

Section 208

Area-Wide Water Quality Management Plan Update

Upper Cape Area



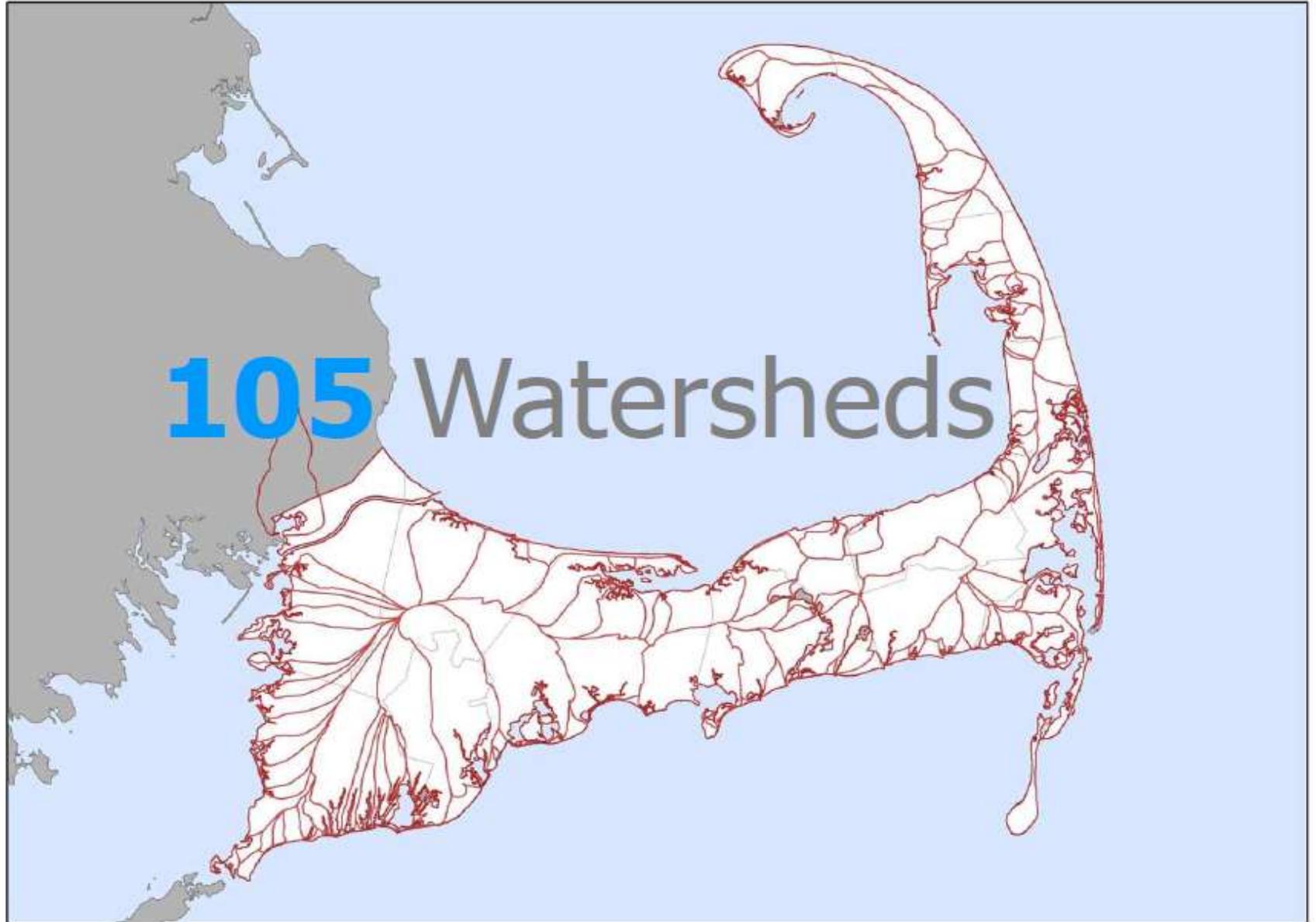
CAPE COD
COMMISSION

watersheds.capecodcommission.org

Why Are We Here?



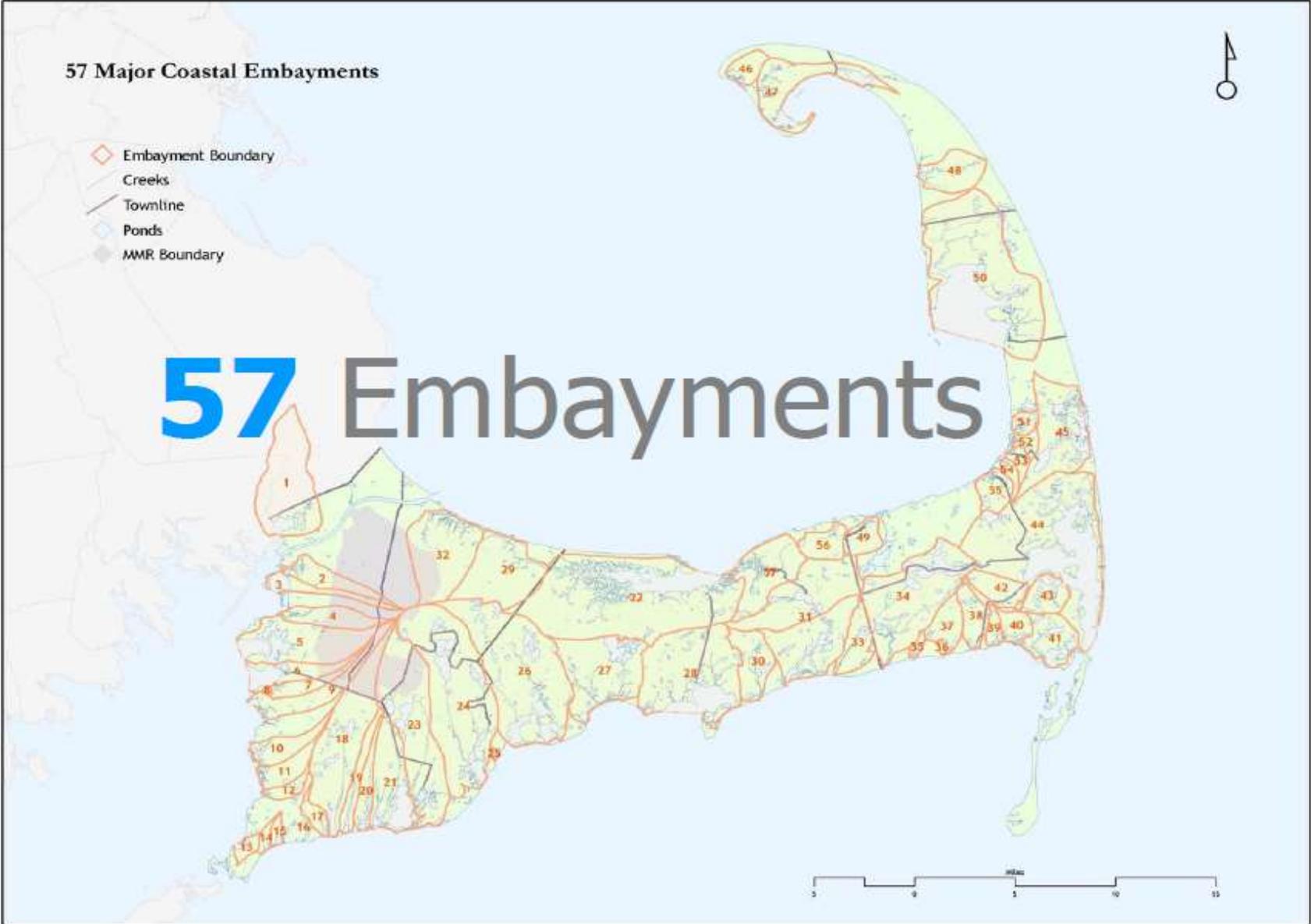
105 Watersheds



57 Major Coastal Embayments

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

57 Embayments



1 Sole Source Aquifer



NO Single Solution

No “silver bullet”
to fit multiple
needs:

