



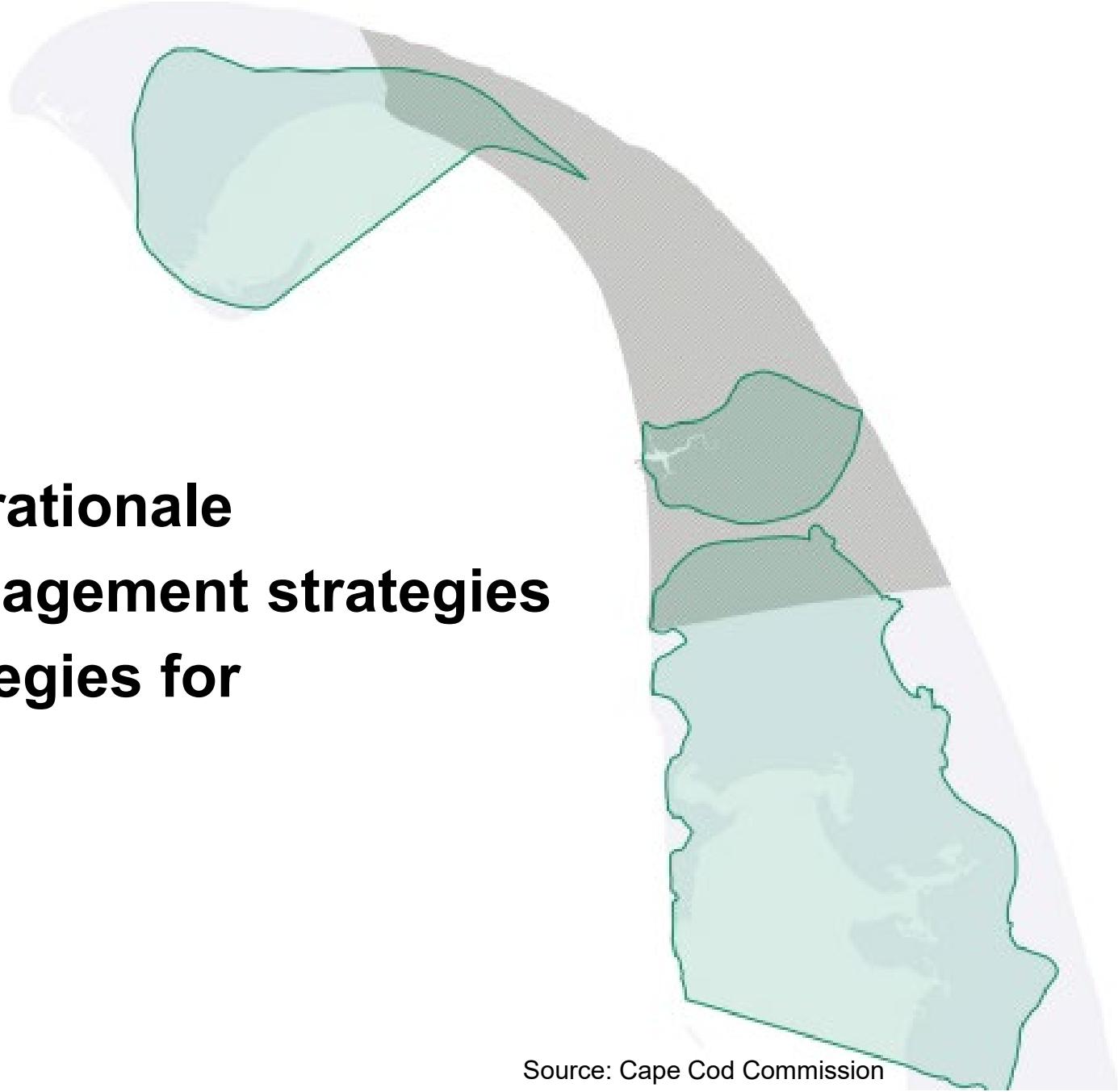
Truro Comprehensive Watershed Management Plan

Joint Selectboard & Board of Health Meeting
September 25th, 2025

Welcome

Agenda

- Project background and rationale
- Preliminary nitrogen management strategies
- Potential regulatory strategies for implementation
- Summary
- Next steps

