

# A Watershed Event

*Wednesday, November 13 ~ 6:00 pm ~ Cape Cod Museum of Art ~ 60 Hope Lane, Dennis*

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## **Registration**

6:00

## **Introduction**

Senator Dan Wolf

6:15

## **Cape-2-0 Awards**

Christina Wilson- Program Director, Community PlanIt  
Engagement Game Lab, Emerson College

6:30

Beth Card- Assistant Commissioner, MassDEP  
Ken Moraff- Deputy Director, US EPA Region 1

6:45

## **Saving Paradise: Cape Cod's Water at Risk**

Association to Preserve Cape Cod Documentary  
Ed Dewitt- Executive Director, APCC  
Elise Hugus- UnderCurrent Productions

7:00

## **208 Update: The Next 6 Months**

Paul Niedzwiecki- Cape Cod Commission

7:20

## **Closing Remarks**

7:45

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**Staff from the Cape Cod Commission GIS Department  
will be on hand demonstrating:**

WatershedMVP

FEMA Preliminary Flood Insurance Rate Maps

# 208 PLAN

Appendix 1M

The current planning effort gets its name from Section 208 of the Federal Clean Water Act which calls for the preparation of a plan for the region to address pollution flowing from septic systems into Cape bays and ponds.

In 1978, a Section 208 Water Quality Management Plan for Cape Cod waters was created. In 2013, the State directed the Cape Cod Commission to update this 208 Plan.



"Cape Wide Meetings: A Watershed Event- November 13, 2013"

# CAPE COD 208 PLAN UPDATE



**208 Plan Update** will be substantially **more** detailed and **specific** than the 1978 plan



**Planning** level **document**, not intended to be equivalent in detail to comprehensive wastewater management plans prepared by many Cape communities

**Solutions** to water quality problems considered will be **watershed based**



A **range of solutions** will be required to optimize plans for each watershed, likely a "**mosaic**" of technologies and management solutions

Incorporates local planning and **maximizes infrastructure** that **already exists**



**Prioritization** of most severely impaired waters and easiest and most affordable solutions to **implement**

# COST OF GROWTH

Growth in nitrogen-sensitive watersheds carries a heavy price. To meet water quality targets in these impaired watersheds, a portion of the current nitrogen must be removed **AND** all of the nitrogen from future growth.

When designing a plan, and thinking of options for treatment, it is important to take into account the sources of future wastewater and the amount of nitrogen they may contribute.

# GROWTH FACTS

**15% growth** in the wastewater from additional development is estimated to **add 20%** to the potential construction **costs**

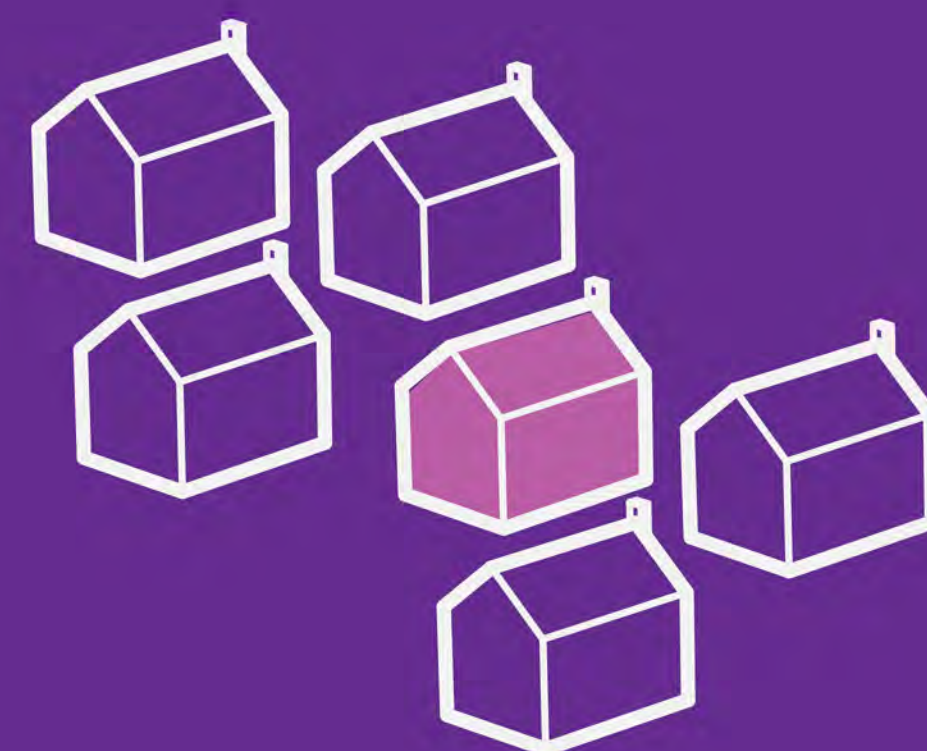
**20%** increase in construction costs for wastewater treatment could **add** as much as **\$760 Million** to the price tag

