

Eelgrass Survey Report Cohasset, Massachusetts

Introduction

Wetlands Preservation, Inc. (WPI) was retained by Nucci Vine Associates, Inc. to perform an eelgrass (*Zostera marina*) survey in Cohasset Harbor (see Locus Map, Attachment A) as part of a proposed harbor dredging project. The purpose of this investigation was to survey locate the extent of eelgrass within the harbor and in the vicinity of the harbor entrance channel.

Methods

On July 6, 1995 a survey team from Nucci Vine Associates, Inc., a SCUBA diver from WPI and, a boat with helmsperson performed the survey. Other SCUBA divers, Eric Nelson of NOAA/NMFS and Phil Colaruso of EPA, complimented the survey team and assisted in the location of the eelgrass bed perimeter as well as making other observations regarding bed fauna.

The survey was performed during the course of one day and began at an outgoing tide, continued throughout low tide and was completed on an incoming tide. The divers, surface swimmer, surveyor and boat helmsperson maintained verbal communications throughout the entire survey. The helmsperson and shore based surveyor communicated via hand held radios. The surface swimmer carried a prism and worked directly with the shore based surveyor and the diver below.

The divers and surface swimmer marked out the perimeter of the eelgrass bed in conjunction with the shorebased surveyor through the use of a transit and hand held prism. During the survey procedure points of interest were noted to delineate areas of relative density within the eelgrass bed and to mark the boundary of the search limit.

Results

Visibility ranged from 2 to 10 feet on the day the survey was performed. Water depth varied with the tide from 2 feet to 15 feet. Eelgrass was found to be present, growing throughout the entire area while the growth density varied from sparse to patchy to dense (see Site Plans, Nucci Vine Assoc., Inc. dated ?/?/95). Eelgrass shoots ranged from 12 to 36 inches in height and numerous plants exhibited flowering parts.

Sparse areas consist of small clumps of eelgrass, usually comprised of 2-4 leaves per shoot. Distance between clumps was estimated to be between 6 and 12 feet. In areas sparsely vegetated with eelgrass the substrate is a very fine silty material not conducive to good eelgrass growth. This is also the area where most moorings are located within the Harbor. Moored boats produce a shading effect, reducing light penetration and therefore limiting the growth of eelgrass.

Patchy areas were found along the edges of the mooring area and in areas of somewhat fine sandy substrate. Broken shells littered the area throughout. Patch density was not measured but approximately one patch every 4-6 feet is probably a good estimate. Patch size averaged approximately 1 to 2 feet in diameter.

The areas of dense growth were found predominantly to the east side of the harbor as depicted on the site plans. This dense area is best described as an eelgrass meadow. The shoots grow very close to each other and form a large contiguous vegetated area. The area exhibits a coarse sand and broken shell substrate.

Fauna observed during the survey include a variety of fish, crustaceans and other invertebrates. Of the fish species observed winter flounder (*Pseudopleuronectes americanus*) and skates (*Raja* sp.) were the most common. A school of herring (*Clupea harengus*), a single striped bass (*Morone saxatilis*) and a pipefish (*Syngnathus fuscus*) were also observed.

Crustaceans were numerous and included hermit crabs (*Pagurus* sp.), rock crabs (*Cancer irroratus*), green crabs (*Carcinus meanus*) and one northern lobster (*Homarus americanus*). Chink snails (*Lacuna* sp.) were observed on eelgrass blades throughout the bed. Other molluscs included turban snails (*Tegula* sp.) and

moon snails (*Polinices* sp.). Other invertebrates observed included a variety of small jellyfish and a large lion's mane (*Cyanea capillata*).

Conclusion

The resource area delineated during this survey falls within the proposed dredge limits of Cohasset Harbor and the Harbor Entrance Channel. Approximately 40% of the surveyed area is sparsely vegetated with eelgrass and 52% is patchily vegetated. The remaining 8% consists of densely vegetated areas.

Recommendations

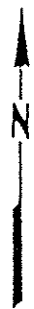
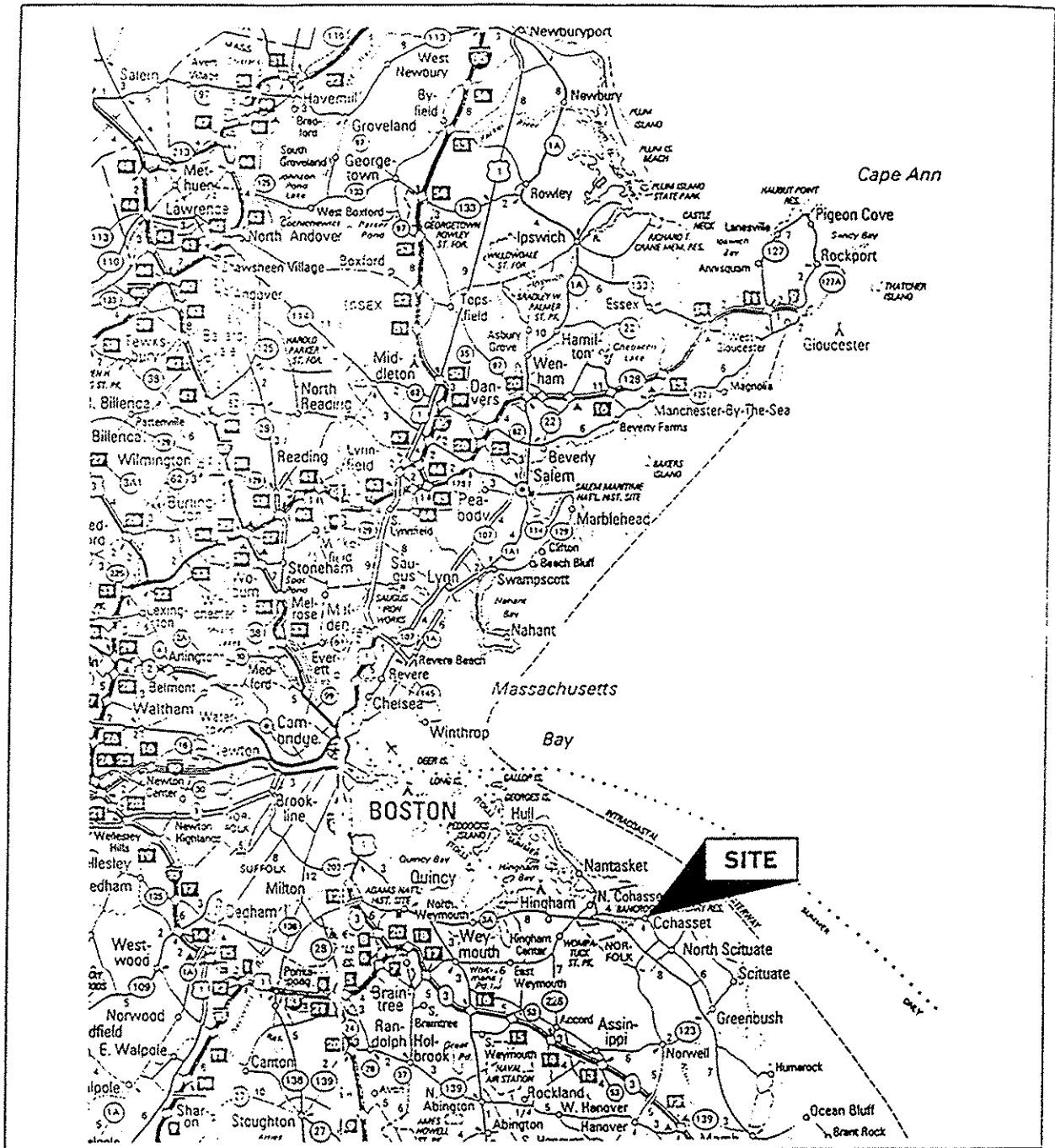
Avoidance of areas shown to be densely vegetated with eelgrass is recommended if redesign of the dredge pathway is feasible. The dredge method used should be chosen to consider reducing turbidity. Reduction of turbidity as a result of dredging activities will reduce disturbance within adjacent bed areas. Dredging during the winter months, when the eelgrass has entered its seasonal die back period, will alleviate some concerns about the impacts of reduced light from turbidity as a result of dredging. Winter dredging will also eliminate any inconvenience to people who have moorings in the harbor.

Dredging operations performed during an outgoing tide may reduce the effects of sedimentation on adjacent beds not within the dredge pathway. The use of a silt containment system (Water Structures, Reef Industries, Inc. for example) could also be implemented to reduce turbidity and prevent suspended sediment from impacting adjacent eelgrass beds.

Enhancement planting is suggested as a mitigative measure if an appropriate site can be located. Transplants can be taken from targeted dredge areas and transplanted to an appropriate site in an effort to replace lost habitat. Enhancement planting in areas where eelgrass is already present is not recommended (Fonseca *et al.* 1988).

Literature Cited

Fonseca, M.S.; Kenworthy, W.J.; Thayer, G.W. Restoration and management of seagrass systems: a review. *in The ecology and management of wetlands. Vol. 2 Management use and value of wetlands.* p. 353-368; Timber press; Portland, OR. 1988.

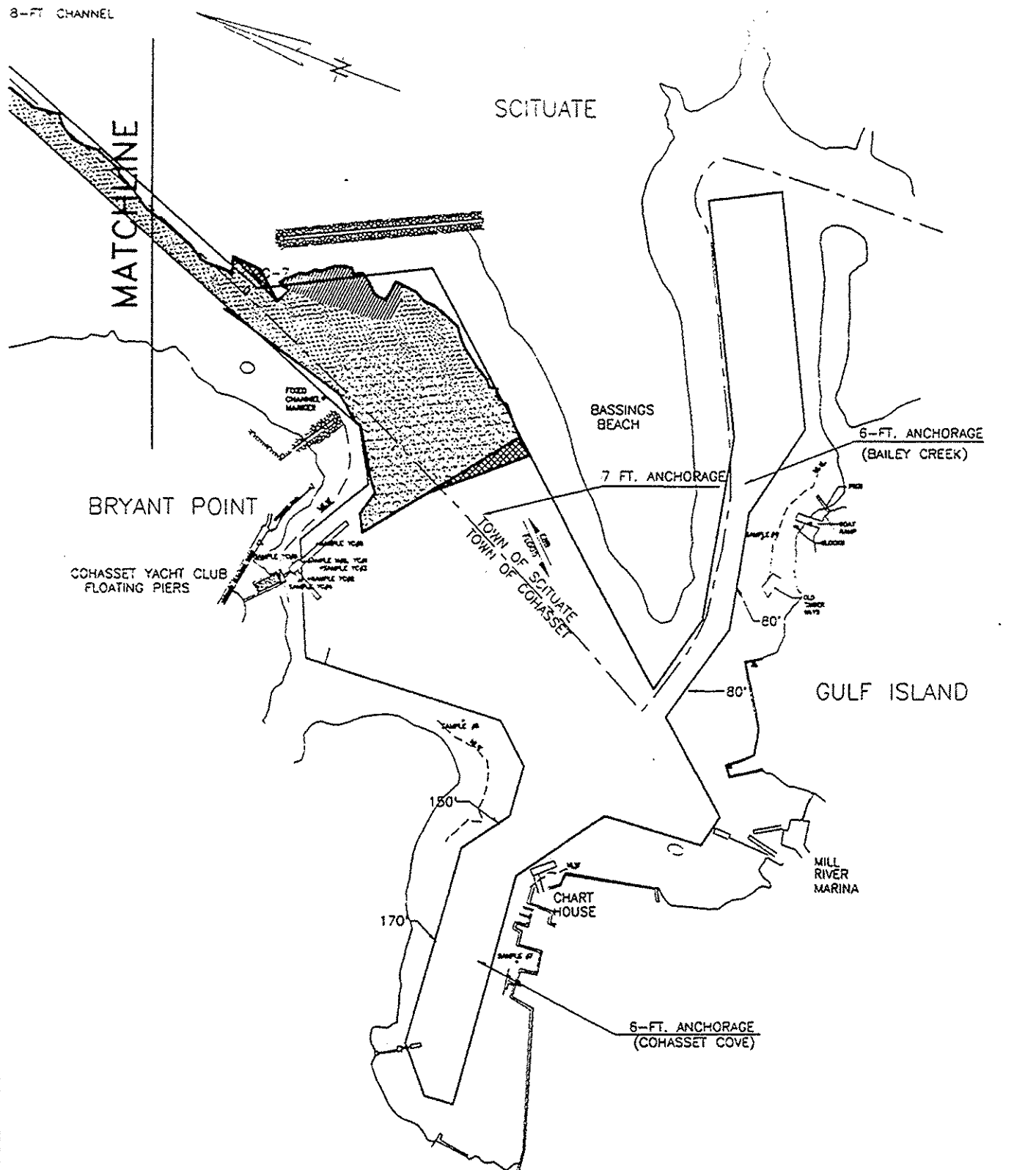


Locus Map - Attachment A	
	Cohasset Harbor Eelgrass Survey
	Cohasset, MA Scale 1:456000
WETLANDS PRESERVATION, INC. 47 Newton Road Plaistow, NH 03865 (603)382-3435	

8-FT CHANNEL

SCITUATE

MATCHLINE



LEGEND:

SPARSE EELGRASS	
PATCHY EELGRASS	
DENSE EELGRASS	
NO EELGRASS	

VERTICAL DATUM = 0.0 MLW



EELGRASS SURVEY

COHASSET HARBOR
DREDGE PROJECT
PERFORMED JULY 6, 1995
AT: COHASSET, MASSACHUSETTS
COUNTY:
APPLICATION BY:
TOWN OF COHASSET
DATE: JULY 1995 SHEET 2 OF 3

TOWN OF
COHASSET
(NORFOLK COUNTY)

TOWN OF
SCITUATE
(PLYMOUTH COUNTY)

ENTRANCE
CHANNEL

GC-3

FIXED
CHANNEL
MARKER

GC-5

WHITE HEAD

FIXED
CHANNEL
MARKER

8--FT. CHANNEL

MATCHLINE

BRYANT POINT

COHASSET YACHT CLUB
FLOATING PIERS

LEGEND:

SPARSE EELGRASS	
PATCHY EELGRASS	
DENSE EELGRASS	
NO EELGRASS	

VERTICAL DATUM = 0.0 MLW



EELGRASS SURVEY

COHASSET HARBOR
DREDGE PROJECT
PERFORMED JULY 6, 1995
AT: COHASSET, MASSACHUSETTS
COUNTY:
APPLICATION BY:
TOWN OF COHASSET
DATE: JULY 1995 SHEET 3 OF 3