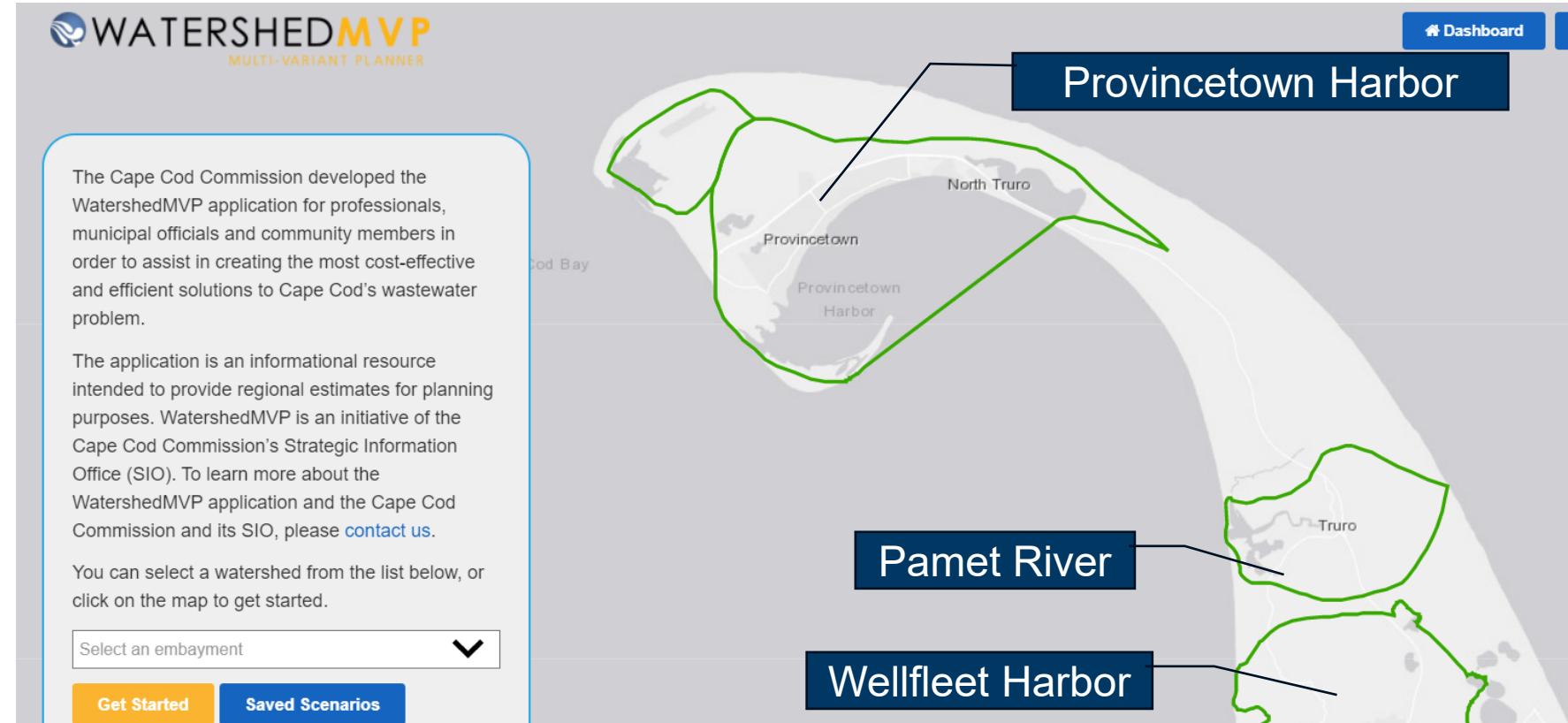


Project History and Rationale



Transitioning Truro's Comprehensive Wastewater Management Plan to a Watershed Management Plan

- Wastewater and Nitrogen Management Planning Project focusing on Truro's three coastal estuaries through wastewater and non-wastewater management strategies
 - Provincetown Harbor (shared with Provincetown)
 - Pamet River
 - Wellfleet Harbor (shared with Wellfleet and Eastham)



Environmental and Public Health Needs

- The Town of Truro needs to **reduce the amount of nitrogen** entering its coastal estuaries to meet MassDEP/EPA requirements
 - Excess nitrogen comes primarily from **septic systems, stormwater runoff and fertilizers**
 - Excess nitrogen in the watershed can lead to loss of eelgrass, algae blooms, fish kills and a decline in property values



The New York Times

A Toxic Stew on Cape Cod: Human Waste and Warming Water

Climate change is contributing to electric-green algae blooms. Massachusetts wants a cleanup of the antiquated septic systems feeding the mess, but it could cost billions.