**Smart growth** that is concentrated around existing development and compact is likely to significantly **reduce the cost** of providing wastewater treatment and other services

**Directing growth** to centers of development is also consistent with the Cape's historic land use pattern, making these areas more **walkable** and reducing traffic congestion

Percent of future nitrogen to be removed

100%



# DOING NOTHING

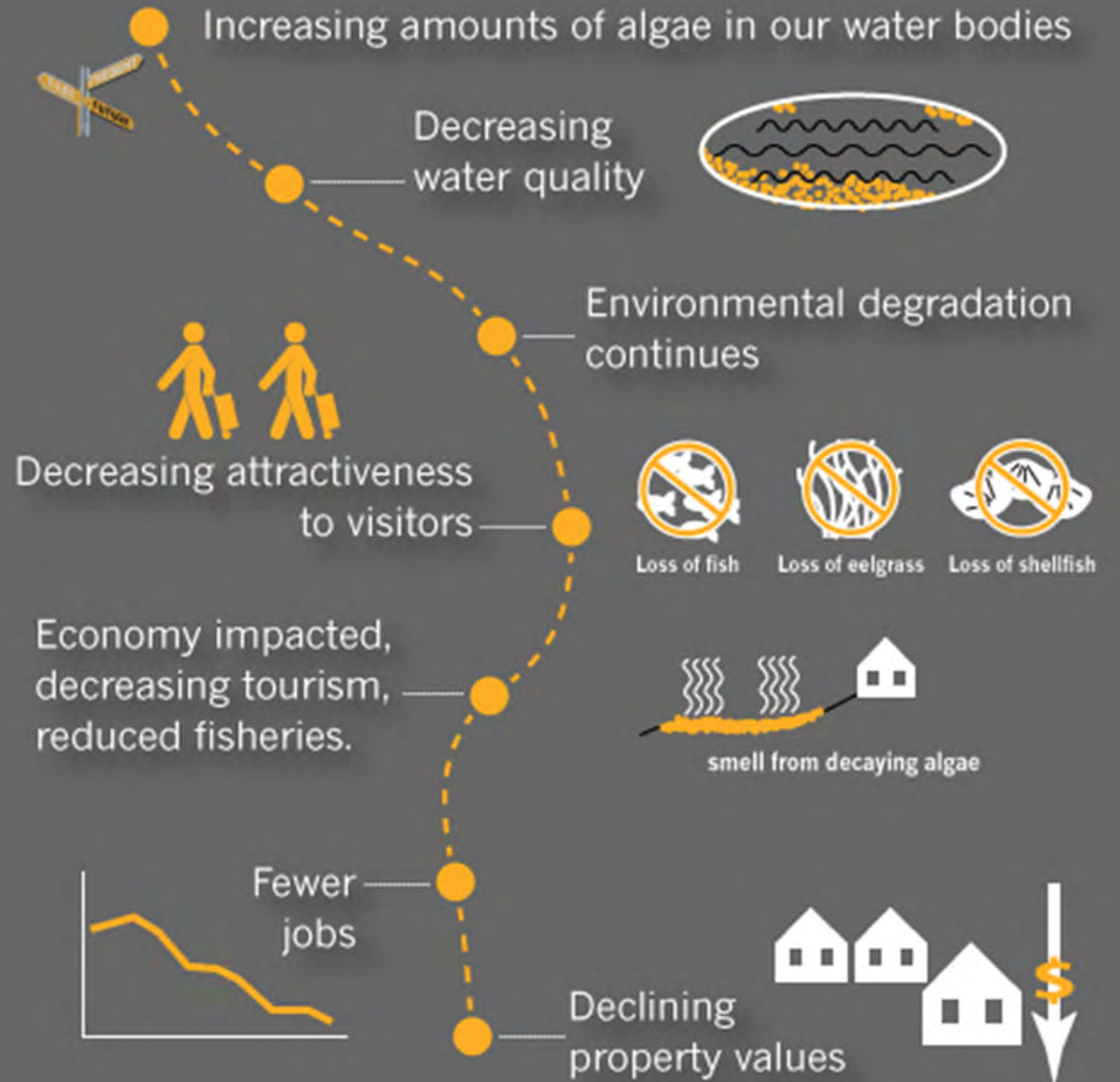
Wastewater management is one of the most significant regional concerns affecting Cape Cod. Excessive amounts of nitrogen are being carried by groundwater into our coastal waters, and are ruining the ecology of our coastal areas, threatening the region's beauty, health, and prosperity.

