Habitat Restoration in the Buzzards Bay Watershed

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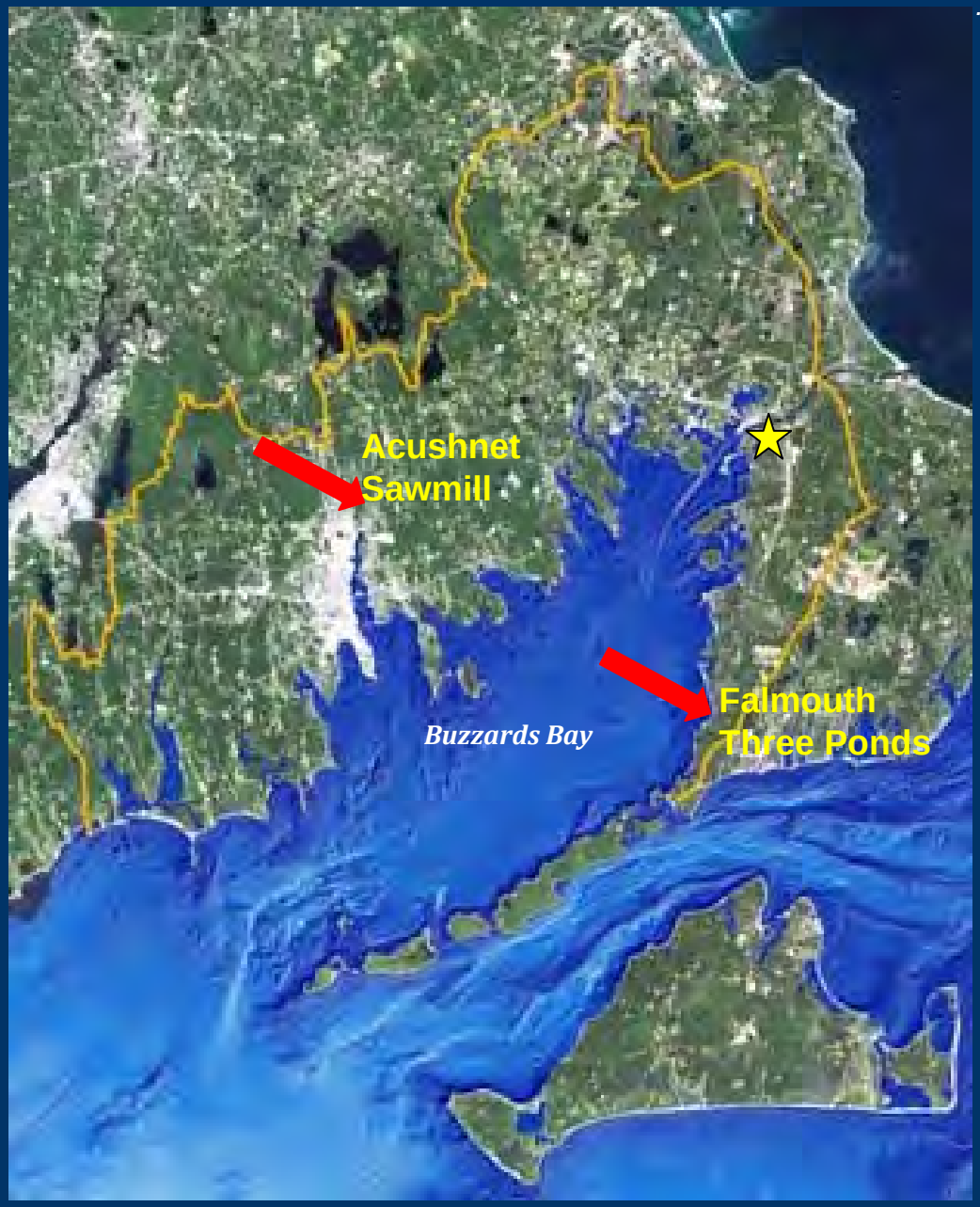
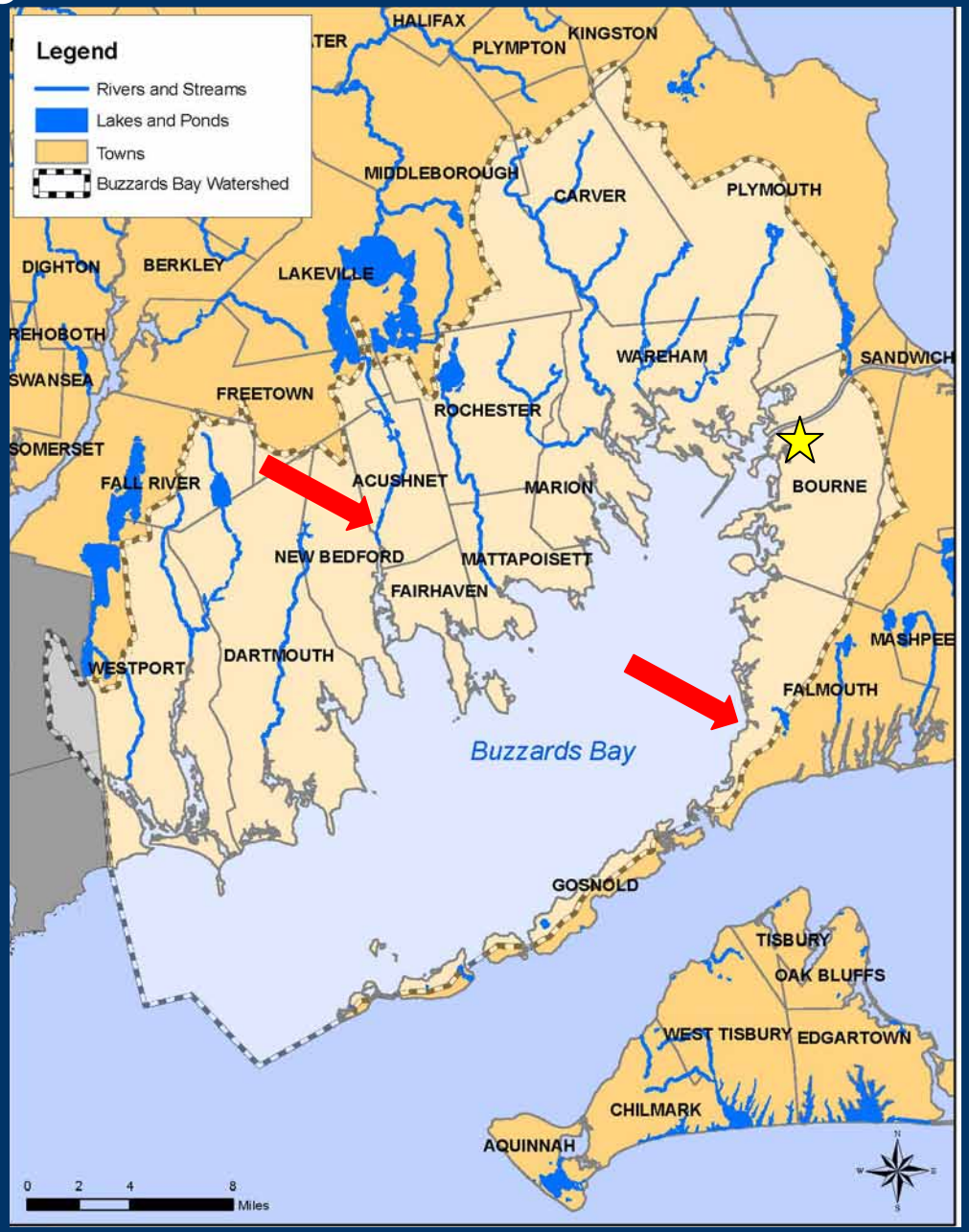
Buzzards Bay Watershed





