



CAPE COD
COMMISSION

Section 208 Area Wide Water Quality Management Planning - Affordability and Financing

Agenda

Welcome – Paul Niedzwiecki, Cape Cod Commission

Overview and Background – Erin Perry, Cape Cod Commission

Participants weigh in on key questions by keypad polling –
participants will be asked various questions on demographics and sewerage use

Poster Session

Panel Discussion – Commission Staff, Experts, Local Officials

Participants weigh in on key questions by keypad polling – participants
will be asked various questions regarding willingness to pay for particular solutions.

Summary and Adjourn

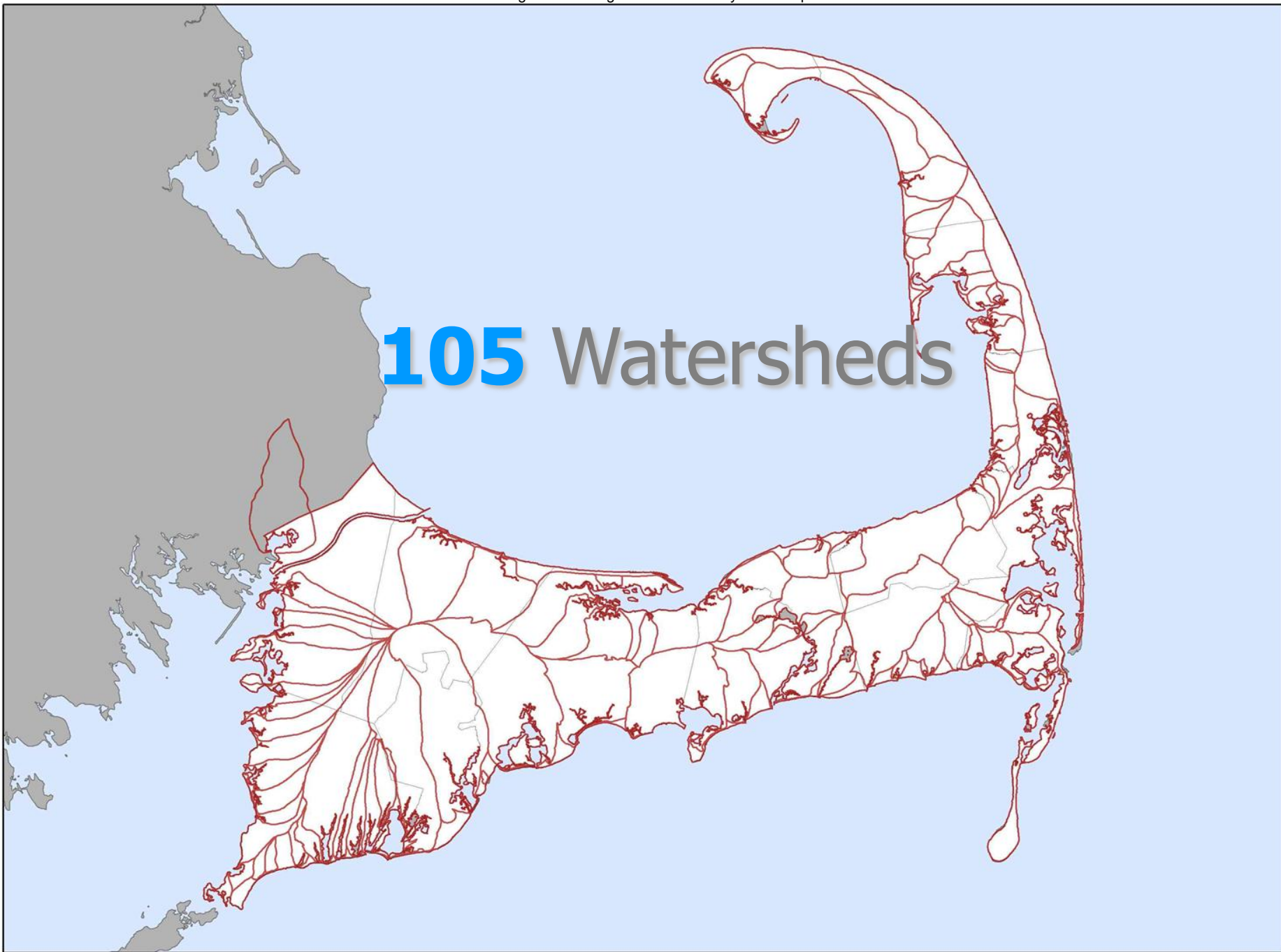
Section 208 Area-Wide Water Quality Management Plan Update

Affordability, Financing, & Resources



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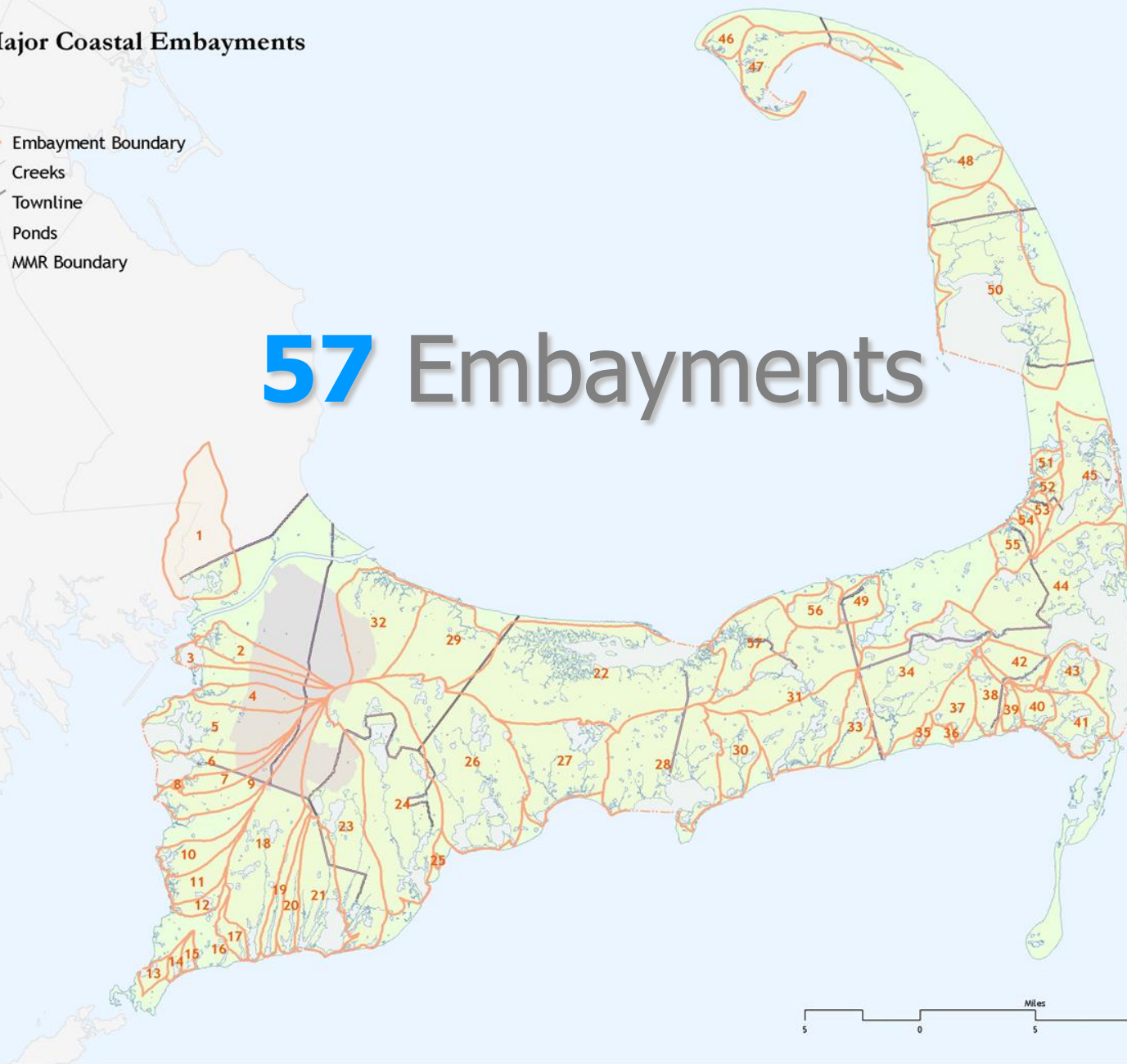
105 Watersheds

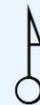


57 Major Coastal Embayments

- ◇ Embayment Boundary
- Creeks
- Townline
- ◇ Ponds
- ◆ MMR Boundary

57 Embayments

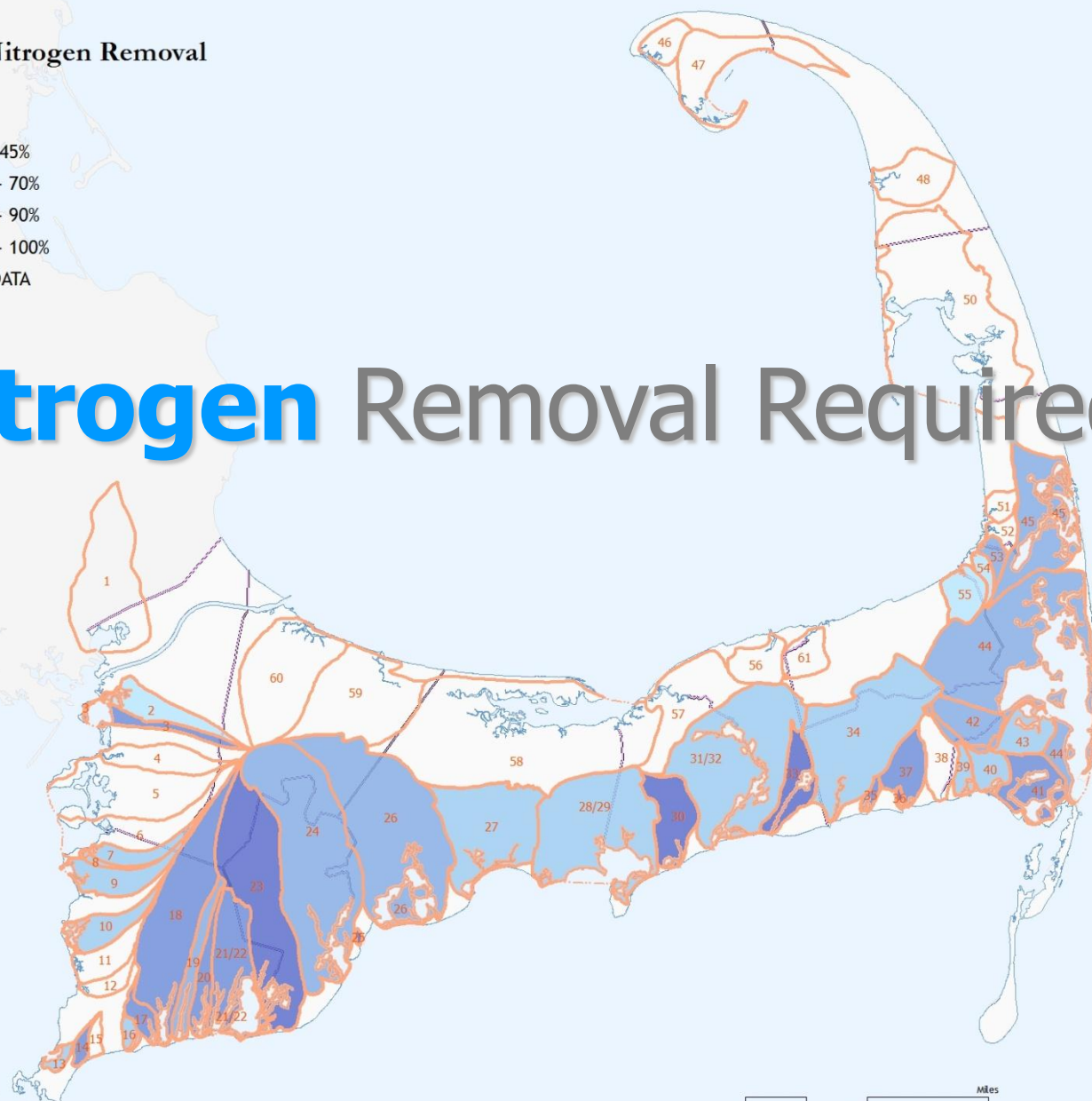




Percent Nitrogen Removal

- ◊ 0 %
- ◊ 1% - 45%
- ◊ 46% - 70%
- ◊ 71% - 90%
- ◊ 91% - 100%
- ◊ NO DATA

Nitrogen Removal Required



- ◆ Watershed Embayments within a Town Boundary
- ◆ Watershed Embayments that cross Town Boundaries

