What is the Cape Cod Commission doing about wastewater?

- **Creating a matrix of potential treatment options**, including alternative systems
- **Creating a flexible, interactive application** to explore potential management scenarios by utilizing current land use and water use data and a Cape-wide buildout analysis, as well as cost- and rate-projection models
- **Creating a Regional Wastewater Management Plan** that will consider a mix of traditional, gray, and sustainable green infrastructure approaches in an effort to determine cost-effective solutions

What are the proposed solutions?

- **No single technique is going to solve Cape Cod's wastewater pollution problem.** One size does not fit all, and forcing a "big pipe" solution does not make sense everywhere on Cape Cod. Instead, a mix of solutions will need to be implemented. Each possible solution requires making choices—trade-offs that balance important factors such as the effectiveness of the clean-up method and the economic cost of that method.

Once solutions are in place, how long will it take before the water quality improves?

- **Scientists have mapped groundwater travel times.** Because Cape Cod soils are highly permeable, it takes fewer than 10 years in most areas for wastewater pollutants to reach our bays from the time they first enter our groundwater. Once nutrient inputs to groundwater are controlled, **we could see improvements in coastal water quality within 10 years.**

Stay informed & involved with wastewater planning!

- Visit the web site:

www.capecodcommission.org/initiatives/wastewater

- Follow us on Facebook and Twitter:

www.facebook.com/CCWastewater
twitter.com/#!/CCwastewater

- For more information about the Regional Wastewater Management Plan:

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Cape Cod WASTEWATER

science ~ land use ~ economy

finding solutions for healthy watersheds

Understanding watersheds, planning for effective solutions…

ON CAPE COD we live, work, and play on our drinking water supply. It is stored beneath our feet in the form of a sole source aquifer.

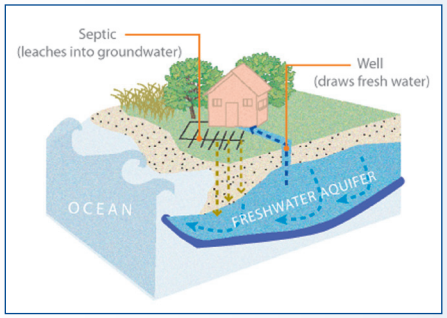


Illustration: T.Harkin/CCC

All drinking water comes solely from our groundwater supply. It is replenished by rainfall and snow melt. It sustains our lakes and ponds. It also discharges to our coastal waters.

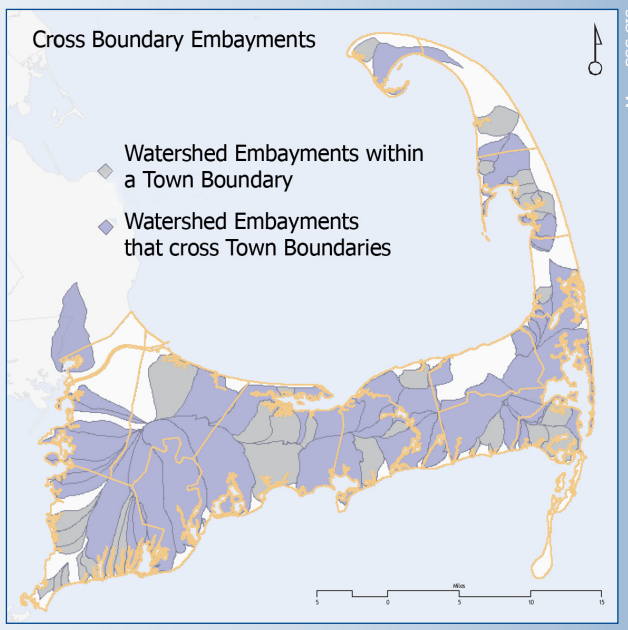
The importance of our sole source aquifer and continued vigilance to keep this source free from contaminants cannot be overstated. **If we lose our clean water on Cape Cod, we lose our way of life.**

CAPE COD WATERSHEDS are the contributing areas to surface water bodies and groundwater wells. They are defined by the movement of groundwater and do not follow town boundaries. Thus most of the watersheds are shared by two or more towns.

