

ECOLOGICAL EVALUATION OF
NATURAL RESOURCES
SWIFTS BEACH, WAREHAM, MA

JUNE 2009

Prepared for:
Susan Mellon
Town of Wareham Community Preservation Commission
P.O. Box 361
West Wareham, MA 02576

BSC Job #49400.00

Prepared by:



349 Main Street, Unit D
W. Yarmouth, Massachusetts 02673



June 4, 2009

Susan Mellon
Town of Wareham Community Preservation Commission
[REDACTED]
West Wareham, MA 02576


**Re: Ecological Evaluation of Natural Resources, Swifts Beach, West Wareham, MA
BSC Project No. 4-9400.00**

Dear Ms. Mellon,

BSC Group is pleased to submit the Swifts Beach Ecological Evaluation of Natural Resources Report. The report is intended to be used by the Commission as a guidance document in its decision making process when dealing with short and long term impacts occurring at Swifts Beach. In addition to providing an ecological evaluation of the natural resources, encroachments and flora and fauna inventories, the site plan contains site specific data and information which can form the basis for future environmental permit applications to implement Community Preservation Commissions management objectives.

We look forward to continuing our working relationship with the Commission and the Town of Wareham to implement some of the reports management objectives.

Sincerely,
BSC Group, Inc.


Norman W. Hayes, PWS
Senior Associate
Project Manager


Nathan Cristofori
Environmental Intern
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Encl (1)

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Engineers
Environmental
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GIS Consultants
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- 1. Photographs
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Ecological Evaluation

1.0 INTRODUCTION

This Ecological Evaluation of Natural Resources, Swift Beach, Wareham, Massachusetts was prepared by the BSC Group Inc. at the request of and under contract to the Town of Wareham Community Preservation Commission. The evaluation is intended to be used by the Commission as a guidance document for making management decisions at Swifts Beach and to assist the Wildlands Trust in finalizing a Conservation Restriction for the property. In addition, the evaluation contains historic background information, flora and fauna inventories, field survey, regulatory review, photographic documentation, identification of encroachment, and provides management alternatives and recommendations. For instance, previous and ongoing encroachments altering the site by various stakeholders have and continue to alter many of the protected coastal and inland wetland resources on the site. These resource areas are "areas subject to protection under that Act", and are environmentally important systems that are protected by the Massachusetts Wetland Protection Act, M.G.L. 131, Section 40, and defined in the Regulations promulgated under the Act at 310 CMR 10.02 (1) and the Town of Wareham Wetlands By-Law.

To address this scope of subject matter, the evaluation is organized into nine sections. Section one provides a project introduction while section two provides a jurisdiction regulation review. Sections three and four document flora and fauna species inventories, while section five discusses shellfish habitat. Section six photo-documents encroachments and alteration of wetland resource areas, and section seven provides management and education efforts through school based education programs to reach novel audiences and foster nontraditional use of the resources discussed in section eight. Finally, section nine summarizes options and presents recommendations with a preferred option to address the critical path of continuing non-permitted alternatives to the Swifts Beach Coastal Ecosystem in violation of the Wetlands Protection Act.

2.0 WETLAND RESOURCE AREA IDENTIFICATION

Nearly all of Swifts Beach is considered a resource area with respect to the Wetland Protection Act and Town of Wareham Wetland Protection By-law. These wetland resources are identified on the BSC Group Inc. Plan of Swifts Beach in Wareham Massachusetts (Plymouth County) entitled Coastal Wetland Resource Area Plan dated April 2, 2009 as amended and appended to this report at section II, Attachment 2. BSC's Senior Wildlife Biologist and Professional Wetland Scientist (PWS) Norman W. Hayes and Wetland Professional In Training (WPIT) Matthew Creighton visited the site during the fall 2008 and spring 2009 to evaluate the site. Subsequent field evaluations continue to document flora and fauna. Survey data and field notes identify the following wetland resources at the site:

2.1 Land Under the Ocean

As defined in 310 CMR 10.25(2), "land under the ocean means land extending from the mean low water line seaward to the boundary of the municipality's jurisdiction and includes land under estuaries." As such, Swifts Beach borders on land under the ocean, which is protected by the Act and upon a tidal creek transecting the site.

Land under the ocean to the south of the coastal beach extends into Buzzards Bay, across a relatively flat sandy tidal plateau to the offshore municipal limits. The tidal area under the ocean floor off Swifts Beach is significant to the interests of storm damage protection as well as wildlife habitat (e.g. shellfish, finfish, and shorebird habitat).

2.2 Coastal Beaches

As defined in 310 CMR 10.27(2), "coastal beach means unconsolidated sediment subject to wave, tidal and coastal storm action which forms the gently sloping shore of a body of salt water and includes tidal flats. Coastal beaches extend from the mean low water line landward to the dune line, coastal bank line, or the seaward edge of existing manmade structures, when these structures replace one of the above lines, whichever is closest to the ocean." According to this definition, all of Swifts Beach above the MLW line to the toe of the coastal dune is coastal beach protected by the Act. Coastal beaches are significant to the interests of storm damage protection and wildlife habitat, including possible future nesting for threatened species of shorebirds.

2.3 Coastal Dunes

As defined in 310 CMR 10.28(2), "coastal dune means any hill, mound or ridges of sediment landward of a coastal beach deposited by wind action or storm over wash. Coastal dune also means sediment deposited by artificial means and serving the purpose of storm damage prevention or flood control." Swifts Beach encompasses emerging coastal dune resources that are protected by the Act. Some dunes are stabilized by *Ammophila breviligulata* and *Prunus maritima* (Beach Plum) while others are degraded by recreation impacts from numerous stakeholders. Coastal dunes on Swifts Beach are significant to the interests of storm damage protection as well as providing extensive wildlife habitat for mammals and birds.

2.4 Barrier Beaches

Barrier beaches are defined in 310 CMR 10.29(2) as "a narrow, low-lying strip of land generally consisting of coastal beaches and coastal dunes extending roughly parallel to the trend of the coast. It is separated from the mainland by a narrow body of fresh, brackish or saline water or a marsh system. A barrier beach may be joined to the mainland at one or both ends." On a small scale, sections of Swifts Beach are emerging as barrier beach that is protected by the Act, and is significant to the interests of storm damage protection and wildlife habitat.

2.5 Salt Marshes

As defined in 310 CMR 10.32(2), "salt marsh means a coastal wetland that extends landward up to the highest high tide line, that is, the highest spring tide of the year, and is characterized by plants that are well adapted to or prefer living in, saline soils. Dominant plants within salt marshes are salt meadow cord grass (*Spartina patens*) and/or salt marsh cord grass (*Spartina alterniflora*). A salt marsh may contain tidal creeks, ditches and pools." According to this definition, there are extensive salt marsh resources on Swifts Beach that span much of the ocean-side as well as penetrating the main body of the beach via a tidal creek. These salt marsh resources are protected stringently by the Act, and are significant to the interests of storm damage protection and wildlife habitat, including refuge for finfish, shellfish, and shorebirds. Of note is the re-emergence of a developing salt marsh dominated by *Spartina patens*, *Distichlis spicata*, and *Salicornia spp.* in an old parking area in the center of the beach over an area of previous fill on salt marsh.

2.6 Land Containing Shellfish

"Land containing shellfish means land under the ocean, tidal flats, rocky intertidal shores, salt marshes, and land under salt ponds when any such land contains shellfish" [310 CMR 10.34(2)]. There are known shellfish resources on Swifts Beach within its surrounding land under that ocean, tidal flats, and salt marshes, which are protected by the Act. Land containing shellfish is

impacted at Swifts Beach by storm water, runoff and E-coli bacteria from dog feces, based on site specific observations.

2.7 Land Under Salt Ponds

A salt pond is a shallow enclosure or semi-enclosed body of saline water that may be partially or totally restricted by barrier beach formation. Land under salt ponds is defined in 310 CMR 10.33 as providing an excellent habitat for marine fisheries. The high productivity of plants in salt ponds provides food from shellfish, crustaceans and larval and juvenile fish. Salt ponds also provide spawning areas for shellfish and are nursery areas for crabs and fish. In addition to the many birds which feed on fish found in salt ponds, waterfowl also eat invertebrates such as mollusks and crustaceans, which in turn depend on bottom sediment vegetation. There is an emerging salt pond and potential small developing barrier beach at the Northeast portion of the site adjacent to Shore Avenue and Beach Street that serves as a nursery to numerous spawning shellfish.

2.8 Bordering Vegetated Wetlands (BVW)

BVW is defined in 310 CMR 10.55(2) as freshwater wetlands which border on creeks, rivers, streams, ponds, lakes, or on a coastal wetlands resource area touching a water body. Often BVW are considered wet meadows, marshes, swamps, and bogs. BVW provide, perhaps, the most important inland wildlife habitat, and as such are regulated strictly by the Act. Swifts Beach includes an area in its interior, a large *Phragmites* swamp adjacent to drainage ditches off Roby Street, that can be characterized as BVW. This area provides important wildlife habitat.

2.9 Land Subject to Coastal Storm Flowage (LSCSF)

Land subject to coastal storm flowage is afforded protection under 310 CMR section 10.02(1)(D) and is defined as land subject to the periodic rise and fall of a coastal water body including Spring tides (10.04(B)) and is identified on the Town of Wareham FEMA Flood Map as a Velocity Zone (VE-Elevation 20'). Typically LSCSF refers to any land within the 100 years floodplain which is within the zone as designated by the Office of Coastal Zone Management. Please note, LSCSF is not specifically listed in the regulations, but is covered in the language of 310 CMR 10.25(1). This provision, which essentially states that if there is a resource area significant to the interests of the Act which has no presumptions or performance standards, the Conservation Commission can condition projects to protect that interest, e.g. storm damage prevention, prevention of pollution, or protection of wildlife habitat identifications. The entire Swifts Beach site is within LSCSF.

2.10 Land Under Waterbodies and Waterways.

Land Under Waterbodies and Waterways is presumed to be significant to all the values in the act (310 CMR 10.56) and is defined as the land under any creek, river, stream, pond, or lake. There is an intermittent stream flowing through the site emerging from a *Phragmites* swamp and BVW north and east of Roby Street. It is tidal at the shore and intermittent or ephemeral inland. Streams are defined at 310 CMR 10.04 as a body of water which moves in a definite channel on the ground due to hydraulic gradient and which flows in, out or within areas subject to protection under the Act at 310 CMR 10.54(4(a)).

3.0 FLORA AND FAUNA INVENTORY

Plant and Animal

BSC's list of vegetative species observed at Swifts Beach is broken down by common and scientific name, and location starting with the salt marsh and transitioning landward and ending with BVW. Note species with an asterisk are invasive species as identified in *A Guide to Invasive Plants in Massachusetts* prepared by the Massachusetts Division of Fisheries and Wildlife.

Plants

3.1

Salt Marsh

Common Name	Scientific Name
Salt Marsh Cord Grass	<i>Spartina alterniflora</i>
Salt Meadow Cord Grass	<i>Spartina patens</i>
Seaside Goldenrod	<i>Solidago sempervirens</i>
Northern Seaside Lavender	<i>Limonium nashii</i>
Glass Worts	<i>Salicornia spp.</i>
Marsh Elder	<i>Iva frutescens</i>
Spike Grass	<i>Distichlis spicata</i>
Black Grass	<i>Juncus gerardi</i>
Halberd-Leaved Orache	<i>Atriplex patula</i>
Sea-Blite	<i>Suaeda maritima</i>
Coast-Blite	<i>Chenopodium rubrum</i>

3.2

Coastal Beach

Common Name	Scientific Name
Cocklebur	<i>Xanthium echinatum</i>
Pinweed	<i>Lechea maritima</i>
Reed	<i>Phragmites communis*</i>

3.3

Coastal Dune

Common Name	Scientific Name
Dusty Miller	<i>Artemisia stelleriana</i>
Beachgrass	<i>Ammophila breviligulata</i>
Beach Pea	<i>Lathyrus japonicas</i>
Sea Rocket	<i>Cakile edentula</i>
Rush spp.	<i>Juncus greenei</i>
Northern Bayberry	<i>Myrica pensylvanica</i>
Virginia Rose	<i>Rosa virginiana</i>
Rugosa Rose	<i>Rosa rugosa</i>
Morrows Honeysuckle	<i>Lonicera morrowii*</i>
Beach Plum	<i>Prunus maritima</i>
Sweet Fern	<i>Comptonia peregrina</i>
Northern Arrowwood	<i>Viburnum recognitum</i>
Smooth Sumac	<i>Rhus glabra</i>
Pitch Pine	<i>Pinus rigida</i>