**Traditional Gray
Infrastructure**

AND

**Green Infrastructure &
Alternative Approaches**

STRATEGIES:

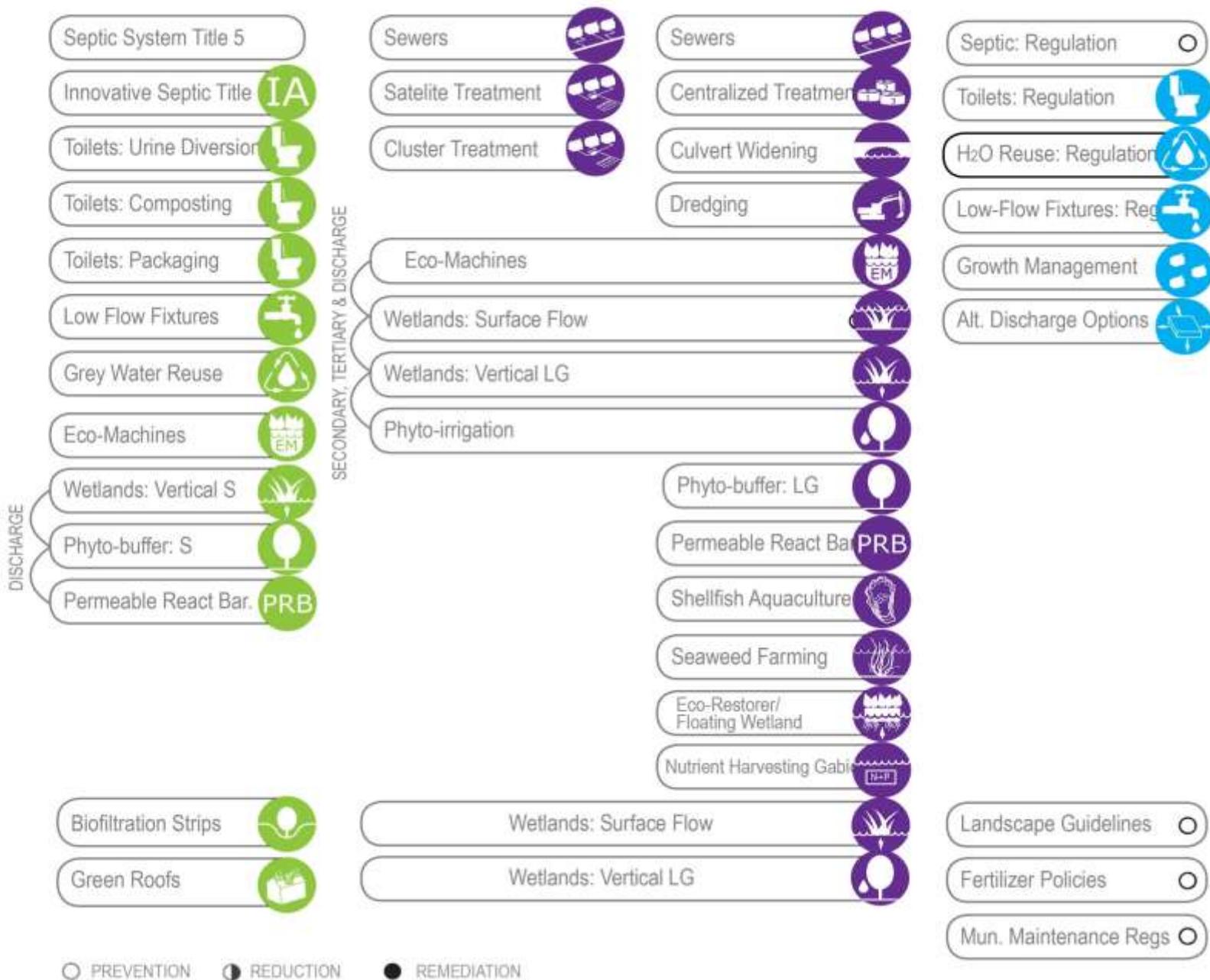
Site Scale

Neighborhood

Watershed

Cape-Wide

SOURCES: NITROGEN POLLUTION



○ PREVENTION ● REDUCTION ● REMEDIATION

Stakeholder Engagement

CAPE-WIDE

Advisory Board
Communications Strategy
Communications Campaign
Benchmarking & Assessing
Program Branding

Regulatory
Coordination

Technical Advisory
Committee

WATERSHED

Stakeholder Communication
Workshop Facilitation
Capacity Building
Watershed Status Portal

watersheds.capecodcommission.org

Project Team

Consultants:

AECOM, Consensus Building Institute
Emerson College, Engagement Game Lab,
Offshoots Productive Landscapes

Staff:

Cape Cod Commission

(revised from initial presentation)

Advisory Board

June 18th – First Meeting

Members:

Robert Churchill Churchill Associates

Robert Lawton former Yarmouth Town Administrator

Wendy Northcross CEO of the Cape Cod Chamber of Commerce

Sheila Vanderhoef Eastham Town Administrator

Virginia Valiela Member- Falmouth Water Quality Mngmt Committee

Robin Wilkins former Town of Harwich Selectman

Regulatory, Legal & Institutional Work Group

Members:

Cape Cod Commission

MassDEP

U.S. EPA

U.S. Army Corps of Engineers

Financial/Regulatory Goals

Work with state and federal partners for:

- Regulatory flexibility
- Funding supporting 50% of capital costs

New Tools/Resources

The Commission is developing a set of innovative tools to assist with decision making.

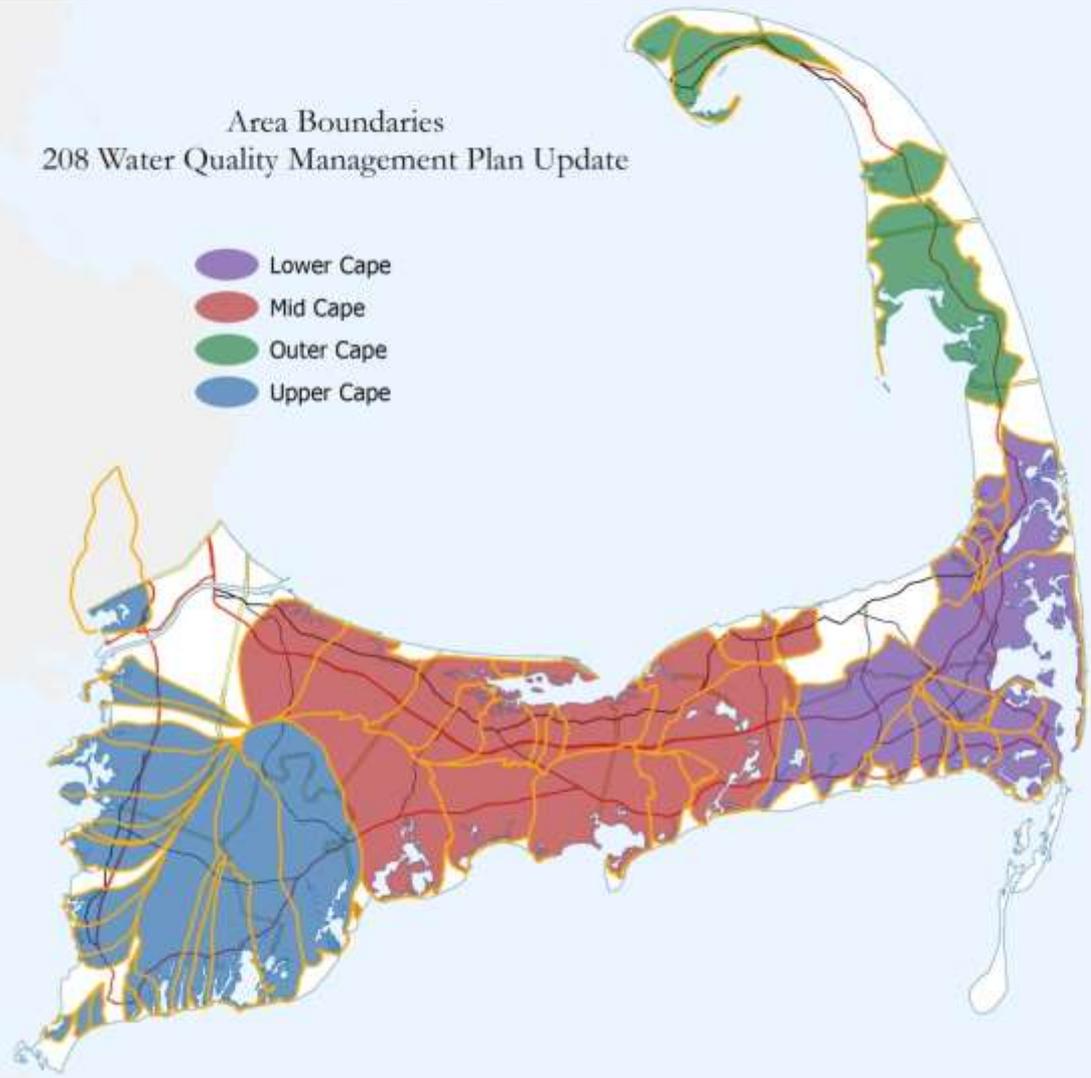
- Watershed MVP
- Systems Dynamics Model
- Green Infrastructure Site Selection Process
- Game-based Planning