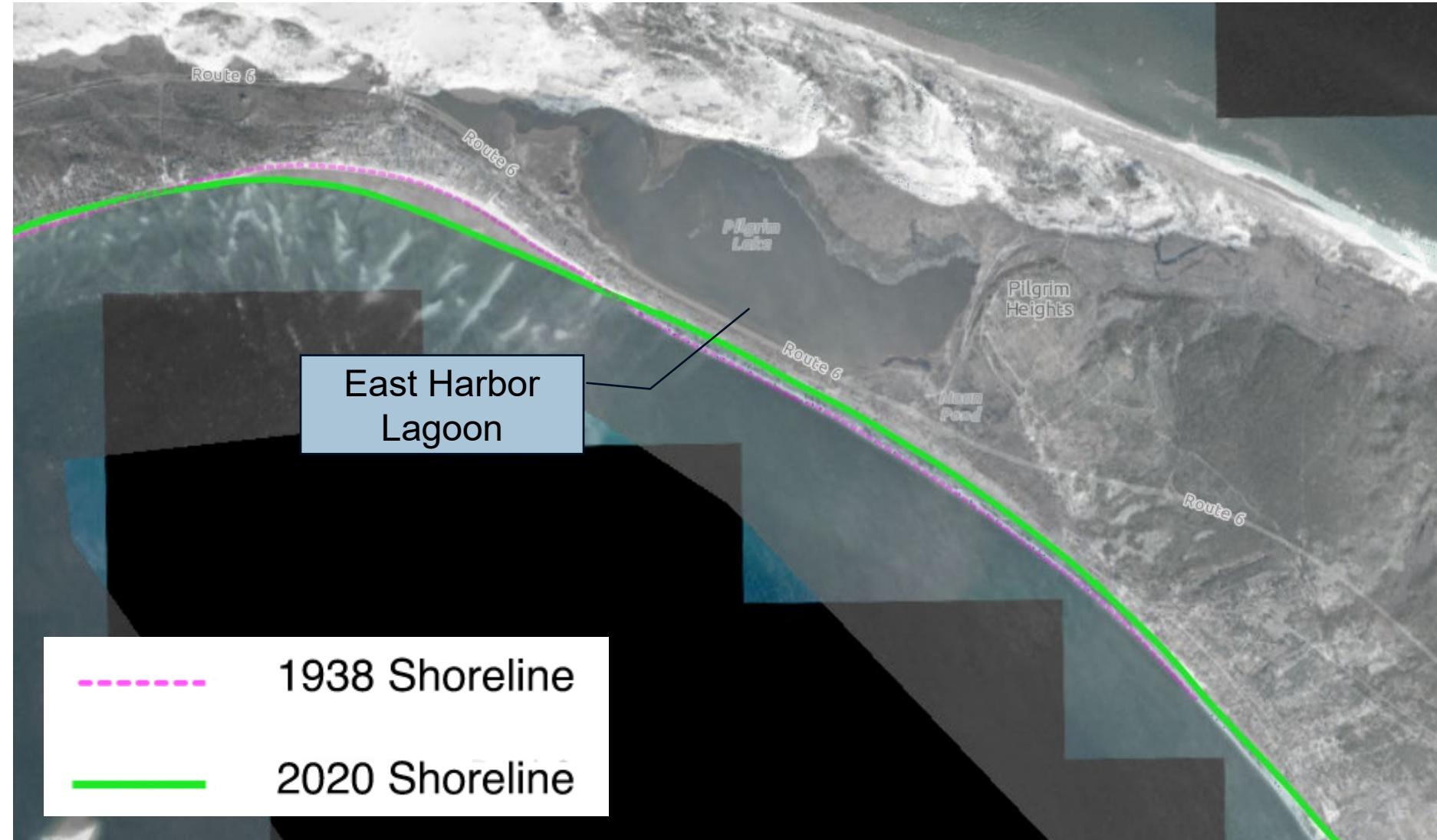
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Provincetown Harbor: Beach Point

Beach Point: Northern Truro, along Shore Road

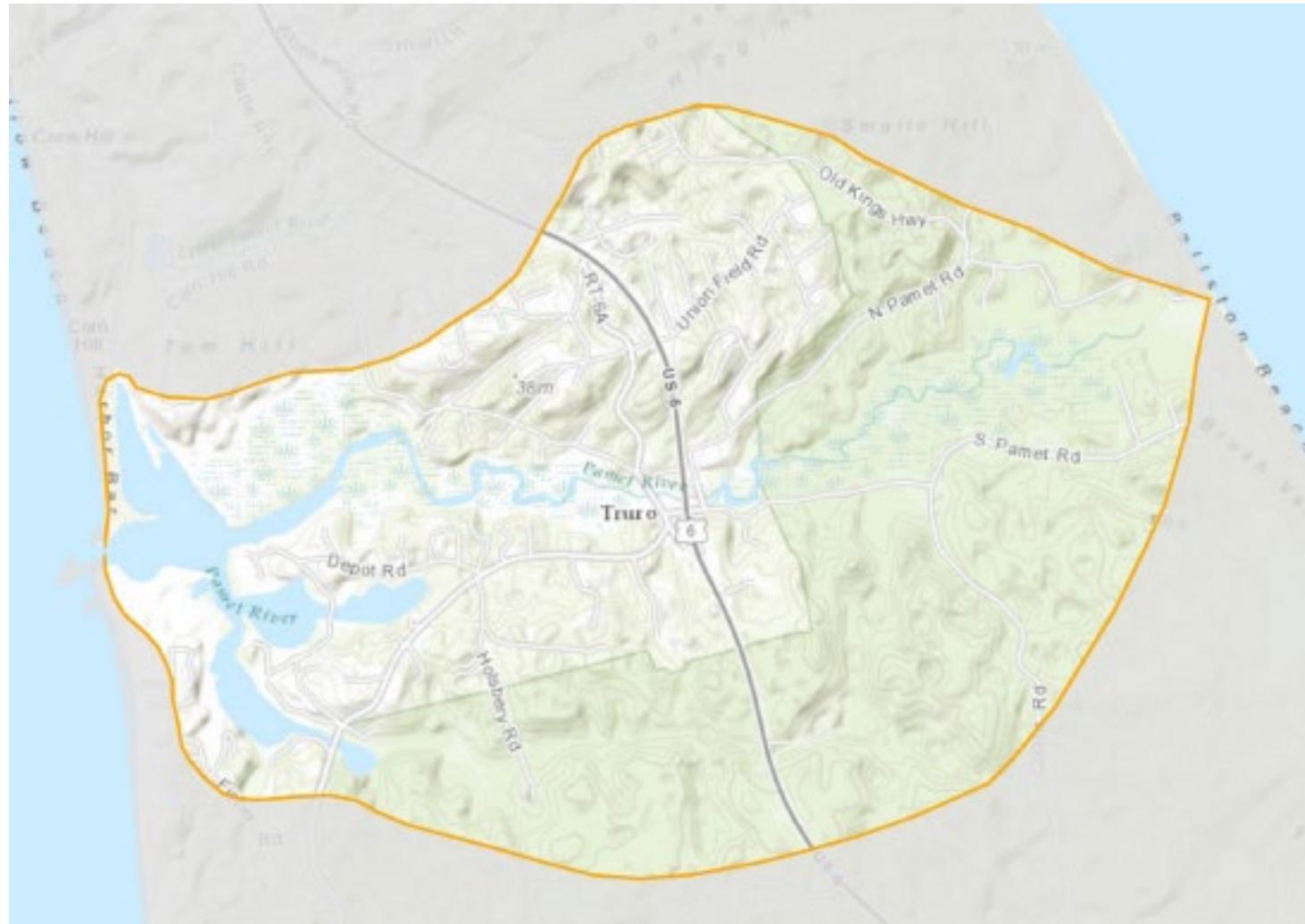
2010 SMAST water quality monitoring report funded by 604(b) grant indicated that **Pilgrim Lake / East Harbor Lagoon** is tidally restricted with fair to poor water quality at all monitoring stations

Cape Cod National Seashore sampling program indicates potential temperature-driven impairment