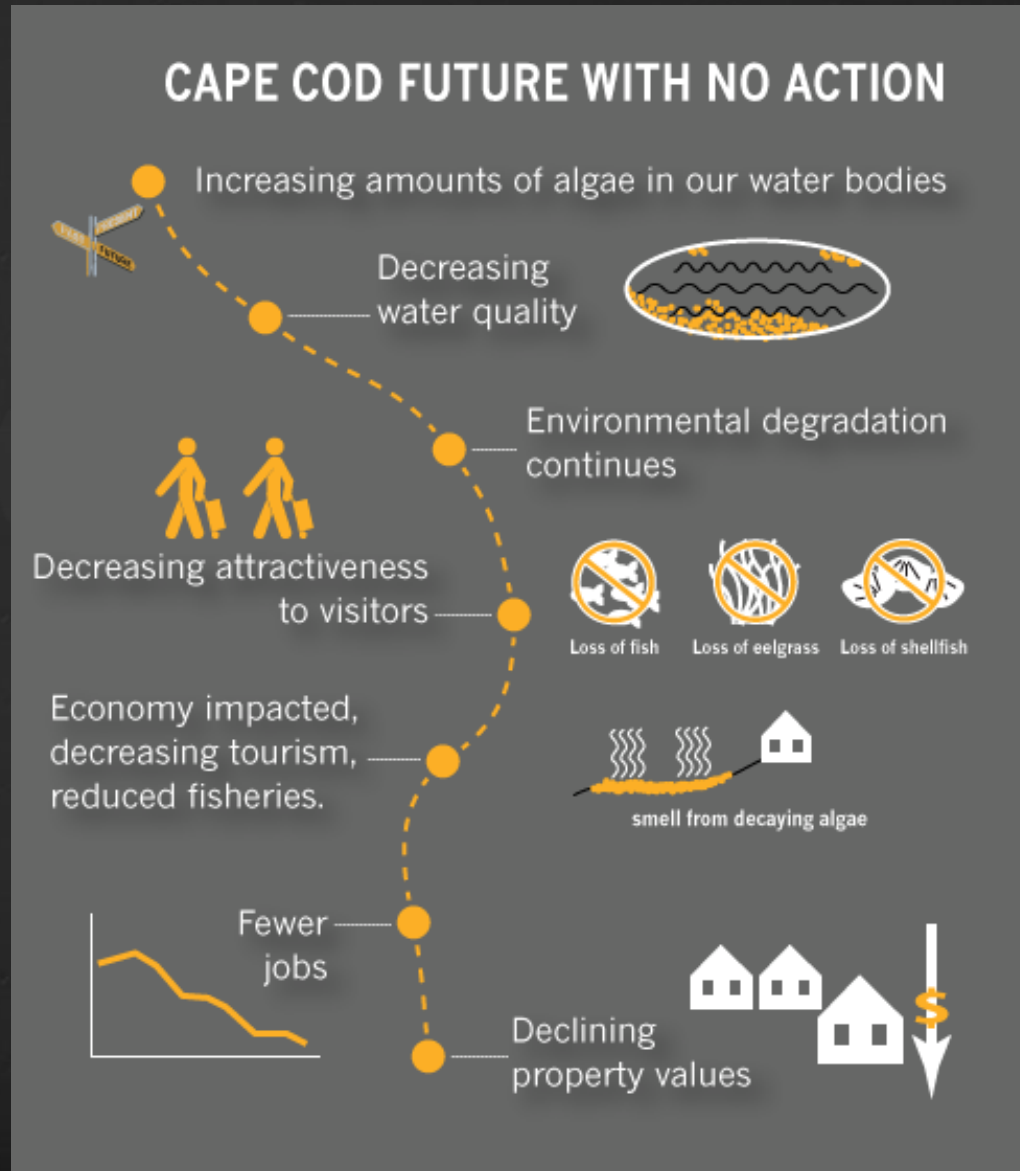
A **Regional** Issue



The 208 Plan: What is It?

- Clean Water Act Section 208
- Much more known/done now
- Focus on 21st Century Problems
 - Nitrogen:** Saline waters
 - Phosphorus:** Fresh Waters
 - Growth & Title 5 Limitations**
- Directed to update the existing plan by the Commonwealth
- The Commonwealth has provided \$3 million to complete the plan

Doing Nothing is the Most Expensive Option

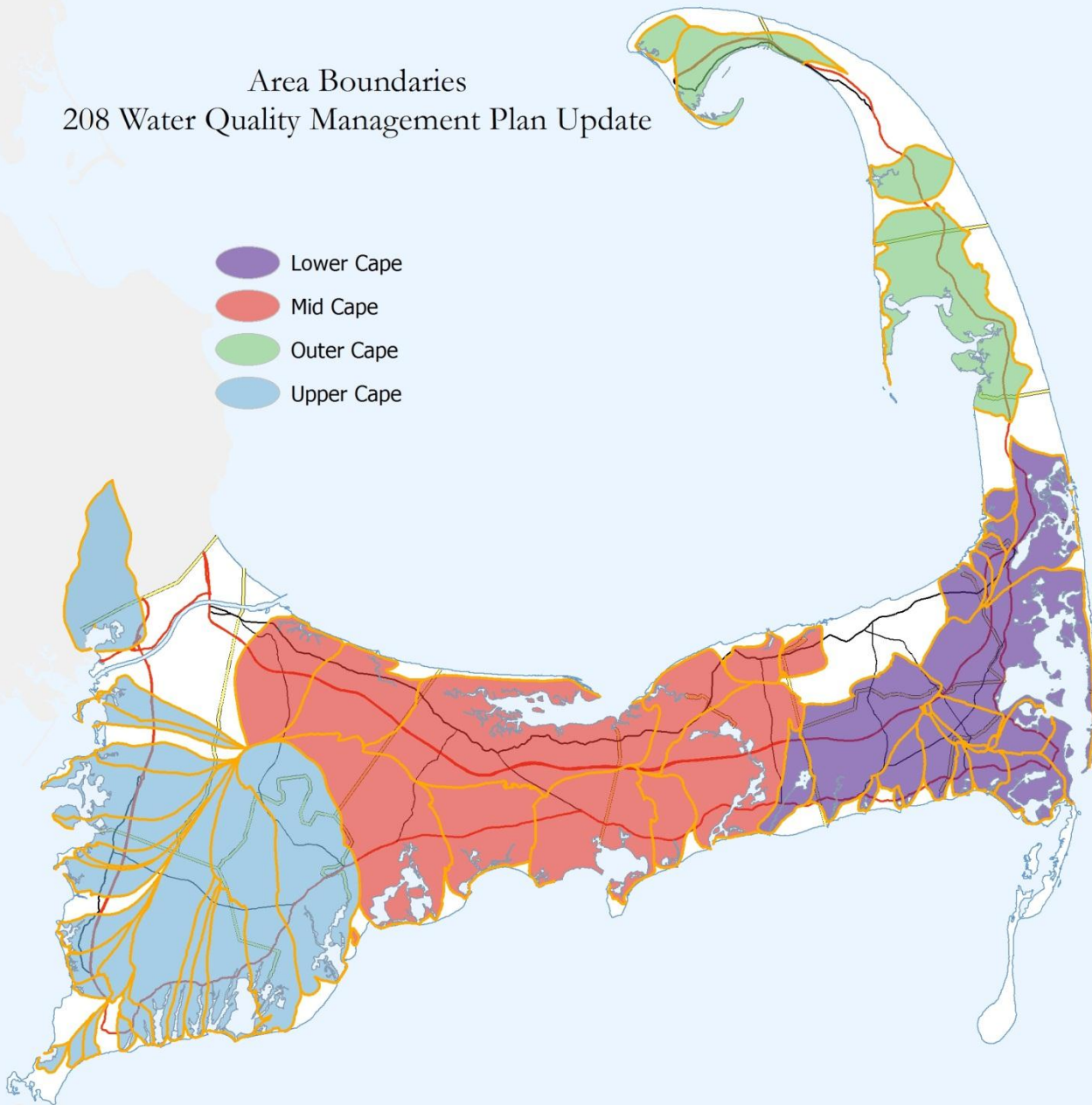


Approach to the 208 Plan Update

- **Update to 1978 Plan**
- **Watershed-Based**
- **Stakeholder Engagement – Cape-Wide & Watershed-Based**
- **Maximize Benefits of Previous Town Planning**
- **Support and expedite targeted watershed solutions under existing plans**
- **No Optimal Solution. Diverse Technologies**
- **Adaptive – Technology Development, Pilot Projects, Progress Monitoring**
- **Coordination with MassDEP and U.S. EPA**

Area Boundaries 208 Water Quality Management Plan Update

- Lower Cape
- Mid Cape
- Outer Cape
- Upper Cape





Subgroup Boundaries 208 Water Quality Management Plan Update



Lower Cape

-  Herring River
-  Pleasant Bay
-  Stage Harbor Group
-  Nauset and Cape Cod Bay Marsh Group

Mid Cape

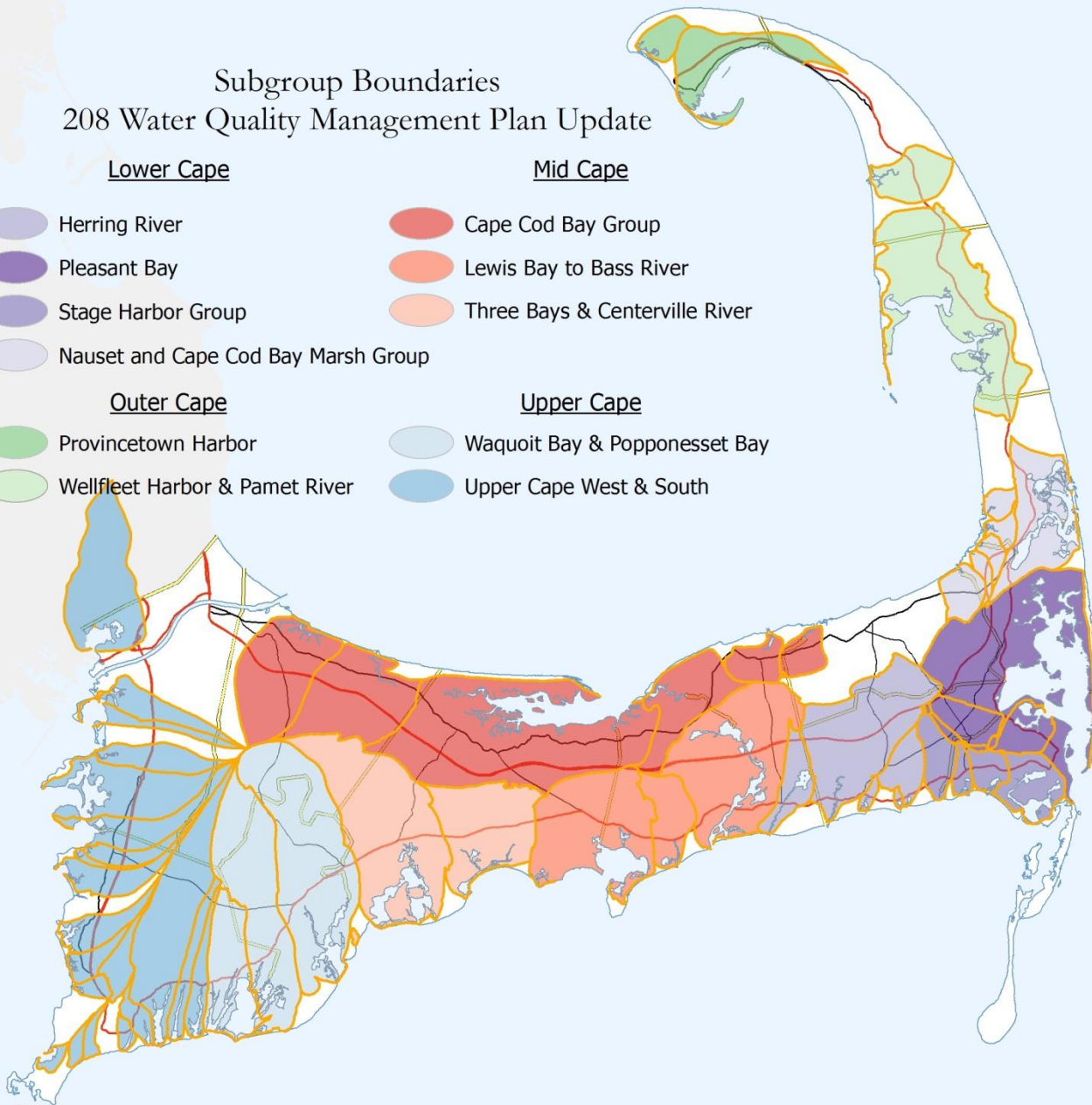
-  Cape Cod Bay Group
-  Lewis Bay to Bass River
-  Three Bays & Centerville River

Outer Cape

-  Provincetown Harbor
-  Wellfleet Harbor & Pamet River

Upper Cape

-  Waquoit Bay & Popponesset Bay
-  Upper Cape West & South



Financial Affordability

- Seek efficiencies in technology, scale, and joint action
- Identify least cost options to address impacts
- Seek regulatory flexibility for innovative and shared solutions
- Identify a range of financing options
- Seek State and Federal funding covering 50% of capital costs

Section 208 Area-Wide Water Quality Management Plan Update

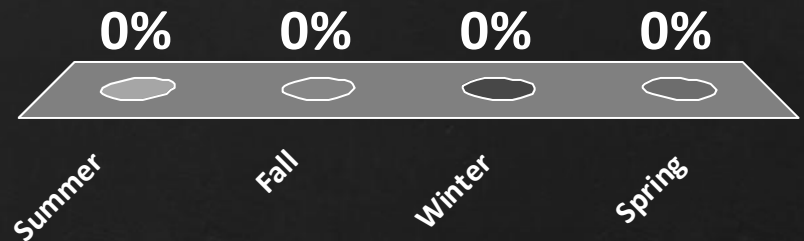
Demographics and Infrastructure Use



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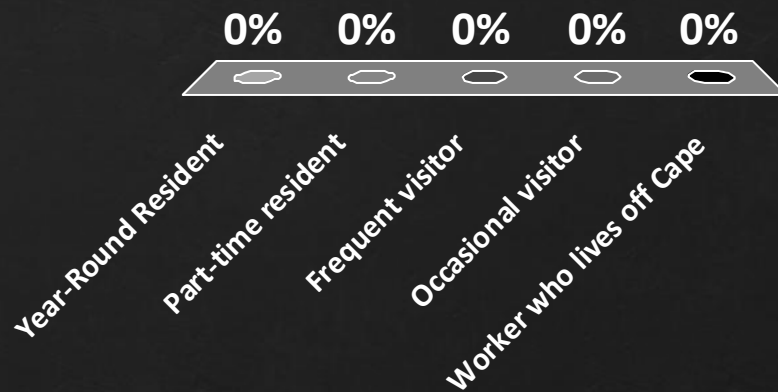
What is your favorite time of year on the Cape?