Many solutions to this problem are possible, but **no single solution will work**. Recently, voters have rejected several wastewater projects because they are too **expensive** and would raise local taxes too much.

**The most expensive thing we can do is to do nothing.** The cost of the solution will only get higher if we don't act. What would our future look like if we followed this path?



## CAPE COD FUTURE WITH NO ACTION



# NITROGEN & THE NATURAL ENVIRONMENT

The natural environment can act to reduce nitrogen in several ways, one of which is to remove nutrients, or “polish” the water. Additionally, this type of functional open space can provide habitat and recreational opportunities.



## PROCESSES THAT REDUCE NITROGEN, NATURALLY

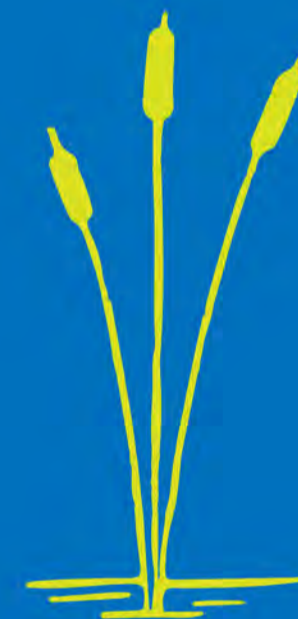
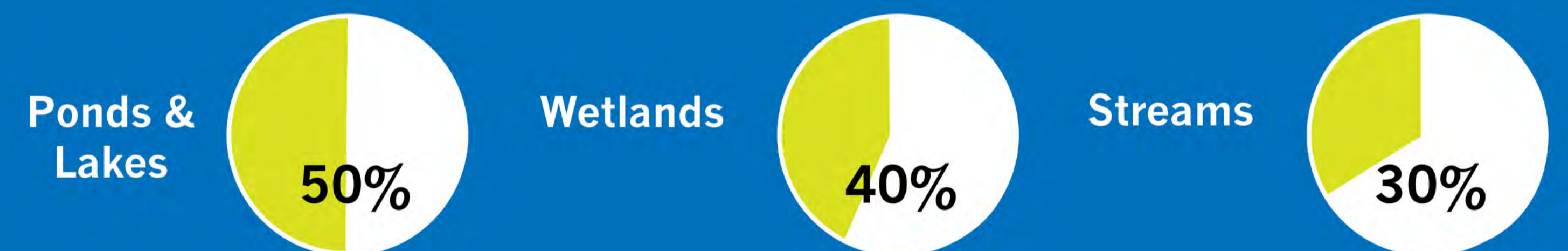


### Tidal Flushing

Opening restricted culverts, restoring wetland areas, and widening inlets to bays and harbors can enhance the benefits of tidal flushing - the transfer of water between fresh and ocean waters.