Acushnet River:
Impacts on an Urban Waterway

- Dams (1738 – 1st dam at head of river)
- Filling of Wetlands (1800's – 1900's)
- Industry (fishing, textiles, metalwork)
- Combined Sewer Overflows
- Stormwater Runoff
- Industrial Waste (metals, PCBs)

  New Bedford Harbor declared a Superfund site in 1982 for PCB's
- On-going PCB cleanup

RESTORING RIVER and BAY HEALTH ~ Acushnet River Reserve

Protect undeveloped land along the river

Create opportunities for restoration (key parcels)

Restore ecological functions and water quality

Engage the public along the way…

Proposed *River Trail* to connect open space along the Acushnet River

Benefits of land protection and restoration to water resources

- Filter pollutants
- Moderate water temp
- Moderate floodwater (and low flows)
- Wildlife corridors
- In-stream habitat
- Migratory fish passage
- Fish spawning areas

All important for:

Biodiversity * Regional Fishing Industry
Recreation * Aesthetics * Tourism

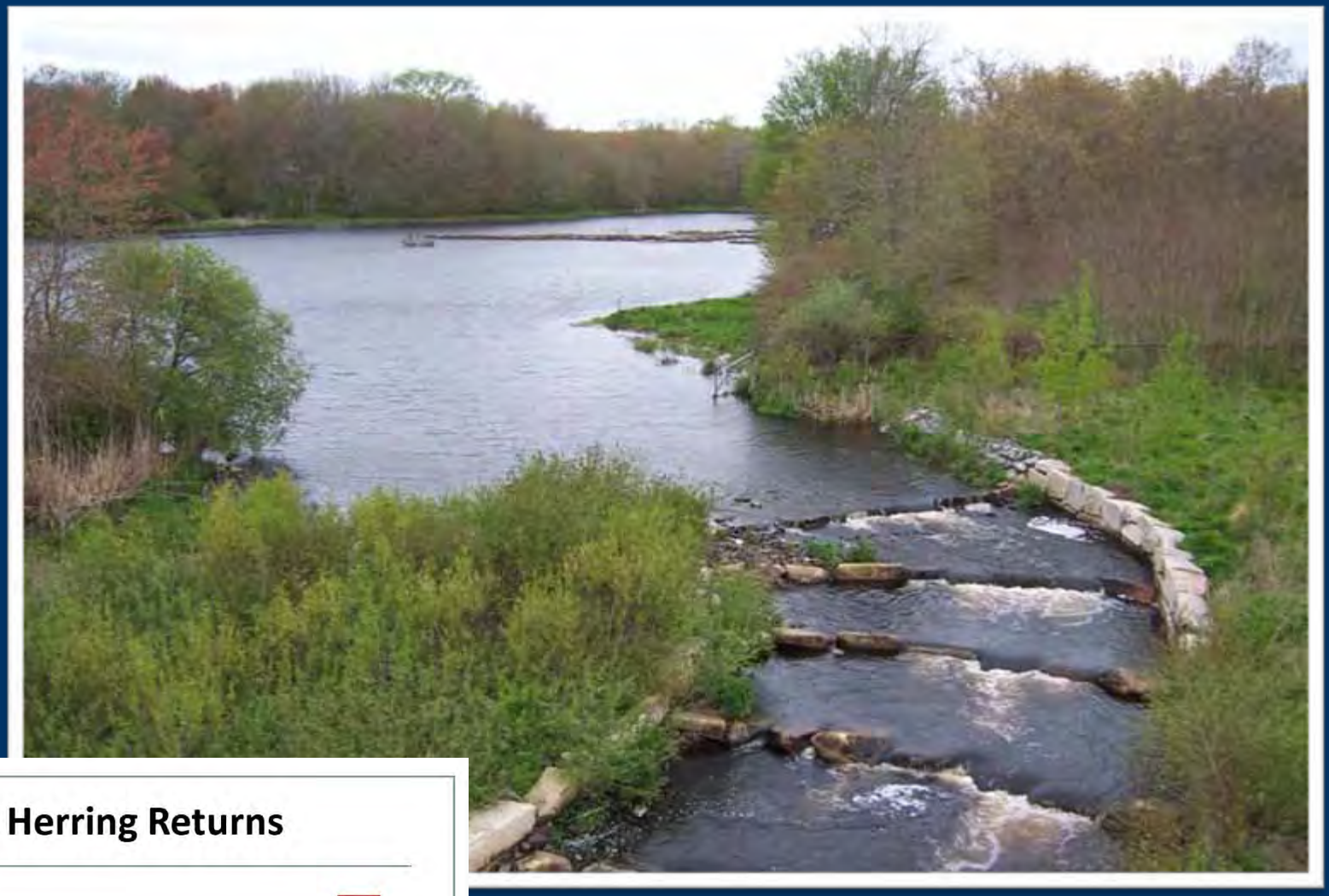
Acushnet River Restoration

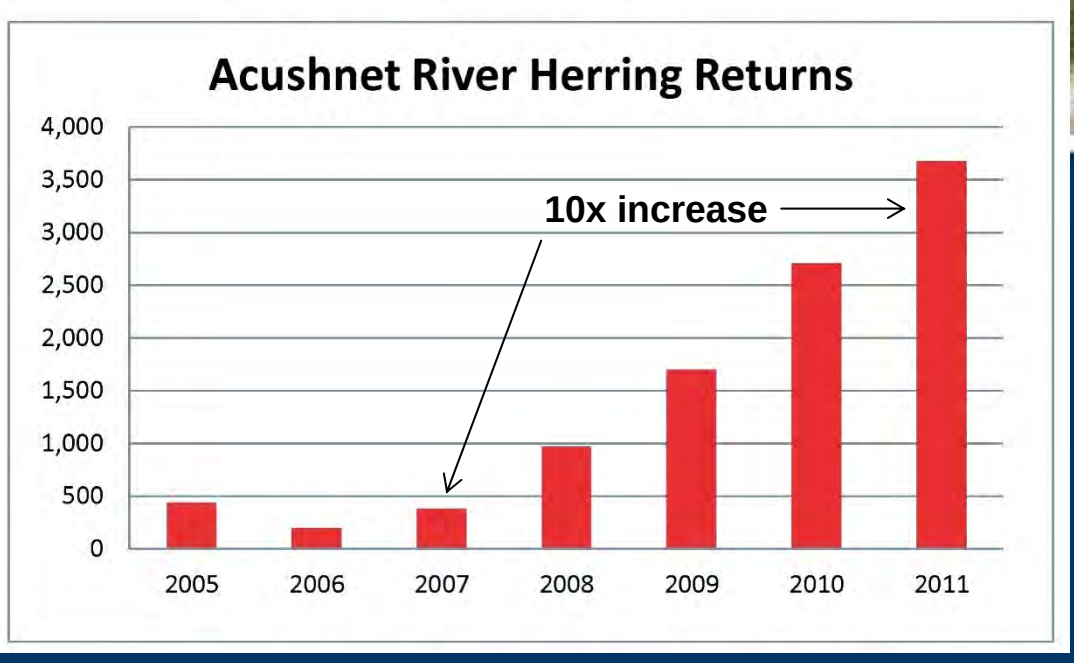
Restoration of the Former Acushnet Sawmill

- 19 ac; formerly industrial
- Purchased by Buzzards Bay Coalition in Spring 2007
- Summer 2007: NOAA led fish passage restoration at Sawmill Dam

April 2007

- Natural rock ramp fishway installed
- River herring numbers continue to increase





- Industrial buildings have since been demolished
- Working with students from Old Colony Regional H.S. to establish an Education Center on the property


Emergent Marsh
Field Stone Wall
Upland Meadow
Stone Amphitheater
Educational Display and Site for Future Visitor Center
Shoreline Stabilization
Stabilized Aggregate Multi-Use Path
MILL POND
Canoe Launch and Fishing Access
Timber Overlook
Upland Meadow
Stabilized Aggregate Walking Path
Red Maple Swamp
Timber Boardwalk
ACUSHNET RIVER
N
W
E
S
Prepared by: The Bioengineering Group, Inc.
ACUSHNET SAW MILL
ECOLOGICAL RESTORATION
SCHEMATIC DESIGN PLAN
buzzards BAY
COALITION

ACUSHNET SAW MILL: EXISTING VIEW FROM MILL ROAD

ACUSHNET SAW MILL ENTRY: AFTER

ACUSHNET RIVER STREAMBANK: EXISTING CONDITIONS

ACUSHNET RIVER STREAMBANK RESTORATION: AFTER 3 YEARS

Acushnet Sawmill Restoration Project
- Funding -

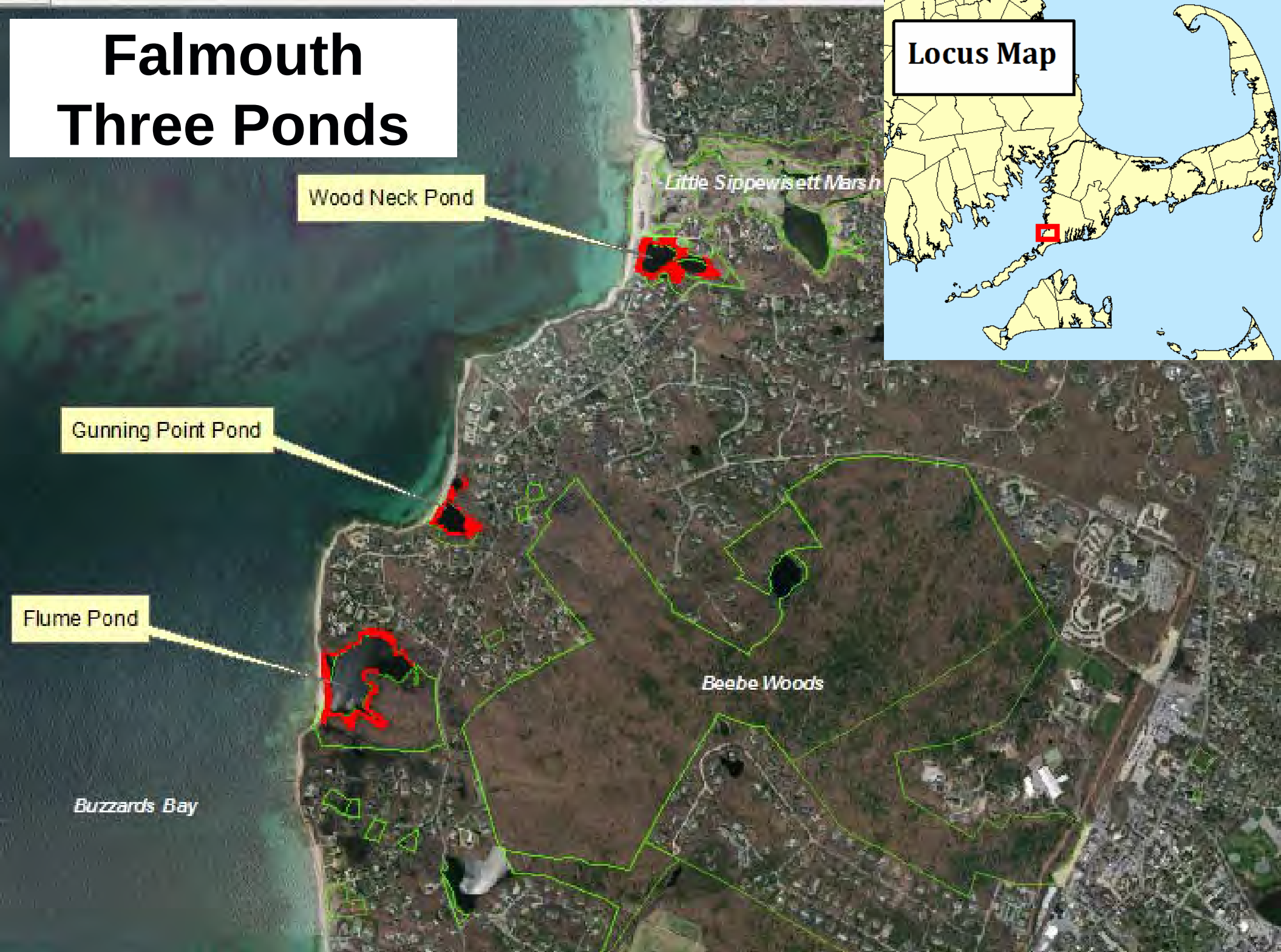
- **New Bedford Harbor Trustees Council** –
  - Distributed > $20M in natural resource damage penalty funds from chronic release of PCBs into New Bedford Harbor
  - $1.9 Million – Acquisition & Preliminary Feasibility
  - $1.2 Million – Ecological Restoration
- **City of New Bedford** –
  - $200,000 - In-kind services (Demolition, site preparation)

- **Private Funding (received)**
  - Buzzards Bay Coalition – Building Demolition
  - Massachusetts Service Alliance – Volunteer Stewardship Days ($2,300 in 2012; up to $5,000 annually)
  - **Private Funding (pending)**
  - Private Foundations – Education Center & Signage
  - MA Dep't of Conservation and Recreation – Trails & Amenities

Grant Opportunities List:

MA Division of Ecological Restoration's Ebb & Flow Newsletter

Falmouth Three Ponds



The Problem

Invasive Common Reed (*Phragmites australis*)

Description

- **Tall perennial wetland grass (~3-13', up to 20')**
- **Strong horizontal roots (rhizomes) produce tough vertical stalks**
- **Gray-green foliage turns tan in fall; plumes remain through winter**
- **Non-native strain of native *Phragmites***

Threat

- **Very aggressive, forming dense monocultures**
- **Outcompetes native wetland plants**
- **Alters plant community structure, impacting native plants & wildlife**

Habitat

- **Thrives in wetlands with full sun**
- **Grows along higher and drier edges of marshes, as well as disturbed soils along roadsides and ditches**

Distribution

- **Widespread in eastern U.S.; likely arrived in early 20th Century**
- **Spreads to new areas by sprouting from rhizome fragment or seed**

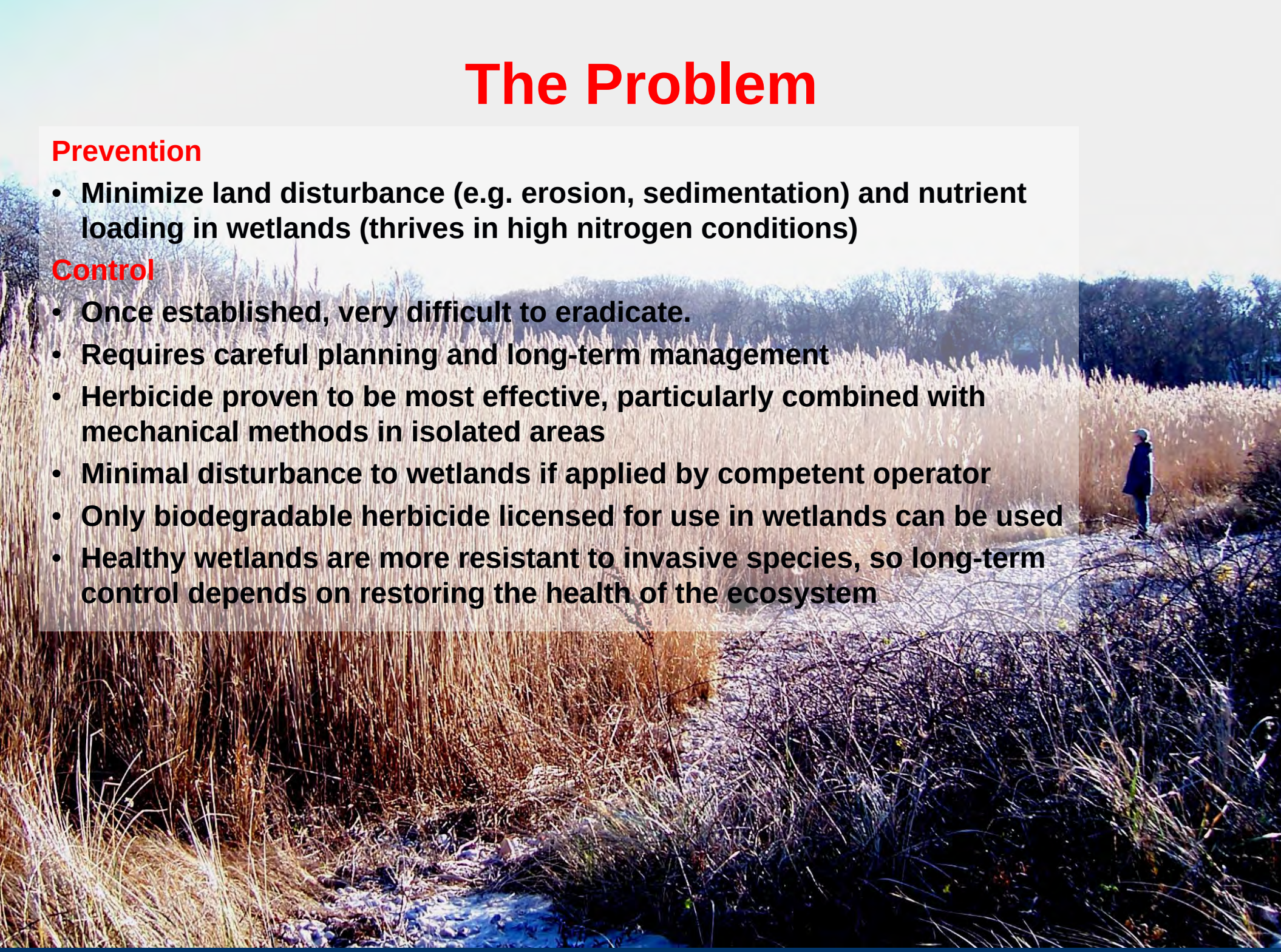
The Problem

Prevention

- **Minimize land disturbance (e.g. erosion, sedimentation) and nutrient loading in wetlands (thrives in high nitrogen conditions)**

Control

- **Once established, very difficult to eradicate.**
- **Requires careful planning and long-term management**
- **Herbicide proven to be most effective, particularly combined with mechanical methods in isolated areas**
- **Minimal disturbance to wetlands if applied by competent operator**
- **Only biodegradable herbicide licensed for use in wetlands can be used**
- **Healthy wetlands are more resistant to invasive species, so long-term control depends on restoring the health of the ecosystem**



Falmouth Three Ponds Restoration Project

- **Proposed removal of 7 acres of invasive Common Reed (*Phragmites australis*)**

  Habitats impaired

  - **Emergent marsh fringing the ponds (small area at each not yet invaded)**
  - **Beach/Dune**
  - **Shrub swamp**
- **Threatened Species**
  - **Tern foraging habitat at all 3 ponds – Roseate, Common, Arctic and Least**
  - **State-threatened plant – saltpond grass**
  - **State-special concern species - box turtle**
- **Aesthetic impairment**

Goals

- Protect a mapped rare plant population
- Eradicate Phragmites to prevent further expansion into uninvaded marsh
- Improve habitat for native plants & wildlife (e.g., foraging terns, box turtle)
- Restore views of the pond and Buzzards Bay for the community

Project Partners

- The 300 Committee Land Trust
- Buzzards Bay Coalition
- Salt Pond Areas Bird Sanctuaries, Inc.
- Private Landowners

Flume Pond

Largest landowner:

The 300 Committee

Coalition holds a Conservation Restriction over the conservation property

Tern Foraging Habitat

<u>Federally-listed Endangered Species</u>

Roseate tern

<u>State-listed Special Concern Species</u>

Common tern

Arctic tern

Least tern

Gunning Point Pond

Largest landowner:
Salt Pond Areas Bird Sanctuaries

State-threatened plant:
Saltpond Grass
(Leptochloa fusca spp. fascicularis)

Wood Neck Pond

Largest landowner:
Salt Pond Areas Bird Sanctuaries

State special concern species:
Eastern box turtle
(Terrapene carolina)

Approach

- **Utilize methods proven to work in Falmouth** *(Little Sippewisett Marsh)*
- **Eradicate over 3 year period from isolated systems using combination of methods**
  - **Year 1 – Manual cutting & herbicide** (80% or better control)
    - Early fall - apply herbicide
      (when food reserves move from leaves and stems to rhizomes)
    - Winter - removal of dead material
  - **Years 2 & 3 – Follow-up herbicide treatments** (99% or better)
  - **Annual monitoring thereafter**
    - Spot treatment as needed (e.g., hand pulling) to prevent re-infestation
- **Implementation in Fall 2013**

Little Sippewisett Marsh

View of *Phragmites* fringing the marsh

July 29, 2008

2 years after first fall herbicide application

September 29, 2010

Falmouth Three Ponds
- Funding -

Cost:

$90,000 for combined manual cutting & herbicide treatment

(much higher if manual cutting alone)

- **Landowner Incentive Program**
  (Mass Wildlife - Division of Fisheries & Wildlife)
  - **Match Grant $10,500**

- **Private Funding (received)**
  - **The 300 Committee**
  - **Cape Cod Five**
  - **Many private landowners living near the ponds**

Nearly $90,000 raised!