- A. Summer
- B. Fall
- C. Winter
- D. Spring



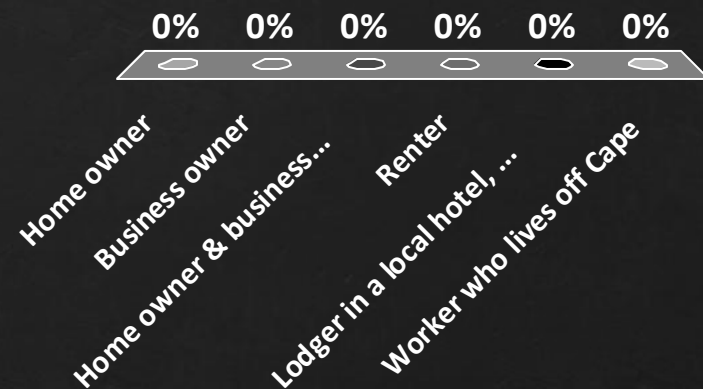
Are you a Cape Cod:

- A. Year-Round Resident
- B. Part-time resident
- C. Frequent visitor
- D. Occasional visitor
- E. Worker who lives off Cape



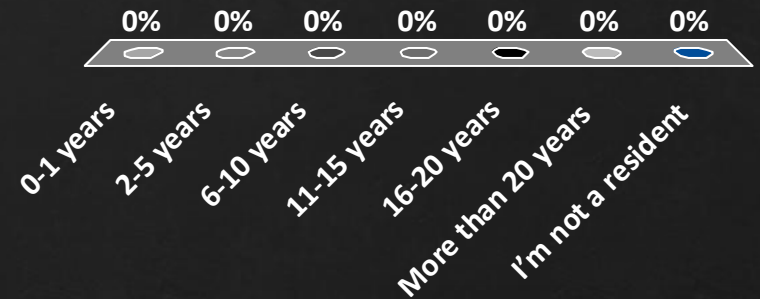
Are you a Cape Cod:

- A. Home owner
- B. Business owner
- C. Home owner & business owner
- D. Renter
- E. Lodger in a local hotel, motel or campground
- F. Worker who lives off Cape



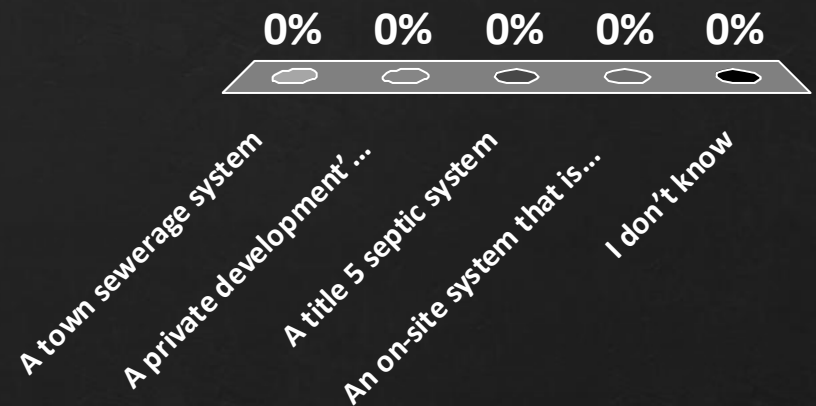
If you are a year-round or part-time resident on Cape Cod, how long have you lived here?

- A. 0-1 years
- B. 2-5 years
- C. 6-10 years
- D. 11-15 years
- E. 16-20 years
- F. More than 20 years
- G. I'm not a resident



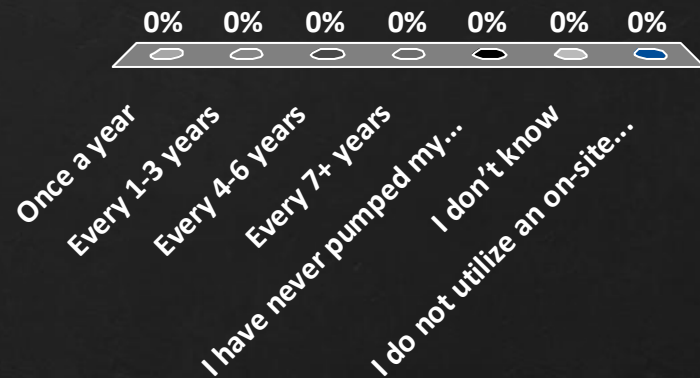
Which of the following do you utilize?

- A. A town sewerage system
- B. A private development's sewerage system
- C. A title 5 septic system
- D. An on-site system that is not a title 5 system
- E. I don't know



If you utilize an on-site septic system, how often do you pump this system?

- A. Once a year
- B. Every 1-3 years
- C. Every 4-6 years
- D. Every 7+ years
- E. I have never pumped my system
- F. I don't know
- G. I do not utilize an on-site system



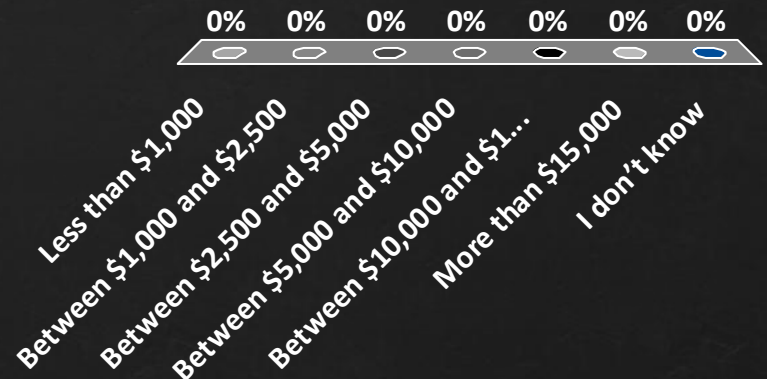
If you utilize an on-site septic system, how old is that system?

- A. 0-5 years
- B. 5-10 years
- C. 10-15 years
- D. 15-20 years
- E. 20-25 years
- F. Older than 25 years
- G. I don't know
- H. I do not utilize an on-site system



If you utilize an on-site septic system, at some point that system will need to be replaced.
How much do you expect it will cost to replace this system (in today's dollars)?

- A. Less than \$1,000
- B. Between \$1,000 and \$2,500
- C. Between \$2,500 and \$5,000
- D. Between \$5,000 and \$10,000
- E. Between \$10,000 and \$15,000
- F. More than \$15,000
- G. I don't know



Posters

- Why are we here tonight?
- What is the role of the Cape Cod Commission?
- How do we compare with the rest of the Commonwealth?
- This is difficult
- Ways to minimize the overall cost of the solutions
- A 50/50 approach

Poster Session



Panel Discussion

- Several financial, technical and policy decisions will impact the final cost of the improvements, including:
 - Maximizing “natural” nitrogen attenuation systems
 - The use of on-site systems versus centralized collection, treatment and disposal systems
 - Town-based approach versus a Cape-wide, watershed-based approach
 - Directing future development to non-nitrogen sensitive areas of Cape Cod
- What questions do you have?
- What are your thoughts on affordability?
- Do you have any ideas about other tools or approaches that could be considered to make this more affordable?

Assume there are 4 potential solutions, of varying scopes and scales, that can be implemented to meet the water quality standards in your community.

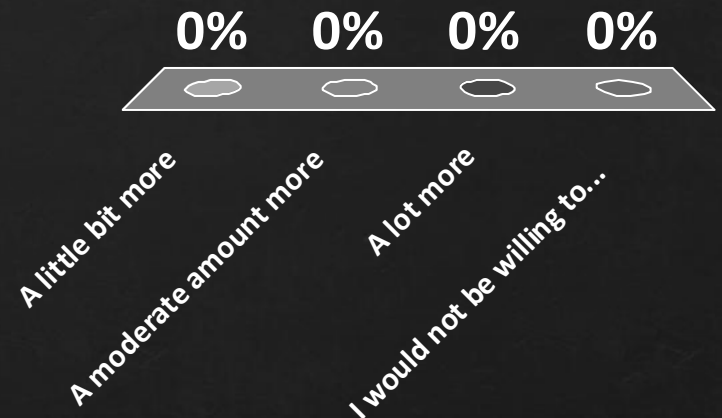
The 4 solutions are:

- An onsite solution
- A neighborhood scale solution
- A centralized sewer solution
- A solution that utilizes natural systems (ex. constructed wetlands)

One of these solutions is less expensive than the others, but we aren't going to provide you with cost information.

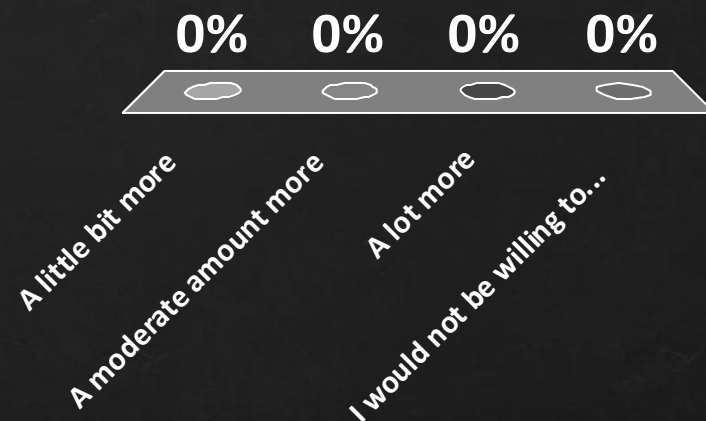
If the on-site solution was not the least expensive solution, but very important to you, how much more would you be willing to pay for it?

- A. A little bit more
- B. A moderate amount more
- C. A lot more
- D. I would not be willing to pay more



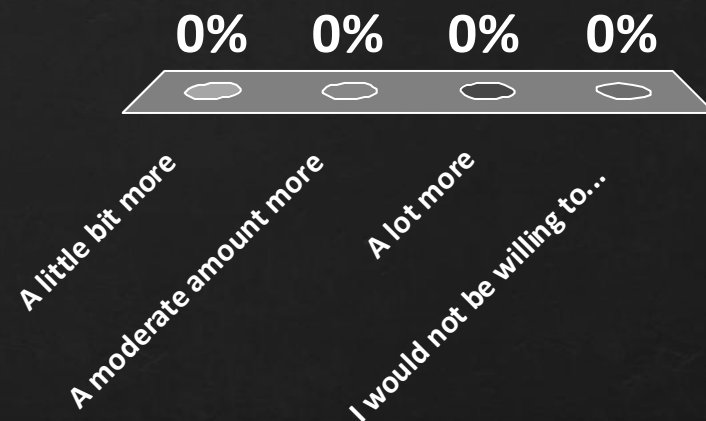
If the neighborhood scale solution was not the least expensive solution, but very important to you, how much more would you be willing to pay for it?

- A. A little bit more
- B. A moderate amount more
- C. A lot more
- D. I would not be willing to pay more



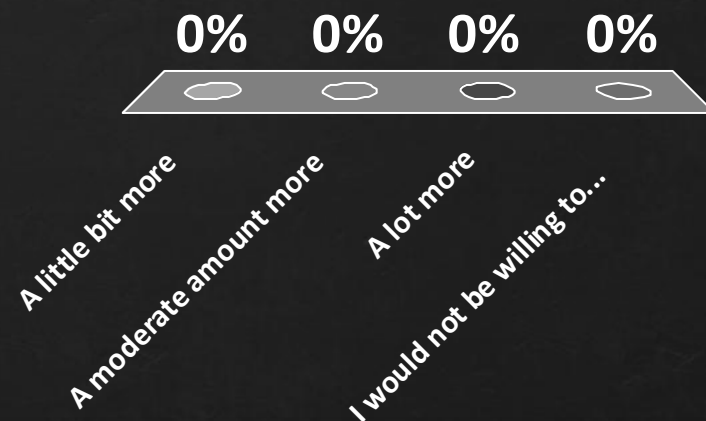
If the centralized sewer solution was not the least expensive solution, but very important to you, how much more would you be willing to pay for it?

- A. A little bit more
- B. A moderate amount more
- C. A lot more
- D. I would not be willing to pay more



If the solution that used natural systems was not the least expensive solution, but very important to you, how much more would you be willing to pay for it?