### Ponds, Wetlands, and Streams\*:

A significant amount of nitrogen can be removed as groundwater passes through freshwater wetlands and waterbodies in a natural process called denitrification.



### Constructed Wetlands

Constructed wetlands simulate the functions of natural wetlands by utilizing vegetation, soils, and microbial activity.



### Open Space Conservation:

Protecting areas that drain directly to nitrogen sensitive embayments from development through zoning changes or land purchase can function to process nitrogen & eliminate new nitrogen loading.



### Special Plantings:

Plants can remove nitrogen via organic decomposition and conversion, often referred to as “**phyto**” technology. Using certain plants in rain garden areas, pond and ocean buffers, and roadsides can help soak up nitrogen slowly over time.



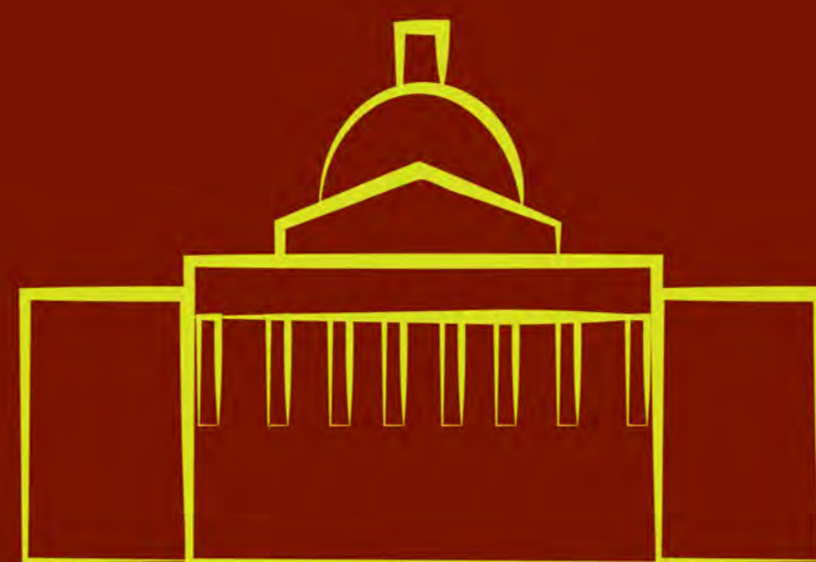
# TAXES

Although no one likes paying taxes, the revenue they generate is essential for communities to provide services, such as schools, libraries, wastewater treatment, and fire service for the residents, businesses and visitors.

Property taxes are a percentage of the value of property in the community. The amount is based on the total funds needed to cover all the services the town provides. This total cost is then spread among the property tax payers.