Upper Cape Area Manager

Marie Cannon, AECOM

Area Boundaries
208 Water Quality Management Plan Update

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





CAPE COD
COMMISSION

SECTION 208 WATER QUALITY PLAN UPDATE

Upper Cape Area



Bourne

Sandwich

Buzzards Bay Group

SHARED BY: Falmouth, Bourne, Sandwich

Embayment Watersheds:

- BUTTERMILK BAY – Bourne
- PHINNEY'S HARBOR/BACK RIVER – Bourne, Sandwich
- POCASSET RIVER – Bourne, Sandwich
- POCASSET HARBOR – Bourne, Sandwich
- MEGANSETT HARBOR – Bourne, Falmouth, Sandwich
- RANOS CANAL/TIDDLE COVE – Bourne, Falmouth, Sandwich
- WILD HARBOR – Bourne, Falmouth, Sandwich
- WEST FALMOUTH HARBOR – Falmouth
- GREAT SIPPWISSET CREEK – Falmouth
- LITTLE SIPPWISSET MARSH – Falmouth

Direct Ocean Discharge

Falmouth Wastewater Treatment Plant

Falmouth

Woods Hole Group

SHARED BY: Falmouth

Embayment Watersheds:

- QUSETT HARBOR – Falmouth
- OYSTER POND – Falmouth
- SALT POND – Falmouth

Falmouth Fingers Group

SHARED BY: Falmouth, Sandwich

Embayment Watersheds:

- FALMOUTH INNER HARBOR – Falmouth
- LITTLE POND – Falmouth
- GREAT POND – Falmouth, Sandwich
- GREEN POND – Falmouth
- BOURNE POND – Falmouth

Waquoit Bay & Popponesset Bay

SHARED BY: Barnstable, Falmouth, Mashpee, Sandwich

Embayment Watersheds:

- WAQUOIT BAY – Falmouth, Mashpee, Sandwich
- POPPONWESSET BAY – Barnstable, Mashpee, Sandwich

Mashpee



Watershed Groups & Subwatersheds

WAQUOIT BAY & POPPONESSET

SHARED BY: Barnstable, Falmouth, Mashpee, Sandwich

Embayment Watersheds:

- **WAQUOIT BAY** – Falmouth, Mashpee, Sandwich
- **POPPONESSET BAY** – Barnstable, Mashpee, Sandwich

BUZZARDS BAY GROUP

SHARED BY: Falmouth, Bourne, Sandwich

Embayment Watersheds:

- **BUTTERMILK BAY** – Bourne
- **PHINNEY'S HARBOR/BACK RIVER** – Bourne, Sandwich
- **POCASSET RIVER** – Bourne, Sandwich
- **POCASSET HARBOR** – Bourne, Sandwich
- **MEGANSETT HARBOR** – Bourne, Falmouth, Sandwich
- **RANDS CANAL/FIDDLER COVE** – Bourne, Falmouth, Sandwich
- **WILD HARBOR** – Bourne, Falmouth, Sandwich
- **WEST FALMOUTH HARBOR** – Falmouth
- **GREAT SIPPEWISSET CREEK** – Falmouth
- **LITTLE SIPPEWISSET MARSH** – Falmouth

FALMOUTH FINGERS GROUP

SHARED BY: Falmouth, Sandwich

Embayment Watersheds:

- **FALMOUTH INNER HARBOR** – Falmouth
- **LITTLE POND** – Falmouth
- **GREAT POND** – Falmouth, Sandwich
- **GREEN POND** – Falmouth
- **BOURNES POND** – Falmouth

WOODS HOLE GROUP

SHARED BY: Falmouth

Embayment Watersheds:

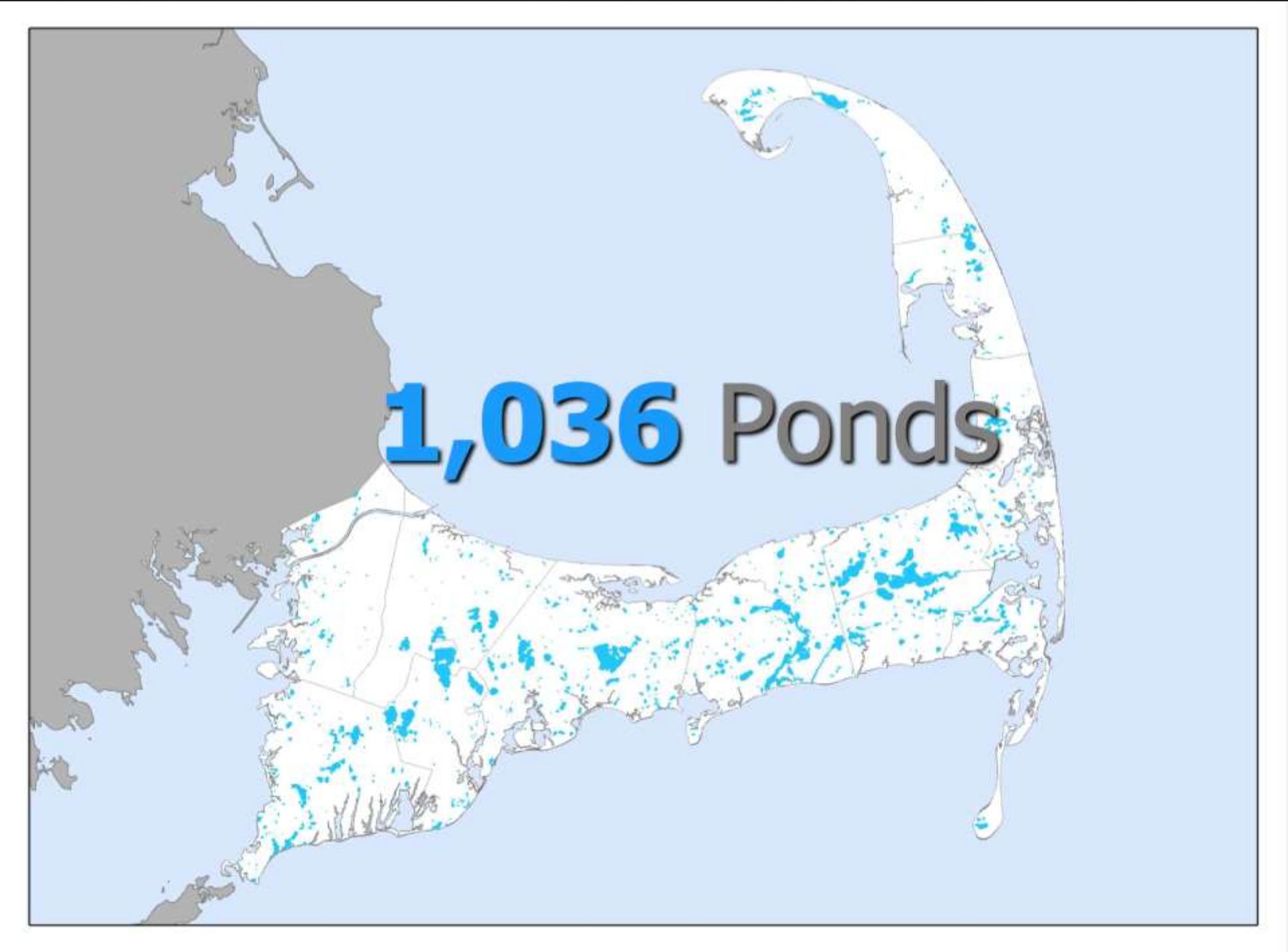
- **QUISSETT HARBOR** – Falmouth
- **OYSTER POND** – Falmouth
- **SALT POND** – Falmouth

