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Report on the Analysis of True Color Aerial Photographs to Map
Submerged Aquatic Vegetation, Coastal Wetlands, Deepwater
Habitats and Coastal Features in Southern Rhode Island and
Southeastern Connecticut 16pp + Appendices

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Narragansett Bay Estuary Program
A Narragansett Bay Estuary Program Report

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A. INTRODUCTION

The University of Massachusetts, Natural Resources Assessment Group (NRAG) contracted in 1999 with Rhode Island Department of Environmental Management (RIDEM), and with the Narragansett Bay Estuary Program (NBEP) to provide original air photo interpretation of the submerged aquatic vegetation (SAV) primarily eelgrass (*Zostera marina*), coastal wetlands, shoreline, and selected coastal features in southern Rhode Island, including Block Island, and southeastern Connecticut. The project was undertaken in cooperation with the U.S. Fish & Wildlife Service, Northeast Region (FWS). Under cooperation, work included inventory of freshwater wetlands on the quadrangle covered for the coastal zone.

The University of Rhode Island, Environmental Data Center (URI/EDC) was the GIS contractor for the data, which was delivered as a scanned product. Scanning of data was conducted by the FWS.

For purposes of this report, areas inventoried other than SAV are referred to as “coastal habitats.” The SAV, coastal wetlands and selected coastal features were classified according to the U.S. Fish and Wildlife Service’s Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979; reprinted 1992).

*Z. marina* is recognized as a vital resource for food chain support and as a positive indicator species of estuarine productivity and function. An inventory of *Z. marina* beds provides resource managers with means to assess the extent and locations of this resource. Additionally, the inventory provides managers with a reasonably accurate acreage and location of present coastal habitats by type. The data base can be further developed with specialized analyses such as trends analyses and mapping of potential coastal wetland restoration sites. The eelgrass data base can be modified to accommodate restoration efforts, losses, and shifts in the bed distribution.

The report describes methods employed by NRAG to produce the inventory and details field findings. Appendix A is a plant list for the project area derived from field work conducted by NRAG to verify interpretation. Appendix B contains field data sheets for 117 field sites documented with the project. Additionally, results of the field work and photo interpretation are summarized, and acreage statistics by habitat type are provided.

No freshwater wetlands or freshwater deepwater habitats are mapped with this project. However, freshwater wetlands were field documented where establishing the limits of estuarine habitats; (oligohaline conditions were required).

B. PROJECT AREA

The South Shore project area covers the extreme southeastern Connecticut and southern Rhode Island coastline, including Block Island. The mainland area extends from Stonington, Connecticut, near the mouth of the Pawcatuck River, easterly to Point Judith, and includes the coastal zone from Sakonnet Point easterly to the state line of Massachusetts. The mapping of SAV and coastal habitats was performed for the following municipalities: Stonington (partial coverage), Connecticut, and Westerly, Charlestown,
South Kingstown, Narragansett (partial coverage), Little Compton, and New Shoreham (Block Island).

Landward limits of the project area were defined by the limits of brackish classification (Cowardin et al, 1979). See Section C3.

The South Shore project area ties to a previous inventory of SAV and coastal habitats for Narragansett Bay, produced by NRAG for NBEP and Save The Bay, Inc. (STB). (See Report on the Analysis of True color Aerial Photographs to Map Submerged Aquatic vegetation and Coastal Resource Areas in Narragansett Bay Tidal Waters and Near Shore Areas, Rhode Island and Massachusetts.) The project area is found on the following U.S.G.S. topographic quadrangle maps: Mystic, Watch Hill, Quonochontaug, Carolina, Kingston, Narragansett Pier, Sakonnet Point and Block Island.

C. METHODS AND MATERIALS

1. Aerial Photograph Acquisition

Aerial photographs were ordered by NBEP with specifications from NOAA Coastal Change Analysis Program (C-CAP): Guidance for Regional Implementation (Dobson et. al, 1995) for obtaining optimal SAV visibility. Two overflights were used: 1:12,000 scale (1:12K) true color transparencies for SAV photo interpretation, and 1:40,000 scale (1:40K) true color transparencies for photo interpreting estuarine and marine habitats. The 1:12K overflight was obtained to maximize detection of SAV, primarily Z.marina, under conditions approaching peak biomass, low haze, low wind speed, minimal to no cloud cover, low tide and low turbidity. The 1:40K overflight used for coastal habitat mapping allowed reasonably accurate mapping with respect to production costs, efficiency of transfer, and targeted minimum mapping units for GIS map production and display.

Research personnel from the University of Rhode Island Graduate School of Oceanography (URI-GSO) provided information to the NBEP on the peak biomass of eelgrass and water clarity in the coastal ponds. Their information assisted with instruction to the air photo contractors regarding optimal time of overflight for eelgrass detection.

Both overflights were taken on June 5, 1999 by the James W. Sewell Company, Old town, Maine. Photography was reviewed by NRAG and determined suitable quality for purposes of the project.

2. Data Preparation

NRAG prepared aerial photos for photo delineation in the following manner:
   a. Each model was mounted with a Grafix Wet Media Dura-Lar .004 gauge 9 inch by 9 inch Mylar, affixed with drafting tape at each corner.
   b. Each work area Mylar was pin-registered to each photo model at four corners.
c. Identifying notations in permanent black ink were made on each work area Mylar (photo number, adjoining photo number and edge lines).

d. Labels identifying photo number, date, scale and project were affixed on the upper edge of the photos.

e. Work area photo edge lines allowed for distortion at outer edges of the photos while accommodating tie area overlap.

f. Photography was indexed and organized into separate folders by flight lines and quadrangles.

3. Determining Project Limits and System Breaks

Landward limits of the project area were determined both in the field and during photo interpretation as the limits of estuarine brackish vegetation or brackish deepwater habitat, with respect to the following definitions in Cowardin et al., 1979:

The estuarine system extends (1) upstream and landward to where ocean-derived salts measure less than 0.5 parts per thousand during the period of average annual flow; (2) an imaginary line closing the mouth of a river, bay or sound; and (3) to the seaward limits of wetland emergents, shrubs or trees where they are not included in (2).

Seaward project limits were established by defining the mouth of Little Narragansett Bay in Watch Hill, the openings of breachways or inlets of coastal lagoons (Winnapaug, Quonochontaug, Ninigret, Green Hill, Point Judith and Great Salt Ponds). Where coastal lagoons are not breached, estuarine conditions were determined from the Rhode Island Coastal Resources Management Program, As Amended and/or from personal references. The system breaks between the Estuarine and Marine environments were established with respect to Cowardin et al., 1979:

The Marine System extends from the outer edge of the continental shelf shoreward to one of three lines: (1) the landward limit of tidal inundation (extreme high water of spring tides), including the splash zone from breaking waves; (2) the seaward limit of wetland emergents, trees, or shrubs; or (3) the seaward limits of the Estuarine System, where this limit is determined by factors other than vegetation.

It is noted that freshwater wetlands and deepwater habitats, including those classified in Cowardin et al. (1979) as “tidally-influenced” are not included in the inventory. Users are referred to Cowardin for further definition of the tidally-influenced freshwater system. Some wetland areas observed during photointerpretation appear to be former estuarine wetlands, altered by restriction, ditching or other activities which changed classification from estuarine to tidally-influenced freshwater, and are therefore not mapped with this inventory. Such areas, however, may be subject to future analysis as potential estuarine wetland restoration sites.

4. Minimum Mapping Units

Minimum polygonal mapping units (MMU) targeted for this project are 0.5 acre for Z. marina beds and .25 acre for isolated polygonal coastal wetlands and deepwater habitats. The internal targeted MMU (wetland types within other wetland types) was contracted to be 3.0-to-5.0 acres; however, smaller internal polygons of around 1.0 acre in size were mapped where types of particular ecological significance are found (e.g.,
pools within high marshes). Inclusion of small significant habitat types was based on photo quality, photointerpreter judgment and field site information.

It is noted that excessive internal mapping can create difficulties for project production costs and GIS map display. The level of mapping detail is dictated by the scope of the project, photo quality, the scale of photography used and photointerpreter judgment. The MMU for linear estuarine and marine habitats was pen width or approximately 35 feet on the ground using 1:40K scale photography. Collateral use of the 1:12K photography for verification of fringe marsh and beaches resulted in linear features slightly less than pen width, except where shadowed on either source photography. Therefore, an estimated average width of 27.5 feet was used to calculate acreage statistics. The linear foot (LF) MMU for line segments was 1/8 inch or about 250 LF at 1:24K base map scale. In contrast to the bay inventory all aquatic beds were mapped as polygonal data for the South Shore provided they were photointerpretable.

5. Field Work

Prior to photointerpretation, NRAG staff previewed aerial photos, selected field sites, and noted them on USGS 1:24K topographic maps for in-field orientation.

Field data was collected for two purposes:
1) to discriminate photosignatures unique to various habitat types as workable with the type and scale of source photography, and
2) to provide an ecological profile of habitat types representative of the project area.

Site selection criteria included the following:
a) areas representative of project area ecology; b) areas disturbed and potentially requiring NWI modifiers in classification; c) areas used to establish system and sub-system classification breaks; d) areas affected by haze, shadow, emulsion or other photography quality concerns; e) areas accessible with respect to trespassing and time constraints.

The NBEP coordinated the SAV field work in the coastal ponds, Little Narragansett Bay, and Great Salt Pond in Block Island. The RIDEW Office of Water Resources-Shellfish Program, Division of Enforcement, Division of Fish and Wildlife, Narragansett Bay Estuary Program, New Shoreham Harbor Patrol, and Brown University provided personnel and boats to the NRAG to perform fieldwork in August and September 1999. A total of 80 SAV field sites were inspected and documented by boat observation and sampling. No dives were undertaken.

A total of 37 estuarine and marine habitat sites were inspected and documented by vehicle and by foot, primarily coastal wetlands, lagoons, and beach habitats. Field data sheets were developed by NRAG specifically for the project.

6. Aerial Photointerpretation and Quality Control

Photodelineation utilized Cartographic Engineering mirrored stereoscopes and rapidographs at 4x0 line weight with permanent black India ink.
For mapping SAV, use of Cowardin et al. (1979) permits description of the beds to life form and water regime (see Tables 2 and 3). Z. marina was differentiated from other SAV species by the subclass “3,” rooted vascular; however, there was one field verified bed of *Ruppia* which is classified the same as *Zostera* (Ninigret Pond).

Map classification and delineation techniques for the SAV, coastal wetlands and deepwater habitats were based on Cowardin et al. (1979) and the accompanying *Photointerpretation Conventions for the National Wetlands Inventory* (National Wetlands Inventory, 1995). The coastal wetland data presented with this project as a mapping product is not intended to substitute for on-site determinations or delineations in permitting. The mapped delineations of coastal wetlands are not to be transferred or represented for regulatory purposes.

Coastal features included in the inventory are dunes and coastal banks. Photointerpretation of these features was as best determined on the 1:40K photography and with reference to definitions in the *Rhode Island Coastal Resources Management Program, As Amended* (RI CRMP) Sections 210. These features are mapped using photointerpretation techniques, and are not to be transferred or represented for regulatory purpose, and cannot substitute for on-site regulatory determinations or delineations in state or other permitting. Additionally, mapping of coastal bank and dune polygons assists with display of the data, in that these features are distinguished from upland islands and inclusions in the coastal zone.

The shoreline delineation is calculated from the landward limits of mapped linework (polygon and linear). The shoreline representation is a product of a mapping effort, and is not intended for regulatory purpose.

For quality control of the photointerpretation, each completed annotated mylar was examined by a photointerpreter other than the one producing the original photodelineations and classifications. Corrections were made as needed to maintain accuracy and consistency throughout the map product.

Photointerpretation and quality control progressed in a south to north, quad by quad basis to maintain delivery for rectification and digitizing.

7. **Transfer, Rectification and Base Map Preparation:**

Transfer of SAV data from the 1:12K to the 1:40K photography took place using a Bausch & Lomb Stereo Integrated System (SIS) or by use of a Zoom Transfer Scope (ZTS).

Data on the 1:40K photography were rectified using a Bausch & Lomb Zoom transfer Scope (ZTS). Data were transferred from the aerial photograph overlays to USGS 1:24K stable base mylars affixed with registered frosted mylar overlays. Frosted mylars containing the rectified data were fist quality controlled by NRAG staff, rectified data was then scanned by FWS and sent to URI/EDC. Quality control of rectified data addressed alignment, labeling and linework completions prior to delivery for digitizing.
The NBEP coordinated the review of the draft Z. marina GIS coverage by RIDEM Division of Fish and Wildlife and URI Graduate School of Oceanography personnel. The NRAG staff responded to comments and adjusted delineations as needed.

8. Habitat Type Classification

Within estuarine and marine habitats (or "systems"), subtidal and intertidal sybsystems were applied according to the following definitions from Cowardin et al. (1979):

Subtidal (1). — The substrate is continuously submerged.
Intertidal (2). — The substrate is exposed and flooded by tides; includes the associated splash zone.

Tables 2 and 3 are provided with reference to Cowardin et al. (1979) defining particular habitat types inventoried with this project. Table 2 describes tidal water regimes and Table 3 summarizes the classification of habitat types inventoried. Classification includes mixes of subclasses where subordinate cover is at least 30%.

Table 2. Tidal Water Regimes and Special Modifiers for Habitat Types in the Narragansett Bay Project Area

<table>
<thead>
<tr>
<th>Tidal Water Regimes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtidal (L)</td>
<td>The substrate is permanently flooded with tidal water.</td>
</tr>
<tr>
<td>Irregularly Exposed (M)</td>
<td>The land surface is exposed by tides less often than daily</td>
</tr>
<tr>
<td>Regularly Flooded (N)</td>
<td>Tidal water alternately floods and exposes the land surface at least once daily.</td>
</tr>
<tr>
<td>Irregularly Flooded (P)</td>
<td>Tidal water floods the land surface less often than daily</td>
</tr>
</tbody>
</table>

Special Modifiers

Excavated (x): Lies within a basin or channel excavated by man.

Impounded (i): Created or modified by a barrier or dam which purposefully or unintentionally obstructs the outflow of water; includes man-made dams and beaver dams.

Diked (k): Created or modified by a man-made barrier of dike designed to obstruct the inflow of water.

Ditched/Partly-Drained (d): The water level has been artificially lowered, but the area is still classified as wetland because soil moisture is sufficient to support hydrophytes.

Artificial (r): Refers to substrates classified as Rock Bottom, Unconsolidated Bottom, Rocky Shore and Unconsolidated Shore that were emplaced by man, using either natural materials such as dredge spoil or synthetic materials such as concrete. Jetties and breakwaters are examples of Artificial Rocky Shores.