Pamet River Watershed

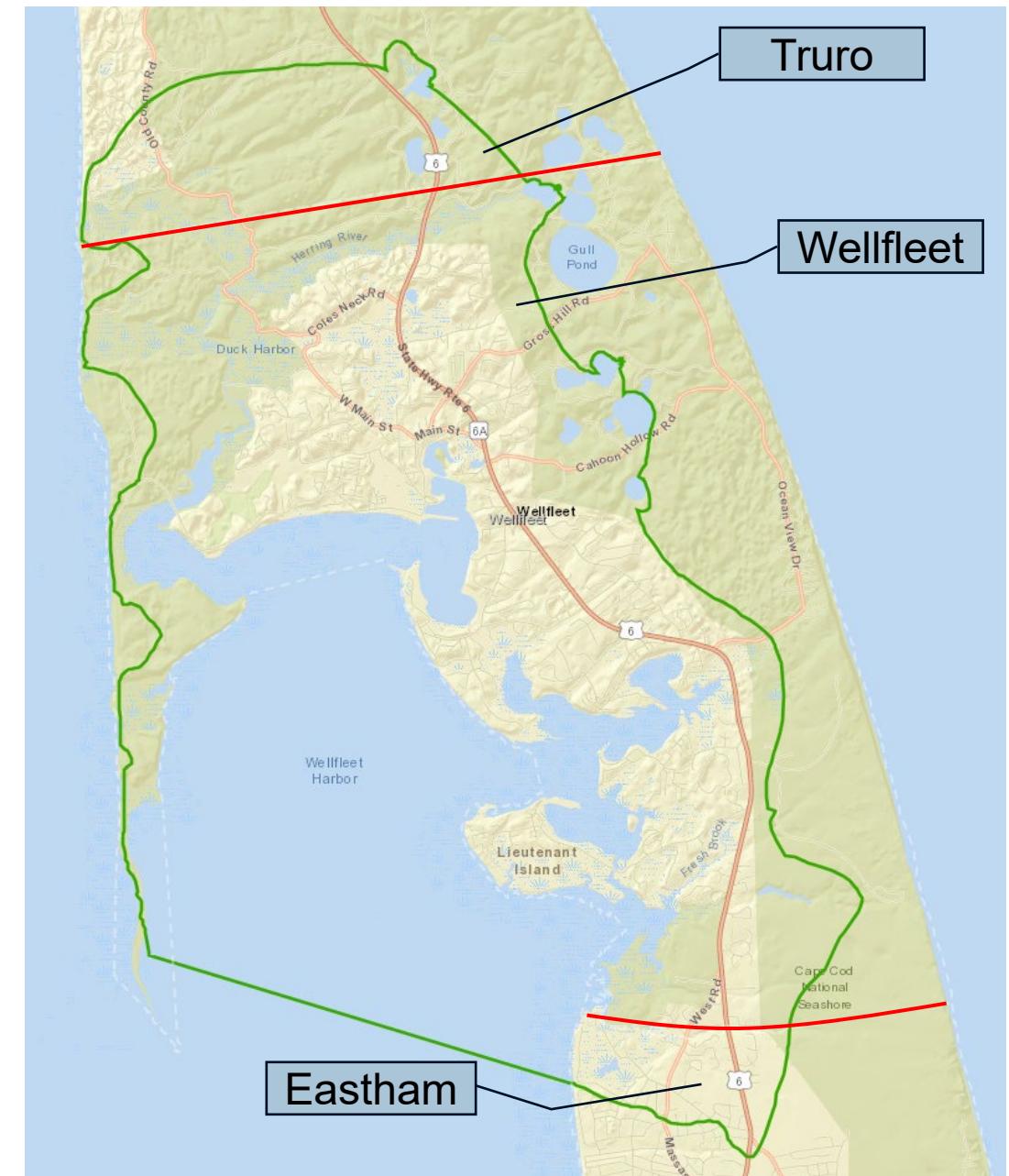
- Watershed is entirely within Truro, consists of ~570 developed parcels
- 2010 604(b) grant funded water quality monitoring program indicated **poor to moderate water quality** in the Pamet River
- Water quality sampling in Pamet River was reinitiated in Summer 2025 and is ongoing



Source: Cape Cod Commission

Wellfleet Harbor

- Watershed is shared between Truro, Wellfleet, and Eastham, with a majority of the watershed in Wellfleet, ~92 developed parcels within Truro
- Watershed has an established Nitrogen Total Maximum Daily Load (TMDL) requirement
- Truro has submitted a Notice of Intent (NOI) to submit a watershed permit for Wellfleet Harbor



Source: Watershed MVP

Watershed Permitting Regulations

July 2023 – Revisions to Massachusetts Title 5 (septic system) regulations

- Designate nitrogen sensitive areas (watersheds on Cape Cod with a nitrogen TMDL)
- Outlines options for nitrogen sensitive areas
 - Upgrade all existing septic systems within a nitrogen sensitive area to the Best Available Nitrogen Reducing Technology within 5 years – or –
 - Implement a 20-year watershed permit
 - A Watershed Permit establishes performance standards, authorized activities, and the timeframes that will be utilized under an adaptive management framework to achieve nutrient load reductions that are necessary to meet the specific water quality and habitat quality restoration goals that have been identified in a watershed analysis as being necessary to meet the designated uses of the waterbody established by the DEP.
 - Currently, a Notice of Intent to submit a watershed permit (NOI) has been submitted for Wellfleet Harbor
 - Once a nitrogen TMDL is established for Pamet River and Provincetown Harbor, they will also be part of a watershed permit

Current Status

Nitrogen Total Maximum Daily Loads (TMDLs)

- Pollutant limits for nitrogen developed by MassDEP that must be met by communities
- Established for Wellfleet Harbor
- Not yet established for Pamet River and Provincetown Harbor

Cape Cod Commission (CCC) Section 208 Area Wide Water Quality Management Plan

- Includes Watershed Reports which characterize the degree of nitrogen impairment for 53 watersheds on Cape Cod
- For estuaries that do not yet have a MassDEP-approved TMDL, CCC recommends Towns use a 25% nitrogen removal target for initial planning
- CCC 208 Plan Watershed Reports estimates watershed nitrogen sources for Pamet River and Provincetown Harbor (wastewater, fertilizer, stormwater and other).

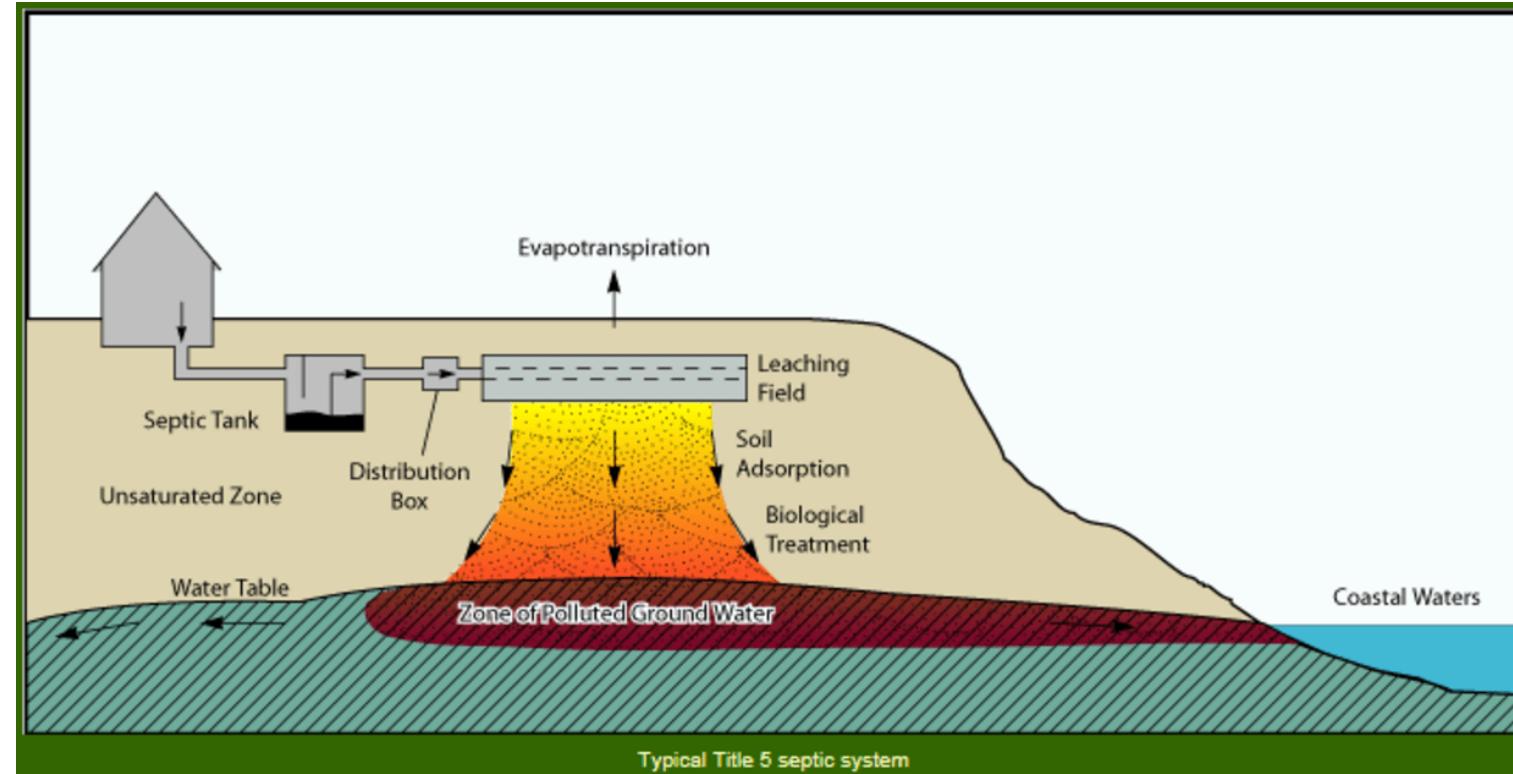
Nitrogen Management Strategies and Implementation



Nitrogen Management Strategies

Conventional strategies: MassDEP approved standard approaches, governed by Title 5 and watershed permitting.

- Wastewater nitrogen
 - MassDEP general use nitrogen reducing on-site septic systems (typical TN effluent concentration of 19 mg/L)
 - Centralized collection and treatment
 - Cluster systems (decentralized system serving multiple properties)

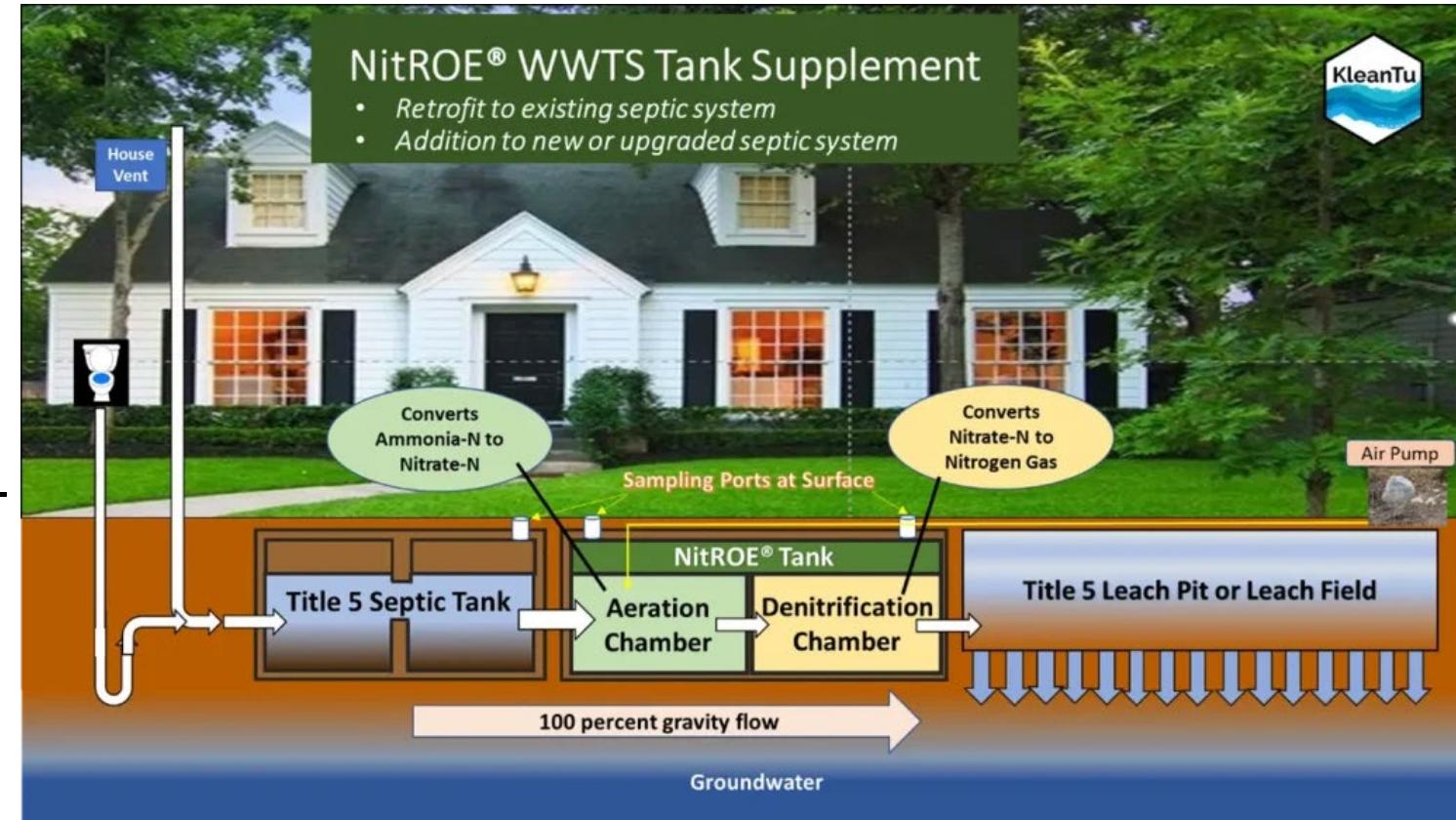


Source: capecodwaters.org

Nitrogen Management Strategies

Alternative strategies: Strategies that are not considered conventional by MassDEP but can effectively be used for nitrogen management, including decentralized and nature-based approaches to improving nitrogen removal

- Strategies for managing wastewater nitrogen include:
 - Provisional use nitrogen reducing on-site septic systems (systems achieve TN effluent concentration of 11 mg/L or less)
- Strategies for managing nitrogen from other controllable sources include:
 - Fertilizer bylaws
 - Stormwater BMPs
 - Permeable reactive barriers



Source: NitROE

Existing Board of Health Triggers for Implementation

- Existing regulations require nitrogen reducing systems for:
 - Flows greater than 600 gpd
 - Nitrogen credit applications (only allowed for ADUs without a variance)
 - Certain non-conforming systems, as determined by the Board of Health
- Previously approved systems that exceed a nitrogen loading rate of 110 gpd / 10,000 SF of lot area
- Certain cases where a variance is required and a nitrogen reducing system will mitigate environmental impacts of the proposed system, as determined by the Board of Health

Strategies for meeting Nitrogen Management Goals

- Potential new regulations could require enhanced nitrogen reducing systems based on triggers for:
 - Property sale/transfer
 - Failed septic systems
 - Systems within a specified distance of any wetland or within a floodplain
 - New construction
 - Properties in priority watersheds
- Geographic (phased approach)
 - Proximity to surface waters
 - Wellhead protection zones

Anticipated Plan Implementation

- Board of Health Regulations
 - Regulations will help people qualify for funding
 - Regulations will maximize benefits for nitrogen management
- Targets
 - Environmental health: specific water bodies (Pamet River, Wellfleet Harbor, Provincetown Harbor)
 - Public health (town-wide)
 - Private well protection
 - Zone II protection
- Compliance Assistance
 - Financing will be established through Select Board policy recommendations
 - May include a working group with representatives from pertinent town committees

Summary

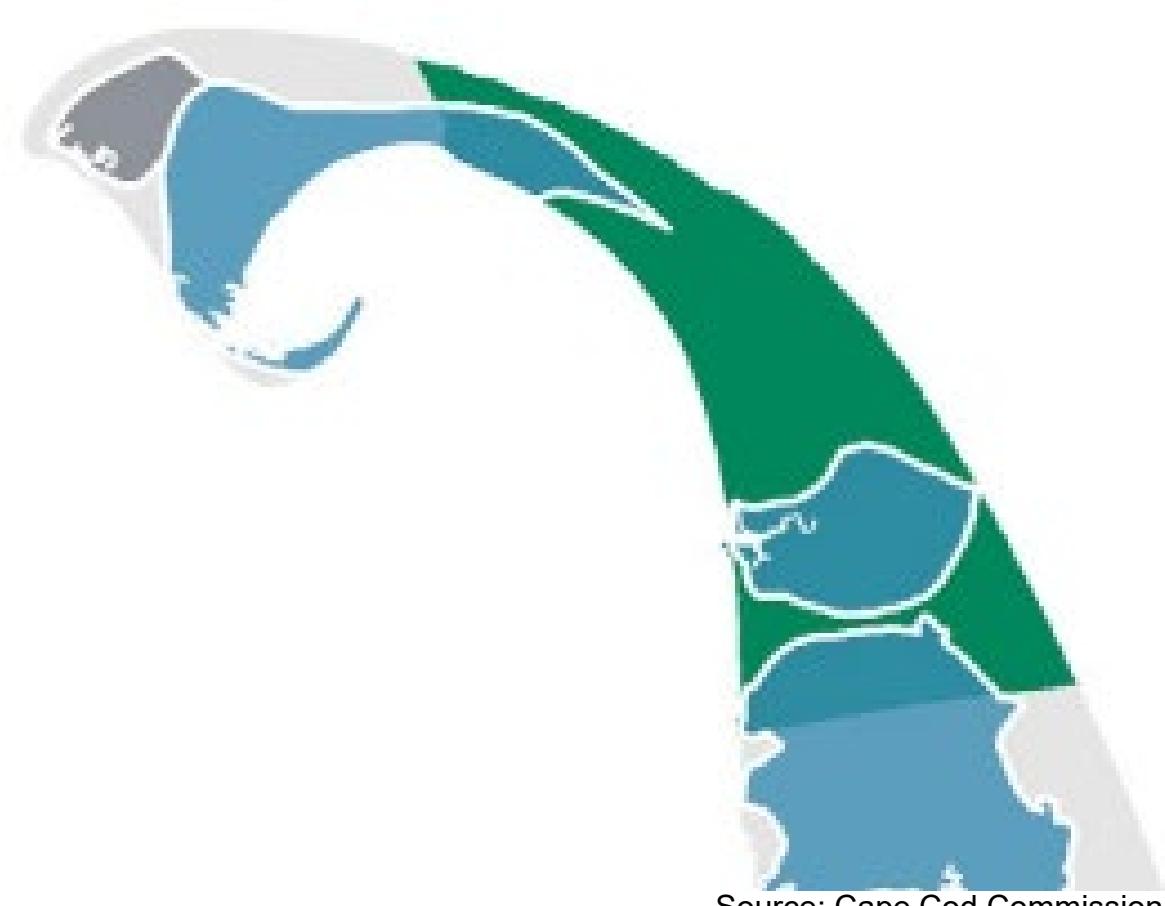
Goal: Reduce the amount of nitrogen entering Truro's coastal estuaries

- Wellfleet Harbor
- Pamet River
- Provincetown Harbor

Implement a variety of nitrogen management strategies that are:

- Cost-effective for the community
- Targeted to sensitive areas

Outcome: Enhanced water quality, human health, and environmental health



Source: Cape Cod Commission

Next Steps

- Public discussion: Tuesday, October 14th at ~~3pm~~ 4 pm
- Finalize Draft Truro Comprehensive Watershed Management Plan, Draft to be available on Town Website Friday, October 31st
- Public meeting: TBD



* Thank you