So far, wastewater solutions have been completed on a town-by-town basis, which could eventually overbuild a system. Instead, cost sharing among the towns, combined with targeted infrastructure, appropriate technologies, and new financing systems are needed to restore water quality and sustain a viable economy and diverse society.

Did you know?

The septic system of an average three-bedroom home loads almost 8.5 pounds of nitrogen into the groundwater each year.

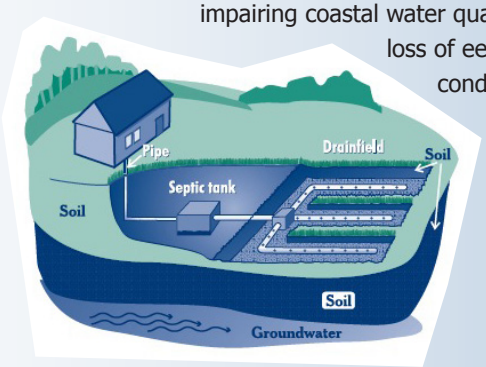


Map: CCC GIS

Many Cape Cod watersheds are shared across town boundaries.

The Problem

APPROXIMATELY 85% of the flow from homes and businesses on Cape Cod comes from individual on-site septic systems. Nitrogen is a waste product of our bodies that is not removed by septic systems. Nitrogen from these systems is released to the groundwater and ends up severely impairing coastal water quality. Excess algae production, the loss of eel grass and shellfish, and noxious conditions are often the results of too much nitrogen. This impact degrades our seashore and could affect the value of our homes.



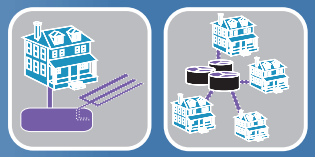
WASTEWATER TREATMENT OPTIONS:

NOT one big pipe, but a Mix of Gray + Green + Traditional Infrastructure

Appropriate Scale

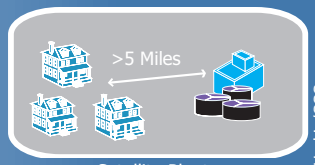
WASTEWATER MANAGEMENT can be accomplished with a variety of traditional, gray, and green options. Under different circumstances, different systems will provide more cost-effective solutions for nitrogen management.

GRAY INFRASTRUCTURE OPTIONS range from relatively small-scale systems (serving single homes or neighborhoods of up to 30 houses) to moderately sized facilities serving up to 1,000 properties.

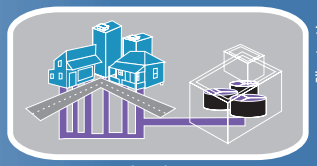


Individual On-site & Cluster Systems

ON A LARGER SCALE IF DENSITY IS APPROPRIATE, traditional infrastructure options include central facilities that serve an entire town alone or with neighboring towns.



Satellite Plants



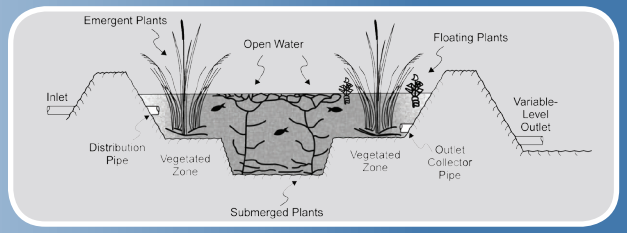
Centralized Systems

Illustrations: T.Harkin/CCC

SUSTAINABLE GREEN OPTIONS include:

- Fertilizer Reduction
- Constructed Wetlands
- Wetland Restoration/Culvert Widening
- Stormwater Retrofits
- Aquaculture Farms
- Reactive Barrier Systems
- Living Machines
- Eco Toilets

Eco Toilets
(Urine Diversion)



Constructed Wetland

Illustration: US Environmental Protection Agency