



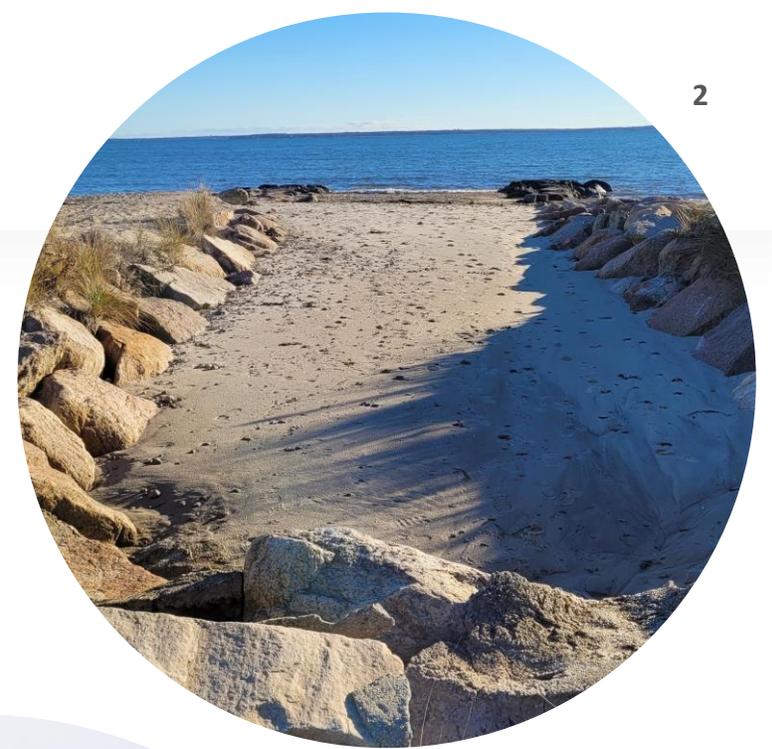
Assessment of Coastal Habitat & Water Quality in the Fresh River System, with Evaluation of Conceptual Alternatives for Tidal Restoration

Public Meeting – February 28, 2024



Meeting Agenda

- Project Background & Goals
- Funding for Current Project
- Scope of Current Project
- Schedule
- Next Steps
- Public Comment & Questions



Site Background & Problems

Shoaling/Closure of Inlet to Vineyard Sound

- Requires frequent DPW maintenance approx. once/month
- Basement flooding of adjacent properties
- Impairs fish run for alewife, blueback herring and striped bass if closure occurs during spawning season



Source: Falmouth Enterprise

Site Background & Problems

Shoaling Inside Fresh River

- Reduces tidal flushing with cleaner waters from Vineyard Sound which impacts water quality
- Degrades/reduces aquatic habitat
- Attracts geese which likely increases nutrients in the system



Site Background & Problems

Undersized & Failing Culvert Under Surf Drive

- Reduces tidal flushing with cleaner waters from Vineyard Sound which impacts water quality
- Degrades/reduces aquatic habitat



Site Background & Problems

Stormwater Discharge to Fresh River

- Direct discharge of stormwater likely increases nutrients and pollutants to the system



Project Goals



Restore Tidal Flow

Modify the culvert under Surf Drive to ensure daily tidal flushing with Vineyard Sound



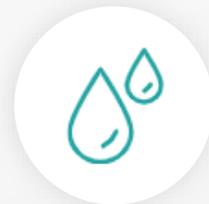
Improve Ecosystem Habitat

Create a continuous opening with Vineyard Sound to restore 1.6 acres of coastal habitat and 1,870 linear ft of the fish run



Minimize Sediment Accumulation

Alter the inlet entrance to create a self-sustaining system that does not trap sediment



Improve Water Quality

Maintain full tidal exchange with Vineyard Sound and remediate stormwater pollution to improve water quality

Project Funding - Coastal Zone Management (CZM) - Coastal Habitat and Water Quality Grant Program 8

Grant application submitted to CZM

June 2023

Woods Hole Group awarded contract

December 2023

October 2023

Grant awarded to Town of Falmouth

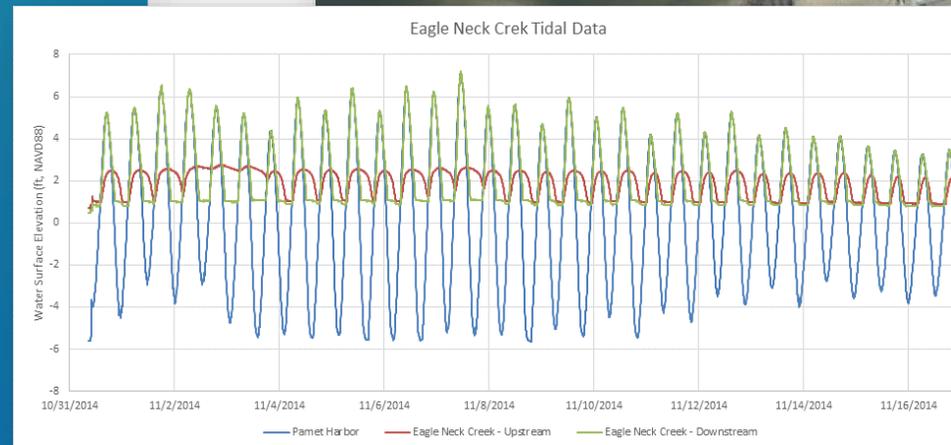
Grant: \$90,237
Town Match: \$14,630 (cash)
\$15,450 (in-kind services)
Project Total: \$120,317

Future grant funding will be sought for engineering design, permitting, and construction



Task 1: Habitat and Water Quality Assessment

- Water level & water quality measurements (3 gauges during Feb.)
- Vineyard Sound & Siders Pond - water level, salinity & temperature
- Fresh River – water level, salinity, temperature, DO, pH, & turbidity
- Additional month of WQ data in Fresh River in June
- Identify attenuation of the tide and water quality parameters



Task 1: Habitat and Water Quality Assessment

Wetland habitat survey (Jan. 2024)

- Coastal bank
- Salt marsh
- Land under the ocean
- Tidal flat
- Bordering vegetated wetland
- Fish run

Topographic survey (Feb. 2024)

Stormwater sampling & testing (Spring 2024)

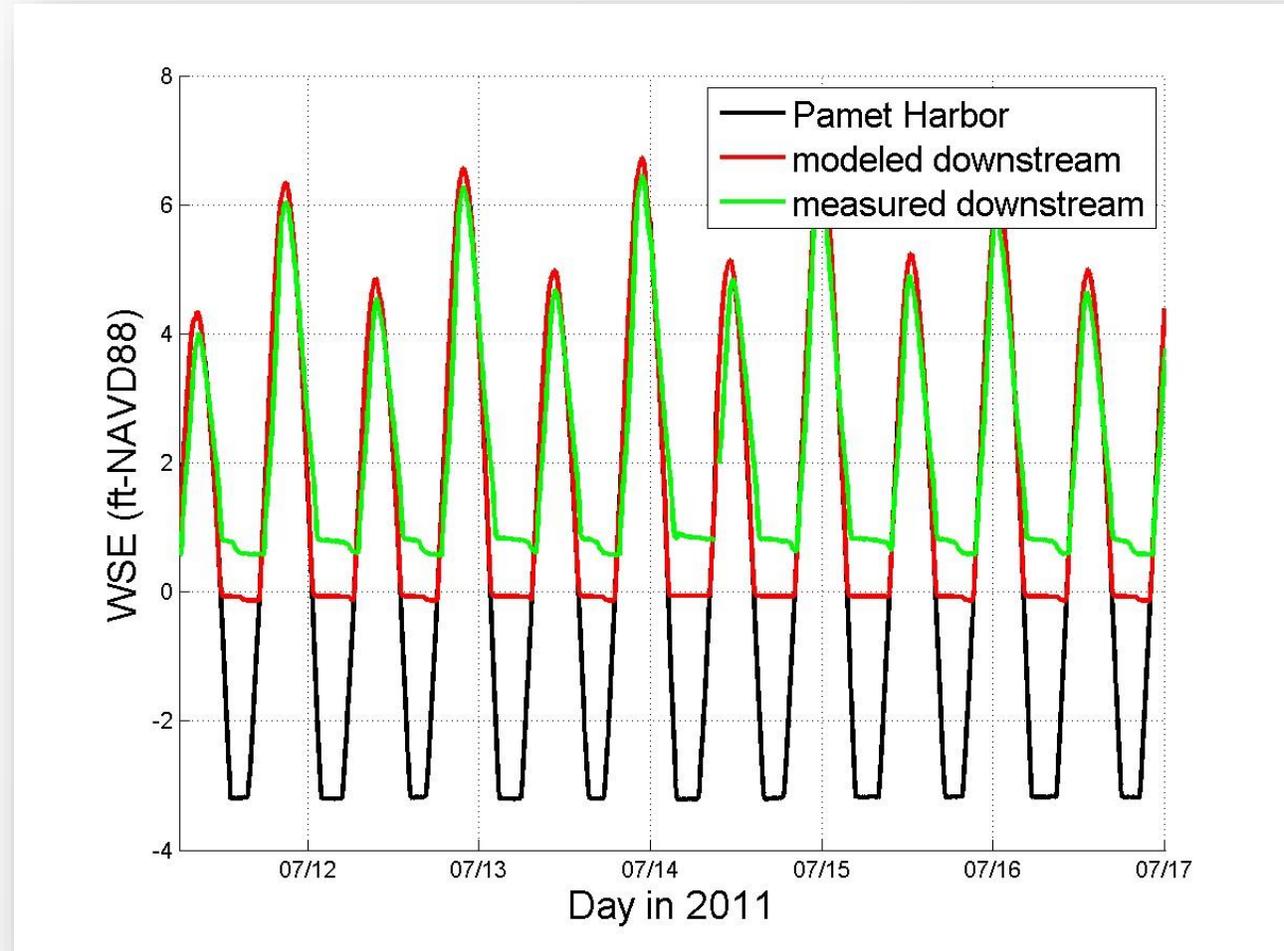
- Six (6) rainfall events
- Test for bacteria and nutrients



Task 2: Tidal Hydraulic Assessment

Hydrodynamic model of existing conditions

- Develop model to reproduce measured tidal fluctuation in Fresh River and Siders Pond
- Quantify tidal flow



Task 2: Tidal Hydraulic Assessment

Evaluation of Longshore Sediment Transport

- Review historical aerial photographs
- Calculate longshore sediment transport (potential) using on offshore wave data
- Refine rate and direction of longshore sediment transport using shoreline data



Task 2: Tidal Hydraulic Assessment

Develop & Evaluate Conceptual Alternatives

- Tidal flow must be strong enough to overcome longshore sediment transport
- Potential alternatives
 - Resize culvert under Surf Drive
 - Replace culvert with bridge
 - Modify jetties at opening with Vineyard Sound
 - Dredge Fresh River
 - Submerged culvert in Vineyard Sound
 - Upgrades to current stormwater structure
- Factors considered in making recommendation
 - Meet project goals
 - Environmental impacts
 - Permittability
 - Cost





Newspaper Articles

- Feb. 23, 2024
- Jun. 2024



Website & Email Listserve Updates

- Town website
- Old Stone Dock Association
- Siders Pond group



Public Meetings

- Feb. 29 2024
- Jun. 2024

FRESH RIVER TIDAL RESTORATION, WATER QUALITY AND HABITAT RESTORATION PROJECT



PROJECT DESCRIPTION

The Town received a \$90,237 grant from Massachusetts Coastal Zone Management (CZM) to conduct the Fresh River Tidal Restoration, Water Quality and Habitat Restoration Project.

An undersized and failed culvert under Surf Drive restricts tidal flow into the Fresh River, which causes excessive sediment accumulation in the River. Additionally, sediment buildup in the inlet south of Surf Drive further restricts tidal flow, often completely blocking tidal exchange and preventing drainage during rainfall events. These conditions cause flooding in basements of the surrounding properties and adversely impact the habitat value of the system for spawning fish.

The project is scheduled to identify conceptual alternatives for restoring tidal flow, minimizing sediment accumulation, and improving coastal habitat. Results from the study will be used to apply for additional grant funding for engineering design, environmental permitting, and construction of the Project's preferred alternative.



The Town of Falmouth is holding a public meeting to introduce the Fresh River Tidal Restoration, Water Quality and Habitat Restoration Project

Date: Thursday, February 29, 2024

Time: 6 to 8 PM

Location: Gus Canty Recreation

Center, Room #1

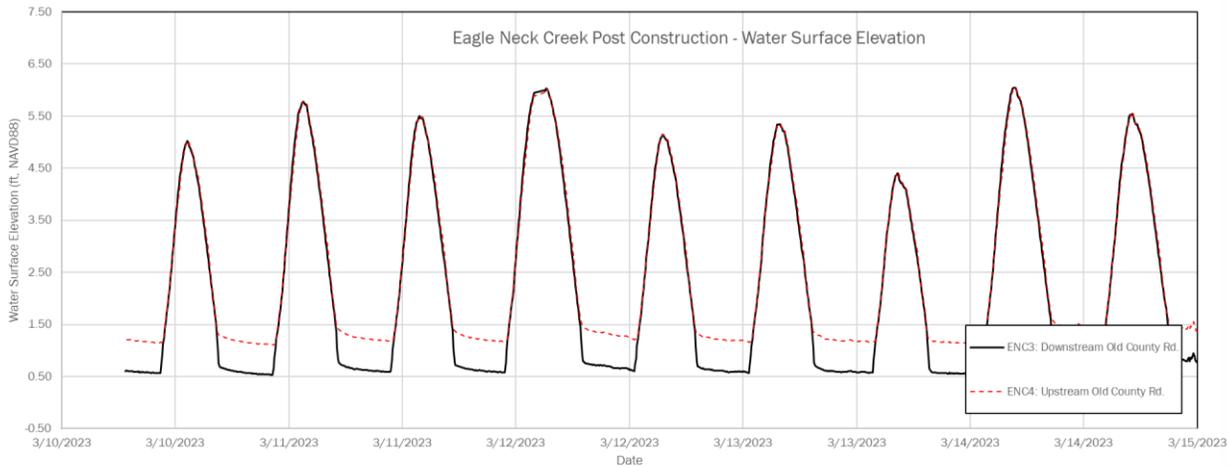
PROJECT GOALS

RESTORE TIDAL FLOW
Modify the culvert under Surf Drive to ensure daily tidal flushing with Vineyard Sound

MINIMIZE SEDIMENT ACCUMULATION
Alter the inlet entrance to create a self-sustaining system that does not trap sediment

IMPROVE ECOSYSTEM HABITAT
Create a continuous opening with Vineyard Sound to restore 1.6 acres of coastal habitat and 1,870 linear ft of the fish run

IMPROVE WATER QUALITY
Maintain full tidal exchange with Vineyard Sound and remediate stormwater pollution to improve water quality



Example Project

Project Schedule

Grant application
submitted to CZM

June 2023

October 2023
Grant Awarded to
Town of Falmouth

Phase I Study
Complete

June 2024

June 2024
Grant Application
for Phase II -
Engineering Design
& Permitting

Phase II Complete

June 2025

June 2025
Grant Application for
Construction

Possible Construction Winter 2025 or 2026



Thank you

Question and Answer Session

Submit Written
Questions/Comments to:
lfields@woodsholegroup.com

Public Meeting Feb. 29, 2024