- A. A little bit more
- B. A moderate amount more
- C. A lot more
- D. I would not be willing to pay more



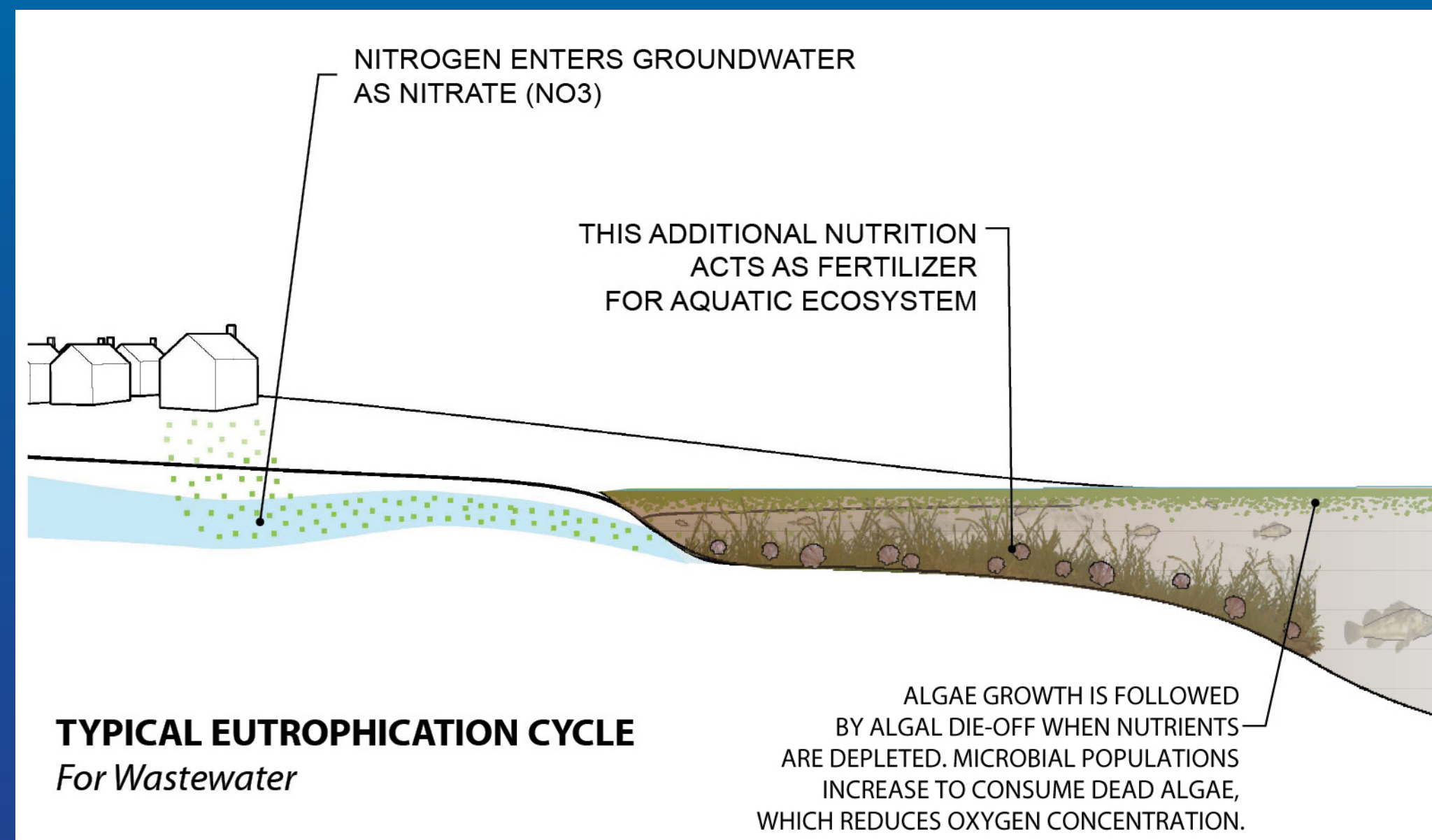
Thank You

For more information or to join a stakeholder group please visit:

<http://watersheds.capecodcommission.org>

WHY ARE WE HERE TONIGHT?

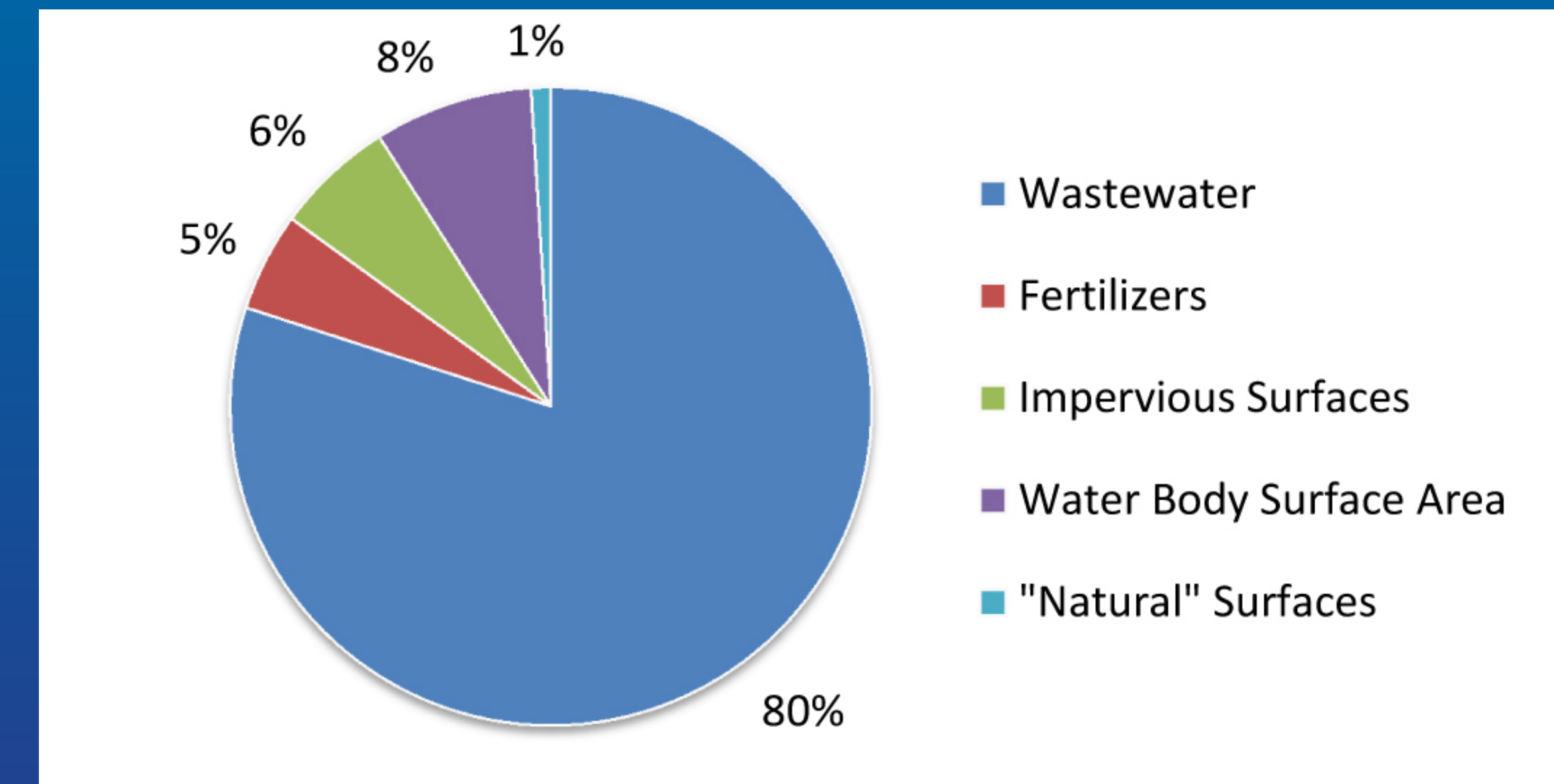
THE MAJORITY OF WATERSHEDS ON CAPE COD RECEIVE WASTEWATER WITH EXCESSIVE NITROGEN—PRIMARILY FROM INDIVIDUAL ON-SITE RESIDENTIAL SEPTIC SYSTEMS—THAT FLOWS THROUGH GROUNDWATER INTO OUR COASTAL WATERS, AND THAT AMOUNT OF NITROGEN IS DAMAGING THE ECOLOGY OF THOSE COASTAL AREAS.



SOURCES OF NITROGEN

The largest controllable source of nitrogen to our watersheds on Cape Cod is wastewater.

About 85% of our wastewater is treated using on-site septic systems, which were not designed to remove nitrogen.

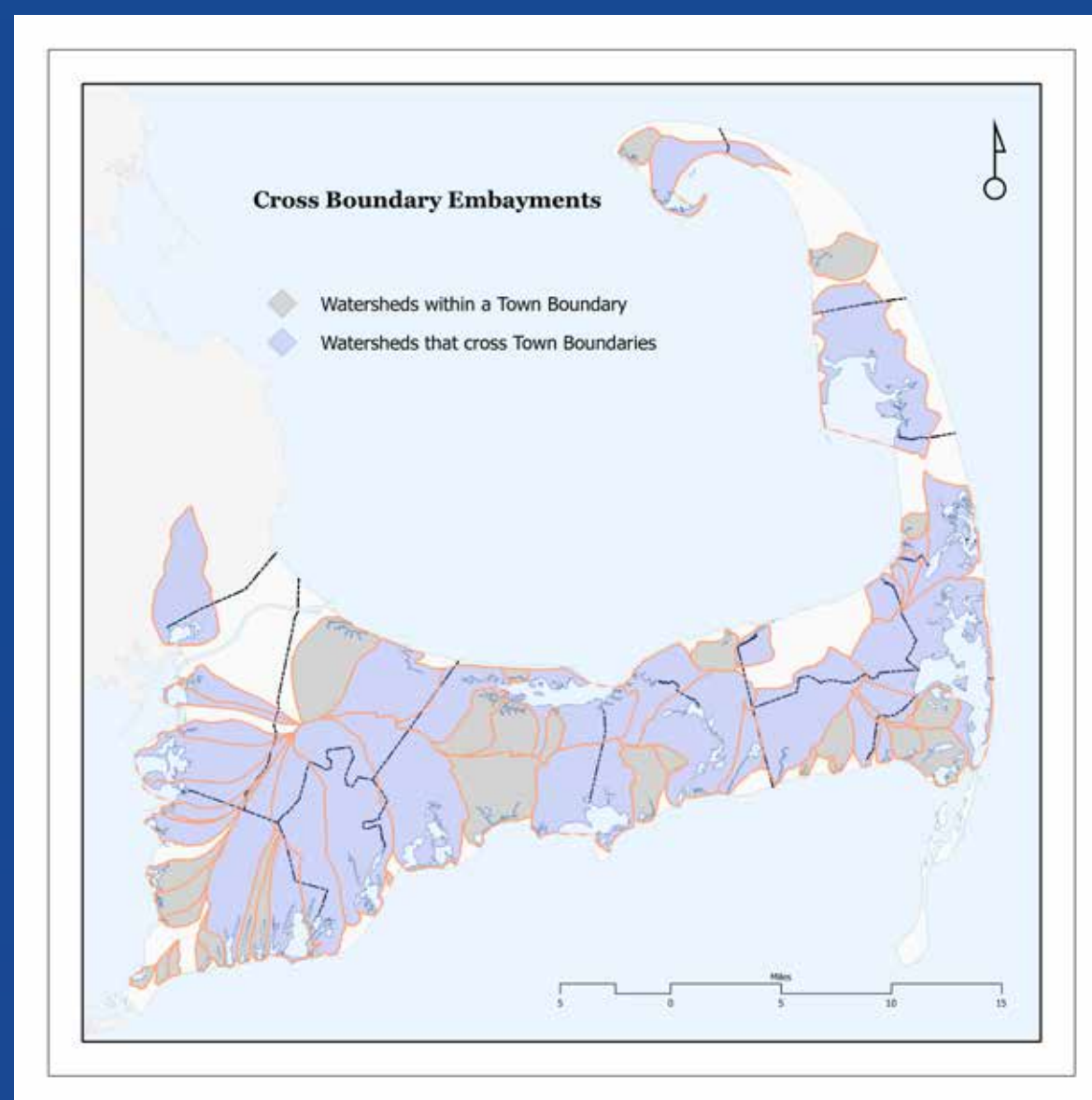


DOING NOTHING

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?

