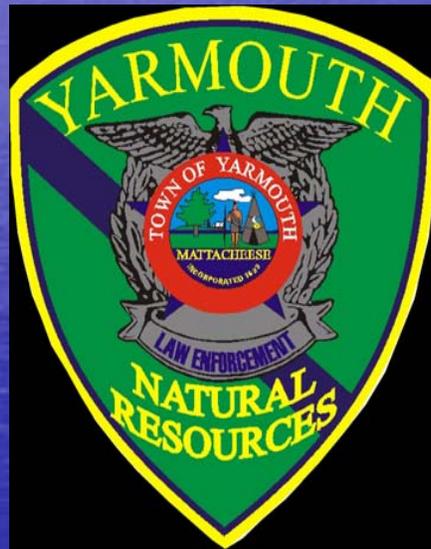


# Yarmouth

## Division of Natural Resources

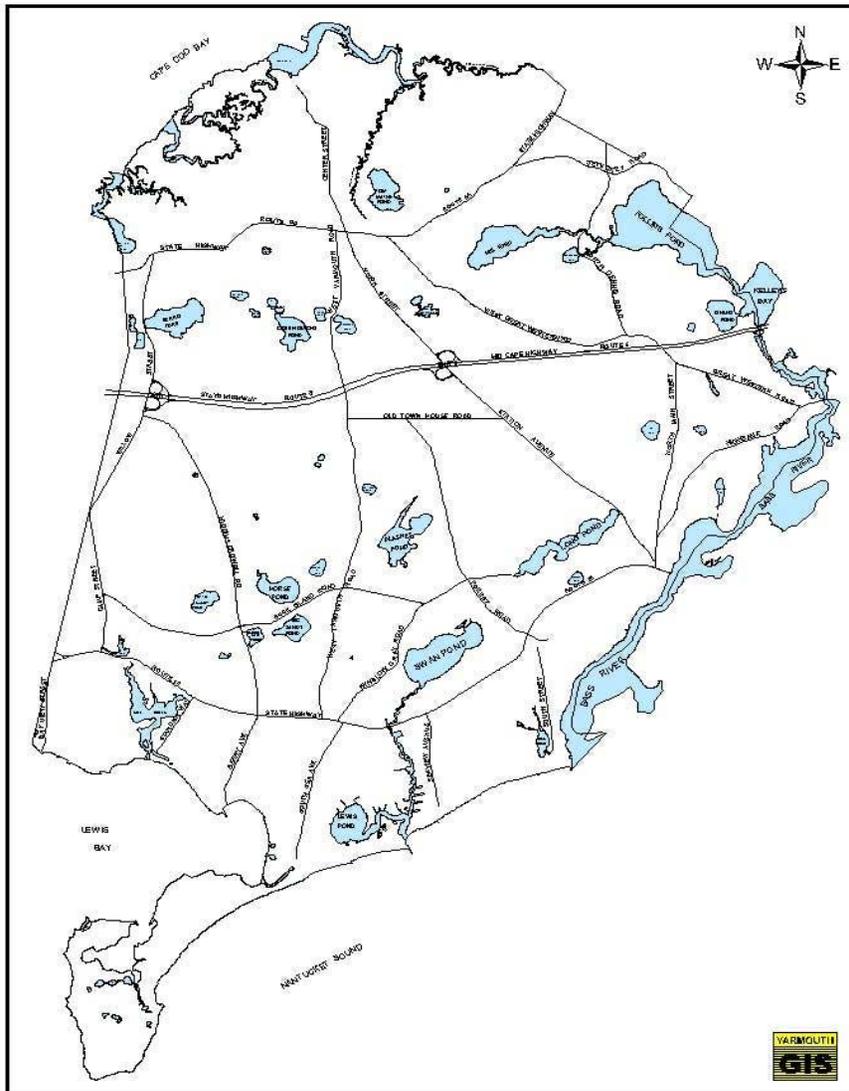
### Shellfish Program



**Karl W. von Hone, Director**  
**and**

**Conrad P. Caia, Shellfish Constable**

# YARMOUTH, MA.



**26 Mile of Shoreline**

**23,134.86 Acers  
Classified As Shellfish  
Growing Areas (per  
Massachusetts Division of  
Marine Fisheries)**

**24,807 Year Round  
Residents**

**Increasing To Nearly  
50,000 During The  
Summer.**

# Programs

- Water Quality
- Shellfish Propagation
- Shellfish Habitat Improvement
- Shellfisheries Management
- Herring Run Management
- Future Projects