Oligohaline (o): Term to characterize water with salinity of 0.5 to 5.0 parts per thousand, due to ocean-derived salts.
Table 3. *NWI Classification Codes and Descriptions, South Shore Project Area.*

<table>
<thead>
<tr>
<th>NWI Code &amp; Modifiers</th>
<th>Cowardin et al. (1979) Description</th>
<th>Common Description</th>
<th>Examples of Vegetation or Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIUB, MIUB (L, LH, LX)</td>
<td>Estuarine, Marine Subtidal, Unconsolidated Bottom</td>
<td>Estuarine, or Marine Open Water</td>
<td>Open water (includes open ocean, lagoons &amp; tidal creeks)</td>
</tr>
<tr>
<td>E1AB3L; M1AB3L</td>
<td>Estuarine or Marine, Subtidal, Rooted Vascular Aquatic Bed</td>
<td>Eelgrass Bed</td>
<td>Zostera marina</td>
</tr>
<tr>
<td>E1AB1L</td>
<td>Estuarine, Subtidal Algal, Aquatic Bed</td>
<td>Algal Beds</td>
<td>Ulva lactuca, Fucus spp., Chondrus crispus, Enteromorpha sp.</td>
</tr>
<tr>
<td>E1UB4L</td>
<td>Estuarine, Subtidal, Unconsolidated Bottom, Organic</td>
<td>Pools</td>
<td>Ruppia sp. or other algae</td>
</tr>
<tr>
<td>E2US(1,2,3),(M,N)</td>
<td>Estuarine, Intertidal Unconsolidated Shores</td>
<td>Tide Flats</td>
<td>Cobble, gravel, sand or mud; patches of algae</td>
</tr>
<tr>
<td>E2RS(1,2)(N,P); M2RS(1,2)(N,P)</td>
<td>Estuarine or Marine, Intertidal Rocky Shores</td>
<td>Rocky Shores</td>
<td>Bedrock or rubble; patches of Fucus sp.</td>
</tr>
<tr>
<td>E2RF2N</td>
<td>Estuarine, Intertidal, Mollusc Reef</td>
<td>Oyster Bed</td>
<td>Crassostrea virginica</td>
</tr>
<tr>
<td>E2SB(2,3)(N)</td>
<td>Estuarine, Intertidal Streambed</td>
<td>Tidal Creek</td>
<td>Sand or mud</td>
</tr>
<tr>
<td>E2EM(1,5*)P</td>
<td>Estuarine, Intertidal Persistent Emergents, Irregularly Flooded</td>
<td>High Marsh</td>
<td>Spartina patens, Juncus gerardi, Distichlis spicata (*note: 5= Phragmites australis)</td>
</tr>
<tr>
<td>E2SS1P</td>
<td>Estuarine, Intertidal Scrub-Shrub, Broad-leaved Deciduous, Irregularly Flooded</td>
<td>High Marsh</td>
<td>Iva frutescens, Baccharis halimifolia</td>
</tr>
<tr>
<td>E2EM1N</td>
<td>Estuarine, Intertidal Persistent Emergents Regularly Flooded</td>
<td>Low Marsh</td>
<td>Spartina alterniflora</td>
</tr>
<tr>
<td>E2EM(1,5*)P6</td>
<td>Estuarine, Intertidal Persistent Emergents Irregularly Flooded, Oligohaline</td>
<td>Brackish Marsh</td>
<td>Typha angustifolia, Spartina pectinata (*note: 5 = Phragmites australis)</td>
</tr>
</tbody>
</table>

D. Results: Descriptions and Acreages of Habitat Types

The acreages below were compiled from RIGIS for linear and polygonal data. Table 4 is an acreage summary of habitat types inventoried with this project. Linear acreages have been incorporated into the acreage summaries with the polygonal data. Information on linear acreages as discrete tabulation may be obtained from URI/EDC. Acreage of upland (islands and inclusions) was not reported with the summaries. It is suggested these acreages may also be obtained from URI/EDC.

1. *Aquatic Beds*

Various aquatic beds (SAV) were found dominated by one of the following species: eelgrass (*Z. marina*), Irish moss (*Chondrus crispus*), Deadman’s fingers (*Codium fragile*), barrel weed (*Champa parvula*), graceful red weed (*Gracilaria sp.*), rough tangleweed (*Stilphora rhizodes*), Sargassum (*Sargassum filipendula*), widgeon grass (*Ruppia maritim*), knotted wrack (*Ascophyllum nodosum*), hollow green weeds (*Enteromorpha spp.*), rockweed (*Fucus vesiculosus*), and sea lettuce (*Ulva lactuca*).

Pure stands of *Z. marina* were found in about 30% of the sites inspected. Remaining *Z. marina* beds inspected were mixed in composition, and included subordinate species such as *Enteromorpha sp, C. crispus, Gracilaria sp.*, and *C. fragile*.

A total of 554.9 acres of *Z. marina* were inventoried. The largest areas of eelgrass beds are in Ninigret Pond with 161.3 acres and Potter’s Pond with 122.3 acres. By cover, Potter Pond has the highest eelgrass acreage to pond area.

### Table 4. Eelgrass Acreage for Rhode Island South Shore Coastal Ponds

<table>
<thead>
<tr>
<th>Pond Name</th>
<th>NWI Code</th>
<th>Eelgrass Acres*</th>
<th>Pond Acres**</th>
<th>Percent Eelgrass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potter Pond</td>
<td>E1AB3L</td>
<td>122.3</td>
<td>362.1</td>
<td>33.8</td>
</tr>
<tr>
<td>Green Hill Pond</td>
<td>E1AB3L</td>
<td>72.5</td>
<td>420.3</td>
<td>17.3</td>
</tr>
<tr>
<td>Quonochontaug Pond</td>
<td>E1AB3L</td>
<td>87.7</td>
<td>745.3</td>
<td>11.8</td>
</tr>
<tr>
<td>Ninigret Pond</td>
<td>E1AB3L</td>
<td>161.3</td>
<td>1,580.4</td>
<td>10.2</td>
</tr>
<tr>
<td>Little Narragansett Bay</td>
<td>E1AB3L</td>
<td>61.4</td>
<td>2,446.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Point Judith Pond</td>
<td>E1AB3L</td>
<td>18.2</td>
<td>1,548.2</td>
<td>1.9</td>
</tr>
<tr>
<td>(dominating)</td>
<td>E1AB1/3L</td>
<td>11.0</td>
<td>(total 29.2)</td>
<td></td>
</tr>
<tr>
<td>(co-dominating)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trim’s Pond</td>
<td>E1AB3Lh</td>
<td>13.7</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Great Salt Pond</td>
<td>E1AB3L</td>
<td>3.4</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>M1AB3L</td>
<td>3.4</td>
<td>(total 6.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truston Pond</td>
<td>0</td>
<td>181.0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Card Pond</td>
<td>0</td>
<td>40.1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Winnapaug Pond</td>
<td>0</td>
<td>473.0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Little Maschaug Pond</td>
<td>0</td>
<td>11.7</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Maschaug Pond (B1)</td>
<td>0</td>
<td>34.6</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL EELGRASS</strong></td>
<td></td>
<td><strong>554.9</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Eelgrass acres reported with photo-analysis of 1999 source imagery.

**Pond acres from [http://seagrant.gao.uri.edu/coasts/index.html](http://seagrant.gao.uri.edu/coasts/index.html)*

N/A = pond size not available.

2. *Dunes*

A total of 244.5 acres of dune were inventoried with the project. There may be additional acres of this habitat not mapped due to photography overexposure and low or shallow crests not detectable on the source photography. Dunes are dynamic features and have likely changed in position and extent since the date of overflight.
3. **Open Water**
A total of 112,964.7 acres of open water habitat was inventoried. Estuarine open water accounted for 7,103.9 acres (6%). Marine open water amounted to 105,860.9 acres (93%).

4. **Tidal Flats and Pools**
Estuarine tidal flats and pools totaled 1,738.4 acres. Of this acreage, 1,639.6 acres were classified as tide flats and 98.8 acres were classified as pools. Although no pannes of minimum detectable size were mapped, occurrence of these relatively small habitats is expected and would be inclusive with high salt marsh. A more detailed inventory of pannes would require additional effort with higher scale photography.

5. **Beaches**
A total of 856.1 acres of beaches were inventoried. Approximately 26% (219.9 acres) were in the estuarine environment and 74% (636.2 acres) were marine habitats. Of this acreage, regularly and irregularly-flooded estuarine sand material accounted for 198.8 acres and regularly and irregularly-flooded estuarine cobble material accounted for 21.1 acres. Regularly and irregularly-flooded marine sand material accounted for 540.6 acres and regularly and irregularly-flooded marine cobble material accounted for 95.6 acres.

6. **Artificial Habitats**
A total of 19.3 acres of rock jetties and groins were detectable as artificially-placed habitats.

7. **Rocky Shore**
Rocky shores totaled 191.4 acres, with 8% or 15.6 acres in the estuarine environment and 92% or 175.8 acres in the marine environment. Seaweeds such as *Ascophyllum nodosum* and *Fucus vesiculosus* commonly colonize the regularly-flooded zone of rocky shores.

8. **Reefs**
Four acres of oyster reef (*Crassostrea virginica*) were inventoried in the estuarine system, 2 acres of which are interpreted as farmed (E2RF2Nr).

9. **Streambeds**
There were 6.3 acres of estuarine mud or sand bottom streambed inventoried.

10. **Estuarine Emergent Low Salt Marsh**
A total of 70.2 acres of estuarine low salt marsh (regularly-flooded) dominated by salt marsh cordgrass (*Spartina alterniflora*) was inventoried. One percent (.837 acres) is impounded and 4.4 acres (6.3%) are ditched. Fringe acreage is included where detectable on source imagery.

11. **Estuarine Emergent High Salt Marsh**
A total of 1324.6 acres of estuarine emergent high salt marsh (irregularly-flooded) was mapped. Typical high marsh emergent species is represented by species such as salt meadow cordgrass (*Spartina patens*), black grass (*Juncus gerardii*), spike
grass (*Distichlis spicata*), marsh orach (*Atriplex patula*), sea blite (*Suaeda linearis*), seaside arrow grass (*Triglochin maritimum*), annual salt marsh aster (*Aster subulatus*), perennial salt marsh aster (*A. tenuifolius*), seaside goldenrod (*Solidago sempervirens*) and sea lavender (*Limonium nasii*). Of this acreage, 559.6 acres was ditched emergent high salt marsh.

12. **Phragmites Marsh**
Common reed (*Phragmites australis*) dominated 7% (101 acres) of estuarine high salt marsh inventoried, and 53.1 acres (52.6%) of the *P. australis*-dominated high salt marsh was ditched.

13. **Estuarine Scrub-Shrub and Brackish Shrub Wetland**
Estuarine high salt marsh (irregularly-flooded) dominated by shrubs accounted for 113.6 acres. Of this, 40% (45.7 acres) was ditched. Species representative of this habitat type are high tide bush (*Iva frutescens*) and groundsel tree (*Baccharis halimifolia*).

14. **Estuarine Brackish Marshes**
Brackish estuarine emergent marsh totaled 116.5 acres. Typical brackish marsh communities were found in the Kingston and Narragansett Pier quads. Three of the field sites were dominated by the narrow-leaved cattail (*Typha angustifolia*) and one was dominated by slough grass (*Spartina pectinata*). Other species associated with the sites were common reed (*Phragmites australis*), wool grass (*Scirpus cyperinus*), swamp rose mallow (*Hibiscus moscheutos*), swamp rose (*Rosa palustris*), purple loosestrife (*Lythrum salicaria*), and curly dock (*Rumex crispus*).

15. **Phragmites Brackish Marsh**
Common reed (*Phragmites australis*) in brackish conditions totaled 177.3 acres.

16. **Coastal Bank**
A total of 84.6 acres of coastal bank was inventoried with the project. Polygon-sized banks only were interpreted. Additional acres are expected due to shadowing and size limitations when photo interpreting coastal banks.

17. **Upland**
Within project area limits, the upland acreage was not provided.
Table 5. Acreage Summary of Estuarine and Marine Habitats Inventoried for RI South Shore Project Area.

<table>
<thead>
<tr>
<th>Habitat Type</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eelgrass Beds</td>
<td>570.3</td>
</tr>
<tr>
<td>Dunes</td>
<td>244.5</td>
</tr>
<tr>
<td>Open Water</td>
<td>112,964.7</td>
</tr>
<tr>
<td>Pools</td>
<td>116.9</td>
</tr>
<tr>
<td>Tidal Flats</td>
<td>1,621.5</td>
</tr>
<tr>
<td>Beaches</td>
<td>856.1</td>
</tr>
<tr>
<td>Artificial Jetties &amp; Breakwaters</td>
<td>19.3</td>
</tr>
<tr>
<td>Rocky Shores</td>
<td>191.4</td>
</tr>
<tr>
<td>Oyster Reefs</td>
<td>4.4</td>
</tr>
<tr>
<td>Stream Beds</td>
<td>6.3</td>
</tr>
<tr>
<td>High Salt Marsh</td>
<td>1,425.6</td>
</tr>
<tr>
<td>High Scrub-Shrub Marsh and Brackish Scrub-Shrub Marsh</td>
<td>113.6</td>
</tr>
<tr>
<td>Low Salt Marsh</td>
<td>70.2</td>
</tr>
<tr>
<td>Brackish Marsh</td>
<td>293.8</td>
</tr>
<tr>
<td>Coastal Bank</td>
<td>84.6</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td><strong>118,583.2</strong></td>
</tr>
</tbody>
</table>

E. Photointerpretation Problems and Resolution

1) Detection of *Z. marina* Beds

Positive depth change appears to affect photodelineation of the outer limits of eelgrass beds independent of turbidity conditions. It is suggested small *Z. marina* beds verified by field personnel may be added as points to the data base using locations aids such as the Global Positioning System (GPS). Area measurements of selected *Z. marina* polygons may be obtained by dives or other methods (e.g. hydroacoustic detection) to refine delineations at outer limits. Bathymetry data might be a helpful correlation with as-mapped *Z. marina* polygons to estimate outer portions of beds within limits of light penetration required for survival. It is noted that data with this inventory are based on 1999 conditions. Any eelgrass transplants since the time of overflight may be added to the database.

2) Shadowing

Shadows from relatively tall upland features such as conifer tree stands, banks and tall buildings were present on portions of the 1:12K and the 1:40K overflights. This condition is not expected to have significantly affected photointerpretation within established minimum map units, and is a common limitation in photointerpretation. Areas shadowed from the upland would be narrow habitats along the shore and perhaps upper limits of high marshes. Problems with shadowing were reduced by use of collateral data and by interpolating between non-shadowed areas.
3) **Haze and Cloud Cover**

The 1:40K overflight was hazy on portions, but overall quality was good. Although the 1:12K-scale photography was considered excellent quality, there were still limitations on the detection of the outer edge of the eelgrass beds with increasing depths. This results from reduced reflectance contrast between the vegetation and deepening open water.

4) **Minimum Mapping Units**

Detection of small eelgrass beds (that is, .25 to about 3.0 acres) may be restricted and/or lack of reflectance contrast. We suggest supplementing the data base with point locations of *Z. marina* confirmed by field personnel (See Section E.1). Inventory of estuarine and marine habitats was based on photointerpretation of the 1:40K imagery. We found this imagery successful to meet the minimum mapping units. Users may be interested in additional detail on wetland plant communities for example, small (less than 1.0 acre) internal communities of *P. australis* or *I. frutescens*. Large scale (eg. 1:12K) photointerpretation would enable this, with caution that proper rectification methods may be costly.

5) **Errors in Data**

A draft map review was undertaken after the transfer and digitizing to verify addition of smaller habitat areas, verify classification, and to proof delineations and labels.