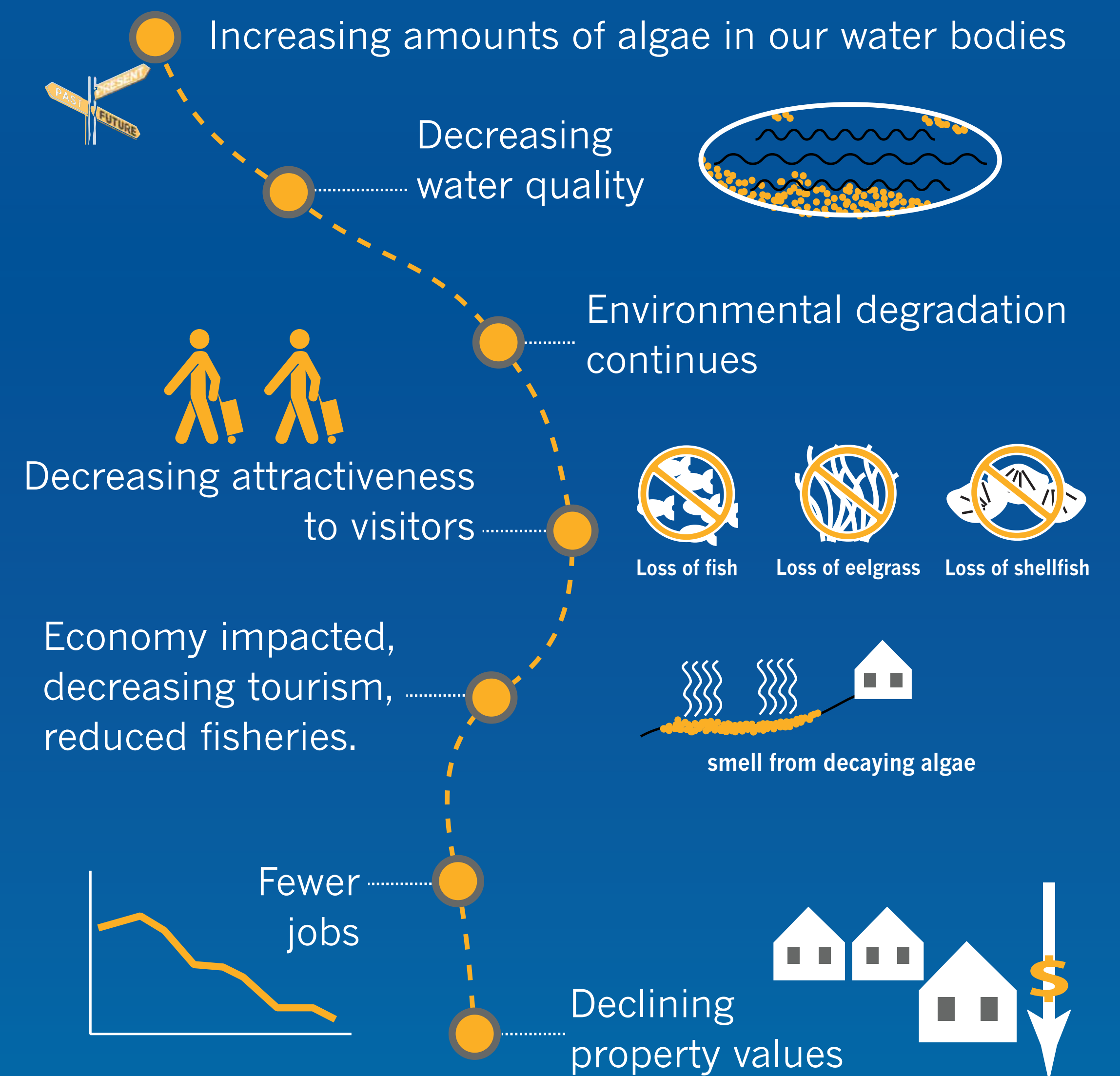


To date, a fragmented approach has characterized the response to this challenge.

Each of the 15 Cape Cod towns has engaged in the existing regulatory process, which provides little incentive for cooperation across town boundaries, and approached the problem on its own turf and with its own resources. Many watersheds are shared across town boundaries and will require a cooperative effort.



CAPE COD FUTURE WITH NO ACTION



IDEAS, COMMENTS, SUGGESTIONS:

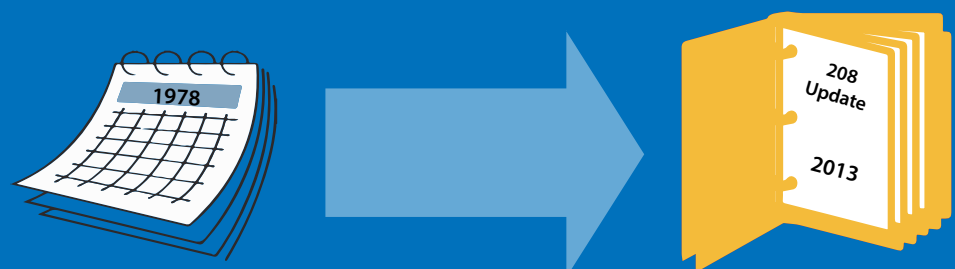
WHAT IS THE ROLE OF THE CAPE COD COMMISSION?

The Cape Cod Commission's mission is to **keep a special place special**, to protect the unique values and quality of life on Cape Cod by coordinating a balanced relationship between environmental protection and economic progress. The Cape Cod Commission carries out this mission by leading, supporting, and enforcing the development of regional plans, policies, regulations, and infrastructure to guide and manage growth, and by supporting the 15 Cape Cod towns with professional and cost-effective planning and technical support services.

208 PLAN

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.



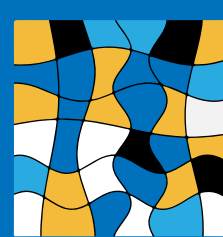
CAPE COD 208 PLAN UPDATE



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

THE 208 PLAN

Supporting planning through the development of new tools and resources:

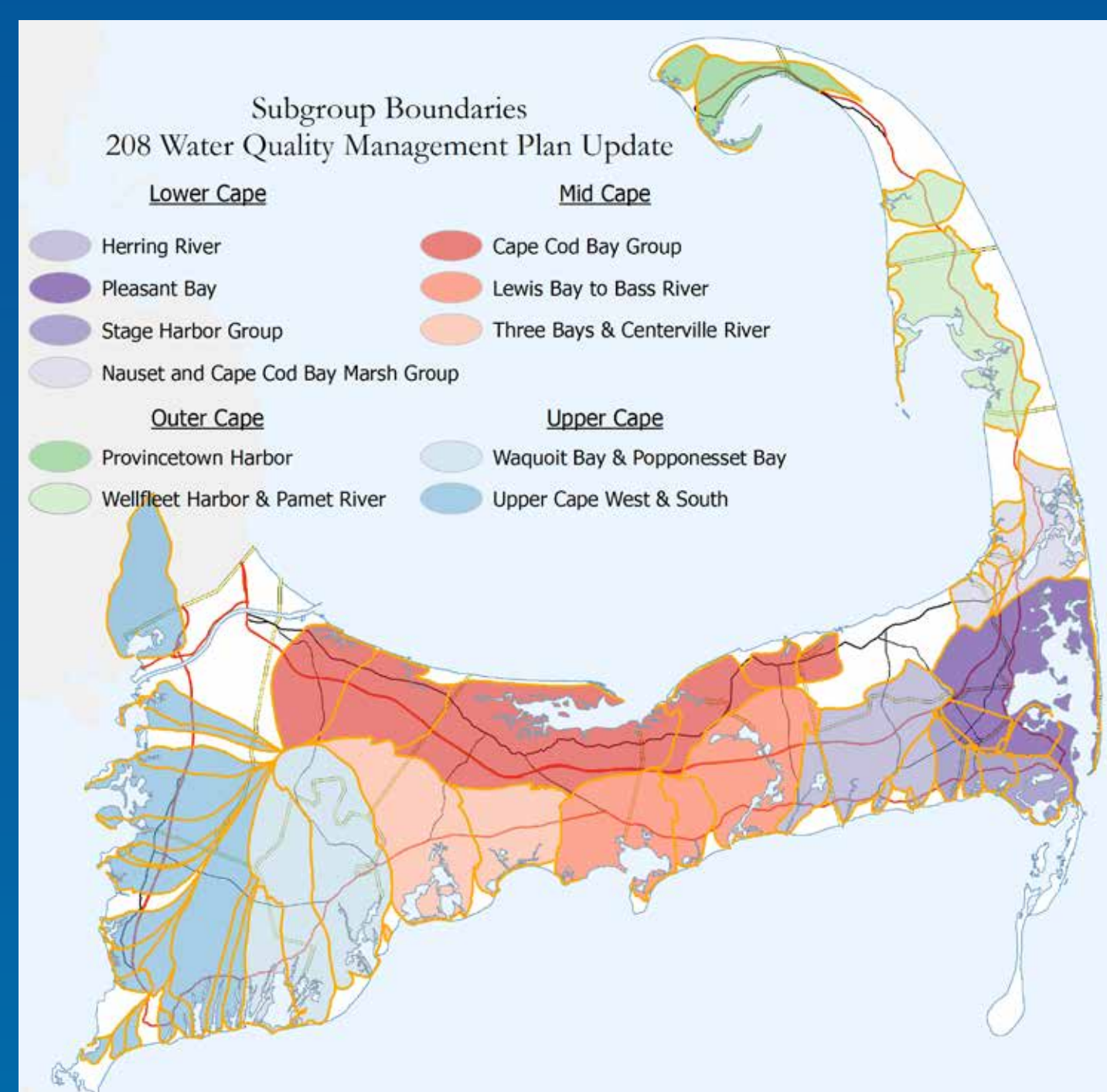
- Watershed MVP
- Systems Dynamics Model
- Green Infrastructure Site Selection Process
- Game-based Planning

Facilitating cooperation in watersheds through stakeholder engagement process.

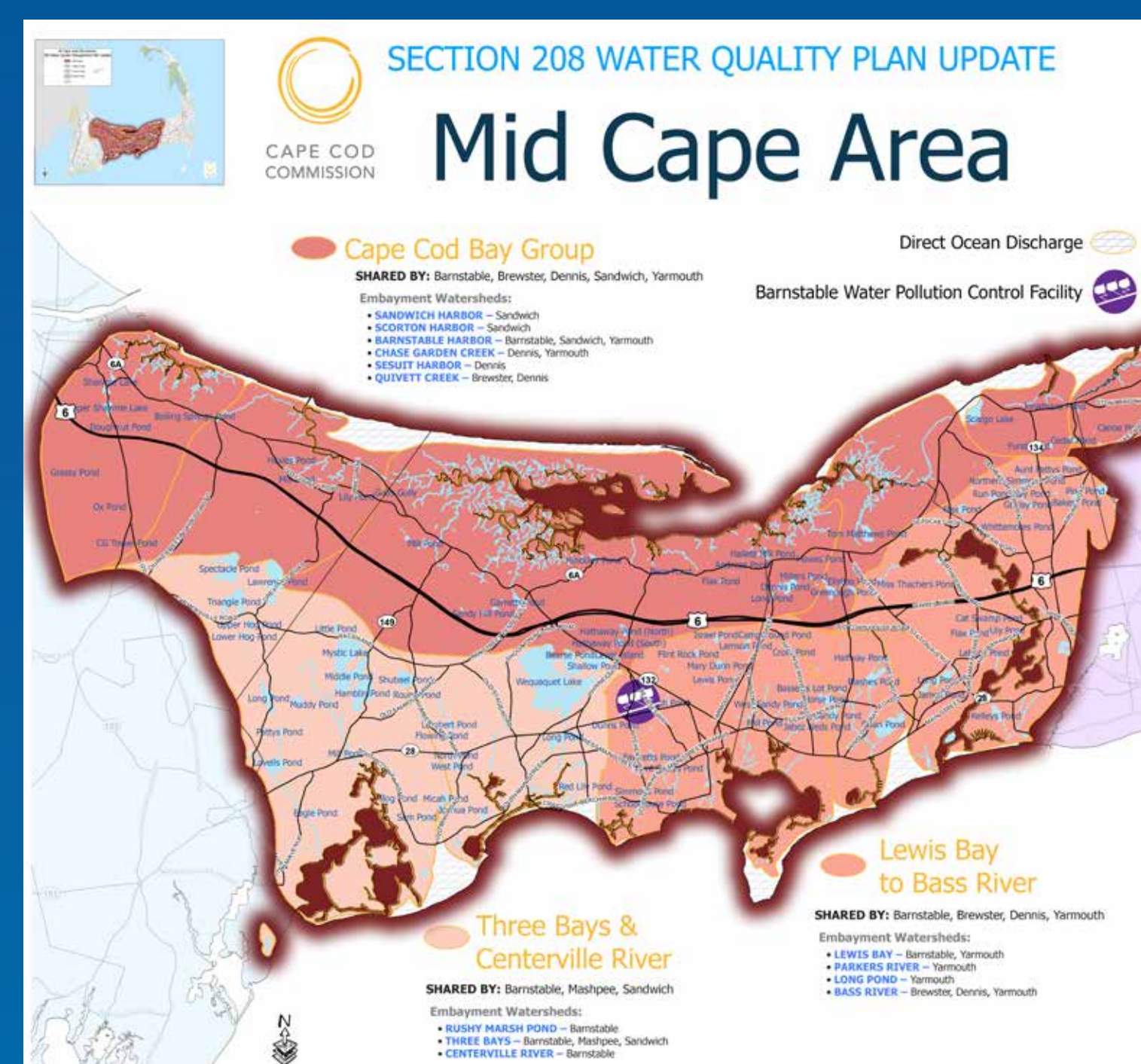
Eleven watershed working groups, tackling baseline conditions, options for action, and priorities, are a key piece of the 208 planning process.

These groups will include as wide a range of stakeholders as possible from local residents to businesses to town officials.

If you are interested in joining the watershed group in your area, please visit <http://watersheds.capecodcommission.org> or fill out a form while you are here today.