Watersheds to Coastal Embayments and Town Boundaries

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

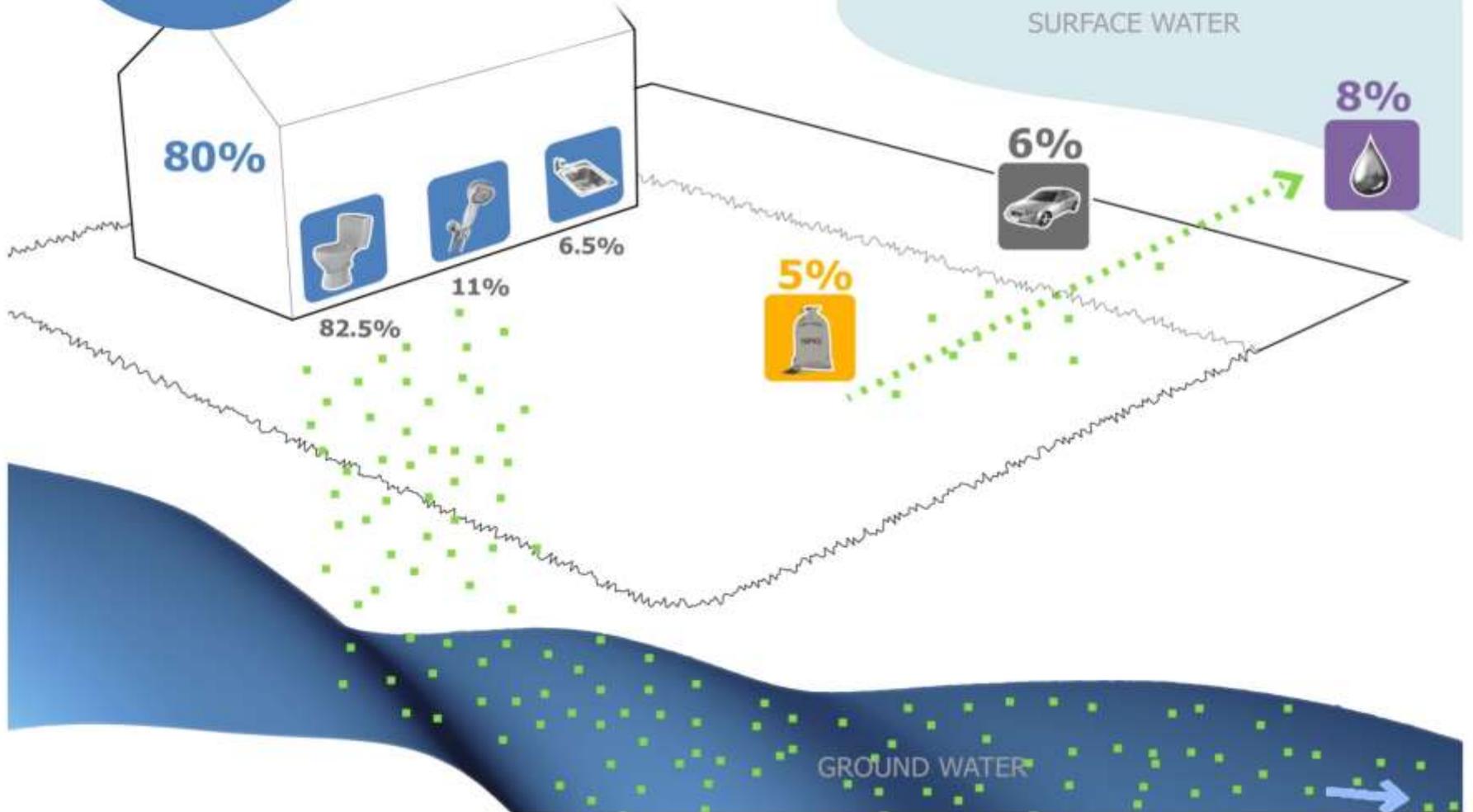
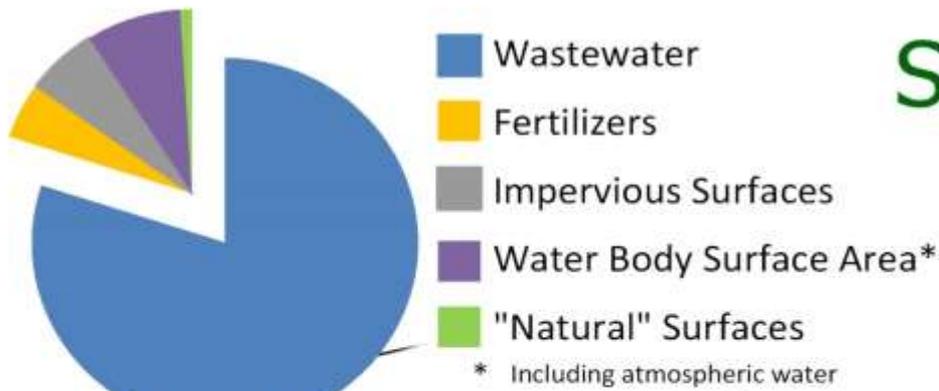
A **Regional** Issue

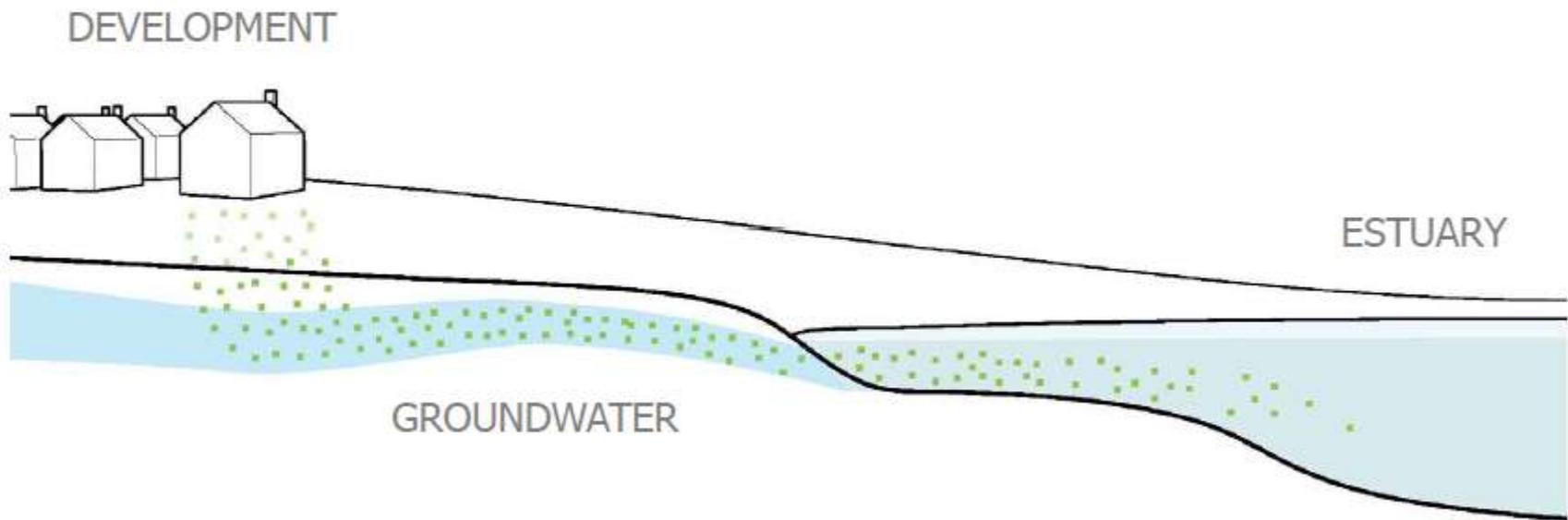


A map of the state of Massachusetts is shown against a light blue background. The landmass is white, with county boundaries indicated by thin grey lines. Numerous small, irregular blue patches are scattered across the land, representing the locations of ponds. The text "1,036 Ponds" is overlaid on the map in a large, bold, blue font with a grey drop shadow. The number "1,036" is in a larger font size than the word "Ponds".