## CAPE COD TAX FACTS

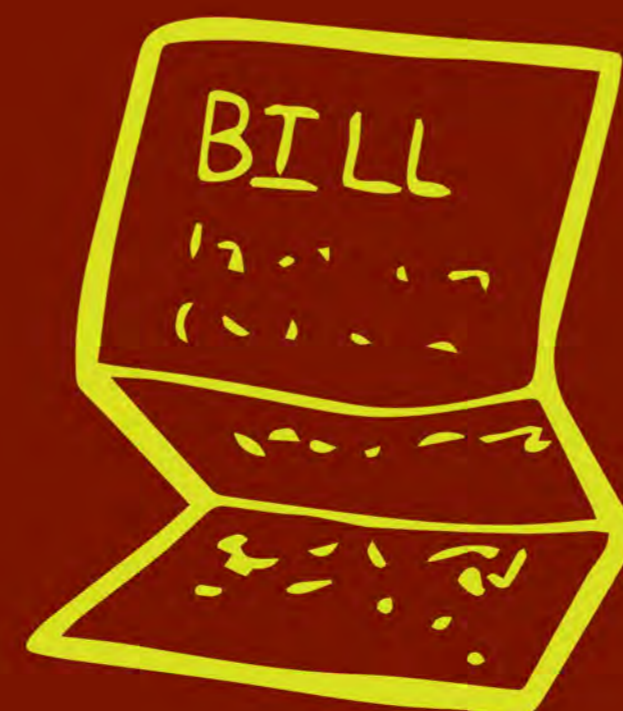


Cape Cod residents make up only **3.24%** of the state's population but the property values for single family homes are over **10%** of the state's total valuation



Cape Cod provided **\$756.3 million** to the state in tax revenue in 2010. Annually, the Cape Cod towns receive **\$33.7 million** in unrestricted local aid

The average reported Cape Cod single family parcel is valued at over **\$450,000**

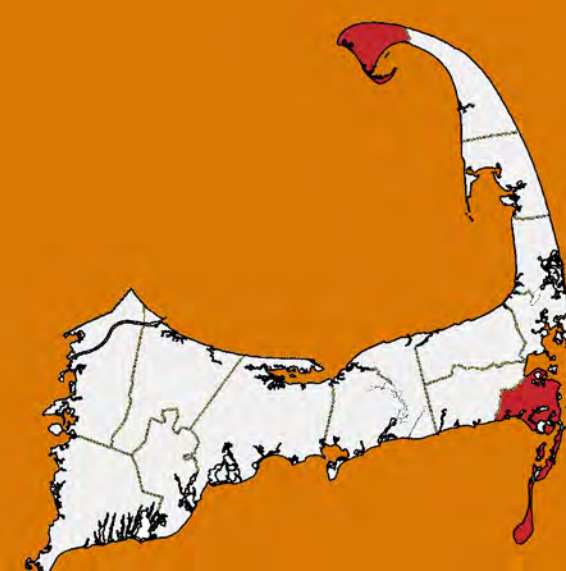


Single family tax bills in 2013 on Cape Cod range from **\$2,388** to **\$5,482**. The average tax bill on Cape Cod as reported in 2013 is **\$3,818**

# SHARED WATERSHEDS

Watershed boundaries are defined by groundwater flow and do not respect traditional municipal lines.

Shared watersheds provide an opportunity for shared solutions and potential cost savings between towns, but can also be more challenging as multiple towns are involved in the decision making for a single watershed.