---

**F. Summary**

A total of 118,583.2 acres of coastal wetlands, deepwater habitats and coastal features were inventoried with this project. Of the total, 570.3 acres of eelgrass; 1,903 acres of coastal marshes; 117 acres of tide pools; 1,628 acres of tidal flats and streambeds; 856 acres of beaches; 191 acres of rocky shore; 244 acres of dune; 85 acres of coastal bank; 4 acres of oyster reef; and 19 acres of jetties ad breakwaters were inventoried.

Using the 1:12K imagery provided for this project, a reasonably conclusive photosignature unique to *Z. marina* was established for interpretation. Various field-to-photo signature correlations from other kinds of algal beds further defined photosignature characteristics of *Z. marina*. Field verification of eelgrass by boat sampling and observation was conducted, supported by various collateral information for sites not accessed during field work.

Beds were either purely *Z. marina* or dominated by the species.

Numerous small sized *Z. marina* beds are not likely mapped with this inventory. This may be attributed to lack of reflectance contrast in the ponds. It is suggested that point locations of small *Z. marina* beds be added to the data base using field personnel and location aids such as GPS.
Outer limits of *Z. marina* beds were not able to be accurately represented. As beds drop off with depth, reflectance contrast between the vegetation and the open water is reduced. Turbidity may further confound accurate interpretation of outer boundaries.

*Z. marina* was inventoried in estuarine (about 553 acres) and in marine (18 acres) environments. Highest areas and densities of eelgrass occur in Ninigret and Potter Ponds.

The locations, extent, and acreages of estuarine and marine habitats may be used to perform analysis of potential wetland restoration sites; for example, tidally-restricted wetlands, filled wetlands, and wetlands colonized by *Phragmites australis*. A trends analysis may be helpful to determine acreages and possible causes of coastal habitat loss and degradation over selected time intervals.

Increased map detail on the extent and locations of *Phragmites australis*, or other plant communities of special interest, is possible using larger scale imagery and transferring the information to the database, as was performed for the Narragansett Bay Coastal Wetland Restoration Project. Data on tidally restricted marshes may locate opportunities for salt marsh restoration.
ACKNOWLEDGMENTS

We acknowledge Helen Cottrell, who served as project coordinator for RIDEM Narragansett Bay Estuary Program. Additionally, Ms. Cottrell assisted with draft review of this report.

NRAG gratefully thanks the staff of RIDEM Office of Water Resources Shellfish Program and Division of Enforcement for assisting biologists with boat transport for aquatic bed sampling in the field. Individuals are John Speaker, Tom Iarossi, Frances Ethier and Ed Cabral. Additionally, verbal information provided by Art Ganz and John Gingerella of RIDEM Division of Fish and Wildlife is acknowledged. The field efforts of Chris Powell RIDEM Fish and Wildlife, who conducted aquatic bed verification on Block Island and in Sakonnet, are greatly appreciated, as inclement weather impacted certain areas of our field work. Larry Constantine, New Shoreham Harbor Master, also provided boat transport to conduct field work in the Great Salt Pond. Leslie Katz of Brown University assisted with SAV field verification on Block Island.

We thank Ralph Tiner, U.S. Fish & Wildlife Service’s Regional Wetlands Coordinator, for acting as cooperator and consultant on this project. Gabriel D’Alessio of the U.S. Fish & Wildlife Service’s National Wetlands Inventory, Regional Office scanned and cleaned rectified raw data for the project. Aimee Mandeville of URI Environmental Data Center conducted GIS work.

Peter Veneman of UMASS acted as principal investigator on this project. We thank Mary Johnson, UMASS Department of Plant & Soil Sciences Graduate program, for assisting with Phragmites detection, report documentation and plant lists. We thank Meaghan Shaffer of NRAG for assisting with documentation and organizing plant community descriptions for this report. Todd Nuerminge and Irene Huber performed field work, original air photointerpretation, quality control and documentation for this project.

The following papers provided collateral information on location of eelgrass beds:


Funding for this project was provided by the R.I. Oil Spill Prevention, Administration and Response Fund, U.S. Environmental Protection Agency, Narragansett Bay Estuary Program, and R.I. Department of Environmental Management.
REFERENCES


Appendix A

Plant Species Observed at Field Sites
## Appendix A.

**Plant Species Observed at Field Sites**  
**South Shore Project Area, Rhode Island**  
**August 1999, September 1999, November 1999**  
**May 2000, August 2000**

### 1. Estuarine Wetlands:

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agalinis maritima</td>
<td>Saltmarsh False-Foxglove</td>
</tr>
<tr>
<td>Aster subulatus</td>
<td>Annual Saltmarsh Aster</td>
</tr>
<tr>
<td>Atriplex petula</td>
<td>Halberd-Leaf Saltbush</td>
</tr>
<tr>
<td>Baccharis halimifolia</td>
<td>Sea Myrtle</td>
</tr>
<tr>
<td>Cyperus filicinus</td>
<td>Slender Flatsedge</td>
</tr>
<tr>
<td>Distichlis spicata</td>
<td>Seashore Saltgrass</td>
</tr>
<tr>
<td>Hibiscus moscheutos</td>
<td>Swamp Rose Mallow</td>
</tr>
<tr>
<td>Iva frutescens</td>
<td>Marsh Elder</td>
</tr>
<tr>
<td>Juncus gerardii</td>
<td>Saltmeadow Rush</td>
</tr>
<tr>
<td>Limonium carolinianum</td>
<td>Carolina Sea-Lavender</td>
</tr>
<tr>
<td>Limonium nashii</td>
<td>Northern Sea-Lavender</td>
</tr>
<tr>
<td>Lythrum salicaria</td>
<td>Purple Loosestrife</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>Switchgrass</td>
</tr>
<tr>
<td>Phragmites australis</td>
<td>Common Reed</td>
</tr>
<tr>
<td>Plantago maritima</td>
<td>Seaside Plantain</td>
</tr>
<tr>
<td>Potentilla anserina</td>
<td>Silverweed</td>
</tr>
<tr>
<td>Puccinellia maritima</td>
<td>Seaside Alkali Grass</td>
</tr>
<tr>
<td>Rosa palustris</td>
<td>Swamp Rose</td>
</tr>
<tr>
<td>Rumex crispus</td>
<td>Curly Dock</td>
</tr>
<tr>
<td>Salicornia sp.</td>
<td>Glasswort</td>
</tr>
<tr>
<td>Salicornia europaea</td>
<td>Slender Grasswort</td>
</tr>
<tr>
<td>Scirpus americanus</td>
<td>Olney’s Bulrush</td>
</tr>
<tr>
<td>Scirpus cyperinus</td>
<td>Wool Grass</td>
</tr>
<tr>
<td>Scirpus pungens</td>
<td>Three-Square Bulrush</td>
</tr>
<tr>
<td>Solidago sempervirens</td>
<td>Seaside Goldenrod</td>
</tr>
<tr>
<td>Spartina alterniflora</td>
<td>Saltmarsh Cordgrass</td>
</tr>
<tr>
<td>Spartina patens</td>
<td>Saltmeadow Cordgrass</td>
</tr>
<tr>
<td>Spartina pectinata</td>
<td>Slough Grass</td>
</tr>
<tr>
<td>Toxicodendron radicans</td>
<td>Poison Ivy</td>
</tr>
<tr>
<td>Typha angustifolia</td>
<td>Narrow-leaved Cattail</td>
</tr>
</tbody>
</table>
2. Submerged Aquatic Vegetation (SAV):

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascophyllum nodosum</td>
<td>Knotted Wrack</td>
</tr>
<tr>
<td>Codium fragile</td>
<td>Deadman’s Fingers</td>
</tr>
<tr>
<td>Enteromorpha sp.</td>
<td>Hollow Green Weeds</td>
</tr>
<tr>
<td>Fucus vesiculosus</td>
<td>Rockweed</td>
</tr>
<tr>
<td>Gracilaria sp.</td>
<td>Red Weed</td>
</tr>
<tr>
<td>Laminaria sp.</td>
<td>Kelp</td>
</tr>
<tr>
<td>Potamogeton crispus</td>
<td>Curly Pondweed</td>
</tr>
<tr>
<td>Ruppia maritima</td>
<td>Widgeon Grass</td>
</tr>
<tr>
<td>Sargassum filipendula</td>
<td>Sargassum</td>
</tr>
<tr>
<td>Ulva lactuca</td>
<td>Sea Lettuce</td>
</tr>
<tr>
<td>Zostera marina</td>
<td>Eelgrass</td>
</tr>
</tbody>
</table>

Brown filamentous algae
Green filamentous algae
Red-brown filamentous algae

3. Palustrine Wetlands:

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer rubrum</td>
<td>Red Maple</td>
</tr>
<tr>
<td>Amelanchier sp.</td>
<td>Service-Berry</td>
</tr>
<tr>
<td>Amelanchier canadensis</td>
<td>Oblong-Leaf Service-Berry</td>
</tr>
<tr>
<td>Alnus rugosa</td>
<td>Speckled Alder</td>
</tr>
<tr>
<td>Cornus amomum</td>
<td>Silky Dogwood</td>
</tr>
<tr>
<td>Impatiens capensis</td>
<td>Spotted Touch–Me-Not</td>
</tr>
<tr>
<td>Phragmites australis</td>
<td>Common Reed</td>
</tr>
<tr>
<td>Salix species</td>
<td>Willow species</td>
</tr>
<tr>
<td>Spiraea latifolia</td>
<td>Broad-Leaf Meadow Sweet</td>
</tr>
<tr>
<td>Smilax rotundifolia</td>
<td>Common Greenbrier</td>
</tr>
<tr>
<td>Typha angustifolia</td>
<td>Narrow-leaved Cattail</td>
</tr>
<tr>
<td>Triadenum virginicum</td>
<td>Marsh St. John’s-Wort</td>
</tr>
<tr>
<td>Toxicondendron radicans</td>
<td>Poison Ivy</td>
</tr>
<tr>
<td>Vaccinium corymbosum</td>
<td>Highbush Blueberry</td>
</tr>
<tr>
<td>Viburnum recognitum</td>
<td>Northern Arrow-Wood</td>
</tr>
</tbody>
</table>
Appendix B

Field Data Sheets
Winnapaug Pond
Field Site #: 51  
Field Participants: Todd Nuerninger & Irene Huber (NEAG); John Speker (RDEM)  
Date: 8/24/99  
Photo #: 2-14  
Scale: 1:12,000  
USGS Quadrangle: Watch Hill (Winnapaug Pond)  

(Associate copy of USGS quadrangle with site location)

### A. Submerged Aquatic Bed (SAV)

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enteromorpha sp.</td>
<td>35</td>
</tr>
<tr>
<td>Ulva lactuca</td>
<td>25</td>
</tr>
<tr>
<td>Gracilaria sp.</td>
<td>5</td>
</tr>
<tr>
<td>Cadomia fragilis</td>
<td>25</td>
</tr>
<tr>
<td>Laminaria sp.</td>
<td>25</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): E/ABIL

Approx. depth of bed (ft): 4-6  
Estimated size of bed (acres): 5-10

Comments on photosignature: smooth, purplish-black, somewhat granby

### B. Estuarine Wetland

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded

Comments on photosignature:

- polygon
- linear fringe

### C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al, 1979):

Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other

Comments on photosignature:

- polygon
- linear fringe

### D. Other Field Observations

Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Site # 52
Field Participants: Todd Nurminger & Irene Huber (NRAG); John Spekker (RDEM)
Photo # 2-14 Scale: 1:124
USGS Quadrangle: Watch Hill (Winnapaug Pond)

A. Submerged Aquatic Bed (SAV)

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enteromorpha sp.</td>
<td>40</td>
</tr>
<tr>
<td>Gracilaria sp.</td>
<td>5</td>
</tr>
<tr>
<td>Ulva lactuca</td>
<td>10</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): ELABIL
Approx. depth of bed (ft): 3-5
Estimated size of bed (acres): 1.0
Comments on photosignature: purplish-black

B. Estuarine Wetland

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
</table>

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded
Comments on photosignature:

[Multiple-choice options for polygon and linear fringe]

C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other

Comments on photosignature:

[Multiple-choice options for polygon and linear fringe]

D. Other Field Observations

Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:
Wildlife:
Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 53  
Field Participants: Todd Nurminger & Irene Huber (NEAG); John Speaker (RIDEM)  
Photo # 2-14  Scale: 1:120  
USGS Quadrangle: Watch Hill (Winnapaugh Pond)  
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)  
Species:  
- Codium fragile  
- Gracilaria sp.  
%Cover  
- 50-60  
- 20  

In-field Classification (Cowardin et al, 1979):  

Approx. depth of bed (ft): 4  
Estimated size of bed (acres): 1.0±  
Comments on photosignature: dark purplish tone, slightly mottled

B. Estuarine Wetland  
Species:  
%Cover  

In-field Classification (Cowardin et al, 1979):  

Wetland modified? (check all that apply):  
- Ditched  
- Tidally-restricted  
- Excavated  
- Spoil deposition  
- Impounded  
Comments on photosignature:  

C. Estuarine or Marine Deepwater Habitat  
In-field classification (Cowardin et al, 1979):  
Description (check one):  
- Sand beach  
- Cobble beach  
- Rocky shore  
- Tidal flat  
- Panne or pool  
- Open water  
- Other  

Comments on photosignature:  

D. Other Field Observations  
Shoreline Feature(s):  
- Dune  
- Cliff  
- Bluff  
- Coastal Bank  
- Man-made shoreline (describe):  

Notable erosion/depositional patterns:  

Wildlife:  
Potential impacts/polutants:  

### A. Submerged Aquatic Bed (SAV)

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>brown filamentous algae</td>
<td>60</td>
</tr>
<tr>
<td>Cadmium fragile</td>
<td>40</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): E/ABL

Approx. depth of bed (ft): 4

Estimated size of bed (acres): 1.5-2.0

Comments on photosignature: graying purplish-black

### B. Estuarine Wetland

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
</table>

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):
- [ ] Ditched
- [ ] Tidally-restricted
- [ ] Excavated
- [ ] Spoil deposition
- [ ] Impounded

Comments on photosignature:

### C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al, 1979):

Description (check one):
- [ ] Sand beach
- [ ] Cobble beach
- [ ] Rocky shore
- [ ] Tidal flat
- [ ] Panne or pool
- [ ] Open water
- [ ] Other

Comments on photosignature:

### D. Other Field Observations

Shoreline Feature(s):
- [ ] Dune
- [ ] Cliff
- [ ] Bluff
- [ ] Coastal Bank
- [ ] Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
**Field Data Sheet for Rhode Island South Shore Project**  
**Natural Resources Assessment Group**

**Field Site #** S5  
**Field Participants:** Todd Nierminger & Irene Huber (NRAG); John Speak (RDEM)  
**Photo #** 2-12  
**Scale:** 1:12K  
**USGS Quadrangle:** Watch Hill (Winnapaug Pond)  
(Attach copy of USGS quadrangle with site location)

### A. Submerged Aquatic Bed (SAV)

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enteromorpha sp.</td>
<td>35-45</td>
</tr>
<tr>
<td>Uva lactuca</td>
<td>3-5</td>
</tr>
<tr>
<td>Cadima fragile</td>
<td>TRACE</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): EIAEIIUBL  
Approx. depth of bed (ft): 3-6  
Estimated size of bed (acres): 25-30  
Comments on photosignature: dark blue-ish-greenish-black w/an uneven, splotchy appearance

### B. Estuarine Wetland

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979):  
Wetland modified? (check all that apply):  
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded  
Comments on photosignature:  
☐ polygon  ☐ linear fringe

### C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al, 1979):  
Description (check one):  
☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat  
☐ Panne or pool  ☐ Open water  ☐ Other  
Comments on photosignature:  
☐ polygon  ☐ linear fringe

### D. Other Field Observations

Shoreline Feature(s):  
☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank  
☐ Man-made shoreline (describe):  
Notable erosion/depositional patterns:  
Wildlife:  
Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group

Field Site #: 5G  
Field Participants: Todd Nurminger & Irene Huber (NEAG); John Speck (RIDEM)  
Photo #: 2-12  
Scale: 1:12K  
USGS Quadrangle: Watch Hill (Winnapaug Pond)  

<table>
<thead>
<tr>
<th>A. Submerged Aquatic Bed (SAV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species: Sargassum filipendula</td>
</tr>
<tr>
<td>%Cover 65-70</td>
</tr>
<tr>
<td>Cadmium fragile</td>
</tr>
<tr>
<td>%Cover 5-10</td>
</tr>
<tr>
<td>brown filamentous algae</td>
</tr>
<tr>
<td>%Cover &lt;5</td>
</tr>
<tr>
<td>Ulva lactuca</td>
</tr>
<tr>
<td>%Cover TRACE</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): EIA1 BM

Approx. depth of bed (ft): 2-3  
Estimated size of bed (acres): 2-3  
Comments on photosignature: grainy purple black

<table>
<thead>
<tr>
<th>B. Estuarine Wetland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
</tr>
<tr>
<td>%Cover</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):  
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded

Comments on photosignature:  

<table>
<thead>
<tr>
<th>C. Estuarine or Marine Deepwater Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-field classification (Cowardin et al, 1979):</td>
</tr>
</tbody>
</table>
| Description (check one):  
☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat  
☐ Panne or pool  ☐ Open water  ☐ Other |

Comments on photosignature:  

<table>
<thead>
<tr>
<th>D. Other Field Observations</th>
</tr>
</thead>
</table>
| Shoreline Feature(s):  
☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank  
☐ Man-made shoreline (describe): |

Notable erosion/depositional patterns:  

Wildlife:  

Potential impacts/pollutants:  

<table>
<thead>
<tr>
<th>A. Submerged Aquatic Bed (SAV)</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Sargassum filipendula</em></td>
<td>45-55</td>
</tr>
<tr>
<td><em>Phoronidum fragilis</em></td>
<td>20-25</td>
</tr>
<tr>
<td><em>Micrania prolifera-sponge</em></td>
<td></td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): E/ABIL

Approx. depth of bed (ft): 3-6

Estimated size of bed (acres): 1.0

Comments on photosignature: grainy, purplish, black

<table>
<thead>
<tr>
<th>B. Estuarine Wetland</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Species:</th>
<th>%Cover</th>
</tr>
</thead>
</table>

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):
- [ ] Ditched
- [ ] Tidally-restricted
- [ ] Excavated
- [ ] Spoil deposition
- [ ] Impounded

Comments on photosignature:

<table>
<thead>
<tr>
<th>C. Estuarine or Marine Deepwater Habitat</th>
</tr>
</thead>
</table>

In-field classification (Cowardin et al, 1979):

Description (check one):
- [ ] Sand beach
- [ ] Cobble beach
- [ ] Rocky shore
- [ ] Tidal flat
- [ ] Panne or pool
- [ ] Open water
- [ ] Other

Comments on photosignature:

<table>
<thead>
<tr>
<th>D. Other Field Observations</th>
</tr>
</thead>
</table>

Shoreline Feature(s):
- [ ] Dune
- [ ] Cliff
- [ ] Bluff
- [ ] Coastal Bank
- [ ] Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 58  Date: 8/24/99
Field Participants: Todd Nunnemaker & Irene Huber (NEAG); John Specker (RDEM)
Photo #: 2-12  Scale: 1:12K
USGS Quadrangle: Watch Hill (Winnapaug Pond)

A. Submerged Aquatic Bed (SAV)
Species: Codium fragile  %Cover 50-60
Sargassum fili pendula  10-20

In-field Classification (Cowardin et al, 1979): E1ABIL
Approx. depth of bed (ft): 4+  Estimated size of bed (acres): 1-1.5
Comments on photosignature: green, nearly black

B. Estuarine Wetland
Species: ________________________________  %Cover __________

In-field Classification (Cowardin et al, 1979): ________________________________

Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature: ______________________________________________________________________

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979): ________________________________

Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other ________________________________
Comments on photosignature: ______________________________________________________________________

D. Other Field Observations
Shoreline Feature(s):  ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe): ________________________________

Notable erosion/depositional patterns:

Wildlife: ____________________________________________________________

Potential impacts/polutants: __________________________________________
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group  

Field Site #: S9  
Field Participants: Todd Nuerminger & Irene Huber (NRAG); John Speke (RIDE)  
Photo #: 2-13  Scale: 1:12K  
USGS Quadrangle: Watch Hill (Winnapaug Pond)  

A. Submerged Aquatic Bed (SAV)  
Species: 
- Codium fragile  
- brown filamentous algae  
- (Microciona sp. sponge)  
%Cover: 50  

In-field Classification (Cowardin et al, 1979): E2AB1/US2M  
Approx. depth of bed (ft): 2-4  
Estimated size of bed (acres): 2-3  
Comments on photosignature: mottled purplish - dark blue/black  

B. Estuarine Wetland  
Species:  
%Cover:  

In-field Classification (Cowardin et al, 1979):  
Wetland modified? (check all that apply):  
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded  
Comments on photosignature:  

☐ polygon  ☐ linear fringe  

C. Estuarine or Marine Deepwater Habitat  
In-field classification (Cowardin et al, 1979):  
Description (check one):  
☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat  
☐ Panne or pool  ☐ Open water  ☐ Other  
Comments on photosignature:  

☐ polygon  ☐ linear fringe  

D. Other Field Observations  
Shoreline Feature(s):  
☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank  
☐ Man-made shoreline (describe):  
Notable erosion/depositional patterns:  
Wildlife:  
Potential impacts/pollutants:  


Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 510  Date: 8/24/99
Field Participants: Todd Nuernberger & Frank Huber (NEAG); John Speer (RDEM)
Photo #: Scale: 1:12K
USGS Quadrangle: Watch Hill (Winnapaug Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: filamentous algae, brown
%Cover: 60-70

In-field Classification (Cowardin et al, 1979): ERAB1/US2N
Approx. depth of bed (ft): 2-3  Estimated size of bed (acres): 3-4
Comments on photosignature: diffused dk blue - to - black

B. Estuarine Wetland
Species: __________________________
%Cover: __________________________

In-field Classification (Cowardin et al, 1979): __________________________
Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded

Comments on photosignature: __________________________

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other __________________________
Comments on photosignature: __________________________

D. Other Field Observations
Shoreline Feature(s): ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe): __________________________
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:

Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 511
Field Participants: Todd Nuernberger & Irene Huber (NEAG); John Specker (RIPM)
Photo #: 2-14
Scale: 1:1000
USGS Quadrangle: Watch Hill (Winnapaug Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: 
- Brown filamentous algae
- Codium fragile
- Ulva lactuca
% Cover: 
- 20
- 25-30
- 5-10

In-field Classification (Cowardin et al, 1979): E20521AB1M
Approx. depth of bed (ft): 3-5
Estimated size of bed (acres): 3-3.5
Comments on photosignature: Dark greenish black, grainy interspersed on sandy flat

B. Estuarine Wetland
Species: 
% Cover: 

In-field Classification (Cowardin et al, 1979): 
Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded
Comments on photosignature: 

- Polygon
- Linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979): 
Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other
Comments on photosignature: 

- Polygon
- Linear fringe

D. Other Field Observations
Shoreline Feature(s): 
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe): 
Notable erosion/depositional patterns: 

Wildlife: 
Potential impacts/pollutants: 

Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 512
Field Participants: Todd Numminger & Irene Huber (NEAG); John Speck (RIDEM)
Photo #: 2-14; Scale: 1:12K
USGS Quadrangle: Watch Hill (Winnapaug Pond)

(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species:
- Cadmium fragile
- brown filamentous algae
- Sargassum filipendula
% Cover:
- 15-20
- 20-30
- 35-40
In-field Classification (Cowardin et al., 1979): ELABIL
Approx. depth of bed (ft): 4
Estimated size of bed (acres): 1-1.5
Comments on photosignature: smooth, purplish black

B. Estuarine Wetland
Species:
% Cover:
In-field Classification (Cowardin et al., 1979):
Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded
Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al., 1979):
Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other
Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Quonochontaug Pond
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group

<table>
<thead>
<tr>
<th>Field Site #</th>
<th>S13</th>
<th>Date: 8/24/99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Participants:</td>
<td>T. Nuerninger, J. Huber, John Speaker (RIDEM)</td>
<td></td>
</tr>
<tr>
<td>Photo #:</td>
<td>I-16</td>
<td>Scale: 1:125</td>
</tr>
<tr>
<td>USGS Quadrangle:</td>
<td>Watch Hill &amp; Quonochontaug (Quonochontaug) (Append copy of USGS quadrangle with site location)</td>
<td></td>
</tr>
</tbody>
</table>

**A. Submerged Aquatic Bed (SAV)**

<table>
<thead>
<tr>
<th>Species:</th>
<th>Zostera marina</th>
</tr>
</thead>
<tbody>
<tr>
<td>%Cover:</td>
<td>75+</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al., 1979): E1AB3L

Approx. depth of bed (ft): >10
Estimated size of bed (acres): 45-50
Comments on photosignature: smooth blueish-black, depth drop-off to east end of bed, presume eelgrass may be eastward as far as ~15’ depth

**B. Estuarine Wetland**

Species:

<table>
<thead>
<tr>
<th>%Cover</th>
</tr>
</thead>
</table>

In-field Classification (Cowardin et al., 1979):

Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded

Comments on photosignature:

- polygon
- linear fringe

**C. Estuarine or Marine Deepwater Habitat**

In-field classification (Cowardin et al., 1979):

Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other

Comments on photosignature:

- polygon
- linear fringe

**D. Other Field Observations**

Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: S14  Date: 8/24/99
Field Participants: T. Nuerminger, J. Huber, John Speaker (RIDEEM)
Photo #: A-17  Scale: 1:125
USGS Quadrangle: Quonochontaug (Quonochontaug) (Pond)

(Associate copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species:  
Sargassum filipendula  %Cover: 20-30
Fucus vesiculosus  
Codium fragile  

In-field Classification (Cowardin et al., 1979): E1VBL (E1VBL)
Approx. depth of bed (ft): 4-6 +
Estimated size of bed (acres): N/A
Comments on photosignature: purplish-black mottled, is well interspersed w/ depth tones

B. Estuarine Wetland
amorphous bed -- map as w/in the E1VBL

Species:  

%Cover:  

In-field Classification (Cowardin et al., 1979):  

Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded

Comments on photosignature:  

☐ polygon  ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al., 1979):
Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other  

Comments on photosignature:  

☐ polygon  ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s):  ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe):  

Notable erosion/depositional patterns:  

Wildlife:  

Potential impacts/pollutants:  

Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 515  
Field Participants: T. Nucminger, J. Huber, John Speaker (RIDEM)  
Photo #: 2-17  
Scale: 1:125  
USGS Quadrangle: Aquatic N. (Aquatic N.)  
(Attach copy of USGS quadrangle with site location)

Pond

A. Submerged Aquatic Bed (SAV)
Species: Zostera marina  
%Cover: 100

In-field Classification (Cowardin et al. 1979): EIA3B3L

Approx. depth of bed (ft): 8  
Estimated size of bed (acres): 4-5
Comments on photosignature: Smooth, blue-black; grainy @ outer limits

B. Estuarine Wetland
Species:  
%Cover:  

In-field Classification (Cowardin et al. 1979):  
Wetland modified? (check all that apply):  
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded

Comments on photosignature:  
  ☐ polygon  ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al. 1979):
Description (check one):  
☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat  
☐ Panne or pool  ☐ Open water  ☐ Other

Comments on photosignature:  
  ☐ polygon  ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s):  
☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank  
☐ Man-made shoreline (describe):  

Notable erosion/depositional patterns:  

Wildlife:  
Potential impacts/pollutants:  

## A. Submerged Aquatic Bed (SAV)

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Sargassum filipendula</em></td>
<td>30-40</td>
</tr>
<tr>
<td><em>brown filamentous algae</em></td>
<td>20-25</td>
</tr>
<tr>
<td><em>Fucus vesiculosus</em></td>
<td>10-15</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): **EILABIL**

Approx. depth of bed (ft): **3-5**

Estimated size of bed (acres): **1.0**

Comments on photosignature: **mottled, purplish - black**

## B. Estuarine Wetland

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):
- [ ] Ditched
- [ ] Tidally-restricted
- [ ] Excavated
- [ ] Spoil deposition
- [ ] Impounded

Comments on photosignature:

- [ ] polygon
- [ ] linear fringe

## C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al, 1979):

Description (check one):
- [ ] Sand beach
- [ ] Cobble beach
- [ ] Rocky shore
- [ ] Tidal flat
- [ ] Panne or pool
- [ ] Open water
- [ ] Other

Comments on photosignature:

- [ ] polygon
- [ ] linear fringe

## D. Other Field Observations

Shoreline Feature(s):
- [ ] Dune
- [ ] Cliff
- [ ] Bluff
- [ ] Coastal Bank
- [ ] Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 517
Field Participants: T. Nuerminger, J. Huber, John Speaker (RIDEM)
Photo # A-19 Scale: 1:12K
USGS Quadrangle: (Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: brown filamentous algae
Sargassum filipendula

(Microciona sp. (?; sponge))

%Cover 60
Trace

In-field Classification (Cowardin et al, 1979):
Approx. depth of bed (ft): 3
Estimated size of bed (acres): 2.0
Comments on photosignature: dark, purplish-black, mottled w/ boulders and substrate tones

B. Estuarine Wetland

Species:

%Cover

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
□ Ditched □ Tidally-restricted □ Excavated □ Spoil deposition □ Impounded
Comments on photosignature:

□ polygon □ linear fringe

C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al, 1979):
Description (check one): □ Sand beach □ Cobble beach □ Rocky shore □ Tidal flat
□ Panne or pool □ Open water □ Other

Comments on photosignature:

□ polygon □ linear fringe

D. Other Field Observations

Shoreline Feature(s): □ Dune □ Cliff □ Bluff □ Coastal Bank
□ Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
A. Submerged Aquatic Bed (SAV)
Species: Codium fragile
Sargassum filipendula
Brown filamentous algae

%Cover 20
45
20

In-field Classification (Cowardin et al, 1979): E1ABIL
Approx. depth of bed (ft): 6
Estimated size of bed (acres): 2.0
Comments on photosignature: purple - black mottled w/ boulders

B. Estuarine Wetland
Species:

%Cover

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
Ditch
Tidally-restricted
Excavated
Spoil deposition
Impounded
Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one):
Sand beach
Cobble beach
Rocky shore
Tidal flat
Panne or pool
Open water
Other
Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s):
Dune
Cliff
Bluff
Coastal Bank
Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 519
Field Participants: T. Nuerninger, J. Huber, John Speaker (RIDEM)
Photo # 2-19 Scale: 1:125
USGS Quadrangle: Quonochontaug (Quonochontaug Pond)

(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Hydrilla verticillata %Cover 50-75

(Velella sp., sponge)

In-field Classification (Cowardin et al, 1979): E2AB1/US2m
Approx. depth of bed (ft): 2-4 Estimated size of bed (acres): 1.0
Comments on photosignature: blueish-black, smooth

B. Estuarine Wetland
Species: 

%Cover 

In-field Classification (Cowardin et al, 1979): 

Wetland modified? (check all that apply): 
- Ditched 
- Tidally-restricted 
- Excavated 
- Spoil deposition 
- Impounded

Comments on photosignature: 

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979): E2US1/SN
Description (check one): 
- Sand beach 
- Cobble beach 
- Rocky shore 
- Tidal flat 
- Panne or pool 
- Open water 
- Other

Comments on photosignature: 

D. Other Field Observations
Shoreline Feature(s): 
- Dune 
- Cliff 
- Bluff 
- Coastal Bank 
- Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group

Field Site #: S20  
Field Participants: T. Nuerninger, I. Huber, John Speaker (RIDEM)  
Photo #: 3-17  
Scale: 1:12K  
USGS Quadrangle:  
(Donnochontaugh (Donnochontaugh) Pond  
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)  
Species: Zostera marina  
%Cover 75  

- Brown filamentous algae  
- Sargassum filipendula

In-field Classification (Cowardin et al, 1979): E1AB3L  
Approx. depth of bed (ft): 4  
Estimated size of bed (acres): 4.0  
Comments on photosignature: concurve eelgrass

B. Estuarine Wetland  
Species:  
%Cover  

In-field Classification (Cowardin et al, 1979):  
Wetland modified? (check all that apply):  
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded

Comments on photosignature:  

☐ polygon  ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat  
In-field classification (Cowardin et al, 1979):  
Description (check one):  
☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat  
☐ Panne or pool  ☐ Open water  ☐ Other  

Comments on photosignature:  

☐ polygon  ☐ linear fringe

D. Other Field Observations  
Shoreline Feature(s):  
☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank  
☐ Man-made shoreline (describe):  

Notable erosion/depositional patterns:  

Wildlife:  
Potential impacts/pollutants:  

Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: S21
Field Participants: J. Nurnminger, J. Huber, John Speaker (RIDEM)
Photo #: 2-17 Scale: 1:13
USGS Quadrangle: Quonochontaug (Quonochontaug Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Gracilaria sp. %Cover 75-100
In-field Classification (Cowardin et al, 1979): E2AB1M
Approx. depth of bed (ft): 2-3 Estimated size of bed (acres): 1.0
Comments on photosignature: patchy dark gray

B. Estuarine Wetland
Species: %Cover
In-field Classification (Cowardin et al, 1979): 
Wetland modified? (check all that apply):
Ditched Tidally-restricted Excavated Spoil deposition Impounded
Comments on photosignature: polygon linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): Sand beach Cobble beach Rocky shore Tidal flat
Panne or pool Open water Other
Comments on photosignature: polygon linear fringe

D. Other Field Observations
Shoreline Feature(s): Dune Cliff Bluff Coastal Bank
Man-made shoreline (describe):
Notable erosion/depositional patterns:
Wildlife:
Potential impacts/pollutants:
Field Site #: 522
Field Participants: T. Nurminger, J. Huber, J. Speaker (RIDEM)
Photo #: Scale: 1:120
USGS Quadrangle: Quonochontaug (Quonochontaug Pond)

A. Submerged Aquatic Bed (SAV)
Species: Zostera marina
%Cover: 50-60
brown filamentous algae
%Cover: 15-20
Enteromorpha sp.
%Cover: 10
(Microciona sp. sponge)

In-field Classification (Cowardin et al, 1979): ELAB3L
Approx. depth of bed (ft): ________
Estimated size of bed (acres): 4.0
Comments on photosignature: dark blueish black; not a spongy eelgrass appearance, perhaps

B. Estuarine Wetland due to location @ edge of tidal flat
Species: ________
%Cover: ________

In-field Classification (Cowardin et al, 1979): ________
Wetland modified? (check all that apply):
□ Ditched □ Tidally-restricted □ Excavated □ Spoil deposition □ Impounded
Comments on photosignature: ________

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979): E2US2N
Description (check one): □ Sand beach □ Cobble beach □ Rocky shore □ Tidal flat
□ Panne or pool □ Open water □ Other ________

Comments on photosignature: ________

D. Other Field Observations
Shoreline Feature(s): □ Dune □ Cliff □ Bluff □ Coastal Bank
□ Man-made shoreline (describe): ________
Notable erosion/depositional patterns: ________

Wildlife: razor clam s (Ensis directus)
Potential impacts/pollutants: ________
Ninigret Pond
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 530  Date: 8/25/99
Field Participants: Todd Nuerminger, Irene Huber, John Speaker
Photo #: 2-85  Scale: 1/8K
USGS Quadrangle: Aquonchantung (Ninigret Pond)

<table>
<thead>
<tr>
<th>A. Submerged Aquatic Bed (SAV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species: Fucus vesiculosus</td>
</tr>
<tr>
<td>%Cover: 85-90</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): E1ABL
Approx. depth of bed (ft):
Estimated size of bed (acres): 9.0
Comments on photosignature: Fucus on rocks; textured dark brown, mottled signature

<table>
<thead>
<tr>
<th>B. Estuarine Wetland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
</tr>
<tr>
<td>%Cover:</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditching  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature: ________________________________

<table>
<thead>
<tr>
<th>C. Estuarine or Marine Deepwater Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-field classification (Cowardin et al, 1979):</td>
</tr>
</tbody>
</table>
Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat  ☐ Panne or pool  ☐ Open water  ☐ Other
Comments on photosignature: ________________________________

<table>
<thead>
<tr>
<th>D. Other Field Observations</th>
</tr>
</thead>
</table>
| Shoreline Feature(s):  ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank  ☐ Man-made shoreline (describe):  ________________________________
Notable erosion/depositional patterns: ________________________________
Wildlife: ________________________________
Potential impacts/pollutants: ________________________________
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 531
Field Participants: T. Nurninger, J. Huber, J. Speaker (RIDEM)
Photo #: 8-25, Scale: 1:12K
USGS Quadrangle: Quonochontaug (Ninigret Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Zostera marina  %Cover 80-85
          brown filamentous algae  %Cover 5
          Gracilaria sp.
In-field Classification (Cowardin et al., 1979): E1AB3L
Approx. depth of bed (ft): 4-10 est.  Estimated size of bed (acres): ~70-80A.
Comments on photosignature: dark, smooth; S31, S32 & S34 all document a continuous, large bed @ northeast Ninigret Pond

B. Estuarine Wetland
Species: eelgrass tapers off near channel grading to mostly Gracilaria sp.
%Cover
In-field Classification (Cowardin et al., 1979):
Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al., 1979):
Description (check one): ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
                        ☐ Panne or pool  ☐ Open water  ☐ Other
Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s): ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
                        ☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:
Wildlife:
Potential impacts/pollutants:
Field Site #: 532  Date: 8/25/99
Field Participants: T. Nuerminger, J. Huber, J. Speaker (RIDEHM)
Photo #: 2-23  Scale: 1:12K  Buonochar-straq  (Ninigret Pond)
USGS Quadrangle: (Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: E. marina  %Cover  80-100 %
brown filamentous algae (BA)

In-field Classification (Cowardin et al, 1979): EIA63L
Approx. depth of bed (ft): 4-10  Estimated size of bed (acres): ~ 70-80A
Comments on photosignature: BA traces are growing on top of E. marina plants; very black & smooth signature

B. Estuarine Wetland
Species:

%Cover

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature:

☐ polygon  ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other
Comments on photosignature:

☐ polygon  ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s): ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Field Site #: 533  Date: 8/25/99
Field Participants: T. Nuehninger, J. Huber, J. Speaker (RIDEM)
Photo #: 2-23  Scale: 1/10K
USGS Quadrangle: Buonochontaqu (Ninigret Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Zostera marina
%Cover: 100%

In-field Classification (Cowardin et al, 1979):
Approx. depth of bed (ft): 6  Estimated size of bed (acres): 1.0 A.
Comments on photosignature:

B. Estuarine Wetland
Species: 
%Cover:

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature:

☐ polygon  ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other
Comments on photosignature:

☐ polygon  ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s):  ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Field Site # 534
Field Participants: J. Nuerminger, I. Huber, J. Speaker
Photo #: 2-23
USGS Quadrangle: Liak Buonochnaugh (Ninigret Pond)
(Associate copy of USGS quadrangle with site location)

Date: 8/25/99

A. Submerged Aquatic Bed (SAV)
Species: Zostera marina
%Cover 75-100%

In-field Classification (Cowardin et al, 1979): E1AB3L
Approx. depth of bed (ft): 3-8
Estimated size of bed (acres): 8-9
Comments on photosignature: smooth, black but may have problems with depth 8-9 at outer limits

B. Estuarine Wetland
Species:

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded

Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Barren or pool
- Open water
- Other

Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Field Site #: S35  
Field Participants: T. Nuerminger, J. Huber, J. Speaker (RIDEM)  
Photo #: 3-26  
Scale: 1:12K  
USGS Quadrangle: Carolina (Ninigret Pond)  
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Posidonia marina  
%Cover: 40-50

In-field Classification (Cowardin et al., 1979): E1AB3L
Approx. depth of bed (ft): 8-4  
Estimated size of bed (acres): 34A.
Comments on photosignature: black but diffuse; bed is "sick" and sparse

B. Estuarine Wetland
Species:  
%Cover

In-field Classification (Cowardin et al., 1979):  
Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded
Comments on photosignature:  
- polygon
- linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al., 1979):  
Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other
Comments on photosignature:  
- polygon
- linear fringe

D. Other Field Observations
Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe):
Notable erosion/depositional patterns:
Wildlife:
Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group

Field Site # 536  
Field Participants: T. Nuerminger, T. Huber, J. Specker (RIDEM)  
Photo # 2-23  
USGS Quadrangle: Aquidneck Island (Ninigret Pond)  
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species:  
- Zostera marina  
- brown filamentous algae  
%Cover  
75-100  
10-20  
In-field Classification (Cowardin et al, 1979): EIA3  
Approx. depth of bed (ft): 5+  
Estimated size of bed (acres):  
Comments on photosignature: Together with S31 and S32, site is in western end of large bed in northeast portion of pond; relatively smooth, black signature

B. Estuarine Wetland
Species:  
%Cover  
In-field Classification (Cowardin et al, 1979):  
Wetland modified? (check all that apply):  
- Ditched  
- Tidally-restricted  
- Excavated  
- Spoil deposition  
- Impounded  
Comments on photosignature:  
- polygon  
- linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):  
Description (check one):  
- Sand beach  
- Cobble beach  
- Rocky shore  
- Tidal flat  
- Panne or pool  
- Open water  
- Other  
Comments on photosignature:  
- polygon  
- linear fringe

D. Other Field Observations
Shoreline Feature(s):  
- Dune  
- Cliff  
- Bluff  
- Coastal Bank  
- Man-made shoreline (describe):  
Notable erosion/depositional patterns:  
Wildlife:  
Potential impacts/pollutants: 
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 537
Field Participants: T. Nuerminger, J. Huber, J. Speaker (RIDEM)
Photo #: 2-23
Scale: 1:12K
USGS Quadrangle: Buonochnaug (Ninigret Pond)

(Associate copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: [Blank]
Cover: 30% ± 10%
In-field Classification (Cowardin et al, 1979): EIUB/LABIS
Approx. depth of bed (ft): 4-6
Estimated size of bed (acres): N/A
Comments on photosignature: inconclusive, amorphous, ALSignature unknown, map as open water, EUBR classification

B. Estuarine Wetland
Species: [Blank]
Cover: [Blank]
In-field Classification (Cowardin et al, 1979): [Blank]
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded
Comments on photosignature: [Blank]

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979): [Blank]
Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other [Blank]
Comments on photosignature: [Blank]

D. Other Field Observations
Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe): [Blank]
Notable erosion/depositional patterns: [Blank]
Wildlife: [Blank]
Potential impacts/pollutants: [Blank]
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: S38  Date: 8/25/99
Field Participants: T. Nuerminger, J. Huber, J. Speaker (RIDEM)
Photo #: 2-21  Scale: 1:1200  Busnochontaug (Ninigret Pond)
USGS Quadrangle: (Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Fucus vesiculosus  brown filamentous algae
         (red beard sponge: Microciona prolifera)
%Cover: 40
In-field Classification (Cowardin et al., 1979): ELU/LABIL
Approx. depth of bed (ft): 5
Estimated size of bed (acres): N/A
Comments on photosignature: inconclusive in amorphous Absignature;
v. patchy  --  Map as ELUBL

B. Estuarine Wetland
Species:__________________________________________
          __________________________________________
          __________________________________________
          __________________________________________
%Cover: _________________________________________
In-field Classification (Cowardin et al., 1979):
Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature: ________________________________
☐ polygon  ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al., 1979):
Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
                        ☐ Panne or pool  ☐ Open water  ☐ Other
Comments on photosignature: ________________________________
☐ polygon  ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s):  ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
                      ☐ Man-made shoreline (describe): ________________________________
Notable erosion/depositional patterns: ________________________________
Wildlife: ________________________________________________
Potential impacts/pollutants: ____________________________________
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: S39
Field Participants: T. Nuerninger, J. Huber, J. Speaker (RIDEM)
Photo #: 2-21
USGS Quadrangle: Aquidneck Island (Ninigret Pond)
(Attach copy of USGS quadrangle with site location)

Date: 8/25/99

A. Submerged Aquatic Bed (SAV)
Species:
- brown filamentous algae
- Enteromorpha sp.

% Cover: 30 ± %

In-field Classification (Cowardin et al., 1979): EUB/ABIL
Approx. depth of bed (ft): 5 ±
Estimated size of bed (acres): N/A

Comments on photosignature: inconclusive, sp. Enteromorpha AB signature; map as part of EUB/L

B. Estuarine Wetland
Species:

% Cover:

In-field Classification (Cowardin et al., 1979):

Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded

Comments on photosignature:

- polygon
- linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al., 1979):

Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other

Comments on photosignature:

- polygon
- linear fringe

D. Other Field Observations
Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 540  Date: 8/25/99
Field Participants: T. Nuerninger, J. Huber, J. Speaker (RDEM)
Photo #: 2-21  Scale: 1/12K
USGS Quadrangle: Aquidneck (Ninigret Pond)

(Associate copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Gracilaria sp.  %Cover  30-40

In-field Classification (Cowardin et al., 1979): EULB/ABL

Approx. depth of bed (ft): 4 +
Estimated size of bed (acres): N/A
Comments on photosignature: diffused, mottled, signature detection fades out to the north (Foster Cove); some of the signature

B. Estuarine Wetland
is simply depth Δ, 'mapped as part of EULB

Species:

In-field Classification (Cowardin et al., 1979):

Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded

Comments on photosignature:

☐ polygon  ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al., 1979):
Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other

Comments on photosignature:

☐ polygon  ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s):  ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group

Field Site # S41  
Date: 8/25/99  
Field Participants: T. Nuerminger, J. Huber, J. Speaker (RIDEM)  
Photo #: 2-31  
Scale: 1/12K  
USGS Quadrangle: Tustonhautaug (Ninigret Pond)  
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>brown filamentous algae</em></td>
<td>50-55%</td>
</tr>
<tr>
<td><em>Gracilaria</em> sp.</td>
<td></td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): E1ABI/UBL

Approx. depth of bed (ft): 4-6  
Estimated size of bed (acres): 7.0A.

Comments on photosignature: puffy -- black & tan tones

B. Estuarine Wetland

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
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<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):

- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded

Comments on photosignature: ____________________________

- polygon
- linear fringe

C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al, 1979):

Description (check one):  
- Sand beach  
- Cobble beach  
- Rocky shore  
- Tidal flat  
- Panne or pool  
- Open water  
- Other ____________________________

Comments on photosignature: ____________________________

- polygon
- linear fringe

D. Other Field Observations

Shoreline Feature(s):  
- Dune  
- Cliff  
- Bluff  
- Coastal Bank  
- Man-made shoreline (describe): ____________________________

Notable erosion/depositional patterns: ____________________________

Wildlife: ____________________________

Potential impacts/pollutants: ____________________________
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 542
Field Participants: T. Nuerminger, J. Huber, J. Speaker (RIDEM)
Photo #: 2-21 Scale: 1:12K
USGS Quadrangle: Buonochoantaug (Ninigret Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Fulus vesiculosis %Cover: 40-45

In-field Classification (Cowardin et al, 1979): E2RS2/AB1N
Approx. depth of bed (ft): 2+ Estimated size of bed (acres): 1.0 - 1.5
Comments on photosignature: blackish-brown (sometimes appearing dark purple) and mottled with tan, greasy feature

B. Estuarine Wetland
Species: %Cover

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded
Comments on photosignature:

☐ polygon ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other
Comments on photosignature:

☐ polygon ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 543
Field Participants: J. Nuerminger, J. Huber, J. Speaker (RIDEM)
Photo # 2-19 Scale: 1:12K
USGS Quadrangle: Aquonochtaug (Ninigret Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: brown filamentous algae (BFA)
%Cover
50-55
20-25

In-field Classification (Cowardin et al. 1979): E1A/B1/V1L
Approx. depth of bed (ft): 5
Estimated size of bed (acres): 8-10
Comments on photosignature: mottled dark brown-to-black; more definable as a polygon than sites 537 & 539; probably due to higher % cover of BFA

B. Estuarine Wetland
Species:
%Cover

In-field Classification (Cowardin et al. 1979):
Wetland modified? (check all that apply):
□ Ditched □ Tidally-restricted □ Excavated □ Spoil deposition □ Impounded
Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al. 1979):
Description (check one):
□ Sand beach □ Cobble beach □ Rocky shore □ Tidal flat
□ Panne or pool □ Open water □ Other
Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s): □ Dune □ Cliff □ Bluff □ Coastal Bank
□ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Point Judith Pond
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 544  Date: 8/26/99
Field Participants:  T. Nuerninger, J. Huber, T. Tarossi (RIDEM)
Photo #: 2-34  Scale: 1:12K
USGS Quadrangle:  Kingston (Pt. Judith Pond)

(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species:  Fucus vesiculosus  %Cover:  60%

In-field Classification (Cowardin et al, 1979):  FLABIM
Approx. depth of bed (ft):  1-2  Estimated size of bed (acres):  2-3
Comments on photosignature:  algae on tide flat; tan & grainy

B. Estuarine Wetland
Species:  

%Cover:  

In-field Classification (Cowardin et al, 1979):  
Wetland modified? (check all that apply):  

Comments on photosignature:  

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other

Comments on photosignature:  

D. Other Field Observations
Shoreline Feature(s):  ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe):  

Notable erosion/depositional patterns:  

Wildlife:  

Potential impacts/pollutants:  

Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 545                     Date: 8/26/99
Field Participants: T. Nuerminger, I. Huber, Tom Tarrossi (RIDEM)
Photo #: 2-34                     Scale: 1:12K
USGS Quadrangle: Kingston (Pt. Judith Pond) (Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: brown filamentous algae
         Ulva lactuca
         Zostera marina (washed up)
%Cover

In-field Classification (Cowardin et al, 1979): ELABIM
Approx. depth of bed (ft): 2
Estimated size of bed (acres): .5
Comments on photosignature: broken-up substrate; small patches of sand flat

B. Estuarine Wetland
Species:________________________
%Cover

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
□ Ditched  □ Tidally-restricted  □ Excavated  □ Spoil deposition  □ Impounded
Comments on photosignature:

□ polygon  □ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): □ Sand beach  □ Cobble beach  □ Rocky shore  □ Tidal flat
□ Panne or pool  □ Open water  □ Other
Comments on photosignature:

□ polygon  □ linear fringe

D. Other Field Observations
Shoreline Feature(s): □ Dune  □ Cliff  □ Bluff  □ Coastal Bank
□ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Field Site #: SH60  Date: 8/26/99
Field Participants: T. Nuerminger, J. Huber, Tom Iarossi (RIDEM)
Photo #: 2-34  Scale: 1:12K
USGS Quadrangle: Kingston (Pt. Judith Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: 
<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gracilaria sp.</td>
<td></td>
</tr>
<tr>
<td>Ulva lactuca</td>
<td></td>
</tr>
</tbody>
</table>
In-field Classification (Cowardin et al, 1979): EIABIL
Approx. depth of bed (ft): 
Estimated size of bed (acres): 1.0
Comments on photosignature: small pool of Algin Sand Flat, dark blackish-green, slightly grainy

B. Estuarine Wetland
Species: 
%Cover

In-field Classification (Cowardin et al, 1979): 

Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded
Comments on photosignature: 

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other
Comments on photosignature: 

D. Other Field Observations
Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
Man-made shoreline (describe): 
Notable erosion/depositional patterns: 

Wildlife: 
Potential impacts/pollutants: 

Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 547  Date: 8/26/99
Field Participants: T. Nuerminger, I. Huber, T. Jarossi (RIDEM)
Photo #: 3-39  Scale: 1:12K
USGS Quadrangle: Narragansett Pier (Pt. Judith Pond)

(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>brown filamentous algae</td>
<td>30-40</td>
</tr>
<tr>
<td>Enteromorpha sp.</td>
<td>30-40</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al. 1979): E1ABIL
Approx. depth of bed (ft): 7
Estimated size of bed (acres): N/A
Comments on photosignature: photosignature blends with depth, change too amorphous to map as a polygon

B. Estuarine/Wetland

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al., 1979):

Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded

Comments on photosignature: polygon

C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al., 1979):

Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other

Comments on photosignature: polygon

D. Other Field Observations

Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group

Field Site #: S48  
Field Participants: T. Nuerminger, I. Huber, T. Jarossi (RIDEM)  
Photo #: 3-39  
Scale: 1:12K  
USGS Quadrangle: Naragansett Pier (Pt. Judith Pond)  
(Attach copy of USGS quadrangle with site location)

Date: 8/26/99

A. Submerged Aquatic Bed (SAV)

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gracilaria sp.</td>
<td>40-50</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): E/AB/1/VBL

Approx. depth of bed (ft): 5 ±  
Estimated size of bed (acres):  
Comments on photosignature: amorphous and indistinct, can't map it as a polygon.

B. Estuarine Wetland

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
</table>

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded

Comments on photosignature:  

- polygon  
- linear fringe

C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al, 1979):

Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other

Comments on photosignature:  

- polygon  
- linear fringe

D. Other Field Observations

Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site:  S49  
Field Participants:  J. Nuerminger, I. Huber, T. Jarossi (RIDEM) 
Photo #: 2-34  Scale: 1:12K  
USGS Quadrangle:  Narragansett Pier (Pt. Judith Pond) 
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)  not an aquatic bed, see below
Species: ___________________________  %Cover ___________________________
______________________________  _______________________________________
______________________________  _______________________________________
In-field Classification (Cowardin et al, 1979): ___________________________
Approx. depth of bed (ft): ______  Estimated size of bed (acres): ______
Comments on photosignature: ______________________________________

B. Estuarine Wetland
Species: ___________________________  %Cover ___________________________
______________________________  _______________________________________
______________________________  _______________________________________
In-field Classification (Cowardin et al, 1979): ___________________________
Wetland modified? (check all that apply): 
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature: ______________________________________
☐ polygon  ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):  EARFAN
Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other Reef  
Comments on photosignature:  blue mussel (Mytilus edulis); black  
grainsignature at edge of tidal flat; regularly-flooded.
☐ polygon  ☐ linear fringe  [2' depth (at time of field check)]

D. Other Field Observations
Shoreline Feature(s):  ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe): __________________________________________
Notable erosion/depositional patterns: _____________________________________
Wildlife: _____________________________________________________________
Potential impacts/pollutants: ____________________________________________
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # S50
Field Participants: J. Nuerminger, I. Huber, Tom Irabassi (RIDEM)
Photo # 2-33 Scale: 1:1200 Kingston (Pt. Judith Pond)
USGS Quadrangle: (Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Codium fragile
%Cover: 50% 80%

In-field Classification (Cowardin et al, 1979): EIAVBL
Approx. depth of bed (ft): 4
Estimated size of bed (acres): .5
Comments on photosignature: Nearly-black, located in channel between Pt. Judith & Potter

B. Estuarine Wetland
Species: 
%Cover: 

In-field Classification (Cowardin et al, 1979): 
Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded
Comments on photosignature: 

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one):
- Ditch
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other
Comments on photosignature: 

D. Other Field Observations
Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe): 
Notable erosion/depositional patterns: 

Wildlife: 
Potential impacts/pollutants: 

Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 8-51
Field Participants: T. Nuerminger, I. Huber, Tom Iarossi (RDEM)
Photo #: 3333-35 Scale: 1/12K
USGS Quadrangle: Kingston

(Assert copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Zostera marina
%Cover: 75-100
browx, filamentous algae
%Cover: 5-10
Microstenum Sp.

In-field Classification (Cowardin et al, 1979): E1AB3L
Approx. depth of bed (ft): 4-6
Estimated size of bed (acres): 90-100
Comments on photosignature:

B. Estuarine Wetland
Species: somewhat featured where slight irregularities of eelgrass occur
%Cover: relative density

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other
Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s): ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 858
Field Participants: T. Nuerninger, J. Huber, Tom Jarossi (RIDEM)
Photo #: 2-35, 3-37 Scale: 1/125
USGS Quadrangle: Kingston (Pt. Judith Pond)

A. Submerged Aquatic Bed (SAV)
Species: brown filamentous algae
%Cover: 60-70
E. ostrea - marina - small stands

In-field Classification (Cowardin et al, 1979): E1AB1/3L
Approx. depth of bed (ft): just alongside 5-6
Estimated size of bed (acres): 5-6
Comments on photosignature: channel purplish-black, well-defined texture is grainy as bed intersperses/ transitions to tide flat, south side

B. Estuarine Wetland
Species: ____________________________
%Cover: ____________________________

In-field Classification (Cowardin et al, 1979): __________
Wetland modified? (check all that apply):
□ Ditched □ Tidally-restricted □ Excavated □ Spoil deposition □ Impounded
Comments on photosignature: ____________________________

□ polygon □ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979): E2USAN
Description (check one): □ Sand beach □ Cobble beach □ Rocky shore □ Tidal flat
□ Panne or pool □ Open water □ Other __________
Comments on photosignature: ____________________________

□ polygon □ linear fringe

D. Other Field Observations
Shoreline Feature(s): □ Dune □ Cliff □ Bluff □ Coastal Bank
□ Man-made shoreline (describe): __________
Notable erosion/depositional patterns: ____________________________
Wildlife: ____________________________
Potential impacts/pollutants: ____________________________
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: S59
Date: 8/6/99
Field Participants: T. Nuerminger, J. Huber, Tom Jarossi (RIDEM)
Photo #: 3-37
Scale: 1:12K
USGS Quadrangle: Kingston (Pt Judith Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Fokstera marina
%Cover: 60-70

In-field Classification (Cowardin et al, 1979): E1AB3L
Approx. depth of bed (ft): 5
Estimated size of bed (acres): 4.0
Comments on photosignature: Black, but broken-up, grainy
(probably related to boat traffic; bed is near channel)

B. Estuarine Wetland
Species:
%Cover

In-field Classification (Cowardin et al, 1979): 
Wetland modified? (check all that apply):
□ Ditched    □ Tidally-restricted    □ Excavated    □ Spoil deposition    □ Impounded
Comments on photosignature:

□ polygon    □ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): □ Sand beach    □ Cobble beach    □ Rocky shore    □ Tidal flat
□ Panne or pool    □ Open water    □ Other
Comments on photosignature:

□ polygon    □ linear fringe

D. Other Field Observations
Shoreline Feature(s): □ Dune    □ Cliff    □ Bluff    □ Coastal Bank
□ Man-made shoreline (describe):
Notable erosion/depositional patterns:
Wildlife:
Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group

| Field Site # | 560 | Date: 8/26/99 |
| Field Participants: | T. Nuerminger, J. Huber, Tom Iarossi (R.I.D.E.M.) |
| Photo #: | 3-37 | Scale: 1:12K |
| USGS Quadrangle: | Kingston (Pt. Judith Pond) |

(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)

| Species: | Zostera marina | %Cover: nearly 100 |

In-field Classification (Cowardin et al., 1979): E1AB3L

Approx. depth of bed (ft): 5-6  
Estimated size of bed (acres): 2-3

Comments on photosignature: elongated narrow zone of eelgrass between tide flat and channel; conclusive, but bottom grainy (seaward)

B. Estuarine Wetland

| Species: |

%Cover: 

In-field Classification (Cowardin et al., 1979): 

Wetland modified? (check all that apply):

☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded

Comments on photosignature: 

C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al., 1979): E2US2AN

Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat  ☐ Parne or pool  ☐ Open water  ☐ Other

Comments on photosignature: 

D. Other Field Observations

| Shoreline Feature(s): | ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank  ☐ Man-made shoreline (describe): |

Notable erosion/depositional patterns: 

Wildlife: 

Potential impacts/pollutants: 

Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 5601
Field Participants: T. Nuerminger, I. Huber, Tom Tarossi (RIDEM)
Photo #: 3-37  Scale: 1:12K
USGS Quadrangle: Kingston (Pt. Judith Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Zostera marina  %Cover  75 ±

In-field Classification (Cowardin et al, 1979): E1AB3L
Approx. depth of bed (ft): 3-4
Estimated size of bed (acres): 1.5-2.0
Comments on photosignature: Not as intensely black as bed to opposite side of flat (S60); narrowing bed transitioning w/tide flat and

B. Estuarine Wetland
Species:

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
- Ditched  - Tidally-restricted  - Excavated  - Spoil deposition  - Impounded
Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979): E2usAN
Description (check one):  - Sand beach  - Cobble beach  - Rocky shore  - Tidal flat
- Panne or pool  - Open water  - Other

Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s):  - Dune  - Cliff  - Bluff  - Coastal Bank
- Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 562  Date: 8/26/99
Field Participants: T. Nuerninger, J. Huber, Tom Jarossi (RIDEM)
Photo # J-37  Scale: 1:1/2
USGS Quadrangle: Kingston (Pt. Judith Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Zostera marina  %Cover 50±

In-field Classification (Cowardin et al, 1979): E1A3BL
Approx. depth of bed (ft): 4±  Estimated size of bed (acres): 5.0
Comments on photosignature: Black but grainy, presumably broken up condition of bed from boat traffic (bed is adjacent to channel)

B. Estuarine Wetland
Species: __________________________
%Cover __________________________

In-field Classification (Cowardin et al, 1979): __________________________
Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature: __________________________

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other __________________________
Comments on photosignature: __________________________

D. Other Field Observations
Shoreline Feature(s): ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe): __________________________
Notable erosion/depositional patterns: __________________________
Wildlife: __________________________
Potential impacts/pollutants: __________________________
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 3103  Date: 8/26/99
Field Participants: T. Nuerminger, J. Huber, T. Iarossi (RI DEM)
Photo # 4-37  Scale: 1:12,000
USGS Quadrangle: Kingston (Pt. Judith Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: red-brown filamentous algae  %Cover: 75 ±

In-field Classification (Cowardin et al, 1979): EUB/ABIL
Approx. depth of bed (ft): 6  Estimated size of bed (acres): 1.0
Comments on photosignature: smooth, purplish-black

B. Estuarine Wetland
Species: ___________________________  %Cover: __________

In-field Classification (Cowardin et al, 1979): ___________________________
Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature: ___________________________

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979): ___________________________
Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other ___________________________
Comments on photosignature: ___________________________

D. Other Field Observations
Shoreline Feature(s):  ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe): ___________________________
Notable erosion/depositional patterns: ___________________________

Wildlife: ___________________________
Potential impacts/pollutants: ___________________________
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 564
Field Participants: T. Nuerminger, I. Huber, T. Iarossi (RIDEN)
Photo #: 4-37
Scale: 1:12K
USGS Quadrangle: Kingston (Pt. Judith Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: brown filamentous algae
%Cover

In-field Classification (Cowardin et al., 1979):
Approx. depth of bed (ft): 6-7'
Estimated size of bed (acres): N/A
Comments on photosignature: amorphous, inconclusive; map as part of EUBL

B. Estuarine Wetland
Species:
%Cover

In-field Classification (Cowardin et al., 1979):
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded
Comments on photosignature:

☐ polygon ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al., 1979):
Description (check one):
☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other
Comments on photosignature:

☐ polygon ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s):
☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Potter Pond
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group

Field Site #: 552  
Field Participants: T. Nuerminger, I. Huber, T. Iarossi (RIDEM)  
Photo #: 3-34  
Scale: 1:12K  
USGS Quadrangle: Kingston (Potter Pond)  
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: *Positra marina*  
%Cover: 75-100

In-field Classification (Cowardin et al, 1979): **EIA03L**

Approx. depth of bed (ft): H-6  
Estimated size of bed (acres): 1.0  
Comments on photosignature: conclusive

B. Estuarine Wetland
Species:  
%Cover: 

In-field Classification (Cowardin et al, 1979): 

Wetland modified? (check all that apply):  
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded

Comments on photosignature: 

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):

Description (check one):  
☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat  
☐ Panne or pool  ☐ Open water  ☐ Other  

Comments on photosignature:  

D. Other Field Observations
Shoreline Feature(s):  
☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank  
☐ Man-made shoreline (describe): 

Notable erosion/depositional patterns:  

Wildlife:  

Potential impacts/pollutants:  

Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 553  Date: 8/21/99
Field Participants: T. Nuerzinger, L. Huber, T. Jarossi (RIDEM)
Photo # a-33  Scale: 1:12K  Kingston (Potter Pond)
USGS Quadrangle: (Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: filamentous brown algae, Ulva lactuca, (trace strands Zostera marina; floating, not rooted)

%Cover: 30±

In-field Classification (Cowardin et al, 1979): (E1UBL)
Approx. depth of bed (ft): 6
Estimated size of bed (acres): N/A
Comments on photosignature: amorphous & inconclusive, mapped as part of E1UBL (black, deep)

B. Estuarine Wetland
Species:________________________

%Cover:____________________

In-field Classification (Cowardin et al, 1979):________________________
Wetland modified? (check all that apply):
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded
Comments on photosignature:________________________

☐ polygon  ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat
☐ Panne or pool  ☐ Open water  ☐ Other __________________________
Comments on photosignature:________________________

☐ polygon  ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s): ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank
☐ Man-made shoreline (describe):________________________
Notable erosion/depositional patterns:________________________
Wildlife:________________________
Potential impacts/pollutants:________________________
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 554
Field Participants: T. Nuerminger, J. Huber, T. Jarossi (RIDEM)
Photo #: 2-31
Scale: 1:12K
USGS Quadrangle: Kingston (Potter Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Zostera marina %Cover 50±

In-field Classification (Cowardin et al, 1979): EMB3L
Approx. depth of bed (ft): 4-6
Estimated size of bed (acres): 1.0-1.5
Comments on photosignature: black, but easily confused w/ depth

B. Estuarine Wetland
Species: %Cover

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded
Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other
Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:
Wildlife:
Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 555
Field Participants: T. Nuerminger, J. Huber, T. Iarossi (RIDEM)
Photo # 2-31 Scale: 1:12K
USGS Quadrangle: Kingston (Potter Pond)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: brown filamentous algae
__________ Gracilaria sp. ______ %Cover 30-40
__________ 40-50
In-field Classification (Cowardin et al, 1979): EIABL
Approx. depth of bed (ft): 3-4
Estimated size of bed (acres): 2.0 - 3.0
Comments on photosignature: grainy blackish tone, interspersed with a substrate tone

B. Estuarine Wetland
Species: __________________________ %Cover __________
__________ __________________________
__________ __________________________
__________ __________________________
__________ __________________________
In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded
Comments on photosignature: ______________________________________
☐ polygon ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other ________________________________
Comments on photosignature: ______________________________________
☐ polygon ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns: ____________________________
Wildlife: ________________________________________________________
Potential impacts/pollutants: _____________________________________
**Field Data Sheet for Rhode Island South Shore Project**

**Natural Resources Assessment Group**

<table>
<thead>
<tr>
<th>Field Site #</th>
<th>560</th>
<th>Date: 8/20/99</th>
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</thead>
<tbody>
<tr>
<td>Field Participants:</td>
<td>T. Nuerminger, J. Huber, T. Iarossi (RIDEM)</td>
<td></td>
</tr>
<tr>
<td>Photo #:</td>
<td>2-31</td>
<td>Scale: 1:12K</td>
</tr>
<tr>
<td>USGS Quadrangle:</td>
<td>Kingston (Potter Pond)</td>
<td></td>
</tr>
</tbody>
</table>

(Attach copy of USGS quadrangle with site location)

## A. Submerged Aquatic Bed (SAV)

| Species: | Zostera marina |
| %Cover | 50-75 |

In-field Classification (Cowardin et al, 1979): E1AB3L

Approx. depth of bed (ft): 3-4

Estimated size of bed (acres): 6-8

Comments on photosignature: Conclusive; slightly mottled with substrate tones; also some graying, perhaps due to sick eelgrass conditions at south end.

## B. Estuarine Wetland

| Species: |
| %Cover |

In-field Classification (Cowardin et al, 1979): 

Wetland modified? (check all that apply):

- [ ] Ditched
- [ ] Tidally-restricted
- [ ] Excavated
- [ ] Spoil deposition
- [ ] Impounded

Comments on photosignature: 

## C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al, 1979):

Description (check one):

- [ ] Sand beach
- [ ] Cobble beach
- [ ] Rocky shore
- [ ] Tidal flat
- [ ] Panne or pool
- [ ] Open water
- [ ] Other

Comments on photosignature: 

## D. Other Field Observations

Shoreline Feature(s):

- [ ] Dune
- [ ] Cliff
- [ ] Bluff
- [ ] Coastal Bank

- [ ] Man-made shoreline (describe):

Notable erosion/depositional patterns: 

Wildlife: 

Potential impacts/pollutants: 

Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: S57  Date: 8/21/99
Field Participants: T. Nuerminger, J. Huber, T. Iarossi (RIDEM)
Photo #: 2-33  Scale: 1:12K
USGS Quadrangle: Kingston (Potter Pond)

(Assign copy of USGS quadrangle with site location)

<table>
<thead>
<tr>
<th>A. Submerged Aquatic Bed (SAV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species: brown filamentous algae</td>
</tr>
<tr>
<td>%Cover 50-60</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>In-field Classification (Cowardin et al, 1979): E1ABL</td>
</tr>
<tr>
<td>Approx. depth of bed (ft): 5</td>
</tr>
<tr>
<td>Estimated size of bed (acres): 5-1.0</td>
</tr>
<tr>
<td>Comments on photosignature: purplish-black, grainy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Estuarine Wetland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
</tr>
<tr>
<td>%Cover</td>
</tr>
<tr>
<td>-----------------</td>
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<tr>
<td>-----------------</td>
</tr>
<tr>
<td>In-field Classification (Cowardin et al, 1979):</td>
</tr>
<tr>
<td>Wetland modified? (check all that apply):</td>
</tr>
<tr>
<td>Ditched</td>
</tr>
<tr>
<td>Comments on photosignature:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Estuarine or Marine Deepwater Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-field classification (Cowardin et al, 1979):</td>
</tr>
<tr>
<td>Description (check one): Sand beach</td>
</tr>
<tr>
<td>Panne or pool</td>
</tr>
<tr>
<td>Comments on photosignature:</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>D. Other Field Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoreline Feature(s): Dune</td>
</tr>
<tr>
<td>Man-made shoreline (describe):</td>
</tr>
<tr>
<td>Notable erosion/depositional patterns:</td>
</tr>
<tr>
<td>Wildlife:</td>
</tr>
<tr>
<td>Potential impacts/pollutants:</td>
</tr>
</tbody>
</table>
Little Narragansett Bay
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 565
Field Participants: J. Nuerminger & J. Huber (NRAG); Frances Ethier & Ed Cabral
Photo # 2-9 Scale: 1:2K
USGS Quadrangle: Watch Hill

(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Fucus sp. on rocks %Cover 25-30
Ulva lactuca 30
Brown filamentous algae 25

In-field Classification (Cowardin et al., 1979): EIAABIL
Approx. depth of bed (ft): 4.0 Estimated size of bed (acres): .5-1.0
Comments on photosignature: Brownish-greenish-to-black
w/boulders protruding

B. Estuarine Wetland
Species: %Cover

In-field Classification (Cowardin et al., 1979):
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded
Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al., 1979):
Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other
Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
<table>
<thead>
<tr>
<th>A. Submerged Aquatic Bed (SAV)</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species: Ulva lactuca</td>
<td>30±</td>
</tr>
<tr>
<td>filamentous brown algae</td>
<td>30±</td>
</tr>
<tr>
<td>dead eelgrass</td>
<td>30±</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al, 1979): ELABIL

Approx. depth of bed (ft): 5-6
Estimated size of bed (acres): 2

Comments on photosignature: dark blue-ish black; smooth; site is a "catchment" of algal material; se end of Sandy Point (barrier spit)

<table>
<thead>
<tr>
<th>B. Estuarine Wetland</th>
<th>%Cover</th>
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</thead>
</table>

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded

Comments on photosignature:

<table>
<thead>
<tr>
<th>C. Estuarine or Marine Deepwater Habitat</th>
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</thead>
</table>

In-field classification (Cowardin et al, 1979):

Description (check one):
- Sand beach
- Cobble beach
- Rocky shore
- Tidal flat
- Panne or pool
- Open water
- Other

Comments on photosignature:

<table>
<thead>
<tr>
<th>D. Other Field Observations</th>
<th></th>
</tr>
</thead>
</table>

Shoreline Feature(s):
- Dune
- Cliff
- Bluff
- Coastal Bank
- Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
**Field Data Sheet for Rhode Island South Shore Project**  
*Natural Resources Assessment Group*

<table>
<thead>
<tr>
<th>Field Site #</th>
<th>567</th>
<th>Date: 8/27/99</th>
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<tbody>
<tr>
<td>Field Participants:</td>
<td>T. Nuerminger &amp; E. Huber (NEAG); Frances Ethier &amp; Ed Cabral</td>
<td></td>
</tr>
<tr>
<td>Photo #</td>
<td>A-4</td>
<td>Scale: 1/2K</td>
</tr>
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</table>

**USGS Quadrangle:**  
Mystic (Little Narragansett Bay)  
(Attach copy of USGS quadrangle with site location)

### A. Submerged Aquatic Bed (SAV)

**Species:** green filamentous algae  
**%Cover:** 75

**In-field Classification (Cowardin et al., 1979):** EAPBIL

**Approx. depth of bed (ft):** 2-4  
**Estimated size of bed (acres):** 15

**Comments on photosignature:** dark blue-greenish black, slightly textured, well-defined; "wiry" type of green

### B. Estuarine Wetland

**Species:** per J. Gingerella (RIDEM) enforcement, this species appears to be invading former eelgrass beds (see also S69)

**In-field Classification (Cowardin et al., 1979):**

**Wetland modified? (check all that apply):**
- [ ] Ditched
- [ ] Tidally-restricted
- [ ] Excavated
- [ ] Spoil deposition
- [ ] Impounded

**Comments on photosignature:**

### C. Estuarine or Marine Deepwater Habitat

**In-field classification (Cowardin et al., 1979):**

**Description (check one):**
- [ ] Sand beach
- [ ] Cobble beach
- [ ] Rocky shore
- [ ] Tidal flat
- [ ] Panne or pool
- [ ] Open water
- [ ] Other

**Comments on photosignature:**

### D. Other Field Observations

**Shoreline Feature(s):**
- [ ] Dune
- [ ] Cliff
- [ ] Bluff
- [ ] Coastal Bank
- [ ] Man-made shoreline (describe):

**Notable erosion/depositional patterns:**

**Wildlife:**

**Potential impacts/pollutants:**
## Field Data Sheet for Rhode Island South Shore Project
### Natural Resources Assessment Group

**Field Site #:** S194

**Field Participants:** T. Nuecminger & I. Huber (NRAG); Frances Ethier & Ed Cabral

**Photo #:** 8-4  
**Scale:** 1:12K  
**USGS Quadrangle:** Mystic (Little Narragansett Bay)

(Attach copy of USGS quadrangle with site location)

### A. Submerged Aquatic Bed (SAV)

**Species:** Zostera marina  
**%Cover:** 75-100

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**In-field Classification (Cowardin et al., 1979):** E1AB3L

**Approx. depth of bed (ft):** 4-6  
**Estimated size of bed (acres):** 20 ±

**Comments on photosignature:** Smooth dark-blueish-black. Some patchiness landward (towards Sandy Pt.) where bed intersperses w/ flat.

### B. Estuarine Wetland

**Species:**  
**%Cover:**

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**In-field Classification (Cowardin et al., 1979):**

**Wetland modified? (check all that apply):**
- [ ] Ditched  
- [ ] Tidally-restricted  
- [ ] Excavated  
- [ ] Spoil deposition  
- [ ] Impounded

**Comments on photosignature:**

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### C. Estuarine or Marine Deepwater Habitat

**In-field classification (Cowardin et al., 1979):**

**Description (check one):**
- [ ] Sand beach  
- [ ] Cobble beach  
- [ ] Rocky shore  
- [ ] Tidal flat  
- [ ] Panne or pool  
- [ ] Open water  
- [ ] Other

**Comments on photosignature:**

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### D. Other Field Observations

**Shoreline Feature(s):**
- [ ] Dune  
- [ ] Cliff  
- [ ] Bluff  
- [ ] Coastal Bank  
- [ ] Man-made shoreline (describe):

**Notable erosion/depositional patterns:**

**Wildlife:**

**Potential impacts/pollutants:**
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 569
Field Participants: J. Nuehminger & J. Huber (NRAG); Frances Ethier & Ed Cabral
Photo #: 2-4 Scale: 1:12K
USGS Quadrangle: Mystic (Little Narragansett Bay)
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: green filamentous algae
%Cover: 60-65

In-field Classification (Cowardin et al, 1979): E2AB1/US2M
Approx. depth of bed (ft): 4-6
Estimated size of bed (acres): 70-80
Comments on photosignature: dark greenish-black mottled with sand that "wiry" type of green algae that appears to be overtaking former

B. Estuarine Wetland
Species:eelgrass beds (J. Gingerella)
(See also 567)
%Cover:

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded
Comments on photosignature:

☐ polygon ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other
Comments on photosignature:

☐ polygon ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Field Site #: S70
Field Participants: T. Nuernberger & E. Huber (NRAG); Frances Ethier & Ed Cabral (RIDEM)
Photo #: 1-5
Scale: 1:124
USGS Quadrangle: Mystic (Little Narragansett Bay)

A. Submerged Aquatic Bed (SAV)
Species: Zostera marina
%Cover: 75-100

In-field Classification (Cowardin et al, 1979): E1A83L
Approx. depth of bed (ft): 3-4
Estimated size of bed (acres): 2-2.5

Comments on photosignature: Conclusive eelgrass signature, banding near shore of Napatree Point

B. Estuarine Wetland
Species:

%Cover:

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):
- □ Ditched
- □ Tidally-restricted
- □ Excavated
- □ Spoil deposition
- □ Impounded

Comments on photosignature:

□ polygon  □ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one):
- □ Sand beach
- □ Cobble beach
- □ Rocky shore
- □ Tidal flat
- □ Panne or pool
- □ Open water
- □ Other

Comments on photosignature:

□ polygon  □ linear fringe

D. Other Field Observations
Shoreline Feature(s):
- □ Dune
- □ Cliff
- □ Bluff
- □ Coastal Bank
- □ Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Block Island
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: S71
Field Participants: Helen Cottrell & Larry Constantine (RIDEM); Leslie Katz
Photo #: 15-6
Scale: 1:12K
USGS Quadrangle: Block Island

(Date: 9/14/99)

(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Codium fragile
%Cover: 90%

In-field Classification (Cowardin et al., 1979): E1ABIL
Approx. depth of bed (ft): 4-5
Estimated size of bed (acres): 15-20
Comments on photosignature: Smooth, dark blue
(See also # S72)

B. Estuarine Wetland
Species:
%Cover:

In-field Classification (Cowardin et al., 1979):
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded
Comments on photosignature:

☐ polygon ☐ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al., 1979):
Description (check one):
☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other:
Comments on photosignature:

☐ polygon ☐ linear fringe

D. Other Field Observations
Shoreline Feature(s):
☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:
Wildlife:
Potential impacts/pollutants:
Field Site #: S72  
Date: 9/14/99  
Field Participants: Helen Cottrell & Tony Constantine (RIDEM); Lesie Katz & Bob Brown (Brown Univ.); Irene Huber (RAG)  
Photo #: 15-16  
Scale: 1:12K  
USGS Quadrangle: Block Island  
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)  
Species: *Codium fragile*  
%Cover: 90%  

In-field Classification (Cowardin et al, 1979): EIAKL  
Approx. depth of bed (ft): 12-14  
Estimated size of bed (acres): 15-20  
Comments on photosignature: smooth, dark blue;eward extent not distinguishable w/ depth.

B. Estuarine Wetland  
Species:  
%Cover:  

In-field Classification (Cowardin et al, 1979):  
Wetland modified? (check all that apply):  
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded  
Comments on photosignature:  

C. Estuarine or Marine Deepwater Habitat  
In-field classification (Cowardin et al, 1979):  
Description (check one):  ☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat  
☐ Panne or pool  ☐ Open water  ☐ Other  
Comments on photosignature:  

D. Other Field Observations  
Shoreline Feature(s):  ☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank  
☐ Man-made shoreline (describe):  
Notable erosion/depositional patterns:  

Wildlife:  
Potential impacts/pollutants:  
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 573
Field Participants: Helen Cottrell & Barry Constantine (RDEM); Leslie Katz
Photo #15-c, 16-c Scale: 1:12K
USGS Quadrangle: Block Island
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Codium fragile %Cover 50 ±

In-field Classification (Cowardin et al, 1979): EALBI
Approx. depth of bed (ft): 6 ± Estimated size of bed (acres): 10 - 12
Comments on photosignature: somewhat patchy dark blue-green

B. Estuarine Wetland
Species:

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded
Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other
Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group  

**Field Site #** 574  
**Date:** 9/14/99  
**Field Participants:** Helen Cottrell & Larry Constantine (RIDEM); Leslie Katz  
**Photo #** 10-7  
**Scale:** 1:12K  
**USGS Quadrangle:** Block Island  
(Attach copy of USGS quadrangle with site location)

### A. Submerged Aquatic Bed (SAV)

**Species:** Zostera marina  
**%Cover:** 90%  
**In-field Classification (Cowardin et al, 1979):** E1AB3L  
**Approx. depth of bed (ft):** 10 ft  
**Estimated size of bed (acres):** 6-8  
**Comments on photosignature:** very dark blue-black & smooth

### B. Estuarine Wetland

**Species:**  
**%Cover:**  
**In-field Classification (Cowardin et al, 1979):**  
**Wetland modified? (check all that apply):**  
☐ Ditched  ☐ Tidally-restricted  ☐ Excavated  ☐ Spoil deposition  ☐ Impounded  
**Comments on photosignature:**

- ☐ polygon  ☐ linear fringe

### C. Estuarine or Marine Deepwater Habitat

**In-field classification (Cowardin et al, 1979):**

**Description (check one):**  
☐ Sand beach  ☐ Cobble beach  ☐ Rocky shore  ☐ Tidal flat  
☐ Panne or pool  ☐ Open water  ☐ Other  
**Comments on photosignature:**

- ☐ polygon  ☐ linear fringe

### D. Other Field Observations

**Shoreline Feature(s):**  
☐ Dune  ☐ Cliff  ☐ Bluff  ☐ Coastal Bank  
☐ Man-made shoreline (describe):  
**Notable erosion/depositional patterns:**  
**Wildlife:**  
**Potential impacts/polutants:**
Field Data Sheet for Rhode Island South Shore Project  
Natural Resources Assessment Group

Field Site #: S75  
Date: 9/14/99

Field Participants: Helen Cotterill, Larry Constantine (RIDEM); Leslie Katz; Irene Huber (NRAG)

Photo #: 15-5  
Scale: 1:120K  
(J. Brown, Univ.); Block Island

(Assert copy of USGS quadrangle with site location)

## A. Submerged Aquatic Bed (SAV)

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>red algae (Gracilaria sp.)</td>
<td>50-60</td>
</tr>
</tbody>
</table>

In-field Classification (Cowardin et al., 1979): M1AB1

Approx. depth of bed (ft): 4-8  
Estimated size of bed (acres): 12 ±

Comments on photosignature: rocks (+) algae; no access to sample directly; pinkish blue tone

### B. Estuarine Wetland

<table>
<thead>
<tr>
<th>Species</th>
<th>%Cover</th>
</tr>
</thead>
</table>

In-field Classification (Cowardin et al., 1979):

Wetland modified? (check all that apply):
- Ditched
- Tidally-restricted
- Excavated
- Spoil deposition
- Impounded

Comments on photosignature:

### C. Estuarine or Marine Deepwater Habitat

In-field classification (Cowardin et al., 1979):

<table>
<thead>
<tr>
<th>Description</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand beach</td>
<td></td>
</tr>
<tr>
<td>Cobble beach</td>
<td></td>
</tr>
<tr>
<td>Rocky shore</td>
<td></td>
</tr>
<tr>
<td>Tidal flat</td>
<td></td>
</tr>
<tr>
<td>Panne or pool</td>
<td></td>
</tr>
<tr>
<td>Open water</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

Comments on photosignature:

### D. Other Field Observations

<table>
<thead>
<tr>
<th>Shoreline Feature(s)</th>
<th>%Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dune</td>
<td></td>
</tr>
<tr>
<td>Cliff</td>
<td></td>
</tr>
<tr>
<td>Bluff</td>
<td></td>
</tr>
<tr>
<td>Coastal Bank</td>
<td></td>
</tr>
<tr>
<td>Man-made shoreline</td>
<td></td>
</tr>
</tbody>
</table>

Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 57-6
Field Participants: Helen Cottrell & Harry Constantine (RIDE); Leslie Katz, J. Brown (Brown Univ); Irene Huber (NAG)
Photo #: 15/5 Scale: 1:10K USGS Quadrangle: Block Island
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Posicera marina %Cover 75 ±

In-field Classification (Cowardin et al, 1979): EIA B3L
Approx. depth of bed (ft): 7-10 Estimated size of bed (acres): 10 ±
Comments on photosignature: Smooth dark/blue-to-black not directly accessible; for sampling, verified eelgrass by

B. Estuarine Wetland
Species: C. Powell (RIDE) and K. Katz (Brown U.) %Cover

In-field Classification (Cowardin et al, 1979):
Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded

Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field Classification (Cowardin et al, 1979):
Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other

Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:

Potential impacts/pollutants:
Little Compton
(Southern Shoreline)
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 577
Field Participants: Chris Powell (RIDEM) checked these sites selected by NRAG
Photo # 10-4 Scale: 1:12K Sakonnet Point
USGS Quadrangle: (Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Fucus vesiculosus
               Ascophyllum nodosum
%Cover 75-100

In-field Classification (Cowardin et al, 1979): MIA BIL
Approx. depth of bed (ft): 4-12 ft
Estimated size of bed (acres): 4-5
Comments on photosignature: somewhat textured, purplish-black & well-defined

B. Estuarine Wetland
Species: ________________________________
%Cover ________________________________

In-field Classification (Cowardin et al, 1979): ________________________________
Wetland modified? (check all that apply):
[ ] Ditched [ ] Tidally-restricted [ ] Excavated [ ] Spoil deposition [ ] Impounded
Comments on photosignature: ________________________________

[ ] polygon [ ] linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one): [ ] Sand beach [ ] Cobble beach [ ] Rocky shore [ ] Tidal flat
[ ] Panne or pool [ ] Open water [ ] Other ________________________________
Comments on photosignature: ________________________________

[ ] polygon [ ] linear fringe

D. Other Field Observations
Shoreline Feature(s): [ ] Dune [ ] Cliff [ ] Bluff [ ] Coastal Bank
[ ] Man-made shoreline (describe): ________________________________
Notable erosion/depositional patterns: ________________________________

Wildlife: ________________________________
Potential impacts/pollutants: ________________________________
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site # 578
Field Participants: Chris Powell (RIDEM) checked these sites selected by NRAG
Photo # 10-4 Scale: 1:12K
USGS Quadrangle: Sakonnet Point
(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Fucus vesiculosus
and/or Ascophyllum nodosum

%Cover 75-100

In-field Classification (Cowardin et al. 1979): MIABIL

Approx. depth of bed (ft): 2-6
Estimated size of bed (acres): 20-25
Comments on photosignature: Smooth purplish-black; somewhat patchy to the north end

B. Estuarine Wetland
Species: ______________________________________
%Cover ____________

In-field Classification (Cowardin et al. 1979):

Wetland modified? (check all that apply):
☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded

Comments on photosignature: ______________________________________

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al. 1979):

Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat
☐ Panne or pool ☐ Open water ☐ Other __________________________

Comments on photosignature: ______________________________________

D. Other Field Observations
Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank
☐ Man-made shoreline (describe): ______________________________________

Notable erosion/depositional patterns: ______________________________________

Wildlife: ______________________________________

Potential impacts/pollutants: ______________________________________
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: 579
Field Participants: Chris Powell (RIDEM) checked these sites selected by NRAG
Photo #: 11-3 Scale: 1:12K Saltonet Point
USGS Quadrangle: (Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Fucus vesiculosus

%Cover: 75±

and/or

Aphanomyllum nodosum

and/or

Codium fragile

In-field Classification (Cowardin et al, 1979): MIABL

Approx. depth of bed (ft): 5-8

Estimated size of bed (acres): 12-15

Comments on photosignature: dark blue-green to black/dense

B. Estuarine Wetland
Species:

%Cover:

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):

☐ Ditched ☐ Tidally-restricted ☐ Excavated ☐ Spoil deposition ☐ Impounded

Comments on photosignature:

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):

Description (check one): ☐ Sand beach ☐ Cobble beach ☐ Rocky shore ☐ Tidal flat

☐ Panne or pool ☐ Open water ☐ Other

Comments on photosignature:

D. Other Field Observations
Shoreline Feature(s): ☐ Dune ☐ Cliff ☐ Bluff ☐ Coastal Bank

☐ Man-made shoreline (describe):

Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants:
Field Data Sheet for Rhode Island South Shore Project
Natural Resources Assessment Group

Field Site #: S80
Field Participants: Chris Powell (RIDEM) checked three sites selected by NRAG
Photo #: 11-3 Scale: 1:12K
USGS Quadrangle: Saltonet Point

(Attach copy of USGS quadrangle with site location)

A. Submerged Aquatic Bed (SAV)
Species: Fucus vesiculosus
and
Asparagus densum
%Cover 75-80

In-field Classification (Cowardin et al, 1979): MA ABLR 82M
Approx. depth of bed (ft): 3-10
Estimated size of bed (acres): 15
Comments on photosignature: somewhat mottled purplish-black rocks visible

B. Estuarine Wetland
Species: 

%Cover

In-field Classification (Cowardin et al, 1979):

Wetland modified? (check all that apply):
□ Ditched □ Tidally-restricted □ Excavated □ Spoil deposition □ Impounded
Comments on photosignature:

□ polygon □ linear fringe

C. Estuarine or Marine Deepwater Habitat
In-field classification (Cowardin et al, 1979):
Description (check one):
□ Sand beach □ Cobble beach □ Rocky shore □ Tidal flat
□ Panne or pool □ Open water □ Other
Comments on photosignature:

□ polygon □ linear fringe

D. Other Field Observations
Shoreline Feature(s): □ Dune □ Cliff □ Bluff □ Coastal Bank
□ Man-made shoreline (describe):
Notable erosion/depositional patterns:

Wildlife:
Potential impacts/pollutants: