

## References

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*Atlas of Tidally Restricted Marshes: North Shore of Massachusetts.* Massachusetts Wetlands Program, Natural Resources Assessment Group. Executive Office of Environmental Affairs, December 1996. Report.

*Cape Cod Atlas of Tidally Restricted Salt Marshes - Cape Cod, Massachusetts.* Cape Cod Commission. December 2001. Report.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* U.S. Fish and Wildlife Service, Washington, DC. FWS/OBS-79-31.

Caruso, Paul. Division of Marine Fisheries, personal communication, July 19, 1996.

Tiner, R.W. 1986. *A Field Guide to Coastal Wetland Plants of the Northeastern United States.* University of Massachusetts Press, Amherst, MA.



# Appendix



# Buzzards Bay Project Tidally Restricted/Deep Water Habitat Field Inspection Sheet

*(use back of sheet for additional notes, specify units)*

**Data Logger:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Site Location Information Site #** \_\_\_\_\_

Town/City \_\_\_\_\_ County \_\_\_\_\_  
 USGS map \_\_\_\_\_ Aerial Photo# \_\_\_\_\_ Photo # \_\_\_\_\_  
 Restriction Feature Name (Road Name, etc.) \_\_\_\_\_  
 Channel, Bay and/or Wetland Name (if any) \_\_\_\_\_  
 Proximity to low lying developed areas:  yes  no

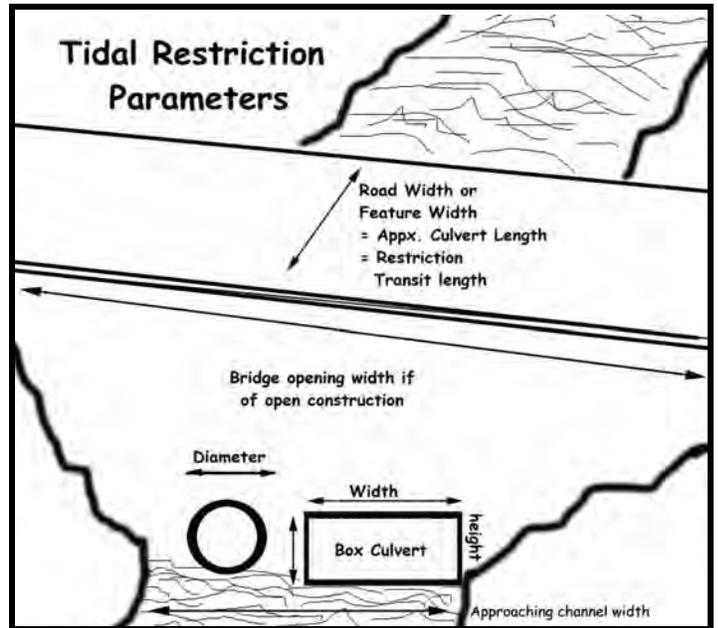
**Time, and Tidal Conditions**

Time \_\_\_\_\_ : \_\_\_\_\_  
 Tide Elevation \_\_\_\_\_  
 Tide Direction \_\_\_\_\_

**Principal Restriction Feature**

- Check all applicable:*
- |                                      |  |
|--------------------------------------|--|
| <input type="checkbox"/> Road Bridge | <input type="checkbox"/> Railroad Bridge |
| <input type="checkbox"/> Foot Bridge | <input type="checkbox"/> Barrier Beach   |
| <input type="checkbox"/> Road        | <input type="checkbox"/> Dike or Berm    |
| <input type="checkbox"/> Footpath    | <input type="checkbox"/> Railroad tracks |
| <input type="checkbox"/> Other _____ |  |

*If applicable:*  
 Approaching Channel Width ~ \_\_\_\_\_ Feet



**Restriction Opening** *Check all applicable:*

- |                                      |   |
|--------------------------------------|---|
| <input type="checkbox"/> No Opening  | <input type="checkbox"/> Pipe Culvert                                   |
| <input type="checkbox"/> Box Culvert | <input type="checkbox"/> Channel  |
| <input type="checkbox"/> Ditch       | <input type="checkbox"/> Tide Gate <input type="checkbox"/> Other _____ |

**Bridge Info** *Check All Applicable:*

Draw Bridge  Piers Present  Mostly fill with culverts  
 Condition (Circle 1): excellent good fair poor  
 Date Built (if visible) \_\_\_\_\_ ~Length in Feet \_\_\_\_\_ # of Piers \_\_\_\_\_ # of Lanes \_\_\_\_\_  
 Comments: \_\_\_\_\_

**Culvert Info**

**Culvert # 1:** *Check One:*  
 Corrugated Metal  Concrete  Clay  Pebble  Conglomerate  Other \_\_\_\_\_  
 Condition (Circle One): excellent good fair poor  
 Dimensions:  circle: diameter: \_\_\_\_\_  Box: w: \_\_\_\_\_ x h: \_\_\_\_\_  
 Length: \_\_\_\_\_ ft. dimension were  measured  estimated  
 Comments: \_\_\_\_\_

**Culvert # 2:** Check One:

Corrugated Metal    Concrete    Clay    Pebble    Conglomerate    Other \_\_\_\_\_

Condition (Circle One): excellent   good   fair   poor

Dimensions:    circle: diameter: \_\_\_\_\_    Box: w: \_\_\_\_\_ x h: \_\_\_\_\_

Length: \_\_\_\_\_ ft.   dimension were    measured    estimated

Comments: \_\_\_\_\_

**Fill obstruction** (Circle one):   Road   Footpath   Dike   Rocks/Rubble   Barrier Beach

Length: \_\_\_\_\_   Width: \_\_\_\_\_

Surface type: \_\_\_\_\_   # of lanes (if applicable): \_\_\_\_\_

Comments: \_\_\_\_\_

**Evidence of Restriction** (Check one or more):

- seaward scouring basin                       upstream scouring basin                       bank erosion
- low marsh     slumping     culvert broken
- culvert clogged                                       vegetation die back                                       *Lythrum salicornia*
- Phragmites australis*                               culvert invert problem detected
- ponded water on upstream side
- ponded water on seaward side of dike or road
- seaward culvert opening submerged at mean high tide

Comments: \_\_\_\_\_

**Wetland Plant Community Characteristics**

Dominance type, **seaward** side of tidal restriction \_\_\_\_\_

Dominance type, **upstream** side of tidal restriction \_\_\_\_\_

Some common plant species observed \_\_\_\_\_

Acres of upgradient *Phragmites* \_\_\_\_\_

Acres of upgradient salt marsh \_\_\_\_\_

Acres of upgradient wetlands \_\_\_\_\_

Ares of upgradient surface water \_\_\_\_\_

**Additional Comments:**

<b>Common tidal marsh plants in Massachusetts</b>		
<b>Common name</b>	<b>Scientific name</b>	<b>Type of tidal wetland</b>
smooth cordgrass	<i>Spartina alterniflora</i>	salt and brackish marshes
salt hay grass	<i>Spartina patens</i>	salt and brackish marshes
salt grass	<i>Distichlis spicata</i>	salt and brackish marshes
black grass	<i>Juncus gerardii</i>	salt and brackish marshes
glassworts	<i>Salicornia spp.</i>	salt marshes
seaside arrowgrass	<i>Triglochin maritima</i>	salt marshes
seaside plantain	<i>Plantago maritima</i>	salt marshes
high-tide bush	<i>Iva frutescens</i>	salt marshes
groundsel bush	<i>Baccharis halimifolia</i>	salt and brackish marshes
salt marsh bulrush	<i>Scirpus robustus</i>	salt and brackish marshes
seaside goldenrod	<i>Solidago sempervirens</i>	salt and brackish marshes
salt marsh aster	<i>Aster tenuifolius</i>	salt and brackish marshes
common reed	<i>Phragmites australis</i>	salt, brackish, and fresh marshes
switchgrass	<i>Panicum virgatum</i>	salt, brackish, and fresh marshes
three-squares	<i>Scirpus pungens</i> and <i>S. americanus</i>	salt marshes
rose mallow	<i>Hibiscus moscheutos</i>	brackish marshes
creeping bent grass	<i>Agrostis stolonifera</i> var. <i>compacta</i>	brackish and fresh marshes
narrow-leaved cattail	<i>Typha angustifolia</i>	brackish marshes

(For illustrations, see *A Field Guide to Coastal Wetland Plants of the Northeastern United States* by R.W. Tiner, 1986, University of Massachusetts Press)

<b>List of marine and estuarine fish and shellfish dependent on Massachusetts tidal wetlands.</b>			
<b>Species</b>	<b>Adult Use</b>	<b>Spawn In/Near Tidal Wetlands</b>	<b>Nursery Use</b>
Striped bass	X	X	X
Bluefish			X
Winter flounder	X	X	X
Scup			X
Tautog			X
Black sea bass			X
Menhaden	X	X	X
Summer flounder			X
Weakfish	X		X
Eel	X		X
White perch	X	X	X
River herring	X	X	X
Shad	X		X
Smelt	X	X	X
Blue crab	X	X	X
Jonah crab			X
Lobster			X
Quahog	X	X	X
Soft shell clam	X	X	X
Bay scallop		X	X
Oyster	X	X	X
Conch			X

*(Source: Paul Caruso, Division of Marine Fisheries)*

THE WETLANDS RESTORATION Program  
and the  
PARTNERSHIP TO RESTORE MASSACHUSETTS WETLANDS

### Invite you to.....GROWetlands\*

#### You Can Help Reclaim Our Wetland Heritage...

Wetlands are important aquatic resources that provide habitat for fish, birds, and other wildlife; cleanse our waters; and provide storage for flood waters within our watersheds. Wetlands provide educational, open space, aesthetic, and recreational experiences. Before these values were understood, about 28% of the state's wetlands were filled. Since the 1960s, Massachusetts has had strong laws protecting its wetlands. Many of our remaining wetlands (about 600,000 acres) have been degraded, however. Now there is a program to restore wetlands that have been damaged or destroyed.

#### By Joining Others...

The Massachusetts Wetlands Restoration Program (MWRP) has established GROWetlands to encourage and support a collective effort by the citizens of the Commonwealth to restore our precious wetland heritage. MWRP supports inland and coastal wetlands restoration and especially seeks restoration sites that can help heal our degraded rivers and coastal waters.

A GROWetlands site becomes part of a statewide network of wetland restoration projects. GROWetlands projects can be sponsored by anyone - community groups, government agencies, youth groups, schools, land trusts, watershed associations, and landowners. Sponsors may propose a wetland to restore or work with MWRP to identify a wetland restoration site suitable for their group.

#### In The Partnership To Restore Massachusetts Wetlands...

GROWetlands projects are supported by and are part of the Partnership To Restore Massachusetts Wetlands, an alliance of agencies, organizations, businesses, and individuals committed to wetlands restoration. GROWetlands projects contribute to the partnership by restoring wetlands and providing information about their sites so others can learn from their experience.

\* Groups Restoring Our Wetlands

## Getting Started Is Easy, And...

GROWetlands project sponsors submit a brief project nomination form to MWRP, participate in a preliminary site visit and project assessment with a team of wetland experts, work with MWRP to prepare a work plan for the site, and then sign an agreement with MWRP to implement the work plan.

GROWetlands Sponsors can receive:

- \* technical information and support from wetland experts
- \* training sessions for sponsors, teachers, and others
- \* assistance identifying and obtaining funding
- \* access to MWRP's wetlands restoration data base
- \* support of the Partnership To Restore Massachusetts Wetlands
- \* publication of project results in technical and other literature
- \* recognition for their contribution to improving the state's wetlands

## The Payback Is Forever.

The commitment to GROWetlands sites is long-term. A GROWetlands project is supported by MWRP and other partners from the time it is proposed through project organization and design, implementation, and post-implementation maintenance and monitoring. The payback is restored wetlands that will endure and enhance the lives of generations to come.

## For More Information Contact...

**GROWetlands**  
Wetlands Restoration Program  
Executive Office of Environmental Affairs  
One Winter Street, 5th Floor  
Boston, MA 02108  
617-626-1177

E-mail: [christy.foote-smith@state.ma.us](mailto:christy.foote-smith@state.ma.us)  
MASSACHUSETTS WETLANDS RESTORATION PROGRAM

# GROWetlands

## Wetlands Restoration Project Nomination Form

Thank you for your interest in restoring Massachusetts wetlands. If you wish to sponsor a wetlands restoration project and would like to propose that it be considered part of the statewide wetlands restoration initiative called GROWetlands (Groups Restoring Our Wetlands) under the Massachusetts Wetlands Restoration Program, please fill out this form and return to the address below.

Project Name: \_\_\_\_\_

Project Location: City/Town \_\_\_\_\_ Watershed \_\_\_\_\_

*Please attach a U.S.G.S. quad sheet or other map on which the site location has been marked.*

*If available, please attach current and historic photos and aerial photos of the project site.*

Project Sponsor: \_\_\_\_\_

Designated Representative: \_\_\_\_\_

Telephone: \_\_\_\_\_ FAX \_\_\_\_\_ E-mail \_\_\_\_\_

Address: \_\_\_\_\_

Project Co-Sponsors: \_\_\_\_\_

Landowner: \_\_\_\_\_

Has landowner expressed support for wetlands restoration at the site? Yes\_\_ No\_\_  
Explain:

Is all or part of the wetland totally destroyed or does it exist in a degraded condition?  
Explain:

GROWetlands Nomination Form - Continued

Briefly describe the current condition of the wetland to be restored.

Is the wetland part of an agricultural facility or was it farmland in the past?

Is in agricultural use now.  Was never farmed.

Was formerly agricultural land.

Explain:

What caused the impact to the wetland?

Is the wetland area under an outstanding enforcement order? Yes  No

If yes, explain:

What is the approximate size of the area proposed to be restored?

What is the approximate size of adjacent wetland areas, if any?

Please attach a sketch of the area showing the wetland to be restored, adjacent wetlands and water bodies, roads and buildings in the immediate vicinity, and other pertinent information to describe the site. If possible, indicate different wetland types that are present (*Phragmites* swamp, wet meadow, forested wetland, etc.).

If known, what was the wetland type(s) prior to impact?

If known, what restoration activity would be required to restore the wetland?

If known, what is the approximate cost of the restoration?

Has any funding been identified for this project? Yes  No

If yes, describe:

Would you like MWRP to arrange a site visit and evaluation by a Wetlands Restoration Assistance Team, a group of volunteer wetlands scientists?

Yes  No

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Please send this form with attachments to: GROWetlands EOE A Wetlands Restoration Program One Winter Street - 5th Floor, Boston, MA 02108 tel. 617-626-1177. A representative of MWRP will contact you as soon as possible. Please call us if you have any questions!