## SHARED WATERSHED FACTS

**32** of the Cape's 57 embayments are **shared** between 2 or more communities

Approximately **170,000 acres** of the Cape's land area is in a shared watershed

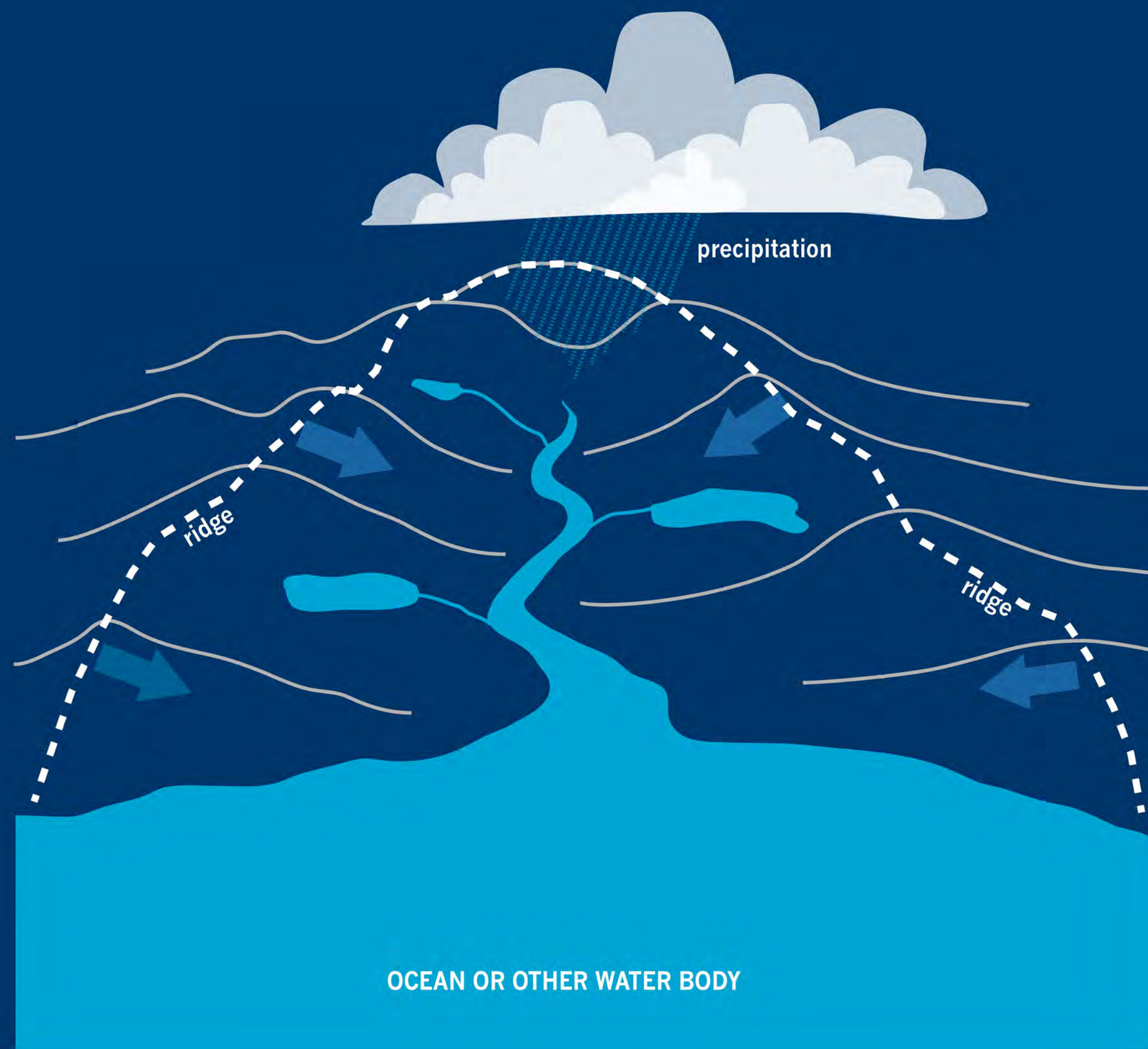
The **Clean Water Act** requires a limit for the amount of nutrients entering an impacted water body. These limits are called Total Maximum Daily Loads (**TMDL**)

Towns that contribute to an impacted waterbody must prepare a plan to meet these TMDL targets. These plans are called **Comprehensive Wastewater Management Plans**

**2** towns on Cape Cod have **begun to implement** wastewater plans

# WATERSHEDS

A watershed is an area of land where all the water that drains off it, or under it, goes to the same place.



## CAPE COD WATERSHED FACTS

105 watersheds on Cape Cod

Two types of watershed



**57** watersheds where water drains to a bay or estuary before entering the ocean. These are called **embayment** watersheds



**48** watersheds where water drains directly to the ocean. These are called **direct discharge** watersheds

Area of Cape Cod in an embayment watershed

A map of Cape Cod with a grid overlay. The majority of the land area is shaded in light blue, representing embayment watersheds. The number '79%' is printed in the center of the map.

Embayment watersheds cover most of Cape Cod's land area, almost 210,000 acres of the region