Japanese Blackpine	<i>Pinus thunbergii</i>
Black Oak	<i>Quercus velutina</i>
Red Cedar	<i>Juniperus virginiana</i>
Black Locust	<i>Robinia pseudoacacia</i> *
Apple	<i>Malus spp.</i>
Choke Cherry	<i>Prunus virginiana</i>
American Holly	<i>Ilex opaca</i>
Black Gum	<i>Nyssa sylvatica</i>
White Oak	<i>Quercus alba</i>
Common Dandelion	<i>Taraxacum officinale</i>
Path Rush	<i>Juncus tenuis</i>
Bebb Willow	<i>Salix bebbiana</i> *
English Plantain	<i>Plantago lanceolata</i>
Chicory (Blue Sailor)	<i>Cichorium intybus</i>
White Aster	<i>Aster spp.</i>
Cypress Spurge	<i>Euphorbia cyparissias</i> *
Common Tansey	<i>Tanacetum vulgare</i>
Common Mullien	<i>Verbascum thapsus</i> *
Yarrow	<i>Achillea millefolium</i>
Hair Cap Moss	<i>Polytrichum commune</i>
Old-Field Toad Flax	<i>Linaria canadensis</i>
Sheep Fescue	<i>Festuca ovina</i> *
Little Bluestem	<i>Schizachyrium scoparium</i>
Prairie Switchgrass	<i>Panicum virgatum</i>
Panic Grass	<i>Dichanthelium acuminatum</i>
Common Evening Promise	<i>Oenothera biennis</i>
Slender-Leaved Goldenrod	<i>Solidago tenuifolia</i>
Common Milkweed	<i>Asclepias syriaca</i>
Oriental Bittersweet	<i>Celastris orbiculatus</i> *
Russian Olive	<i>Elaeagnus angustifolia</i> *
Multiflora rose	<i>Rosa multiflora</i> *
Poison Ivy	<i>Toxicodendron radicans</i>
Virginia Creeper	<i>Parthenocissus quinquefolia</i>
Beach Heather (Povety Grass)	<i>Hudsonia tomentosa</i>
Common St. John's Wort	<i>Hypericum perforatum</i>
Queen Anne's Lace	<i>Daucus carota</i>
Pearly Everlasting	<i>Anaphalis margaritacea</i>
Canada Thistle	<i>Cirsium arvense</i>
Wavy-Leaved Dock	<i>Rumex crispus</i>
Saltwort	<i>Salsola kali</i>
Earthstar	<i>Geaster hygrometricus</i>
White Clover	<i>Trifolium repens</i>
Red Clover	<i>Trifolium pretense</i>
Hydrophobic Grasses (Upland)	<i>Graminae spp.</i>
Hydrophilic Grasses (Wetland)	<i>Graminae spp.</i>
Winged Euonymus	<i>Euronymus alatus</i> *

3.4

Birds

Common Name	Scientific Name
Tree Swallow	<i>Tachycineta bicolor</i>
Yellow Rumped Warbler	<i>Dendroica discolor</i>
House Finch	<i>Carpodacus mexicanus</i>
Purple Finch	<i>Carpodacus purpureus</i>
House Sparrow	<i>Passer domesticus</i>
American Gold Finch	<i>Carduelis tristis</i>
Song Sparrow	<i>Melospiza melodia</i>
Carolina Wren	<i>Thryothorus ludovicianus</i>
Brown Headed Cow Bird	<i>Molothrus ater</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Grey Catbird	<i>Dumetella carolinensis</i>
Black Capped Chickadee	<i>Poecile atricapilla</i>
American Robin	<i>Turdus migratorius</i>
American Crow	<i>Corvus brachyrhynchos</i>
Blue Jay	<i>Cyanocitta cristata</i>
Eastern Starling	<i>Sturnus vulgaris</i>
Red Winged Blackbird	<i>Agelaius phoeniceus</i>
Common Grackle	<i>Quiscalus guiscula</i>
Belted Kingfisher	<i>Ceryle alcyon</i>
Red Tail Hawk	<i>Buteo jamaicensis</i>
Northern Harrier	<i>Circus cyaneus</i> (Flight)
Killdeer	<i>Charadrius vociferus</i>
Herring Gull	<i>Larus argentatus</i>
Osprey	<i>Pandion haliaetus</i>
Laughing Gull	<i>Larus atricilla</i>
White Wing Soter	<i>Melanitta fusca doglandi</i>
Black Backed Gull	<i>Larus marinus</i>
Brant	<i>Branta bernicla</i>
Canada Goose	<i>Branta canadensis</i>
Double Crested Cormorant	<i>Phalacrocorax auritus</i>
Common Eider	<i>Somateria mollissima</i>
Lesser Yellowlegs	<i>Tringa flavipes</i> (Flight)
Least Tern	<i>Sterna antillarum</i> (Flight)
Common Tern	<i>Sterna hirundo hirundo</i>
Red Breasted Merganser	<i>Mergus serrator</i>
Sanderling	<i>Caldris alba</i>
Mallard Duck	<i>Anas platyrhynchos</i>
Mourning Dove	<i>Zenaida macroura</i>
Marsh Wren	<i>Cistothorus palustris</i>
Bufflehead	<i>Bucephala albeola</i>

3.5

Mammals

Common Name	Scientific Name
Red Fox	<i>Vulpes vulpes</i>
Coyote	<i>Canis latrans</i>
Raccoon	<i>Procyon lotor</i>

White Footed Moose	<i>Peromyscus leucopus</i>
Meadow Vole	<i>Microtus pennsylvanicus</i>
Striped Skunk	<i>Mephitis mephitis</i>
Virginia Opossum	<i>Didelphis virginiana</i>
Eastern Cottontail Rabbit	<i>Sylvilagus floridanus</i>
Muskrat	<i>Ondatra zibethicus</i>

3.6

Mollusks

Common Name	Scientific Name
Knobbed Welk	<i>Busyon caricum</i>
Oyster	<i>Crassostrea virginica</i>
Quahog	<i>Mercenaria mercenaria</i>
Razor Clam	<i>Ensis directus</i>
Periwinkle	<i>Littorina spp.</i>
Soft Shell Clam	<i>Mya arenaria</i>
Surf Clam	<i>Spisula solidissima</i>
Moon Snail	<i>Polinices heros</i>
Blue Mussel	<i>Mytilus edulis</i>
Ribbed Mussel	<i>Modiolus demissus plicatulum</i>

3.7

Crustaceans

Common Name	Scientific Name
Blue Crab	<i>Callinectes sapidus</i>
Fiddler Crab	<i>Uca pugnax</i>
Green Crab	<i>Carcinides meanas</i>
Hermit Crab	<i>Pagurus pollicarius</i>
Horseshoe Crab	<i>Lumulus polyphemus</i>

4.0 ENCROACHMENTS

4.1

Numerous and continuing encroachments by vehicles entering on the coastal wetland resource areas from Murphy Street and Shore Avenue pulverize the coastal beach, damage the salt marsh, and destroy *Geukensia demissa* (Ribbed Mussel). *Geukensia demissa* has been shown to play an important role in facilitating marsh grass growth and overall salt marsh stability in protected salt marsh habitats where mussels are abundant (Bertness 1984). *Geukensia demissa* is a filter feeder, and as a result of its feeding activity transfers water column nutrients to the sediment surface in fecal material, augmenting the nutrient supply to marsh grasses and increasing marsh grass growth. Mussels also attach to the marsh substrate with strong byssal threads which bind sediment and prevent erosion and physical disturbance of the seaward edge of marshes with dense mussel populations. Animals that burrow or deposit-feed in marsh sediments may also be important determinants of marsh grass growth. Further vehicles (observed ruts) have run over the habitat of Fiddler Crabs. The following information was published by Mark D. Bertness in his abstract, "Fiddler Crab Regulation of *Spartina alterniflora* Production on a New England Salt Marsh." In that abstract Mr. Bertness states, crab burrows were shown to increase soil drainage, soil oxidation, resulting in maintaining *S. alterniflora*. Their waste product appears to be an important determinant of marsh grass growth. Based on site specific observation of the Fiddler Crab, its importance to Swifts Beach is obvious.

4.2 Storm Water Drainage

Two storm water point source discharges are occurring at locus dumping storm water collected from adjacent streets directly into the Wareham River. Street flow from Bay View, Swifts Beach Road, Ruggles Street, Roby Street, Beach Street, and Shore Avenue is directed onto the beach carrying with it pollutants consistent with vehicle and pedestrian use. Sheet flow drains the recreational area via an erosion channel directly into the tidal creek and an erosion cut channels street runoff directly into the salt marsh.

4.3 Recreation Impacts

During BSC's site visits, 47 occurrences where recreational users failing to pick up after their dogs were recorded. This fecal material eventually finds its way to the Wareham River. E-coli bacteria, a primary constituent of animal waste, is a prime cause of coastal pollution and recreational beach closures.



Also documented was the impact of motor vehicles operating on the beach and on intertidal flats which included driving over shellfish habitat. Access to the town beach was from the parking lots at Shore Avenue, Murphy Street and Roby Street.

One way to immediately stop this vehicle trespass is to reposition large at locus boulders strategically to block vehicle access.

Home owners along Roby Street have created pedestrian walkways through the dunes to access the beach. In one instance a split rail fence with landscaping was placed on the Town of Wareham property. One of the plant species planted on town land is *Euonymus alatus* which is on the Massachusetts Prohibited Plant List and banned from sale, trade and purchase. Numerous clear cutting and vista pruning is ongoing at Swifts Beach. Clear cutting 25' onto the town's property has occurred north of the Shore Avenue parking lot south off Roby



Street. Off Ruggles Street, an estimated 37 Red Cedars have been topped to create coastal vistas. This effectively has eliminated a significant area of song bird nesting habitat.



Further west of Swifts beach Road, brick columns and rope cordon off a section of Swifts Beach owned by the Town of Wareham for private use.

Numerous debris: concrete, drums, gas cans and stone need to be removed from the coastal wetland resources.

4.4

The public boat ramp off the Shore Avenue parking lot needs to be maintained. This would include the removal of approximately 100 cubic yards of sand to provide increased recreational boating access during the tidal cycle.

Dredge spoil could then be used at locus to beach nourish and/or augment coastal dune development. Since this is a maintenance dredge permitting would not be difficult and would take nine months to complete.



5.0 MANAGEMENT OBJECTIVES

5.1

Develop a management plan that would minimize vehicle impacts to the natural resource areas at Swifts Beach while still providing an acceptable level of access for recreational use of the boat ramp.

5.2

Work with the stakeholders (adjacent abutting property owners and beach users) to provide access to the beach. Trails should be oriented differently so that they are equally susceptible to tidal action, pedestrian use and potential wildlife use. In addition, coordination with the various fire-police and education agencies is needed to develop cooperative agreements to provide emergency access and interpretative signage. Consensus building with property owners to eliminate private use of Swifts Beach needs to be initiated.

5.3

Promulgate regulatory processes to deal with encroachments onto Swifts Beach by private stakeholders which would include operational regulations (by-laws). This advisory oversight would remain with the Swifts Beach Community Preservation Commission. The committee would have considerable influence on the regulatory process based on the commission's in depth knowledge of the site. In the case of Swifts Beach, the commission could stop alteration of the wetland resources and the encroachment onto the beach by filing a Notice-of-Intent specifically identifying, vehicles on the beach, vista pruning, unrestricted dog use and private use of town property by private interests. Once the Order-of-Conditions is issued, the commission's input to local regulatory agencies will be crucial in obtaining necessary assurances that the Orders-of-Conditions and management plans will be monitored and to permit compliance.

5.4

The commission should continue to augment this report by creating an educational committee that would work with Wareham Public Schools, Buzzards Bay Natural Estuary Program, The Wildlands Trust, and other agencies to facilitate an interpretive program of the natural history at Swifts Beach. This would afford the town to reach new audiences and foster nontraditional use of the resource. For example, fiddler crab habitat is limited to one area of salt marsh and beach. A simple monitoring study of the crabs expansion or demise would be an important educational opportunity to a local student, one that could provide important data. The same could be said for determining the extent of horseshoe crab habitat, if any.

5.5

Improve communications with stakeholders to provide consensus building for beach management through the creation of a flexible plan that can accommodate both natural and manmade changes to the beach, and is sensitive to changing recreational user needs.

6.0 RECOMMENDATIONS – First Steps

6.1 Communication

Communicate with the stakeholders of Swifts Beach to establish consensus building. For example:

- Develop a website for Swifts Beach
- Questionnaires
- Interpretive Signage
- Pamphlets
- Community events (e.g. remove invasives, beach cleanups, removal of trash)
- Requests for volunteers
- Simple education-advertising (e.g. impact of dog waste on the Wareham River)

6.2 Education

Work with the Audubon Society, Buzzards Bay Natural Estuary, Wildlands Trust, and the Wareham Public Schools to develop on-going education programs and to obtain grants to augment and update this report and assist the Swifts Beach Commission develop a management plan.

6.3 Regulatory

With the assistance from David Pichette, Conservation Administration for the Town of Wareham, file a Notice-of-Intent to address the immediate Swifts Beach violations and to permit and then implement courses of action to stop these violations, and condition other management practices to improve the site. These are:

- Stop all vista pruning and clear cutting on town property at Swifts Beach.
- Prohibit driving on the beaches.
- Channel access by the placement of relocated stone boulders to strategic locations (parking areas).
- Remove private structures on public property.
- Eliminate private access through the dunes.
- Educate to stop dog waste from entering Wareham River.
- Approve limited maintenance dredging and beach nourishment.

The above alterations are violations to the Wetland Protection Act because they alter the protected wetland resource areas. Accordingly they need to be conditioned through the issue of an Order-of-Conditions. Implementing the orders would involve the following:

- File a Notice-of-Intent and notify abutters by certified mail of any violations occurring on their properties.
- Condition simple sand drift fences to stop encroachment within the public beach and to build the primary dune.
- Condition that no cutting (vista or clear cutting) will be permitted in the interest of wildlife habitat values.
- Condition the immediate removal of all invasives (with the exception of phragmites) from the site.
- Relocate boulders from the dune and emerging salt marsh to the perimeters of the parking lots to stop vehicle beach access.