**Many people come shellfishing during the summer months.**





# Program Description

- Water Quality
  - Coliform Monitoring
  - Estuary Program (Nutrient Monitoring)
  - Pollution Source Sampling (Storm Water Phase II)
  - Plankton Monitoring

Yarmouth Division of Natural Resources  
Shellfish Section:

Water Quality:

# Coliform Monitoring



**We work with the Division of Marine Fisheries to test the water quality within our shellfish growing areas.**



**The shellfish division also does sampling for non point source pollution sites.**

Yarmouth Division of Natural Resources

Shellfish Section:

**We have been working with the Senior  
Volunteers when we test the estuaries for  
nitrogen loading.**

Water Quality:

# Estuary Program (Nutrient Monitoring)

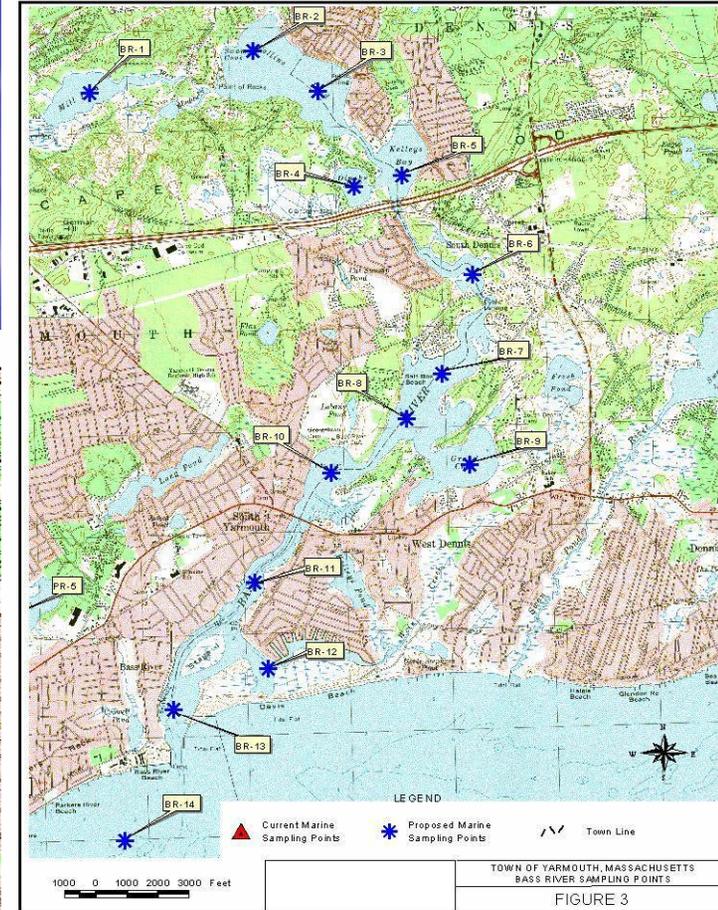
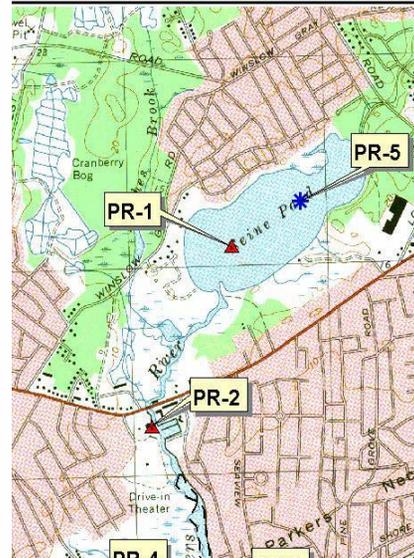


# Lewis Bay

# Bass River



# Parkers River



These are the sample sites through out our estuaries.



We work regularly with the neighboring towns of Barnstable and Dennis to monitor water bodies that are shared between the towns.



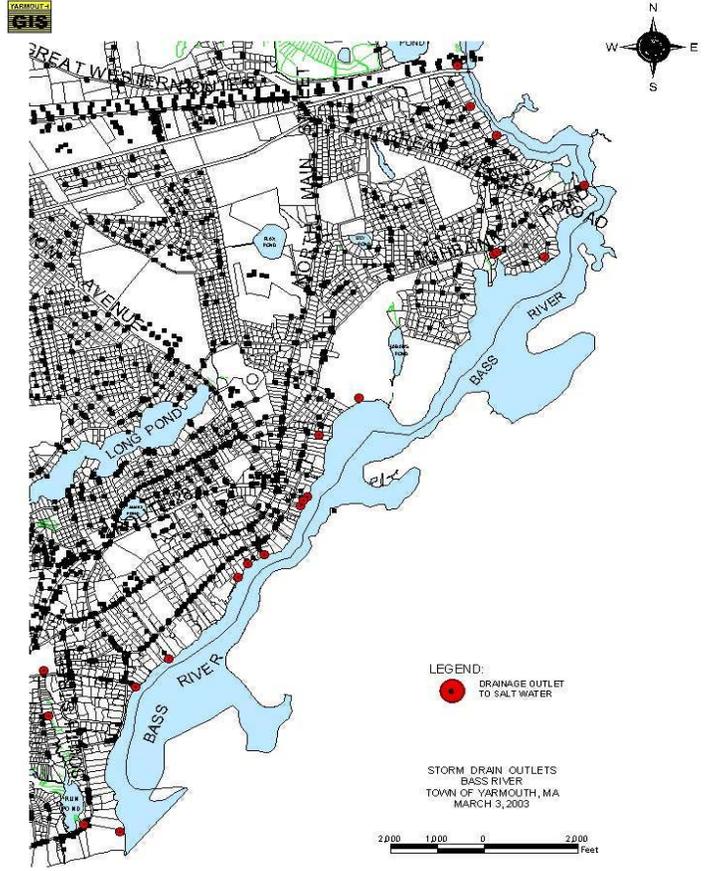
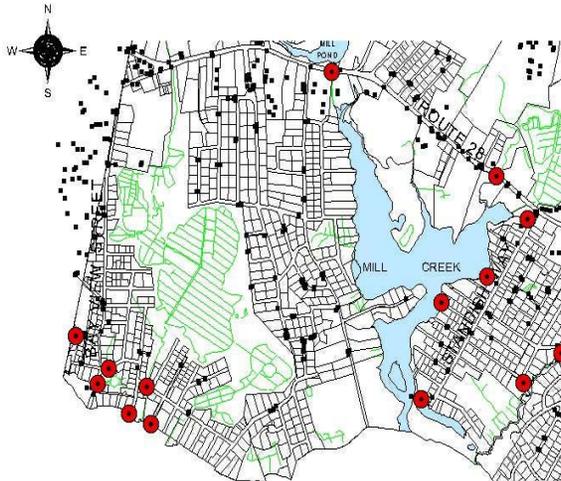
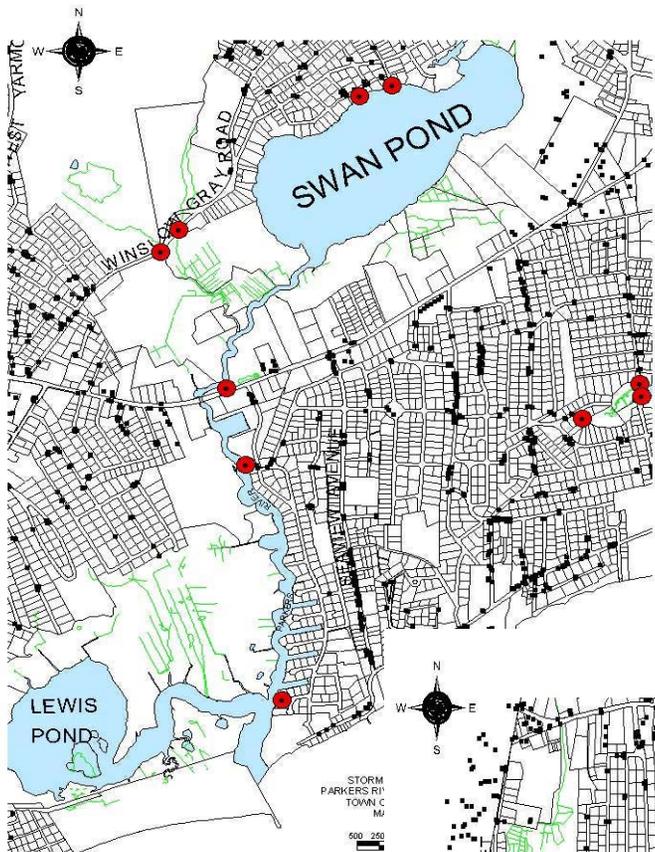
Yarmouth Division of Natural Resources  
Shellfish Section:

Water Quality:

# Pollution Source Sampling

(Storm Water Phase II)





The red dots indicate where remediation has taken place to remove pollution points from our water ways.





**We sample every pipe after a rain event while the water is still running off.**

Yarmouth Division of Natural Resources  
Shellfish Section:

Water Quality:

**We check the micro algae  
weekly for presents of Red  
Tide.**

# Plankton Monitoring





Yarmouth Division of Natural Resources  
Shellfish Section:

# Shellfish Propagation

Quahogs

Oysters

Bay Scallops

Softshell Clams



# The Town has a very active propagation program.



Yarmouth Division of Natural Resources  
Shellfish Section:

# Shellfish Propagation

## Propagation Methods:



The Town has its own shellfish farm located  
on Parkers River.

# Upweller Grow Out





We have the ability to grow any of the four major species of shellfish and the capacity to grow over 2 million animals per year.



The animals in the farm must be cleaned daily from the middle of June to the end of October.



# Field Plant



Once the clams come out of the farm they must be planted into the bottom and covered with predator netting.



**We plant all our major  
Recreational and even some of  
our Commercial Shellfish Areas  
with seed from the farm.**



# Remote Set

Remote setting is a process where microscopic Oyster Larva are introduced to broken shells that attracts the larva, then they set on the shells for the rest of their growing period.





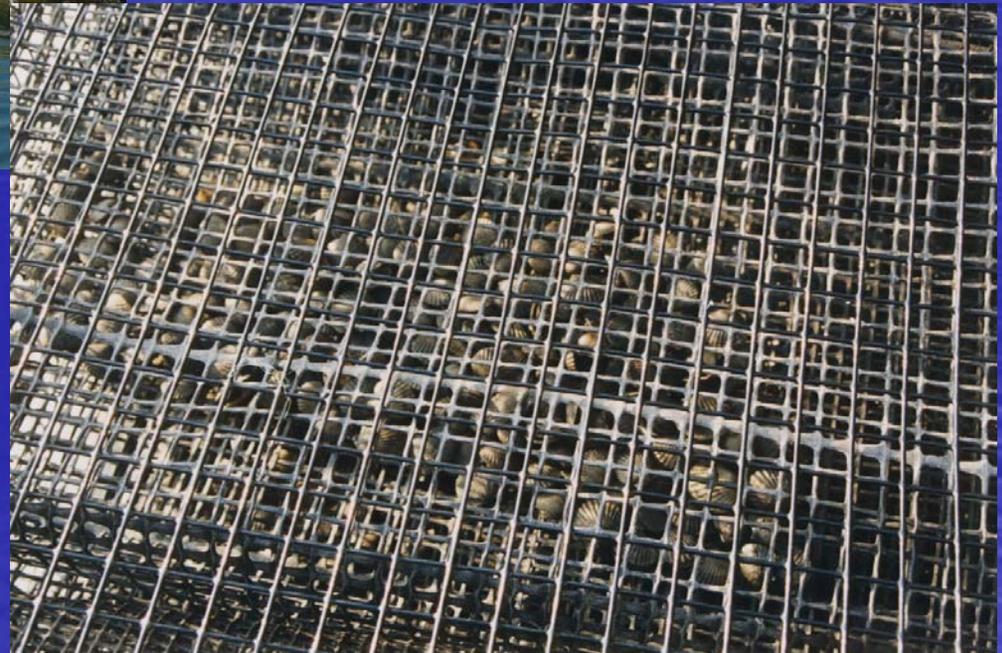
Cages are used for grow out  
in areas where nets can not  
be used.

# Cage Grow Out

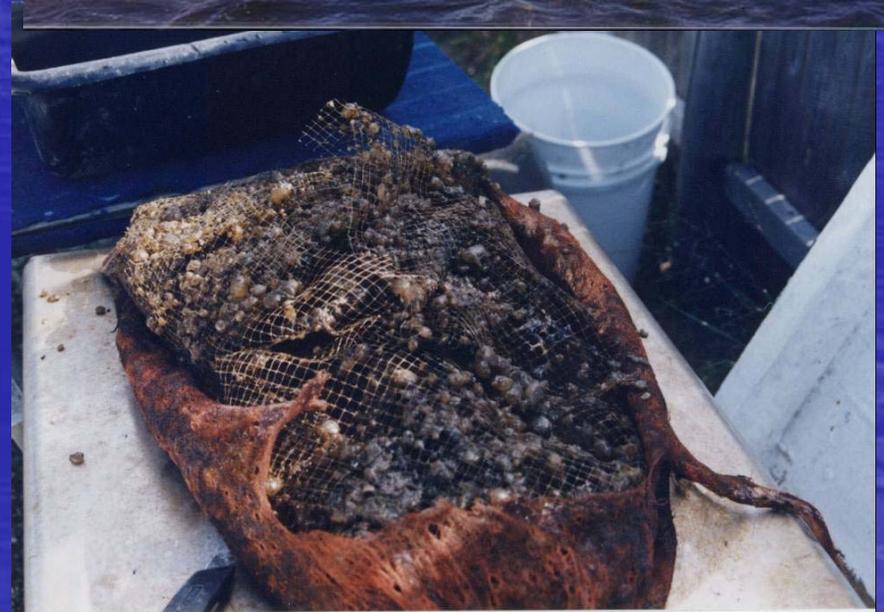


# Spawning Sanctuaries

Spawning sanctuaries can be very helpful when trying to recruit juveniles into a specific area. Adults are put into cages right around the time they are ready to spawn. Once spawning is over millions of babies remain in the area.



# Tent and Spat Collection



The use of tents and spat collectors basically play the same role of capturing the juvenile shellfish while they are free swimming in the water column. Once caught the bag or tent protects them from predators.

Yarmouth Division of Natural Resources  
Shellfish Section:

# Shellfish Habitat Improvement





**We have tried to create living Oyster reefs. Unfortunately efforts have been, for the most part, unsuccessful.**





The use of a cultivator makes it easy to improve bottom that is much too hard for juvenile shellfish to go into.



Yarmouth Division of Natural Resources  
Shellfish Section:

# Shellfish Management



**We try to get useful information to the public in many ways.**



# Our display at the Yarmouth Sea Side Festival



# Jellyfish Warning!

What you should know  
Jellyfish that S



# Clean Water and YOU

What you should know  
Clam Digger



# A Guide to Shellfish in Yarmouth



This guide tells  
found on C

# Clean Water and YOU

What you can do about  
Non-Point Source  
Pollution



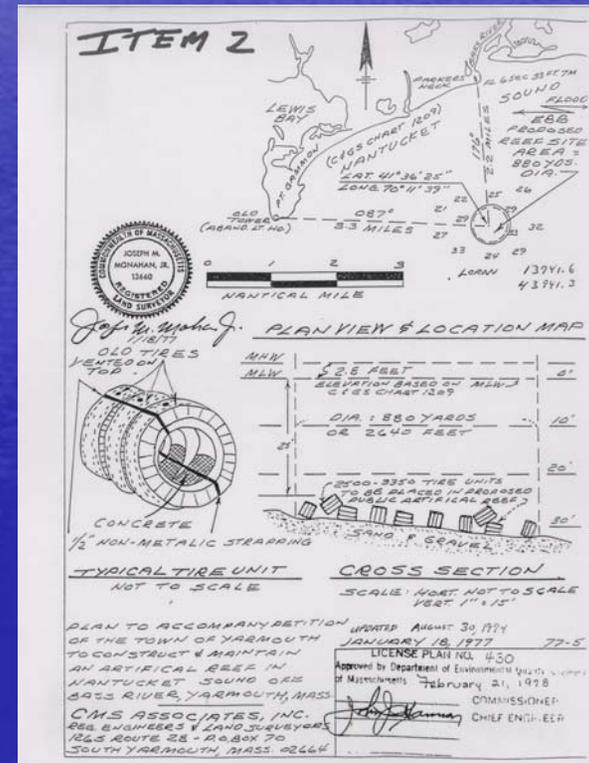
Yarmouth Division of Natural Resources  
Shellfish Section:

# Herring Run Management



# Yarmouth Division of Natural Resources Shellfish Section:

# Future Projects





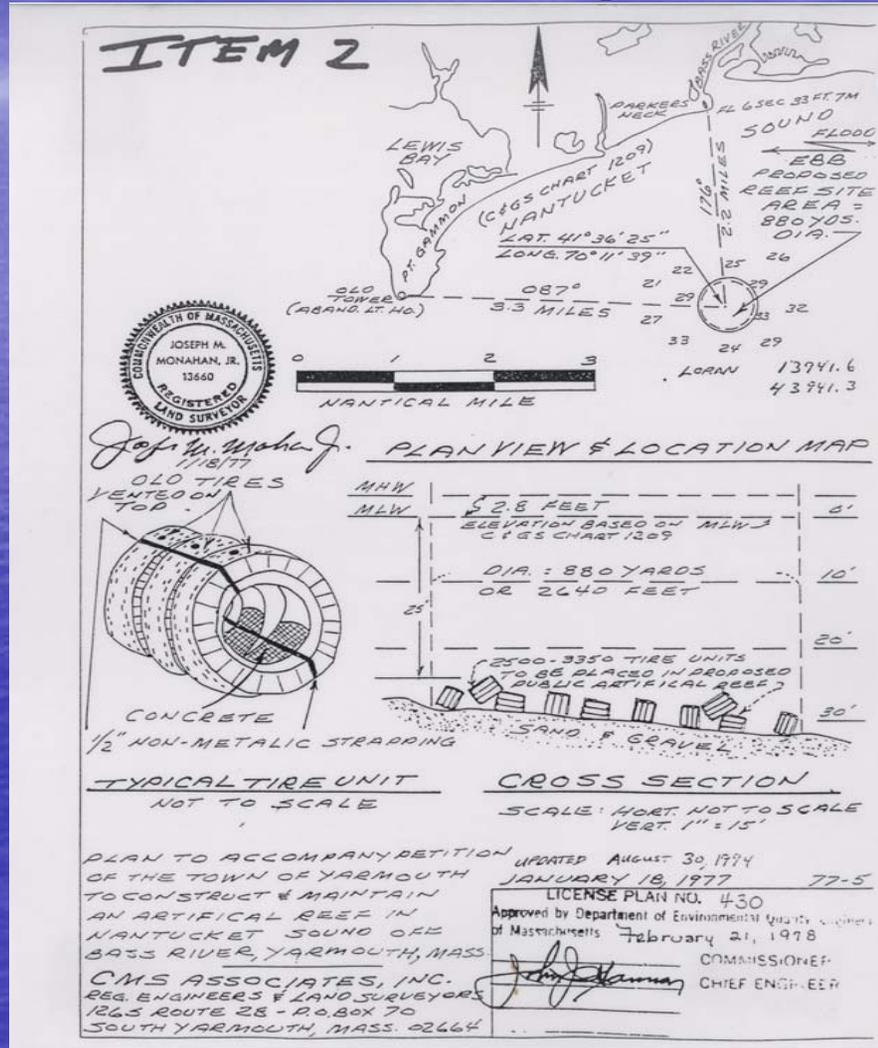
# Marine Science Center

When the marina at Parkers River is completed the Shellfish Division will move its farm into the Marine Science building located at the marina.



- Marine Science Center
  - Provides educational and interpretive features on marine environment
  - Significantly enhances the town's shellfish propagation efforts
  - Parking Lot A provides 42 spaces for Marine Science Center users and short-term visitors
  - Public restrooms

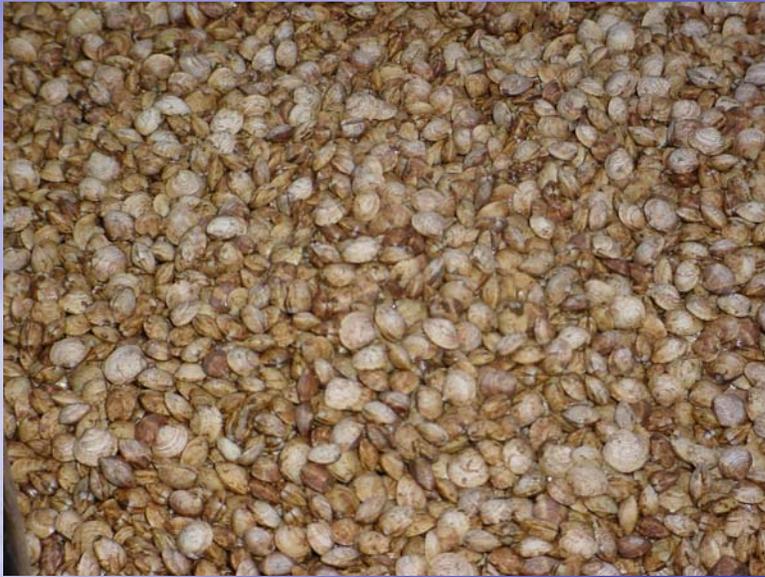
# Fish Reef Expansion

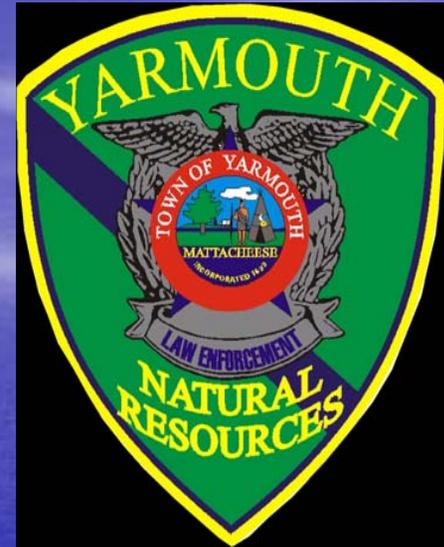
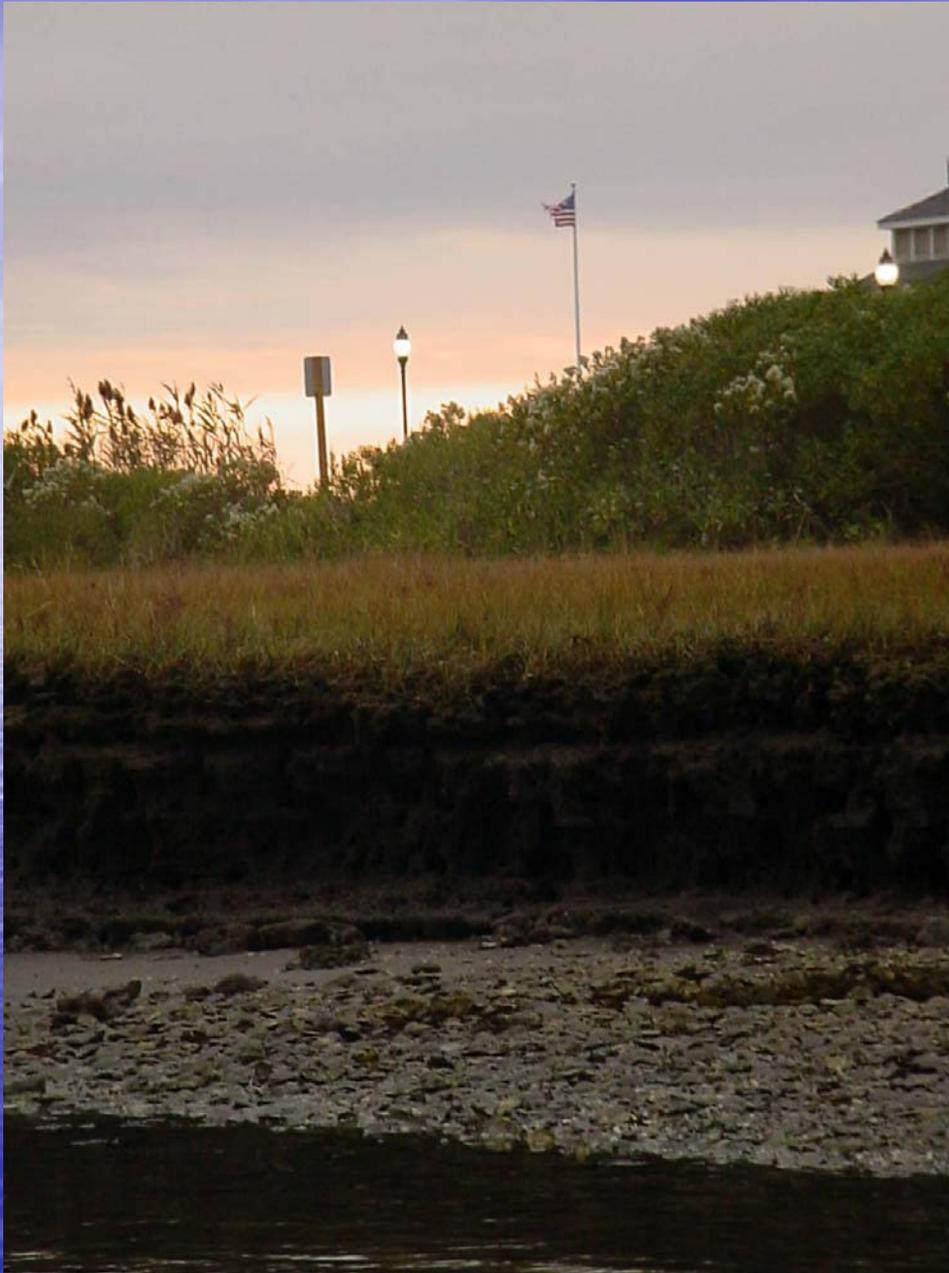


# State / County / Local Collaboration

- Resources allocated
  - Funding
  - Technical Support & outside services
  - People
  - Equipment







Thank You  
For Your  
Attention