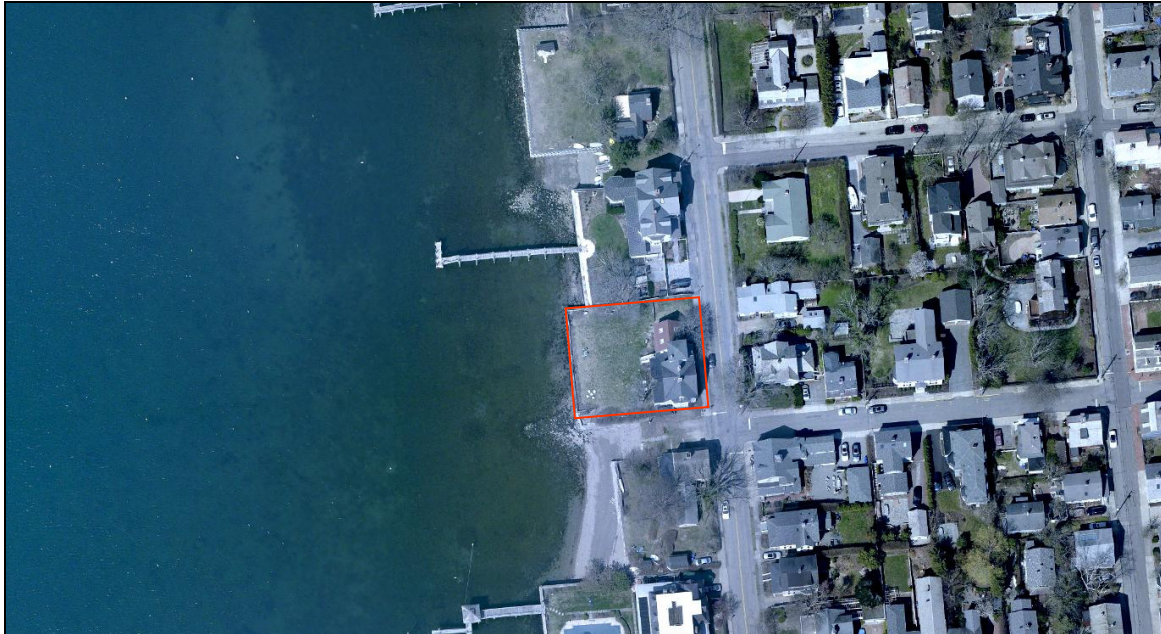




2021-05-075

Natural Resource Services, Inc.

Submerged Aquatic Vegetation Survey
80 Washington Street
A.P. 12, Lot 73
Newport, Rhode Island



Prepared for:
Todd Chaplin, PE
Mount Hope Engineering, Inc.
1788 Grand Army of the Republic Hwy
Swansea, MA 02777

Report Prepared by:

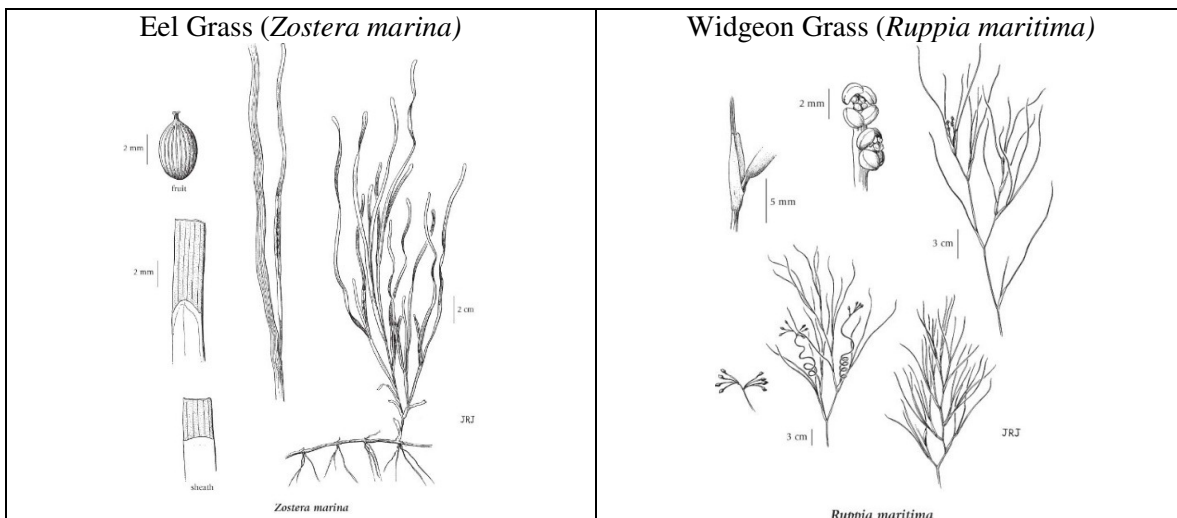
Scott P. Rabideau, PWS

July 10, 2019

Introduction

Natural Resource Services, Inc. (NRS) has completed a Submerged Aquatic Vegetation (SAV) study along the shoreline of at 80 Washington Street (A.P. 12, Lot 73) in Newport, Rhode Island. This study was performed in accordance with the standards established within Section 1.3.1(R)(4) (a-e) of the RI Coastal Resources Management Program (CRMP). This report and the enclosed graphic and data tables can be used for any submission to the Coastal Resources Management Council (CRMC) requiring proof of an SAV study. An SAV study is valid for up to three (3) years pursuant to 1.3.1(R)(4)(c).

The primary purpose of this SAV study is to identify and map existing eelgrass (*Zostera marina*) and/or widgeon grass (*Ruppia maritima*) beds, substrate within the study area, mean height of eelgrass or widgeon grass shoots, and depth of water (at time of sampling) at each quadrat location. Eelgrass and widgeon grass are perennial, rooted, submerged, aquatic plants that occupies shallow, estuarine waters in sheltered bays and coves. The following illustration depicts eelgrass and widgeon grass.



SAV beds provide habitat and cover for various shellfish and fin fish species, while subsequently providing food for waterfowl species. Eelgrass and widgeon grass also play an important role in protecting the shorelines from sedimentation and erosion by stabilizing bottom sediments. It is for these functions and values that the CRMC requires a study of SAV habitats.



Methodology

The SAV Study was performed on July 9, 2019 by NRS staff biologist Carolyn Decker and Sabrina Charron, with all work occurring between 2:00 pm – 4:00 p.m. in a portion of Newport Harbor/Coddington Cove (Waterbody ID: RI0007030E-01E) classified as Type 2 Waters. Type 2 Waters are defined as low-intensity boating use and docks are permissible in these waters.

NRS has established nine (9) transects (A – I) to encompass the area along the shoreline of the subject property. For the purposes of this survey, the shoreline was the limit of the existing stone and metal retaining wall. The first transect, transect A, was established approximately 10 feet north of the southern property line. The subsequent transects were spaced at ten foot (10’) intervals leading northwards along the shoreline.

All transects extend perpendicular to the shoreline 140 feet westward into the water. The limit of the survey was 140 feet seaward of the shoreline due to the presence of a ship anchored at approximately 150 feet. Along each transect, one meter square sampling stations (quadrats) were established every 10 feet. At each of the established sampling stations, the water depth, substrate characteristics, percent cover of *Zostera marina* or *Ruppia maritima*, and mean shoot height were recorded.

Low tide was recorded to be at 7:35 a.m. on July 9, 2019 (Newport, RI (#8452660)). At the time of the survey, the water depth in the study area ranged approximately between 3.5 to 15 feet. The substrate consisted primarily of mucky sand, gravel, cobbles, and boulders.

The locations of the transects were GPS located in the field using a handheld Trimble Geo7X unit. While this GPS data should not be considered a survey plan, it can be helpful for preliminary planning purposes.

Findings and Conclusion

Upon completion of the NRS site investigation, it was determined that there is a submerged aquatic vegetation (SAV) bed of eelgrass present in the surveyed area along the subject property. The eelgrass bed is furthest from the shoreline near the southern edge of the parcel. The eelgrass bed extends progressively further toward the shoreline near the center of the parcel, then is slightly further seaward again at the northern edge of the parcel. The eelgrass bed extends seaward beyond the limit of the survey. Occasional bare spots are present in the interior of the eelgrass bed.

The following table summarizes the points at which the eelgrass bed begins along each transect.

| Transect | Distance to Start of Eelgrass Bed |
|-----------------|--|
| A | 70 ft. |
| B | 50 ft. |
| C | 40 ft. |



| | |
|---|--------|
| D | 20 ft. |
| E | 10 ft. |
| F | 10 ft. |
| G | 10 ft. |
| H | 30 ft. |
| I | 20 ft. |

Please see the enclosed data tables and site graphic for detailed information taken at each quadrat location. The enclosed geographic information systems (GIS) graphic illustrates the findings of the SAV survey.

The data collected by NRS is available electronically and can be forwarded to your engineer for use in preparing a plan. The transect locations along the shoreline and reference points within the property were located using a handheld GPS unit (Trimble Geo7X). While this data is not survey grade, the information shall assist your design professional when their field work is performed.

Please do not hesitate to contact our office should you have any questions, or require additional information.

Appendix

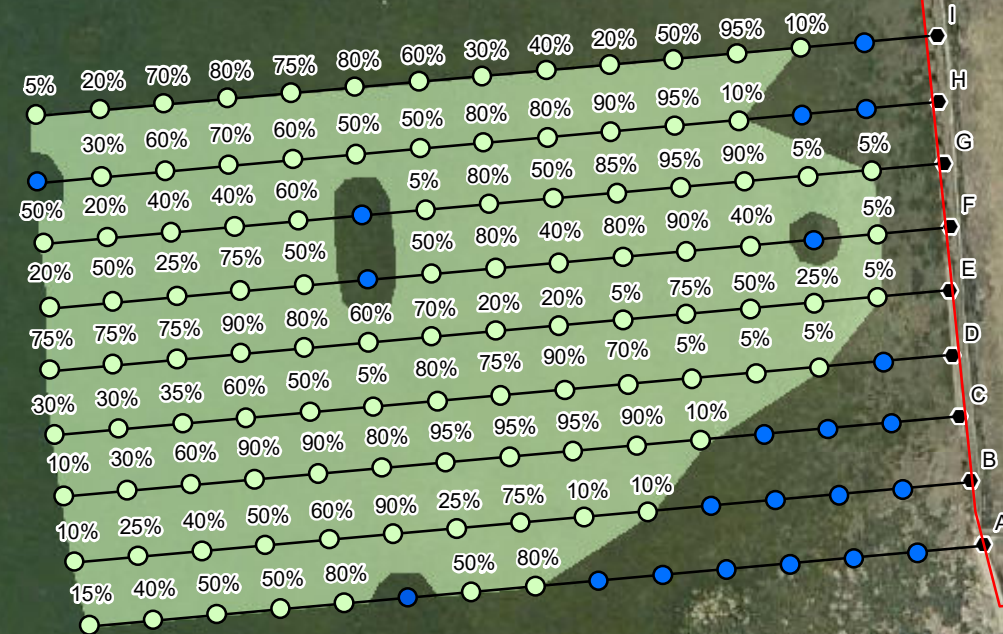


Legend

- Approximate Site Location (Town GIS)
- Transect Location (GPS Located)
- Square Meter Quadrat No SAV Observed*
- Square Meter Quadrat SAV Observed*
- Observed SAV Bed

SAV = Submerged Aquatic Vegetation
 *Please see attached table for complete data

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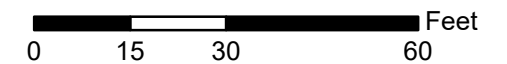


CRMC Type 2 Waters

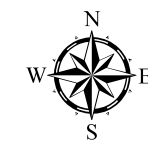
water meter
 fire alarm
 WashingtonSt
 utility pole
 WalnutSt

**FOR ILLUSTRATIVE PURPOSES ONLY
 NOT A SURVEY PLAN**

**Submerged Aquatic Vegetation Survey
 80 Washington Street
 A.P. 12, Lot 73
 Newport, RI**



Performed July 9, 2019 by
 Carolyn Decker & Sabrina Charron
 using handheld Trimble Geo7X



RIGIS April 2018 aerial
 RI DEM Mapping
 Natural Resource Services, Inc.
 PO Box 311
 180 Tinkham Lane
 Harrisville, RI 02830
 p: (401) 568-7390
 f: (401) 568-7490
 (c) RIGIS

Submerged Aquatic Vegetation Survey Data
 80 Washington Street; A.P. 12, Lot 73, Newport RI
 Prepared by: Carolyn Decker
 and Sabrina Charron, July 9, 2019, 2:00-4:00 pm



| A | | | | | | B | | | | | |
|-----------|--------------------------|------------|---------------------|---------------------|------------------------|-----------|--------------------------|------------|---------------------|---------------------|------------------------|
| Sample ID | Distance from shore (ft) | Depth (ft) | Bottom substrate | % Cover of eelgrass | Mean Shoot Height (ft) | Sample ID | Distance from shore (ft) | Depth (ft) | Bottom substrate | % Cover of eelgrass | Mean Shoot Height (ft) |
| A1 | 10 | 3.5 | Boulder/Cobble/Sand | 0 | - | B1 | 10 | 4 | Boulder/Cobble/Sand | 0 | - |
| A2 | 20 | 4 | Boulder/Cobble/Sand | 0 | - | B2 | 20 | 4.5 | Boulder/Cobble/Sand | 0 | - |
| A3 | 30 | 5 | Boulder/Cobble/Sand | 0 | - | B3 | 30 | 5.5 | Boulder/Cobble/Sand | 0 | - |
| A4 | 40 | 4.5 | Boulder/Cobble/Sand | 0 | - | B4 | 40 | 6 | Boulder/Cobble/Sand | 0 | - |
| A5 | 50 | 7 | Boulder/Cobble/Sand | 0 | - | B5 | 50 | 7 | Boulder/Mucky Sand | 10 | 1 |
| A6 | 60 | 7.5 | Boulder/Cobble/Sand | 0 | - | B6 | 60 | 7 | Boulder/Mucky Sand | 10 | 1 |
| A7 | 70 | 9 | Mucky Sand | 80 | 2.5 | B7 | 70 | 8.5 | Mucky Sand | 75 | 2 |
| A8 | 80 | 10 | Boulder/Mucky Sand | 50 | 3 | B8 | 80 | 8.5 | Mucky Sand | 25 | 2 |
| A9 | 90 | 10 | Mucky Sand | 0 | - | B9 | 90 | 9 | Mucky Sand | 90 | 2 |
| A10 | 100 | 11 | Mucky Sand | 80 | 3 | B10 | 100 | 10 | Mucky Sand | 60 | 2 |
| A11 | 110 | 11 | Mucky Sand | 50 | 3 | B11 | 110 | 10 | Mucky Sand | 50 | 2 |
| A12 | 120 | 12 | Mucky Sand | 50 | 3 | B12 | 120 | 12 | Mucky Sand | 40 | 2.5 |
| A13 | 130 | 14 | Mucky Sand | 40 | 3 | B13 | 130 | 13 | Mucky Sand | 25 | 1.5 |
| A14 | 140 | 15 | Mucky Sand | 15 | 1 | B14 | 140 | 15 | Mucky Sand | 10 | 1.5 |

| C | | | | | | D | | | | | |
|-----------|--------------------------|------------|---------------------|---------------------|------------------------|-----------|--------------------------|------------|--------------------|---------------------|------------------------|
| Sample ID | Distance from shore (ft) | Depth (ft) | Bottom substrate | % Cover of eelgrass | Mean Shoot Height (ft) | Sample ID | Distance from shore (ft) | Depth (ft) | Bottom substrate | % Cover of eelgrass | Mean Shoot Height (ft) |
| C1 | 10 | 5 | Boulder/Cobble/Sand | 0 | - | D1 | 10 | 5 | Cobble/Sand | 0 | - |
| C2 | 20 | 5.5 | Cobble/Sand | 0 | - | D2 | 20 | 5.5 | Cobble/Sand | 5 | 1 |
| C3 | 30 | 6 | Cobble/Sand | 0 | - | D3 | 30 | 6 | Mucky Sand | 5 | 1 |
| C4 | 40 | 6.5 | Mucky Sand | 10 | 1.5 | D4 | 40 | 6 | Mucky Sand | 5 | 1 |
| C5 | 50 | 7.5 | Mucky Sand | 90 | 2 | D5 | 50 | 7.5 | Boulder/Mucky Sand | 70 | 1 |
| C6 | 60 | 8.5 | Mucky Sand | 95 | 2.5 | D6 | 60 | 8.5 | Mucky Sand | 90 | 2.5 |
| C7 | 70 | 8.5 | Mucky Sand | 95 | 3 | D7 | 70 | 9 | Mucky Sand | 75 | 2.5 |
| C8 | 80 | 9 | Mucky Sand | 95 | 3 | D8 | 80 | 9 | Mucky Sand | 80 | 2.5 |
| C9 | 90 | 10 | Mucky Sand | 80 | 3 | D9 | 90 | 9.5 | Mucky Sand | 5 | 2.5 |
| C10 | 100 | 10.5 | Mucky Sand | 90 | 3 | D10 | 100 | 10 | Mucky Sand | 50 | 2.5 |
| C11 | 110 | 11 | Mucky Sand | 90 | 2.5 | D11 | 110 | 10 | Mucky Sand | 60 | 2 |
| C12 | 120 | 11 | Mucky Sand | 60 | 2.5 | D12 | 120 | 12 | Mucky Sand | 35 | 2.5 |
| C13 | 130 | 13 | Mucky Sand | 30 | 2.5 | D13 | 130 | 13 | Mucky Sand | 30 | 2.5 |
| C14 | 140 | 15 | Mucky Sand | 10 | 2 | D14 | 140 | 14 | Mucky Sand | 30 | 2.5 |

| E | | | | | | F | | | | | |
|-----------|--------------------------|------------|-------------------|---------------------|------------------------|-----------|--------------------------|------------|-------------------|---------------------|------------------------|
| Sample ID | Distance from shore (ft) | Depth (ft) | Bottom substrate | % Cover of eelgrass | Mean Shoot Height (ft) | Sample ID | Distance from shore (ft) | Depth (ft) | Bottom substrate | % Cover of eelgrass | Mean Shoot Height (ft) |
| E1 | 10 | 5 | Cobble/Sand | 5 | 1 | F1 | 10 | 5 | Gravel/Mucky Sand | 5 | 1.5 |
| E2 | 20 | 5.5 | Cobble/Sand | 25 | 1.5 | F2 | 20 | 5.5 | Gravel/Mucky Sand | 0 | - |
| E3 | 30 | 6 | Mucky Sand | 50 | 1.5 | F3 | 30 | 6 | Cobble/Mucky Sand | 40 | 1 |
| E4 | 40 | 7 | Mucky Sand | 75 | 2 | F4 | 40 | 6.5 | Cobble/Mucky Sand | 90 | 2 |
| E5 | 50 | 7 | Cobble/Mucky Sand | 5 | 1.5 | F5 | 50 | 7 | Cobble/Mucky Sand | 80 | 2 |
| E6 | 60 | 7.5 | Cobble/Mucky Sand | 20 | 2.5 | F6 | 60 | 7 | Cobble/Mucky Sand | 40 | 2 |
| E7 | 70 | 8 | Cobble/Mucky Sand | 20 | 2.5 | F7 | 70 | 8 | Cobble/Mucky Sand | 80 | 2 |
| E8 | 80 | 8.5 | Cobble/Mucky Sand | 70 | 2.5 | F8 | 80 | 8 | Cobble/Mucky Sand | 50 | 2 |
| E9 | 90 | 8.5 | Mucky Sand | 60 | 2.5 | F9 | 90 | 9 | Mucky Sand | 0 | - |
| E10 | 100 | 9 | Mucky Sand | 80 | 3 | F10 | 100 | 10 | Mucky Sand | 50 | 2.5 |
| E11 | 110 | 10 | Mucky Sand | 90 | 3 | F11 | 110 | 10.5 | Mucky Sand | 75 | 2.5 |
| E12 | 120 | 11 | Mucky Sand | 75 | 3.5 | F12 | 120 | 11.5 | Mucky Sand | 25 | 2.5 |
| E13 | 130 | 11.5 | Mucky Sand | 75 | 3.5 | F13 | 130 | 12.5 | Mucky Sand | 50 | 3 |
| E14 | 140 | 12.5 | Mucky Sand | 75 | 3.5 | F14 | 140 | 13 | Mucky Sand | 20 | 2.5 |

| G | | | | | | H | | | | | |
|-----------|--------------------------|------------|--------------------|---------------------|------------------------|-----------|--------------------------|------------|--------------------|---------------------|------------------------|
| Sample ID | Distance from shore (ft) | Depth (ft) | Bottom substrate | % Cover of eelgrass | Mean Shoot Height (ft) | Sample ID | Distance from shore (ft) | Depth (ft) | Bottom substrate | % Cover of eelgrass | Mean Shoot Height (ft) |
| G1 | 10 | 5 | Gravel/Mucky Sand | 5 | 1 | H1 | 10 | 5 | Gravel/Cobble | 0 | - |
| G2 | 20 | 5.5 | Gravel/Mucky Sand | 5 | 1 | H2 | 20 | 5.5 | Gravel/Cobble | 0 | - |
| G3 | 30 | 6 | Mucky Sand | 90 | 1.5 | H3 | 30 | 5.5 | Gravel/Mucky Sand | 10 | 1.5 |
| G4 | 40 | 6.5 | Mucky Sand | 95 | 1.5 | H4 | 40 | 6.5 | Mucky Sand | 95 | 1.5 |
| G5 | 50 | 7 | Mucky Sand | 85 | 2 | H5 | 50 | 6.5 | Mucky Sand | 90 | 1.5 |
| G6 | 60 | 7 | Mucky Sand | 50 | 2 | H6 | 60 | 7 | Mucky Sand | 80 | 1.5 |
| G7 | 70 | 8 | Mucky Sand | 80 | 2.5 | H7 | 70 | 7.5 | Cobble/Mucky Sand | 80 | 2 |
| G8 | 80 | 8.5 | Mucky Sand | 5 | 2 | H8 | 80 | 8 | Mucky Sand | 50 | 2 |
| G9 | 90 | 9 | Boulder/Mucky Sand | 0 | - | H9 | 90 | 9 | Mucky Sand | 50 | 2.5 |
| G10 | 100 | 9.5 | Mucky Sand | 60 | 2.5 | H10 | 100 | 9.5 | Mucky Sand | 60 | 2.5 |
| G11 | 110 | 10.5 | Mucky Sand | 40 | 2 | H11 | 110 | 11 | Mucky Sand | 70 | 3 |
| G12 | 120 | 11 | Mucky Sand | 40 | 2 | H12 | 120 | 11 | Mucky Sand | 60 | 3 |
| G13 | 130 | 12.5 | Mucky Sand | 20 | 2 | H13 | 130 | 13 | Boulder/Mucky Sand | 30 | 3 |
| G14 | 140 | 14 | Cobble/Mucky Sand | 50 | 3 | H14 | 140 | 14 | Boulder/Mucky Sand | 0 | - |

| I | | | | | |
|-----------|--------------------------|------------|--------------------|---------------------|------------------------|
| Sample ID | Distance from shore (ft) | Depth (ft) | Bottom substrate | % Cover of eelgrass | Mean Shoot Height (ft) |
| I1 | 10 | 5.5 | Gravel/Cobble | 0 | - |
| I2 | 20 | 5.5 | Gravel/Mucky Sand | 10 | 1.5 |
| I3 | 30 | 6 | Mucky Sand | 95 | 1.5 |
| I4 | 40 | 6.5 | Gravel/Mucky Sand | 50 | 1.5 |
| I5 | 50 | 7 | Gravel/Mucky Sand | 20 | 1.5 |
| I6 | 60 | 7.5 | Mucky Sand | 40 | 2 |
| I7 | 70 | 7.5 | Cobble/Mucky Sand | 30 | 2 |
| I8 | 80 | 8 | Mucky Sand | 60 | 2 |
| I9 | 90 | 9 | Bedrock/Sand | 80 | 2.5 |
| I10 | 100 | 9.5 | Mucky Sand | 75 | 2.5 |
| I11 | 110 | 10 | Mucky Sand | 80 | 3 |
| I12 | 120 | 11 | Mucky Sand | 70 | 3 |
| I13 | 130 | 12 | Mucky Sand | 20 | 2.5 |
| I14 | 140 | 13 | Boulder/Mucky Sand | 5 | 2.5 |