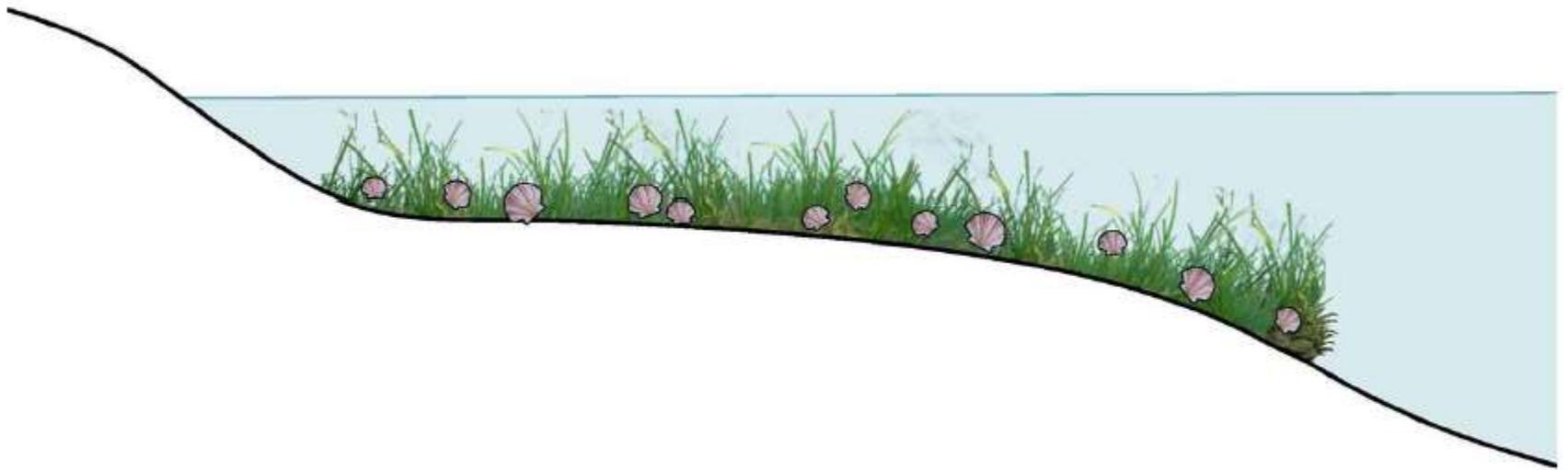
1,036 Ponds

Sources of Nitrogen

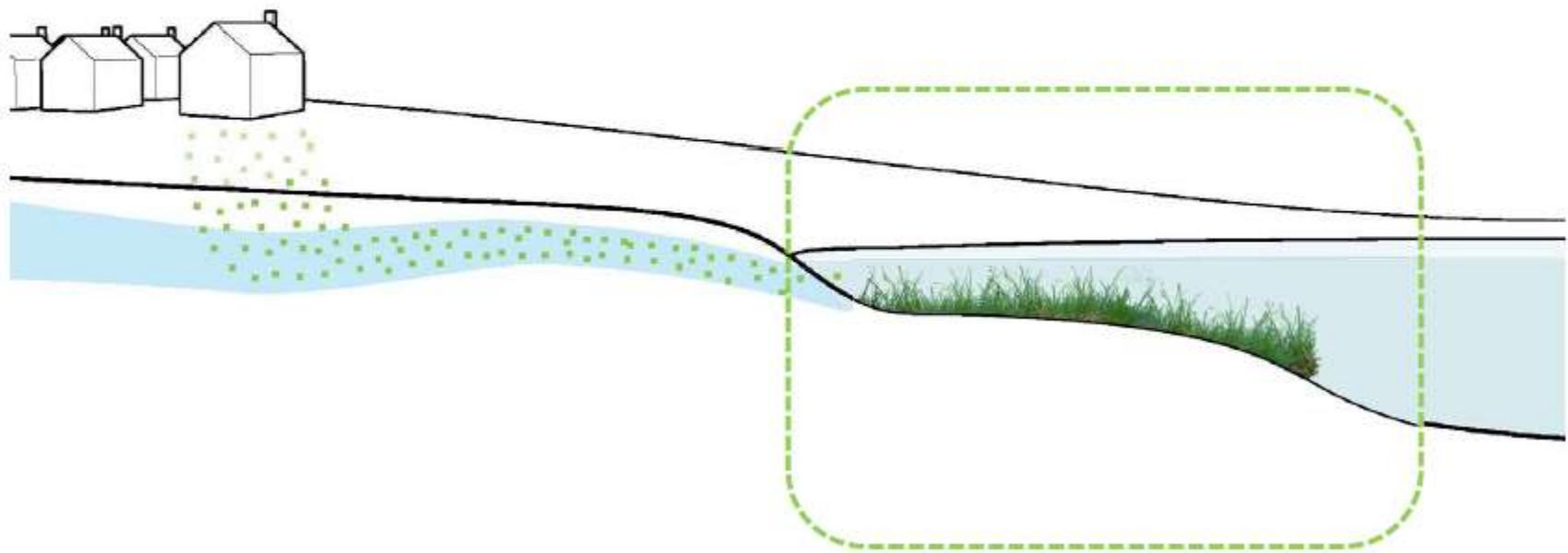




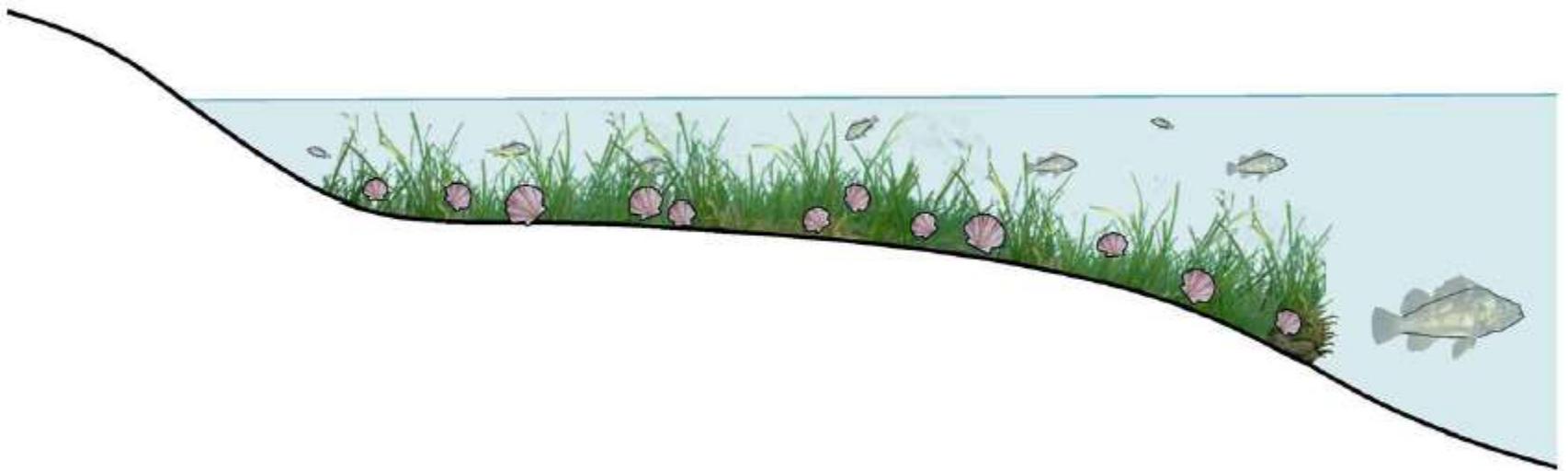
The Nitrogen Story



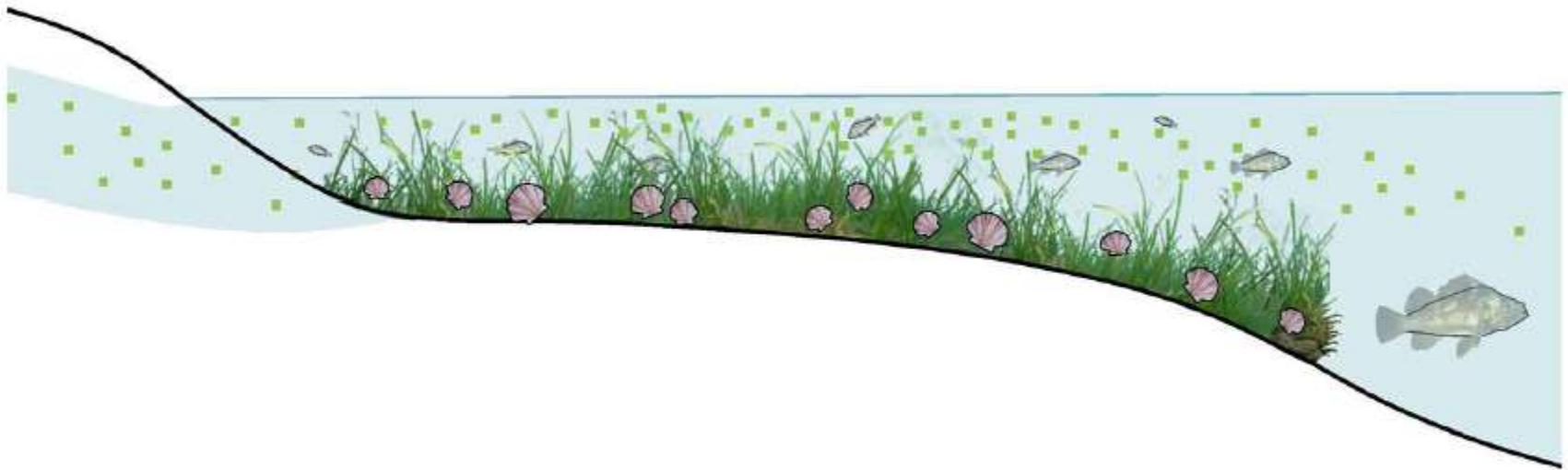
Healthy Shoreline