All Subgroups

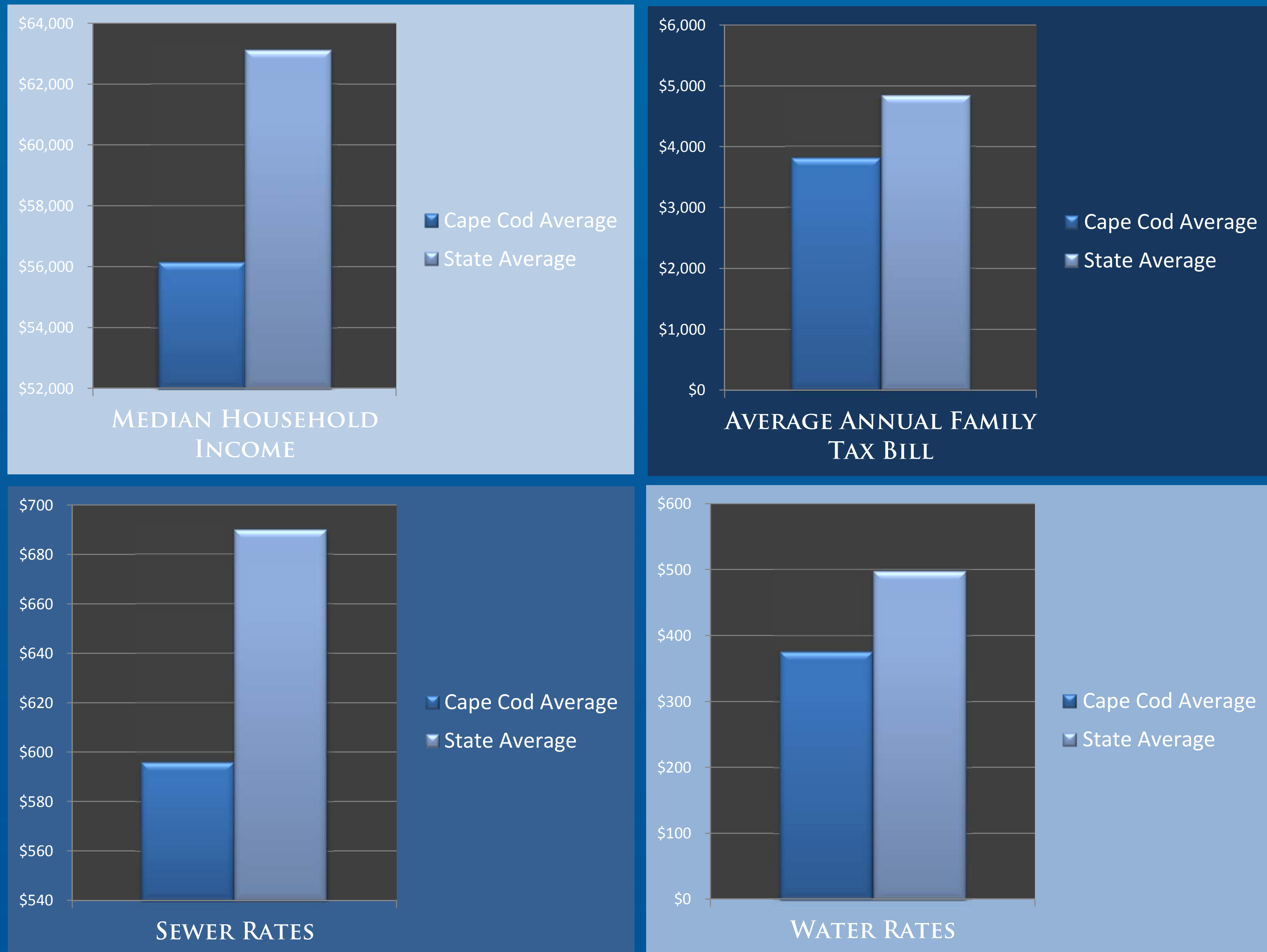


Example of subgroup

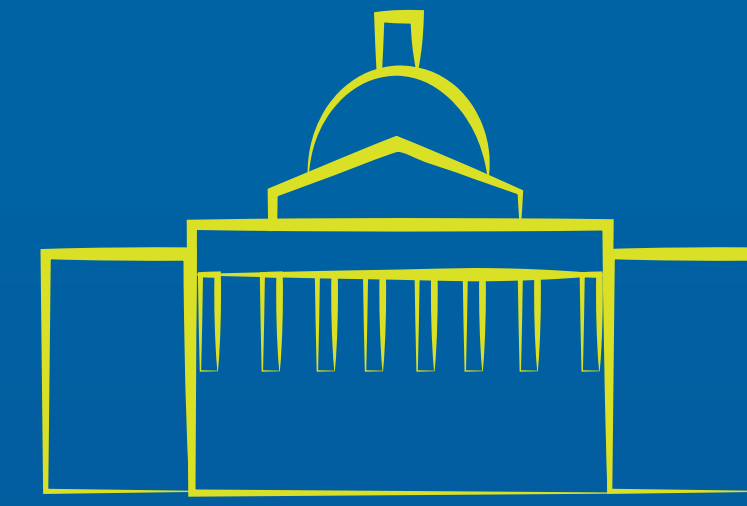
IDEAS, COMMENTS, SUGGESTIONS:

HOW DO WE COMPARE WITH THE REST OF THE COMMONWEALTH?

CAPE COD VS. COMMONWEALTH



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**

	Median Household Income	Average Annual Family Tax Bill	Sewer Rates
CAPE COD AVERAGE	\$56,167	\$3,818*	\$596/year
STATE AVERAGE	\$63,126	\$4,846	\$690/year

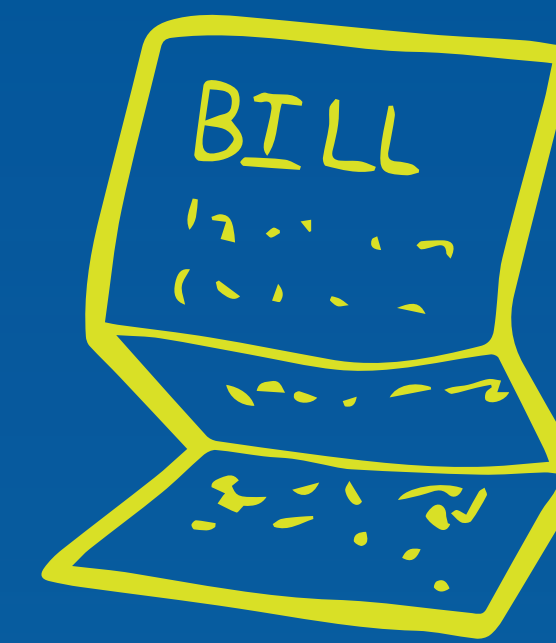
* Town of Barnstable did not report

CONTRIBUTIONS MADE

TAX	SUB-CATEGORIES	FY10 TOTALS	SHARE FACTOR	BARNSTABLE COUNTY CONTRIBUTION ESTIMATE
Personal Income Tax		10,128,035,000	3.39%	343,340,387
Business Taxes		2,120,034,000	4.18%	88,617,421
Taxes on Commodities		5,931,507,000		
Other Taxes		520,988,000		
\$ TAX CONTRIBUTION TO STATE				\$756,330,881
% TAX CONTRIBUTION TO STATE				4.04%

PAYMENTS RECEIVED

BARNSTABLE	5,058,276
BOURNE	5,270,583
BREWSTER	1,480,143
CHATHAM	1,364,343
DENNIS	43,724
EASTHAM	114,889
FALMOUTH	6,125,598
HARWICH	1,188,180
MASHPEE	4,795,686
ORLEANS	59,554
PROVINCETOWN	51,138
SANDWICH	7,291,638
TRURO	96,743
WELLFLEET	-104,631
YARMOUTH	840,037
Totals	33,675,901



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**

The amount of money that Cape Cod provides to the Commonwealth in tax revenue far exceeds that received in unrestricted local aid.

IDEAS, COMMENTS, SUGGESTIONS:

THIS IS DIFFICULT

THE ESTIMATED CAPITAL COSTS – BETWEEN \$3.2 AND \$6.2 BILLION
THE ESTIMATED O&M COSTS – BETWEEN \$38.1 AND \$69.1 MILLION PER YEAR

The burden on Cape residents, especially for working families and retirees with fixed incomes, is simply too much to bear alone. According to EPA, paying anything above 2% of median household income for water and wastewater projects is considered unaffordable.

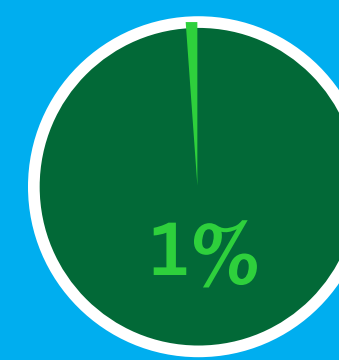
Many towns that have tried to finance this on their own have often found that the burden on their residents is considered to be too great. Funding for wastewater projects is often voted against at town meeting.

THERE ARE SIGNIFICANT EQUITY ISSUES THAT NEED TO BE ADDRESSED:

- How to integrate the costs of existing systems, factoring in the amount that individuals are already paying to use approved and well-functioning sewage systems.
- Some homeowners have recently made an investment in their properties by installing new Title 5 systems. If those homes are in an area identified for collection, what are the requirements for connection to a collection system?
- How are towns that are further ahead in developing solutions addressed vs. those that are just beginning to plan?
- Clean water is directly related to the economy on the Cape, so if a solution is developed to improve and maintain clean water, everyone on the Cape can benefit from that. How is the cost of that solution equitably shared between homeowners and business owners who are in a nitrogen sensitive watershed vs. those that are not?

CAPE COD INCOME FACTS

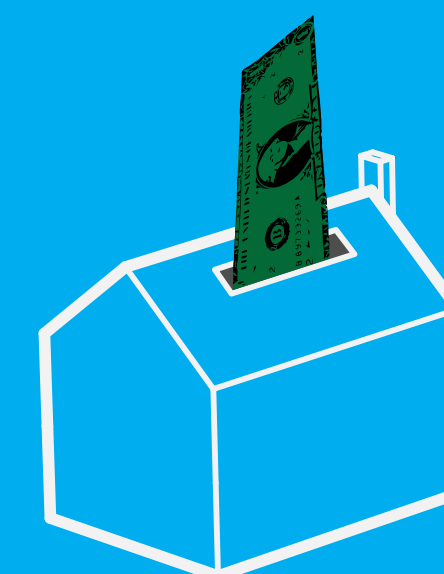
Percent of income on H₂O and wastewater



On average, **1%** of household income is spent on water and wastewater treatment nationally ¹

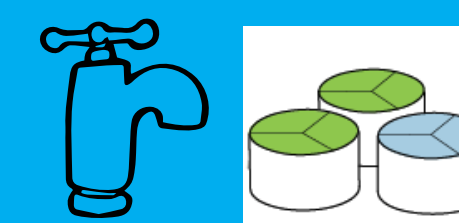


The median annual income on Cape Cod in 2011 was **\$58,167**



Cape Cod's median household income is **11%** lower than the state median

\$92/month



Assuming 2% of household income is considered affordable, the average household could afford **\$92** a month

Examples of Average monthly expenditures



Average US cable TV bill in 2011 was **\$86** a month, and average US car payment was **\$460** a month



