.masstc.org to learn more.

**Conventional Sewer to Wastewater Treatment Plant Systems**

- Can remove over **90% of Nitrogen**

**How Cape Cod’s Aquifer Works**

The aquifer is deeper further inland and becomes shallower near the coastal edges, giving it a concave shape that resembles a lens. Because freshwater is less dense than saltwater, the freshwater lens floats above the surrounding saltwater.

**Infographic Source:** Cape Cod Groundwater Guardians and Barnstable County Department of Health and Environment, www.capecodgroundwater.org