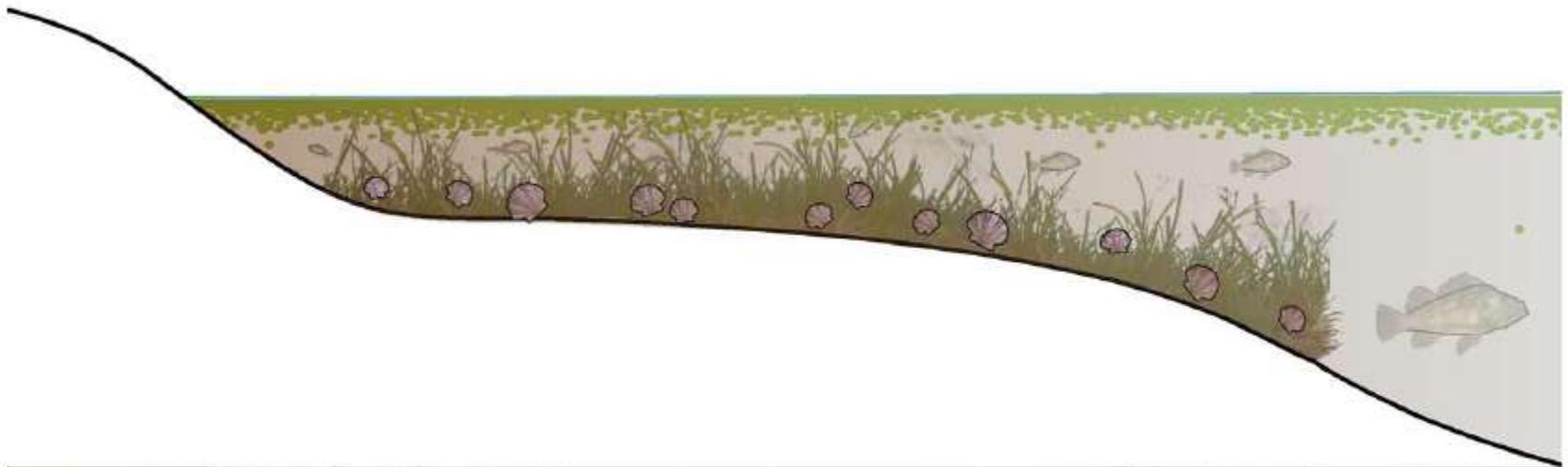
Where Groundwater Meets the Estuaries....



A Diverse Habitat



The Nitrogen Enters from Groundwater....

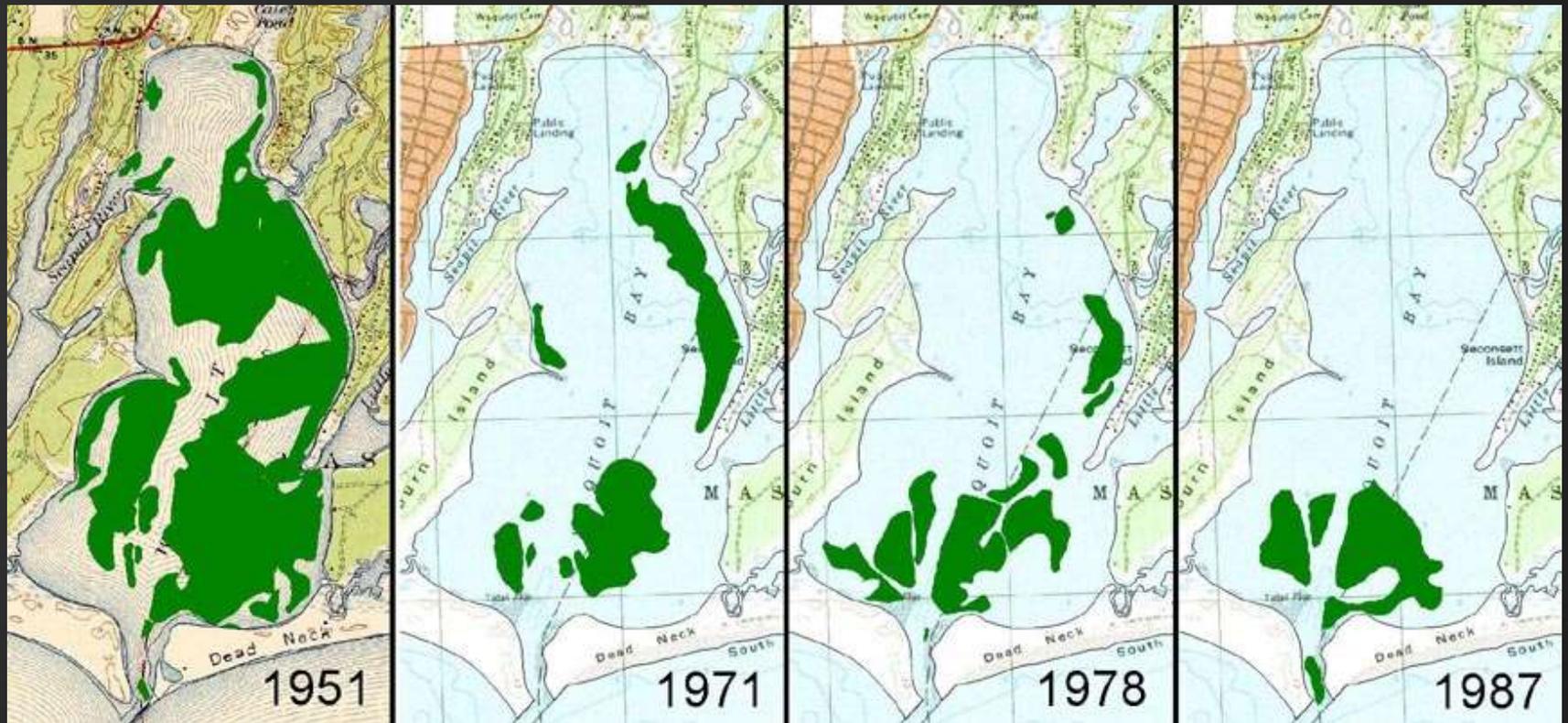


The Algae Blooms, the Oxygen is gone....