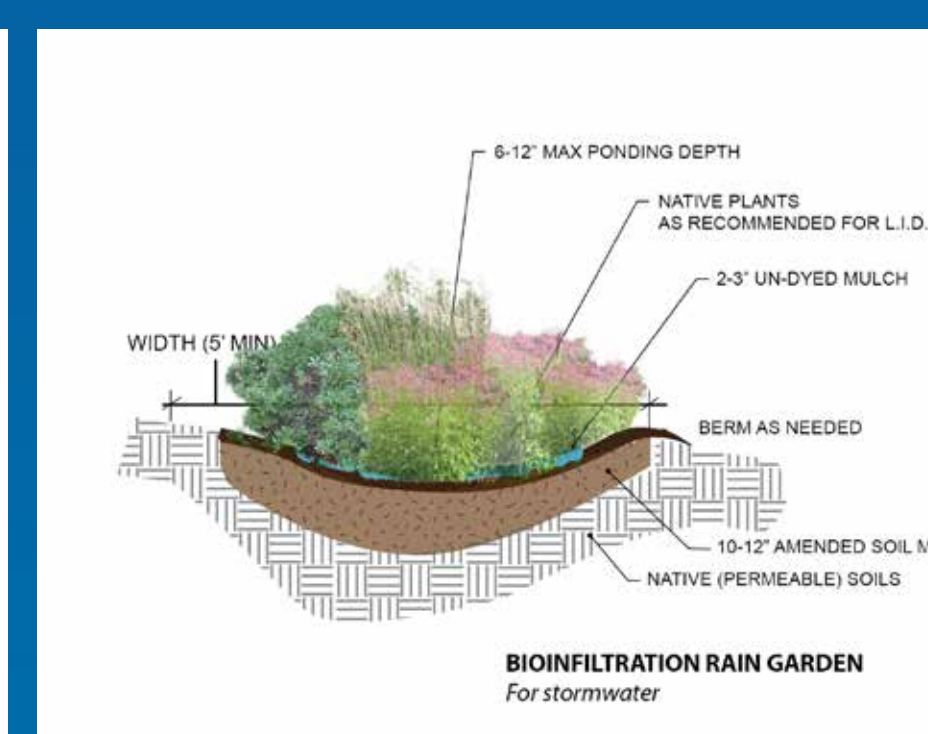
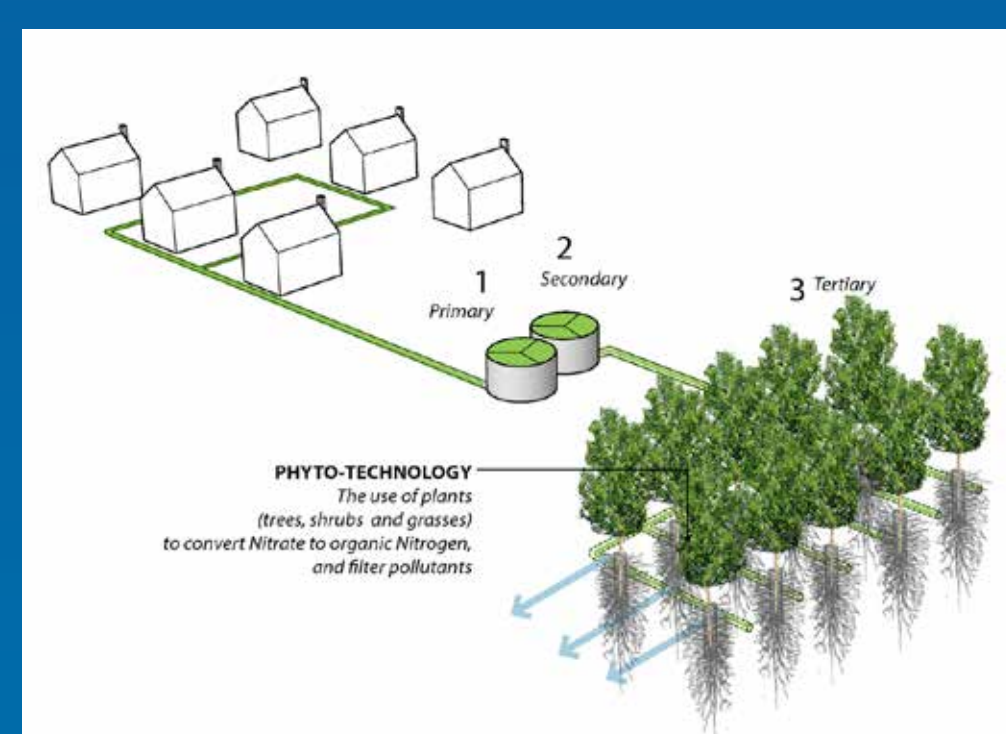
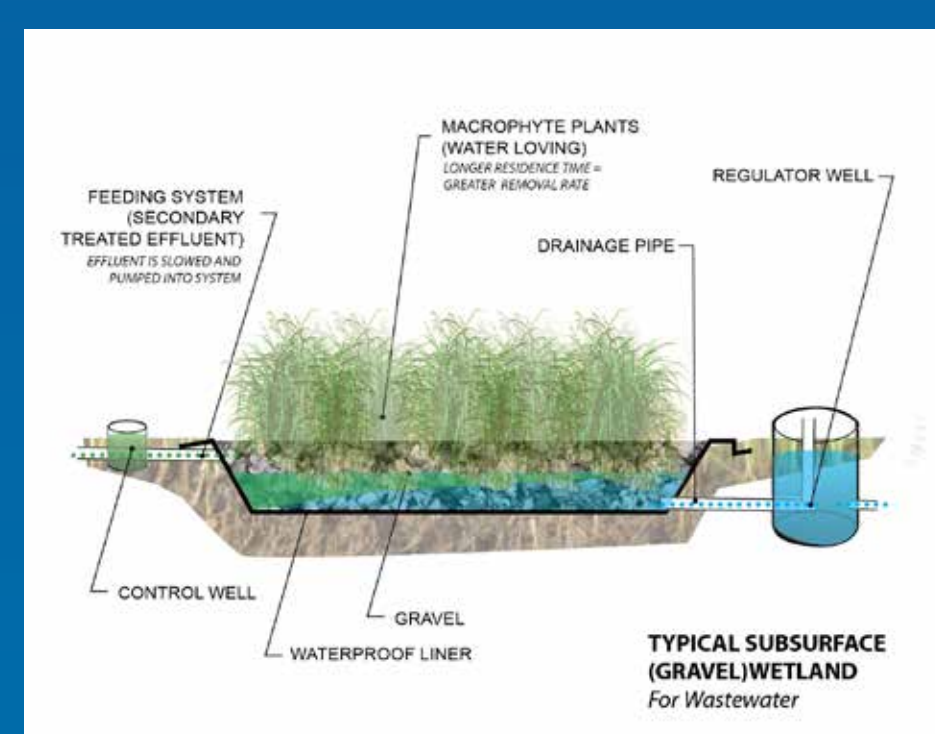
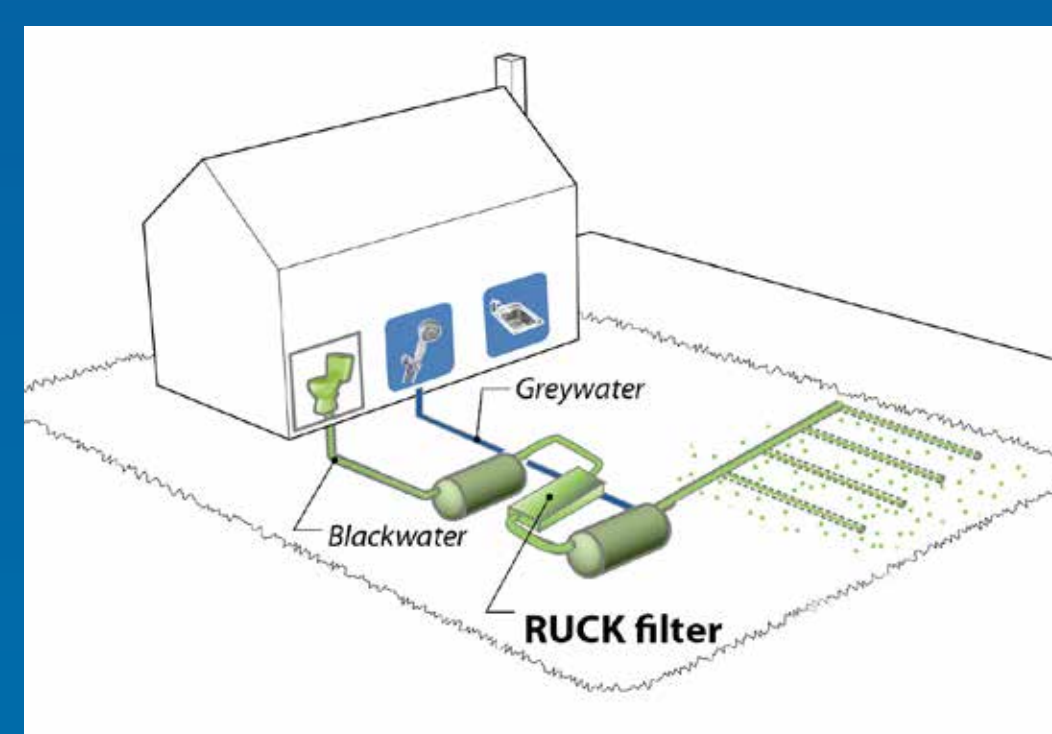
¹ Congressional Budget Office, 2002

IDEAS, COMMENTS, SUGGESTIONS:

WAYS TO MINIMIZE THE OVERALL COST OF THE SOLUTIONS

IDENTIFYING THE LOWEST COST ALTERNATIVES FROM A MIX OF TECHNOLOGIES AND APPROACHES:

THE COMMISSION WILL WORK WITH COMMUNITIES AS PART OF THE 208 PLANNING PROCESS TO EXPLORE A NUMBER OF TECHNOLOGIES AND APPROACHES TO ADDRESS THE PROBLEM.



IDEAS, COMMENTS, SUGGESTIONS:

A 50/50 APPROACH

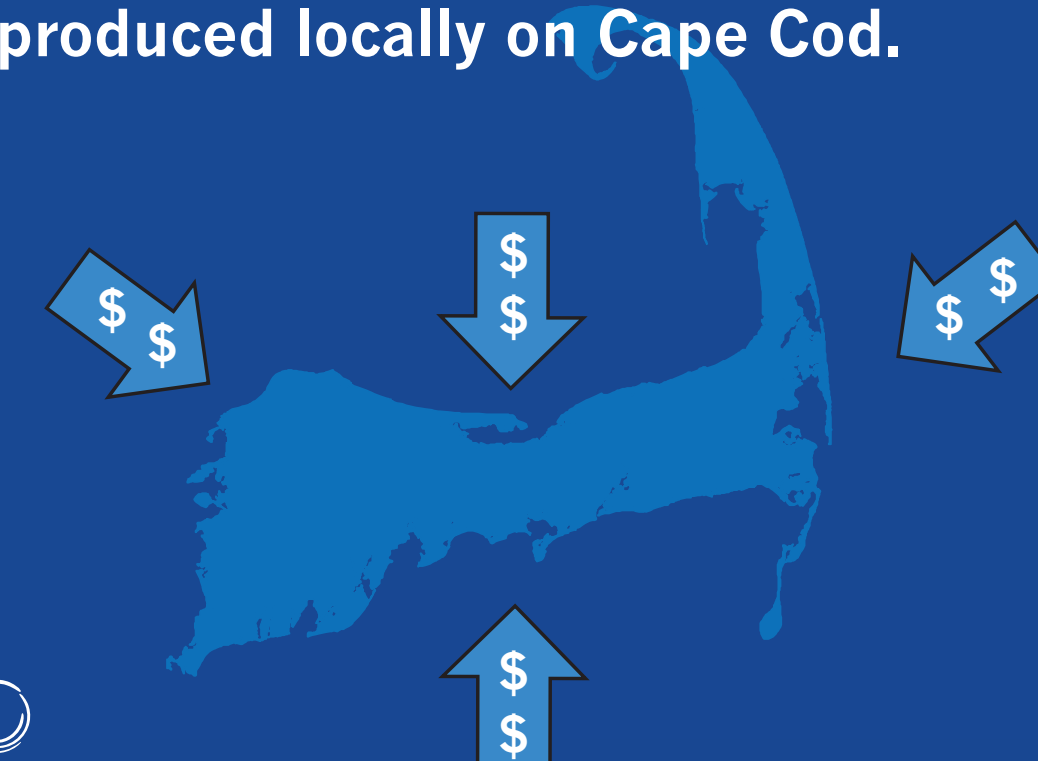
IN ORDER TO SOLVE THIS PROBLEM IN AN AFFORDABLE WAY, CAPE COD TAXPAYERS NEED ASSISTANCE FROM OUR STATE AND FEDERAL PARTNERS.

By minimizing the cost of projects through use of the lowest cost technologies, economies of scale, and collaboration and proposing that **only 50% of the capital costs are paid for by Cape Cod taxpayers**, the solution to this problem can be affordable. This approach would mean that **25% of the capital costs would come from the State and 25% would come from the Federal government**. Below are some reasons why this is an approach worth considering.


ECONOMIC WEALTH

The Gross Regional Product (GRP) is an indicator of the size, wealth and prosperity of the region's overall economy.


The GRP is the sum of all the goods and services bought, sold and produced locally on Cape Cod.



CAPE COD ECONOMY FACTS

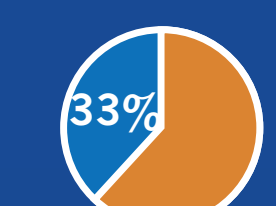


year round population




summer population

215,000 year round residents on Cape Cod, but the Cape's population more than **doubles** in the summer.




Revenue from visitors

Over a **third** of Cape Cod's GRP comes from tourists and second-home owners buying local goods and services



Employment peaks in July and August.



\$7.2 Billion GRP in 2011, Cape Cod's per capita GRP \$33,421/person

In Fiscal Year 2010 the fifteen communities on Cape Cod generated over **\$756 million in tax revenue to the State**. This amounts to 4.04% of all State tax revenue, a share more than 22% greater than Cape Cod's population share.



Meanwhile, revenue returned to the region in the form of **State aid in FY10 totaled \$33,675,901**. This makes Cape Cod a donor region in terms of state resources.

IDEAS, COMMENTS, SUGGESTIONS:

WAYS TO MINIMIZE THE OVERALL COST OF THE SOLUTIONS

SEEKING EFFICIENCIES IN SCALE AND COLLABORATION

SHARING THE COSTS

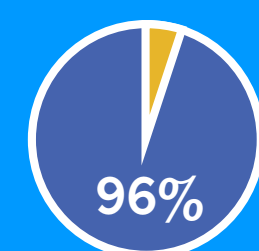
In most areas of Massachusetts, and the nation, centralized wastewater treatment plants and sewers are used to treat and dispose of wastewater.

Until the early 1980s, the federal government covered much of the cost of construction of that wastewater infrastructure, with homeowners covering operation and maintenance (O&M) costs. Today, such federal funding is scarce. This means we have to plan a solution that limits costs if we are going to be able to foot the bill.