- Condition the removal of concrete platforms, 55 gallon drums, gas cans and debris from the beach to include boats placed on the dune which kill the beach grass.
- Condition the cleaning of the tidal ditch by the Plymouth County Mosquito Control to improve tidal flushing, wildlife habitat and in the interest of public health and safety.
- Condition the placement of interpretive signs and extend and expand trail access across the front beach bridging the tidal creek between the two main parking lots to provide a stable and environmentally sensitive access to entire beach during all tidal phases.
- Condition the dredging of the existing boat ramp to improve recreation boating access to the Wareham River. Use the dredge spoil as beach nourishment and as dune augmentation.
- Prepare a change to the Town of Wareham Wetlands By-Law with the language that violation of the rules and regulations established to manage the Town of Wareham coastal resources is punishable by a non-criminal citation in the amount of \$50 dollars. Payment is to the Town of Wareham. Failure to pay could result in court proceedings.

After you have had a chance to review this evaluation, please do not hesitate to call me with your questions.

Sincerely Yours,

Norman W. Hayes. PWS
Sr. Associate
Project Manager
BSCGroup Inc.



15 Roby Street clear cutting Beach plum



Dusty Millar (*Artemisia stelleriana*)



ORV use of bathing beach



Boulders in emerging salt marsh could be used to restrict vehicle beach access



37 Topped Red Cedars (*Juniperus virginiana*)



Debris in wetlands – 55 gallon drum



Invasives – Russian & Autumn Olive (*Elaeagnus* Spp.)



Impervious concrete to be removed



Beach Heather & Beach Pea – (*Hudsonia tomentosa* & *Lathyrus japonicus*)



Accretion west of groin to be repaired. Note elevation loss east of the groin.



Emerging dune and Bayberry (*Myrica pensylvanica*)



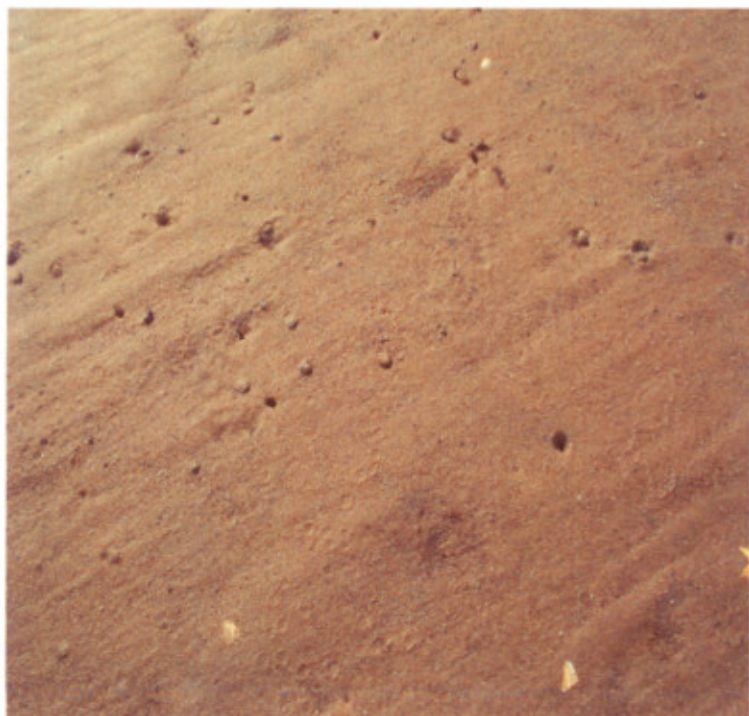
Ribbed Mussel (*Geukensia demissa*), with sediment binding byssal threads – also shown native shellfish, Oysters, Quahogs, Soft Shell Clams, Blue Mussels, and Razor Fish.



Healthy *Spartina alterniflora* which provides food for shell & finfish



Spartina, *Geukensia demissa* creating Soft Shell Clam (*Mya arenaria*) habitat



Siphon holes of Soft Shell Clams



2008 Seed quahogs and 2009 seed Soft Shell Clam



—



preventing access and launching



Destruction of *Ammophila* Beach Grass – coastal dune



Shellfish nursery – west shore drive



Soft Shell Clams and Razor Fish (*Ensis directus*) hand dug



Benthic habitat – numerous annelids, crustaceans, and mollusks



Native Beach Plum in *Phragmites*



Topping Tupelo (*Nyssa sylvatica*)



Of the twenty-seven dog walkers this was the only gentleman who picked up after his pet



Off road vehicle damage



Trash – debris – drums – cuttings



Vista pruning without permit



Wildlife habitat – Bay Berry



Beach Heather



Encroachment on Town of Wareham property





Fences causing coastal dune erosion



Storm water outfall



West Murphy Street - Moorings



Clear cutting on Roby Street



Fencing seven feet beyond property boundary on Town of Wareham, Swifts Beach Property.

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SHELLFISH SURVEY DESCRIPTION

1.0 INTRODUCTION

On March 12, 2009, Matthew Creighton, WPIT, of the BSC Group (BSC) conducted a shellfish survey from the High Tide Line into Land Under the Ocean of Swifts Beach in Wareham, MA (the Site). The purpose of the survey was to evaluate shellfish habitat, shellfish species, and shellfish population density during a resource area evaluation of the town owned property. This shellfish survey accompanies the Resource Area Habitat Evaluation for Swifts Beach.

2.0 SITE DESCRIPTION

Swifts Beach is located off Swifts Beach Road in Wareham; it borders the Wareham River, which is a tidal river draining into Buzzards Bay and several single-family homes along the shoreline with associated driveway, decks, walkways, coastal bank walkovers. The site contains a public bathing beach, boat ramp, basketball court, field, and parking lots. The following resource areas are located onsite:

- Land Subject to Coastal Storm Flowage (Zone VE, elevation 20 feet)
- Coastal Dune
- Salt Marsh
- Coastal Beach/Tidal Flat
- Land Containing Shellfish
- Land Under the Ocean
- Brackish Water/Tidal Perennial Stream

Please note this site and most of the immediately adjacent waterway do not contain any areas mapped as Estimated Habitat for Rare Wildlife according to Massachusetts Natural Heritage and Endangered Species Program or any areas mapped as Eelgrass Beds according to MassGIS (please refer to MassGIS Eelgrass map attached).

3.0 SHELLFISH INVENTORY

In order to evaluate the existing shellfish habitat at the site, BSC conducted a shellfish survey from the High Tide Line to below Mean Low Water. Matthew Creighton, WPIT, performed this shellfish survey along the beach on March 12, 2009. The weather was sunny and clear, with a slight northeast wind, and temperatures in the 30s. The survey commenced as the tide approached Mean Low Water and was completed as the tide began to rise above Mean Low Water toward Mean High Water. In order to sample for shellfish along the beach, 14 transects were conducted covering approximately 1,400 linear feet of shoreline as follows:

Transect 1 – Located along the salt marsh at the far western edge of the beach. Each of the following Transects were spaced approximately 100 linear feet east of the previous Transect and ending adjacent to the boat ramp.

For more information, please refer to BSC's shellfish survey map, which details the locations of each transect.

Each transect consisted of six plots excavated to an area of approximately 3 feet by 3 feet. Plots #1 - #3 were sampled on the exposed coastal beach seaward of the High Tide Line and landward of Mean Low Water. Plots #4 - #6 were sampled seaward of Mean Low Water in water depths of 0" to 36". Each plot was excavated approximately 1 foot deep to sample for Quahogs (*Mercenaria mercenaria*) and Soft Shell Clams (*Mya arenaria*) using either a standard Clam Rake or a Quahog

Rake. Each shellfish discovered in the plot was counted then replaced back into the plot from which it came from.

Also included during this shellfish survey, was a visual inspection of the surrounding surface for siphon holes of Soft Shell Clams (*Mya arenaria*). The Soft Shell Clam siphon holes were distinguished from sea worm holes by the Soft Shell Clam's distinct oval siphon holes shape as compared to the round shaped hole produced by sea worm. Other shellfish consist of a minor percent coverage of Ribbed Mussels (*Geukensia demissa*) within areas of salt marsh and approximately 8-10 Oysters (*Crassostrea virginica*) were noted located on a small rock.

No shellfish were noted from the HTL to the edge of the tidal flat (along the coastal beach). However from the edge of the tidal flat to MLW a small population of Soft Shell Clams was noted averaging 10-20 Soft Shell Clams per 10' X 10' square and a very minor population of 1 to 2 year old quahogs were also noted at a density of 1-5 per 10' X 10' square but only near the "No Shellfishing Signs". No Quahogs larger than a quarter were found onsite.

4.0 SUMMERY

BSC's shellfish survey identified the following:

- A Soft Shell Clam fishery exists on the site within the intertidal area however only in the tidal flats. Almost no Quahog and Oyster fisheries exists onsite.
- Several areas of degraded salt marsh do exists onsite including an area of salt marsh which was converted into a parking lot and is now returning to salt marsh along the brackish stream.
- A minor population of Ribbed Mussels also exists within some areas of salt marsh however the populations are very degraded.

Please see the attached report for additional information regarding other resources and recommendations.