Bournes Pond, Falmouth – May 2013



Coastal Water Quality Problem



Reduction in eel grass

Waquoit Bay - Falmouth and Mashpee

Approach to the 208 Plan Update

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

Outreach

208 Town Meetings

Discussion

- 208 watershed planning process
- Status of local planning to date

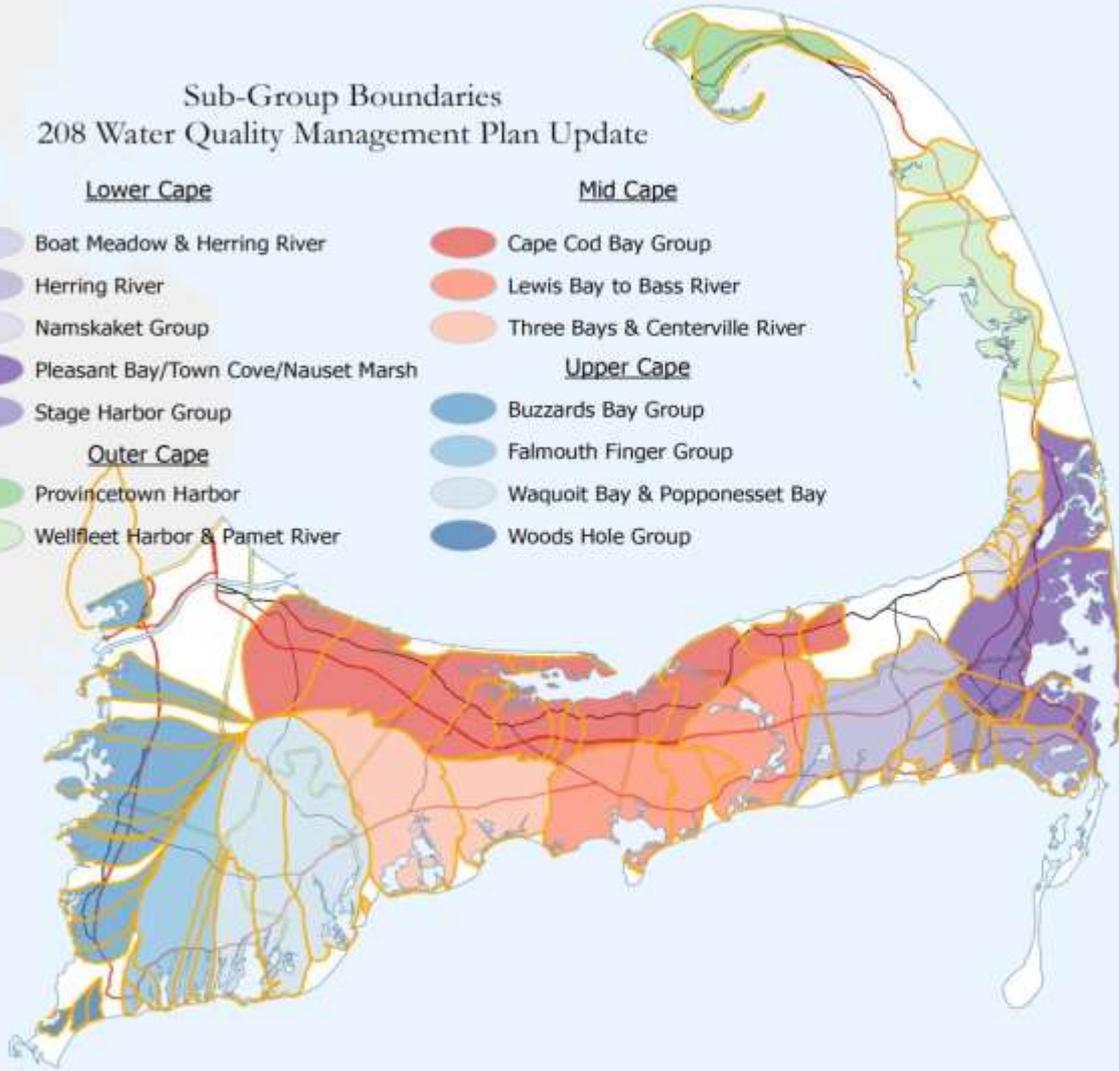
Public Meetings – Work Plan & Project Goals

- Outer Cape – 7/15
- Upper Cape – 7/16
- Lower Cape – 7/17
- Mid Cape – 7/18

Sub-Group Boundaries 208 Water Quality Management Plan Update



- | <u>Lower Cape</u> | <u>Mid Cape</u> | |
|-------------------------------------|--------------------------------|-----------------------|
| Boat Meadow & Herring River | Cape Cod Bay Group | |
| Herring River | Lewis Bay to Bass River | |
| Namskaket Group | Three Bays & Centerville River | |
| Pleasant Bay/Town Cove/Nauset Marsh | <th><u>Upper Cape</u></th> | <u>Upper Cape</u> |
| Stage Harbor Group | Buzzards Bay Group | |
| <th><u>Outer Cape</u></th> | <u>Outer Cape</u> | Falmouth Finger Group |
| Provincetown Harbor | Waquoit Bay & Popponesset Bay | |
| Wellfleet Harbor & Pamet River | Woods Hole Group | |



Working Group Participants

- Target of 15-20 members per working group
- 8-10 Designated Seats
 - Local Elected Officials
 - Wastewater Committee Member
 - Town Professional Staff
 - Local Business Owner/Operator
 - Local Environmental Organization
 - Civic Group Member
 - Alternative Technology Interest
 - Development/Real Estate Community
- 5-7 open seats for each group
- Consensus Building Institute to facilitate selection process, decisions made by participants.

Stakeholders Should Expect to...

- Represent and articulate the diverse range of interests and concerns they represent.
- Seek input from constituents, and keep them informed about Working Group proceedings.
- Attend all meetings and participate actively in discussions.
- Engage in respectful and constructive dialogue with other participants
- Seek creative options to resolve wastewater problems.

Stakeholder Workshops

Three meetings for each of 14 Watershed Groups

MEETING 1:

Baseline Conditions & Impairments

MEETING 2:

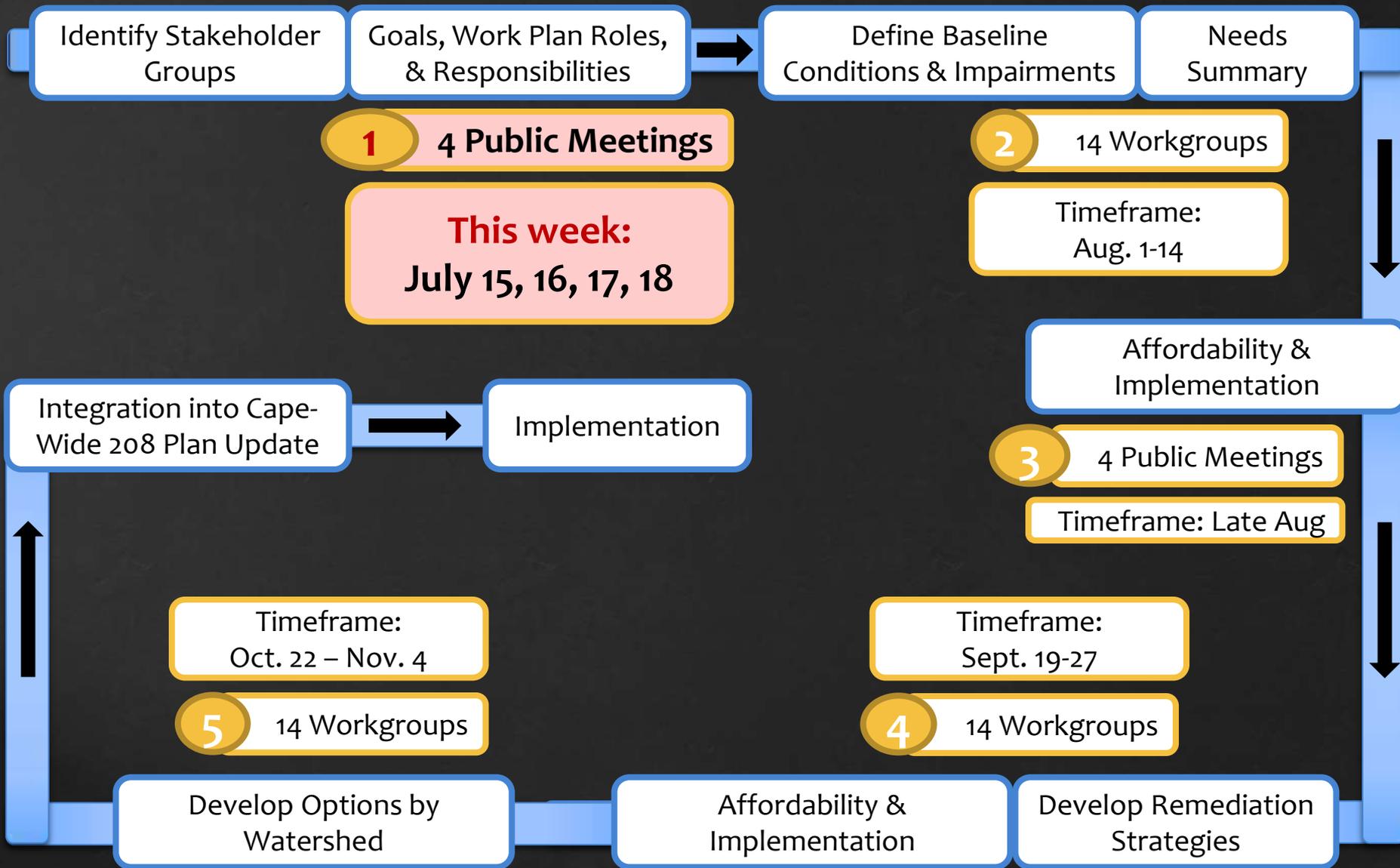
Develop Remediation Strategies

MEETING 3:

Develop Options by Watershed

(revised from initial presentation)

The Workshop Process



(revised from initial presentation)

Upper Cape Working Groups

Buzzards Bay

Bourne Town Hall

8:30 a.m –
12: 30 p.m.

Aug. 6

Sept. 30

Oct. 24

Woods Hole Group

Smith Lab, WHOI

8:30 a.m –
12: 30 p.m.

Aug. 13

Sept. 27

Oct. 22

Falmouth Fingers Group

Falmouth Town Hall

8:30 a.m –
12: 30 p.m

Aug. 2

Sept. 24

Oct. 25

Waquoit/Popponesset

Mashpee Town Hall

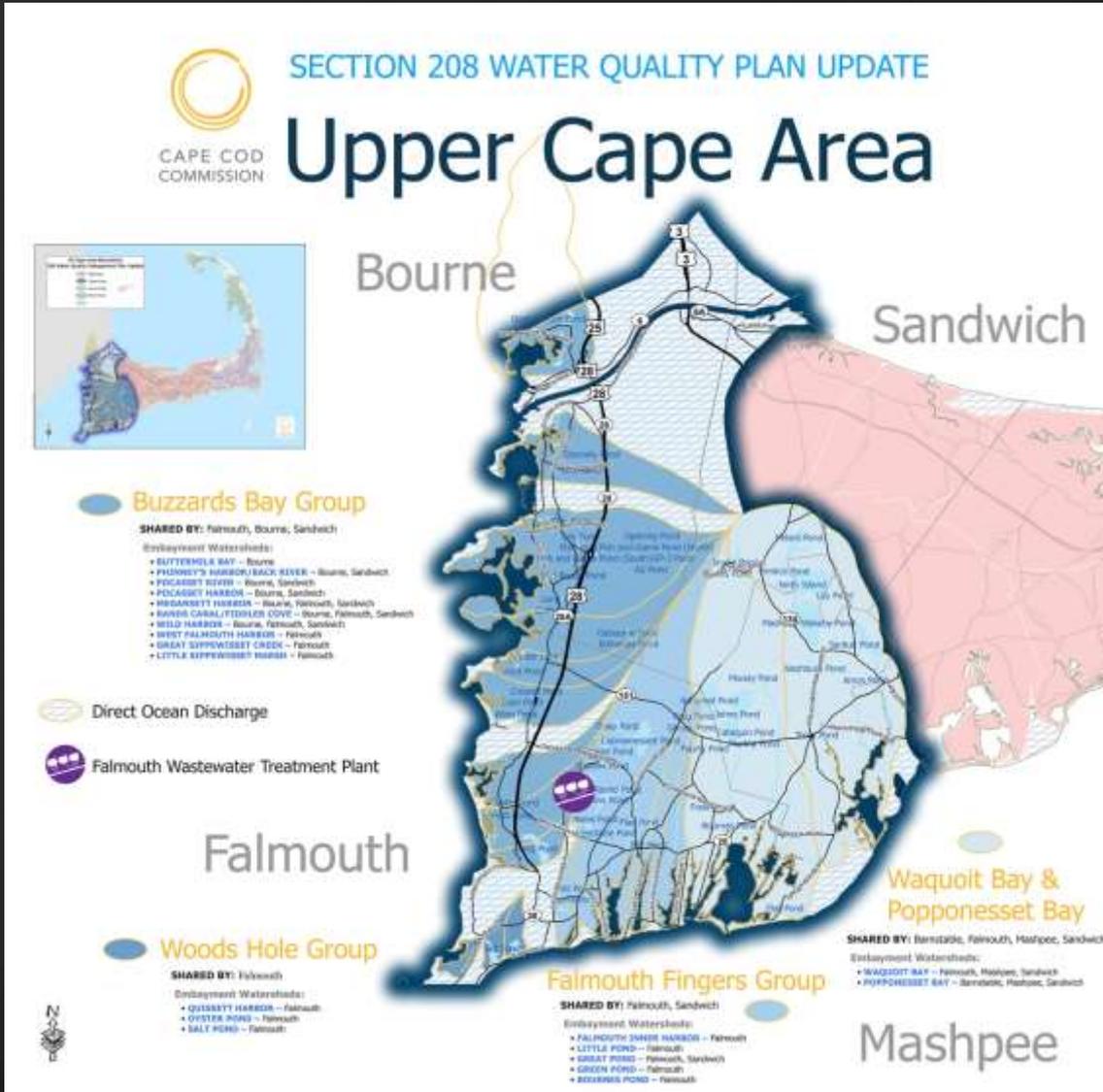
1:00 – 5:00
p.m.

Aug. 7

Sept. 25

Oct. 30

QUESTIONS?



Thinking about this process...

What is our greatest opportunity?

What is our greatest challenge?

Take 15 minutes to talk these
over in small groups.

Register to Play Cape₂O

Cape₂



It's something in the water

It's something in the water

communityplanit.org/capecod



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watersheds.capecodcommission.org