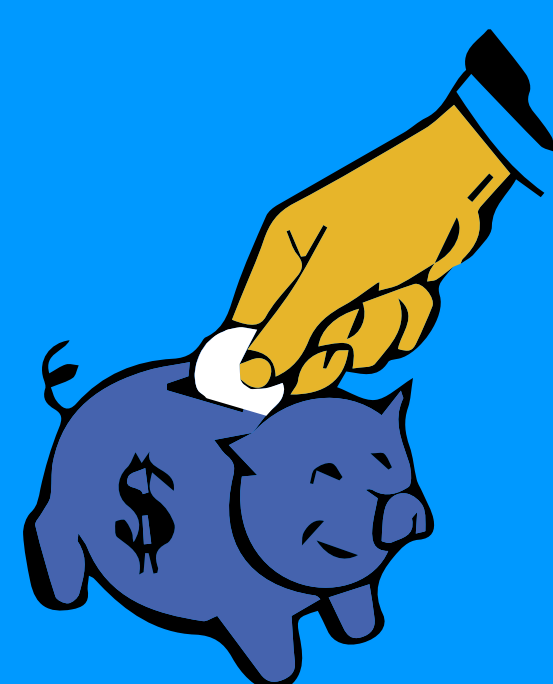


CAPE COD REGIONAL SOLUTIONS

Residentially developed properties



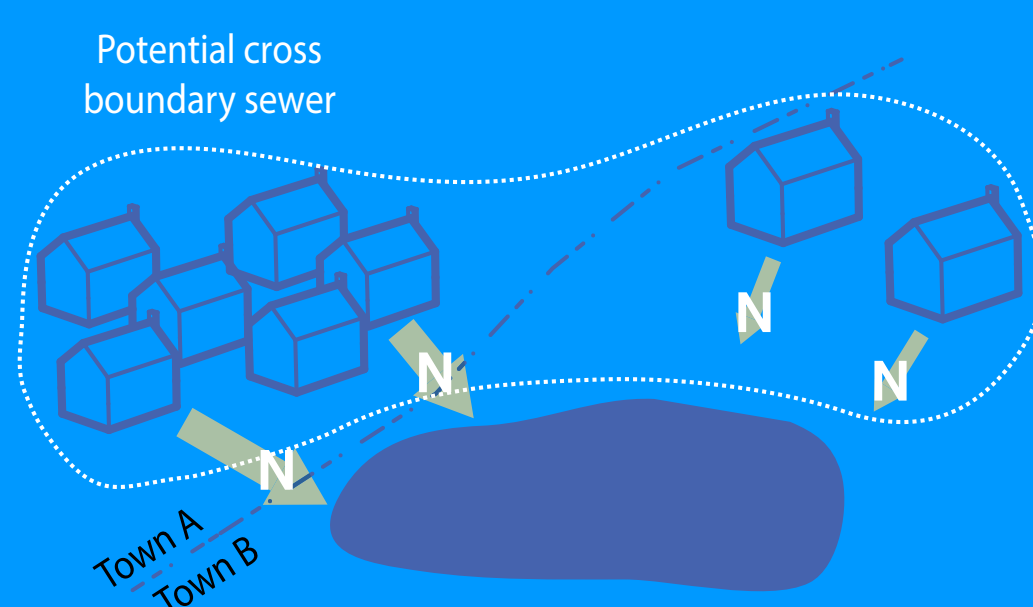
96% of all the developed parcels on the Cape are residential, accounting for 82% of the wastewater generated



Multi-town solutions may save up to 9% on capital/construction costs and up to 25% savings on operation and maintenance

With a regional approach, cape-wide savings could be as much as \$2 billion over 30 years

Regional solutions could save as much as 27% per developed parcel



Watershed solutions provide opportunities to serve densely developed areas with wastewater treatment regardless of town boundaries

THE CAPE WIDE COST ESTIMATE (RWMP) IDENTIFIED SEVERAL IMPORTANT FACTORS THAT ARE LIKELY TO INFLUENCE THE COSTS OF WASTEWATER INFRASTRUCTURE ON CAPE COD:

1. Extent of Sewers

Wastewater collection costs represent about 70% of the cost of constructing a system of sewers, treatment plants, and effluent disposal facilities. Costs can be reduced by focusing on the most densely developed areas.

2. Growth

Growth in nitrogen-sensitive watersheds carries a heavy price. While only a portion of the current nitrogen must be removed in those locations, all of the future nitrogen load must be mitigated.

3. Location of Effluent Disposal Sites

Even highly treated effluent contains some nitrogen. If effluent is disposed of within nitrogen-sensitive watersheds, additional nitrogen management will be required to meet the TMDL.

If land availability dictates that effluent must be disposed of in water supply recharge areas, then a higher level of treatment is needed.

4. Economies of Scale

Wastewater treatment costs, on a per-gallon basis, decline as the size of the facility increases. Significant cost savings can accrue if Cape Cod wastewater is treated at expanded existing public facilities, with selected new facilities, compared with a larger number of smaller facilities.

IDEAS, COMMENTS, SUGGESTIONS:

A 50/50 APPROACH

IN ORDER TO SOLVE THIS PROBLEM IN AN AFFORDABLE WAY, CAPE COD TAXPAYERS NEED ASSISTANCE FROM OUR STATE AND FEDERAL PARTNERS.

By minimizing the cost of projects through use of the lowest cost technologies, economies of scale, and collaboration and proposing that **only 50% of the capital costs are paid for by Cape Cod taxpayers**, the solution to this problem can be affordable. This approach would mean that **25% of the capital costs would come from the State and 25% would come from the Federal government**. Below are some examples that are being discussed across the region of how we might seek State and Federal action.

STATE PARTNERS

THE STATE WILL FEEL THE IMPACT IF THE CAPE COD ENVIRONMENT CONTINUES TO DETERIORATE.

A 25% reduction in tourism on Cape Cod would cost the state over \$257 million in just the meals and room occupancy excise tax revenue over a twenty year period, and \$643 million over fifty years.

EXAMPLES OF POTENTIAL STATE ACTION BEING DISCUSSED ACROSS THE REGION:

- Motor Fuel tax add-on of 5 cents per gallon
- State-wide excise tax millage on water consumption of 1 to 3 mills per gallon.
- Earmark a portion of expected gaming proceeds
- Earmark a portion of an Internet sales tax, presuming the state expands the existing sales tax to Internet transactions
- Increase/create embarkation excise tax (which may only be applicable to Barnstable County)
- Septic system installation excise tax and septage pump-out statewide excise tax
- Increase in property tax on boat ownership
- Re-dedicating local option meals and room occupancy excise taxes
- Expansion of the room occupancy tax to rental properties
- Create a program of investment credits for state tax relief
- Pledge the Commonwealth's "Full Faith and Credit" for initial financings related to Cape Cod wastewater funding
- Commit to 0% interest with respect to SRF funding for the duration of the construction effort and maximizing the availability of SRF loans
- Expansion of the Bottle Bill to include water and non-carbonated beverages along with earmarking all uncollected deposits to statewide clean water infrastructure fund

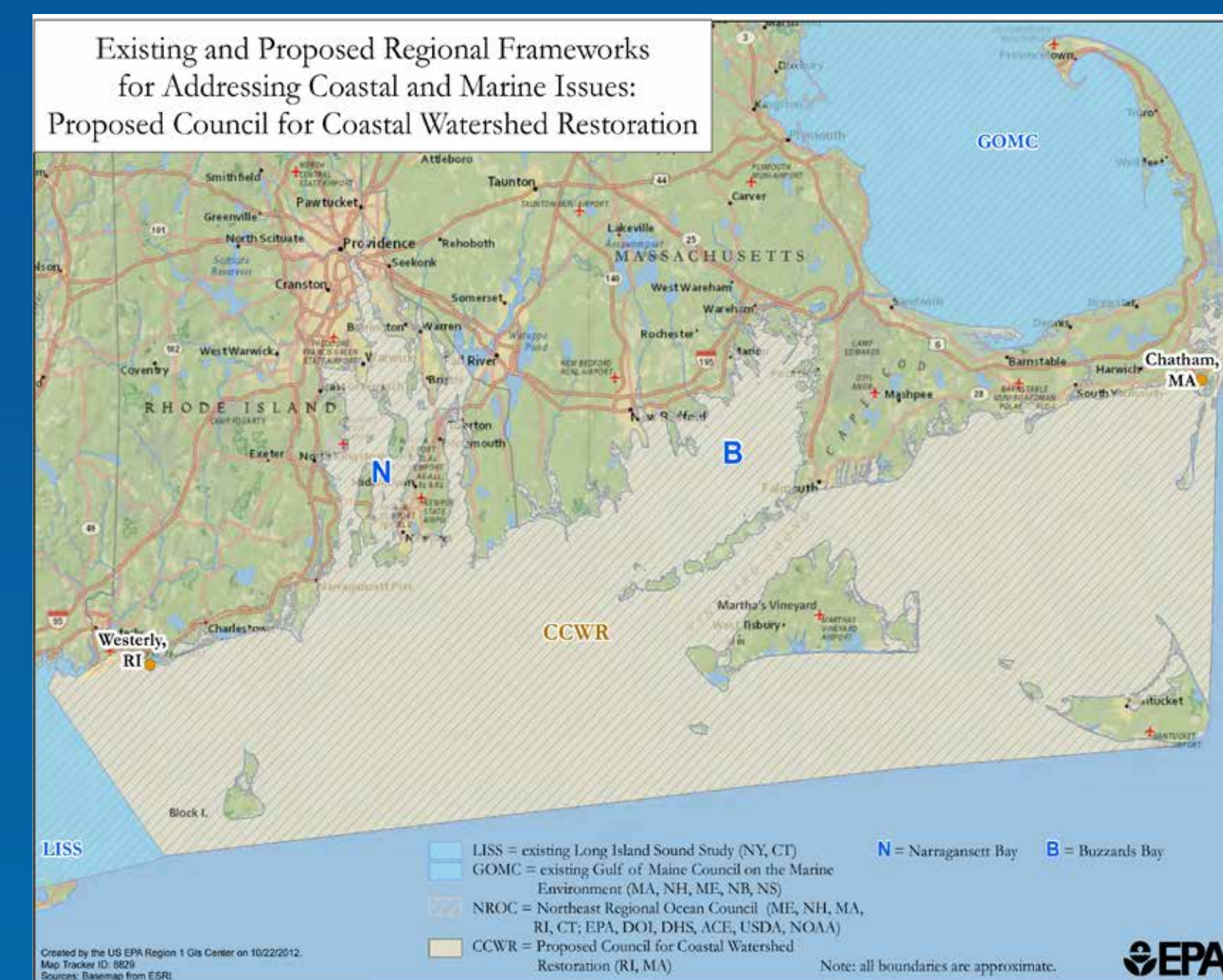
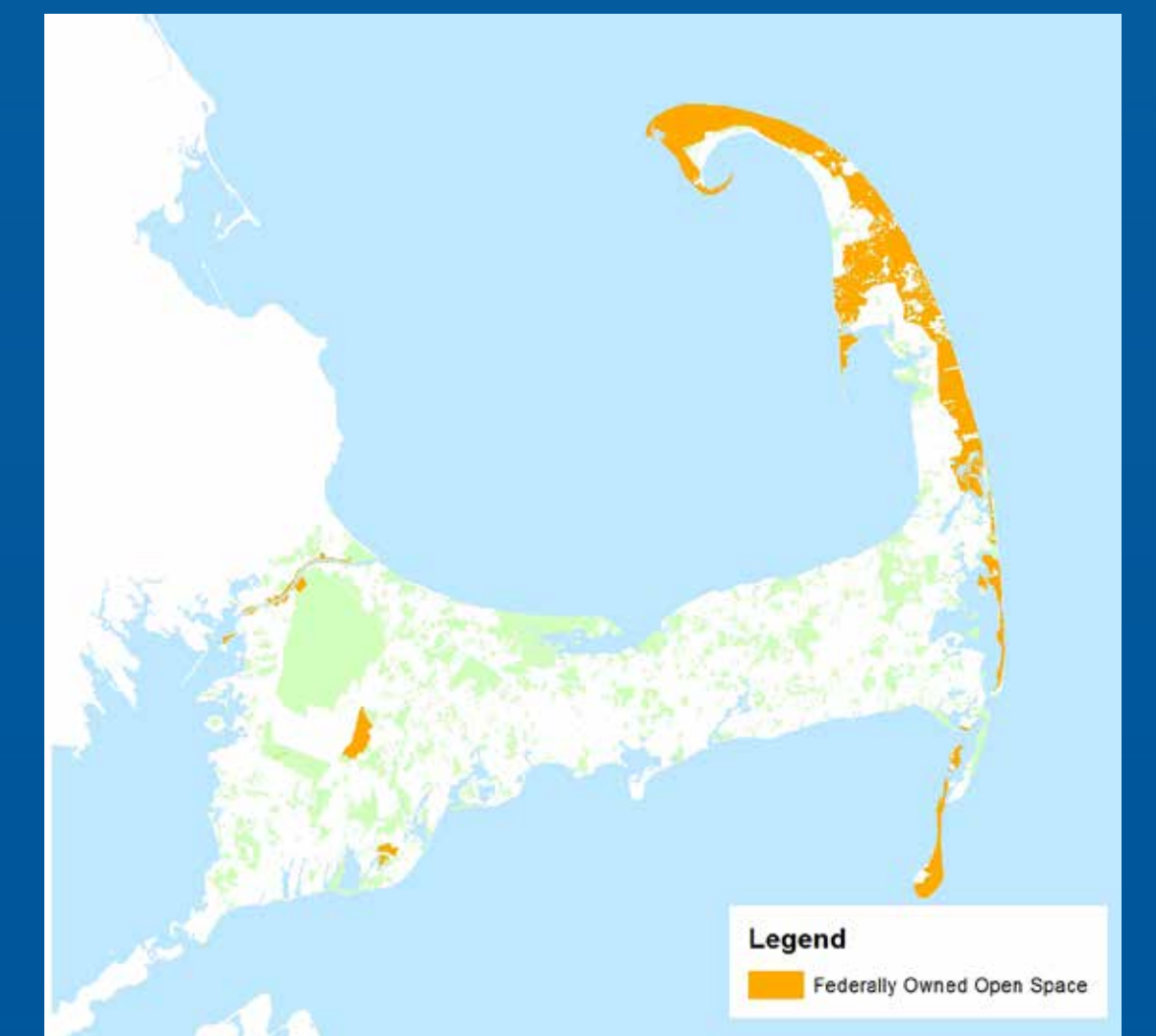
FEDERAL PARTNERS

Cape Cod is the location of two major Federal assets, one of which is a valuable part of the National Park System, the other a military reservation.

When the Federal government decides that its interests are at stake, it can be convinced to make a financial contribution.

An example: The generational effort to clean up Chesapeake Bay

From FY07 to FY10, the Federal government contributed \$1.04 billion to the remediation effort, in annual amounts ranging from \$161.5 million to \$310.3 million. That effort was significantly increased in FY11 and FY12.



SEEKING FEDERAL FUNDS

Harmonize and maximize existing grant programs through Federal agencies, such as EPA, USDA, NOAA, and others.

Seek specific appropriations, similar to those that the Chesapeake Bay region has received.

An effort is underway to develop a partnership between Rhode Island, Southeast Massachusetts, and Cape Cod – the **Southeast New England Coastal Watershed Restoration Partnership**

IDEAS, COMMENTS, SUGGESTIONS: