

**Martha's Vineyard
Innovated Alternative
Conference:
Cleaning Up Our Water**

May 12, 2016

**Inlet Opening
and
Constructed or
Restored Wetlands**

Inlet Opening

“The solution to pollution is dilution”

This only works if you can fix a tidal
restriction
or if a beach breached

Before Permitting

Specific information needed include:

1. Pollutant levels and monitoring program
2. Longshore sediment drift and scour analysis
3. Hydrodynamic and inlet alternative analysis
4. Specific elevation for tidal change, flood mitigation, sea level rise assessment and mitigation
5. Eelgrass mapping
6. Species inventory
7. Operating and maintenance plan
8. Post widening monitoring plan

Permits Required

1. Local Conservation Commission
2. MA DEP Wetlands
3. MA DEP Waterways
4. MA DOT (if a state road is involved)
5. MA Division of Marine Fisheries
6. MA Heritage
7. MA Coastal Zone Management
8. US Coast Guard
9. Army Corps of Engineers

Wetlands Restoration

Salt Marsh

Eelgrass Meadows

Salt Marsh Restoration

- Not a lot known about nitrogen attenuation by the marsh overall
- Information on attenuation on many of the plants exist
- Partners for Delaware Estuaries have completed several successful restoration projects

Salt Marsh Project

1. Demonstration project Felix Neck
Sengekontacket Pond
2. Project partners
 - Oak Bluffs and Edgartown (Shellfish Depts.)
 - MA Audubon Felix Neck
 - MV Shellfish Group
 - US EPA Atlantic Ecology Division
 - University of Rhode Island

Logs Being Installed

Coconut fiber logs

Staked securely to bottom

Sediment trapped behind the logs

Seeded ribbed mussels

year 1 and 2

Marsh grass planted in year 2



Monitoring

- Nitrogen and phosphorus levels
- Accretion rate
- Marsh vegetation
- Species inventories
- Pore water analysis
- Core sampling – carbon sequestering
- General water quality data

Eelgrass Meadows

- One of the most productive and diverse habitats in the world
- When healthy can sequester carbon 2-4 times more than mature tropical forests
- Eelgrass stores most of its carbon in roots
- Loss of eelgrass can release the stored carbon into the atmosphere
- Going from a carbon sink to a carbon emitter – contributing to climate change

Eelgrass Stressors

1. Excess nitrogen in coastal ponds
2. Poor sunlight penetration
3. Plants and animals growing on the blades
4. Silt or sand settling in the meadow can bury plants

Eelgrass Restoration Efforts

- Many many trials along east coast since at least the 1950s
- There are few successful projects to point out
- Over the years several methods have been tried on Island
- Tisbury is currently trying a seeding method in Lake Tashmoo

- The successful eelgrass restoration projects all had better water quality especially lower nitrogen and greater sun light penetration through the water column
- We have healthier eelgrass meadows in Nantucket Sound that could be good donor sites for transplant efforts
- For this we need to improve the water quality of our coastal ponds

Vegetative Swales and Rain Gardens

- Created fresh water wetlands
- Commonly used to capture and treat stormwater runoff
- Many have been put in here on the island