# FINAL Annual Report

# Submerged Aquatic Vegetation (SAV) and Freshwater Wetlands Monitoring in Support of the Jacksonville Harbor Deepening Project St. Johns River, Florida

**Prepared for:**
**U.S. Army Corps of Engineers**
**701 San Marco Boulevard**
**Jacksonville, FL 32207-8175**
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**Prepared by:**
**Amec Foster Wheeler Environment & Infrastructure, Inc.**
**404 SW 140th Terrace**
**Newberry, Florida 32669**
**Project Number 6063170288.07**


Jennifer Sagan, MS
Senior Scientist

Mark Diblin, PG
Project Manager


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# Table of Contents

**Executive Summary** ..... **iv**

**1.0 Introduction** ..... **1-1**

**2.0 Background** ..... **2-1**

**3.0 Objectives** ..... **3-1**

**4.0 Submerged Aquatic Vegetation Monitoring** ..... **4-1**
4.1 Station Locations, Methods, and Analysis - SAV Monitoring ..... 4-1
4.1.1 Station Locations – SAV Monitoring ..... 4-1
4.1.2 Monitoring Timeline – SAV Monitoring ..... 4-2
4.1.3 Data Collection Method, SAV Monitoring ..... 4-2
4.1.4 Data Analysis – SAV Monitoring ..... 4-4
4.2 Results - SAV Monitoring ..... 4-5
4.2.1 Groundtruth Site GT002 ..... 4-5
4.2.2 Groundtruth Site GT006 ..... 4-6
4.2.3 Bolles High School ..... 4-7
4.2.4 Buckman Bridge ..... 4-7
4.2.5 Moccasin Slough ..... 4-7
4.2.6 Orangedale ..... 4-8
4.2.7 Scratch Ankle ..... 4-8
4.3 Conclusions - SAV Monitoring ..... 4-9

**5.0 Freshwater Wetlands Monitoring** ..... **5-1**
5.1 Tributary Locations, Monitoring Timeline and Methods, and Analysis – Wetlands Monitoring ..... 5-1
5.1.1 Tributary Locations – Wetlands Monitoring ..... 5-1
5.1.2 Monitoring Timeline – Wetlands Monitoring ..... 5-4
5.1.3 Data Collection Methods – Wetlands Monitoring ..... 5-5
5.1.4 Data Analysis – Wetlands Monitoring ..... 5-9
5.2 Results - Wetlands Monitoring ..... 5-9
5.2.1 Pottsburg Creek Wetland Monitoring Plots ..... 5-10
5.2.2 Ortega River Wetland Monitoring Plots ..... 5-15
5.2.3 Julington Creek Wetland Monitoring Plots ..... 5-16
5.2.4 Black Creek Wetland Monitoring Plots ..... 5-16
5.2.5 Six Mile Creek Wetland Monitoring Plots ..... 5-17
5.3 Spatial Distribution and Plant Community – Wetlands Monitoring ..... 5-17
5.4 Conclusion - Wetlands Monitoring ..... 5-18

**6.0 References** ..... **6-1**

# Table of Contents (continued)

## Tables

**Table 1.** **Submerged Aquatic Vegetation Monitoring Locations, Nearshore Transect Coordinates**

**Table 2.** **SAV Bed length, Percent Cover, Percent Composition, and Simpson's Diversity Index**

**Table 3.** **Wetland Monitoring Plots - Corner Coordinates**

**Table 4.** **Summary of Soil/Sediment Quantitative Analysis Per Monitoring Plot**

**Table 5.** **Summary of Vegetation Data, Freshwater Wetland Monitoring Plots**

**Table 6.** **Sediment Lab and Field Measurements, by Monitoring Plot**

## Appendices

**Appendix 1** Final SAV Biological Monitoring Plan
**Appendix 2** SAV Photo Record
**Appendix 3** SAV Database
**Appendix 4** Wetlands Photo Record
**Appendix 5** Final Wetlands Biological Monitoring Plan
**Appendix 6** Wetlands Database

## Figures

**Figure 1.** SAV Monitoring Location Map
**Figure 2.** SAV Transect Map – Groundtruth 002
**Figure 3.** SAV Transect Map – Groundtruth 006
**Figure 4.** SAV Transect Map – Bolles High School
**Figure 5.** SAV Transect Map – Buckman Bridge
**Figure 6.** SAV Transect Map – Moccasin Slough
**Figure 7.** SAV Transect Map – Orangedale
**Figure 8.** SAV Transect Map – Scratch Ankle
**Figure 9.** Freshwater Wetland Monitoring Plots - All Tributaries
**Figure 10.** Freshwater Wetland Monitoring Plots - Pottsburg Creek
**Figure 11.** Freshwater Wetland Monitoring Plots - Ortega River
**Figure 12.** Freshwater Wetland Monitoring Plots - Julington Creek
**Figure 13.** Freshwater Wetland Monitoring Plots - Black Creek
**Figure 14.** Freshwater Wetland Monitoring Plots - Six Mile Creek
**Figure 15.** Plant Community Types - Pottsburg Creek
**Figure 16.** Plant Community Types - Ortega River
**Figure 17.** Plant Community Types - Julington Creek
**Figure 18.** Plant Community Types - Black Creek
**Figure 19.** Plant Community Types - Six Mile Creek

## Table of Contents (continued)

### Acronyms

| | |
|---|---|
| Amec Foster Wheeler | Amec Foster Wheeler Environment & Infrastructure, Inc. |
| ASTM | American Society for Testing and Materials |
| BMP | Biological Monitoring Plan |
| cm | centimeter |
| dbh | diameter at breast height |
| ERP | Environmental Resource Permit |
| *et al.* | and others |
| FAC | Facultative |
| FACW | Facultative Wetland |
| FDEP | Florida Department of Environmental Protection |
| FLUCCS | Florida Land Use and Cover Classification System |
| GPS | global positioning system |
| JAXPORT | Jacksonville Port Authority |
| km | kilometer |
| LABINS | Land Boundary Information System |
| LSJR | Lower St. Johns River |
| µS/cm | micro-Siemens per centimeter |
| m | meter |
| mV | millivolt |
| NRCS | Natural Resources Conservation Service |
| OBL | obligate |
| ORP | oxidation-reduction potential |
| ppt | parts per thousand |
| SAV | Submerged Aquatic Vegetation |
| SJRWMD | St. Johns River Water Management District |
| SOP/SOPs | Standard Operating Procedure(s) |
| SOW | Scope of Work |
| USACE | United States Army Corps of Engineers |
| USDA | United States Department of Agriculture |

# Executive Summary

The primary goal of the Submerged Aquatic Vegetation (SAV) and Freshwater Wetlands Monitoring in Support of the Jacksonville Harbor Deepening Project is to determine changes in condition of the SAV and freshwater wetlands vegetation within each permanent monitoring site through time. This Annual Report presents the pre-dredging monitoring methods and results for the permanent monitoring sites.

Two SAV monitoring events were conducted in accordance with the SAV Biological Monitoring Plan. The first monitoring event was conducted from July 14, 2017 to July 25, 2017 during the peak SAV growing season and the second event was conducted from November 1, 2017 through November 6, 2017. The seven SAV monitoring locations for this project were in the same locations in the Lower St. Johns River (LSJR) as established during an earlier study conducted by St. Johns River Water Management District (SJRWMD). The monitoring locations are located between river mile 26.5 and river mile 62. The July and November 2017 monitoring events represent the pre-dredging site conditions. The monitoring results from these two events are consistent with the SAV community condition that has been observed within the natural variation in these systems since monitoring began in the late 1990s. Specifically, bed length, species diversity, and cover fell within ranges previously observed at these sites. Similarly, it is not uncommon to see reductions in bed length, species diversity, and cover in the fall season compared to spring or summer. However, the dramatic changes in SAV coverage, composition, and bed length during the November 2017 monitoring event were consistent with the catastrophic effects of a tropical storm or hurricane. Hurricane Irma, which passed through northeast Florida on September 11, 2017, had a significant impact on the SAV beds which resulted in complete extirpation of most of the downstream beds and resulted in reductions in SAV coverage and uprooting of nearshore SAV at the remaining monitoring locations.

One freshwater wetlands monitoring event was conducted in accordance with the Wetlands Biological Monitoring Plan from October 9, 2017 to October 19, 2017. During this event, three wetland monitoring plots were assessed in each of five tributaries to the St. Johns River and included Black Creek, Julington Creek, Pottsburg Creek, Ortega River, and Six Mile Creek. The wetland plots were established adjacent to tributaries that were tidally influenced with tributary salinity values less than 0.5 parts per thousand (ppt). The results from this pre-dredging vegetative monitoring event indicates the plant communities were consistent with a freshwater, forested floodplain swamp community, as defined by the Florida Natural Areas Inventory community descriptions (FNAI 2010). Evidence of stress caused by Hurricane Irma, was observed and included: high water levels in monitoring plots; numerous downed, large, mature trees within and near the wetland monitoring plots; leaning vegetation (trees, shrubs); flattened herbaceous vegetation; and a silt layer on above-surface water level herbaceous vegetation and shrubs.

# 1.0 Introduction

In accordance with contract W91278-16-D-0062 between Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) and the U.S. Army Corps of Engineers (USACE) to provide Submerged Aquatic Vegetation (SAV) and Freshwater Wetlands Monitoring in Support of Jacksonville Harbor Deepening Project (Amec Foster Wheeler 2017a), an Annual Report for the data collected during the Submerged Aquatic Vegetation monitoring and freshwater forested wetlands monitoring conducted in 2017 must be prepared and submitted to USACE. This report must contain:

- detailed, concise description of the methods used to collect and analyze data collected;
- description of current (pre-dredge) biological monitoring site conditions, including information on all monitored parameters;
- comparison of current conditions to pre-dredging conditions and a description of changes to any parameters that were monitored (At the time of this report, dredging had not begun. Therefore, a comparison between to pre-dredging and post-dredging conditions is not applicable at this time.);
- representative photographs from the monitored SAV transects and freshwater forested wetlands;
- habitat map that shows the spatial distribution and delineation of distinct plant community types for each of the freshwater wetland monitoring locations;
- applicable statistical analyses; and
- results/conclusion.

This Annual Report is organized into two primary sections: SAV and Freshwater Forested Wetlands.

# 2.0 Background

Jacksonville's federal navigation channel is a 21-mile reach of the Lower St. Johns River (LSJR) extending from the Atlantic Ocean at Mayport, Florida to the Jacksonville Port Authority (JAXPORT) Talleyrand Marine Terminal just north of downtown Jacksonville, Florida. In accordance with the Water Resources Reform Development Act of 2014, USACE has been authorized to deepen the channel from 40 to 47 feet between river miles 0 and 13. This will allow Post-Panamax vessels to access the JAXPORT marine terminals near Blount Island.

Hydrodynamic modeling conducted by the USACE indicates the proposed deepening would result in a minor upstream shift in salinity. The authorized deepening plan, as well as the State permit, requires monitoring of selected SAV or eelgrass (i.e. *Vallisneria americana*), beds and freshwater wetlands within the main stem of the LSJR or its tributaries.

# 3.0 Objectives

The primary objective of this Annual Report is to establish and document pre-dredge conditions within the designated SAV monitoring stations and in the freshwater forested wetlands monitoring stations. The monitoring results will be used to support the results of the hydrodynamic and ecological modeling performed by the USACE.

# 4.0 Submerged Aquatic Vegetation Monitoring

## 4.1 Station Locations, Methods, and Analysis - SAV Monitoring

### 4.1.1 Station Locations – SAV Monitoring

The SAV monitoring locations for this project were in the same locations as established during an earlier study conducted by St. Johns River Water Management District (SJRWMD). The seven SAV sites are shown on Figure 1, and are identified, in latitudinal order, as:

- Groundtruth site GT002,
- Groundtruth site GT006,
- Bolles High School,
- Buckman Bridge,
- Moccasin Slough,
- Orangedale, and
- Scratch Ankle.

A brief description of each SAV monitoring station is provided below, including historical species composition and bed length.

**Groundtruth Site GT002**
The site is located in front of a private, residential property in a highly urbanized section of Duval County on the western bank of the river just downstream of Fishweir Creek and corresponding approximately to river mile 26.5. The shoreline consists of a bulkhead and concrete rip-rap. SAV data collection at this site began in 1998. Species, when present, that have been observed at the site include *Ruppia maritima*, and *Zannichellia palustris*; the bed length at this site has ranged from 0 to 73 meters (m) from shore (Sagan 2007).

**Groundtruth Site GT006**
The site is located in front of a private, residential property in a highly urbanized section of Duval County on the eastern bank of the river corresponding approximately to river mile 28. The shoreline consists of a bulkhead. SAV data collection at this site began in 1998. The only species observed at the site, if any were present, has been *Ruppia maritima*; the bed length at this site has ranged from 0 to 65 m from shore (Sagan 2007).

**Bolles High School**
The site is located in front of a private school in a highly urbanized section of Duval County on the eastern bank of the river (7400 San Jose Blvd., Jacksonville, Florida 32217) corresponding approximately to river mile 30. The shoreline consists of concrete rip-rap. SAV data collection at this site began in 1995. Species that have been observed with regular frequency at the site include *Najas guadalupensis*, *Ruppia maritima*, *Vallisneria americana*, and *Zannichellia palustris*; the mean bed length at this site has ranged from 17 to 94 m from shore (Sagan 2007).

**Buckman Bridge**
The site is located in a highly urbanized section of Duval County. It is located on the eastern bank of the river, upstream from the Buckman Bridge (Interstate 295), corresponding approximately to river mile 35. The study plot shoreline is bisected by an undeveloped property upstream and a developed residential property downstream (11138 Scott Mill Rd., Jacksonville, Florida 32223). The shoreline consists of a bulkhead that runs the entire length of the study plot. Data collection associated with this site began in 1996. Species that have been observed with regular frequency at the site include *Najas guadalupensis*, *Ruppia maritima*, *Vallisneria americana*, and *Zannichellia palustris*; the mean bed length at this site has ranged from 45 to 86 m from shore (Sagan 2007).

**Moccasin Slough**
The site is located in front of Moccasin Slough Park, a 255-acre conservation park in Clay County. It is located on the western bank of the river, upstream from Doctors Lake Inlet and across from Julington Creek corresponding approximately to river mile 38.

SAV data collection at this site began in 1995. Species that have been observed with regular frequency at the site include charophytes, *Najas guadalupensis*, *Ruppia maritima*, *Vallisneria americana*, and *Zannichellia palustris*; the mean bed length at this site has ranged from 143 to 170 m from shore (Sagan 2007).

**Orangedale**
The site is located on the eastern shore of St. Johns County, north of the Shands Bridge (State Road 16) and one dock upstream of the old Shands Bridge Fishing Pier, corresponding approximately to river mile 49. The shoreline abuts low density, rural residential property and consists of rip rap.

SAV data collection at this site began in 1995. Species that have been observed with regular frequency at the site include *Ceratophyllum demersum*, charophytes, *Eleocharis sp.*, *Micranthemum sp.*, *Najas guadalupensis*, *Potamogeton pusillus*, *Ruppia maritima Sagittaria subulata*, *Vallisneria americana*, and *Zannichellia palustris; t*he mean bed length at this site has ranged from 57 to 76 m from shore (Sagan 2007).

**Scratch Ankle**
The site is located in front of private residential property in a low density rural section of the Clay and Putnam County border and corresponds approximately to river mile 62. It is located on the western bank of the river, abutting swampland and naturalized residential shoreline.

SAV data collection at this site began in 1995. Species that have been observed with regular frequency at the site include *Ceratophyllum demersum*, charophytes (i.e. *Chara* sp. and *Nitella* sp.), *Eleocharis sp.*, *Hydrilla verticillata*, *Micranthemum sp.*, *Najas guadalupensis*, *Potamogeton pusillus*, *Ruppia maritima Sagittaria subulata*, *Vallisneria americana*, and *Zannichellia palustris;* the mean bed length at this site has ranged from 138 to 217 m from shore (Sagan 2007).

### 4.1.2 Monitoring Timeline – SAV Monitoring

Data was collected at SAV monitoring stations in the 2017 calendar year, as follows:

- July 2017 – the monitoring event during the peak growing season and prior to commencement of the deepening, providing baseline data.
- November 2017 – quarterly monitoring event prior to commencement of the deepening, providing baseline data.

### 4.1.3 Data Collection Method, SAV Monitoring

Methodology used for SAV Monitoring was stipulated by, and was performed in accordance with, the USACE Contract No. W91278-16-D-0062. Methodology reflects the previous methods employed during SJRWMD data collection at these locations.

At each monitoring location, five transects were placed perpendicular to the shore starting from the shoreline and extended towards the river channel. Transects were positioned parallel to each other at a distance of 0, 12, 25, 38, or 50 m from a stationary benchmark located at each monitoring location.

Transect nearshore points were obtained for each monitoring location (Table 1) and are shown in Figures 2 through 8.

**Table 1. Submerged Aquatic Vegetation Monitoring Locations, Nearshore Transect Coordinates**

| Location | Monitoring Location Name | Transect | Coordinates for Transect Nearshore Points (Decimal Degrees) | |
|---|---|---|---|---|
| | | | Latitude | Longitude |
| Groundtruth 002 | GT002 | GT00200 | 30.28822814 | -81.70599232 |
| | | GT00212 | 30.28812747 | -81.70605015 |
| | | GT00225 | 30.28804521 | -81.70610505 |
| | | GT00238 | 30.28790150 | -81.70614964 |
| | | GT00250 | 30.28783038 | -81.70621854 |
| Groundtruth 006 | GT006 | GT00600 | 30.27056542 | -81.65392662 |
| | | GT00612 | 30.27064165 | -81.65400323 |
| | | GT00625 | 30.27072782 | -81.65404061 |
| | | GT00638 | 30.27083938 | -81.65413759 |
| | | GT00650 | 30.27091545 | -81.65422132 |
| Bolles High School | BOL | BOL00 | 30.24158587 | -81.63045888 |
| | | BOL12 | 30.24149262 | -81.63037003 |
| | | BOL25 | 30.24138391 | -81.63034069 |
| | | BOL38 | 30.24128010 | -81.63023802 |
| | | BOL50 | 30.24119510 | -81.63015724 |
| Buckman Bridge | BUC | BUC00 | 30.17340726 | -81.64465053 |
| | | BUC 12 | 30.17349129 | -81.64462731 |
| | | BUC 25 | 30.17358248 | -81.64458071 |
| | | BUC 38 | 30.17370922 | -81.64452019 |
| | | BUC 50 | 30.17379869 | -81.64449547 |
| Moccasin Slough | MOC | MOC00 | 30.12913761 | -81.69408859 |
| | | MOC12 | 30.12907981 | -81.69408239 |
| | | MOC25 | 30.12896666 | -81.69406504 |
| | | MOC38 | 30.12885283 | -81.69399387 |
| | | MOC50 | 30.12876101 | -81.69395775 |
| Orangedale | ORG | ORG00 | 30.00480725 | -81.61272327 |
| | | ORG12 | 30.00485448 | -81.61279377 |
| | | ORG25 | 30.00494731 | -81.61288949 |
| | | ORG 38 | 30.00507161 | -81.61299242 |
| | | ORG 50 | 30.00513678 | -81.61308001 |
| Scratch Ankle | SCA | SCA00 | 29.83708419 | -81.60278267 |
| | | SCA12 | 29.83699132 | -81.60273833 |
| | | SCA25 | 29.83726712 | -81.60286951 |
| | | SCA38 | 29.83716026 | -81.60283950 |
| | | SCA50 | 29.83688210 | -81.60268662 |

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Data collection methods along each transect are described below and provide SAV parameters such as cover, species composition, and bed length.

1. At each station, 5 transects were positioned perpendicular to the St. Johns River shoreline as described above. Transects extended from the shoreline to the deep-water edge of the SAV bed. The entire extent of the SAV bed was sampled. A visual assessment was conducted 10 m beyond the last “bare” quadrat to ensure that no plants were present along each transect.
2. Line-intercept surveys were conducted to document the linear extent (recorded to the nearest 0.1 m) of each SAV taxon present along each transect.
3. Data was collected at regular intervals along each transect, using a 0.25 m x 0.25 m quadrat. Quadrats were placed at intervals equal to 10% of the measured bed length (determined using the line-intercept survey results). Quadrats were separated by at least one meter and spaced no more

than 20 m apart from one another. The last quadrat was always sampled at the deep-water edge of the SAV bed.

4. Within each quadrat, the presence/absence of vegetation was recorded.
5. If SAV was present, the canopy height of each plant taxon was measured using a representative individual, and the data is provided in this report.
6. The condition / health of all plants within each plot were assessed by qualified staff. Any visually conspicuous signs of salt stress were noted during each survey.
7. All floating and emergent taxa present within quadrats were identified and reported.
8. Total percent cover of SAV was estimated within each quadrat. Cover was reported using standard categories developed by SJRWMD, as follows: 0 = bare (0% cover), 1 = sparse (1 – 32% cover), 2 = moderate (33 – 65% cover), 3 = heavy (66 – 100% cover).
9. If eelgrass (i.e. *Vallisneria americana*) inflorescence was present in a quadrat, this data was recorded/reported. The percentage of quadrats along each transect containing eelgrass with visible inflorescence was provided in this Annual Report, if applicable.
10. Within each quadrat, sediment was qualitatively assessed and assigned to one of three categories: 1 = sandy, 2 = mucky-sand, 3 = muck. All other substrates were denoted as 0, i.e., rock or clay.
11. If possible, representative photographs were taken along each transect at all stations. However, the dark, turbid waters of the LSJR generally do not make it possible to produce underwater photographs. Stock photographs of representative SAV species at the monitoring stations and throughout the LSJR were included in the SAV Biological Monitoring Plan (BMP) (Amec Foster Wheeler 2017b) (Appendix 1).

### 4.1.4 Data Analysis – SAV Monitoring

The data analysis methodology and the rationale for employing those methods is described in the SAV BMP (Amec Foster Wheeler 2017b) (Appendix 1). As the SAV BMP describes, future analyses will include statistical comparisons of annual and seasonal changes as well as trends analysis; however, it was not appropriate to apply those statistics using only two monitoring events. Specifically, those analyses proposed in the SAV BMP, the Sorensen similarity metric, Kruskal-Wallis test, and Seasonal Kendall test, require at least two full years of seasonal data in order to conduct comparisons. In this report, analyses are limited to tabular summaries of transect data for each monitoring site (Table 2). For each site, July and November data are displayed as ranges, indicating the minimum and maximum values obtained across the 5 transects monitored at each site. The following metrics that were reported for each site and event in this annual report include:

- Distance to deep-water edge of SAV (bed length),
- Percent cover of major SAV taxa,
- Percent composition of major SAV taxa, and
- Simpson's diversity (D1) index.

Linear cover for each species found along a transect was used to calculate percent cover for each species. The percent cover of these species was summed in order to obtain total percent cover for each transect. SAV linear extent values collected by the linear line-intercept method represents absolute cover, which allows for species overlap and can result in a total percent cover > 100%.

Percent cover was calculated as the total linear extent of a species (Ex. Species i) divided by the total bed length and was calculated for each species found along a transect:

$$Percent\ cover = \frac{Total\ linear\ extent\ of\ species\ i}{Total\ bed\ length}\ x\ 100$$

Percent composition was calculated by dividing the percent cover of each species by the sum of the percent cover of all species (excluding bare extents within the transect):

$$Percent\ composition = \frac{Percent\ cover\ Species\ i}{\Sigma Percent\ cover\ of\ all\ species\ in\ a\ transect}\ x100$$

Simpson's Diversity Index ($D_1$) was calculated according to Morris et al (2014) and was calculated using all species found along a transect:

$$D_1 = 1 - \Sigma P_i^2$$

Where Pi is the percent composition of species i.

While linear extent data from all species was used to calculate the metrics above, percent cover and percent composition were only reported for dominant species. Dominant species are defined as those species that have historically had the greatest coverage both within each monitoring site and throughout the Lower St. Johns River (Sagan 2007) and the species, *R. maritima*, which has been dominant during high salinity periods.

## 4.2 Results - SAV Monitoring

SAV monitoring was conducted July 12 – 25, 2017 and November 1 – 6, 2017. Field data sheets and associated database, in Excel format, were provided to USACE via email in the Task 5 SAV Monitoring Deliverable (Amec Foster Wheeler 2017c). Representative photos and the database are included in Appendices 2 and 3, respectively. A summary of July and November site conditions per site are provided below. Sites are discussed in latitudinal order starting with the most downstream site, GT002.

Of note, is that a tropical storm affected the LSJR preceding the November monitoring event. On September 10, 2017, Hurricane Irma hit the Florida Keys as a Category 4 hurricane, made landfall in the southwestern area of the Florida peninsula as a Category 3 hurricane (111 to 130 mph wind speeds), and then proceeded on a northerly track over the Florida peninsula. On September 11, 2017, Hurricane Irma was downgraded to a tropical storm (wind speeds 39 to 73 mph), and the eye of the storm was nearest to Jacksonville, Florida on that date. The hurricane was downgraded to a tropical storm as it entered north Florida and Georgia; however the Jacksonville area was hard hit by the storm due to high winds and flooding exacerbated by the large size of the storm, storm surge, tidal influence, and the influence on tides from the recent full moon (9/8/2017).[1]

### 4.2.1 Groundtruth Site GT002

**July 2017**

The bed length for this site ranged from 0 to 12.30 m (Table 2; Appendix 3). *Ruppia maritima* was the only SAV present at the time of the survey and appeared in patches along only 2 transects. The canopy height for *R. maritima* was between 7 and 8 centimeter (cm). The percent cover ranged from 0 to 2%. The percent composition was 100%; thus, the Simpson's diversity index for this site was 0.00. Sand

[1] Sources for Hurricane Irma information: Weather Underground (https://www.wunderground.com/hurricane/atlantic/2017/hurricane-irma?map=history); World Vision (https://www.worldvision.org/disaster-response-news-stories/hurricane-irma#strength); National Public Radio (https://www.npr.org/sections/thetwo-way/2017/09/06/548891942/here-s-what-you-need-to-know-about-hurricane-irma); Jacksonville Beach Tides and Solunar Charts (http://www.tides4fishing.com/us/florida-east-coast/jacksonville-beach)

was the dominant sediment type. Underwater photographs were not taken due to the dark, turbid nature of the water.

**Table 2. SAV Bed length, Percent Cover, Percent Composition, and Simpson's Diversity Index**

| Site | Month Sampled | Bed Length Range (m) | Canopy Height Range (cm) | # Species | Dominant Species* | % Cover of Dominant Species | % Composition of Dominant Species | Diversity Index |
|---|---|---|---|---|---|---|---|---|
| GT002 | July | 0 - 12.30 | 7 - 8 | 1 | *Vallisneria americana* | 0 | 0 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 0 - 2 | 100 | 0.00 |
| | November | 0 | NA | 0 | *Vallisneria americana* | 0 | 0 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 0 | 0 | NA |
| GT006 | July | 0 | NA | 0 | *Vallisneria americana* | 0 | 0 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 0 | 0 | NA |
| | November | 0 | NA | 0 | *Vallisneria americana* | 0 | 0 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 0 | 0 | NA |
| Bolles | July | 54.50 - 76.55 | 2 - 14 | 2 | *Vallisneria americana* | 0 | 0 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 4 - 6 | 79 - 100 | 0.00 - 0.33 |
| | November | 0 | NA | 0 | *Vallisneria americana* | 0 | 0 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 0 | 0 | NA |
| Buckman | July | 59.85 - 80.95 | 2 - 15 | 3 | *Vallisneria americana* | 0 - 1 | 1 - 3 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 21 - 38 | 96 - 100 | 0.00 - 0.07 |
| | November | 0 | NA | 0 | *Vallisneria americana* | 0 | 0 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 0 | 0 | NA |
| Moccasin Slough | July | 125.60 - 156.40 | 2 - 10 | 6 | *Vallisneria americana* | 5 - 20 | 33 - 50 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 1 - 15 | 10 - 44 | 0.60 - 0.70 |
| | November | 5.75 - 74.85 | 2 - 9 | 2 | *Vallisneria americana* | 1 - 3 | 97 - 100 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 0 - 1 | 3 - 100 | 0.00 - 0.05 |
| Orangedale | July | 69.40 - 74.90 | 2 - 62 | 6 | *Vallisneria americana* | 49 - 62 | 60 - 70 | |
| | | | | | *Najas guadalupensis* | 0 - 4 | 0 - 5 | |
| | | | | | *Ruppia maritima* | 0 | 0 | 0.42 - 0.52 |
| | November | 25.65 - 40.35 | 2 - 10 | 1 | *Vallisneria americana* | 0 - 6 | 100 | |
| | | | | | *Najas guadalupensis* | 0 | 0 | |
| | | | | | *Ruppia maritima* | 0 | 0 | 0.00 |
| Scratch Ankle | July | 158.25 - 196.60 | 4 - 92 | 10 | *Vallisneria americana* | 52 - 71 | 38 - 51 | |
| | | | | | *Najas guadalupensis* | 7 - 19 | 5 - 13 | |
| | | | | | *Ruppia maritima* | 0 - 1 | 0 - 1 | 0.65 - 0.75 |
| | November | 138.40 - 189.25 | 2 - 75 | 5 | *Vallisneria americana* | 13 - 47 | 99 - 100 | |
| | | | | | *Najas guadalupensis* | < 1 | 0 | |
| | | | | | *Ruppia maritima* | < 1 | 1 | 0.00 - 0.02 |

Created by: MAE Checked by: JJS

*Data are displayed as ranges, indicating the minimum and maximum values obtained across the 5 transects. **Dominant species are defined per Sagan (2007).

**November 2017**

No SAV was present at the time of the survey (Table 2; Appendix 3). The dominant sediment type for this site was sand. Visibility remained poor.

### 4.2.2 Groundtruth Site GT006

**July 2017**

No SAV was present at the time of the survey (Table 2; Appendix 3). The dominant sediment type was mucky sand. Underwater photographs were not taken due to the dark, turbid nature of the water.

**November 2017**
No SAV was present at the time of the survey. Visibility remained poor. The dominant sediment type shifted from mucky sand to sand.

### 4.2.3 Bolles High School

**July 2017**
The bed length for this site ranged from 54.5 to 76.55 m and consisted of *R. maritima* and Zannichellia *palustris* (Table 2; Appendix 3). SAV was present along all 5 transects but was segmented by bare sections. *R. maritima occurred* most frequently and had the greatest coverage; *Z. palustris* occurred infrequently. The canopy heights ranged from 2 to 14 cm. Percent cover of *R. maritima* was between 4 to 6%; percent composition ranged from 79 to 100%. The Simpson's diversity index for this site was 0.00 to 0.33. Sand was the dominant sediment type. Underwater photographs were not taken due to the dark, turbid nature of the water.

**November 2017**
No SAV was present at the time of the survey. Visibility remained poor. The dominant sediment type was sand.

### 4.2.4 Buckman Bridge

**July 2017**
The bed length for this site ranged from 59.85 to 80.95 m (Table 2; Appendix 3). SAV was present along all 5 transects but was segmented by bare sections. *R. maritima* had the greatest coverage and occurrence. *Vallisneria americana* and *Z. palustris were also present but* occurred infrequently. The canopy heights ranged from 2 to 15 cm, with a percent cover of 21 to 38% for *R. maritima,* and 0 to 1% for *V. americana*. The percent composition was 96 to 100% for *R. maritima* and 1 to 3% for *V. americana*. The Simpson's diversity index for this site ranged from 0.00 to 0.07. Sand or mucky sand was the dominant sediment type. Underwater photographs were not taken due to the dark, turbid nature of the water.

**November 2017**
No SAV was present at the time of the survey. Visibility remained poor. The dominant sediment type was sand.

### 4.2.5 Moccasin Slough

**July 2017**
The bed length for this site ranged from 125.60 to 156.40 m (Table 2; Appendix 3). SAV was present along all 5 transects but was segmented by bare sections. Six species of SAV were observed: charophytes, *Micranthemum* sp., *Potamogeton pusillus, R. maritima*, *V. americana*, and *Z. palustris*. Canopy heights ranged from 2 to 10 cm. Percent cover of *R. maritima* ranged from 1 to 15% and for *V. americana*, from 5 to 20%. The percent composition ranged from 10 to 44% for *R. maritima* and 33 to 50% for *V. americana*. The Simpson's diversity index for this site ranged from 0.60 to 0.70. Sand was the dominant sediment type. Underwater photographs were not taken due to the dark, turbid nature of the water.

**November 2017**
The bed length for this site ranged from 5.75 to 74.85 m; a reduction from the July observations. Bare segments were longer and more frequently encountered than during the July monitoring event. There were only two species of SAV present at the time of the survey: *R. maritima* and *V. americana*. The canopy height ranged from 2 to 9 cm. Percent cover ranged from 1 to 3% for *V. americana* and 1% for *R. maritima*. The percent composition was 97 to 100% for *V. americana* and 3 to 100% for *R.*

*maritima*. The Simpson's diversity index decreased for this site; it ranged from 0.00 to 0.05. Sand was the dominant sediment type. Water clarity remained poor.

### 4.2.6 Orangedale

**July 2017**

The bed length for this site ranged from 69.4 to 74.9 m (Table 2; Appendix 3). Six SAV species were present at the time of the survey: *Ceratophyllum demersum*, charophytes, *Hydrilla verticillata*, *Micranthemum* sp., *N. guadalupensis*, and *V. americana*. As seen in Appendix 2, the floating water lily, *Nymphaea mexicana*, was present throughout the nearshore area and extended approximately 30 m from shore. *C. demersum* was the SAV most often found beneath the floating *N. mexicana*. All species were found within the nearshore section of the bed but *V. americana* dominated the outer, deep-water half of the bed. SAV canopy height ranged from 2 to 62 cm. The percent cover of *V. americana* ranged from 49 to 62%; percent cover for *N. guadalupensis* ranged from 0 to 4%. The percent cover of *C. demersum* ranged from 21 to 30%. The percent composition was 60 to 70% for *V. americana* and 0 to 5% for *N. guadalupensis*. The Simpson's diversity index for this site ranged from 0.42 to 0.52. Sand was the dominant sediment type. Water clarity was poor at the deep-water edge of the bed but it was possible to obtain through-water photographs of the SAV within the nearshore sections (Appendix 2).

**November 2017**

The bed length for this site was reduced as compared to July lengths and ranged from 25.65 to 40.35 m. *V. americana* was the only species of SAV present at the time of the survey. The floating water lily, *Nymphaea mexicana*, was absent from the site. The canopy height decreased since the July survey, and ranged from 2 to 10 cm. The percent cover ranged from 0 to 6% and percent composition was 100%. The Simpson's diversity index for this site was 0.00. Sand was the dominant sediment type. Water clarity was poor at the time of the survey (See Appendix 2 November photos from Scratch Ankle as representative of water clarity conditions at all sites during November monitoring).

### 4.2.7 Scratch Ankle

**July 2017**

The bed length for this site ranged from 158.25 to 196.60 m (Table 2; Appendix 3). There were ten species present: *C. demersum*, charophytes, *Hydrilla verticillata*, *Micranthemum* sp., *N. guadalupensis*, *Potamogeton pusillus*, *R. maritima*, *Sagittaria subulata*, *V. americana*, and *Z. palustris*. As seen in Appendix 2, the floating water lily, *Nymphaea mexicana*, was present throughout the nearshore area and extended approximately 40 m from shore. All species were found within the nearshore section of the bed but *V. americana* dominated the outer, deep-water half of the bed. The SAV canopy height ranged from 4 to 92 cm. The percent cover for *V. americana* ranged from 52 to 71%, for *N. guadalupensis,* 7 to 19%, and for *R. maritima,* 0 to 1%. *H. verticillata* percent cover ranged from 32 to 39%; it had the second highest cover next to *V. americana*. The percent composition ranged from 38 to 51% for *V. americana*, 5 to 13% for *N. guadalupensis*, and 0 to 1% for *R. maritima*. The Simpson's diversity index for this site ranged from 0.65 to 0.75. Sand was the dominant sediment type. Water clarity was poor at the deep-water edge of the bed but it was possible to obtain through-water photographs of the SAV within the nearshore sections (Appendix 2).

**November 2017**

The bed length for this site slightly decreased since the July survey; it ranged from 138.4 to 189.25 m. Only half as many SAV species were present as compared to July: charophytes, *H. verticillata, N. guadalupensis*, *R.* maritima, and *V. americana*. The floating water lily, *Nymphaea mexicana*, was absent from the site. The SAV canopy height ranged from 2 to 75 cm, a decrease since July. The percent cover for *V. americana* decreased since July; it ranged from 13 to 47%. The percent composition for *V. americana* was much greater than in July; it ranged from 99 to 100%. The Simpson's

diversity index for this site ranged from 0.00 to 0.02. Sand was the dominant sediment type. Water clarity was poor at the time of the survey (Appendix 2).

### 4.3 Conclusions - SAV Monitoring

The primary goal of SAV monitoring will be to determine changes in condition of the SAV within each monitoring site through time. The primary null hypotheses to be tested are that no long-term changes occur in condition of the SAV communities at each monitoring site, in excess of natural variation, beginning with pre-dredging and early dredging data and continuing through post-dredging data collection. Changes will be assessed over time by comparing species richness, the extent of SAV beds (bed length), species composition, total densities, and the densities of individual taxa. For this first Annual Report, assessing changes in conditions over time is not feasible. Further, as of the time of this writing, the harbor deepening (i.e. dredging activities) has not yet commenced. However, an assessment can be made as to whether the July and November SAV conditions observed, fall within the range of values observed at these sites since the late 1990s and after extreme hydrologic events.

July sampling started on July 14, 2017 and was concluded on July 25, 2017. July conditions were consistent with values seen at these sites previously (Sagan 2007). Since SJRWMD monitoring began, the two most downstream sites, Groundtruth site GT002 (GT002) and Groundtruth site GT006 (GT006) have cycled from bare to infrequent coverage and have had low species richness. Bolles High School (BOL), as shown in Sagan (2007), has demonstrated a decadal trend toward decreasing cover, bed length, and species richness. SAV at both Buckman Bridge (BUC) and Moccasin Slough (MOC) have also cycled through periods of decline and resurgence but showed resiliency to those events (i.e. both sites tend to return to historical maximum bed lengths and coverage).

During July monitoring, while all downstream sites were either bare or patchy, had fewer than the maximum number of species historically seen, and had a shorter bed length than their historical maximum, the conditions were not inconsistent with site conditions after extreme hydrologic events. Specifically, Hurricane Mathew struck the Jacksonville area on October 3, 2016. Previous tropical storms and hurricanes in the area have resulted in darker, deeper water which increases light attenuation. Further, scouring affects are also often seen when wind–driven wave action increases. Finally, northeastern winds often “push” Atlantic sea water into the river, resulting in salinity spikes that exceed even short-term tolerance of *V. americana* and other freshwater SAV species. It is not inconsistent then, that all five of the most downstream sites (GT002, GT006, BOL, BUC, MOC), nine months after Hurricane Mathew, still showed SAV declines across all parameters (e.g. bed length, etc.). In contrast, Orangedale (ORG) and Scratch Ankle (SCA) did not show lingering decline from Mathew. This is consistent with other storm events and the SAV response at those sites. Both ORG and SCA are far enough upstream that salinity pulses during storms do not reach levels that are deleterious to SAV. Further, neither of those sites are exposed to the same suite or concentrations of light-attenuating pollutants that the downstream, urban sites receive from stormwater discharge.

November sampling started on November 1, 2017 and was concluded on November 6, 2017. In November, a drastic decrease in SAV abundance was observed at all sites previously containing SAV. GT002, BOL, and BUC contained some SAV (mostly *Ruppia maritima*) during the July survey, but were found to be completely bare in the November survey. *V. americana* was the dominant species at MOC, ORG, and SCA in July. In contrast, coverage of *V. americana* decreased at these three sites at the time of the November survey. Further, the nearshore assemblages of species at ORG and SCA were largely absent during the November survey.

Reductions in bed length, species diversity, and cover in the fall season as compared to spring or summer are not uncommon in the fall months (Sagan 2007). One of the environmental variables potentially affecting SAV bed length, diversity, and cover is water depth and water color. Water depth

has been found to be higher in the fall (Sagan 2004) partly due to the orientation of the mouth of the river relative to winds originating from the northeast. High velocity northeasters impede downstream river flow causing higher tides. In addition, color and TSS are highest in the fall and winter in the LSJR (Aldridge et al. 1998). In combination, the increased light attenuation and lengthening water column results in less light reaching SAV and results in seasonal changes in SAV condition. However, the dramatic changes in SAV coverage, composition, and bed length during the November monitoring are consistent with the catastrophic effects of a tropical storm or hurricane. Hurricane Irma had a significant impact on the SAV beds which resulted in completed extirpation of most of the downstream beds and loss of over half of the SAV coverage at Orangedale and Scratch Ankle. When Hurricane Irma made landfall in Florida September 10-11, 2017, rainfall was measured in excess of 11 inches in the Jacksonville area. Storm surge and subsequent retreat likely played a significant part in uprooting SAV and creating salinity spikes that exceed short-term tolerance of *V. americana* and other freshwater SAV species. Further, increased river stage may have further reduced light penetration depths and light levels reaching SAV.

The monitoring results from these two events are consistent with the SAV condition that has been observed within the natural variation in these systems since monitoring began in the late 1990s.

# 5.0 Freshwater Wetlands Monitoring

In 2017, freshwater wetlands monitoring stations (plots) were permanently established adjacent to five designated tributaries of the LSJR. These plots will be repeatedly monitored for vegetation and soil/sediment characteristics in the future as reflected in the monitoring timeline (section 5.1.2) and the Scope of Work (SOW).

## 5.1 Tributary Locations, Monitoring Timeline and Methods, and Analysis – Wetlands Monitoring

### 5.1.1 Tributary Locations – Wetlands Monitoring

The five tributaries associated with the freshwater wetlands monitoring component of this project are identified below (listed in latitudinal order), and are shown on Figure 9.

- Pottsburg Creek,
- Ortega River,
- Julington Creek,
- Black Creek, and
- Six Mile Creek

A brief description of each tributary is provided below.

**Pottsburg Creek**
Pottsburg Creek is in Duval County, is approximately 8.2 miles long, and drains an area of about 9.1 square miles within the Jacksonville city limits (southeast portion of Duval County). The Creek is located on the east side of the St. Johns River, and is the most northern tributary in the project area. Pottsburg Creek is a second-order stream that flows directly into the Arlington River, a tributary to the St. Johns River. Interstate 95 passes through this densely-urbanized watershed (FDEP 2009a).

**Ortega River**
The Ortega River is in Duval County, drains an area of about 88.6 square miles (south portion of Duval County). It is located on the west side of the St. Johns River, in a densely urban area west of the Jacksonville Naval Air Station. The Ortega River watershed is located entirely within the highly-urbanized Jacksonville city limits. The Cedar River flows approximately 2.5 miles from northwest to southeast and then converges with the north-flowing Ortega River. From that convergence, the river flows approximately 1.5 miles eastward to the St. Johns River (FDEP 2009b).

**Julington Creek**
Julington Creek is located on the east side of the St. Johns River in Duval County, is approximately 9.1 miles long and drains approximately 20.4 square miles. Julington Creek flows into Durbin Creek, which is also a tributary to the St. Johns River. The Julington Creek watershed is located within the Jacksonville city limits, in the southeast portion of Duval County (FDEP 2009a).

**Black Creek**
Black Creek is a major tributary of the St. Johns River. It is 13 miles long, and drains an approximately 479-square-mile area. Black Creek is located on the west side of the St. Johns River, and the majority of Black Creek is within Clay County, Florida. Tributaries to Black Creek include North Fork Black Creek, South Fork Black Creek, Little Black Creek, Greens Creek, Peters Creek, and Grog Branch. (FDEP 2009c).

**Six Mile Creek**

Six Mile Creek is located on the east side of the St. Johns River, in St. Johns County, and is the most southern tributary to the St. Johns River for this monitoring project. The Six Mile Creek watershed covers an area approximately 122 square miles in size. Mill Creek and Turnbull Creek are tributaries of Six Mile Creek. Land in the Six Mile Creek watershed is primarily undeveloped; upland forests and wetlands. Urban and agricultural land comprise about 21% of the watershed land use (USEPA 2013).

#### 5.1.1.1 Criterion for Establishing Wetland Monitoring Plots

The criteria for the location of the permanent monitoring plots, as defined by the SOW is provided below.

- The wetland must be freshwater and forested;
- The wetland (and wetland monitoring plot) must be located adjacent to the designated tributaries (section 5.1), to ensure the site is representative to detect potential salinity effects;
- The stretch of tributary must be tidally influenced; and
- Tributary salinity measurements adjacent to the monitoring plots must be less than 0.5 parts per thousand (ppt).

Using the criteria above, three wetland monitoring plots were established along each of the five tributaries for a total of 15 monitoring plots. (Figures 9 through 14). The size of each monitoring plot was 10 meters by 20 meters (10m x 20m); the long side (20m) of the monitoring plot was oriented parallel to the tributary. The four corner coordinates of each monitoring plot were identified in the field with the placement of orange fiberglass posts, and recorded with a handheld Global Positioning System (GPS) unit (Trimble Geo 7X) (Table 3). Photographs showing representative views of the monitoring plots are provided in Appendix 4.

The first wetland monitoring plot adjacent to each tributary was located the furthest downstream in a tidally influenced stretch of the tributary where previous data indicates there was no prior salinity measurements greater than 0.5 ppt. The second and third monitoring plots were located upstream of the first station, and unless otherwise indicated, were approximately one kilometer (km) apart and on the same side of the tributary. Wetland monitoring plots were ground-truthed to ensure the vegetation had no visible signs of salinity intrusion or salt-stress.

**Table 3. Wetland Monitoring Plots - Corner Coordinates**

| Tributary Name | Wetland Station Name | Longitude (DD) | Latitude (DD) |
|---|---|---|---|
| Pottsburg Creek | PC1A | -81.586010 | 30.271924 |
| | PC1B | -81.586214 | 30.271953 |
| | PC1C | -81.586239 | 30.272045 |
| | PC1D | -81.586035 | 30.272066 |
| | PC2A | -81.590613 | 30.266840 |
| | PC2B | -81.590632 | 30.266662 |
| | PC2C | -81.590720 | 30.266653 |
| | PC2D | -81.590717 | 30.266842 |
| | PC3A | -81.586819 | 30.261147 |
| | PC3B | -81.586615 | 30.261140 |
| | PC3C | -81.586613 | 30.261053 |
| | PC3D | -81.586832 | 30.261055 |
| Ortega River | OR1A | -81.744427 | 30.188555 |
| | OR1B | -81.744619 | 30.188624 |
| | OR1C | -81.744648 | 30.188513 |
| | OR1D | -81.744436 | 30.188469 |
| | OR2A | -81.753341 | 30.188238 |
| | OR2B | -81.753324 | 30.188059 |
| | OR2C | -81.753244 | 30.188044 |
| | OR2D | -81.753247 | 30.188196 |
| | OR3A | -81.764291 | 30.188615 |
| | OR3B | -81.764058 | 30.188689 |
| | OR3C | -81.764103 | 30.188759 |
| | OR3D | -81.764242 | 30.188691 |
| Julington Creek | JC1A | -81.555952 | 30.146161 |
| | JC1B | -81.555912 | 30.145979 |
| | JC1C | -81.556028 | 30.146007 |
| | JC1D | -81.556020 | 30.146191 |
| | JC2A | -81.555624 | 30.150199 |
| | JC2B | -81.555595 | 30.150017 |
| | JC2C | -81.555702 | 30.149988 |
| | JC2D | -81.555717 | 30.150179 |
| | JC3A | -81.556845 | 30.154174 |
| | JC3B | -81.556893 | 30.153978 |
| | JC3C | -81.556982 | 30.153988 |
| | JC3D | -81.556929 | 30.154182 |
| Black Creek | BC1A | -81.828377 | 30.067111 |
| | BC1B | -81.828390 | 30.067285 |
| | BC1C | -81.828508 | 30.067278 |
| | BC1D | -81.828469 | 30.067089 |
| | BC2A | -81.829553 | 30.074626 |
| | BC2B | -81.829736 | 30.074717 |
| | BC2C | -81.829781 | 30.074663 |
| | BC2D | -81.829616 | 30.074559 |
| | BC3A | -81.841675 | 30.082537 |
| | BC3B | -81.841835 | 30.082444 |
| | BC3C | -81.841915 | 30.082497 |
| | BC3D | -81.841736 | 30.082603 |
| Six Mile Creek | SMC1A | -81.538431 | 29.952256 |
| | SMC1B | -81.538599 | 29.952349 |
| | SMC1C | -81.538666 | 29.952253 |
| | SMC1D | -81.538493 | 29.952156 |
| | SMC2A | -81.532923 | 29.945029 |
| | SMC2B | -81.532835 | 29.944822 |
| | SMC2C | -81.532738 | 29.944870 |
| | SMC2D | -81.532821 | 29.945035 |
| | SMC3A | -81.528287 | 29.941141 |
| | SMC3B | -81.528272 | 29.940975 |
| | SMC3C | -81.528191 | 29.940988 |
| | SMC3D | -81.528202 | 29.941153 |

Prepared by: JMR Checked by: NP

**Legend:**

Example: Ortega River

OR1A, where 1 = most downstream station and A = one of four station corners

OR3B, where 3 = most upstream station, and B = one of four station corners

#### 5.1.1.2 Deviations from Wetland Plot Criteria

Some of the areas adjacent to the tributaries were urban or upland communities, or were on property where land access was not granted by the landowner. Under these conditions, the wetland plot locations were adjusted accordingly to meet the monitoring plot criteria (section 5.1.1), to the extent practicable.

Justification for deviations from the wetland plot criteria and distance between plots was documented in the field. Adjustments to monitoring plot locations were necessary for 12 of the 15 monitoring plots located adjacent to four of the five tributaries: Black Creek, Julington Creek, Pottsburg Creek, and Six Mile Creek. The explanation and justification for these deviations is provided below.

1) Pottsburg Creek, Distance Between Plots. The three monitoring plots adjacent to Pottsburg Creek are approximately 0.7 km apart. Pottsburg Creek flows through a densely urbanized area, and the presence of businesses and parking lots on both sides of the Pottsburg Creek limited the areas of habitat consistent with a freshwater wetland community. These Pottsburg Creek plot location adjustments were unavoidable due to a lack of freshwater forested wetlands that met the project criteria and were located on lands approved for access by landowners (Figure 10).

2) Julington Creek, Distance Between Plots. The location of the monitoring plots adjacent to Julington Creek were adjusted due to the short stretch of the Creek (approximately 1.1 km) that met the following criteria: tidally influenced and with salinities below 0.5 ppt. The three monitoring plots are evenly spaced (approximately 0.45 km apart) within this 1.1 km stretch of Julington Creek (Figure 12).

3) Black Creek, Distance Between Plots and Plots Located on Both Sides of Tributary. The distance between the first (most downstream) and second freshwater wetland monitoring plots is approximately 0.9 km, and the distance between the second and third (most upstream) monitoring plot is approximately 1.4 km. Additionally, monitoring Plots 1 and 2 (BC1 and BC2) are on the right descending side of Black Creek, and Plot 3 (BC3) is located on the left descending side of Black Creek. These Black Creek plot location adjustments were unavoidable due to a lack of freshwater forested wetlands that met the project criteria and were located on lands approved for access by landowners (Figure 13).

4) Six Mile Creek, Distance Between Plots and Plots Located on Both Sides of Tributary. The distance between the monitoring plots for the first (most downstream) and second freshwater wetland monitoring stations is approximately 0.95 km, and the distance between the second and third (most upstream) monitoring station is approximately 0.63 km. Additionally, monitoring Plot 1 (SMC1) is located on the left descending side of Six Mile Creek, and Plots 2 and 3 (SMC2 and SMC3) are located on the right descending side of Six Mile Creek. These Six Mile Creek plot location adjustments were unavoidable due to a lack of freshwater forested wetlands that met the project criteria and were located on lands approved for access by landowners (Figure 14).

### 5.1.2 Monitoring Timeline – Wetlands Monitoring

In accordance with the SOW, each of the pre-dredge freshwater wetland monitoring plots were monitored once, prior to the start of dredging and during the peak growing season. For this initial Annual Report, the pre-dredge freshwater wetland monitoring was conducted in October 2017 in wetlands adjacent to the five project tributaries.

### 5.1.3 Data Collection Methods – Wetlands Monitoring

For the October 2017 pre-dredge wetland monitoring event, vegetation and soil/sediment data was collected from each monitoring plot adjacent to the tributaries identified in section 5.1.1 (Figures 9 through 14). The rationale for the data collection methodology outlined in this Annual Report was stipulated by, and was performed in accordance with USACE Contract No. W91278-16-D-0062 and the associated SOW (Amec Foster Wheeler 2017a); and the applicable Standard Operating Procedures (SOPs).

#### 5.1.3.1 Vegetation Data Collection – Wetlands Monitoring

Vegetation data was collected in each freshwater wetland monitoring plot for living plants in three vegetative strata:

- Canopy;
- Sub-canopy/understory; and
- Ground layer.

Data collected included identifying all plants observed in each stratum within each 10m x 20m wetland monitoring plot to the lowest possible taxonomic level. Within each monitoring plot and vegetative stratum, the following data was recorded on field data forms:

- Total percent cover,
- Percent cover of dominant vegetation (the top five most abundant plants [by cover] or those plants that constituted greater than 20% cover).

Any visually conspicuous signs of salt stress were noted and recorded for each monitoring plot; such as yellowing needles / leaves, loss of needles / leaves, and dying limbs or trees.

**Canopy Monitoring**
Canopy vegetation was defined as woody vegetation, 20 feet or more in height and three inches or larger diameter at breast height (dbh) (USACE 2010). Canopy cover was visually estimated using a spherical densiometer, and recorded on field data forms. If trees were rooted outside of the monitoring plot, and the tree canopy extended into the monitoring plot space, then that tree(s) canopy was included in the canopy percent cover estimates. If an upland tree species rooted outside of the monitoring plot was observed, and that upland tree canopy was part of the monitoring plot canopy cover, field personnel documented and recorded this anomalous site condition. The same visual census techniques for quantifying percent cover of vegetation in each vegetative stratum were used in all monitoring plots, unless otherwise indicated.

**Sub-canopy/Understory Monitoring**
The sub-canopy/understory included plants below the canopy; woody plants between approximately three and 20 feet in height and less than three inches dbh (USACE 2010). Sub-canopy and understory vegetation were combined for purposes of this monitoring project. If sub-canopy/understory plants were rooted outside of the monitoring plot, and this plant cover extended into the monitoring plot space, then that plant(s) was included in the sub-canopy/understory percent cover estimates.

**Ground Layer Monitoring**
The ground layer vegetation was defined as herbaceous (non-woody) vegetation less than approximately three feet in height (USACE 2010).

In addition to the data collected and identified above, a nested plot design was established within each 10m x 20m monitoring plot to include twenty (20) 1m x 1m sub-plots, in accordance with the SOW. A random numbers table was used to identify at least 20 random sub-plot numbers for each 10m x 20m plot; these sub-plots were then identified on a paper grid form. The random sub-plot locations were

sometimes modified in the field to ensure a representative sample of ground layer vegetation. Measuring tapes were placed on each side/boundary of the 10m x 20m plot to aid in locating the sub-plots in the field. A 1m x 1m fiberglass pipe quadrat was used to visually isolate the vegetation in each sub-plot. The total percent cover of the ground layer vegetation in each of these 20 (1m x 1m) sub-plots was recorded. Percent cover was estimated by visual assessment as precisely as possible, and was reported to at least the nearest 10%. These 20 permanent sub-plots will be repeatedly monitored during future monitoring events.

#### 5.1.3.2 Soil/Sediment Data Collection – Wetlands Monitoring

Soil/sediment was collected in general accordance with FDEP SOP FS4000, Sediment Sampling (FDEP SOPs 2014) within each wetland monitoring plot. The sample material was evaluated quantitatively and qualitatively, as described in the following subsections and shown in Table 4 following this discussion.

Soil/sediment samples were collected using a drain spade constructed of stainless steel, or with a sediment core from five locations within the 10m x 20m monitoring plot. One soil/sediment sample was collected and retained from each of two of the five random locations in each monitoring plot. To the extent practicable, the two samples were collected from an area (within the plot) nearest to the adjacent tributary. These two samples were retained and subsequently delivered by hand to the Contractor's soil laboratory (Jacksonville, FL) and bio-laboratory (Newberry, FL). Soil/sediment was also collected from three additional locations for field measurements; these soil/sediment samples were not retained. Collected soil/sediment was temporarily placed on clean plastic sheeting to collect the sample material and/or to perform other quantitative and qualitative field measurements.

Depending upon site conditions, the soil/sediment sample material was collected at a uniform depth in all monitoring plots, between 12 and 24 inches, to the extent practicable. In the event the uniform sampling depth was not possible at a monitoring station, the sampling depth and the reason for the non-uniform sampling depth was documented in the field on field data forms. In unusual situations where the site was inundated with water (such as following a tropical storm, nor'easter, etc.), sampling with a shovel was not possible. In that case, sediment sampling was conducted using a sediment core sampler. Core-collected sediment was extruded so that only the sediment between 12 and 24 inches in depth was captured for analysis.

The methods and instrumentation used for the soil/sediment quantitative measurements meet FDEP criteria as described in the FDEP SOPs for field measurements. At a minimum, initial calibration and initial calibration verification of field instruments were performed weekly, prior to field work. Continued calibration verification was performed before and after field work each day. If the field instrument did not meet the FDEP acceptance criteria during continued calibration verification, then calibration and initial calibration verification were performed again. Appropriate standards were used for each instrument to achieve chronological and quantitative calibration bracketing. The instrument calibration/ verification documentation was recorded. Additional field records included date and time of measurement, source and location of measurement test sample, analyte or parameter measured, measurement value and unit, field staff initials, and identification number for the instrument(s).

##### 5.1.3.2.1 Quantitative Field Measurements of Soils/Sediments and Porewater

The quantitative field and laboratory parameters measured in soil/sediment, sample matrix, number of samples retained/not retained, sample handling, and associated methods used during the October 2017 freshwater wetlands monitoring event are reflected in Table 4, and are discussed in greater detail after Table 4.

**Table 4. Summary of Soil/Sediment Quantitative Analysis Per Monitoring Plot**

| Soil/Sediment Analysis (in situ or laboratory) | Matrix | # of Samples | Sample Retained | Sample Transported to Laboratory | Analysis Method |
|---|---|---|---|---|---|
| pH and salinity (in situ) | Porewater (borehole water) [(a)] | 2 | No | No | FDEP SOPs FT1100 and FT1300 |
| Conductivity (in situ) | Soil/sediment | 3 | No | No | FDEP FT1200 |
| ORP (in situ) | Soil/sediment | 2 | No | No | ASTM G200-09 2014; United States Department of Agriculture (USDA)- Natural Resources Conservation Service (NRCS) 2017 |
| pH and salinity (Laboratory) [(b)] | Soil/sediment | 2 | Yes | Yes | Miller *et al.* 2013; USDA-NRCS 2011 |

Created by: JMR Checked by: NP

(a) If monitoring plot was 100% inundated, these measurements were recorded in the surface water.
(b) Contractor's soil laboratory and bio-laboratory, respectively.

**Porewater pH and Salinity (field)**

If porewater filled the borehole that was created by the collection of the two soil/sediment samples discussed in section 5.1.3, pH and salinity of the porewater filling each sampling borehole was immediately measured in situ with appropriate field instruments/field probes (YSI Pro 1030), and recorded on field data forms. In the event the immediate consistency of the borehole water included solids due to disturbance from digging the hole, the solids were allowed to settle, and then the porewater pH and salinity were measured in the borehole. In the event the wetland monitoring plot was inundated with surface water at the time of monitoring, the pH and salinity in the surface water was measured, recorded, and this site condition was documented. In the event the borehole did not fill with water, field personnel dug up to 24-inches to obtain water in the borehole. If water was still not observed within the borehole, another random location within the plot was chosen and the process repeated.

Measurement of the above water quality parameters was conducted in accordance with the instrument manufacturer's instructions, and in general accordance with FDEP SOP FT1100, Field Measurement of Hydrogen Ion Activity (pH) and FDEP SOP FT1300, Field Measurement of Salinity, respectively (FDEP SOPs 2014).

**Soil/Sediment pH and Salinity (laboratory)**

Sample containers were labeled, sealed plastic zipper bags (FDEP SOP FS1000, General Sampling Procedures) (FDEP SOPs 2014). Methodology for collecting the two soil/sediment samples was in general accordance with FDEP SOP FS4000, Sediment Sampling (FDEP SOPs 2014). From the two soil/sediment samples collected and retained, a sub-sample of approximately 50 grams from each (of two) sample was placed in two labeled sample containers for analysis of pH in the Contractor's soils laboratory. A sub-sample of approximately 250 grams of each sample was placed in two sample containers for analysis of salinity in the Contractor's bio-laboratory.

The 50-gram labeled samples were preserved on ice; and hand-delivered to the Contractor's soils laboratory on the day the samples were collected to begin processing for pH analysis using a 5:1 water-to-soil mix method (USDA-NRCS 2011). Sediment pH values were reported on the following day. The 250 gram labeled samples were hand-delivered to the Contractor's bio-laboratory at the end of each field week to begin processing for the measurement of salinity using the saturated paste method (Miller *et al.* 2013, and USDA 1969). Salinity data was typically available within three days of sample arrival at the Contractor's bio-laboratory.

Sample chain-of-custody was maintained and documented for the samples delivered to the Amec Foster Wheeler laboratories. All activities related to the sampling event were documented, including sample collection, instrument calibration, equipment cleaning, and sample transport.

**Soil/Sediment Conductivity (field)**

Soil/sediment samples were temporarily collected using the collection methodology identified in section 5.1.3 at three random locations within each wetland monitoring plot (Table 4). Using a direct soil conductivity instrument with automatic temperature compensation (e.g. Soil Test™ Direct Soil EC Tester, Hanna® Instruments), conductivity was measured in these soil/sediment samples, and recorded on field data forms. The sediment material was left at the monitoring plot.

Methodology for performing the conductivity measurement was in accordance with the instrument manufacturer's instructions, and in general accordance with FDEP SOP FT1200, Field Measurement of Specific Conductance (Conductivity) (FDEP SOPs 2014).

**Soil/Sediment Oxidation – Reduction Potential (field)**

Soil/sediment samples were temporarily collected using the collection methodology identified in section 5.1.3 at two random locations within each wetland monitoring plot (Table 4). Soil oxidation-reduction potential (ORP) was measured in these samples using an ORP probe and meter (Hanna® Instruments HI1297D and HI36183). After removing rocks and debris that could damage the probe, the probe was inserted into the collected soil/sediment at three different locations within the soil sample; the measurement value for each was recorded on the field data form. This process was repeated with a second sample collected at a second random location within the monitoring plot.

Field personnel also noted and recorded if the soil/sediment sample exuded a sulfur (rotten egg) odor at a depth of 12 inches below the soil/sediment surface, which is indicative of the conversion from sulfate to hydrogen sulfide gas (USDA-NRCS 2017). The sulfur odor was subjectively determined and classified as 0 (no sulfur odor), 1 (slight odor), and 2 (strong odor).

ORP values reported here are electrode potential meter readings using a silver/silver chloride reference electrode. These values can be converted to a close approximation of Eh values by adding +199 mV. The methodology for performing the ORP measurement was conducted in accordance with the instrument manufacturer's instructions, and in general accordance with ASTM G200-09 Standard Test Method for Measurement of Oxidation-Reduction Potential (ORP) of Soil (ASTM 2014).

#### 5.1.3.2.2 Qualitative Characterization of Soils/Sediments

A qualitative description of soil/sediment conditions and characteristics based on field observation (e.g., soil texture, saturation, coloration) was determined in the field at each wetland monitoring plot from the two samples collected as described in section 5.1.3. The soil texture was determined in the field by the "Feel Method" (modified from Thien 1979). To determine soil/sediment texture, a small grab sample of the wet soil material was gently rubbed between the forefinger and thumb; the type of soil ribbon formed determined if the soil/sediment was coarse, moderately coarse, medium, or fine textured (Thien 1979, and USDA-NRCS 2017). Soil/sediment saturation was qualitatively determined based on the soil/sediment moisture by feel and appearance approach (USDA-NRCS 1998). A small (approximately one tablespoon) grab sample of soil/sediment was firmly squeezed in the hand into a ball shape; characteristics such as texture, ability to ribbon, water staining, water glistening, etc. were noted and compared with photographs/charts to estimate the range of percent saturation of the soil/sediment (USDA-NRCS 1998). Soil/sediment color were determined by comparison of moistened soil color with Munsell soil color charts (Munsell 1990 or newer), and the soil color hue, chroma, and value was documented and recorded.

#### 5.1.3.3 Spatial Distribution and Plant Community Delineation – Wetlands Monitoring

Another component of the wetland monitoring project included the desktop analysis/photo-interpretation of vegetative communities to document the spatial distribution and delineate distinct plant community types for the areas between the wetland monitoring plots. High-resolution aerial photographs from the following sources were used for this analysis: Clay County aerial photographs dated March 15, 2017 were used for the analysis of Black Creek plant communities. St. Johns County aerial photographs dated February 5, 2016 were used for the analysis of Six Mile Creek. Duval County aerial photographs dated February 20, 2017 were used for the analysis of the Ortega River, Julington Creek, and Pottsburg Creek plant communities.

### 5.1.4 Data Analysis – Wetlands Monitoring

The data analysis methodology and the rationale for employing those methods is described in the Wetlands Biological Monitoring Plan (BMP) (Amec Foster Wheeler 2017d) (Appendix 5). Changes in community composition will be assessed over time by comparing species composition (species richness), total plant densities, and the densities of individual taxa. While future analyses will include statistical comparisons of annual and seasonal changes as well as trends analysis, it was not appropriate to apply those statistics using only one monitoring event. Raw data for each site and plot is included in Appendix 6. In this report, analyses are limited to tabular summaries of plot data for which the following metrics were calculated:

- Total percent cover for each structural category,
- Percent cover of dominant wetland taxa for each structural category,
- Percent composition of dominant plant taxa for each structural category, and
- Species richness for each vegetative structural category.

Total percent vegetative cover estimates the area of influence of plants (for each vegetative stratum) in a specific area, in this case the 10m x 20m vegetation monitoring plot. Total percent vegetative cover represents absolute cover, which allows for species overlap and can result in a total percent cover > 100%. Percent composition is defined as the proportion, or percentage, of the total plant cover comprised by each plant species. Percent composition of dominant vegetation is calculated as follows:

$$Percent\ composition = \frac{\sum Percent\ cover\ of\ dominant\ species}{\sum percent\ cover\ of\ all\ species}\ x\ 100$$

Species richness for each vegetative structural category is defined as a count of different species in a specific area, and does include abundance/relative abundance data.

Dominant species were defined as those species with a percent cover greater to or equal 20%.

A summary of the soil data measured in the field and the laboratory is provided in tabular form (Table 4).

## 5.2 Results - Wetlands Monitoring

Freshwater wetlands monitoring was conducted October 10 - 19, 2017 in the 15 forested wetland plots. Field and laboratory data sheets and the associated database, in Excel format, calibration logs, and Chain of Custody (COC) forms for the data collected at the five wetland monitoring sites were provided to USACE via email in the Task 6 Freshwater Wetlands Monitoring Deliverable (Amec Foster Wheeler 2017e). The database can be found in Appendix 6.

On September 10, 2017, Hurricane Irma hit the Florida Keys as a Category 4 hurricane, made landfall in the southwestern area of the Florida peninsula as a Category 3 hurricane (111 to 130 mph wind speeds), and then proceeded on a northerly track over the Florida peninsula. On September 11, 2017,

Hurricane Irma was downgraded to a tropical storm (wind speeds 39 to 73 mph), and the eye of the storm was nearest to Jacksonville, Florida. Even though the hurricane was downgraded to a tropical storm as it entered north Florida and Georgia, the Jacksonville area was hard hit by the storm due to high winds and flooding exacerbated by the large size of the storm, storm surge, tidal influence, and the influence on tides from the recent full moon (9/8/2017).[1]

The effects of Hurricane Irma were evident at the 15 freshwater wetland plots during the October 2017 (October 10 through 19, 2017) monitoring event. Water levels in the monitoring plots were significantly higher than those observed during the site visits conducted in June 2017 (site visits to establish wetland monitoring plot locations). In October 2017, numerous downed, large, mature trees were observed within and near the wetland monitoring plots. In addition to making access to the monitoring plots more difficult, the high surface water levels limited the visibility of ground layer vegetation in many of the wetland monitoring plots. If water levels were low and the surface water was relatively clear, attempts were made to identify and quantify the ground layer vegetation. Although vegetation stress due to salt water was not observed during the October monitoring event, vegetation did appear stressed most likely due to hurricane impacts (based on a comparison of observations in June and October 2017). Downed trees, as previously mentioned, were observed. Leaning vegetation (trees, shrubs); flattened herbaceous vegetation; and a silt layer on above-surface water level herbaceous vegetation and shrubs were seen during monitoring in October.

Twenty 1m x 1m permanent ground layer sub-plots were established within each of the fifteen 10m x 10m monitoring plots, and ground layer vegetative cover (by plant) observed was documented on field data forms for each sub-plot. The results of the sub-plot ground layer herbaceous vegetation cover can be found in Appendix 6.

Sediment sample material was evaluated quantitatively and qualitatively, in the field and in the laboratory, as identified in Table 4. Vegetation and soil/sediment data for each tributary is summarized below and in Tables 5 and 6, respectively. Tributaries are listed in latitudinal order, starting with the most downstream site, Pottsburg Creek. A complete list of all plant species observed and soil data by tributary, plot, and subplot is found Appendix 6.

### 5.2.1 Pottsburg Creek Wetland Monitoring Plots

Total percent vegetative cover was determined for each vegetative stratum. Canopy cover in plots PC1, PC2, and PC3 ranged from 80 to 95%. In the sub-canopy, the percent vegetation cover ranged from 17 to 65% (Table 5). The ground layer was densely vegetated in monitoring plot PC2 (110% cover); plots PC1 and PC3 ground layer cover was 39 and 53%, respectively. The percent cover of dominant species in the canopy layer for the three Pottsburg Creek monitoring plots ranged from 40 to 65%; in the sub-canopy, it was 20 and 40%, and there was no dominant vegetation in plot PC1. The ground layer percent cover of dominant species ranged from 20 to 100%. Dominant plant species observed included swamp tupelo (*Nyssa sylvatica var. biflora*) (in two plots), red maple (*Acer rubrum*), southern bald-cypress (*Taxodium distichum*), American elm (*Ulmus americana*), and American hornbeam (*Carpinus caroliniana*). In the vegetative ground layer, there were five dominant plant species observed: short-bristle horned beak sedge (*Rhynchospora corniculata*), violet (*Viola* sp.), netted chain fern (*Woodwardia areolata*), coco-yam (*Colocasia esculenta*), and lizard's-tail (*Saururus cernuus*). The percent composition of dominant plant taxa in the canopy ranged from 50 to 68%; in the sub-canopy, dominant plants ranged from 34 to 62%; and the range in the ground layer was 38 to 91%. Species richness in the canopy layer was 4 or 5; in the sub-canopy, it was 4 species in plots PC1 and PC2, and was 10 in plot PC3; and in the ground layer species richness ranged from 6 to 9. Evidence of salt stress was not observed.

**Table 5. Summary of Vegetation Data, Freshwater Wetland Monitoring Plots**

| Tributary Name | Plot Name | Vegetative Stratum | Total Percent Cover for each Structural Category | Percent Cover of Dominant Plant Taxa | Percent Composition of Dominant Plant Taxa | Species Richness |
|---|---|---|---|---|---|---|
| Pottsburg Creek | PC1 | Canopy | 95 | 65 | 68 | 5 |
| | | Sub-canopy/Understory | 17 | [a] | [a] | 4 |
| | | Ground Layer | 39 | 25 | 64 | 6 |
| | PC2 | Canopy | 80 | 40 | 50 | 4 |
| | | Sub-canopy/Understory | 65 | 40 | 62 | 4 |
| | | Ground Layer | 110 | 100 | 91 | 9 |
| | PC3 | Canopy | 90 | 60 | 67 | 5 |
| | | Sub-canopy/Understory | 58 | 20 | 34 | 10 |
| | | Ground Layer | 53 | 20 | 38 | 8 |
| Ortega River | OR1 | Canopy | 81 | 81 | 100 | 1 |
| | | Sub-canopy/Understory | 121 | 110 | 91 | 7 |
| | | Ground Layer | 17 | [a] | [a] | 3 |
| | OR2 | Canopy | 90 | 80 | 89 | 3 |
| | | Sub-canopy/Understory | 31 | [a] | [a] | 4 |
| | | Ground Layer | 13 | [a] | [a] | 4 |
| | OR3 | Canopy | 80 | 45 | 56 | 6 |
| | | Sub-canopy/Understory | 51 | 25 | 49 | 4 |
| | | Ground Layer | 47 | 20 | 43 | 12 |
| Julington Creek | JC1 | Canopy | 100 | 80 | 80 | 4 |
| | | Sub-canopy/Understory | 91 | 60 | 66 | 7 |
| | | Ground Layer | 35 | 20 | 57 | 3 |
| | JC2 | Canopy | 80 | 65 | 81 | 3 |
| | | Sub-canopy/Understory | 44 | [a] | [a] | 7 |
| | | Ground Layer | 41 | 20 | 49 | 5 |
| | JC3 | Canopy | 60 | 50 | 83 | 3 |
| | | Sub-canopy/Understory | 94 | 60 | 64 | 8 |
| | | Ground Layer | 75 | 15 | 20 | 8 |
| Black Creek | BC1 | Canopy | 90 | 60 | 67 | 4 |
| | | Sub-canopy/Understory | 100 | 40 | 40 | 9 |
| | | Ground Layer | Ground layer vegetation not present | | | 0 |
| | BC2 | Canopy | 72 | 60 | 83 | 4 |
| | | Sub-canopy/Understory | 19 | [a] | [a] | 6 |
| | | Ground Layer | 36 | [a] | [a] | 7 |
| | BC3 | Canopy | 90 | 65 | 72 | 3 |
| | | Sub-canopy/Understory | 26 | [a] | [a] | 9 |
| | | Ground Layer | 34 | 25 | 74 | 8 |
| Six Mile Creek | SMC1 | Canopy | 72 | 65 | 90 | 3 |
| | | Sub-canopy/Understory | 89 | 25 | 28 | 11 |
| | | Ground Layer | 54 | 40 | 74 | 6 |
| | SMC2 | Canopy | 72 | 60 | 83 | 5 |
| | | Sub-canopy/Understory | 50 | 25 | 50 | 9 |
| | | Ground Layer | 16 | [a] | [a] | 7 |
| | SMC3 | Canopy | 110 | 100 | 91 | 4 |
| | | Sub-canopy/Understory | 78 | 20 | 26 | 8 |
| | | Ground Layer | 10 | [a] | [a] | 4 |

[a] Diverse vegetation present and no species achieved dominance. Prepared by: JMR Checked by: SEB

**Table 6. Sediment Lab and Field Measurements, by Monitoring Plot (page 1 of 3)**

| Identification | | Field Measurement in Water | | | Field Measurement/Determination | | | | | Lab Measurements | | Field Determined Physical Characteristics | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tributary Name | Sample ID | In Borehole or Surface Water (SW) | pH (s.u.) | Salinity (ppt) | ORP 1 (mV) (a) | ORP 2 (mV) (a) | ORP 3 (mV) (a) | Soil Conductivity (uS/cm) | Sulfur Odor at 12" Depth | Paste Method Salinity (ppt) | 5:1 Method pH | Munsell Soil Color | Soil Texture (b) | Soil Saturation (%) |
| Pottsburg Creek | PC1-1 | SW | 6.32 | 0.1 | | | | 601.0 | | 0.56 | 7.2 | 10YR 2/2 | silt or silt/loam M | 100 |
| | PC1-2 | SW | 6.32 | 0.1 | | | | 599.0 | | 0.47 | 7.4 | 10YR 2/2 | silt or silt/loam M | 100 |
| | PC1-3 | | | | | | | | | | | | | |
| | PC1-4 | | | | -230.9 | -251.6 | -247.7 | 461.0 | 0 | | | | | |
| | PC1-5 | | | | -285.4 | -254.3 | -236.5 | | 0 | | | | | |
| | PC2-1 | SW | 6.24 | 0.1 | | | | 79.2 | | 0.17 | 7.0 | 10YR 3/2 | loamy sand C | 100 |
| | PC2-2 | borehole | 5.90 | 0.1 | | | | 123.7 | | 0.09 | 7.3 | 10YR 5/2 | loamy sand C | 100 |
| | PC2-3 | | | | | | | 83.4 | | | | | | |
| | PC2-4 | | | | -50.4 | -41.2 | -58.6 | | 0 | | | | | |
| | PC2-5 | | | | 54.3 | 71.6 | 79.6 | | 0 | | | | | |
| | PC3-1 | SW | 6.55 | 0.1 | | | | 275.0 | | 0.35 | 6.8 | 10YR 3/2 | sandy loam MC | 100 |
| | PC3-2 | SW | 6.55 | 0.1 | | | | 149.5 | | 0.29 | 6.9 | 10YR 3/2 | sandy loam MC | 100 |
| | PC3-3 | | | | | | | | | | | | | |
| | PC3-4 | | | | -145.0 | -121.0 | -103.3 | | 0 | | | | | |
| | PC3-5 | | | | 30.2 | 15.0 | 29.0 | 159.0 | 0 | | | | | |
| Ortega River | OR1-1 | SW | 5.78 | 0.0 | | | | 302.0 | | 0.24 | 5.9 | 7.5YR 3/2 | silt or silt/loam M | 100 |
| | OR1-2 | SW | 5.78 | 0.0 | | | | 205.0 | | 0.27 | 6.0 | 7.5YR 3/2 | silt or silt/loam M | 100 |
| | OR1-3 | | | | | | | 368.0 | | | | | | |
| | OR1-4 | | | | -189.4 | -189.7 | -215.9 | | 0 | | | | | |
| | OR1-5 | | | | -253.2 | -286.6 | -279.4 | | 0 | | | | | |
| | OR2-1 | SW | 6.29 | 0.0 | | | | 144.4 | | 0.15 | 6.9 | 7.5YR 3/2 | silt or silt/loam M | 100 |
| | OR2-2 | SW | 6.29 | 0.0 | | | | 222.0 | | 0.12 | 6.9 | 7.5YR 3/2 | silt or silt/loam M | 100 |
| | OR2-3 | | | | | | | 282.0 | | | | | | |
| | OR2-4 | | | | -53.5 | -44.3 | -92.5 | | 0 | | | | | |
| | OR2-5 | | | | -110.4 | -150.2 | -150.3 | | 0 | | | | | |
| | OR3-1 | borehole | 5.26 | 0.1 | | | | 48.8 | | 0.13 | 7.9 | 10YR 5/2 | sand C | 100 |
| | OR3-2 | borehole | 5.38 | 0.1 | | | | 65.9 | | 0.10 | 7.4 | 10YR 5/2 | sand C | 100 |
| | OR3-3 | | | | | | | 104.2 | | | | | | |
| | OR3-4 | | | | -228.7 | -250.4 | -233.3 | | 0 | | | | | |
| | OR3-5 | | | | -178.9 | -230.3 | -209.6 | | 0 | | | | | |

**Table 6. Sediment Lab and Field Measurements, by Monitoring Plot (page 2 of 3)**

| Identification | | Field Measurement in Water | | | Field Measurement/Determination | | | | | Lab Measurements | | Field Determined Physical Characteristics | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tributary Name | Sample ID | In Borehole or Surface Water (SW) | pH (s.u.) | Salinity (ppt) | ORP 1 (mV) (a) | ORP 2 (mV) (a) | ORP 3 (mV) (a) | Soil Conductivity (uS/cm) | Sulfur Odor at 12" Depth | Paste Method Salinity (ppt) | 5:1 Method pH | Munsell Soil Color | Soil Texture (b) | Soil Saturation (%) |
| Julington Creek | JC1-1 | SW | 6.97 | 0.1 | | | | 410.0 | | 0.24 | 6.4 | 10YR 2/1 | silt or silt/loam M | 100 |
| | JC1-2 | SW | 6.97 | 0.1 | | | | 308.0 | | 0.16 | 6.5 | 10YR 2/1 | silt or silt/loam M | 100 |
| | JC1-3 | | | | | | | 320.0 | | | | | | |
| | JC1-4 | | | | -222.2 | -266.0 | -262.2 | | 0 | | | | | |
| | JC1-5 | | | | -226.3 | -243.7 | -232.5 | | 0 | | | | | |
| | JC2-1 | SW | 6.80 | 0.1 | | | | 795.0 | | 0.40 | 6.2 | 10YR 2/1 | silt or silt/loam M | 100 |
| | JC2-2 | SW | 6.80 | 0.1 | | | | 478.0 | | 0.18 | 7.0 | 10YR 2/1 | silt or silt/loam M | 100 |
| | JC2-3 | | | | | | | 595.0 | | | | | | |
| | JC2-4 | | | | -222.5 | -149.2 | -177.8 | | 0 | | | | | |
| | JC2-5 | | | | -85.4 | -142.5 | -192.2 | | 0 | | | | | |
| | JC3-1 | SW | 6.34 | 0.1 | | | | 215.0 | | 0.06 | 6.6 | 10YR 2/1 | silt or silt/loam M | 100 |
| | JC3-2 | SW | 6.34 | 0.1 | | | | 155.3 | | 0.10 | 7.0 | 10YR 2/1 | silt or silt/loam M | 75-100 |
| | JC3-3 | | | | | | | 218.0 | | | | | | |
| | JC3-4 | | | | -82 | -89.3 | -101.1 | | 0 | | | | | |
| | JC3-5 | | | | 50.1 | 13.2 | 62.9 | | 0 | | | | | |
| Black Creek | BC1-1 | borehole | 4.18 | 0.1 | | | | 109.1 | | 0.14 | 5.1 | 10YR 2/2 | loamy sand C | 100 |
| | BC1-2 | borehole | 4.46 | 0.0 | | | | 88.3 | | 0.18 | 4.5 | 10YR 2/2 | loamy sand C | 100 |
| | BC1-3 | | | | | | | 85.1 | | | | | | |
| | BC1-4 | | | | 38.6 | 3.0 | 84.7 | | 0 | | | | | |
| | BC1-5 | | | | 37.8 | 33.4 | 33.1 | | 0 | | | | | |
| | BC2-1 | SW | 4.84 | 0.0 | | | | 103.3 | | 0.16 | 5.8 | 10YR 2/2 | loamy sand C | 100 |
| | BC2-2 | SW | 4.84 | 0.0 | | | | 135.2 | | 0.16 | 5.4 | 10YR 2/2 | loamy sand C | 100 |
| | BC2-3 | | | | | | | 115.4 | | | | | | |
| | BC2-4 | | | | 87.2 | 84.1 | 86.5 | | 0 | | | | | |
| | BC2-5 | | | | -248.6 | -286.9 | -281.3 | | 0 | | | | | |
| | BC3-1 | borehole | 4.11 | 0.3 | | | | 152.3 | | 0.25 | 4.9 | 10YR 3/2 | loamy sand C | 100 |
| | BC3-2 | borehole | 4.97 | 0.1 | | | | 676.9 | | 0.18 | 6.2 | 10YR 4/2 | loamy sand C | 75-100 |
| | BC3-3 | | | | | | | 113.8 | | | | | | |
| | BC3-4 | | | | 110.2 | 67.3 | 27.8 | | 0 | | | | | |
| | BC3-5 | | | | 80.2 | 38.6 | 17.0 | | 0 | | | | | |

**Table 6. Sediment Lab and Field Measurements, by Monitoring Plot (page 3 of 3)**

| Identification | | Field Measurement in Water | | | Field Measurement/Determination | | | | | Lab Measurements | | Field Determined Physical Characteristics | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tributary Name | Sample ID | In Borehole or Surface Water (SW) | pH (s.u.) | Salinity (ppt) | ORP 1 (mV) (a) | ORP 2 (mV) (a) | ORP 3 (mV) (a) | Soil Conductivity (uS/cm) | Sulfur Odor at 12" Depth | Paste Method Salinity (ppt) | 5:1 Method pH | Munsell Soil Color | Soil Texture (b) | Soil Saturation (%) |
| Six Mile Creek | SMC1-1 | SW | 6.10 | 0.1 | | | | 757.0 | | 0.48 | 6.6 | 7.5 YR 3/2 | silty clay loam F | 100 |
| | SMC1-2 | SW | 6.10 | 0.1 | | | | 803.0 | | 0.55 | 6.5 | 7.5 YR 3/2 | silty clay loam F | 100 |
| | SMC1-3 | | | | | | | 791.0 | | | | | | |
| | SMC1-4 | | | | -300.9 | -299.6 | -310.8 | | 2 | | | | | |
| | SMC1-5 | | | | -313.8 | -326.0 | -313.0 | | 2 | | | | | |
| | SMC2-1 | SW | 5.80 | 0.1 | | | | 600.0 | | 0.48 | 6.2 | 7.5YR 3/2 | silty clay loam F | 100 |
| | SMC2-2 | SW | 5.80 | 0.1 | | | | 655.0 | | 0.52 | 6.7 | 7.5YR 3/2 | silty clay loam F | 100 |
| | SMC2-3 | | | | | | | 628.0 | | | | | | |
| | SMC2-4 | | | | -284.1 | -295.0 | -285.3 | | 2 | | | | | |
| | SMC2-5 | | | | -295.6 | -285.7 | -257.2 | | 2 | | | | | |
| | SMC3-1 | SW | 6.17 | 0.1 | | | | 784.0 | | 0.51 | 6.5 | 10YR 2/2 | silty clay loam F | 100 |
| | SMC3-2 | SW | 6.17 | 0.1 | | | | 862.0 | | 0.53 | 6.5 | 10YR 2/2 | silty clay loam F | 100 |
| | SMC3-3 | | | | | | | 666.0 | | | | | | |
| | SMC3-4 | | | | -308.2 | -299.9 | -334.6 | | 1 | | | | | |
| | SMC3-5 | | | | -256.7 | -278.8 | -225.3 | | 1 | | | | | |

Prepared by: JMR Checked by: SEB

(a) ORP values are electrode potential meter readings using a silver/silver chloride reference electrode.
(b) F = Fine; C = Coarse; M = Medium; MC = Moderately Coarse

Water quality (pH and salinity) was measured in the borehole water in one of the three freshwater wetland plots located adjacent to Pottsburg Creek (plot PC2). The borehole/surface water pH values in this plot ranged from 5.90 to 6.24 standard units (s.u.) and salinity was 0.1 ppt. For wetland plots PC1 and PC2, measurement in the borehole was not possible due to the presence of overlying water. The pH value in the surface water for plots PC1 and PC3 ranged from 6.32 to 6.55 s.u, and the surface water salinity in both plots was 0.1 ppt. Other field measurements included ORP, measured in two sediment samples in each freshwater wetland plot, and in three locations within each sample; ORP ranged from -285.4 to 79.6 mV. Soil conductivity was measured in sediment in three sample locations within each plot and ranged from 79.2 to 601.0 micro-Siemens per centimeter (µS/cm). In the laboratory, pH and salinity were measured using the methods identified in section 5.1.3; in sediment collected from the three Pottsburg Creek freshwater wetland monitoring plots, laboratory pH values ranged from 6.8 to 7.4 s.u.; and salinity ranged from 0.09 to 0.56 ppt (see Table 6). Sulfur odor in sediment was not detected by field personnel in the three Pottsburg Creek wetland monitoring plots.

Munsell soil hue in the three Pottsburg Creek freshwater wetland sediments were 10YR, with low chroma values. Sediment texture ranged from moderately coarse to coarse, and soil saturation was 100% (see Table 6).

### 5.2.2 Ortega River Wetland Monitoring Plots

Total percent vegetative cover was determined for each vegetative stratum. Canopy cover in plots OR1, OR2, and OR3 ranged from 80 to 90%. In plot OR1, the sub-canopy was densely vegetated with cover 121%; ground layer vegetation percent cover ranged from 13 to 47% in the three Ortega River plots. The percent cover of dominant species in the canopy layer for the three Ortega River monitoring plots ranged from 45 to 81%; in the sub-canopy, it ranged from 25 to 110%; and in the ground layer dominant plant taxa were only observed in plot OR3 (20%). No dominant sub-canopy species were observed in plot OR1, and no dominant species were present in the ground layer for plots OR1 and OR2. Dominant plant species observed included swamp tupelo (all three plots); other dominant canopy plant species included red maple, and laurel oak (*Quercus laurifolia*), Carolina ash (*Fraxinus caroliniana*), American hornbeam, Virginia sweetspire (*Itea virginica*), saw palmetto (*Serenoa repens*), and loose-flower water-willow (*Justicia ovata*). The percent composition of dominant plant taxa in the canopy ranged from 56 to 100%; it ranged from 49 to 91% in the sub-canopy; and the ground layer showed 43% composition of dominant plant taxa. Species richness in the canopy layer ranged from 1 to 6 species; in the sub-canopy, it was 4 in each monitoring plot; and in the ground layer species richness ranged from 3 to 12 (Table 5). Evidence of salt stress was not observed.

Water quality (pH and salinity) was measured in the borehole water in one of the three freshwater wetland plots located adjacent to the Ortega River (plot OR3): the borehole water pH value in this plot ranged from 5.26 to 5.28 s.u., and salinity was 0.1 ppt. For wetland plots OR1 and OR2, measurement in the borehole was not possible due to the presence of surface water. pH in the surface water for plots OR1 and OR2 ranged from 5.78 to 6.29 s.u.; and salinity was 0.0 ppt in each plot sample location. Other field measurements included ORP, measured in two sediment samples in each freshwater wetland plot, and in three locations within each sample; ORP ranged from -286.6 to -44.3 mV. Soil conductivity was measured in three sample locations within each plot and ranged from 48.8 to 368.0 µS/cm. In the laboratory, pH and salinity were measured using the methods identified in section 5.1.3. In sediment collected from the three Ortega River freshwater wetland monitoring plots, laboratory pH values ranged from 5.9 to 7.9 s.u.; and salinity ranged from 0.10 to 0.27 ppt (see Table 6). Sulfur odor in sediment was not detected by field personnel in the three Ortega River wetland monitoring plots.

Munsell soil color in the two of the three Ortega River freshwater wetland sediments were 7.5YR, and was 10YR in the third plot. The sediment chroma value was low in all three plots. Sediment texture ranged from moderately coarse to coarse, and soil saturation was 100% (see Table 6).

### 5.2.3 Julington Creek Wetland Monitoring Plots

Total percent vegetative cover was determined for each vegetative stratum. Canopy cover in plots JC1, JC2, and JC3 ranged from 60 to 100%; sub-canopy cover in plots JC1 and JC3 were high (> 90% cover); and ground layer vegetative cover ranged from 35 to 75% in the three Julington Creek plots. The percent cover of dominant species in the canopy layer for the three Julington Creek monitoring plots ranged from 50 to 80%. The percent cover of dominant plant species in the sub-canopy was the same in plots JC1 and JC3 (60%), there were no dominant sub-canopy species observed in JC2. Cover in the ground layer of dominant plant taxa was 20% or less. Swamp tupelo was dominant in the canopy of all three Julington Creek wetland plots; and other dominant canopy plant species observed included southern bald-cypress, red maple, sweet-gum (*Liquidambar styraciflua*), brookside alder (*Alnus serrulata*), Carolina ash, and two sedge species (*Rhynchospora* sp.) The percent composition of dominant plant taxa in the canopy was similar and ranged from 89 to 83%. Percent composition of dominant plant taxa in the sub-canopy ranged from 64 to 66% and ranged from 20 to 57% in the ground layer. Species richness in the canopy layer ranged from 3 to 4 species; in the sub-canopy, it ranged from 7 to 8; and in the ground layer species richness ranged from 3 to 8 species (Table 5). Evidence of salt stress was not observed.

For wetland plots JC1, JC2, and JC3, measurement in the borehole was not possible due to the presence of surface water. Water quality (pH and salinity) was measured in the surface water in the three freshwater wetland plots located adjacent to Julington Creek. The pH values in the three plots ranged from 6.34 to 6.97 s.u., and salinity was 0.1 ppt. Other field measurements included ORP, measured in two sediment samples in each freshwater wetland plot, and in three locations within each sample; ORP ranged from -266.6 to 62.9 mV. Soil conductivity was measured in three sample locations within each plot and ranged from 155.4 to 795.0 µS/cm. In the laboratory, pH and salinity were measured using the methods identified in section 5.1.3. In sediment collected from the three Julington Creek freshwater wetland monitoring plots, laboratory pH values ranged from 6.2 to 7.0 s.u. and salinity ranged from 0.10 to 0.40 ppt (see Table 6). Sulfur odor in sediment was not detected by field personnel in the three Julington Creek wetland monitoring plots.

Munsell soil color in the three Julington Creek freshwater wetland sediments was 10YR, and sediment chroma value was low (1) in all three plots. Sediment texture in all three plots was moderately coarse, and soil saturation ranged from 75 to 100% (see Table 6).

### 5.2.4 Black Creek Wetland Monitoring Plots

Total percent vegetative cover was determined for each vegetative stratum. Canopy cover in plots BC1 and BC3 was 90%, and in plot BC3 was 72%. Sub-canopy cover in plots BC1, BC2, and BC3 varied and ranged from 19 to 100%. Ground layer vegetation was not observed in plot BC1; in plots BC2 and BC3 ground layer vegetation cover was approximately 35%. The percent cover of dominant species in the canopy layer for the three Black Creek monitoring plots ranged from 60 to 65%; in the sub-canopy, dominant plant species were only observed in plot BC1 (40%); and in the ground layer the vegetation was diverse except for plot BC3, which had 25% cover of a dominant species in the ground layer. Dominant plant species observed in the Black Creek wetland monitoring plots included water tupelo (*Nyssa aquatica*), southern bald-cypress, water oak (*Quercus nigra*), shinyleaf (*Lyonia lucida*), Florida-hobblebush (*Agarista populifolia*), and sedge (*Carex* sp.) (Table 5). The percent composition of dominant plant taxa in the canopy ranged from 67 to 83%; in the sub-canopy, it was 74% in BC3. Species richness in the canopy layer ranged from 3 to 4 species; in the sub-canopy, it ranged from 6 to 9; and in the ground layer it was 7 or 8 species in monitoring plots BC2 and BC3 (Table 5). Evidence of salt stress was not observed.

Water quality (pH and salinity) was measured in the borehole water in two of the three freshwater wetland plots located adjacent to Black Creek (plots BC1 and BC3): the borehole water pH value in

these two plots ranged from 4.11 to 4.97 s.u. and salinity ranged from 0.0 to 0.3 ppt. For wetland plot BC2, measurement in the borehole was not possible due to the presence of overlying water. The pH and salinity values in the surface water for plot BC2 were 4.84 s.u. and 0.0 ppt, respectively. Other field measurements included ORP, measured in two sediment samples in each freshwater wetland plot, and in three locations within each sample; ORP ranged from -286.9 to 110.2 mV. Soil conductivity was measured in three sample locations within each plot and ranged from 85.1 to 676.9 µS/cm. In the laboratory, pH and salinity were measured using the methods identified in section 5.1.3 In sediment collected from the three Black Creek freshwater wetland monitoring plots, laboratory pH values ranged from 4.9 to 6.2 s.u.; and salinity ranged from 0.14 to 0.25 ppt (see Table 6). Sulfur odor in sediment was not detected by field personnel in the three Black Creek wetland monitoring plots.

The Munsell soil color hue in the three Black Water freshwater wetland sediments was 10YR, with low chroma values. Sediment texture was a coarse loamy sand in all three plots, and soil saturation ranged from 75 to 100% (see Table 6).

### 5.2.5 Six Mile Creek Wetland Monitoring Plots

Total percent vegetative cover was determined for each vegetative stratum. Canopy cover in plots SMC1, SMC2, and SMC3 ranged from 72 to 110%. In the sub-canopy, the percent vegetation cover ranged from 50 to 89%; and in the ground layer, the percent vegetative cover ranged from 10 to 54%. The percent cover of dominant species in the canopy layer for the three Six Mile Creek monitoring plots ranged from 60 to 100%; in the sub-canopy, it ranged from 20 to 25%. In the ground layer of plots SMC2 and SMC3, no dominant plant taxa were observed, and percent cover of dominant species was 40% for plot SMC1. Dominant plant species observed included swamp tupelo (in three plots), southern bald-cypress (in two plots); other observed dominant species included saw palmetto, common buttonbush (*Cephalanthus occidentalis*), narrow-fruit horned beak sedge (*Rhynchospora inundata*), and royal fern (*Osumunda spectabilis*). The percent composition of dominant plant taxa in the canopy ranged from 83 to 91%; in the sub-canopy, it ranged from 26 to 50%; and in the ground layer, there were no dominant plant taxa observed in plots SMC2 and SMC3. The percent composition of dominant plant taxa in ground cover at SMC1 was 74%. Species richness in the canopy layer ranged from 3 to 5 species; in the sub-canopy, it ranged from 8 to 11; and in the ground layer it ranged from 4 to 6 species (Table 5). Evidence of salt stress was not observed.

For wetland plots SMC1, SMC2, and SMC3, measurement in the borehole was not possible due to the presence of surface water. Water quality (pH and salinity) was measured in the surface water in the three freshwater wetland plots located adjacent to Six Mile Creek. The pH values in the three plots ranged from 5.80 to 6.17 s.u., and salinity was 0.1 ppt. Other field measurements included ORP, measured in two sediment samples in each freshwater wetland plot, and in three locations within each sample; ORP ranged from -334.6 to -225.3 mV. Soil conductivity was measured in three sample locations within each plot and ranged from 600.0 to 862.0 µS/cm. In the laboratory, pH and salinity were measured using the methods identified in section 5.1.3. In sediment collected from the three Six Mile Creek freshwater wetland monitoring plots, laboratory pH values ranged from 6.2 to 6.7 s.u.; and salinity ranged from 0.48 to 0.55 ppt (see Table 6). A sulfur odor was detected in the sediment by field personnel in the three Six Mile Creek plots.

The Munsell soil color hue in the two of the three Six Mile Creek freshwater wetland sediments were 7.5YR, and was 10YR in the third plot. The sediment chroma value was low in all three plots. Sediment texture was fine silty clay loam, and soil saturation was 100% (see Table 6).

## 5.3 Spatial Distribution and Plant Community – Wetlands Monitoring

Desktop analysis/photointerpretation of plant communities to document the spatial distribution and delineate distinct plant community types was conducted for the 15 wetland monitoring plots and the

areas between the wetland monitoring plots. All mapped plant communities are consistent with what was observed in the field based on the Florida Land Use and Cover Classification System (FLUCCS) definitions provided in the SJRWMD Photointerpretation Key (SJRWMD 2009).

For Pottsburg Creek it was determined that monitoring plots PC1 and PC2 are encompassed by a continuous stretch of mixed wetland hardwoods (FLUCCS 6170). Plot PC3 is also encompassed by a stretch of mixed wetland hardwoods. However, there is a road dividing the plant community between PC2 and PC3 (Figure 15). Two (OR2 and OR3) of the three plots adjacent to the project stretch of the Ortega River are encompassed by a continuous stretch of mixed wetland hardwoods (FLUCCS 6170); plot OR3 is encompassed by a Wetland Forested Mixed community (FLUCCS 6300) (Figure 16). For the stretch of Julington Creek within the project area, it was determined that all three plots are encompassed by a continuous plant community of mixed wetland hardwoods (FLUCCS 6170) (Figure 17). Two of the three Black Creek plots (plots BC1 and BC2) are around, within, and surrounded by a mixed wetland hardwoods community (FLUCCS 6170), and plot BC3 is within and surrounded by a cypress community (FLUCCS 6210) (Figure 18). For the stretch of Six Mile Creek located within the project area, it was determined that all three plots are encompassed by a continuous plant community of mixed wetland hardwoods (FLUCCS 6170) (Figure 19).

## 5.4 Conclusion - Wetlands Monitoring

The primary goal of the freshwater wetlands vegetation monitoring was to determine changes in vegetation/ vegetation condition throughout time at each wetland monitoring plot. Changes in community composition will be assessed over time by comparing species composition (species richness), total plant densities, and the densities of individual taxa from future monitoring events. For this initial, pre-dredge wetlands monitoring event, determining changes in vegetation is not feasible as there is only one set of data.

Wetland monitoring was conducted October 9, 2017 and concluded on October 19, 2017. Vegetation observed in the selected 15 monitoring plots was generally consistent with a floodplain swamp community as described by the Florida Natural Areas Inventory (FNAI 2010). The floodplain swamp community is synonymous with a SOW-identified freshwater forested wetland. The floodplain swamp is found within the floodplain of permanently moving streams, and if the stream is tidally influenced (FNAI 2010), as is the case with the five project tributaries, the wetland community can receive daily freshwater inundation associated with the tidal influences (FNAI 2010). Events such as storms (hurricanes), tidal range, and flooding patterns can be key factors for this community (FNAI 2010).

Upland species were not observed in the 15 monitoring plots. The USACE indicator status for dominant plant species observed in the monitoring plots included OBL (obligate), FACW (Facultative Wetland), and FAC (Facultative). Total canopy cover observed in the 15 plots was generally high, ranging from 72 to 110% (consistent with the closed canopy of the floodplain swamp), except for one monitoring plot with 60% canopy cover (Julington Creek plot JC3). High water marks were also observed on tree trunks in several of the wetland monitoring plots.

Vegetation was present in all monitoring plots, and in each stratum, except for Black Creek plot BC1 (ground layer vegetation was not present). Dominant plant species were observed in the canopy layer in all 15 monitoring plots. Dominant sub-canopy plant species were observed in 10 of the 15 monitoring plots. A diversity of sub-canopy vegetation was present in 5 of the plots, with no dominant species identified. Ground layer vegetation was present in 14 of the 15 monitoring plots, and total ground layer cover ranged from 0 to 110%. Dominant plant species in the ground layer were present in 8 of the 15 monitoring plots. A diversity of ground layer vegetation was present in 6 of the plots, with no dominant species. Species richness for the canopy strata ranged from 3 to 6 species; in the sub-canopy/understory strata, it ranged from 4 to 11 species; and in the ground layer strata, it ranged from 0 to 12 species.

Hurricane Irma passed through northeast Florida approximately one month prior to the freshwater wetlands monitoring event conducted in October 2017. High surface water levels were observed in the majority of monitoring plots. Due to the high surface water levels, it was not possible to measure pH and salinity in borehole porewater in eight of the 30 sampling locations. Under that scenario, pH and salinity were measured in the surface water. The pH values in porewater/surface water ranged from 4.11 to 6.97, and the salinity ranged from 0.0 to 0.3 ppt. Sediment conductivity was measured in the field in each monitoring plot and ranged from 48.8 µS/cm to 862 µS/cm. The ORP values in sediment ranged from -334.6 mV to 87.2 mV. Sediment in the majority of sampling locations had no sulfur odor.

The pH and salinity values were also determined in the laboratory using the methods identified in section 5.1.3. Salinity values ranged from 0.09 ppt to 0.55 ppt; and pH values ranged from 4.5 to 7.9 s.u.

Qualitative descriptors of sediment were determined in the field in each freshwater wetland monitoring plot and is summarized in the following bulleted list.

- Sediment texture ranged from Fine to Moderately Coarse.
- Sediment saturation was 100% at 28 of the sampling locations, and was categorized as 75% to 100% saturated in two sampling locations.
- Sediment color hue was 7.5YR or 10YR, and chroma values were low in sediment examined in all 15 wetland plots (Munsell 1990), consistent with a wetland.

The results of the observations and measurements in the 15 freshwater monitoring plots are consistent with a forested, freshwater, tidally influenced wetland.

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# Figures

Source: DeLorme 2014; NRCS 2014

N

1 inch = 4 miles

0 2 4 8 Miles

| USACE SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| | | SAV Monitoring Location Map | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 1 |
| DLA | 6/23/2017 | | | |
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| JJS | 6/23/2017 | | | |

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Source: ESRI 2014; AMECFW 2017

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1 inch = 250 feet

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| USACE - SAV and Wetlands Monitoring | | | | |
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| SAV Transect Map - Groundtruth 002 | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 2 |
| DLA | 6/23/2017 | | | |
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| JJS | 6/23/2017 | | | |

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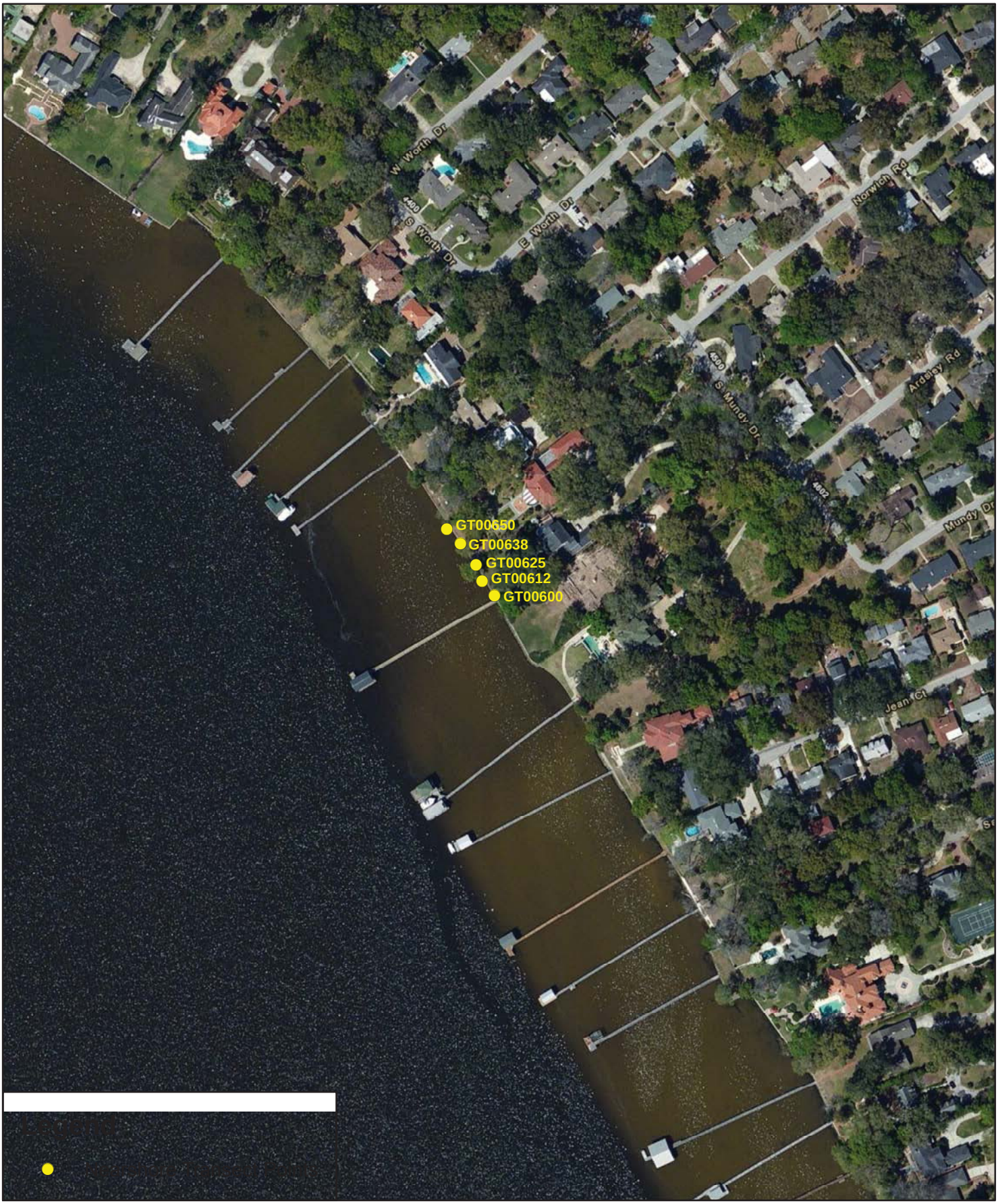


Source: ESRI 2014; AMECFW 2017

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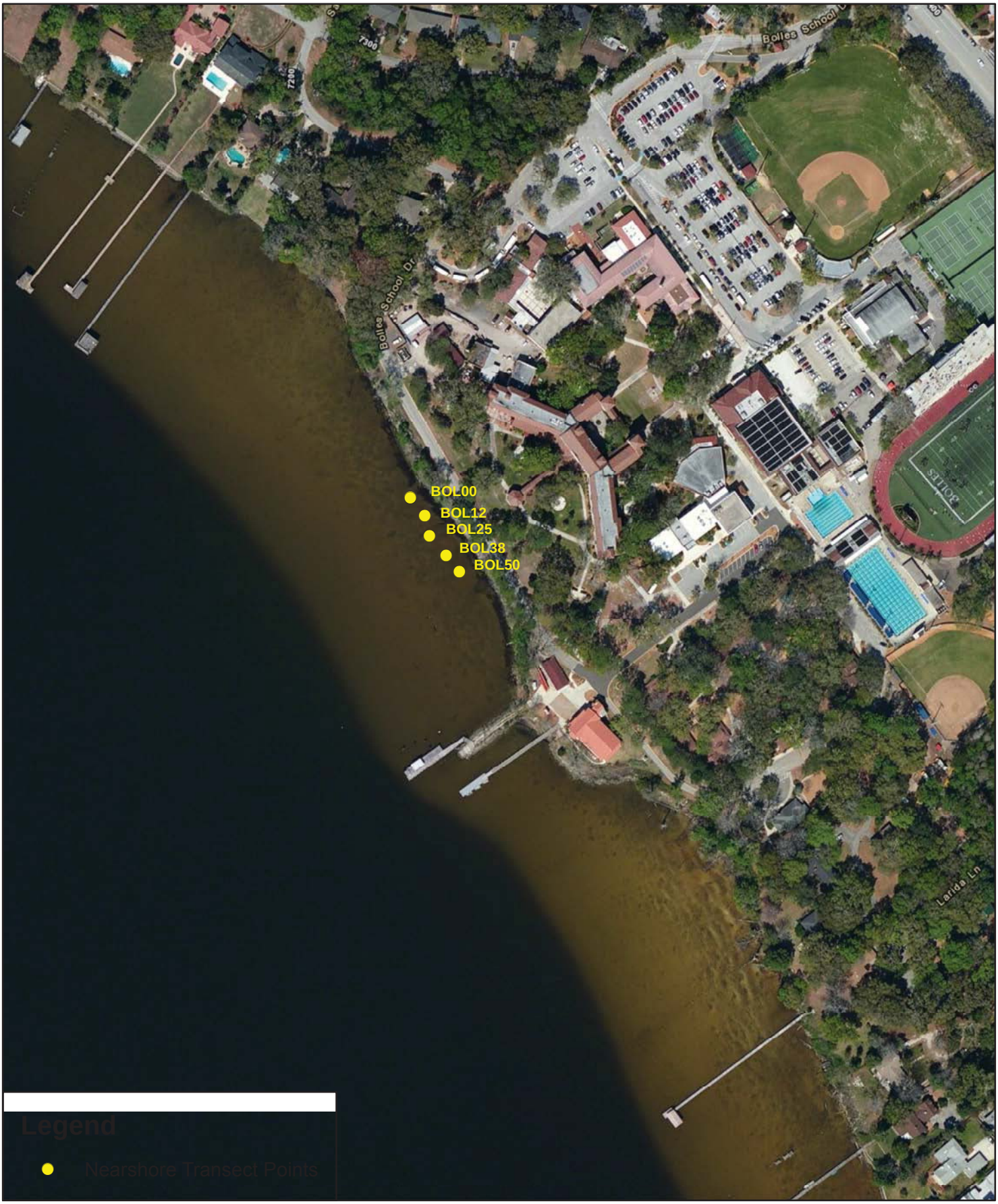


Source: ESRI 2014; AMECFW 2017

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1 inch = 250 feet

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| USACE - SAV and Wetlands Monitoring | | | | |
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| | | SAV Transect Map - Bolles School | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 4 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

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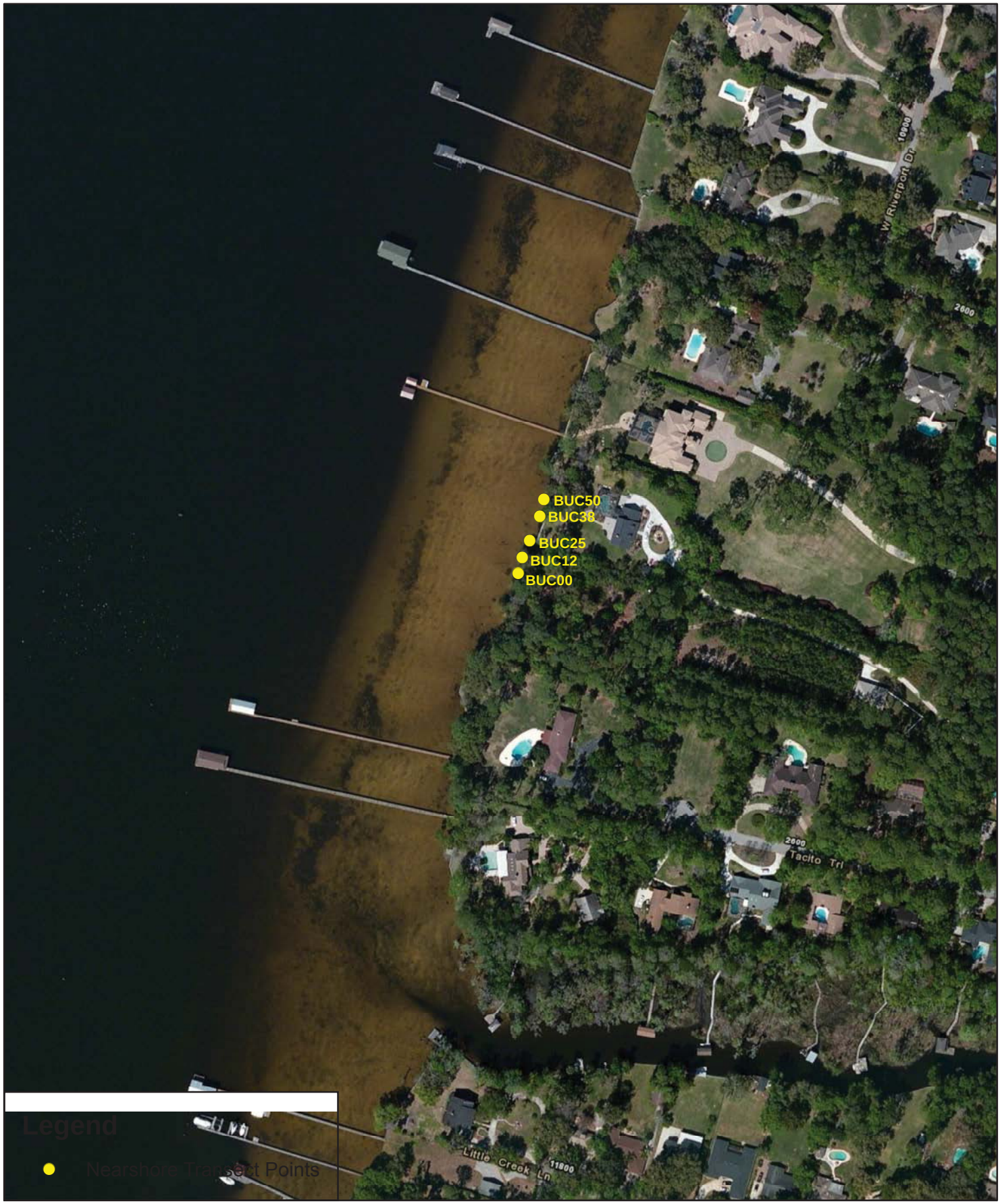


Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | | |
|---|---|---|---|---|
| SAV Transect Map - Buckman Bridge | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 5 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

Path: P:\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\SAV Transect Map.mxd dustin.atwater Date Saved: 6/23/2017 1:24:45 PM

Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | | |
|---|---|---|---|---|
| | | SAV Transect Map - Moccasin Slough | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 6 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

Path: P:\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\SAV Transect Map.mxd dustin.atwater Date Saved: 6/23/2017 1:24:45 PM

Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | |
|---|---|---|---|
| | | SAV Transect Map - Orangedale | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler |
| DLA | 6/23/2017 | | |
| Checked | Date | | |
| JJS | 6/23/2017 | | |

Figure 7

Path: P:\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\SAV Transect Map.mxd dustin.atwater Date Saved: 6/23/2017 1:24:45 PM

Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | | |
|---|---|---|---|---|
| | | SAV Transect Map - Scratch Ankle | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 8 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

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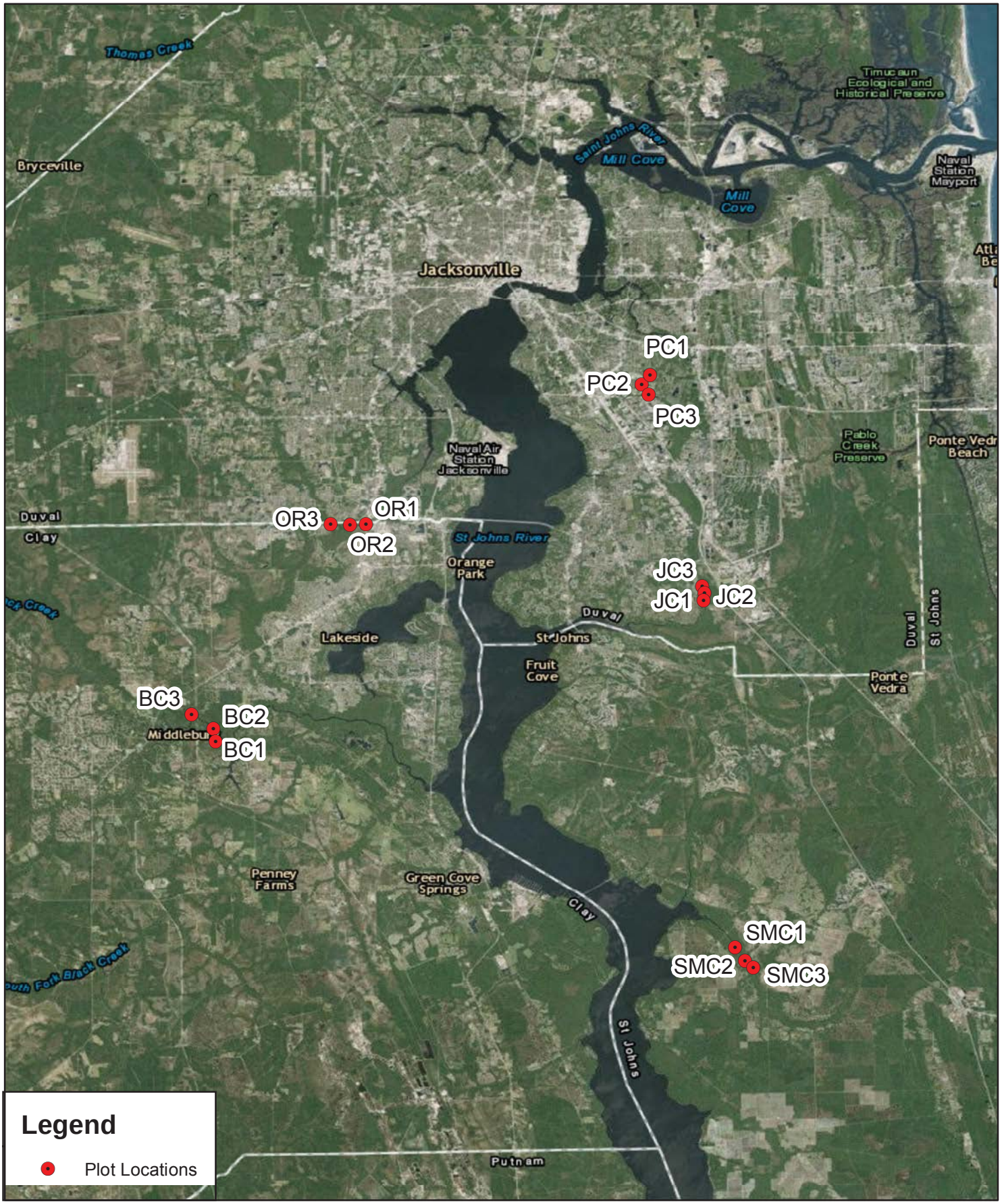



Source: ESRI 2014; AMECFW 2017

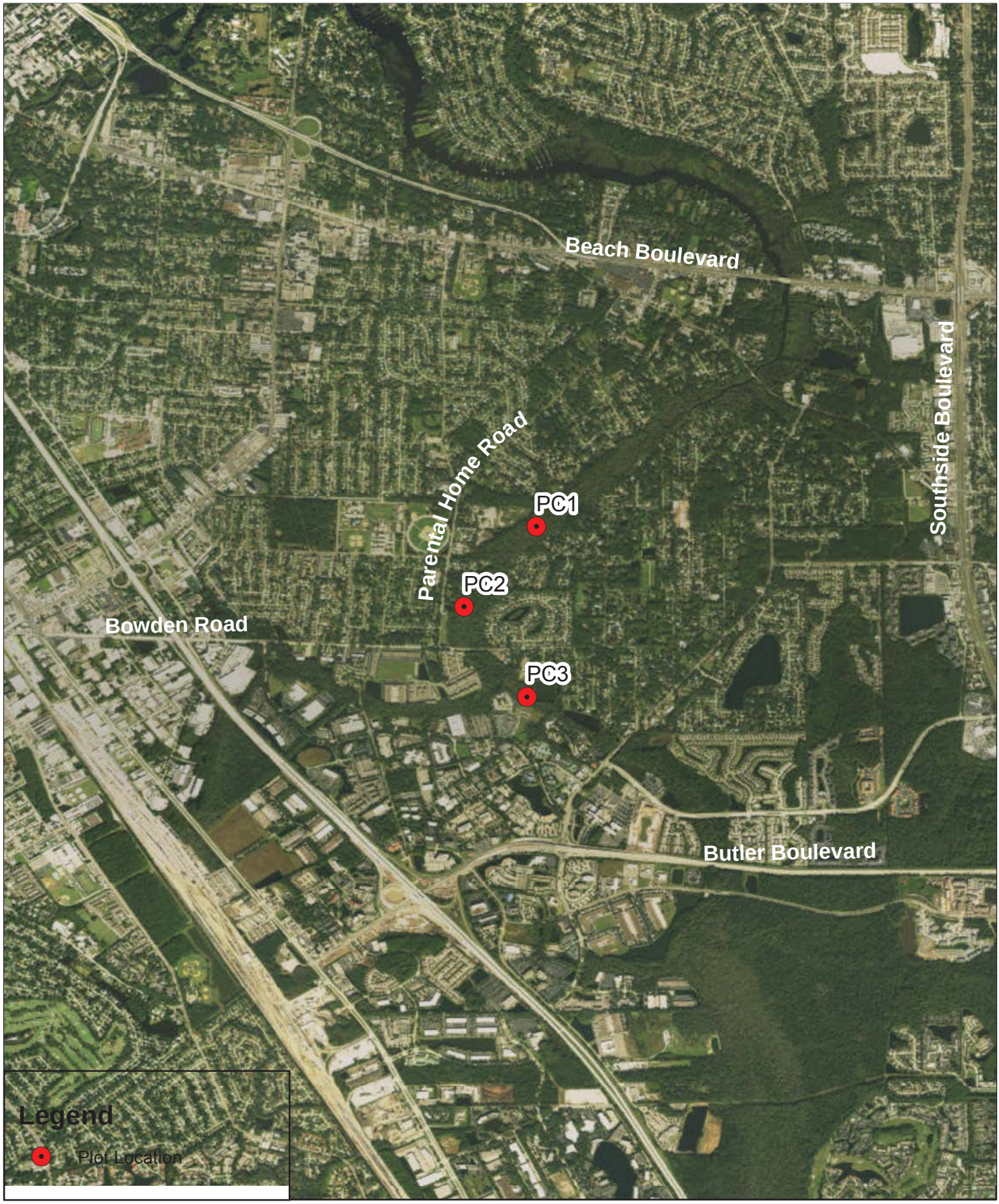
N

1 inch = 5 miles

0 2.5 5 Miles

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Freshwater Wetland Monitoring Plots - All Tributaries | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 9 |
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

Path: \\GNV-FS1\projects\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 1 Project Locations.mxd joy.ryan Date Saved: 10/27/2017 4:42:30 PM




Source: ESRI 2014; AMECFW 2017

N

1 inch = 3,000 feet

0 1,500 3,000 Feet

**USACE - SAV and Wetlands Monitoring Project**

**Freshwater Wetland Monitoring Plots - Pottsburg Creek**

| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 10 |
|---|---|---|---|---|
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

Path: \\GNV-FS1\projects\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 5 Parcel Map Pottsburg Creek.mxd joy.ryan Date Saved: 10/27/2017 4:28:16 PM

Source: ESRI 2014; AMECFW 2017

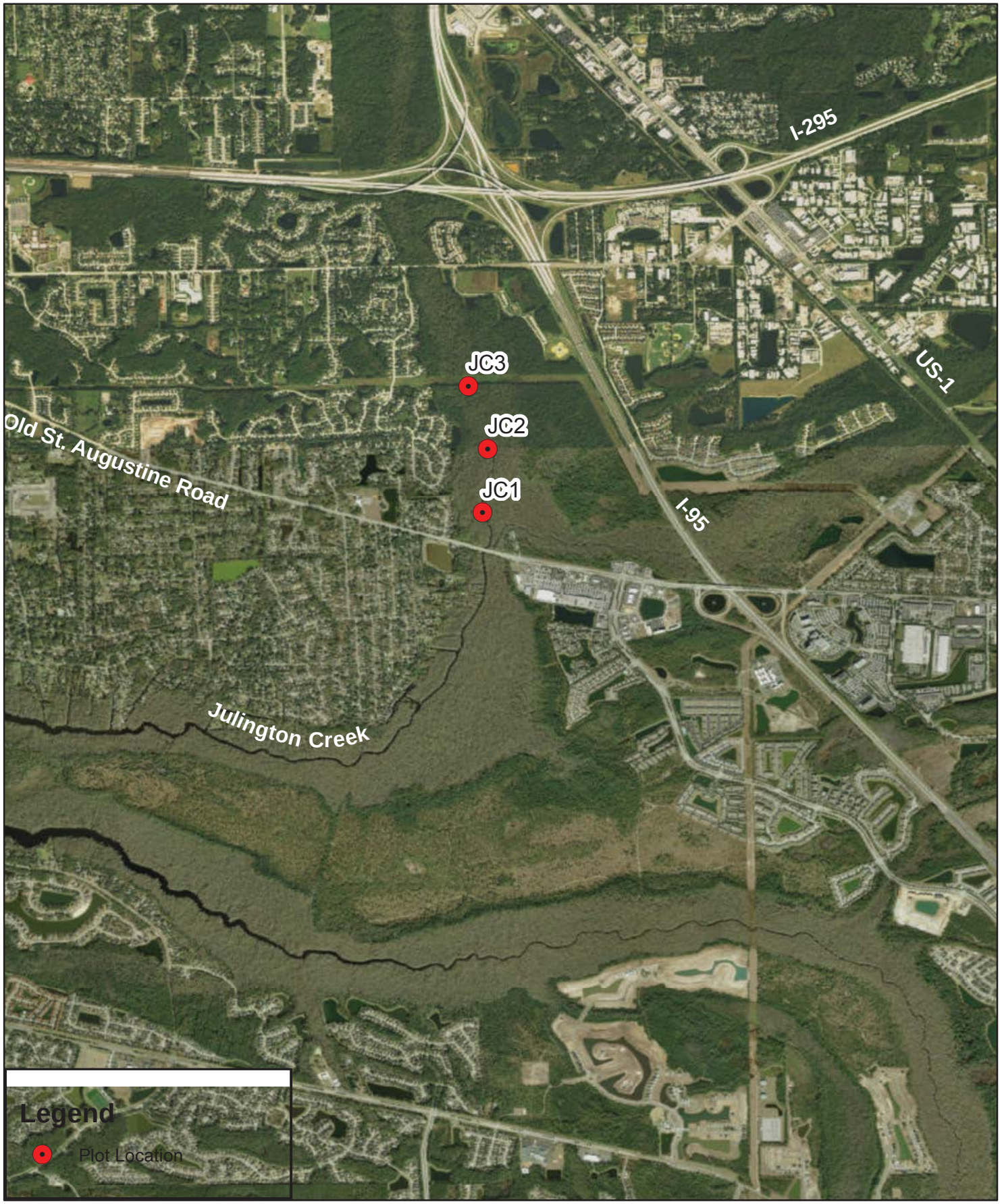
N

1 inch = 3,000 feet

0 1,500 3,000 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Freshwater Wetland Monitoring Plots - Ortega River | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 11 |
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

Path: \\GNV-FS1\projects\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 4 Parcel Map_Ortega River.mxd joy.ryan Date Saved: 10/27/2017 4:37:50 PM




Source: ESRI 2014; AMECFW 2017

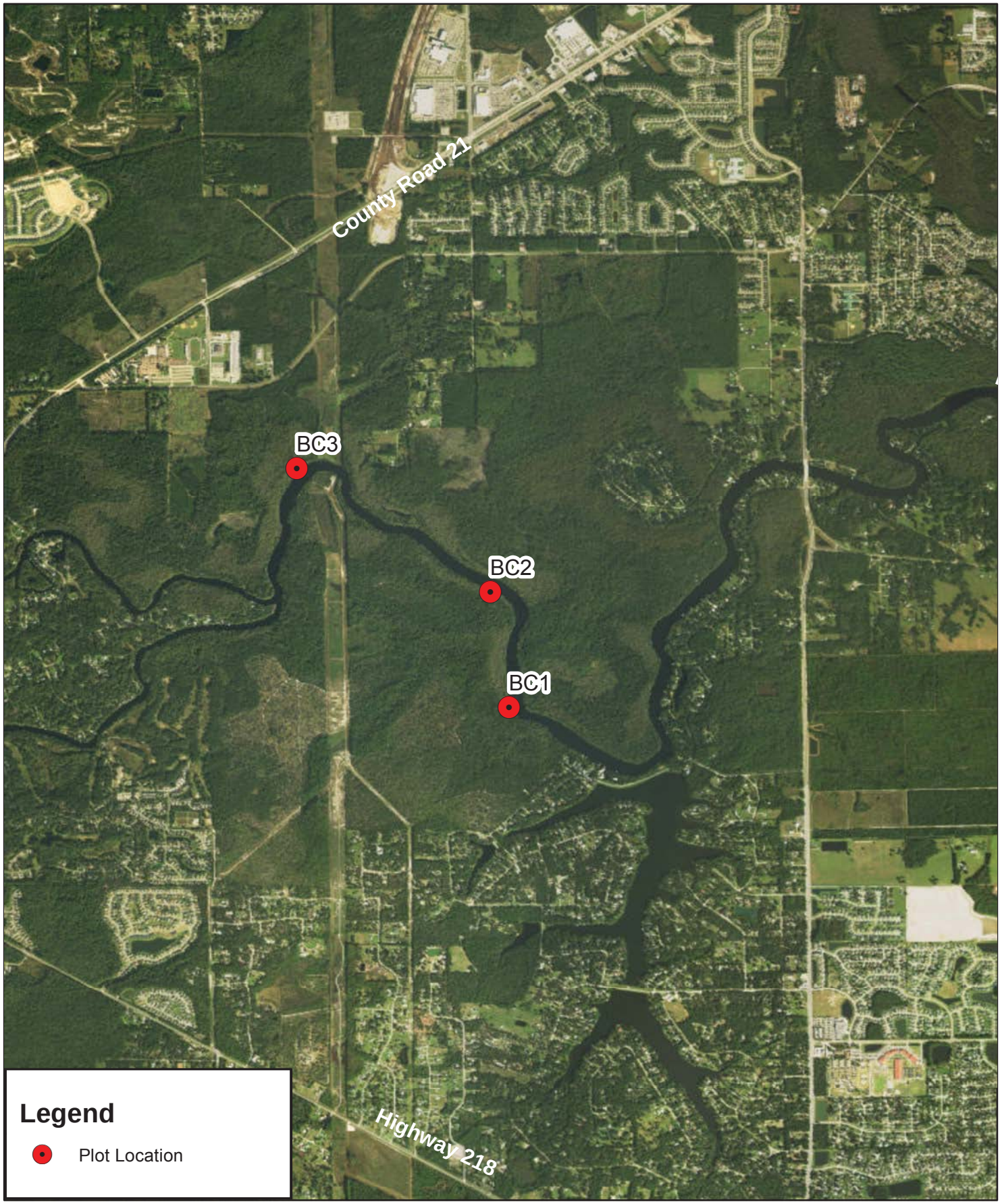
N

1 inch = 3,000 feet

0 1,500 3,000 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Freshwater Wetland Monitoring Plots - Julington Creek | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 12 |
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

Path: \\GNV-FS1\projects\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 3 Parcel Map Julington Creek.mxd joy.ryan Date Saved: 10/27/2017 4:22:37 PM




Source: ESRI 2014; AMECFW 2017

N

1 inch = 3,000 feet

0 1,500 3,000 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Freshwater Wetland Monitoring Plots - Black Creek | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 13 |
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

Path: \\GNV-FS1\projects\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 2 Parcel Map_Black Creek.mxd joy.ryan Date Saved: 10/27/2017 4:21:55 PM

Source: ESRI 2014; AMECFW 2017

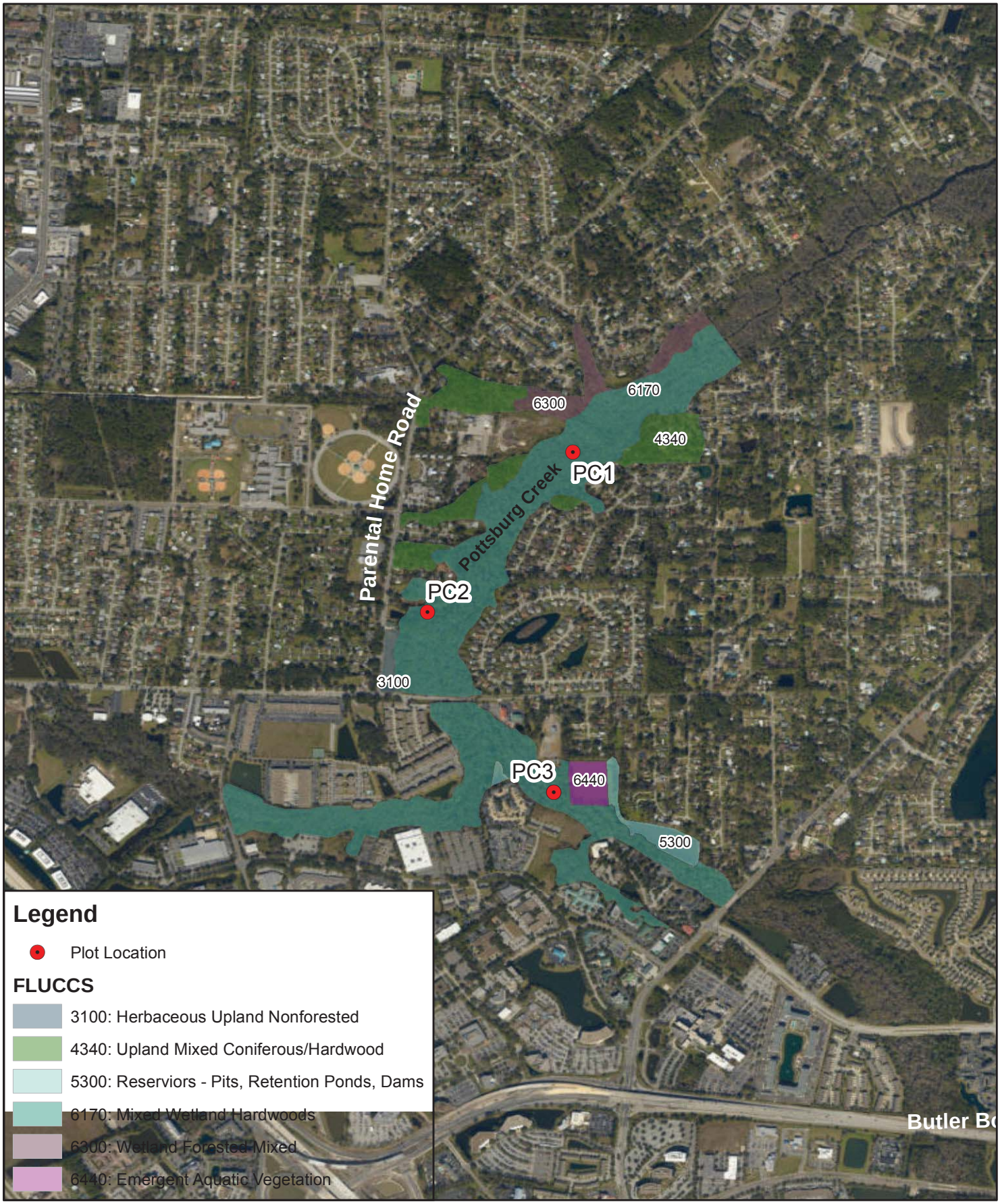
N

1 inch = 4,000 feet

0 2,000 4,000 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Freshwater Wetland Monitoring Plots - Six Mile Creek | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 14 |
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

Path: \\GNV-FS1\projects\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 6 Parcel Map_Six Mile Creek.mxd joy.ryan Date Saved: 10/27/2017 4:34:40 PM




Source: ESRI 2014; AMECFW 2017

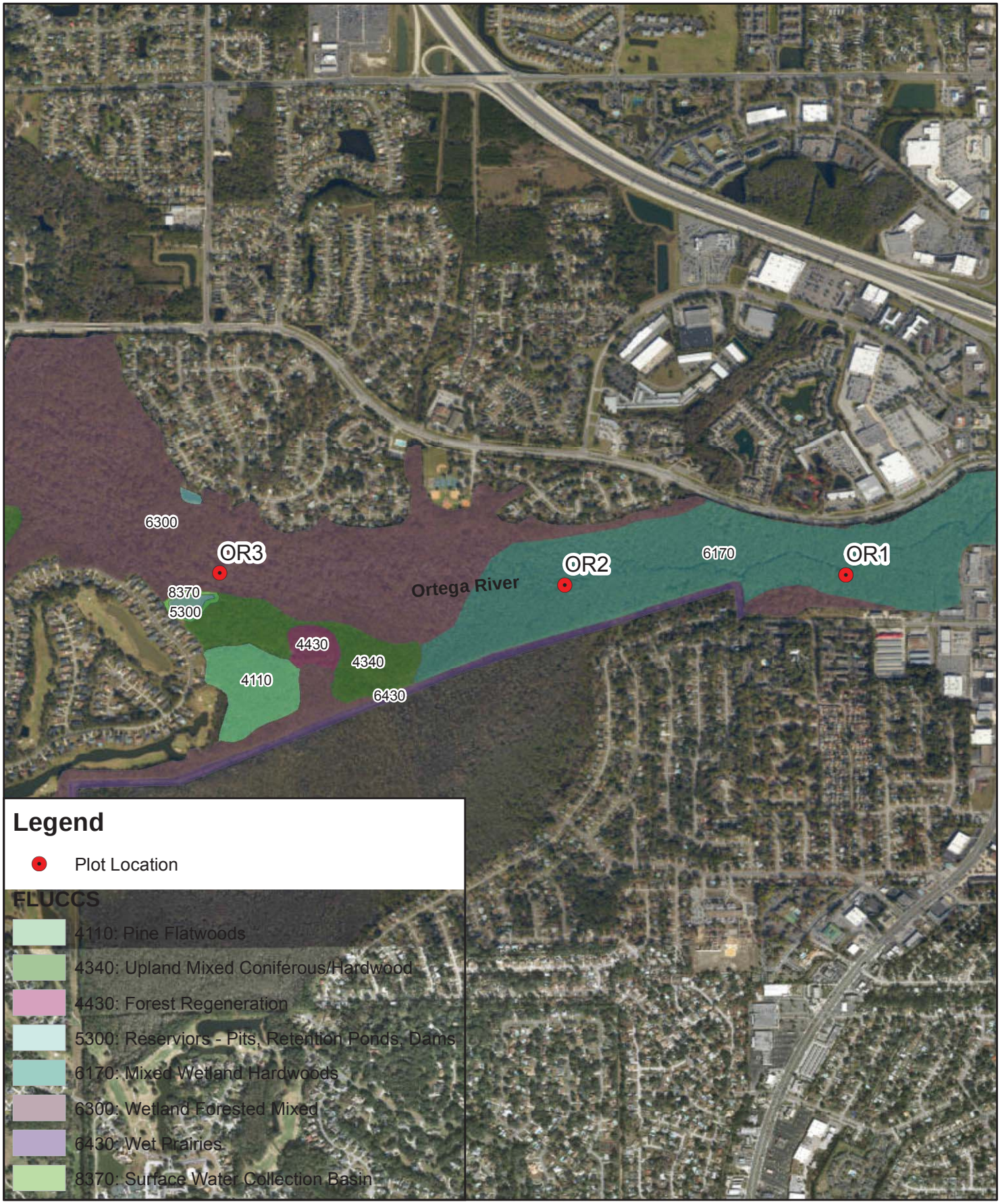
N

1 inch = 1,500 feet

0 750 1,500 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Plant Community Types - Pottsburg Creek | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 15 |
| NFP | 11/29/2017 | | | |
| Checked | Date | | | |
| JMR | 11/29/2017 | | | |

Path: P:\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 18 Spatial Photointerpretation Map_Pottsburg Creek.mxd nichole.panico Date Saved: 11/29/2017 3:41:35 PM




Source: ESRI 2014; AMECFW 2017

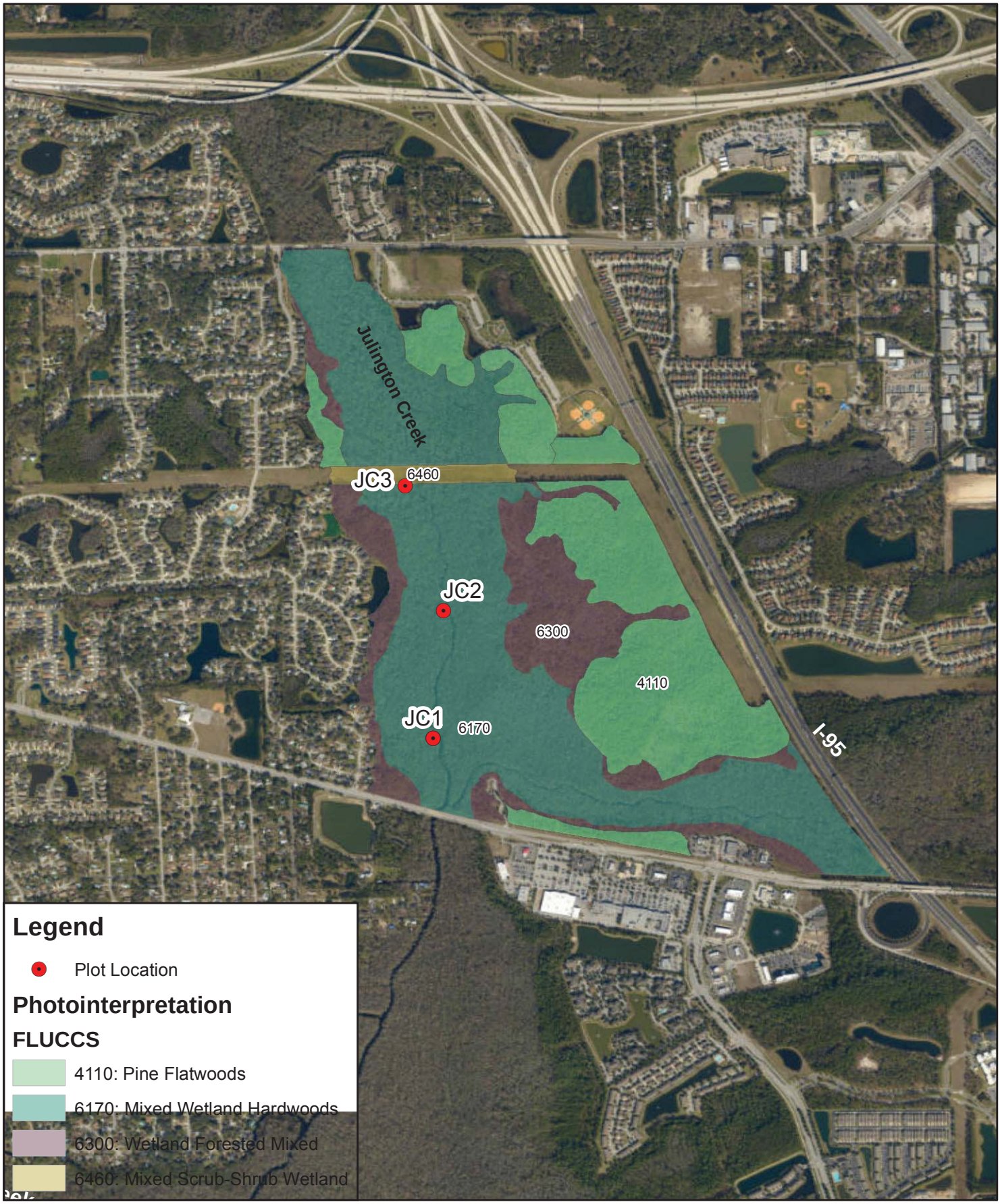
N

1 inch = 1,500 feet

0 750 1,500 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Plant Community Types - Ortega River | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 16 |
| NFP | 11/29/2017 | | | |
| Checked | Date | | | |
| JMR | 11/29/2017 | | | |

Path: P:\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 17 Spatial Photointerpretation Map_Ortega River.mxd nichole.panico Date Saved: 11/29/2017 3:30:43 PM




Source: ESRI 2014; AMECFW 2017

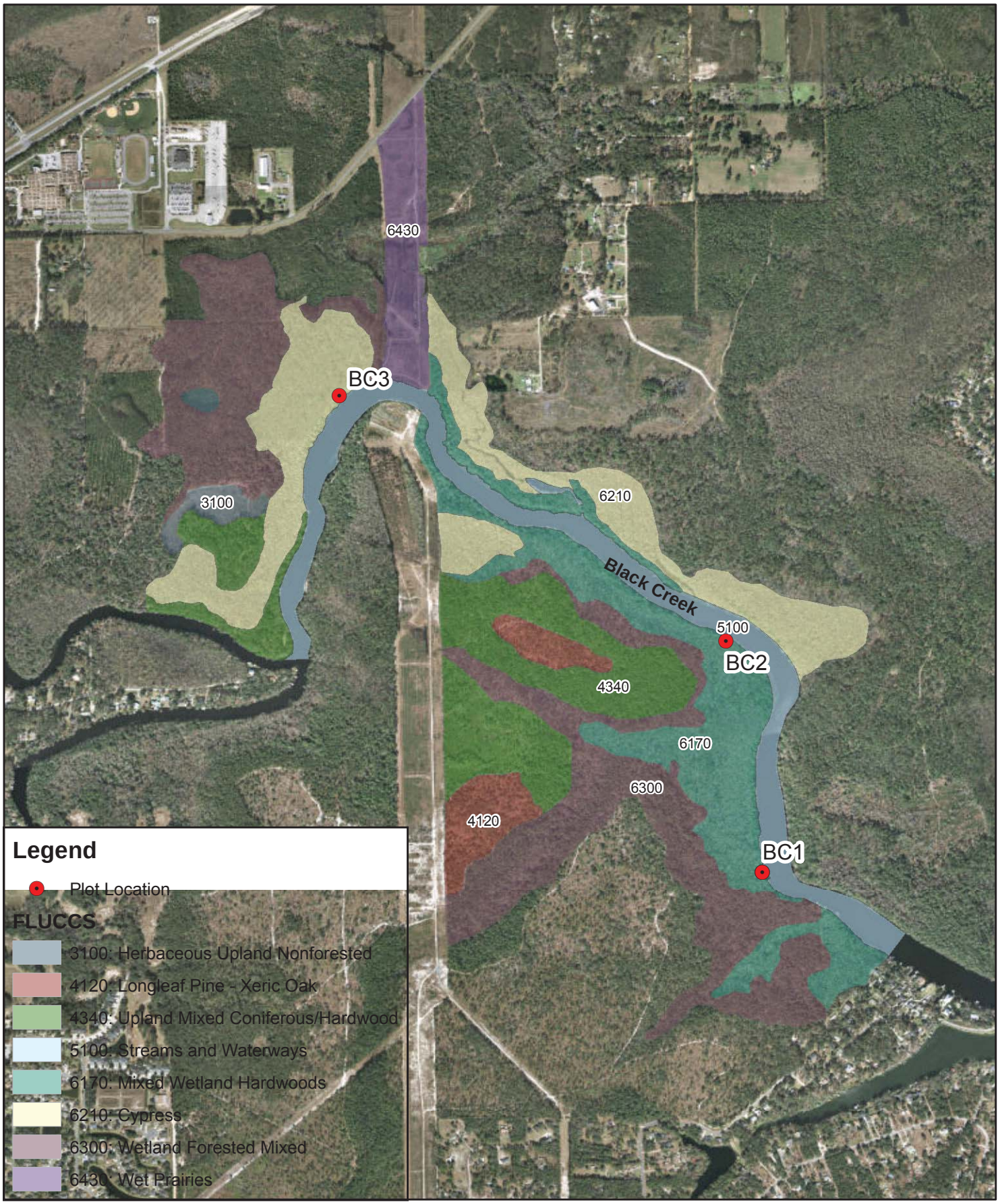
N

1 inch = 1,500 feet

0 750 1,500 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| | Plant Community Types - Julington Creek | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 17 |
| NFP | 11/29/2017 | | | |
| Checked | Date | | | |
| JMR | 11/29/2017 | | | |

Path: P:\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 16 Spatial Photointerpretation Map_Julington Creek.mxd nichole.panico Date Saved: 11/29/2017 3:25:49 PM




Source: ESRI 2014; AMECFW 2017

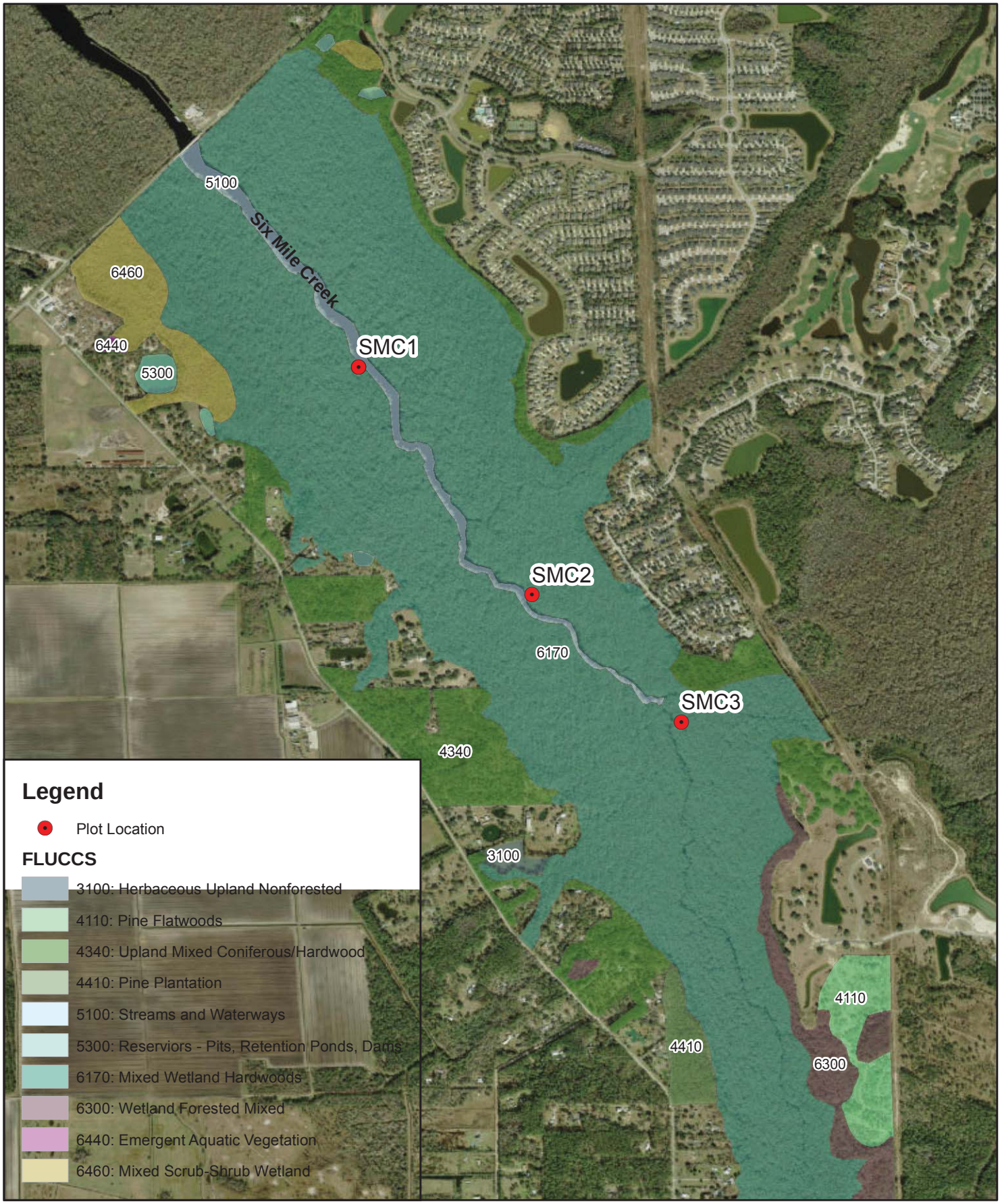
N

1 inch = 1,500 feet

0 750 1,500 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Plant Community Types - Black Creek | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 18 |
| NFP | 11/29/2017 | | | |
| Checked | Date | | | |
| JMR | 11/29/2017 | | | |

Path: P:\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 15 Spatial Photointerpretation Map_Black Creek.mxd nichole.panico Date Saved: 11/29/2017 3:10:23 PM




Source: ESRI 2014; AMECFW 2017

N

1 inch = 1,500 feet

0 750 1,500 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Plant Community Types - Six Mile Creek | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 19 |
| NFP | 11/29/2017 | | | |
| Checked | Date | | | |
| JMR | 11/29/2017 | | | |

Path: P:\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 19 Spatial Photointerpretation Map_Six Mile Creek.mxd nichole.panico Date Saved: 11/29/2017 3:36:37 PM

# Appendix 1
# Final SAV Biological Monitoring Plan

**Prepared for:**
**U.S. Army Corps of Engineers**
**701 San Marco Boulevard**
**Jacksonville, FL 32207-8175**
**USACE Contract No. W91278-16-D-0062**

**Prepared by:**
**Amec Foster Wheeler Environment & Infrastructure, Inc.**
**404 SW 140th Terrace**
**Newberry, Florida 32669**
**Project Number 6063170288.03**


Jennifer Sagan, MS
Senior Scientist

Mark Diblin, PG
Project Manager


**July 11, 2017**

# Table of Contents

**1.0 Introduction ..... 1-1**

**2.0 Background ..... 2-1**

**3.0 Objectives ..... 3-1**

**4.0 Methodology ..... 4-1**

4.1 SAV Monitoring Station Locations ..... 4-1
4.2 Monitoring Station Descriptions: Historical Species Composition and Bed Length ..... 4-1
4.3 SAV Monitoring Timeline ..... 4-2
4.4 Data Collection Method ..... 4-3
4.5 Data Analysis ..... 4-4
4.6 Tabular and Graphical Representations ..... 4-5
4.7 Data Reporting ..... 4-5

**5.0 References ..... 5-1**

# Table of Contents (continued)

## Tables

**Table 1.** Submerged Aquatic Vegetation Locations, Nearshore Transect Coordinates

## Appendices

**Appendix 1** SAV Photographs, Representative Species of the Lower St. Johns River

## Figures

**Figure 1.** SAV Monitoring Location Map
**Figure 2.** SAV Transect Map – Groundtruth 002
**Figure 3.** SAV Transect Map – Groundtruth 006
**Figure 4.** SAV Transect Map – Bolles High School
**Figure 5.** SAV Transect Map – Buckman Bridge
**Figure 6.** SAV Transect Map – Moccasin Slough
**Figure 7.** SAV Transect Map – Orangedale
**Figure 8.** SAV Transect Map – Scratch Ankle

# Table of Contents (continued)

## Acronyms

| | |
|---|---|
| Amec Foster Wheeler | Amec Foster Wheeler Environment & Infrastructure, Inc. |
| ANOVA | Analysis of Variance |
| BMP | Biological Monitoring Plan |
| ERP | Environmental Resource Permit |
| et al. | and others |
| FDEP | Florida Department of Environmental Protection |
| LSJR | Lower St. Johns River |
| JAXPORT | Jacksonville Port Authority |
| m | meter |
| SAV | Submerged Aquatic Vegetation |
| SJRWMD | St. Johns River Water Management District |
| USACE | United States Army Corps of Engineers |

# 1.0 Introduction

In accordance with the State permit, Florida Department of Environmental Protection (FDEP) Environmental Resource Permit No. 0129277-017-BI (2016), for the U.S. Army Corps of Engineers (USACE) project Jacksonville Harbor Federal Channel Expansion, a Biological Monitoring Plan (BMP) for Submerged Aquatic Vegetation (SAV) Monitoring must be submitted. The following is the BMP that describes SAV monitoring at and data analysis for seven locations within the Lower St. Johns River (LSJR).

# 2.0 Background

Jacksonville's federal navigation channel is a 21-mile reach of the LSJR extending from the Atlantic Ocean at Mayport, Florida to the Jacksonville Port Authority (JAXPORT) Talleyrand Marine Terminal just north of downtown Jacksonville, Florida. In accordance with the Water Resources Reform Development Act of 2014, USACE has been authorized to deepen the channel from 40 to 47 feet between river miles 0 and 13. This will allow Post-Panamax vessels to access the JAXPORT marine terminals near Blount Island.

Hydrodynamic modeling conducted by the USACE indicates the proposed deepening would result in a minor upstream shift in salinity. The authorized deepening plan, as well as the State permit, requires monitoring of selected SAV or eelgrass (i.e. *Vallisneria americana*), beds and freshwater wetlands within the main stem of the LSJR or its tributaries. Data will also be used to document community trends over time.

# 3.0 Objectives

The primary objective of this plan is to describe the SAV Monitoring, outlined in USACE Contract No. W91278-16-D-0062 and FDEP Environmental Resource Permit (ERP) Permit No.: 0129277-017-BI, that will be used to identify potential adverse secondary impacts that may occur due to salinity stress to the SAV, including, but not limited to eelgrass (*Vallisneria americana*), due to the deepening of the LSJR as identified above. The SAV monitoring results will be used to support the results of the hydrodynamic and ecological modeling performed by the USACE. This BMP describes the methods that will be used to assess SAV beds within the LSJR to document the pre-dredge status and post-dredge status site conditions.

# 4.0 Methodology

## 4.1 SAV Monitoring Station Locations

The SAV monitoring locations for this project will be in the same locations as established during an earlier study conducted by SJRWMD. The seven SAV sites are shown on Figure 1, and are identified, in latitudinal order, as:

- Groundtruth site GT002,
- Groundtruth site GT006,
- Bolles School,
- Buckman Bridge,
- Moccasin Slough,
- Orangedale, and
- Scratch Ankle.

## 4.2 Monitoring Station Descriptions: Historical Species Composition and Bed Length

### Groundtruthing Site GT002

The site is located in front of a private, residential property in a highly urbanized section of Duval County on the western bank of the river just downstream of Fishweir Creek and corresponding approximately to river mile 26.5. The shoreline consists of a bulkhead and concrete rip-rap. SAV data collection at this site began in 1998. Species, when present, that have been observed at the site include *Ruppia maritima*, and *Zannichellia palustris*; the bed length at this site has ranged from 0 to 73 meters (m) from shore (Sagan 2007). Stock photographs of representative SAV species at this site and throughout the LSJR can be found in Appendix 1.

### Groundtruthing Site GT006

The site is located in front of a private, residential property in a highly urbanized section of Duval County on the eastern bank of the river corresponding approximately to river mile 28. The shoreline consists of a bulkhead. SAV data collection at this site began in 1998. The only species observed at the site, if any were present, has been *Ruppia maritima*; the bed length at this site has ranged from 0 m to 65 m from shore (Sagan 2007).

### Bolles High School

The site is located in front of a private school in a highly urbanized section of Duval County on the eastern bank of the river (7400 San Jose Blvd., Jacksonville, Florida 32217) corresponding approximately to river mile 30. The shoreline consists of concrete rip-rap. SAV data collection at this site began in 1995. Species that have been observed with regular frequency at the site include *Najas guadalupensis*, *Ruppia maritima*, *Vallisneria americana*, and *Zannichellia palustris*; the mean bed length at this site has ranged from 17 to 94 m from shore (Sagan 2007).

### Buckman Bridge

The site is located in a highly urbanized section of Duval County. It is located on the eastern bank of the river, upstream from the Buckman Bridge (Interstate 295), corresponding approximately to river mile 35. The study plot shoreline is bisected by an undeveloped property upstream and a developed residential property downstream (11138 Scott Mill Rd., Jacksonville, Florida 32223). The shoreline consists of a bulkhead that runs the entire length of the study plot. Data collection associated with this site began in 1996. Species that have been observed with regular frequency at the site include *Najas guadalupensis*, *Ruppia maritima*, *Vallisneria americana*, and *Zannichellia palustris*; the mean bed length at this site has ranged from 45 to 86 m from shore (Sagan 2007).

### Moccasin Slough

The site is located in front of Moccasin Slough Park, a 255-acre conservation park in Clay County. It is located on the western bank of the river, upstream from Doctors Lake Inlet and across from Julington Creek corresponding approximately to river mile 38.

SAV data collection at this site began in 1995. Species that have been observed with regular frequency at the site include charophytes, *Najas guadalupensis*, *Ruppia maritima*, *Vallisneria americana*, and *Zannichellia palustris*; the mean bed length at this site has ranged from 143 to 170 m from shore (Sagan 2007).

### Orangedale

The site is located on the eastern shore of St. Johns County, north of the Shands Bridge (State Road 16) and one dock upstream of the old Shands Bridge Fishing Pier, corresponding approximately to river mile 49. The shoreline abuts low density, rural residential property and consists of rip rap.

SAV data collection at this site began in 1995. Species that have been observed with regular frequency at the site include *Ceratophyllum demersum*, charophytes, *Eleocharis sp.*, *Micranthemum sp.*, *Najas guadalupensis*, *Potamogeton pusillus*, *Ruppia maritima Sagittaria subulata*, *Vallisneria americana*, and *Zannichellia palustris; t*he mean bed length at this site has ranged from 57 to 76 m from shore (Sagan 2007).

### Scratch Ankle

The site is located in front of private residential property in a low density rural section of the Clay and Putnam County border and corresponds approximately to river mile 62. It is located on the western bank of the river, abutting swampland and naturalized residential shoreline.

SAV data collection at this site began in 1995. Species that have been observed with regular frequency at the site include *Ceratophyllum demersum*, charophytes (i.e. Chara sp. and Nitella sp.), *Eleocharis sp.*, *Hydrilla verticillata*, *Micranthemum sp.*, *Najas guadalupensis*, *Potamogeton pusillus*, *Ruppia maritima Sagittaria subulata*, *Vallisneria americana*, and *Zannichellia palustris; t*he mean bed length at this site has ranged from 138 to 217 m from shore (Sagan 2007).

## 4.3 SAV Monitoring Timeline

All SAV stations will be monitored one time prior to the commencement of dredging (within one year of commencement of dredging) during the peak growing season. SAV surveys will be conducted quarterly throughout the duration of dredging, including once during the peak growing season (between June 1 to August 1) and in (or as soon as practicable, but no more than 30 days from) November, February, and May. Quarterly SAV monitoring will continue for at least 10 years after the completion date of the last construction contract. Monitoring will occur at the same time of year for all surveys (i.e., pre-, during and post-construction) to reduce seasonal variation between surveys.

Data will be collected at SAV monitoring stations starting in calendar year 2017 as follows:

- July 2017 - the monitoring event during the peak growing season and prior to commencement of the deepening, providing baseline data.
- November 2017 – the monitoring event during duration of dredging (deepening of Contract A) which is scheduled to commence during November 2017.

## 4.4 Data Collection Method

### Data Collection Methodology - Rationale

Methodology used for SAV Monitoring was stipulated by, and will be performed in accordance with, the USACE Contract No. W91278-16-D-0062, and FDEP permit (ERP Permit No.: 0129277-017-BI). Methodology reflects previous methods employed during SJRWMD data collection at these locations.

### Collection Method

At each monitoring location, five transects will be placed perpendicular to the shore starting from the shoreline and extended towards the river channel. Transects will be positioned parallel to each other at a distance of 0, 12, 25, 38, or 50 m from a stationary benchmark located at each monitoring location. Transect nearshore points have been obtained for each monitoring location (Table 1) and are shown in Figures 2 through 8.

**Table 1. Submerged Aquatic Vegetation Locations, Nearshore Transect Coordinates**

| Location | Monitoring Location Name | Transect | Coordinates for Transect (Decimal Degrees) Latitude | Longitude |
|---|---|---|---|---|
| Groundtruth 002 | GT002 | GT00200 | 30.28822814 | -81.70599232 |
| | | GT00212 | 30.28812747 | -81.70605015 |
| | | GT00225 | 30.28804521 | -81.70610505 |
| | | GT00238 | 30.28790150 | -81.70614964 |
| | | GT00250 | 30.28783038 | -81.70621854 |
| Groundtruth 006 | GT006 | GT00600 | 30.27056542 | -81.65392662 |
| | | GT00612 | 30.27064165 | -81.65400323 |
| | | GT00625 | 30.27072782 | -81.65404061 |
| | | GT00638 | 30.27083938 | -81.65413759 |
| | | GT00650 | 30.27091545 | -81.65422132 |
| Bolles School | BOL | BOL00 | 30.24158587 | -81.63045888 |
| | | BOL12 | 30.24149262 | -81.63037003 |
| | | BOL25 | 30.24138391 | -81.63034069 |
| | | BOL38 | 30.24128010 | -81.63023802 |
| | | BOL50 | 30.24119510 | -81.63015724 |
| Buckman Bridge | BUC | BUC00 | 30.17340726 | -81.64465053 |
| | | BUC 12 | 30.17349129 | -81.64462731 |
| | | BUC 25 | 30.17358248 | -81.64458071 |
| | | BUC 38 | 30.17370922 | -81.64452019 |
| | | BUC 50 | 30.17379869 | -81.64449547 |
| Moccasin Slough | MOC | MOC00 | 30.12913761 | -81.69408859 |
| | | MOC12 | 30.12907981 | -81.69408239 |
| | | MOC25 | 30.12896666 | -81.69406504 |
| | | MOC38 | 30.12885283 | -81.69399387 |
| | | MOC50 | 30.12876101 | -81.69395775 |
| Orangedale | ORG | ORG00 | 30.00480725 | -81.61272327 |
| | | ORG12 | 30.00485448 | -81.61279377 |
| | | ORG25 | 30.00494731 | -81.61288949 |
| | | ORG 38 | 30.00507161 | -81.61299242 |
| | | ORG 50 | 30.00513678 | -81.61308001 |
| Scratch Ankle | SCA | SCA00 | 29.83708419 | -81.60278267 |
| | | SCA12 | 29.83699132 | -81.60273833 |
| | | SCA25 | 29.83726712 | -81.60286951 |
| | | SCA38 | 29.83716026 | -81.60283950 |
| | | SCA50 | 29.83688210 | -81.60268662 |

Created by: JJS Checked by: DLA

Data collection methods along each transect are described below and will provide SAV parameters such as cover, species composition, and bed length.

1. At each station, 5 transects will be positioned perpendicular to the St. Johns River shoreline as described above. Transects will extend from the shoreline to the deep-water edge of the SAV bed. The entire extent of the SAV bed will be sampled. A visual assessment will be conducted 10 m beyond the last “bare” quadrat to ensure that no plants are present along each transect.
2. Line-intercept surveys will be conducted to document the linear extent (recorded to the nearest 0.1 m) of each SAV taxon present along each transect.
3. Data will be collected at regular intervals along each transect, using a 0.25 m x 0.25 m quadrat. Quadrats will be placed at intervals equal to 10% of the measured bed length (determined using the line-intercept survey results). Quadrats will be separated by at least one meter and spaced no more than 20 m apart from one another. The last quadrat will always be sampled at the deep-water edge of the SAV bed. The exact position of each quadrat (i.e., distance along transect) will be reported, as per Statement of Work requirements.
4. Within each quadrat, the presence/absence of vegetation will be recorded.
5. If SAV is present, the canopy height of each plant taxon will be measured using a representative individual, and data will be reported.
6. The condition / health of all plants within each plot will be assessed by qualified staff. Any visually conspicuous signs of salt stress will be noted during each survey.
7. All floating and emergent taxa present within quadrats will be identified and reported.
8. Total percent cover of SAV will be estimated within each quadrat. Cover will be reported using standard categories developed by SJRWMD, as follows: 0 = bare (0% cover), 1 = sparse (1 – 32% cover), 2 = moderate (33 – 65% cover), 3 = heavy (66 – 100% cover).
9. If eelgrass (i.e. *Vallisneria americana*) inflorescence is present in a quadrat, it will be reported. The percentage of quadrats along each transect containing eelgrass with visible inflorescence will be reported.
10. Within each quadrat, sediment will be qualitatively assessed and assigned to one of three categories: 1 = sandy, 2 = mucky-sand, 3 = muck. All other substrates will be denoted as 0, i.e., rock or clay, as per Statement of Work requirements.
11. Representative photographs will be taken along each transect at all stations when possible; however, the dark, turbid waters of the LSJR generally do not make it possible to produce underwater photographs.

## 4.5 Data Analysis

The primary goal of SAV monitoring is to determine changes in condition of the SAV within each site through time. Changes in condition will primarily be defined as changes in taxonomic composition or abundance. The primary null hypotheses to be tested are that no long-term changes occur in condition of the SAV communities at each site, in excess of natural variation, beginning with pre-construction and early construction data. Changes will be assessed by comparing species richness, the extent of SAV beds (bed length), species composition, total densities, and the densities of individual taxa.

### Data Analysis Methodology - Rationale

The use of non-parametric (distribution-free) statistical methods is preferred because the great majority of the monitoring data (percentages and ratios of percentages) will not be normally distributed. Further, environmental data frequently contain outliers due to uncontrolled factors such as weather. Distribution-free methods are powerful and less sensitive to outliers, and they avoid the problems associated with transforming data to meet normality requirements of parametric methods.

The following statistical methods will be employed: Multiple-site Sørensen similarity metric (Jost *et al*. 2011), the Kruskal-Wallis test (Sokal & Rohlf 1995), and the Seasonal Kendall test (Helsel & Hirsch 2002). The Sørensen similarity metric will highlight sites where long-term changes in species richness were unusually large or small. The Kruskal-Wallis test will show significant differences in overall SAV species cover over time. The Seasonal Kendal tests will provide slopes (rate of change) for significant, monotonic trends.

Statistical Analyses

- The Sørensen similarity metric will be used to quantify variation in species richness for each site across sampling years. Annual aggregate species data are used for this calculation to avoid effects of seasonality. At least two samples are needed for comparison, but two full years of sampling are needed to avoid effects of seasonality.
- Significant effects of season and year will be tested for SAV variables at each site using the Scheirer-Ray-Hare extension of the Kruskal-Wallis non-parametric analysis of variance (ANOVA). At least two samples are needed for comparison, and two full years of data are needed to test seasonal effects. Variables to be evaluated are the following:
  - Distance to deep-water edge of SAV.
  - Percent cover and percent composition of major SAV taxa. Percent Cover will be calculated by dividing total linear extent for each taxon by the transect length. Percent composition will be calculated by dividing percent cover for each taxon by the sum of percent cover for all taxa.
  - Simpson's diversity (D1) index. This index is one of the most widely-used of the so-called compound diversity indices that combine both richness and abundance. It states the probability that two individuals chosen at random belong to different species (Morris *et al.* 2014).
- Tests for significant temporal trends and calculations of slopes for the following variables at each site using the non-parametric regression Seasonal Kendall Test. If this test shows significant seasonal effects, then trends will be evaluated separately for each season. A minimum of two full years of data are needed for this test, and three years are needed to test seasonal effects.
  - Distance to deep-water edge of SAV
  - Percent cover and percent composition of major SAV taxa
  - Simpson's diversity (D1) index

## 4.6 Tabular and Graphical Representations

Results from statistical analyses will be presented in tabular or graphic formats. Graphical representations of the data, the non-parametric ANOVA, and the trend analyses will be complementary in examination of changes in SAV through time. Time-series graphs will illustrate the degree and direction of changes and the variability in the data.

Summary tables will include a matrix of SAV species present for each site by year aggregated across transects and quadrats. Summary graphs will include annual box plots by site for the following metrics:

- Distance to deep-water edge of SAV (bed length),
- Simpson's diversity (D1) index,
- Percent cover of major SAV taxa, and
- Percent composition of major SAV taxa.

## 4.7 Data Reporting

Raw SAV monitoring data will be provided to the USACE in Excel format and as copies of scanned field sheets no later than 3 days after each SAV monitoring event. Upon completion of annual surveys, a draft and final Annual SAV Report will be submitted that will contain:

- Detailed descriptions of the methods used to collect and analyze data
- Summary of all biological data collected
- Descriptions of current condition of the biological communities
- Statistical comparisons as described in Section 4.5 (Data Analysis)
- Representative photos from each SAV transect
- A statement that the monitoring results indicate, or do not indicate, a change in the condition of SAV that exceeds the natural variation in these systems.

The draft report submittal shall include draft electronic files in native Microsoft Word format, three (3) hard copies, and three (3) CDs. The final report submittal shall include a final electronic document in PDF format, three (3) hard copies, and three (3) CDs. The Contractor shall provide the draft and final submittals to the USACE Technical Point of Contact.

# 5.0 References

Amec Foster Wheeler. 2017. Task Order for Submerged Aquatic Vegetation (SAV) and Freshwater Wetlands Monitoring In Support of Jacksonville Harbor Deepening Project, St. Johns River, Florida. USACE Contract No. W91278-16-D-0062. May 1, 2017.

FDEP. 2016. Environmental Resource Permit No. 0129277-017-BI, Permit issued to USACE for the Jacksonville Harbor Federal Channel Expansion project.

Helsel, D.R. and R. M. Hirsch. 2002. *Statistical Methods in Water Resources. Techniques of Water Resources Investigations*, Book 4, chapter A3. U.S. Geological Survey. 522 pages.

Jost, L., Chao, A. & R.L. Chazdon. 2011. Compositional similarity and β (beta) diversity. In: Magurran, A.E. & B.J. McGill, Eds. *Biological Diversity: Frontiers in Measurement and Assessment.* Oxford University Press. 345 p.

Morris, E.K., T. Caruso, F. Buscot, M. Fische, C. Hancock, T.S. Maier, T. Meiners, C. Müller, E. Obermaier, D. Prati, S.A. Socher, I. Sonnemann, N. Wäschke, T. Wubet, S. Wurst & M.C. Rillig. 2014. Choosing and using diversity indices: insights for ecological applications from the German Biodiversity Exploratories. Ecology and Evolution 4(18): 3514–3524.

Sagan, J.J. 2007. A Summary of Submerged Aquatic Vegetation (SAV) Status within the Lower St. Johns River: 1996 - 2007. Final Report to the St. Johns River Water Management District, Palatka, FL. Special Publication SJ2009-SP6.

Sokal, R.R. & F.J. Rohlf. 1995. *Biometry: The Principles and Practice of Statistics in Biological Research*, Third Edition. W.H. Freeman and Co., New York. 887 p.

# Figures

Source: DeLorme 2014; NRCS 2014

N

1 inch = 4 miles

0 2 4 8 Miles

| USACE SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| | | SAV Monitoring Location Map | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 1 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

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Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | | |
|---|---|---|---|---|
| SAV Transect Map - Groundtruth 002 | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 2 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

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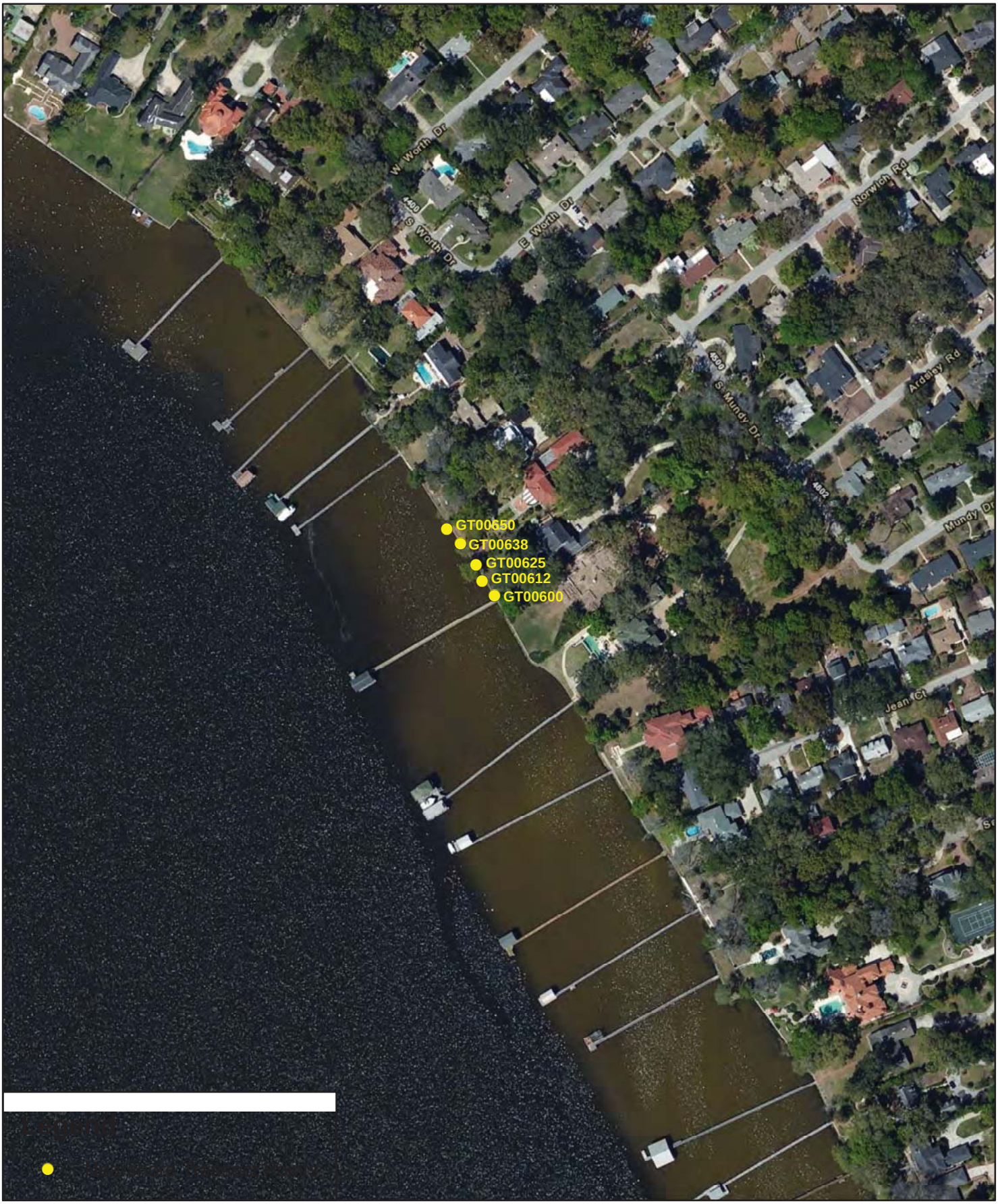


Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | | |
|---|---|---|---|---|
| SAV Transect Map - Groundtruth 006 | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 3 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

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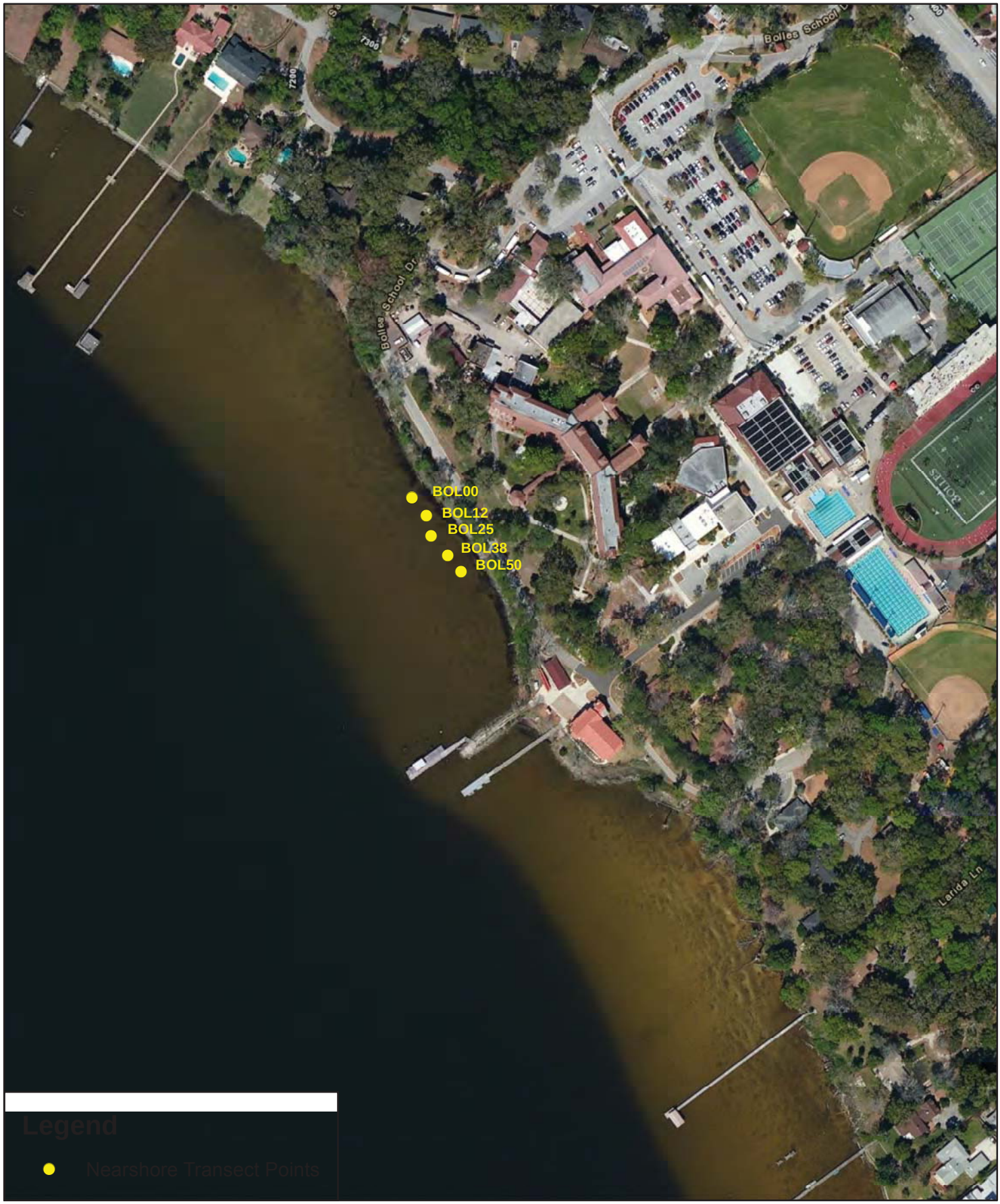


Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | | |
|---|---|---|---|---|
| | | SAV Transect Map - Bolles School | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 4 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

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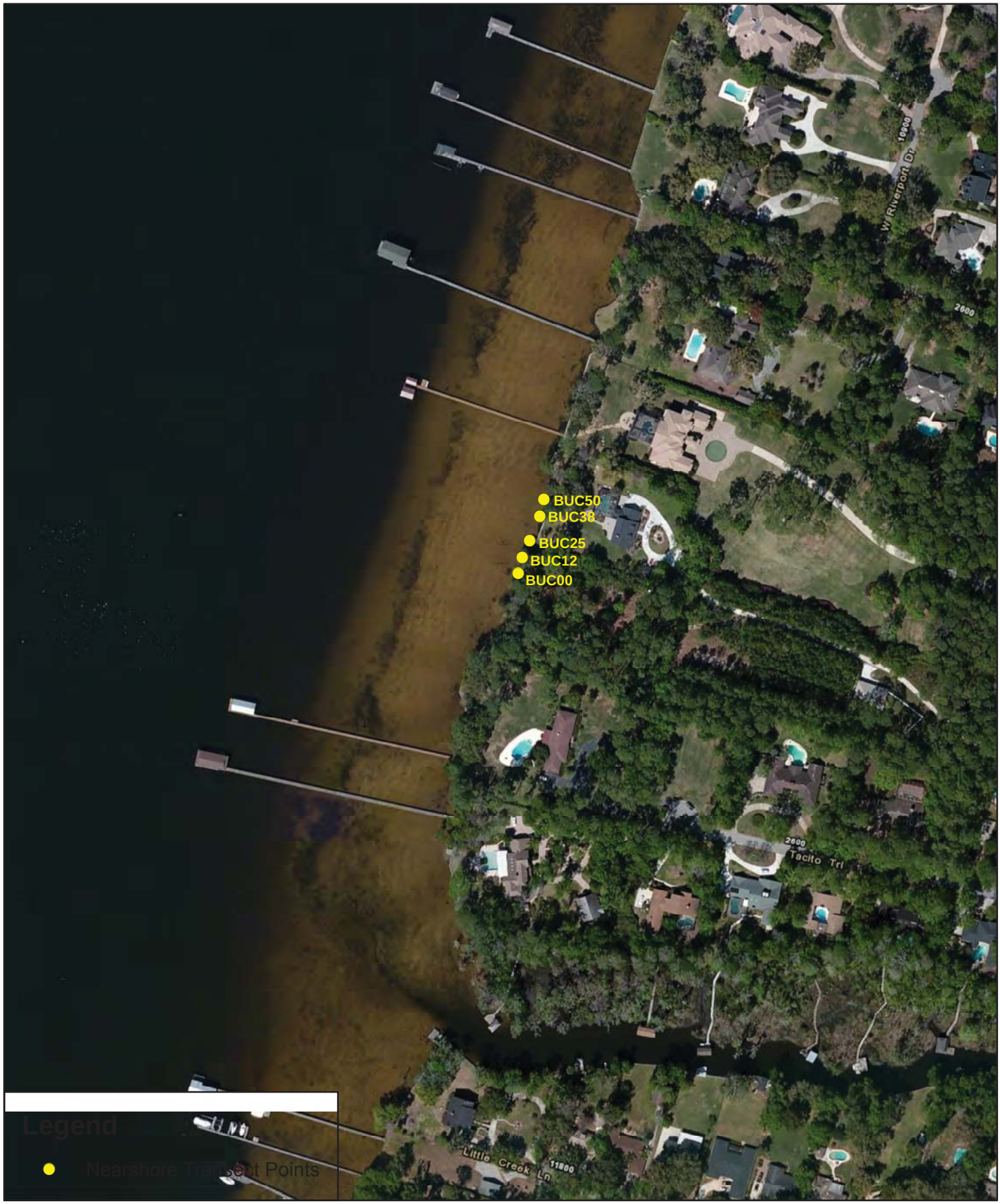


Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | | |
|---|---|---|---|---|
| SAV Transect Map - Buckman Bridge | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 5 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

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Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | | |
|---|---|---|---|---|
| | | SAV Transect Map - Moccasin Slough | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 6 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

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Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | | |
|---|---|---|---|---|
| | | SAV Transect Map - Orangedale | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 7 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

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Source: ESRI 2014; AMECFW 2017

N

1 inch = 250 feet

0 125 250 500 Feet

| USACE - SAV and Wetlands Monitoring | | | | |
|---|---|---|---|---|
| | | SAV Transect Map - Scratch Ankle | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 8 |
| DLA | 6/23/2017 | | | |
| Checked | Date | | | |
| JJS | 6/23/2017 | | | |

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# Appendix 1

# SAV Photographs

# Representative Species of the Lower St. Johns River

# Appendix 1

## SAV Photographs

## Representative Species of the Lower St. Johns River

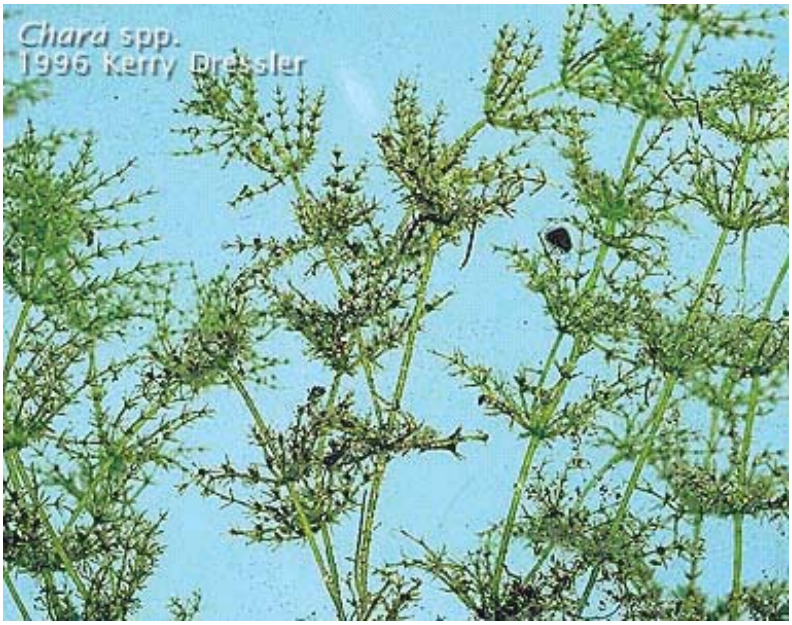
*Ceratophyllum demersum*

Coontail

*Courtesy of St. Johns River Water Management District*

*Chara sp.*

Muskweed




*Courtesy of Kerry Dressler*

*Eleocharis sp.*

Spikerush

*Courtesy of St. Johns River Water Management District*

*Hydrilla verticillata*

Hydrilla

*Courtesy of Kerry Dressler*

*Micranthemum sp.*

Baby tears

*Courtesy of St. Johns River Water Management District*

*Najas guadalupensis*

Southern Naiad

*Courtesy of St. Johns River Water Management District*

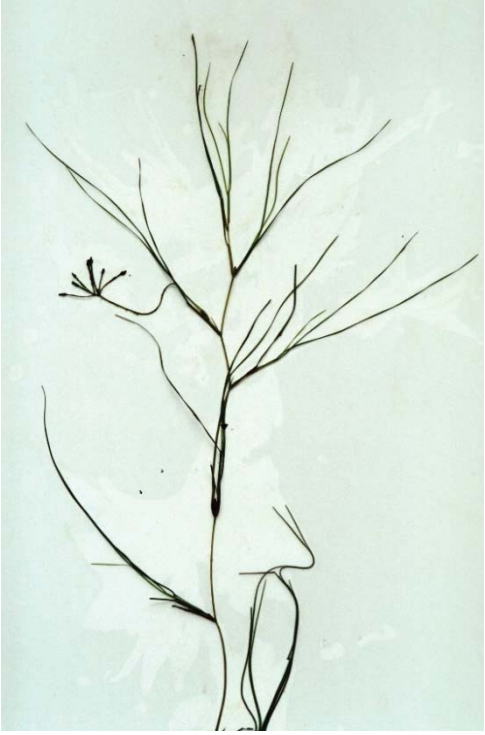
*Potamogeton pusillus*

Slender Pondweed

*Courtesy of St. Johns River Water Management District*

*Ruppia maritima*

Widgeon grass



*Courtesy of St. Johns River Water Management District*

*Sagittaria subulata*

Dwarf arrowhead

*Courtesy of St. Johns River Water Management District*

*Vallisneria americana*

Eel Grass
Tape grass

*Courtesy of St. Johns River Water Management District*

*Zannichellia palustris*

Horned
pondweed

*Courtesy of St. Johns River Water Management District*

# Appendix 2
# SAV Photo Record

# Photograph Record - SAV Annual Report

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Scratch Ankle, St. Johns River, FL

**Photographer:**
Jennifer Sagan

**Date:**
July 17, 2017

**Photo #:** NA

**Description:**

Representative view of nearshore visibility at Scratch Ankle. Transect 2, beginning of transect nearshore.

**Photographer:**
Jennifer Sagan

**Date:**
July 17, 2017

**Photo #:** NA

**Description:**

Representative view of Mid-bed at Scratch Ankle, view towards shore at transect 2.

## Photograph Record - SAV Annual Report

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Scratch Ankle, St. Johns River, FL

**Photographer:**
Jennifer Sagan

**Date:**
July 17, 2017

**Photo #:** NA

**Description:**

Representative view toward river channel at Scratch Ankle from nearshore at transect 2.

**Photographer:**
Jennifer Sagan

**Date:**
July 17, 2017

**Photo #:** NA

**Description:**

Representative view of water clarity at the end of the bed at Scratch Ankle. End of transect 2.

## Photograph Record - SAV Annual Report

**Client:** USACE - Jacksonville District

**Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening

**Site Location:** Orangedale, St. Johns River, FL

**Photographer:**
Jennifer Sagan

**Date:**
July 25, 2017

**Photo #:** NA

**Description:**

Representative view of nearshore visibility at Orangedale. Transect 2, beginning of transect nearshore.

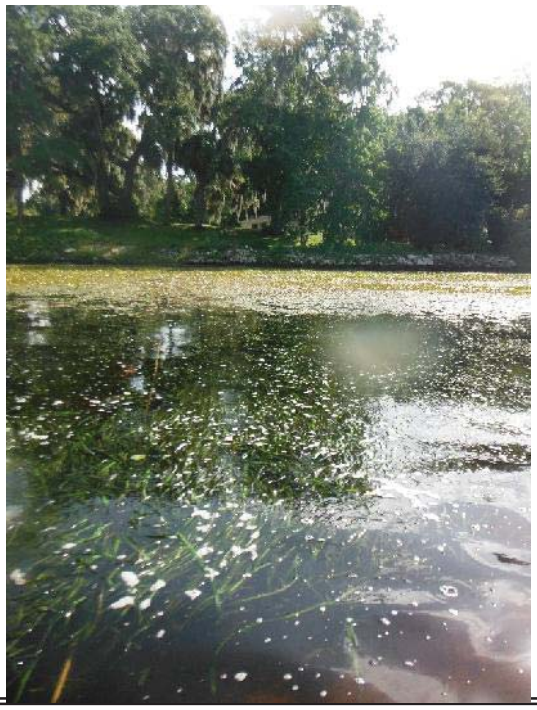
**Photographer:**
Jennifer Sagan

**Date:**
July 25, 2017

**Photo #:** NA

**Description:**

Representative view from the channel to shore at Orangedale. Near end of transect 3.



## Photograph Record - SAV Annual Report

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Orangedale, St. Johns River, FL

**Photographer:**
Jennifer Sagan

**Date:**
July 25, 2017

**Photo #:** NA

**Description:**

Representative view from nearshore facing the channel at Orangedale. Near the beginning of transect 3.

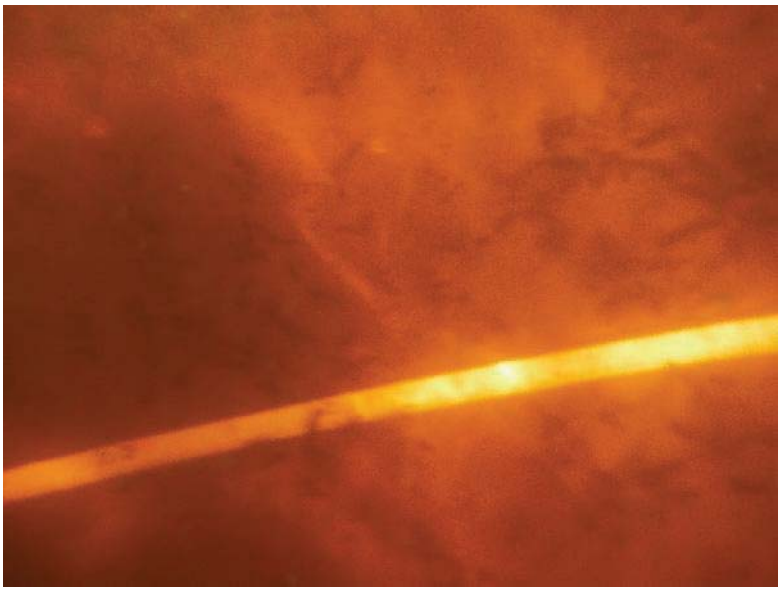
**Photographer:**
Jennifer Sagan

**Date:**
July 25, 2017

**Photo #:** NA

**Description:**

Representative view of water clarity towards the end of the bed at Orangedale. Near the end of transect 3.



## Photograph Record - SAV Annual Report

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Scratch Ankle, St. Johns River, FL

**Photographer:**
Jennifer Sagan

**Date:**
November 6, 2017

**Photo #:** NA

**Description:**

Representative view of water clarity at Scratch Ankle nearshore.

**Photographer:**
Jennifer Sagan

**Date:**
November 6, 2017

**Photo #:** NA

**Description:**

Representative view facing nearshore at Scratch Ankle. Permanent stake marking the start of transect 1 visible near Cyprus tree.

# Appendix 3
# SAV Database

| Site | Sample_Date | Distance_along_Shore | Species | Open | Close |
|---|---|---|---|---|---|
| BOL | 7/14/2017 | 0 | Bare | 0.00 | 4.30 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 4.30 | 5.05 |
| BOL | 7/14/2017 | 0 | Bare | 5.05 | 5.25 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 5.25 | 5.40 |
| BOL | 7/14/2017 | 0 | Bare | 5.40 | 7.80 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 7.80 | 8.00 |
| BOL | 7/14/2017 | 0 | Bare | 8.00 | 10.60 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 10.60 | 10.75 |
| BOL | 7/14/2017 | 0 | Bare | 10.75 | 14.40 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 14.40 | 14.65 |
| BOL | 7/14/2017 | 0 | Bare | 14.65 | 14.85 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 14.85 | 14.95 |
| BOL | 7/14/2017 | 0 | Bare | 14.95 | 15.55 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 15.55 | 15.60 |
| BOL | 7/14/2017 | 0 | Bare | 15.60 | 19.40 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 19.40 | 19.45 |
| BOL | 7/14/2017 | 0 | Bare | 19.45 | 19.85 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 19.85 | 20.20 |
| BOL | 7/14/2017 | 0 | Bare | 20.20 | 27.15 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 27.15 | 28.95 |
| BOL | 7/14/2017 | 0 | Bare | 28.95 | 29.15 |
| BOL | 7/14/2017 | 0 | Zannichellia palustris | 29.15 | 29.20 |
| BOL | 7/14/2017 | 0 | Bare | 29.20 | 33.50 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 33.50 | 33.75 |
| BOL | 7/14/2017 | 0 | Bare | 33.75 | 35.65 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 35.65 | 35.70 |
| BOL | 7/14/2017 | 0 | Bare | 35.70 | 35.90 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 35.90 | 36.00 |
| BOL | 7/14/2017 | 0 | Bare | 36.60 | 42.35 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 42.35 | 42.40 |
| BOL | 7/14/2017 | 0 | Bare | 42.40 | 43.45 |
| BOL | 7/14/2017 | 0 | Ruppia maritima | 43.45 | 43.50 |
| BOL | 7/14/2017 | 0 | Bare | 43.50 | 51.70 |
| BOL | 7/14/2017 | 0 | Zannichellia palustris | 51.70 | 51.80 |
| BOL | 7/14/2017 | 0 | Bare | 51.80 | 76.35 |
| BOL | 7/14/2017 | 0 | Zannichellia palustris | 76.35 | 76.55 |
| BOL | 7/14/2017 | 12 | Bare | 0.00 | 7.05 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 7.05 | 7.10 |
| BOL | 7/14/2017 | 12 | Bare | 7.10 | 7.35 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 7.35 | 7.40 |
| BOL | 7/14/2017 | 12 | Bare | 7.40 | 7.85 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 7.85 | 7.90 |
| BOL | 7/14/2017 | 12 | Bare | 7.90 | 8.25 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 8.25 | 8.40 |
| BOL | 7/14/2017 | 12 | Bare | 8.40 | 11.75 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 11.75 | 11.85 |
| BOL | 7/14/2017 | 12 | Bare | 11.85 | 12.45 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 12.45 | 12.50 |
| BOL | 7/14/2017 | 12 | Bare | 12.50 | 12.65 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 12.65 | 12.70 |
| BOL | 7/14/2017 | 12 | Bare | 12.70 | 13.55 |

| | | | | | |
|---|---|---|---|---|---|
| BOL | 7/14/2017 | 12 | Ruppia maritima | 13.55 | 13.85 |
| BOL | 7/14/2017 | 12 | Bare | 13.85 | 14.45 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 14.45 | 14.50 |
| BOL | 7/14/2017 | 12 | Bare | 14.50 | 14.80 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 14.80 | 14.95 |
| BOL | 7/14/2017 | 12 | Bare | 14.95 | 22.70 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 22.70 | 22.80 |
| BOL | 7/14/2017 | 12 | Bare | 22.80 | 23.05 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 23.05 | 23.10 |
| BOL | 7/14/2017 | 12 | Bare | 23.10 | 23.50 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 23.50 | 23.70 |
| BOL | 7/14/2017 | 12 | Bare | 23.70 | 25.15 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 25.15 | 25.20 |
| BOL | 7/14/2017 | 12 | Bare | 25.20 | 31.10 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 31.10 | 31.30 |
| BOL | 7/14/2017 | 12 | Bare | 31.30 | 33.55 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 33.55 | 33.60 |
| BOL | 7/14/2017 | 12 | Bare | 33.60 | 36.60 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 36.60 | 36.65 |
| BOL | 7/14/2017 | 12 | Bare | 36.65 | 38.95 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 38.95 | 39.10 |
| BOL | 7/14/2017 | 12 | Bare | 39.10 | 41.75 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 41.75 | 41.90 |
| BOL | 7/14/2017 | 12 | Bare | 41.90 | 54.25 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 54.25 | 54.30 |
| BOL | 7/14/2017 | 12 | Zannichellia palustris | 56.90 | 56.95 |
| BOL | 7/14/2017 | 12 | Bare | 56.95 | 63.15 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 63.15 | 63.20 |
| BOL | 7/14/2017 | 12 | Bare | 63.20 | 64.00 |
| BOL | 7/14/2017 | 12 | Zannichellia palustris | 64.00 | 64.10 |
| BOL | 7/14/2017 | 12 | Bare | 64.10 | 64.40 |
| BOL | 7/14/2017 | 12 | Zannichellia palustris | 64.40 | 64.50 |
| BOL | 7/14/2017 | 12 | Bare | 64.50 | 67.05 |
| BOL | 7/14/2017 | 12 | Zannichellia palustris | 67.05 | 67.50 |
| BOL | 7/14/2017 | 12 | Bare | 67.50 | 68.30 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 68.30 | 68.50 |
| BOL | 7/14/2017 | 12 | Bare | 68.50 | 68.90 |
| BOL | 7/14/2017 | 12 | Ruppia maritima | 68.90 | 69.20 |
| BOL | 7/14/2017 | 25 | Bare | 0.00 | 6.20 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 6.20 | 6.50 |
| BOL | 7/14/2017 | 25 | Bare | 6.50 | 6.95 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 6.95 | 7.00 |
| BOL | 7/14/2017 | 25 | Bare | 7.00 | 7.15 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 7.15 | 7.20 |
| BOL | 7/14/2017 | 25 | Bare | 7.20 | 7.35 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 7.35 | 7.40 |
| BOL | 7/14/2017 | 25 | Bare | 7.40 | 7.95 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 7.95 | 8.00 |
| BOL | 7/14/2017 | 25 | Bare | 8.00 | 8.50 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 8.50 | 8.60 |
| BOL | 7/14/2017 | 25 | Bare | 8.60 | 8.95 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 8.95 | 9.00 |

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| BOL | 7/14/2017 | 25 | Bare | 9.00 | 9.30 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 9.30 | 9.40 |
| BOL | 7/14/2017 | 25 | Bare | 9.40 | 9.65 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 9.65 | 9.70 |
| BOL | 7/14/2017 | 25 | Bare | 9.70 | 13.75 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 13.75 | 13.85 |
| BOL | 7/14/2017 | 25 | Bare | 13.85 | 15.00 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 15.00 | 15.30 |
| BOL | 7/14/2017 | 25 | Bare | 15.30 | 16.35 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 16.35 | 16.40 |
| BOL | 7/14/2017 | 25 | Bare | 16.40 | 16.70 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 16.70 | 16.80 |
| BOL | 7/14/2017 | 25 | Bare | 16.80 | 24.55 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 24.55 | 24.75 |
| BOL | 7/14/2017 | 25 | Bare | 24.75 | 25.25 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 25.25 | 25.30 |
| BOL | 7/14/2017 | 25 | Bare | 25.30 | 33.55 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 33.55 | 33.80 |
| BOL | 7/14/2017 | 25 | Bare | 33.80 | 34.45 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 34.45 | 34.50 |
| BOL | 7/14/2017 | 25 | Bare | 34.50 | 35.30 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 35.30 | 35.35 |
| BOL | 7/14/2017 | 25 | Bare | 35.35 | 37.25 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 37.25 | 37.30 |
| BOL | 7/14/2017 | 25 | Bare | 37.30 | 38.05 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 38.05 | 38.10 |
| BOL | 7/14/2017 | 25 | Bare | 38.10 | 38.70 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 38.70 | 38.80 |
| BOL | 7/14/2017 | 25 | Bare | 38.80 | 39.55 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 39.55 | 39.65 |
| BOL | 7/14/2017 | 25 | Bare | 39.65 | 40.35 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 40.35 | 40.40 |
| BOL | 7/14/2017 | 25 | Bare | 40.40 | 40.85 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 40.85 | 40.90 |
| BOL | 7/14/2017 | 25 | Bare | 40.90 | 46.35 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 46.35 | 46.40 |
| BOL | 7/14/2017 | 25 | Bare | 46.40 | 47.20 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 47.20 | 47.30 |
| BOL | 7/14/2017 | 25 | Bare | 47.30 | 51.95 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 51.95 | 52.05 |
| BOL | 7/14/2017 | 25 | Bare | 52.05 | 52.25 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 52.25 | 52.45 |
| BOL | 7/14/2017 | 25 | Bare | 52.45 | 53.90 |
| BOL | 7/14/2017 | 25 | Ruppia maritima | 53.90 | 54.50 |
| BOL | 7/14/2017 | 38 | Bare | 0.00 | 3.80 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 3.80 | 3.90 |
| BOL | 7/14/2017 | 38 | Bare | 3.90 | 4.10 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 4.10 | 4.20 |
| BOL | 7/14/2017 | 38 | Bare | 4.20 | 6.50 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 6.50 | 6.80 |
| BOL | 7/14/2017 | 38 | Bare | 6.80 | 15.10 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 15.10 | 15.20 |

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| BOL | 7/14/2017 | 38 | Bare | 15.20 | 19.10 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 19.10 | 19.20 |
| BOL | 7/14/2017 | 38 | Bare | 19.20 | 22.95 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 22.95 | 23.00 |
| BOL | 7/14/2017 | 38 | Bare | 23.00 | 23.45 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 23.45 | 23.60 |
| BOL | 7/14/2017 | 38 | Bare | 23.60 | 24.10 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 24.10 | 24.20 |
| BOL | 7/14/2017 | 38 | Bare | 24.20 | 24.55 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 24.55 | 24.60 |
| BOL | 7/14/2017 | 38 | Bare | 24.60 | 25.35 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 25.35 | 25.40 |
| BOL | 7/14/2017 | 38 | Bare | 25.40 | 25.70 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 25.70 | 26.10 |
| BOL | 7/14/2017 | 38 | Bare | 26.10 | 27.70 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 27.70 | 27.80 |
| BOL | 7/14/2017 | 38 | Bare | 27.80 | 28.10 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 28.10 | 28.60 |
| BOL | 7/14/2017 | 38 | Bare | 28.60 | 29.65 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 29.65 | 29.70 |
| BOL | 7/14/2017 | 38 | Bare | 29.70 | 32.15 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 32.15 | 32.20 |
| BOL | 7/14/2017 | 38 | Bare | 32.20 | 35.20 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 35.20 | 35.75 |
| BOL | 7/14/2017 | 38 | Bare | 35.75 | 66.25 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 66.25 | 66.50 |
| BOL | 7/14/2017 | 38 | Bare | 66.50 | 67.30 |
| BOL | 7/14/2017 | 38 | Ruppia maritima | 67.30 | 67.35 |
| BOL | 7/14/2017 | 50 | Bare | 0.00 | 3.45 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 3.45 | 3.50 |
| BOL | 7/14/2017 | 50 | Bare | 3.50 | 3.95 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 3.95 | 4.00 |
| BOL | 7/14/2017 | 50 | Bare | 4.00 | 4.55 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 4.55 | 5.10 |
| BOL | 7/14/2017 | 50 | Bare | 5.10 | 6.75 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 6.75 | 6.80 |
| BOL | 7/14/2017 | 50 | Bare | 6.80 | 7.05 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 7.05 | 7.10 |
| BOL | 7/14/2017 | 50 | Bare | 7.10 | 7.60 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 7.60 | 7.90 |
| BOL | 7/14/2017 | 50 | Bare | 7.90 | 15.00 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 15.00 | 15.15 |
| BOL | 7/14/2017 | 50 | Bare | 15.15 | 15.35 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 15.35 | 15.40 |
| BOL | 7/14/2017 | 50 | Bare | 15.40 | 30.85 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 30.85 | 30.90 |
| BOL | 7/14/2017 | 50 | Bare | 30.90 | 31.50 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 31.50 | 31.60 |
| BOL | 7/14/2017 | 50 | Bare | 31.60 | 38.05 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 38.05 | 38.10 |
| BOL | 7/14/2017 | 50 | Bare | 38.10 | 45.25 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 45.25 | 45.30 |

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|---|---|---|---|---|---|
| BOL | 7/14/2017 | 50 | Bare | 45.30 | 45.85 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 45.85 | 46.05 |
| BOL | 7/14/2017 | 50 | Bare | 46.05 | 46.65 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 46.65 | 46.70 |
| BOL | 7/14/2017 | 50 | Bare | 46.70 | 47.45 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 47.45 | 47.50 |
| BOL | 7/14/2017 | 50 | Bare | 47.50 | 47.65 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 47.65 | 48.20 |
| BOL | 7/14/2017 | 50 | Bare | 48.20 | 49.05 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 49.05 | 49.10 |
| BOL | 7/14/2017 | 50 | Bare | 49.10 | 49.25 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 49.25 | 49.30 |
| BOL | 7/14/2017 | 50 | Bare | 49.30 | 50.15 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 50.15 | 50.20 |
| BOL | 7/14/2017 | 50 | Bare | 50.20 | 50.50 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 50.50 | 50.65 |
| BOL | 7/14/2017 | 50 | Bare | 50.65 | 50.85 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 50.85 | 51.20 |
| BOL | 7/14/2017 | 50 | Bare | 51.20 | 51.45 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 51.45 | 51.55 |
| BOL | 7/14/2017 | 50 | Bare | 51.55 | 52.45 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 52.45 | 52.50 |
| BOL | 7/14/2017 | 50 | Bare | 52.50 | 53.55 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 53.55 | 53.60 |
| BOL | 7/14/2017 | 50 | Bare | 53.60 | 53.80 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 53.80 | 53.90 |
| BOL | 7/14/2017 | 50 | Bare | 53.90 | 56.95 |
| BOL | 7/14/2017 | 50 | Ruppia maritima | 56.95 | 57.00 |
| BUC | 7/24/2017 | 0 | Bare | 0.00 | 1.55 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 1.55 | 1.60 |
| BUC | 7/24/2017 | 0 | Bare | 1.60 | 3.85 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 3.85 | 3.90 |
| BUC | 7/24/2017 | 0 | Bare | 3.90 | 4.35 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 4.35 | 4.40 |
| BUC | 7/24/2017 | 0 | Bare | 4.40 | 4.60 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 4.60 | 5.05 |
| BUC | 7/24/2017 | 0 | Bare | 5.05 | 5.35 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 5.35 | 5.40 |
| BUC | 7/24/2017 | 0 | Bare | 5.40 | 5.60 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 5.60 | 5.80 |
| BUC | 7/24/2017 | 0 | Bare | 5.80 | 6.10 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 6.10 | 6.15 |
| BUC | 7/24/2017 | 0 | Bare | 6.15 | 6.40 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 6.40 | 6.80 |
| BUC | 7/24/2017 | 0 | Bare | 6.80 | 7.10 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 7.10 | 7.25 |
| BUC | 7/24/2017 | 0 | Bare | 7.25 | 7.70 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 7.70 | 7.75 |
| BUC | 7/24/2017 | 0 | Bare | 7.75 | 8.25 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 8.25 | 8.65 |
| BUC | 7/24/2017 | 0 | Bare | 8.65 | 8.85 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 8.85 | 9.10 |

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|---|---|---|---|---|---|
| BUC | 7/24/2017 | 0 | Bare | 9.10 | 9.35 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 9.35 | 9.65 |
| BUC | 7/24/2017 | 0 | Bare | 9.65 | 9.90 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 9.90 | 10.20 |
| BUC | 7/24/2017 | 0 | Bare | 10.20 | 10.35 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 10.35 | 10.40 |
| BUC | 7/24/2017 | 0 | Bare | 10.40 | 11.10 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 11.10 | 11.20 |
| BUC | 7/24/2017 | 0 | Bare | 11.20 | 11.50 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 11.50 | 11.70 |
| BUC | 7/24/2017 | 0 | Bare | 11.70 | 11.90 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 11.90 | 14.40 |
| BUC | 7/24/2017 | 0 | Bare | 14.40 | 14.70 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 14.70 | 15.50 |
| BUC | 7/24/2017 | 0 | Bare | 15.50 | 15.65 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 15.65 | 15.70 |
| BUC | 7/24/2017 | 0 | Bare | 15.70 | 16.25 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 16.25 | 16.95 |
| BUC | 7/24/2017 | 0 | Bare | 16.95 | 17.20 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 17.20 | 18.65 |
| BUC | 7/24/2017 | 0 | Bare | 18.65 | 18.95 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 18.95 | 19.00 |
| BUC | 7/24/2017 | 0 | Bare | 19.00 | 19.90 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 19.90 | 20.10 |
| BUC | 7/24/2017 | 0 | Bare | 20.10 | 20.45 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 20.45 | 21.25 |
| BUC | 7/24/2017 | 0 | Bare | 21.25 | 21.80 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 21.80 | 22.10 |
| BUC | 7/24/2017 | 0 | Bare | 22.10 | 22.25 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 22.25 | 22.60 |
| BUC | 7/24/2017 | 0 | Bare | 22.60 | 22.90 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 22.90 | 23.40 |
| BUC | 7/24/2017 | 0 | Bare | 23.40 | 23.70 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 23.70 | 24.10 |
| BUC | 7/24/2017 | 0 | Bare | 24.10 | 24.30 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 24.30 | 24.50 |
| BUC | 7/24/2017 | 0 | Bare | 24.50 | 25.75 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 25.75 | 25.80 |
| BUC | 7/24/2017 | 0 | Bare | 25.80 | 26.75 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 26.75 | 26.80 |
| BUC | 7/24/2017 | 0 | Bare | 26.80 | 27.75 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 27.75 | 27.80 |
| BUC | 7/24/2017 | 0 | Bare | 27.80 | 28.20 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 28.20 | 28.25 |
| BUC | 7/24/2017 | 0 | Bare | 28.25 | 31.20 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 31.20 | 31.25 |
| BUC | 7/24/2017 | 0 | Bare | 31.25 | 31.65 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 31.65 | 31.70 |
| BUC | 7/24/2017 | 0 | Bare | 31.70 | 32.20 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 32.20 | 32.25 |
| BUC | 7/24/2017 | 0 | Bare | 32.25 | 32.70 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 32.70 | 32.80 |

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| BUC | 7/24/2017 | 0 | Bare | 32.80 | 33.40 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 33.40 | 33.45 |
| BUC | 7/24/2017 | 0 | Bare | 33.45 | 33.65 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 33.65 | 33.70 |
| BUC | 7/24/2017 | 0 | Bare | 33.70 | 34.05 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 34.05 | 34.10 |
| BUC | 7/24/2017 | 0 | Bare | 34.10 | 35.90 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 35.90 | 36.00 |
| BUC | 7/24/2017 | 0 | Bare | 36.00 | 37.40 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 37.40 | 37.60 |
| BUC | 7/24/2017 | 0 | Bare | 37.60 | 40.75 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 40.75 | 40.80 |
| BUC | 7/24/2017 | 0 | Bare | 40.80 | 43.60 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 43.60 | 43.70 |
| BUC | 7/24/2017 | 0 | Bare | 43.70 | 46.00 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 46.00 | 46.15 |
| BUC | 7/24/2017 | 0 | Bare | 46.15 | 48.85 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 48.85 | 48.90 |
| BUC | 7/24/2017 | 0 | Bare | 48.90 | 54.65 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 54.65 | 54.70 |
| BUC | 7/24/2017 | 0 | Bare | 54.70 | 57.75 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 57.75 | 57.80 |
| BUC | 7/24/2017 | 0 | Bare | 57.80 | 58.90 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 58.90 | 58.95 |
| BUC | 7/24/2017 | 0 | Bare | 58.95 | 59.80 |
| BUC | 7/24/2017 | 0 | Ruppia maritima | 59.80 | 59.85 |
| BUC | 7/24/2017 | 12 | Bare | 0.00 | 2.70 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 2.70 | 2.75 |
| BUC | 7/24/2017 | 12 | Bare | 2.75 | 5.50 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 5.50 | 5.55 |
| BUC | 7/24/2017 | 12 | Bare | 5.55 | 10.25 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 10.25 | 10.50 |
| BUC | 7/24/2017 | 12 | Bare | 10.50 | 10.80 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 10.80 | 13.85 |
| BUC | 7/24/2017 | 12 | Bare | 13.85 | 14.10 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 14.10 | 15.30 |
| BUC | 7/24/2017 | 12 | Bare | 15.30 | 15.70 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 15.70 | 15.80 |
| BUC | 7/24/2017 | 12 | Bare | 15.80 | 16.15 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 16.15 | 16.20 |
| BUC | 7/24/2017 | 12 | Bare | 16.20 | 16.80 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 16.80 | 16.95 |
| BUC | 7/24/2017 | 12 | Bare | 16.95 | 17.15 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 17.15 | 17.50 |
| BUC | 7/24/2017 | 12 | Bare | 17.50 | 17.70 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 17.70 | 18.10 |
| BUC | 7/24/2017 | 12 | Bare | 18.10 | 18.75 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 18.75 | 22.60 |
| BUC | 7/24/2017 | 12 | Bare | 22.60 | 23.35 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 23.35 | 23.60 |
| BUC | 7/24/2017 | 12 | Bare | 23.60 | 23.85 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 23.85 | 24.50 |

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|---|---|---|---|---|---|
| BUC | 7/24/2017 | 12 | Bare | 24.50 | 24.85 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 24.85 | 25.50 |
| BUC | 7/24/2017 | 12 | Bare | 25.50 | 26.90 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 26.90 | 27.10 |
| BUC | 7/24/2017 | 12 | Bare | 27.10 | 27.50 |
| BUC | 7/24/2017 | 12 | Vallisneria americana | 27.50 | 27.90 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 27.90 | 28.30 |
| BUC | 7/24/2017 | 12 | Bare | 28.30 | 28.40 |
| BUC | 7/24/2017 | 12 | Vallisneria americana | 28.40 | 28.45 |
| BUC | 7/24/2017 | 12 | Bare | 28.45 | 28.90 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 28.90 | 28.95 |
| BUC | 7/24/2017 | 12 | Bare | 28.95 | 29.45 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 29.45 | 29.50 |
| BUC | 7/24/2017 | 12 | Bare | 29.50 | 29.95 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 29.95 | 30.00 |
| BUC | 7/24/2017 | 12 | Bare | 30.00 | 31.05 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 31.05 | 31.10 |
| BUC | 7/24/2017 | 12 | Bare | 31.10 | 31.40 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 31.40 | 31.95 |
| BUC | 7/24/2017 | 12 | Bare | 31.95 | 32.35 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 32.35 | 32.40 |
| BUC | 7/24/2017 | 12 | Bare | 32.40 | 33.45 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 33.45 | 33.50 |
| BUC | 7/24/2017 | 12 | Bare | 33.50 | 34.20 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 34.20 | 34.40 |
| BUC | 7/24/2017 | 12 | Bare | 34.40 | 34.80 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 34.80 | 35.00 |
| BUC | 7/24/2017 | 12 | Bare | 35.00 | 35.75 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 35.75 | 35.80 |
| BUC | 7/24/2017 | 12 | Bare | 35.80 | 35.95 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 35.95 | 36.00 |
| BUC | 7/24/2017 | 12 | Bare | 36.00 | 36.65 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 36.65 | 36.70 |
| BUC | 7/24/2017 | 12 | Bare | 36.70 | 37.45 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 37.45 | 37.50 |
| BUC | 7/24/2017 | 12 | Bare | 37.50 | 39.15 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 39.15 | 39.20 |
| BUC | 7/24/2017 | 12 | Bare | 39.20 | 39.85 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 39.85 | 39.90 |
| BUC | 7/24/2017 | 12 | Bare | 39.90 | 40.00 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 40.00 | 40.15 |
| BUC | 7/24/2017 | 12 | Bare | 40.15 | 40.35 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 40.35 | 40.40 |
| BUC | 7/24/2017 | 12 | Bare | 40.40 | 42.10 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 42.10 | 42.15 |
| BUC | 7/24/2017 | 12 | Bare | 42.15 | 42.55 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 42.55 | 42.60 |
| BUC | 7/24/2017 | 12 | Bare | 42.60 | 42.75 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 42.75 | 42.80 |
| BUC | 7/24/2017 | 12 | Bare | 42.80 | 43.20 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 43.20 | 43.50 |
| BUC | 7/24/2017 | 12 | Bare | 43.50 | 45.70 |

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|---|---|---|---|---|---|
| BUC | 7/24/2017 | 12 | Ruppia maritima | 45.70 | 45.80 |
| BUC | 7/24/2017 | 12 | Bare | 45.80 | 47.15 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 47.15 | 47.30 |
| BUC | 7/24/2017 | 12 | Bare | 47.30 | 47.95 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 47.95 | 48.00 |
| BUC | 7/24/2017 | 12 | Bare | 48.00 | 48.25 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 48.25 | 48.30 |
| BUC | 7/24/2017 | 12 | Bare | 48.30 | 48.90 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 48.90 | 48.95 |
| BUC | 7/24/2017 | 12 | Bare | 48.95 | 49.30 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 49.30 | 49.35 |
| BUC | 7/24/2017 | 12 | Bare | 49.35 | 52.50 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 52.50 | 52.55 |
| BUC | 7/24/2017 | 12 | Bare | 52.55 | 55.15 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 55.15 | 55.20 |
| BUC | 7/24/2017 | 12 | Bare | 55.20 | 60.15 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 60.15 | 60.20 |
| BUC | 7/24/2017 | 12 | Bare | 60.20 | 60.70 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 60.70 | 60.75 |
| BUC | 7/24/2017 | 12 | Bare | 60.75 | 61.75 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 61.75 | 61.80 |
| BUC | 7/24/2017 | 12 | Bare | 61.80 | 62.45 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 62.45 | 62.60 |
| BUC | 7/24/2017 | 12 | Bare | 62.60 | 63.75 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 63.75 | 63.80 |
| BUC | 7/24/2017 | 12 | Bare | 63.80 | 65.30 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 65.30 | 65.40 |
| BUC | 7/24/2017 | 12 | Bare | 65.40 | 65.50 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 65.50 | 65.75 |
| BUC | 7/24/2017 | 12 | Bare | 65.75 | 65.90 |
| BUC | 7/24/2017 | 12 | Ruppia maritima | 65.90 | 66.15 |
| BUC | 7/24/2017 | 25 | Bare | 0.00 | 0.75 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 0.75 | 0.80 |
| BUC | 7/24/2017 | 25 | Bare | 0.80 | 6.00 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 6.00 | 6.05 |
| BUC | 7/24/2017 | 25 | Bare | 6.05 | 6.20 |
| BUC | 7/24/2017 | 25 | Bare | 6.20 | 6.25 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 6.25 | 7.40 |
| BUC | 7/24/2017 | 25 | Bare | 7.40 | 9.85 |
| BUC | 7/24/2017 | 25 | Bare | 9.85 | 10.25 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 10.25 | 10.40 |
| BUC | 7/24/2017 | 25 | Bare | 10.40 | 10.75 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 10.75 | 10.95 |
| BUC | 7/24/2017 | 25 | Bare | 10.95 | 11.15 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 11.15 | 13.35 |
| BUC | 7/24/2017 | 25 | Bare | 13.35 | 13.60 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 13.60 | 14.75 |
| BUC | 7/24/2017 | 25 | Bare | 14.75 | 15.10 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 15.10 | 15.45 |
| BUC | 7/24/2017 | 25 | Bare | 15.45 | 15.70 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 15.70 | 17.00 |
| BUC | 7/24/2017 | 25 | Bare | 17.00 | 17.40 |

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|---|---|---|---|---|---|
| BUC | 7/24/2017 | 25 | Ruppia maritima | 17.40 | 17.95 |
| BUC | 7/24/2017 | 25 | Bare | 17.95 | 18.20 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 18.20 | 20.20 |
| BUC | 7/24/2017 | 25 | Bare | 20.20 | 20.35 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 20.35 | 21.30 |
| BUC | 7/24/2017 | 25 | Bare | 21.30 | 21.80 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 21.80 | 22.15 |
| BUC | 7/24/2017 | 25 | Bare | 22.15 | 22.30 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 22.30 | 22.45 |
| BUC | 7/24/2017 | 25 | Bare | 22.45 | 22.80 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 22.80 | 23.45 |
| BUC | 7/24/2017 | 25 | Bare | 23.45 | 23.70 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 23.70 | 24.25 |
| BUC | 7/24/2017 | 25 | Bare | 24.25 | 24.50 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 24.50 | 25.35 |
| BUC | 7/24/2017 | 25 | Bare | 25.35 | 26.10 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 26.10 | 26.15 |
| BUC | 7/24/2017 | 25 | Bare | 26.15 | 26.35 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 26.35 | 26.40 |
| BUC | 7/24/2017 | 25 | Bare | 26.40 | 26.75 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 26.75 | 27.10 |
| BUC | 7/24/2017 | 25 | Bare | 27.10 | 27.40 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 27.40 | 27.45 |
| BUC | 7/24/2017 | 25 | Bare | 27.45 | 28.00 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 28.00 | 28.35 |
| BUC | 7/24/2017 | 25 | Bare | 28.35 | 28.55 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 28.55 | 29.20 |
| BUC | 7/24/2017 | 25 | Bare | 29.20 | 29.60 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 29.60 | 29.85 |
| BUC | 7/24/2017 | 25 | Bare | 29.85 | 30.05 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 30.05 | 30.10 |
| BUC | 7/24/2017 | 25 | Bare | 30.10 | 30.60 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 30.60 | 30.90 |
| BUC | 7/24/2017 | 25 | Bare | 30.90 | 31.35 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 31.35 | 31.65 |
| BUC | 7/24/2017 | 25 | Bare | 31.65 | 31.90 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 31.90 | 32.00 |
| BUC | 7/24/2017 | 25 | Bare | 32.00 | 32.30 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 32.30 | 32.60 |
| BUC | 7/24/2017 | 25 | Bare | 32.60 | 32.65 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 32.65 | 32.70 |
| BUC | 7/24/2017 | 25 | Bare | 32.70 | 32.75 |
| BUC | 7/24/2017 | 25 | Vallisneria americana | 32.75 | 32.80 |
| BUC | 7/24/2017 | 25 | Bare | 32.80 | 32.90 |
| BUC | 7/24/2017 | 25 | Vallisneria americana | 32.90 | 32.95 |
| BUC | 7/24/2017 | 25 | Bare | 32.95 | 33.05 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 33.05 | 33.20 |
| BUC | 7/24/2017 | 25 | Bare | 33.20 | 33.35 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 33.35 | 34.30 |
| BUC | 7/24/2017 | 25 | Bare | 34.30 | 34.60 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 34.60 | 34.80 |
| BUC | 7/24/2017 | 25 | Bare | 34.80 | 34.95 |

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|---|---|---|---|---|---|
| BUC | 7/24/2017 | 25 | Ruppia maritima | 34.95 | 35.25 |
| BUC | 7/24/2017 | 25 | Bare | 35.25 | 35.60 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 35.60 | 35.80 |
| BUC | 7/24/2017 | 25 | Bare | 35.80 | 36.25 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 36.25 | 36.60 |
| BUC | 7/24/2017 | 25 | Bare | 36.60 | 36.85 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 36.85 | 36.90 |
| BUC | 7/24/2017 | 25 | Bare | 36.90 | 38.30 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 38.30 | 39.00 |
| BUC | 7/24/2017 | 25 | Bare | 39.00 | 39.55 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 39.55 | 39.80 |
| BUC | 7/24/2017 | 25 | Bare | 39.80 | 40.05 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 40.05 | 40.70 |
| BUC | 7/24/2017 | 25 | Bare | 40.70 | 41.35 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 41.35 | 41.40 |
| BUC | 7/24/2017 | 25 | Bare | 41.40 | 41.95 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 41.95 | 42.00 |
| BUC | 7/24/2017 | 25 | Bare | 42.00 | 43.05 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 43.05 | 43.10 |
| BUC | 7/24/2017 | 25 | Bare | 43.10 | 43.25 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 43.25 | 43.30 |
| BUC | 7/24/2017 | 25 | Bare | 43.30 | 43.50 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 43.50 | 43.55 |
| BUC | 7/24/2017 | 25 | Bare | 43.55 | 43.80 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 43.80 | 43.90 |
| BUC | 7/24/2017 | 25 | Bare | 43.90 | 44.10 |
| BUC | 7/24/2017 | 25 | Vallisneria americana | 44.10 | 44.20 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 44.15 | 44.20 |
| BUC | 7/24/2017 | 25 | Bare | 44.20 | 44.45 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 44.45 | 44.70 |
| BUC | 7/24/2017 | 25 | Bare | 44.70 | 44.75 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 44.75 | 44.80 |
| BUC | 7/24/2017 | 25 | Bare | 44.80 | 44.95 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 44.95 | 45.00 |
| BUC | 7/24/2017 | 25 | Bare | 45.00 | 45.25 |
| BUC | 7/24/2017 | 25 | Vallisneria americana | 45.25 | 45.30 |
| BUC | 7/24/2017 | 25 | Bare | 45.30 | 45.75 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 45.75 | 45.80 |
| BUC | 7/24/2017 | 25 | Bare | 45.80 | 46.40 |
| BUC | 7/24/2017 | 25 | Vallisneria americana | 46.40 | 46.50 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 46.50 | 46.80 |
| BUC | 7/24/2017 | 25 | Bare | 46.80 | 46.90 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 46.90 | 47.20 |
| BUC | 7/24/2017 | 25 | Bare | 47.20 | 47.35 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 47.35 | 47.40 |
| BUC | 7/24/2017 | 25 | Bare | 47.40 | 48.00 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 48.00 | 48.05 |
| BUC | 7/24/2017 | 25 | Bare | 48.05 | 48.55 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 48.55 | 48.60 |
| BUC | 7/24/2017 | 25 | Bare | 48.60 | 49.45 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 49.45 | 50.20 |
| BUC | 7/24/2017 | 25 | Bare | 50.20 | 50.55 |

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|---|---|---|---|---|---|
| BUC | 7/24/2017 | 25 | Ruppia maritima | 50.55 | 50.60 |
| BUC | 7/24/2017 | 25 | Bare | 50.60 | 50.80 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 50.80 | 51.00 |
| BUC | 7/24/2017 | 25 | Bare | 51.00 | 51.30 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 51.30 | 51.35 |
| BUC | 7/24/2017 | 25 | Bare | 51.35 | 51.90 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 51.90 | 51.95 |
| BUC | 7/24/2017 | 25 | Bare | 51.95 | 52.20 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 52.20 | 52.40 |
| BUC | 7/24/2017 | 25 | Bare | 52.40 | 52.65 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 52.65 | 52.70 |
| BUC | 7/24/2017 | 25 | Bare | 52.70 | 53.00 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 53.00 | 53.40 |
| BUC | 7/24/2017 | 25 | Bare | 53.40 | 53.70 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 53.70 | 53.75 |
| BUC | 7/24/2017 | 25 | Bare | 53.75 | 54.00 |
| BUC | 7/24/2017 | 25 | Vallisneria americana | 54.00 | 54.05 |
| BUC | 7/24/2017 | 25 | Bare | 54.05 | 54.15 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 54.15 | 54.25 |
| BUC | 7/24/2017 | 25 | Bare | 54.25 | 55.45 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 55.45 | 55.80 |
| BUC | 7/24/2017 | 25 | Bare | 55.80 | 56.80 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 56.80 | 57.05 |
| BUC | 7/24/2017 | 25 | Bare | 57.05 | 57.60 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 57.60 | 57.80 |
| BUC | 7/24/2017 | 25 | Bare | 57.80 | 58.20 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 58.20 | 58.50 |
| BUC | 7/24/2017 | 25 | Bare | 58.50 | 59.95 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 59.95 | 60.00 |
| BUC | 7/24/2017 | 25 | Bare | 60.00 | 69.10 |
| BUC | 7/24/2017 | 25 | Zannichellia palustris | 69.10 | 69.15 |
| BUC | 7/24/2017 | 25 | Bare | 69.15 | 71.75 |
| BUC | 7/24/2017 | 25 | Ruppia maritima | 71.75 | 71.80 |
| BUC | 7/24/2017 | 38 | Bare | 0.00 | 3.10 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 3.10 | 3.60 |
| BUC | 7/24/2017 | 38 | Bare | 3.60 | 3.90 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 3.90 | 4.70 |
| BUC | 7/24/2017 | 38 | Vallisneria americana | 4.75 | 5.00 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 4.95 | 5.00 |
| BUC | 7/24/2017 | 38 | Bare | 5.00 | 5.25 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 5.25 | 5.30 |
| BUC | 7/24/2017 | 38 | Bare | 5.30 | 6.10 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 6.10 | 6.18 |
| BUC | 7/24/2017 | 38 | Bare | 6.18 | 6.30 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 6.30 | 6.50 |
| BUC | 7/24/2017 | 38 | Bare | 6.50 | 6.85 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 6.85 | 7.15 |
| BUC | 7/24/2017 | 38 | Bare | 7.15 | 7.30 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 7.30 | 7.45 |
| BUC | 7/24/2017 | 38 | Bare | 7.45 | 8.30 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 8.30 | 10.00 |
| BUC | 7/24/2017 | 38 | Bare | 10.00 | 10.70 |

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| BUC | 7/24/2017 | 38 | Ruppia maritima | 10.70 | 11.30 |
| BUC | 7/24/2017 | 38 | Bare | 11.30 | 11.60 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 11.60 | 14.10 |
| BUC | 7/24/2017 | 38 | Bare | 14.10 | 14.20 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 14.20 | 16.10 |
| BUC | 7/24/2017 | 38 | Bare | 16.10 | 16.50 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 16.50 | 16.95 |
| BUC | 7/24/2017 | 38 | Bare | 16.95 | 17.15 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 17.15 | 17.30 |
| BUC | 7/24/2017 | 38 | Bare | 17.30 | 17.50 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 17.50 | 19.25 |
| BUC | 7/24/2017 | 38 | Bare | 19.25 | 19.40 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 19.40 | 19.60 |
| BUC | 7/24/2017 | 38 | Bare | 19.60 | 19.85 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 19.85 | 21.15 |
| BUC | 7/24/2017 | 38 | Bare | 21.15 | 21.40 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 21.40 | 22.40 |
| BUC | 7/24/2017 | 38 | Bare | 22.40 | 23.05 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 23.05 | 23.40 |
| BUC | 7/24/2017 | 38 | Bare | 23.40 | 23.75 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 23.75 | 23.80 |
| BUC | 7/24/2017 | 38 | Bare | 23.80 | 24.30 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 24.30 | 24.70 |
| BUC | 7/24/2017 | 38 | Bare | 24.70 | 24.95 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 24.95 | 25.15 |
| BUC | 7/24/2017 | 38 | Bare | 25.15 | 25.45 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 25.45 | 25.55 |
| BUC | 7/24/2017 | 38 | Bare | 25.55 | 25.75 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 25.75 | 25.90 |
| BUC | 7/24/2017 | 38 | Bare | 25.90 | 26.40 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 26.40 | 26.43 |
| BUC | 7/24/2017 | 38 | Bare | 26.43 | 26.60 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 26.60 | 27.00 |
| BUC | 7/24/2017 | 38 | Bare | 27.00 | 27.05 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 27.05 | 27.10 |
| BUC | 7/24/2017 | 38 | Bare | 27.10 | 27.80 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 27.80 | 27.85 |
| BUC | 7/24/2017 | 38 | Bare | 27.85 | 28.20 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 28.20 | 28.80 |
| BUC | 7/24/2017 | 38 | Bare | 28.80 | 28.95 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 28.95 | 29.00 |
| BUC | 7/24/2017 | 38 | Bare | 29.00 | 29.15 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 29.15 | 29.20 |
| BUC | 7/24/2017 | 38 | Bare | 29.20 | 29.40 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 29.40 | 29.80 |
| BUC | 7/24/2017 | 38 | Bare | 29.80 | 30.70 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 30.70 | 30.75 |
| BUC | 7/24/2017 | 38 | Bare | 30.75 | 31.00 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 31.00 | 31.40 |
| BUC | 7/24/2017 | 38 | Bare | 31.40 | 32.05 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 32.05 | 32.10 |
| BUC | 7/24/2017 | 38 | Bare | 32.10 | 32.20 |

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| BUC | 7/24/2017 | 38 | Ruppia maritima | 32.20 | 32.25 |
| BUC | 7/24/2017 | 38 | Bare | 32.25 | 32.45 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 32.45 | 32.70 |
| BUC | 7/24/2017 | 38 | Bare | 32.70 | 33.05 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 33.05 | 33.10 |
| BUC | 7/24/2017 | 38 | Bare | 33.10 | 33.30 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 33.30 | 33.35 |
| BUC | 7/24/2017 | 38 | Bare | 33.35 | 33.75 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 33.75 | 33.80 |
| BUC | 7/24/2017 | 38 | Bare | 33.80 | 34.85 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 34.85 | 34.90 |
| BUC | 7/24/2017 | 38 | Bare | 34.90 | 35.75 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 35.75 | 35.80 |
| BUC | 7/24/2017 | 38 | Bare | 35.80 | 36.00 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 36.00 | 36.15 |
| BUC | 7/24/2017 | 38 | Bare | 36.15 | 36.20 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 36.20 | 36.25 |
| BUC | 7/24/2017 | 38 | Bare | 36.25 | 37.45 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 37.45 | 37.50 |
| BUC | 7/24/2017 | 38 | Bare | 37.50 | 37.60 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 37.60 | 38.25 |
| BUC | 7/24/2017 | 38 | Bare | 38.25 | 38.50 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 38.50 | 38.80 |
| BUC | 7/24/2017 | 38 | Bare | 38.80 | 39.15 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 39.15 | 39.20 |
| BUC | 7/24/2017 | 38 | Bare | 39.20 | 40.25 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 40.25 | 40.30 |
| BUC | 7/24/2017 | 38 | Bare | 40.30 | 41.40 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 41.40 | 41.45 |
| BUC | 7/24/2017 | 38 | Bare | 41.45 | 42.00 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 42.00 | 42.05 |
| BUC | 7/24/2017 | 38 | Bare | 42.05 | 42.30 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 42.30 | 42.40 |
| BUC | 7/24/2017 | 38 | Bare | 42.40 | 42.75 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 42.75 | 42.80 |
| BUC | 7/24/2017 | 38 | Bare | 42.80 | 42.95 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 42.95 | 43.10 |
| BUC | 7/24/2017 | 38 | Bare | 43.10 | 43.70 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 43.70 | 43.90 |
| BUC | 7/24/2017 | 38 | Bare | 43.90 | 44.25 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 44.25 | 44.75 |
| BUC | 7/24/2017 | 38 | Bare | 44.75 | 45.70 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 45.70 | 45.85 |
| BUC | 7/24/2017 | 38 | Bare | 45.85 | 46.05 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 46.05 | 46.10 |
| BUC | 7/24/2017 | 38 | Bare | 46.10 | 46.55 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 46.55 | 47.00 |
| BUC | 7/24/2017 | 38 | Bare | 47.00 | 47.20 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 47.20 | 47.25 |
| BUC | 7/24/2017 | 38 | Bare | 47.25 | 48.05 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 48.05 | 48.45 |
| BUC | 7/24/2017 | 38 | Bare | 48.45 | 48.95 |

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|---|---|---|---|---|---|
| BUC | 7/24/2017 | 38 | Ruppia maritima | 48.95 | 49.00 |
| BUC | 7/24/2017 | 38 | Bare | 49.00 | 49.20 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 49.20 | 49.40 |
| BUC | 7/24/2017 | 38 | Bare | 49.40 | 50.40 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 50.40 | 50.45 |
| BUC | 7/24/2017 | 38 | Bare | 50.45 | 50.80 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 50.80 | 50.85 |
| BUC | 7/24/2017 | 38 | Bare | 50.85 | 51.65 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 51.65 | 51.70 |
| BUC | 7/24/2017 | 38 | Bare | 51.70 | 52.80 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 52.80 | 53.00 |
| BUC | 7/24/2017 | 38 | Bare | 53.00 | 53.25 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 53.25 | 53.50 |
| BUC | 7/24/2017 | 38 | Bare | 53.50 | 53.95 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 53.95 | 54.00 |
| BUC | 7/24/2017 | 38 | Bare | 54.00 | 54.80 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 54.80 | 54.95 |
| BUC | 7/24/2017 | 38 | Bare | 54.95 | 55.35 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 55.35 | 55.65 |
| BUC | 7/24/2017 | 38 | Bare | 55.65 | 56.25 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 56.25 | 56.30 |
| BUC | 7/24/2017 | 38 | Bare | 56.30 | 56.75 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 56.75 | 57.10 |
| BUC | 7/24/2017 | 38 | Bare | 57.10 | 57.45 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 57.45 | 57.60 |
| BUC | 7/24/2017 | 38 | Bare | 57.60 | 58.40 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 58.40 | 58.70 |
| BUC | 7/24/2017 | 38 | Bare | 58.70 | 59.20 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 59.20 | 59.25 |
| BUC | 7/24/2017 | 38 | Bare | 59.25 | 62.65 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 62.65 | 62.70 |
| BUC | 7/24/2017 | 38 | Bare | 62.70 | 64.75 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 64.75 | 64.80 |
| BUC | 7/24/2017 | 38 | Bare | 64.80 | 66.95 |
| BUC | 7/24/2017 | 38 | Vallisneria americana | 66.95 | 67.00 |
| BUC | 7/24/2017 | 38 | Bare | 67.00 | 67.20 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 67.20 | 67.25 |
| BUC | 7/24/2017 | 38 | Bare | 67.25 | 68.25 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 68.25 | 68.30 |
| BUC | 7/24/2017 | 38 | Bare | 68.30 | 68.45 |
| BUC | 7/24/2017 | 38 | Zannichellia palustris | 68.45 | 68.50 |
| BUC | 7/24/2017 | 38 | Bare | 68.50 | 69.25 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 69.25 | 69.40 |
| BUC | 7/24/2017 | 38 | Bare | 69.40 | 69.75 |
| BUC | 7/24/2017 | 38 | Ruppia maritima | 69.75 | 69.80 |
| BUC | 7/24/2017 | 50 | Bare | 0.00 | 7.10 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 7.10 | 7.20 |
| BUC | 7/24/2017 | 50 | Bare | 7.20 | 7.30 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 7.30 | 7.70 |
| BUC | 7/24/2017 | 50 | Bare | 7.70 | 8.20 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 8.20 | 8.90 |
| BUC | 7/24/2017 | 50 | Bare | 8.90 | 9.25 |

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|---|---|---|---|---|---|
| BUC | 7/24/2017 | 50 | Ruppia maritima | 9.25 | 10.90 |
| BUC | 7/24/2017 | 50 | Bare | 10.90 | 11.10 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 11.10 | 11.90 |
| BUC | 7/24/2017 | 50 | Bare | 11.90 | 12.00 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 12.00 | 12.05 |
| BUC | 7/24/2017 | 50 | Bare | 12.05 | 12.45 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 12.45 | 12.70 |
| BUC | 7/24/2017 | 50 | Bare | 12.70 | 13.00 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 13.00 | 16.00 |
| BUC | 7/24/2017 | 50 | Bare | 16.00 | 16.20 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 16.20 | 17.10 |
| BUC | 7/24/2017 | 50 | Bare | 17.10 | 17.20 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 17.20 | 18.05 |
| BUC | 7/24/2017 | 50 | Bare | 18.05 | 18.30 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 18.30 | 19.20 |
| BUC | 7/24/2017 | 50 | Bare | 19.20 | 19.60 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 19.60 | 20.70 |
| BUC | 7/24/2017 | 50 | Bare | 20.70 | 20.90 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 20.90 | 23.90 |
| BUC | 7/24/2017 | 50 | Bare | 23.90 | 24.05 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 24.05 | 25.50 |
| BUC | 7/24/2017 | 50 | Bare | 25.50 | 25.80 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 25.80 | 26.40 |
| BUC | 7/24/2017 | 50 | Bare | 26.40 | 26.60 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 26.60 | 27.60 |
| BUC | 7/24/2017 | 50 | Bare | 27.60 | 28.00 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 28.00 | 31.60 |
| BUC | 7/24/2017 | 50 | Bare | 31.60 | 31.85 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 31.85 | 31.90 |
| BUC | 7/24/2017 | 50 | Bare | 31.90 | 32.35 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 32.35 | 32.40 |
| BUC | 7/24/2017 | 50 | Bare | 32.40 | 32.60 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 32.60 | 32.70 |
| BUC | 7/24/2017 | 50 | Bare | 32.70 | 32.80 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 32.80 | 33.60 |
| BUC | 7/24/2017 | 50 | Bare | 33.60 | 33.85 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 33.85 | 33.95 |
| BUC | 7/24/2017 | 50 | Bare | 33.95 | 34.20 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 34.20 | 34.30 |
| BUC | 7/24/2017 | 50 | Bare | 34.30 | 34.60 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 34.60 | 34.90 |
| BUC | 7/24/2017 | 50 | Bare | 34.90 | 35.20 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 35.20 | 35.80 |
| BUC | 7/24/2017 | 50 | Bare | 35.80 | 36.05 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 36.05 | 36.30 |
| BUC | 7/24/2017 | 50 | Bare | 36.30 | 36.70 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 36.70 | 38.20 |
| BUC | 7/24/2017 | 50 | Bare | 38.20 | 38.70 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 38.70 | 39.10 |
| BUC | 7/24/2017 | 50 | Vallisneria americana | 39.00 | 39.10 |
| BUC | 7/24/2017 | 50 | Bare | 39.10 | 40.65 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 40.65 | 40.70 |

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| BUC | 7/24/2017 | 50 | Bare | 40.70 | 40.80 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 40.80 | 40.90 |
| BUC | 7/24/2017 | 50 | Bare | 40.90 | 41.15 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 41.15 | 41.40 |
| BUC | 7/24/2017 | 50 | Bare | 41.40 | 42.05 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 42.05 | 42.10 |
| BUC | 7/24/2017 | 50 | Bare | 42.10 | 42.35 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 42.35 | 42.50 |
| BUC | 7/24/2017 | 50 | Bare | 42.50 | 42.90 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 42.90 | 43.40 |
| BUC | 7/24/2017 | 50 | Bare | 43.40 | 43.65 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 43.65 | 43.90 |
| BUC | 7/24/2017 | 50 | Bare | 43.90 | 44.25 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 44.25 | 44.30 |
| BUC | 7/24/2017 | 50 | Bare | 44.30 | 44.50 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 44.50 | 46.10 |
| BUC | 7/24/2017 | 50 | Bare | 46.10 | 47.25 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 47.25 | 47.30 |
| BUC | 7/24/2017 | 50 | Bare | 47.30 | 47.60 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 47.60 | 47.90 |
| BUC | 7/24/2017 | 50 | Bare | 47.90 | 48.00 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 48.00 | 48.20 |
| BUC | 7/24/2017 | 50 | Bare | 48.20 | 48.50 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 48.50 | 49.70 |
| BUC | 7/24/2017 | 50 | Bare | 49.70 | 50.05 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 50.05 | 50.10 |
| BUC | 7/24/2017 | 50 | Bare | 50.10 | 50.60 |
| BUC | 7/24/2017 | 50 | Vallisneria americana | 50.60 | 51.50 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 51.50 | 51.90 |
| BUC | 7/24/2017 | 50 | Bare | 51.90 | 52.25 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 52.25 | 52.30 |
| BUC | 7/24/2017 | 50 | Bare | 52.30 | 52.60 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 52.60 | 52.65 |
| BUC | 7/24/2017 | 50 | Bare | 52.65 | 53.80 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 53.80 | 53.85 |
| BUC | 7/24/2017 | 50 | Bare | 53.85 | 54.00 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 54.00 | 54.25 |
| BUC | 7/24/2017 | 50 | Bare | 54.25 | 54.65 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 54.65 | 54.70 |
| BUC | 7/24/2017 | 50 | Bare | 54.70 | 55.20 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 55.20 | 55.45 |
| BUC | 7/24/2017 | 50 | Bare | 55.45 | 56.15 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 56.15 | 56.20 |
| BUC | 7/24/2017 | 50 | Bare | 56.20 | 57.75 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 57.75 | 57.80 |
| BUC | 7/24/2017 | 50 | Bare | 57.80 | 59.30 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 59.30 | 59.35 |
| BUC | 7/24/2017 | 50 | Bare | 59.35 | 61.15 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 61.15 | 61.20 |
| BUC | 7/24/2017 | 50 | Bare | 61.20 | 61.60 |
| BUC | 7/24/2017 | 50 | Vallisneria americana | 61.60 | 61.65 |
| BUC | 7/24/2017 | 50 | Bare | 61.65 | 63.45 |

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|---|---|---|---|---|---|
| BUC | 7/24/2017 | 50 | Vallisneria americana | 63.45 | 63.50 |
| BUC | 7/24/2017 | 50 | Bare | 63.50 | 65.65 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 65.65 | 65.70 |
| BUC | 7/24/2017 | 50 | Bare | 65.70 | 66.60 |
| BUC | 7/24/2017 | 50 | Ruppia maritima | 66.60 | 66.65 |
| BUC | 7/24/2017 | 50 | Bare | 66.65 | 75.85 |
| BUC | 7/24/2017 | 50 | Zannichellia palustris | 75.85 | 75.90 |
| BUC | 7/24/2017 | 50 | Bare | 75.90 | 80.90 |
| BUC | 7/24/2017 | 50 | Zannichellia palustris | 80.90 | 80.95 |
| GT002 | 7/14/2017 | 0 | Bare | 0.00 | 38.00 |
| GT002 | 7/14/2017 | 12 | Bare | 0.00 | 45.00 |
| GT002 | 7/14/2017 | 25 | Bare | 0.00 | 7.85 |
| GT002 | 7/14/2017 | 25 | Ruppia maritima | 7.85 | 7.90 |
| GT002 | 7/14/2017 | 25 | Bare | 7.90 | 9.60 |
| GT002 | 7/14/2017 | 25 | Ruppia maritima | 9.60 | 9.65 |
| GT002 | 7/14/2017 | 25 | Bare | 9.65 | 10.60 |
| GT002 | 7/14/2017 | 25 | Ruppia maritima | 10.60 | 10.65 |
| GT002 | 7/14/2017 | 25 | Bare | 10.65 | 11.20 |
| GT002 | 7/14/2017 | 25 | Ruppia maritima | 11.20 | 11.25 |
| GT002 | 7/14/2017 | 38 | Bare | 0.00 | 12.25 |
| GT002 | 7/14/2017 | 38 | Ruppia maritima | 12.25 | 12.30 |
| GT002 | 7/14/2017 | 50 | Bare | 0.00 | 63.00 |
| GT006 | 7/14/2017 | 0 | Bare | 0.00 | 43.00 |
| GT006 | 7/14/2017 | 12 | Bare | 0.00 | 35.00 |
| GT006 | 7/14/2017 | 25 | Bare | 0.00 | 35.00 |
| GT006 | 7/14/2017 | 38 | Bare | 0.00 | 35.00 |
| GT006 | 7/14/2017 | 50 | Bare | 0.00 | 35.00 |
| MOC | 7/12/2017 | 0 | Bare | 0.00 | 2.00 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 2.00 | 3.40 |
| MOC | 7/12/2017 | 0 | Bare | 3.40 | 4.25 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 4.25 | 4.30 |
| MOC | 7/12/2017 | 0 | Bare | 4.30 | 5.35 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 5.35 | 5.40 |
| MOC | 7/12/2017 | 0 | Bare | 5.40 | 6.35 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 6.35 | 6.40 |
| MOC | 7/12/2017 | 0 | Bare | 6.40 | 15.00 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 15.00 | 15.10 |
| MOC | 7/12/2017 | 0 | Bare | 15.10 | 15.35 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 15.35 | 15.40 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 15.35 | 15.40 |
| MOC | 7/12/2017 | 0 | Bare | 15.40 | 18.40 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 18.40 | 18.80 |
| MOC | 7/12/2017 | 0 | Bare | 18.80 | 20.15 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 20.15 | 20.20 |
| MOC | 7/12/2017 | 0 | Bare | 20.20 | 21.20 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 21.20 | 21.50 |
| MOC | 7/12/2017 | 0 | Bare | 21.50 | 22.15 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 22.15 | 22.20 |
| MOC | 7/12/2017 | 0 | Bare | 22.20 | 22.50 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 22.50 | 24.10 |
| MOC | 7/12/2017 | 0 | Bare | 24.10 | 24.35 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 24.35 | 24.50 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 0 | Bare | 24.50 | 24.75 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 24.75 | 24.80 |
| MOC | 7/12/2017 | 0 | Bare | 24.80 | 24.90 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 24.90 | 25.50 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 25.05 | 25.10 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 25.35 | 25.40 |
| MOC | 7/12/2017 | 0 | Bare | 25.50 | 25.90 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 25.90 | 26.10 |
| MOC | 7/12/2017 | 0 | Bare | 26.10 | 26.30 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 26.30 | 27.10 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 26.65 | 26.70 |
| MOC | 7/12/2017 | 0 | Bare | 27.10 | 27.35 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 27.35 | 27.40 |
| MOC | 7/12/2017 | 0 | Bare | 27.40 | 27.80 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 27.80 | 28.40 |
| MOC | 7/12/2017 | 0 | Bare | 28.40 | 28.95 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 28.95 | 29.00 |
| MOC | 7/12/2017 | 0 | Bare | 29.00 | 29.75 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 29.40 | 30.00 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 29.75 | 29.80 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 29.95 | 30.00 |
| MOC | 7/12/2017 | 0 | Bare | 30.00 | 30.20 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 30.20 | 30.60 |
| MOC | 7/12/2017 | 0 | Bare | 30.60 | 30.80 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 30.80 | 31.10 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 30.80 | 30.90 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 31.25 | 31.30 |
| MOC | 7/12/2017 | 0 | Bare | 31.30 | 31.60 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 31.60 | 31.90 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 31.70 | 31.90 |
| MOC | 7/12/2017 | 0 | Bare | 31.90 | 32.10 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 32.10 | 32.45 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 32.70 | 32.75 |
| MOC | 7/12/2017 | 0 | Bare | 32.75 | 33.00 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 33.00 | 33.70 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 33.00 | 33.40 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 33.60 | 33.90 |
| MOC | 7/12/2017 | 0 | Bare | 33.90 | 33.95 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 33.95 | 34.60 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 34.50 | 35.60 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 34.95 | 35.00 |
| MOC | 7/12/2017 | 0 | Bare | 35.60 | 35.90 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 35.90 | 36.30 |
| MOC | 7/12/2017 | 0 | Bare | 36.30 | 36.60 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 36.60 | 36.70 |
| MOC | 7/12/2017 | 0 | Bare | 36.70 | 37.00 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 37.00 | 37.10 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 37.00 | 37.10 |
| MOC | 7/12/2017 | 0 | Bare | 37.10 | 37.25 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 37.25 | 37.30 |
| MOC | 7/12/2017 | 0 | Bare | 37.30 | 37.40 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 37.40 | 37.60 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 0 | Vallisneria americana | 37.55 | 38.10 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 38.10 | 38.50 |
| MOC | 7/12/2017 | 0 | Bare | 38.50 | 38.60 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 38.60 | 38.70 |
| MOC | 7/12/2017 | 0 | Bare | 38.70 | 38.90 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 38.90 | 39.80 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 39.75 | 39.80 |
| MOC | 7/12/2017 | 0 | Bare | 39.80 | 40.00 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 40.00 | 40.20 |
| MOC | 7/12/2017 | 0 | Bare | 40.20 | 40.50 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 40.50 | 40.60 |
| MOC | 7/12/2017 | 0 | Bare | 40.60 | 40.85 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 40.85 | 40.90 |
| MOC | 7/12/2017 | 0 | Bare | 40.90 | 41.30 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 41.30 | 41.90 |
| MOC | 7/12/2017 | 0 | Bare | 41.90 | 42.20 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 42.20 | 42.50 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 42.25 | 42.30 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 42.50 | 42.60 |
| MOC | 7/12/2017 | 0 | Bare | 42.60 | 43.10 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 43.10 | 43.70 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 43.20 | 43.30 |
| MOC | 7/12/2017 | 0 | Bare | 43.70 | 44.10 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 44.10 | 44.30 |
| MOC | 7/12/2017 | 0 | Bare | 44.30 | 44.50 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 44.50 | 44.70 |
| MOC | 7/12/2017 | 0 | Bare | 44.70 | 45.95 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 45.95 | 46.00 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 45.95 | 46.00 |
| MOC | 7/12/2017 | 0 | Bare | 46.00 | 52.05 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 52.05 | 52.10 |
| MOC | 7/12/2017 | 0 | Bare | 52.10 | 54.60 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 54.60 | 54.70 |
| MOC | 7/12/2017 | 0 | Bare | 54.70 | 55.50 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 55.50 | 56.20 |
| MOC | 7/12/2017 | 0 | Bare | 56.20 | 56.40 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 56.40 | 57.20 |
| MOC | 7/12/2017 | 0 | Bare | 57.20 | 57.90 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 57.90 | 58.40 |
| MOC | 7/12/2017 | 0 | Bare | 58.40 | 58.55 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 58.55 | 58.60 |
| MOC | 7/12/2017 | 0 | Bare | 58.60 | 59.10 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 59.10 | 59.30 |
| MOC | 7/12/2017 | 0 | Bare | 59.30 | 59.65 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 59.65 | 59.70 |
| MOC | 7/12/2017 | 0 | Bare | 59.70 | 60.50 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 60.50 | 62.90 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 61.85 | 61.90 |
| MOC | 7/12/2017 | 0 | Bare | 62.90 | 63.05 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 63.05 | 63.10 |
| MOC | 7/12/2017 | 0 | Bare | 63.10 | 64.00 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 64.00 | 66.00 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 0 | Ruppia maritima | 65.80 | 66.10 |
| MOC | 7/12/2017 | 0 | Bare | 66.10 | 66.40 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 66.40 | 66.70 |
| MOC | 7/12/2017 | 0 | Bare | 66.70 | 66.75 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 66.75 | 66.80 |
| MOC | 7/12/2017 | 0 | Bare | 66.80 | 67.10 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 67.10 | 68.10 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 67.90 | 68.50 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 68.50 | 69.10 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 69.00 | 69.40 |
| MOC | 7/12/2017 | 0 | Bare | 69.40 | 69.55 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 69.55 | 69.60 |
| MOC | 7/12/2017 | 0 | Bare | 69.60 | 70.00 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 70.00 | 70.40 |
| MOC | 7/12/2017 | 0 | Bare | 70.40 | 70.60 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 70.60 | 71.10 |
| MOC | 7/12/2017 | 0 | Bare | 71.10 | 71.50 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 71.50 | 71.70 |
| MOC | 7/12/2017 | 0 | Bare | 71.70 | 71.90 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 71.90 | 72.10 |
| MOC | 7/12/2017 | 0 | Bare | 72.10 | 72.40 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 72.40 | 72.80 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 72.40 | 72.60 |
| MOC | 7/12/2017 | 0 | Bare | 72.80 | 73.95 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 73.95 | 74.00 |
| MOC | 7/12/2017 | 0 | Bare | 74.00 | 74.50 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 74.50 | 74.70 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 74.65 | 74.70 |
| MOC | 7/12/2017 | 0 | Bare | 74.70 | 75.00 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 75.00 | 75.40 |
| MOC | 7/12/2017 | 0 | Bare | 75.40 | 76.10 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 76.10 | 76.40 |
| MOC | 7/12/2017 | 0 | Bare | 76.40 | 76.60 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 76.60 | 76.90 |
| MOC | 7/12/2017 | 0 | Bare | 76.90 | 77.00 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 77.00 | 77.50 |
| MOC | 7/12/2017 | 0 | Bare | 77.50 | 77.95 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 77.95 | 78.20 |
| MOC | 7/12/2017 | 0 | Bare | 78.20 | 78.85 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 78.85 | 78.90 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 78.85 | 78.90 |
| MOC | 7/12/2017 | 0 | Bare | 78.90 | 79.10 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 79.10 | 79.30 |
| MOC | 7/12/2017 | 0 | Bare | 79.30 | 79.45 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 79.45 | 79.50 |
| MOC | 7/12/2017 | 0 | Bare | 79.50 | 79.70 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 79.70 | 80.10 |
| MOC | 7/12/2017 | 0 | Bare | 80.10 | 80.25 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 80.25 | 80.50 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 80.25 | 80.35 |
| MOC | 7/12/2017 | 0 | Bare | 80.50 | 80.80 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 80.80 | 81.00 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 0 | Bare | 81.00 | 81.10 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 81.10 | 81.40 |
| MOC | 7/12/2017 | 0 | Bare | 81.40 | 81.80 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 81.80 | 82.20 |
| MOC | 7/12/2017 | 0 | Bare | 82.20 | 82.45 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 82.45 | 82.50 |
| MOC | 7/12/2017 | 0 | Bare | 82.50 | 83.00 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 83.00 | 83.40 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 83.35 | 83.40 |
| MOC | 7/12/2017 | 0 | Bare | 83.40 | 83.45 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 83.45 | 83.50 |
| MOC | 7/12/2017 | 0 | Bare | 83.50 | 83.85 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 83.85 | 83.90 |
| MOC | 7/12/2017 | 0 | Bare | 83.90 | 83.95 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 83.95 | 84.00 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 83.95 | 84.00 |
| MOC | 7/12/2017 | 0 | Bare | 84.00 | 84.20 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 84.20 | 84.50 |
| MOC | 7/12/2017 | 0 | Bare | 84.50 | 84.55 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 84.55 | 84.60 |
| MOC | 7/12/2017 | 0 | Bare | 84.60 | 84.85 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 84.85 | 84.90 |
| MOC | 7/12/2017 | 0 | Bare | 84.90 | 85.60 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 85.60 | 86.20 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 86.20 | 86.80 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 86.75 | 86.80 |
| MOC | 7/12/2017 | 0 | Bare | 86.80 | 86.90 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 86.90 | 87.20 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 87.15 | 87.50 |
| MOC | 7/12/2017 | 0 | Bare | 87.50 | 88.15 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 88.15 | 88.20 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 88.20 | 89.10 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 88.55 | 88.60 |
| MOC | 7/12/2017 | 0 | Bare | 89.10 | 89.45 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 89.45 | 89.50 |
| MOC | 7/12/2017 | 0 | Bare | 89.50 | 89.65 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 89.65 | 89.70 |
| MOC | 7/12/2017 | 0 | Bare | 89.70 | 89.80 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 89.80 | 90.50 |
| MOC | 7/12/2017 | 0 | Bare | 90.50 | 90.90 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 90.90 | 91.90 |
| MOC | 7/12/2017 | 0 | Bare | 91.90 | 92.15 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 92.15 | 92.20 |
| MOC | 7/12/2017 | 0 | Bare | 92.20 | 92.50 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 92.50 | 93.10 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 93.05 | 93.10 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 93.05 | 93.10 |
| MOC | 7/12/2017 | 0 | Bare | 93.10 | 93.25 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 93.25 | 93.30 |
| MOC | 7/12/2017 | 0 | Bare | 93.30 | 93.35 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 93.35 | 93.40 |
| MOC | 7/12/2017 | 0 | Bare | 93.40 | 93.70 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 0 | Vallisneria americana | 93.70 | 93.90 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 93.85 | 93.90 |
| MOC | 7/12/2017 | 0 | Bare | 93.90 | 94.30 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 94.30 | 94.90 |
| MOC | 7/12/2017 | 0 | Bare | 94.90 | 95.20 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 95.20 | 95.30 |
| MOC | 7/12/2017 | 0 | Bare | 95.30 | 96.20 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 96.20 | 96.90 |
| MOC | 7/12/2017 | 0 | Bare | 96.90 | 97.25 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 97.25 | 97.30 |
| MOC | 7/12/2017 | 0 | Bare | 97.30 | 97.80 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 97.80 | 98.10 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 97.85 | 97.90 |
| MOC | 7/12/2017 | 0 | Bare | 98.10 | 98.20 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 98.20 | 99.00 |
| MOC | 7/12/2017 | 0 | Bare | 99.00 | 99.15 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 99.15 | 99.20 |
| MOC | 7/12/2017 | 0 | Bare | 99.20 | 99.40 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 99.40 | 100.15 |
| MOC | 7/12/2017 | 0 | Bare | 100.15 | 100.40 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 100.40 | 100.50 |
| MOC | 7/12/2017 | 0 | Bare | 100.50 | 100.70 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 100.70 | 101.00 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 100.95 | 101.00 |
| MOC | 7/12/2017 | 0 | Bare | 101.00 | 101.20 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 101.20 | 101.50 |
| MOC | 7/12/2017 | 0 | Bare | 101.50 | 102.00 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 102.00 | 102.30 |
| MOC | 7/12/2017 | 0 | Bare | 102.30 | 102.40 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 102.40 | 102.50 |
| MOC | 7/12/2017 | 0 | Bare | 102.50 | 102.55 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 102.55 | 102.60 |
| MOC | 7/12/2017 | 0 | Bare | 102.60 | 102.85 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 102.85 | 102.90 |
| MOC | 7/12/2017 | 0 | Bare | 102.90 | 103.10 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 103.10 | 103.60 |
| MOC | 7/12/2017 | 0 | Bare | 103.60 | 103.80 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 103.80 | 104.10 |
| MOC | 7/12/2017 | 0 | Bare | 104.10 | 104.20 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 104.20 | 104.30 |
| MOC | 7/12/2017 | 0 | Bare | 104.30 | 104.85 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 104.85 | 104.90 |
| MOC | 7/12/2017 | 0 | Bare | 104.90 | 105.30 |
| MOC | 7/12/2017 | 0 | Ruppia maritima | 105.30 | 105.40 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 105.30 | 105.35 |
| MOC | 7/12/2017 | 0 | Bare | 105.40 | 105.75 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 105.75 | 105.80 |
| MOC | 7/12/2017 | 0 | Bare | 105.80 | 106.45 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 106.45 | 106.50 |
| MOC | 7/12/2017 | 0 | Bare | 106.50 | 106.80 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 106.80 | 107.30 |
| MOC | 7/12/2017 | 0 | Bare | 107.30 | 107.85 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 107.85 | 109.10 |
| MOC | 7/12/2017 | 0 | Bare | 109.10 | 109.30 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 109.30 | 109.50 |
| MOC | 7/12/2017 | 0 | Bare | 109.50 | 109.55 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 109.55 | 109.60 |
| MOC | 7/12/2017 | 0 | Bare | 109.60 | 110.15 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 110.15 | 110.20 |
| MOC | 7/12/2017 | 0 | Bare | 110.20 | 110.55 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 110.55 | 110.60 |
| MOC | 7/12/2017 | 0 | Bare | 110.60 | 111.45 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 111.45 | 111.50 |
| MOC | 7/12/2017 | 0 | Bare | 111.50 | 115.00 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 115.00 | 115.70 |
| MOC | 7/12/2017 | 0 | Bare | 115.70 | 117.10 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 117.10 | 117.20 |
| MOC | 7/12/2017 | 0 | Bare | 117.20 | 117.60 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 117.60 | 117.65 |
| MOC | 7/12/2017 | 0 | Bare | 117.65 | 117.70 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 117.70 | 117.80 |
| MOC | 7/12/2017 | 0 | Bare | 117.80 | 118.40 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 118.40 | 118.70 |
| MOC | 7/12/2017 | 0 | Bare | 118.70 | 119.10 |
| MOC | 7/12/2017 | 0 | Zannichellia palustris | 119.10 | 119.65 |
| MOC | 7/12/2017 | 0 | Bare | 119.65 | 122.40 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 122.40 | 122.70 |
| MOC | 7/12/2017 | 0 | Bare | 122.70 | 124.80 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 124.80 | 124.90 |
| MOC | 7/12/2017 | 0 | Bare | 124.90 | 125.45 |
| MOC | 7/12/2017 | 0 | Vallisneria americana | 125.45 | 125.60 |
| MOC | 7/12/2017 | 12 | Bare | 0.00 | 3.65 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 3.65 | 3.80 |
| MOC | 7/12/2017 | 12 | Bare | 3.80 | 13.35 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 13.35 | 13.80 |
| MOC | 7/12/2017 | 12 | Bare | 13.80 | 14.35 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 14.35 | 14.80 |
| MOC | 7/12/2017 | 12 | Bare | 14.80 | 15.05 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 15.05 | 15.10 |
| MOC | 7/12/2017 | 12 | Bare | 15.10 | 15.35 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 15.35 | 15.40 |
| MOC | 7/12/2017 | 12 | Bare | 15.40 | 15.80 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 15.80 | 16.60 |
| MOC | 7/12/2017 | 12 | Bare | 16.60 | 16.75 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 16.75 | 16.80 |
| MOC | 7/12/2017 | 12 | Bare | 16.80 | 17.15 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 17.15 | 17.30 |
| MOC | 7/12/2017 | 12 | Bare | 17.30 | 17.50 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 17.50 | 17.60 |
| MOC | 7/12/2017 | 12 | Bare | 17.60 | 18.60 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 18.60 | 18.80 |
| MOC | 7/12/2017 | 12 | Bare | 18.80 | 18.90 |
| MOC | 7/12/2017 | 12 | Eleocharis sp. | 18.90 | 19.10 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 18.95 | 19.00 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 12 | Bare | 19.10 | 19.45 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 19.45 | 19.90 |
| MOC | 7/12/2017 | 12 | Bare | 19.90 | 20.20 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 20.20 | 20.80 |
| MOC | 7/12/2017 | 12 | Bare | 20.80 | 21.05 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 21.05 | 21.10 |
| MOC | 7/12/2017 | 12 | Bare | 21.10 | 22.20 |
| MOC | 7/12/2017 | 12 | Eleocharis sp. | 22.20 | 22.25 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 22.20 | 22.25 |
| MOC | 7/12/2017 | 12 | Bare | 22.25 | 22.30 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 22.30 | 22.45 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 22.35 | 22.40 |
| MOC | 7/12/2017 | 12 | Bare | 22.45 | 22.90 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 22.90 | 23.10 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 23.05 | 23.10 |
| MOC | 7/12/2017 | 12 | Bare | 23.10 | 23.40 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 23.40 | 23.80 |
| MOC | 7/12/2017 | 12 | Bare | 23.80 | 24.95 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 24.95 | 25.10 |
| MOC | 7/12/2017 | 12 | Bare | 25.10 | 25.15 |
| MOC | 7/12/2017 | 12 | Eleocharis sp. | 25.15 | 25.20 |
| MOC | 7/12/2017 | 12 | Bare | 25.20 | 25.40 |
| MOC | 7/12/2017 | 12 | Eleocharis sp. | 25.40 | 25.95 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 25.45 | 25.50 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 25.60 | 26.50 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 25.60 | 25.70 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 25.80 | 25.90 |
| MOC | 7/12/2017 | 12 | Bare | 26.50 | 26.55 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 26.55 | 26.60 |
| MOC | 7/12/2017 | 12 | Bare | 26.60 | 29.25 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 29.25 | 29.30 |
| MOC | 7/12/2017 | 12 | Bare | 29.30 | 30.00 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 30.00 | 30.10 |
| MOC | 7/12/2017 | 12 | Bare | 30.10 | 30.35 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 30.35 | 30.50 |
| MOC | 7/12/2017 | 12 | Bare | 30.50 | 30.75 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 30.75 | 30.80 |
| MOC | 7/12/2017 | 12 | Bare | 30.80 | 30.85 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 30.85 | 30.90 |
| MOC | 7/12/2017 | 12 | Bare | 30.90 | 33.20 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 33.20 | 33.25 |
| MOC | 7/12/2017 | 12 | Bare | 33.25 | 36.50 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 36.50 | 36.60 |
| MOC | 7/12/2017 | 12 | Bare | 36.60 | 40.50 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 40.50 | 40.70 |
| MOC | 7/12/2017 | 12 | Bare | 40.70 | 41.45 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 41.45 | 41.50 |
| MOC | 7/12/2017 | 12 | Bare | 41.50 | 42.85 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 42.85 | 42.90 |
| MOC | 7/12/2017 | 12 | Bare | 42.90 | 44.75 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 44.75 | 44.90 |
| MOC | 7/12/2017 | 12 | Bare | 44.90 | 45.25 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 12 | Ruppia maritima | 45.25 | 46.30 |
| MOC | 7/12/2017 | 12 | Bare | 46.30 | 46.80 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 46.80 | 47.20 |
| MOC | 7/12/2017 | 12 | Bare | 47.20 | 47.50 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 47.50 | 47.90 |
| MOC | 7/12/2017 | 12 | Bare | 47.90 | 48.10 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 48.10 | 49.00 |
| MOC | 7/12/2017 | 12 | Bare | 49.00 | 49.50 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 49.50 | 49.80 |
| MOC | 7/12/2017 | 12 | Bare | 49.80 | 50.15 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 50.15 | 50.30 |
| MOC | 7/12/2017 | 12 | Bare | 50.30 | 50.45 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 50.45 | 50.50 |
| MOC | 7/12/2017 | 12 | Bare | 50.50 | 50.80 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 50.80 | 50.90 |
| MOC | 7/12/2017 | 12 | Bare | 50.90 | 51.30 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 51.30 | 51.50 |
| MOC | 7/12/2017 | 12 | Bare | 51.50 | 51.80 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 51.80 | 52.00 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 51.90 | 52.20 |
| MOC | 7/12/2017 | 12 | Bare | 52.20 | 53.30 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 53.30 | 54.05 |
| MOC | 7/12/2017 | 12 | Bare | 54.05 | 54.60 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 54.60 | 56.10 |
| MOC | 7/12/2017 | 12 | Bare | 56.10 | 56.35 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 56.35 | 56.40 |
| MOC | 7/12/2017 | 12 | Bare | 56.40 | 59.00 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 59.00 | 59.15 |
| MOC | 7/12/2017 | 12 | Bare | 59.15 | 59.30 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 59.30 | 59.80 |
| MOC | 7/12/2017 | 12 | Bare | 59.80 | 60.20 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 60.20 | 60.50 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 60.40 | 60.50 |
| MOC | 7/12/2017 | 12 | Bare | 60.50 | 60.60 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 60.60 | 60.70 |
| MOC | 7/12/2017 | 12 | Bare | 60.70 | 60.95 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 60.95 | 61.00 |
| MOC | 7/12/2017 | 12 | Bare | 61.00 | 61.25 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 61.25 | 61.30 |
| MOC | 7/12/2017 | 12 | Bare | 61.30 | 61.55 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 61.55 | 61.60 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 62.95 | 63.00 |
| MOC | 7/12/2017 | 12 | Bare | 63.00 | 63.45 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 63.45 | 63.50 |
| MOC | 7/12/2017 | 12 | Bare | 63.50 | 63.65 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 63.65 | 63.70 |
| MOC | 7/12/2017 | 12 | Bare | 63.70 | 66.65 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 66.65 | 66.70 |
| MOC | 7/12/2017 | 12 | Bare | 66.70 | 66.90 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 66.90 | 67.10 |
| MOC | 7/12/2017 | 12 | Bare | 67.10 | 67.80 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 67.80 | 68.20 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 67.90 | 68.10 |
| MOC | 7/12/2017 | 12 | Bare | 68.20 | 69.10 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 69.10 | 69.20 |
| MOC | 7/12/2017 | 12 | Bare | 69.20 | 70.35 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 70.35 | 70.50 |
| MOC | 7/12/2017 | 12 | Bare | 70.50 | 74.65 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 74.65 | 75.10 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 75.00 | 75.60 |
| MOC | 7/12/2017 | 12 | Bare | 75.60 | 75.75 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 75.75 | 75.80 |
| MOC | 7/12/2017 | 12 | Bare | 75.80 | 76.00 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 76.00 | 76.20 |
| MOC | 7/12/2017 | 12 | Bare | 76.20 | 76.70 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 76.70 | 76.90 |
| MOC | 7/12/2017 | 12 | Bare | 76.90 | 77.25 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 77.25 | 77.30 |
| MOC | 7/12/2017 | 12 | Bare | 77.30 | 77.80 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 77.80 | 78.10 |
| MOC | 7/12/2017 | 12 | Bare | 78.10 | 78.75 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 78.75 | 78.80 |
| MOC | 7/12/2017 | 12 | Bare | 78.80 | 79.45 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 79.45 | 79.50 |
| MOC | 7/12/2017 | 12 | Bare | 79.50 | 79.60 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 79.60 | 80.60 |
| MOC | 7/12/2017 | 12 | Bare | 80.60 | 81.15 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 81.15 | 81.20 |
| MOC | 7/12/2017 | 12 | Bare | 81.20 | 81.60 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 81.60 | 81.70 |
| MOC | 7/12/2017 | 12 | Bare | 81.70 | 82.05 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 82.05 | 82.10 |
| MOC | 7/12/2017 | 12 | Bare | 82.10 | 82.75 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 82.75 | 85.20 |
| MOC | 7/12/2017 | 12 | Bare | 85.20 | 86.00 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 86.00 | 86.10 |
| MOC | 7/12/2017 | 12 | Bare | 86.10 | 86.15 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 86.15 | 86.20 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 86.15 | 86.20 |
| MOC | 7/12/2017 | 12 | Bare | 86.20 | 86.50 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 86.50 | 86.70 |
| MOC | 7/12/2017 | 12 | Bare | 86.70 | 86.95 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 86.95 | 87.00 |
| MOC | 7/12/2017 | 12 | Potamogeton pusillus | 87.00 | 87.05 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 87.05 | 87.10 |
| MOC | 7/12/2017 | 12 | Bare | 87.10 | 87.40 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 87.40 | 88.30 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 88.25 | 88.30 |
| MOC | 7/12/2017 | 12 | Bare | 88.30 | 89.20 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 89.20 | 89.50 |
| MOC | 7/12/2017 | 12 | Bare | 89.50 | 90.10 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 90.10 | 90.40 |
| MOC | 7/12/2017 | 12 | Bare | 90.40 | 91.05 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 91.05 | 91.10 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 12 | Bare | 91.10 | 91.35 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 91.35 | 91.70 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 91.35 | 91.40 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 91.60 | 92.20 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 91.80 | 91.90 |
| MOC | 7/12/2017 | 12 | Bare | 92.20 | 92.30 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 92.30 | 92.50 |
| MOC | 7/12/2017 | 12 | Bare | 92.50 | 92.75 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 92.75 | 93.00 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 92.75 | 92.90 |
| MOC | 7/12/2017 | 12 | Bare | 93.00 | 93.75 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 93.75 | 93.80 |
| MOC | 7/12/2017 | 12 | Bare | 93.80 | 94.20 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 94.20 | 94.30 |
| MOC | 7/12/2017 | 12 | Bare | 94.30 | 94.40 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 94.40 | 94.70 |
| MOC | 7/12/2017 | 12 | Bare | 94.70 | 94.90 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 94.90 | 95.70 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 95.50 | 95.60 |
| MOC | 7/12/2017 | 12 | Bare | 95.70 | 95.75 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 95.75 | 96.30 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 95.75 | 95.90 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 96.10 | 96.30 |
| MOC | 7/12/2017 | 12 | Bare | 96.30 | 96.60 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 96.60 | 96.70 |
| MOC | 7/12/2017 | 12 | Bare | 96.70 | 96.85 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 96.85 | 97.30 |
| MOC | 7/12/2017 | 12 | Bare | 97.30 | 98.10 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 98.10 | 98.20 |
| MOC | 7/12/2017 | 12 | Bare | 98.20 | 98.40 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 98.40 | 98.90 |
| MOC | 7/12/2017 | 12 | Bare | 98.90 | 99.10 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 99.10 | 99.90 |
| MOC | 7/12/2017 | 12 | Bare | 99.90 | 101.00 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 101.00 | 101.40 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 101.25 | 101.30 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 101.25 | 101.30 |
| MOC | 7/12/2017 | 12 | Bare | 101.40 | 101.70 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 101.70 | 101.90 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 101.70 | 101.90 |
| MOC | 7/12/2017 | 12 | Bare | 101.90 | 102.10 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 102.10 | 102.50 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 102.10 | 102.30 |
| MOC | 7/12/2017 | 12 | Bare | 102.50 | 102.70 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 102.70 | 103.00 |
| MOC | 7/12/2017 | 12 | Bare | 103.00 | 103.20 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 103.20 | 103.30 |
| MOC | 7/12/2017 | 12 | Bare | 103.30 | 103.50 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 103.50 | 103.70 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 103.70 | 103.80 |
| MOC | 7/12/2017 | 12 | Bare | 103.80 | 103.95 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 103.95 | 104.00 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 12 | Bare | 104.00 | 104.15 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 104.15 | 104.20 |
| MOC | 7/12/2017 | 12 | Bare | 104.20 | 104.45 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 104.45 | 104.50 |
| MOC | 7/12/2017 | 12 | Bare | 104.50 | 105.30 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 105.30 | 105.50 |
| MOC | 7/12/2017 | 12 | Bare | 105.50 | 105.70 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 105.70 | 105.80 |
| MOC | 7/12/2017 | 12 | Bare | 105.80 | 106.25 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 106.25 | 106.30 |
| MOC | 7/12/2017 | 12 | Bare | 106.30 | 107.70 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 107.70 | 107.85 |
| MOC | 7/12/2017 | 12 | Bare | 107.75 | 108.10 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 108.10 | 108.20 |
| MOC | 7/12/2017 | 12 | Bare | 108.20 | 108.90 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 108.90 | 109.10 |
| MOC | 7/12/2017 | 12 | Bare | 109.10 | 109.55 |
| MOC | 7/12/2017 | 12 | Bare | 109.55 | 109.85 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 109.55 | 109.60 |
| MOC | 7/12/2017 | 12 | Bare | 109.85 | 109.90 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 109.90 | 110.15 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 110.15 | 110.20 |
| MOC | 7/12/2017 | 12 | Bare | 110.20 | 112.20 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 112.20 | 112.30 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 112.20 | 112.30 |
| MOC | 7/12/2017 | 12 | Bare | 112.30 | 113.10 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 113.10 | 113.30 |
| MOC | 7/12/2017 | 12 | Bare | 113.30 | 113.55 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 113.55 | 113.60 |
| MOC | 7/12/2017 | 12 | Bare | 113.60 | 113.70 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 113.70 | 114.10 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 114.10 | 114.50 |
| MOC | 7/12/2017 | 12 | Bare | 114.50 | 114.90 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 114.90 | 115.00 |
| MOC | 7/12/2017 | 12 | Bare | 115.00 | 119.20 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 119.20 | 119.40 |
| MOC | 7/12/2017 | 12 | Bare | 119.40 | 119.70 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 119.70 | 119.80 |
| MOC | 7/12/2017 | 12 | Bare | 119.80 | 120.95 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 120.95 | 121.30 |
| MOC | 7/12/2017 | 12 | Bare | 121.30 | 121.75 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 121.75 | 121.90 |
| MOC | 7/12/2017 | 12 | Bare | 121.90 | 122.35 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 122.35 | 122.40 |
| MOC | 7/12/2017 | 12 | Bare | 122.40 | 123.75 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 123.75 | 123.80 |
| MOC | 7/12/2017 | 12 | Bare | 123.80 | 124.25 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 124.25 | 124.90 |
| MOC | 7/12/2017 | 12 | Bare | 124.90 | 125.75 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 125.75 | 125.80 |
| MOC | 7/12/2017 | 12 | Bare | 125.80 | 126.20 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 126.20 | 126.40 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 12 | Bare | 126.40 | 127.70 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 127.70 | 127.95 |
| MOC | 7/12/2017 | 12 | Bare | 127.95 | 128.15 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 128.15 | 128.25 |
| MOC | 7/12/2017 | 12 | Bare | 128.25 | 136.65 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 136.65 | 136.70 |
| MOC | 7/12/2017 | 12 | Bare | 136.70 | 137.85 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 137.85 | 137.90 |
| MOC | 7/12/2017 | 12 | Bare | 137.90 | 138.10 |
| MOC | 7/12/2017 | 12 | Zannichellia palustris | 138.10 | 138.20 |
| MOC | 7/12/2017 | 12 | Bare | 138.20 | 139.30 |
| MOC | 7/12/2017 | 12 | Ruppia maritima | 139.30 | 139.60 |
| MOC | 7/12/2017 | 12 | Bare | 139.60 | 140.40 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 140.40 | 140.60 |
| MOC | 7/12/2017 | 12 | Bare | 140.60 | 141.05 |
| MOC | 7/12/2017 | 12 | Vallisneria americana | 141.05 | 141.10 |
| MOC | 7/12/2017 | 25 | Bare | 0.00 | 8.50 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 8.50 | 8.55 |
| MOC | 7/12/2017 | 25 | Bare | 8.55 | 9.95 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 9.95 | 10.00 |
| MOC | 7/12/2017 | 25 | Bare | 10.00 | 10.80 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 10.80 | 10.90 |
| MOC | 7/12/2017 | 25 | Bare | 10.90 | 13.35 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 13.35 | 13.40 |
| MOC | 7/12/2017 | 25 | Bare | 13.40 | 13.75 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 13.75 | 14.10 |
| MOC | 7/12/2017 | 25 | Bare | 14.10 | 14.30 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 14.30 | 14.45 |
| MOC | 7/12/2017 | 25 | Bare | 14.45 | 14.80 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 14.80 | 14.85 |
| MOC | 7/12/2017 | 25 | Bare | 14.85 | 15.55 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 15.55 | 15.60 |
| MOC | 7/12/2017 | 25 | Bare | 15.60 | 15.85 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 15.85 | 15.90 |
| MOC | 7/12/2017 | 25 | Bare | 15.90 | 16.60 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 16.60 | 16.80 |
| MOC | 7/12/2017 | 25 | Bare | 16.80 | 17.00 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 17.00 | 17.40 |
| MOC | 7/12/2017 | 25 | Bare | 17.40 | 17.75 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 17.75 | 17.95 |
| MOC | 7/12/2017 | 25 | Bare | 17.95 | 18.05 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 18.05 | 18.10 |
| MOC | 7/12/2017 | 25 | Bare | 18.10 | 18.15 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 18.15 | 18.20 |
| MOC | 7/12/2017 | 25 | Bare | 18.20 | 18.55 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 18.55 | 18.60 |
| MOC | 7/12/2017 | 25 | Bare | 18.60 | 19.00 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 19.00 | 19.10 |
| MOC | 7/12/2017 | 25 | Bare | 19.10 | 19.55 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 19.55 | 19.60 |
| MOC | 7/12/2017 | 25 | Bare | 19.60 | 19.75 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 19.75 | 19.80 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 25 | Bare | 19.80 | 28.85 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 28.85 | 28.90 |
| MOC | 7/12/2017 | 25 | Bare | 28.90 | 29.25 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 29.25 | 29.30 |
| MOC | 7/12/2017 | 25 | Bare | 29.30 | 29.35 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 29.35 | 29.40 |
| MOC | 7/12/2017 | 25 | Bare | 29.40 | 29.95 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 29.95 | 30.00 |
| MOC | 7/12/2017 | 25 | Bare | 30.00 | 30.40 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 30.40 | 30.45 |
| MOC | 7/12/2017 | 25 | Bare | 30.45 | 30.70 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 30.70 | 30.80 |
| MOC | 7/12/2017 | 25 | Bare | 30.80 | 31.75 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 31.75 | 31.80 |
| MOC | 7/12/2017 | 25 | Bare | 31.80 | 33.25 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 33.25 | 33.30 |
| MOC | 7/12/2017 | 25 | Bare | 33.30 | 33.75 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 33.75 | 33.80 |
| MOC | 7/12/2017 | 25 | Bare | 33.80 | 36.75 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 36.75 | 36.80 |
| MOC | 7/12/2017 | 25 | Bare | 36.80 | 37.30 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 37.30 | 37.40 |
| MOC | 7/12/2017 | 25 | Bare | 37.40 | 37.85 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 37.85 | 37.90 |
| MOC | 7/12/2017 | 25 | Bare | 37.90 | 38.80 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 38.80 | 38.90 |
| MOC | 7/12/2017 | 25 | Bare | 38.90 | 40.35 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 40.35 | 40.40 |
| MOC | 7/12/2017 | 25 | Bare | 40.40 | 41.00 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 41.00 | 41.25 |
| MOC | 7/12/2017 | 25 | Bare | 41.25 | 45.80 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 45.80 | 45.85 |
| MOC | 7/12/2017 | 25 | Bare | 45.85 | 46.70 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 46.70 | 46.90 |
| MOC | 7/12/2017 | 25 | Bare | 46.90 | 48.30 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 48.30 | 48.35 |
| MOC | 7/12/2017 | 25 | Bare | 48.35 | 48.45 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 48.45 | 48.50 |
| MOC | 7/12/2017 | 25 | Bare | 48.50 | 48.75 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 48.75 | 48.80 |
| MOC | 7/12/2017 | 25 | Bare | 48.80 | 49.20 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 49.20 | 49.35 |
| MOC | 7/12/2017 | 25 | Bare | 49.35 | 49.45 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 49.45 | 49.50 |
| MOC | 7/12/2017 | 25 | Bare | 49.50 | 49.70 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 49.70 | 49.90 |
| MOC | 7/12/2017 | 25 | Bare | 49.90 | 52.55 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 52.55 | 52.60 |
| MOC | 7/12/2017 | 25 | Bare | 52.60 | 52.70 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 52.70 | 52.80 |
| MOC | 7/12/2017 | 25 | Bare | 52.80 | 53.30 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 53.30 | 53.90 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 25 | Vallisneria americana | 53.90 | 54.20 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 54.15 | 54.20 |
| MOC | 7/12/2017 | 25 | Bare | 54.20 | 54.85 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 54.85 | 54.90 |
| MOC | 7/12/2017 | 25 | Bare | 54.90 | 55.50 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 55.50 | 55.90 |
| MOC | 7/12/2017 | 25 | Bare | 55.90 | 56.95 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 56.95 | 57.00 |
| MOC | 7/12/2017 | 25 | Bare | 57.00 | 57.70 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 57.70 | 57.80 |
| MOC | 7/12/2017 | 25 | Bare | 57.80 | 58.45 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 58.45 | 58.50 |
| MOC | 7/12/2017 | 25 | Bare | 58.50 | 58.90 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 58.90 | 59.10 |
| MOC | 7/12/2017 | 25 | Bare | 59.10 | 60.55 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 60.55 | 60.60 |
| MOC | 7/12/2017 | 25 | Bare | 60.60 | 61.60 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 61.60 | 61.75 |
| MOC | 7/12/2017 | 25 | Bare | 61.75 | 62.30 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 62.30 | 62.50 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 62.45 | 62.50 |
| MOC | 7/12/2017 | 25 | Bare | 62.50 | 63.45 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 63.45 | 63.50 |
| MOC | 7/12/2017 | 25 | Bare | 63.50 | 64.50 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 64.50 | 64.55 |
| MOC | 7/12/2017 | 25 | Bare | 64.55 | 64.65 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 64.65 | 64.70 |
| MOC | 7/12/2017 | 25 | Bare | 64.70 | 65.15 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 65.15 | 65.60 |
| MOC | 7/12/2017 | 25 | Bare | 65.60 | 65.70 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 65.70 | 65.75 |
| MOC | 7/12/2017 | 25 | Bare | 65.75 | 66.45 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 66.45 | 66.50 |
| MOC | 7/12/2017 | 25 | Bare | 66.50 | 68.20 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 68.20 | 68.25 |
| MOC | 7/12/2017 | 25 | Bare | 68.25 | 68.65 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 68.65 | 68.70 |
| MOC | 7/12/2017 | 25 | Bare | 68.70 | 68.90 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 68.90 | 68.95 |
| MOC | 7/12/2017 | 25 | Bare | 68.95 | 69.55 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 69.55 | 69.60 |
| MOC | 7/12/2017 | 25 | Bare | 69.60 | 70.25 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 70.25 | 70.35 |
| MOC | 7/12/2017 | 25 | Bare | 70.35 | 70.65 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 70.65 | 70.70 |
| MOC | 7/12/2017 | 25 | Bare | 70.70 | 70.95 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 70.95 | 71.10 |
| MOC | 7/12/2017 | 25 | Bare | 71.10 | 71.75 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 71.75 | 71.80 |
| MOC | 7/12/2017 | 25 | Bare | 71.80 | 72.10 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 72.10 | 72.40 |
| MOC | 7/12/2017 | 25 | Bare | 72.40 | 72.75 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 25 | Ruppia maritima | 72.75 | 72.80 |
| MOC | 7/12/2017 | 25 | Bare | 72.80 | 73.25 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 73.25 | 73.30 |
| MOC | 7/12/2017 | 25 | Bare | 73.30 | 73.75 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 73.75 | 73.80 |
| MOC | 7/12/2017 | 25 | Bare | 73.80 | 74.05 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 74.05 | 74.10 |
| MOC | 7/12/2017 | 25 | Bare | 74.10 | 74.20 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 74.20 | 74.25 |
| MOC | 7/12/2017 | 25 | Bare | 74.25 | 75.20 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 75.20 | 76.55 |
| MOC | 7/12/2017 | 25 | Bare | 76.55 | 77.05 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 77.05 | 77.10 |
| MOC | 7/12/2017 | 25 | Bare | 77.10 | 77.20 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 77.20 | 77.25 |
| MOC | 7/12/2017 | 25 | Bare | 77.25 | 77.85 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 77.85 | 77.90 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 77.85 | 77.90 |
| MOC | 7/12/2017 | 25 | Bare | 77.90 | 78.00 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 78.00 | 78.10 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 78.05 | 78.10 |
| MOC | 7/12/2017 | 25 | Bare | 78.10 | 78.30 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 78.30 | 78.45 |
| MOC | 7/12/2017 | 25 | Bare | 78.45 | 78.65 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 78.65 | 78.70 |
| MOC | 7/12/2017 | 25 | Bare | 78.70 | 79.40 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 79.40 | 79.50 |
| MOC | 7/12/2017 | 25 | Bare | 79.50 | 79.95 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 79.95 | 80.00 |
| MOC | 7/12/2017 | 25 | Bare | 80.00 | 81.10 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 81.10 | 81.15 |
| MOC | 7/12/2017 | 25 | Bare | 81.15 | 81.35 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 81.35 | 81.40 |
| MOC | 7/12/2017 | 25 | Bare | 81.40 | 81.55 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 81.55 | 81.60 |
| MOC | 7/12/2017 | 25 | Bare | 81.60 | 81.95 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 81.95 | 82.00 |
| MOC | 7/12/2017 | 25 | Bare | 82.00 | 82.80 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 82.80 | 82.90 |
| MOC | 7/12/2017 | 25 | Bare | 82.90 | 83.45 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 83.45 | 83.50 |
| MOC | 7/12/2017 | 25 | Bare | 83.50 | 83.60 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 83.60 | 83.75 |
| MOC | 7/12/2017 | 25 | Bare | 83.75 | 83.85 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 83.85 | 83.90 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 83.90 | 84.30 |
| MOC | 7/12/2017 | 25 | Bare | 84.30 | 84.85 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 84.85 | 85.00 |
| MOC | 7/12/2017 | 25 | Bare | 85.00 | 85.15 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 85.15 | 85.20 |
| MOC | 7/12/2017 | 25 | Bare | 85.20 | 85.45 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 85.45 | 85.50 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 25 | Bare | 85.50 | 85.95 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 85.95 | 86.00 |
| MOC | 7/12/2017 | 25 | Bare | 86.00 | 86.15 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 86.15 | 86.20 |
| MOC | 7/12/2017 | 25 | Bare | 86.20 | 86.45 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 86.45 | 86.50 |
| MOC | 7/12/2017 | 25 | Bare | 86.50 | 86.75 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 86.75 | 86.90 |
| MOC | 7/12/2017 | 25 | Bare | 86.90 | 88.00 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 88.00 | 88.05 |
| MOC | 7/12/2017 | 25 | Bare | 88.05 | 88.30 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 88.30 | 88.35 |
| MOC | 7/12/2017 | 25 | Bare | 88.35 | 88.45 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 88.45 | 88.50 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 88.45 | 88.50 |
| MOC | 7/12/2017 | 25 | Bare | 88.50 | 88.70 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 88.70 | 88.75 |
| MOC | 7/12/2017 | 25 | Bare | 88.75 | 89.20 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 89.20 | 89.25 |
| MOC | 7/12/2017 | 25 | Bare | 89.25 | 90.55 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 90.55 | 90.60 |
| MOC | 7/12/2017 | 25 | Bare | 90.60 | 91.90 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 91.90 | 91.95 |
| MOC | 7/12/2017 | 25 | Bare | 91.95 | 92.75 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 92.75 | 92.90 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 92.80 | 92.90 |
| MOC | 7/12/2017 | 25 | Bare | 92.90 | 93.15 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 93.15 | 93.20 |
| MOC | 7/12/2017 | 25 | Bare | 93.20 | 93.45 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 93.45 | 93.50 |
| MOC | 7/12/2017 | 25 | Bare | 93.50 | 93.75 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 93.75 | 93.80 |
| MOC | 7/12/2017 | 25 | Bare | 93.80 | 93.95 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 93.95 | 94.35 |
| MOC | 7/12/2017 | 25 | Bare | 94.35 | 94.95 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 94.95 | 95.00 |
| MOC | 7/12/2017 | 25 | Bare | 95.00 | 95.20 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 95.20 | 95.40 |
| MOC | 7/12/2017 | 25 | Bare | 95.40 | 95.45 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 95.45 | 95.50 |
| MOC | 7/12/2017 | 25 | Bare | 95.50 | 96.00 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 96.00 | 96.05 |
| MOC | 7/12/2017 | 25 | Bare | 96.05 | 97.05 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 97.05 | 97.10 |
| MOC | 7/12/2017 | 25 | Bare | 97.10 | 97.20 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 97.20 | 97.30 |
| MOC | 7/12/2017 | 25 | Bare | 97.30 | 98.15 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 98.15 | 98.20 |
| MOC | 7/12/2017 | 25 | Bare | 98.20 | 98.55 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 98.55 | 98.60 |
| MOC | 7/12/2017 | 25 | Bare | 98.60 | 98.80 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 98.80 | 98.85 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 25 | Bare | 98.85 | 99.20 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 99.20 | 99.25 |
| MOC | 7/12/2017 | 25 | Bare | 99.25 | 99.35 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 99.35 | 99.40 |
| MOC | 7/12/2017 | 25 | Bare | 99.40 | 100.25 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 100.25 | 100.30 |
| MOC | 7/12/2017 | 25 | Bare | 100.30 | 100.90 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 100.90 | 101.10 |
| MOC | 7/12/2017 | 25 | Bare | 101.10 | 101.35 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 101.35 | 101.55 |
| MOC | 7/12/2017 | 25 | Bare | 101.55 | 102.45 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 102.45 | 102.50 |
| MOC | 7/12/2017 | 25 | Bare | 102.50 | 103.50 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 103.50 | 103.65 |
| MOC | 7/12/2017 | 25 | Bare | 103.65 | 104.10 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 104.10 | 104.15 |
| MOC | 7/12/2017 | 25 | Bare | 104.15 | 104.30 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 104.30 | 104.50 |
| MOC | 7/12/2017 | 25 | Bare | 104.50 | 104.70 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 104.70 | 104.90 |
| MOC | 7/12/2017 | 25 | Bare | 104.90 | 105.20 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 105.20 | 105.35 |
| MOC | 7/12/2017 | 25 | Bare | 105.35 | 105.60 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 105.60 | 105.65 |
| MOC | 7/12/2017 | 25 | Bare | 105.65 | 107.15 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 107.15 | 107.30 |
| MOC | 7/12/2017 | 25 | Bare | 107.30 | 107.90 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 107.90 | 107.95 |
| MOC | 7/12/2017 | 25 | Bare | 107.95 | 108.45 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 108.45 | 108.50 |
| MOC | 7/12/2017 | 25 | Bare | 108.50 | 109.15 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 109.15 | 109.20 |
| MOC | 7/12/2017 | 25 | Bare | 109.20 | 109.90 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 109.90 | 110.10 |
| MOC | 7/12/2017 | 25 | Bare | 110.10 | 110.15 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 110.15 | 110.20 |
| MOC | 7/12/2017 | 25 | Bare | 110.20 | 112.55 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 112.55 | 112.60 |
| MOC | 7/12/2017 | 25 | Bare | 112.60 | 113.30 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 113.30 | 113.35 |
| MOC | 7/12/2017 | 25 | Bare | 113.35 | 118.80 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 118.80 | 118.85 |
| MOC | 7/12/2017 | 25 | Bare | 118.85 | 121.00 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 121.00 | 121.10 |
| MOC | 7/12/2017 | 25 | Bare | 121.10 | 122.80 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 122.80 | 123.00 |
| MOC | 7/12/2017 | 25 | Bare | 123.00 | 123.75 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 123.75 | 123.80 |
| MOC | 7/12/2017 | 25 | Bare | 123.80 | 124.05 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 124.05 | 124.10 |
| MOC | 7/12/2017 | 25 | Bare | 124.10 | 125.15 |
| MOC | 7/12/2017 | 25 | Vallisneria americana | 125.15 | 125.20 |

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|---|---|---|---|---|---|
| MOC | 7/12/2017 | 25 | Bare | 125.20 | 126.00 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 126.00 | 126.50 |
| MOC | 7/12/2017 | 25 | Bare | 126.50 | 127.60 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 127.60 | 127.80 |
| MOC | 7/12/2017 | 25 | Bare | 127.80 | 128.10 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 128.10 | 128.70 |
| MOC | 7/12/2017 | 25 | Bare | 128.70 | 128.95 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 128.95 | 129.00 |
| MOC | 7/12/2017 | 25 | Bare | 129.00 | 130.50 |
| MOC | 7/12/2017 | 25 | Zannichellia palustris | 130.50 | 131.65 |
| MOC | 7/12/2017 | 25 | Bare | 131.65 | 134.65 |
| MOC | 7/12/2017 | 25 | Ruppia maritima | 134.65 | 134.70 |
| MOC | 7/13/2017 | 38 | Bare | 0.00 | 7.20 |
| MOC | 7/13/2017 | 38 | Charophytes | 7.20 | 7.25 |
| MOC | 7/13/2017 | 38 | Bare | 7.25 | 10.30 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 10.30 | 10.40 |
| MOC | 7/13/2017 | 38 | Bare | 10.40 | 11.20 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 11.20 | 11.35 |
| MOC | 7/13/2017 | 38 | Bare | 11.35 | 11.60 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 11.60 | 12.55 |
| MOC | 7/13/2017 | 38 | Bare | 12.55 | 12.90 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 12.90 | 12.95 |
| MOC | 7/13/2017 | 38 | Bare | 12.95 | 14.90 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 14.90 | 14.95 |
| MOC | 7/13/2017 | 38 | Bare | 14.95 | 16.15 |
| MOC | 7/13/2017 | 38 | Eleocharis sp. | 16.15 | 16.25 |
| MOC | 7/13/2017 | 38 | Bare | 16.25 | 18.80 |
| MOC | 7/13/2017 | 38 | Eleocharis sp. | 18.80 | 21.50 |
| MOC | 7/13/2017 | 38 | Bare | 21.50 | 22.85 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 22.85 | 22.90 |
| MOC | 7/13/2017 | 38 | Bare | 22.90 | 23.10 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 23.10 | 23.15 |
| MOC | 7/13/2017 | 38 | Bare | 23.15 | 23.65 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 23.65 | 23.70 |
| MOC | 7/13/2017 | 38 | Bare | 23.70 | 25.80 |
| MOC | 7/13/2017 | 38 | Eleocharis sp. | 25.80 | 26.00 |
| MOC | 7/13/2017 | 38 | Bare | 26.00 | 26.75 |
| MOC | 7/13/2017 | 38 | Eleocharis sp. | 26.75 | 26.85 |
| MOC | 7/13/2017 | 38 | Bare | 26.85 | 27.00 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 27.00 | 27.10 |
| MOC | 7/13/2017 | 38 | Bare | 27.10 | 28.30 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 28.30 | 28.70 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 28.50 | 29.55 |
| MOC | 7/13/2017 | 38 | Bare | 29.55 | 29.80 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 29.80 | 29.90 |
| MOC | 7/13/2017 | 38 | Bare | 29.90 | 30.30 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 30.30 | 30.95 |
| MOC | 7/13/2017 | 38 | Bare | 30.95 | 31.85 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 31.85 | 32.00 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 32.00 | 32.35 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 32.30 | 32.65 |
| MOC | 7/13/2017 | 38 | Bare | 32.65 | 33.20 |

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|---|---|---|---|---|---|
| MOC | 7/13/2017 | 38 | Ruppia maritima | 33.20 | 33.25 |
| MOC | 7/13/2017 | 38 | Bare | 33.25 | 33.35 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 33.35 | 33.45 |
| MOC | 7/13/2017 | 38 | Bare | 33.45 | 33.70 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 33.70 | 33.75 |
| MOC | 7/13/2017 | 38 | Bare | 33.75 | 35.10 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 35.10 | 35.15 |
| MOC | 7/13/2017 | 38 | Bare | 35.15 | 35.75 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 35.75 | 35.80 |
| MOC | 7/13/2017 | 38 | Bare | 35.80 | 37.00 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 37.00 | 37.05 |
| MOC | 7/13/2017 | 38 | Bare | 37.05 | 38.20 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 38.20 | 38.40 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 38.30 | 38.40 |
| MOC | 7/13/2017 | 38 | Bare | 38.40 | 38.60 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 38.60 | 38.85 |
| MOC | 7/13/2017 | 38 | Bare | 38.85 | 39.35 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 39.35 | 39.55 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 39.35 | 39.40 |
| MOC | 7/13/2017 | 38 | Bare | 39.55 | 40.10 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 40.1 | 40.15 |
| MOC | 7/13/2017 | 38 | Bare | 40.15 | 40.80 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 40.8 | 40.85 |
| MOC | 7/13/2017 | 38 | Bare | 40.85 | 41.20 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 41.2 | 41.35 |
| MOC | 7/13/2017 | 38 | Bare | 41.35 | 42.30 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 42.30 | 42.55 |
| MOC | 7/13/2017 | 38 | Bare | 42.55 | 43.10 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 43.10 | 43.20 |
| MOC | 7/13/2017 | 38 | Bare | 43.20 | 43.60 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 43.60 | 43.65 |
| MOC | 7/13/2017 | 38 | Bare | 43.65 | 43.70 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 43.70 | 43.80 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 43.70 | 43.75 |
| MOC | 7/13/2017 | 38 | Bare | 43.80 | 46.30 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 46.30 | 46.35 |
| MOC | 7/13/2017 | 38 | Bare | 46.35 | 46.50 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 46.50 | 46.55 |
| MOC | 7/13/2017 | 38 | Bare | 46.55 | 46.90 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 46.90 | 48.00 |
| MOC | 7/13/2017 | 38 | Bare | 48.00 | 55.50 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 55.50 | 56.05 |
| MOC | 7/13/2017 | 38 | Bare | 56.05 | 60.90 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 60.90 | 61.05 |
| MOC | 7/13/2017 | 38 | Bare | 61.05 | 65.80 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 65.80 | 65.85 |
| MOC | 7/13/2017 | 38 | Bare | 65.85 | 66.90 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 66.90 | 66.95 |
| MOC | 7/13/2017 | 38 | Bare | 66.95 | 70.10 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 70.10 | 70.40 |
| MOC | 7/13/2017 | 38 | Bare | 70.40 | 70.50 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 70.50 | 70.60 |

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|---|---|---|---|---|---|
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 70.50 | 70.60 |
| MOC | 7/13/2017 | 38 | Bare | 70.60 | 70.80 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 70.80 | 71.50 |
| MOC | 7/13/2017 | 38 | Bare | 71.50 | 71.90 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 71.90 | 72.10 |
| MOC | 7/13/2017 | 38 | Bare | 72.10 | 72.50 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 72.50 | 73.10 |
| MOC | 7/13/2017 | 38 | Bare | 73.10 | 73.30 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 73.30 | 73.65 |
| MOC | 7/13/2017 | 38 | Bare | 73.65 | 73.70 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 73.70 | 73.75 |
| MOC | 7/13/2017 | 38 | Bare | 73.75 | 73.90 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 73.90 | 74.30 |
| MOC | 7/13/2017 | 38 | Bare | 74.30 | 74.90 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 74.90 | 75.10 |
| MOC | 7/13/2017 | 38 | Bare | 75.10 | 75.15 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 75.15 | 75.60 |
| MOC | 7/13/2017 | 38 | Bare | 75.60 | 76.00 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 76.00 | 76.05 |
| MOC | 7/13/2017 | 38 | Bare | 76.05 | 76.10 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 76.10 | 76.20 |
| MOC | 7/13/2017 | 38 | Bare | 76.20 | 76.30 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 76.30 | 76.45 |
| MOC | 7/13/2017 | 38 | Bare | 76.45 | 76.65 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 76.65 | 77.10 |
| MOC | 7/13/2017 | 38 | Bare | 77.10 | 77.20 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 77.20 | 77.40 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 77.30 | 77.55 |
| MOC | 7/13/2017 | 38 | Bare | 77.55 | 77.80 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 77.80 | 77.95 |
| MOC | 7/13/2017 | 38 | Bare | 77.95 | 78.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 78.15 | 78.20 |
| MOC | 7/13/2017 | 38 | Bare | 78.20 | 78.65 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 78.65 | 79.00 |
| MOC | 7/13/2017 | 38 | Bare | 79.00 | 79.60 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 79.60 | 80.10 |
| MOC | 7/13/2017 | 38 | Bare | 80.10 | 80.50 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 80.50 | 80.65 |
| MOC | 7/13/2017 | 38 | Bare | 80.65 | 80.90 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 80.90 | 80.95 |
| MOC | 7/13/2017 | 38 | Bare | 80.95 | 81.10 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 81.10 | 81.35 |
| MOC | 7/13/2017 | 38 | Bare | 81.35 | 82.00 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 82.00 | 82.10 |
| MOC | 7/13/2017 | 38 | Bare | 82.10 | 83.10 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 83.10 | 83.40 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 83.30 | 83.40 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 83.40 | 83.55 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 83.50 | 83.55 |
| MOC | 7/13/2017 | 38 | Bare | 83.55 | 83.70 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 83.70 | 83.90 |
| MOC | 7/13/2017 | 38 | Bare | 83.90 | 84.10 |

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|---|---|---|---|---|---|
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 84.10 | 84.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 84.10 | 84.80 |
| MOC | 7/13/2017 | 38 | Bare | 84.80 | 85.30 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 85.30 | 85.35 |
| MOC | 7/13/2017 | 38 | Bare | 85.35 | 85.40 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 85.40 | 85.90 |
| MOC | 7/13/2017 | 38 | Bare | 85.90 | 86.50 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 86.50 | 86.70 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 86.55 | 86.70 |
| MOC | 7/13/2017 | 38 | Bare | 86.70 | 86.90 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 86.90 | 87.08 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 87.00 | 87.25 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 87.20 | 87.25 |
| MOC | 7/13/2017 | 38 | Bare | 87.25 | 87.60 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 87.60 | 87.65 |
| MOC | 7/13/2017 | 38 | Bare | 87.65 | 87.80 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 87.80 | 88.00 |
| MOC | 7/13/2017 | 38 | Bare | 88.00 | 88.40 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 88.40 | 88.55 |
| MOC | 7/13/2017 | 38 | Bare | 88.55 | 89.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 89.15 | 89.50 |
| MOC | 7/13/2017 | 38 | Bare | 89.50 | 90.20 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 90.20 | 90.70 |
| MOC | 7/13/2017 | 38 | Bare | 90.70 | 90.80 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 90.80 | 90.85 |
| MOC | 7/13/2017 | 38 | Bare | 90.85 | 90.90 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 90.90 | 90.95 |
| MOC | 7/13/2017 | 38 | Bare | 90.95 | 91.00 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 91.00 | 91.10 |
| MOC | 7/13/2017 | 38 | Bare | 91.10 | 92.00 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 92.00 | 92.05 |
| MOC | 7/13/2017 | 38 | Bare | 92.05 | 92.60 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 92.60 | 92.65 |
| MOC | 7/13/2017 | 38 | Bare | 92.65 | 92.90 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 92.90 | 93.05 |
| MOC | 7/13/2017 | 38 | Bare | 93.05 | 93.20 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 93.20 | 93.25 |
| MOC | 7/13/2017 | 38 | Bare | 93.25 | 93.80 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 93.80 | 93.90 |
| MOC | 7/13/2017 | 38 | Bare | 93.90 | 94.10 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 94.10 | 94.90 |
| MOC | 7/13/2017 | 38 | Bare | 94.90 | 96.30 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 96.30 | 97.00 |
| MOC | 7/13/2017 | 38 | Bare | 97.00 | 97.60 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 97.60 | 97.85 |
| MOC | 7/13/2017 | 38 | Bare | 97.85 | 98.00 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 98.00 | 98.40 |
| MOC | 7/13/2017 | 38 | Bare | 98.40 | 98.50 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 98.50 | 98.90 |
| MOC | 7/13/2017 | 38 | Bare | 98.90 | 99.70 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 99.70 | 99.75 |
| MOC | 7/13/2017 | 38 | Bare | 99.75 | 100.00 |

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|---|---|---|---|---|---|
| MOC | 7/13/2017 | 38 | Bare | 100.00 | 100.65 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 100.65 | 100.70 |
| MOC | 7/13/2017 | 38 | Bare | 100.75 | 100.95 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 100.95 | 101.00 |
| MOC | 7/13/2017 | 38 | Bare | 101.00 | 101.45 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 101.45 | 101.50 |
| MOC | 7/13/2017 | 38 | Bare | 101.50 | 101.65 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 101.65 | 101.70 |
| MOC | 7/13/2017 | 38 | Bare | 101.70 | 102.05 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 102.05 | 102.10 |
| MOC | 7/13/2017 | 38 | Bare | 102.10 | 102.50 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 102.50 | 102.60 |
| MOC | 7/13/2017 | 38 | Bare | 102.60 | 103.30 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 103.30 | 103.70 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 103.70 | 104.00 |
| MOC | 7/13/2017 | 38 | Bare | 104.00 | 104.35 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 104.35 | 104.40 |
| MOC | 7/13/2017 | 38 | Bare | 104.40 | 104.95 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 104.95 | 105.00 |
| MOC | 7/13/2017 | 38 | Bare | 105.00 | 105.20 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 105.20 | 105.25 |
| MOC | 7/13/2017 | 38 | Bare | 105.25 | 105.90 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 105.90 | 105.95 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 105.90 | 105.95 |
| MOC | 7/13/2017 | 38 | Bare | 105.95 | 106.25 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 106.25 | 106.30 |
| MOC | 7/13/2017 | 38 | Bare | 106.30 | 106.65 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 106.65 | 106.70 |
| MOC | 7/13/2017 | 38 | Bare | 106.70 | 106.90 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 106.90 | 106.95 |
| MOC | 7/13/2017 | 38 | Bare | 106.95 | 107.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 107.15 | 107.20 |
| MOC | 7/13/2017 | 38 | Bare | 107.20 | 107.75 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 107.75 | 107.80 |
| MOC | 7/13/2017 | 38 | Bare | 107.80 | 107.85 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 107.85 | 107.90 |
| MOC | 7/13/2017 | 38 | Bare | 107.90 | 107.95 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 107.95 | 108.00 |
| MOC | 7/13/2017 | 38 | Bare | 108.00 | 108.70 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 108.70 | 108.75 |
| MOC | 7/13/2017 | 38 | Bare | 108.75 | 109.75 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 109.75 | 109.80 |
| MOC | 7/13/2017 | 38 | Bare | 109.80 | 110.85 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 110.85 | 110.90 |
| MOC | 7/13/2017 | 38 | Bare | 110.90 | 111.15 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 111.15 | 111.20 |
| MOC | 7/13/2017 | 38 | Bare | 111.20 | 112.95 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 112.95 | 113.00 |
| MOC | 7/13/2017 | 38 | Bare | 113.00 | 113.35 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 113.35 | 113.40 |
| MOC | 7/13/2017 | 38 | Bare | 113.40 | 113.80 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 113.80 | 113.90 |

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|---|---|---|---|---|---|
| MOC | 7/13/2017 | 38 | Bare | 113.90 | 114.80 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 114.80 | 114.84 |
| MOC | 7/13/2017 | 38 | Bare | 114.84 | 115.20 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 115.20 | 115.25 |
| MOC | 7/13/2017 | 38 | Bare | 115.25 | 115.85 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 115.85 | 115.90 |
| MOC | 7/13/2017 | 38 | Bare | 115.90 | 116.25 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 116.25 | 116.30 |
| MOC | 7/13/2017 | 38 | Bare | 116.30 | 116.45 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 116.45 | 116.50 |
| MOC | 7/13/2017 | 38 | Bare | 116.50 | 116.65 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 116.65 | 116.70 |
| MOC | 7/13/2017 | 38 | Bare | 116.70 | 116.95 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 116.95 | 117.25 |
| MOC | 7/13/2017 | 38 | Bare | 117.25 | 117.55 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 117.55 | 117.60 |
| MOC | 7/13/2017 | 38 | Bare | 117.60 | 118.15 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 118.15 | 118.20 |
| MOC | 7/13/2017 | 38 | Bare | 118.20 | 118.70 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 118.70 | 118.75 |
| MOC | 7/13/2017 | 38 | Bare | 118.75 | 119.25 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 119.25 | 119.30 |
| MOC | 7/13/2017 | 38 | Bare | 119.30 | 119.70 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 119.70 | 119.80 |
| MOC | 7/13/2017 | 38 | Bare | 119.80 | 119.95 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 119.95 | 120.00 |
| MOC | 7/13/2017 | 38 | Bare | 120.00 | 120.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 120.15 | 120.20 |
| MOC | 7/13/2017 | 38 | Bare | 120.20 | 120.50 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 120.50 | 120.55 |
| MOC | 7/13/2017 | 38 | Bare | 120.55 | 120.90 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 120.90 | 120.95 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 120.95 | 121.10 |
| MOC | 7/13/2017 | 38 | Bare | 121.10 | 121.45 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 121.45 | 121.50 |
| MOC | 7/13/2017 | 38 | Bare | 121.50 | 122.85 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 122.85 | 122.90 |
| MOC | 7/13/2017 | 38 | Bare | 122.90 | 123.00 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 123.00 | 123.05 |
| MOC | 7/13/2017 | 38 | Bare | 123.05 | 123.25 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 123.25 | 123.30 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 123.25 | 123.30 |
| MOC | 7/13/2017 | 38 | Bare | 123.30 | 124.10 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 124.10 | 124.15 |
| MOC | 7/13/2017 | 38 | Bare | 124.15 | 124.75 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 124.75 | 125.10 |
| MOC | 7/13/2017 | 38 | Bare | 125.10 | 125.65 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 125.65 | 125.70 |
| MOC | 7/13/2017 | 38 | Bare | 125.70 | 125.85 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 125.85 | 125.90 |
| MOC | 7/13/2017 | 38 | Bare | 125.90 | 125.95 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 125.95 | 126.00 |

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|---|---|---|---|---|---|
| MOC | 7/13/2017 | 38 | Bare | 126.00 | 126.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 126.15 | 126.40 |
| MOC | 7/13/2017 | 38 | Bare | 126.40 | 126.95 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 126.95 | 127.00 |
| MOC | 7/13/2017 | 38 | Bare | 127.00 | 127.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 127.15 | 127.20 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 127.15 | 127.20 |
| MOC | 7/13/2017 | 38 | Bare | 127.20 | 127.70 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 127.70 | 127.80 |
| MOC | 7/13/2017 | 38 | Bare | 127.80 | 128.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 128.15 | 128.20 |
| MOC | 7/13/2017 | 38 | Bare | 128.20 | 128.25 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 128.25 | 128.40 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 128.35 | 128.40 |
| MOC | 7/13/2017 | 38 | Bare | 128.40 | 128.80 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 128.80 | 128.85 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 128.85 | 129.00 |
| MOC | 7/13/2017 | 38 | Bare | 129.00 | 129.30 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 129.30 | 129.35 |
| MOC | 7/13/2017 | 38 | Bare | 129.35 | 129.75 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 129.75 | 129.80 |
| MOC | 7/13/2017 | 38 | Bare | 129.80 | 130.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 130.15 | 130.20 |
| MOC | 7/13/2017 | 38 | Bare | 130.20 | 130.55 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 130.55 | 130.60 |
| MOC | 7/13/2017 | 38 | Bare | 130.60 | 130.85 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 130.85 | 131.05 |
| MOC | 7/13/2017 | 38 | Bare | 131.05 | 131.75 |
| MOC | 7/13/2017 | 38 | Ruppia maritima | 131.75 | 131.80 |
| MOC | 7/13/2017 | 38 | Bare | 131.80 | 132.10 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 132.10 | 132.30 |
| MOC | 7/13/2017 | 38 | Bare | 132.30 | 134.25 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 134.25 | 134.30 |
| MOC | 7/13/2017 | 38 | Bare | 134.30 | 134.80 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 134.80 | 135.10 |
| MOC | 7/13/2017 | 38 | Bare | 135.10 | 135.25 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 135.25 | 135.30 |
| MOC | 7/13/2017 | 38 | Bare | 135.30 | 135.75 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 135.75 | 136.30 |
| MOC | 7/13/2017 | 38 | Bare | 136.30 | 136.75 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 136.75 | 136.85 |
| MOC | 7/13/2017 | 38 | Bare | 136.85 | 137.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 137.15 | 137.20 |
| MOC | 7/13/2017 | 38 | Bare | 137.20 | 138.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 138.15 | 138.60 |
| MOC | 7/13/2017 | 38 | Bare | 138.60 | 138.95 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 138.95 | 139.00 |
| MOC | 7/13/2017 | 38 | Bare | 139.00 | 139.45 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 139.45 | 139.50 |
| MOC | 7/13/2017 | 38 | Bare | 139.50 | 140.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 140.15 | 140.65 |
| MOC | 7/13/2017 | 38 | Bare | 140.65 | 140.90 |

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|---|---|---|---|---|---|
| MOC | 7/13/2017 | 38 | Vallisneria americana | 140.90 | 140.95 |
| MOC | 7/13/2017 | 38 | Bare | 140.95 | 142.00 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 142.00 | 142.15 |
| MOC | 7/13/2017 | 38 | Bare | 142.15 | 142.55 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 142.55 | 142.60 |
| MOC | 7/13/2017 | 38 | Bare | 142.60 | 143.55 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 143.55 | 143.60 |
| MOC | 7/13/2017 | 38 | Bare | 143.60 | 145.20 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 145.20 | 145.30 |
| MOC | 7/13/2017 | 38 | Bare | 145.30 | 146.10 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 146.10 | 146.15 |
| MOC | 7/13/2017 | 38 | Zannichellia palustris | 146.10 | 146.15 |
| MOC | 7/13/2017 | 38 | Bare | 146.15 | 146.45 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 146.45 | 146.50 |
| MOC | 7/13/2017 | 38 | Bare | 146.50 | 146.90 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 146.90 | 147.05 |
| MOC | 7/13/2017 | 38 | Bare | 147.70 | 147.75 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 147.75 | 148.10 |
| MOC | 7/13/2017 | 38 | Bare | 148.10 | 148.15 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 148.15 | 148.20 |
| MOC | 7/13/2017 | 38 | Bare | 148.20 | 156.35 |
| MOC | 7/13/2017 | 38 | Vallisneria americana | 156.35 | 156.40 |
| MOC | 7/17/2017 | 50 | Bare | 0.00 | 9.00 |
| MOC | 7/17/2017 | 50 | Eleocharis sp. | 9.00 | 9.20 |
| MOC | 7/17/2017 | 50 | Bare | 9.20 | 11.07 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 11.07 | 12.05 |
| MOC | 7/17/2017 | 50 | Bare | 12.05 | 12.45 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 12.45 | 12.50 |
| MOC | 7/17/2017 | 50 | Bare | 12.50 | 12.60 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 12.60 | 12.65 |
| MOC | 7/17/2017 | 50 | Bare | 12.65 | 12.80 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 12.80 | 13.00 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 12.90 | 13.00 |
| MOC | 7/17/2017 | 50 | Bare | 13.00 | 13.10 |
| MOC | 7/17/2017 | 50 | Eleocharis sp. | 13.10 | 13.20 |
| MOC | 7/17/2017 | 50 | Bare | 13.20 | 14.20 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 14.20 | 14.40 |
| MOC | 7/17/2017 | 50 | Bare | 14.40 | 14.65 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 14.65 | 14.70 |
| MOC | 7/17/2017 | 50 | Bare | 14.70 | 14.85 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 14.85 | 14.90 |
| MOC | 7/17/2017 | 50 | Bare | 14.90 | 15.05 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 15.05 | 15.10 |
| MOC | 7/17/2017 | 50 | Bare | 15.10 | 16.90 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 16.90 | 17.30 |
| MOC | 7/17/2017 | 50 | Eleocharis sp. | 17.20 | 17.30 |
| MOC | 7/17/2017 | 50 | Bare | 17.30 | 17.40 |
| MOC | 7/17/2017 | 50 | Eleocharis sp. | 17.40 | 18.00 |
| MOC | 7/17/2017 | 50 | Bare | 18.00 | 18.70 |
| MOC | 7/17/2017 | 50 | Eleocharis sp. | 18.70 | 20.15 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 19.30 | 19.35 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 19.95 | 20.00 |

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|---|---|---|---|---|---|
| MOC | 7/17/2017 | 50 | Bare | 20.15 | 20.35 |
| MOC | 7/17/2017 | 50 | Eleocharis sp. | 20.35 | 22.00 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 21.25 | 21.30 |
| MOC | 7/17/2017 | 50 | Bare | 22.00 | 22.30 |
| MOC | 7/17/2017 | 50 | Eleocharis sp. | 22.30 | 23.30 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 23.00 | 23.10 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 23.30 | 23.35 |
| MOC | 7/17/2017 | 50 | Bare | 23.35 | 23.40 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 23.40 | 23.60 |
| MOC | 7/17/2017 | 50 | Bare | 23.60 | 24.80 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 24.80 | 25.10 |
| MOC | 7/17/2017 | 50 | Eleocharis sp. | 25.10 | 25.30 |
| MOC | 7/17/2017 | 50 | Bare | 25.30 | 25.35 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 25.35 | 25.40 |
| MOC | 7/17/2017 | 50 | Bare | 25.40 | 25.60 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 25.60 | 25.70 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 25.70 | 25.80 |
| MOC | 7/17/2017 | 50 | Bare | 25.80 | 26.00 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 26.00 | 26.20 |
| MOC | 7/17/2017 | 50 | Bare | 26.20 | 26.35 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 26.35 | 26.60 |
| MOC | 7/17/2017 | 50 | Bare | 26.60 | 30.50 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 30.50 | 30.55 |
| MOC | 7/17/2017 | 50 | Bare | 30.55 | 37.25 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 37.25 | 37.30 |
| MOC | 7/17/2017 | 50 | Bare | 37.30 | 37.80 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 37.80 | 37.90 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 37.85 | 37.90 |
| MOC | 7/17/2017 | 50 | Bare | 37.90 | 38.10 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 38.10 | 38.15 |
| MOC | 7/17/2017 | 50 | Bare | 38.15 | 41.45 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 41.45 | 41.50 |
| MOC | 7/17/2017 | 50 | Bare | 41.50 | 48.05 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 48.05 | 48.10 |
| MOC | 7/17/2017 | 50 | Bare | 48.10 | 48.25 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 48.25 | 48.30 |
| MOC | 7/17/2017 | 50 | Bare | 48.30 | 51.15 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 51.15 | 51.20 |
| MOC | 7/17/2017 | 50 | Bare | 51.20 | 52.45 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 52.45 | 52.60 |
| MOC | 7/17/2017 | 50 | Bare | 52.60 | 52.90 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 52.90 | 52.95 |
| MOC | 7/17/2017 | 50 | Bare | 52.95 | 53.60 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 53.60 | 53.65 |
| MOC | 7/17/2017 | 50 | Bare | 53.65 | 55.80 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 55.80 | 55.85 |
| MOC | 7/17/2017 | 50 | Bare | 55.85 | 57.60 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 57.60 | 57.65 |
| MOC | 7/17/2017 | 50 | Bare | 57.65 | 58.24 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 58.24 | 58.30 |
| MOC | 7/17/2017 | 50 | Bare | 58.30 | 58.45 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 58.45 | 58.50 |

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|---|---|---|---|---|---|
| MOC | 7/17/2017 | 50 | Bare | 58.50 | 58.85 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 58.85 | 58.90 |
| MOC | 7/17/2017 | 50 | Bare | 58.90 | 59.62 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 59.62 | 59.70 |
| MOC | 7/17/2017 | 50 | Bare | 59.70 | 60.30 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 60.30 | 60.35 |
| MOC | 7/17/2017 | 50 | Bare | 60.35 | 61.75 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 61.75 | 61.80 |
| MOC | 7/17/2017 | 50 | Bare | 61.80 | 62.45 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 62.45 | 62.50 |
| MOC | 7/17/2017 | 50 | Bare | 62.50 | 63.20 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 63.20 | 63.35 |
| MOC | 7/17/2017 | 50 | Bare | 63.35 | 66.10 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 66.10 | 66.20 |
| MOC | 7/17/2017 | 50 | Bare | 66.20 | 68.30 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 68.30 | 68.40 |
| MOC | 7/17/2017 | 50 | Bare | 68.40 | 69.15 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 69.15 | 69.20 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 69.15 | 69.20 |
| MOC | 7/17/2017 | 50 | Bare | 69.20 | 69.35 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 69.35 | 69.40 |
| MOC | 7/17/2017 | 50 | Bare | 69.40 | 70.65 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 70.65 | 70.90 |
| MOC | 7/17/2017 | 50 | Bare | 70.90 | 71.10 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 71.10 | 71.50 |
| MOC | 7/17/2017 | 50 | Bare | 71.50 | 71.60 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 71.60 | 71.65 |
| MOC | 7/17/2017 | 50 | Bare | 71.65 | 73.05 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 73.05 | 73.15 |
| MOC | 7/17/2017 | 50 | Bare | 73.15 | 73.25 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 73.25 | 73.30 |
| MOC | 7/17/2017 | 50 | Bare | 73.30 | 74.75 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 74.75 | 74.90 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 74.85 | 74.90 |
| MOC | 7/17/2017 | 50 | Bare | 74.90 | 75.15 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 75.15 | 75.20 |
| MOC | 7/17/2017 | 50 | Bare | 75.20 | 76.10 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 76.10 | 76.35 |
| MOC | 7/17/2017 | 50 | Bare | 76.35 | 76.85 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 76.85 | 76.90 |
| MOC | 7/17/2017 | 50 | Bare | 76.90 | 77.50 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 77.50 | 77.55 |
| MOC | 7/17/2017 | 50 | Bare | 77.55 | 77.75 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 77.75 | 78.40 |
| MOC | 7/17/2017 | 50 | Bare | 78.40 | 78.60 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 78.60 | 78.65 |
| MOC | 7/17/2017 | 50 | Bare | 78.65 | 79.15 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 79.15 | 79.20 |
| MOC | 7/17/2017 | 50 | Bare | 79.20 | 79.70 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 79.70 | 79.80 |
| MOC | 7/17/2017 | 50 | Bare | 79.80 | 80.35 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 80.35 | 80.40 |

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| MOC | 7/17/2017 | 50 | Bare | 80.40 | 83.35 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 83.35 | 83.4 |
| MOC | 7/17/2017 | 50 | Bare | 83.40 | 83.90 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 83.90 | 83.95 |
| MOC | 7/17/2017 | 50 | Bare | 83.95 | 84.30 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 84.30 | 84.35 |
| MOC | 7/17/2017 | 50 | Bare | 84.35 | 87.45 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 87.45 | 87.50 |
| MOC | 7/17/2017 | 50 | Bare | 87.50 | 89.35 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 89.35 | 89.40 |
| MOC | 7/17/2017 | 50 | Bare | 89.40 | 89.85 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 89.85 | 89.90 |
| MOC | 7/17/2017 | 50 | Bare | 89.90 | 90.85 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 90.85 | 90.90 |
| MOC | 7/17/2017 | 50 | Bare | 90.90 | 91.95 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 91.95 | 92.00 |
| MOC | 7/17/2017 | 50 | Bare | 92.00 | 92.40 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 92.40 | 92.45 |
| MOC | 7/17/2017 | 50 | Bare | 92.45 | 92.85 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 92.85 | 92.90 |
| MOC | 7/17/2017 | 50 | Bare | 92.90 | 94.05 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 94.05 | 94.10 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 94.05 | 94.10 |
| MOC | 7/17/2017 | 50 | Bare | 94.10 | 94.65 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 94.65 | 94.70 |
| MOC | 7/17/2017 | 50 | Bare | 94.70 | 95.75 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 95.75 | 95.80 |
| MOC | 7/17/2017 | 50 | Bare | 95.80 | 98.40 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 98.40 | 98.45 |
| MOC | 7/17/2017 | 50 | Bare | 98.45 | 98.70 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 98.70 | 98.75 |
| MOC | 7/17/2017 | 50 | Bare | 98.75 | 105.45 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 105.45 | 105.50 |
| MOC | 7/17/2017 | 50 | Bare | 105.50 | 105.55 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 105.55 | 105.60 |
| MOC | 7/17/2017 | 50 | Bare | 105.60 | 105.65 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 105.65 | 105.70 |
| MOC | 7/17/2017 | 50 | Bare | 105.70 | 106.65 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 106.65 | 106.70 |
| MOC | 7/17/2017 | 50 | Bare | 106.70 | 107.30 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 107.30 | 107.35 |
| MOC | 7/17/2017 | 50 | Bare | 107.35 | 110.45 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 110.45 | 110.50 |
| MOC | 7/17/2017 | 50 | Bare | 110.50 | 110.75 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 110.75 | 111.25 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 110.75 | 110.80 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 111.20 | 111.45 |
| MOC | 7/17/2017 | 50 | Bare | 111.45 | 112.80 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 112.80 | 112.85 |
| MOC | 7/17/2017 | 50 | Bare | 112.85 | 114.45 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 114.45 | 114.50 |
| MOC | 7/17/2017 | 50 | Bare | 114.50 | 115.85 |

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|---|---|---|---|---|---|
| MOC | 7/17/2017 | 50 | Vallisneria americana | 115.85 | 116.10 |
| MOC | 7/17/2017 | 50 | Bare | 116.10 | 116.15 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 116.15 | 116.20 |
| MOC | 7/17/2017 | 50 | Bare | 116.20 | 116.60 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 116.60 | 116.70 |
| MOC | 7/17/2017 | 50 | Bare | 116.70 | 118.75 |
| MOC | 7/17/2017 | 50 | Zannichellia palustris | 118.75 | 118.80 |
| MOC | 7/17/2017 | 50 | Bare | 118.80 | 123.00 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 123.00 | 123.05 |
| MOC | 7/17/2017 | 50 | Bare | 123.05 | 125.75 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 125.75 | 125.80 |
| MOC | 7/17/2017 | 50 | Bare | 125.80 | 126.60 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 126.60 | 126.65 |
| MOC | 7/17/2017 | 50 | Bare | 126.65 | 127.90 |
| MOC | 7/17/2017 | 50 | Vallisneria americana | 127.90 | 127.95 |
| MOC | 7/17/2017 | 50 | Bare | 127.95 | 139.65 |
| MOC | 7/17/2017 | 50 | Ruppia maritima | 139.65 | 139.70 |
| ORG | 7/25/2017 | 0 | Ceratophyllum demersum | 0.00 | 13.40 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 5.40 | 5.45 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 7.60 | 7.65 |
| ORG | 7/25/2017 | 0 | Hydrilla verticillata | 8.70 | 8.75 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 9.90 | 9.95 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 10.40 | 10.45 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 13.40 | 13.45 |
| ORG | 7/25/2017 | 0 | Bare | 13.45 | 13.90 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 13.90 | 13.95 |
| ORG | 7/25/2017 | 0 | Ceratophyllum demersum | 13.90 | 14.90 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 14.7 | 14.9 |
| ORG | 7/25/2017 | 0 | Bare | 14.90 | 15.20 |
| ORG | 7/25/2017 | 0 | Ceratophyllum demersum | 15.20 | 15.60 |
| ORG | 7/25/2017 | 0 | Bare | 15.60 | 16.10 |
| ORG | 7/25/2017 | 0 | Ceratophyllum demersum | 16.10 | 16.20 |
| ORG | 7/25/2017 | 0 | Bare | 16.20 | 16.40 |
| ORG | 7/25/2017 | 0 | Ceratophyllum demersum | 16.40 | 16.50 |
| ORG | 7/25/2017 | 0 | Bare | 16.50 | 20.50 |
| ORG | 7/25/2017 | 0 | Ceratophyllum demersum | 20.50 | 20.60 |
| ORG | 7/25/2017 | 0 | Bare | 20.60 | 20.90 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 20.90 | 20.95 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 20.90 | 21.00 |
| ORG | 7/25/2017 | 0 | Bare | 21.00 | 21.20 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 21.20 | 30.60 |
| ORG | 7/25/2017 | 0 | Ceratophyllum demersum | 21.80 | 21.90 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 22.30 | 22.35 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 22.80 | 22.85 |
| ORG | 7/25/2017 | 0 | Hydrilla verticillata | 23.40 | 23.45 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 24.40 | 24.70 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 25.40 | 25.60 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 27.10 | 27.35 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 29.80 | 30.00 |
| ORG | 7/25/2017 | 0 | Bare | 30.60 | 30.90 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 30.90 | 31.20 |
| ORG | 7/25/2017 | 0 | Bare | 31.20 | 31.50 |

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|---|---|---|---|---|---|
| ORG | 7/25/2017 | 0 | Vallisneria americana | 31.50 | 31.60 |
| ORG | 7/25/2017 | 0 | Bare | 31.60 | 34.40 |
| ORG | 7/25/2017 | 0 | Charophytes | 34.40 | 34.45 |
| ORG | 7/25/2017 | 0 | Bare | 34.45 | 34.50 |
| ORG | 7/25/2017 | 0 | Charophytes | 34.50 | 34.65 |
| ORG | 7/25/2017 | 0 | Bare | 34.65 | 34.90 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 34.90 | 34.95 |
| ORG | 7/25/2017 | 0 | Bare | 34.95 | 35.50 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 35.50 | 35.75 |
| ORG | 7/25/2017 | 0 | Bare | 35.75 | 35.90 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 35.90 | 35.95 |
| ORG | 7/25/2017 | 0 | Bare | 35.95 | 36.00 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 36.00 | 36.30 |
| ORG | 7/25/2017 | 0 | Bare | 36.30 | 36.80 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 36.80 | 36.90 |
| ORG | 7/25/2017 | 0 | Bare | 36.90 | 37.00 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 37.00 | 37.05 |
| ORG | 7/25/2017 | 0 | Bare | 37.05 | 37.10 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 37.10 | 38.75 |
| ORG | 7/25/2017 | 0 | Bare | 38.75 | 39.00 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 39.00 | 39.50 |
| ORG | 7/25/2017 | 0 | Bare | 39.50 | 39.70 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 39.70 | 40.00 |
| ORG | 7/25/2017 | 0 | Eleocharis sp. | 39.80 | 39.85 |
| ORG | 7/25/2017 | 0 | Eleocharis sp. | 39.90 | 39.95 |
| ORG | 7/25/2017 | 0 | Eleocharis sp. | 40.00 | 40.05 |
| ORG | 7/25/2017 | 0 | Bare | 40.05 | 40.40 |
| ORG | 7/25/2017 | 0 | Eleocharis sp. | 40.40 | 40.45 |
| ORG | 7/25/2017 | 0 | Bare | 40.45 | 40.70 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 40.70 | 42.30 |
| ORG | 7/25/2017 | 0 | Eleocharis sp. | 41.10 | 41.15 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 42.10 | 42.15 |
| ORG | 7/25/2017 | 0 | Bare | 42.30 | 42.45 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 42.45 | 42.50 |
| ORG | 7/25/2017 | 0 | Bare | 42.50 | 42.90 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 42.90 | 44.50 |
| ORG | 7/25/2017 | 0 | Eleocharis sp. | 43.30 | 43.35 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 43.50 | 43.55 |
| ORG | 7/25/2017 | 0 | Eleocharis sp. | 43.50 | 43.55 |
| ORG | 7/25/2017 | 0 | Eleocharis sp. | 44.10 | 44.25 |
| ORG | 7/25/2017 | 0 | Bare | 44.50 | 44.60 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 44.60 | 44.80 |
| ORG | 7/25/2017 | 0 | Bare | 44.80 | 45.10 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 45.10 | 45.80 |
| ORG | 7/25/2017 | 0 | Bare | 45.80 | 45.90 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 45.90 | 46.00 |
| ORG | 7/25/2017 | 0 | Bare | 46.00 | 46.10 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 46.10 | 46.80 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 46.50 | 46.55 |
| ORG | 7/25/2017 | 0 | Bare | 46.80 | 46.90 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 46.90 | 47.20 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 47.10 | 47.15 |

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|---|---|---|---|---|---|
| ORG | 7/25/2017 | 0 | Bare | 47.20 | 47.50 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 47.50 | 47.60 |
| ORG | 7/25/2017 | 0 | Bare | 47.60 | 47.70 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 47.70 | 47.75 |
| ORG | 7/25/2017 | 0 | Bare | 47.75 | 47.80 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 47.80 | 48.00 |
| ORG | 7/25/2017 | 0 | Bare | 48.00 | 48.10 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 48.10 | 48.20 |
| ORG | 7/25/2017 | 0 | Najas guadalupensis | 48.20 | 48.25 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 48.25 | 50.50 |
| ORG | 7/25/2017 | 0 | Bare | 50.50 | 50.70 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 50.70 | 52.10 |
| ORG | 7/25/2017 | 0 | Bare | 52.10 | 52.20 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 52.20 | 52.90 |
| ORG | 7/25/2017 | 0 | Bare | 52.90 | 53.30 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 53.30 | 53.35 |
| ORG | 7/25/2017 | 0 | Bare | 53.35 | 53.80 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 53.80 | 53.85 |
| ORG | 7/25/2017 | 0 | Bare | 53.85 | 54.30 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 54.30 | 54.80 |
| ORG | 7/25/2017 | 0 | Bare | 54.80 | 55.00 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 55.00 | 55.50 |
| ORG | 7/25/2017 | 0 | Bare | 55.50 | 55.70 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 55.70 | 55.75 |
| ORG | 7/25/2017 | 0 | Bare | 55.75 | 56.00 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 56.00 | 57.00 |
| ORG | 7/25/2017 | 0 | Bare | 57.00 | 57.40 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 57.40 | 57.55 |
| ORG | 7/25/2017 | 0 | Bare | 57.55 | 57.60 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 57.60 | 58.20 |
| ORG | 7/25/2017 | 0 | Bare | 58.20 | 58.50 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 58.50 | 59.30 |
| ORG | 7/25/2017 | 0 | Bare | 59.30 | 59.50 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 59.50 | 59.60 |
| ORG | 7/25/2017 | 0 | Bare | 59.60 | 59.90 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 59.90 | 61.70 |
| ORG | 7/25/2017 | 0 | Bare | 61.70 | 62.30 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 62.30 | 64.90 |
| ORG | 7/25/2017 | 0 | Bare | 64.90 | 65.55 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 65.55 | 65.60 |
| ORG | 7/25/2017 | 0 | Bare | 65.60 | 65.85 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 65.85 | 66.70 |
| ORG | 7/25/2017 | 0 | Bare | 66.70 | 67.10 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 67.10 | 68.05 |
| ORG | 7/25/2017 | 0 | Bare | 68.05 | 68.30 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 68.30 | 68.80 |
| ORG | 7/25/2017 | 0 | Bare | 68.80 | 69.30 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 69.30 | 69.35 |
| ORG | 7/25/2017 | 0 | Bare | 69.35 | 69.50 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 69.50 | 70.05 |
| ORG | 7/25/2017 | 0 | Bare | 70.05 | 70.30 |
| ORG | 7/25/2017 | 0 | Vallisneria americana | 70.30 | 70.90 |

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|---|---|---|---|---|---|
| ORG | 7/25/2017 | 12 | Ceratophyllum demersum | 0.00 | 16.40 |
| ORG | 7/25/2017 | 12 | Najas guadalupensis | 1.10 | 1.15 |
| ORG | 7/25/2017 | 12 | Najas guadalupensis | 1.20 | 1.35 |
| ORG | 7/25/2017 | 12 | Najas guadalupensis | 1.80 | 1.85 |
| ORG | 7/25/2017 | 12 | Najas guadalupensis | 6.60 | 6.65 |
| ORG | 7/25/2017 | 12 | Najas guadalupensis | 16.00 | 16.10 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 16.10 | 16.20 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 16.30 | 19.00 |
| ORG | 7/25/2017 | 12 | Najas guadalupensis | 16.50 | 16.70 |
| ORG | 7/25/2017 | 12 | Hydrilla verticillata | 16.50 | 16.55 |
| ORG | 7/25/2017 | 12 | Najas guadalupensis | 16.80 | 16.85 |
| ORG | 7/25/2017 | 12 | Ceratophyllum demersum | 17.10 | 17.20 |
| ORG | 7/25/2017 | 12 | Najas guadalupensis | 17.90 | 17.95 |
| ORG | 7/25/2017 | 12 | Ceratophyllum demersum | 18.00 | 18.80 |
| ORG | 7/25/2017 | 12 | Ceratophyllum demersum | 19.00 | 22.80 |
| ORG | 7/25/2017 | 12 | Najas guadalupensis | 19.50 | 19.55 |
| ORG | 7/25/2017 | 12 | Bare | 22.80 | 23.30 |
| ORG | 7/25/2017 | 12 | Ceratophyllum demersum | 23.30 | 24.20 |
| ORG | 7/25/2017 | 12 | Bare | 24.20 | 25.60 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 25.60 | 39.80 |
| ORG | 7/25/2017 | 12 | Ceratophyllum demersum | 27.60 | 27.80 |
| ORG | 7/25/2017 | 12 | Bare | 39.80 | 40.00 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 40.00 | 40.05 |
| ORG | 7/25/2017 | 12 | Bare | 40.05 | 40.10 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 40.10 | 40.25 |
| ORG | 7/25/2017 | 12 | Bare | 40.25 | 40.40 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 40.40 | 40.55 |
| ORG | 7/25/2017 | 12 | Bare | 40.55 | 41.00 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 41.00 | 44.65 |
| ORG | 7/25/2017 | 12 | Bare | 44.65 | 44.85 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 44.85 | 44.90 |
| ORG | 7/25/2017 | 12 | Bare | 44.90 | 45.00 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 45.00 | 46.00 |
| ORG | 7/25/2017 | 12 | Bare | 46.00 | 46.40 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 46.40 | 46.45 |
| ORG | 7/25/2017 | 12 | Bare | 46.45 | 46.65 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 46.65 | 46.70 |
| ORG | 7/25/2017 | 12 | Bare | 46.70 | 47.30 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 47.30 | 47.35 |
| ORG | 7/25/2017 | 12 | Bare | 47.35 | 47.40 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 47.40 | 47.45 |
| ORG | 7/25/2017 | 12 | Bare | 47.45 | 47.80 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 47.80 | 47.85 |
| ORG | 7/25/2017 | 12 | Bare | 47.85 | 48.25 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 48.25 | 49.10 |
| ORG | 7/25/2017 | 12 | Bare | 49.10 | 49.55 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 49.55 | 56.80 |
| ORG | 7/25/2017 | 12 | Bare | 56.80 | 56.90 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 56.90 | 57.50 |
| ORG | 7/25/2017 | 12 | Bare | 57.50 | 57.60 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 57.60 | 57.70 |
| ORG | 7/25/2017 | 12 | Bare | 57.70 | 58.05 |

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|---|---|---|---|---|---|
| ORG | 7/25/2017 | 12 | Vallisneria americana | 58.05 | 58.30 |
| ORG | 7/25/2017 | 12 | Bare | 58.30 | 58.50 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 58.50 | 60.00 |
| ORG | 7/25/2017 | 12 | Bare | 60.00 | 60.65 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 60.65 | 60.70 |
| ORG | 7/25/2017 | 12 | Bare | 60.70 | 61.00 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 61.00 | 61.10 |
| ORG | 7/25/2017 | 12 | Bare | 61.10 | 61.20 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 61.20 | 62.60 |
| ORG | 7/25/2017 | 12 | Bare | 62.60 | 62.90 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 62.90 | 65.75 |
| ORG | 7/25/2017 | 12 | Bare | 65.75 | 66.15 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 66.15 | 66.20 |
| ORG | 7/25/2017 | 12 | Bare | 66.20 | 66.40 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 66.40 | 68.90 |
| ORG | 7/25/2017 | 12 | Bare | 68.90 | 69.00 |
| ORG | 7/25/2017 | 12 | Vallisneria americana | 69.00 | 69.40 |
| ORG | 7/25/2017 | 25 | Ceratophyllum demersum | 0.00 | 18.40 |
| ORG | 7/25/2017 | 25 | Najas guadalupensis | 18.10 | 18.15 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 18.20 | 18.25 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 18.30 | 18.35 |
| ORG | 7/25/2017 | 25 | Bare | 18.40 | 18.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 18.50 | 18.55 |
| ORG | 7/25/2017 | 25 | Bare | 18.55 | 18.75 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 18.75 | 18.80 |
| ORG | 7/25/2017 | 25 | Ceratophyllum demersum | 18.80 | 21.40 |
| ORG | 7/25/2017 | 25 | Bare | 21.40 | 22.50 |
| ORG | 7/25/2017 | 25 | Ceratophyllum demersum | 22.50 | 23.00 |
| ORG | 7/25/2017 | 25 | Bare | 23.00 | 23.40 |
| ORG | 7/25/2017 | 25 | Ceratophyllum demersum | 23.40 | 23.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 23.50 | 24.00 |
| ORG | 7/25/2017 | 25 | Bare | 24.00 | 24.20 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 24.20 | 26.20 |
| ORG | 7/25/2017 | 25 | Najas guadalupensis | 25.10 | 25.15 |
| ORG | 7/25/2017 | 25 | Bare | 26.20 | 26.40 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 26.40 | 26.90 |
| ORG | 7/25/2017 | 25 | Najas guadalupensis | 26.60 | 28.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 27.10 | 37.40 |
| ORG | 7/25/2017 | 25 | Ceratophyllum demersum | 27.85 | 28.10 |
| ORG | 7/25/2017 | 25 | Najas guadalupensis | 28.85 | 29.40 |
| ORG | 7/25/2017 | 25 | Najas guadalupensis | 29.90 | 30.40 |
| ORG | 7/25/2017 | 25 | Bare | 37.40 | 37.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 37.50 | 37.55 |
| ORG | 7/25/2017 | 25 | Bare | 37.55 | 37.95 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 37.95 | 38.00 |
| ORG | 7/25/2017 | 25 | Bare | 38.00 | 38.10 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 38.10 | 38.30 |
| ORG | 7/25/2017 | 25 | Bare | 38.30 | 38.40 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 38.40 | 38.90 |
| ORG | 7/25/2017 | 25 | Bare | 38.90 | 39.05 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 39.05 | 39.10 |
| ORG | 7/25/2017 | 25 | Bare | 39.10 | 39.95 |

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|---|---|---|---|---|---|
| ORG | 7/25/2017 | 25 | Vallisneria americana | 39.95 | 40.00 |
| ORG | 7/25/2017 | 25 | Bare | 40.00 | 40.30 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 40.30 | 41.10 |
| ORG | 7/25/2017 | 25 | Bare | 41.10 | 41.35 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 41.35 | 42.15 |
| ORG | 7/25/2017 | 25 | Bare | 42.15 | 42.55 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 42.55 | 42.60 |
| ORG | 7/25/2017 | 25 | Bare | 42.60 | 42.70 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 42.70 | 42.75 |
| ORG | 7/25/2017 | 25 | Bare | 42.75 | 43.30 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 43.30 | 43.40 |
| ORG | 7/25/2017 | 25 | Bare | 43.40 | 43.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 43.50 | 43.75 |
| ORG | 7/25/2017 | 25 | Bare | 43.75 | 43.95 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 43.95 | 44.10 |
| ORG | 7/25/2017 | 25 | Bare | 44.10 | 44.80 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 44.80 | 44.90 |
| ORG | 7/25/2017 | 25 | Bare | 44.90 | 45.10 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 45.10 | 45.15 |
| ORG | 7/25/2017 | 25 | Bare | 45.15 | 45.40 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 45.40 | 45.45 |
| ORG | 7/25/2017 | 25 | Bare | 45.45 | 45.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 45.50 | 45.55 |
| ORG | 7/25/2017 | 25 | Bare | 45.55 | 45.70 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 45.70 | 45.75 |
| ORG | 7/25/2017 | 25 | Bare | 45.75 | 45.90 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 45.90 | 45.95 |
| ORG | 7/25/2017 | 25 | Bare | 45.95 | 46.30 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 46.30 | 46.35 |
| ORG | 7/25/2017 | 25 | Bare | 46.35 | 46.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 46.50 | 46.55 |
| ORG | 7/25/2017 | 25 | Bare | 46.55 | 46.70 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 46.70 | 46.75 |
| ORG | 7/25/2017 | 25 | Bare | 46.75 | 46.90 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 46.90 | 46.95 |
| ORG | 7/25/2017 | 25 | Bare | 46.95 | 47.00 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 47.00 | 47.40 |
| ORG | 7/25/2017 | 25 | Bare | 47.40 | 47.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 47.50 | 48.30 |
| ORG | 7/25/2017 | 25 | Bare | 48.30 | 48.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 48.50 | 49.40 |
| ORG | 7/25/2017 | 25 | Bare | 49.40 | 49.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 49.50 | 52.20 |
| ORG | 7/25/2017 | 25 | Bare | 52.20 | 52.40 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 52.40 | 55.90 |
| ORG | 7/25/2017 | 25 | Bare | 55.90 | 56.20 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 56.20 | 56.50 |
| ORG | 7/25/2017 | 25 | Bare | 56.50 | 56.70 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 56.70 | 56.80 |
| ORG | 7/25/2017 | 25 | Bare | 56.80 | 57.10 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 57.10 | 57.15 |
| ORG | 7/25/2017 | 25 | Bare | 57.15 | 57.30 |

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|---|---|---|---|---|---|
| ORG | 7/25/2017 | 25 | Vallisneria americana | 57.30 | 57.35 |
| ORG | 7/25/2017 | 25 | Bare | 57.35 | 57.45 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 57.45 | 57.80 |
| ORG | 7/25/2017 | 25 | Bare | 57.80 | 57.90 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 57.90 | 57.95 |
| ORG | 7/25/2017 | 25 | Bare | 57.95 | 58.10 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 58.10 | 58.50 |
| ORG | 7/25/2017 | 25 | Bare | 58.50 | 58.65 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 58.65 | 58.70 |
| ORG | 7/25/2017 | 25 | Bare | 58.70 | 59.00 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 59.00 | 59.60 |
| ORG | 7/25/2017 | 25 | Bare | 59.60 | 59.85 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 59.85 | 59.90 |
| ORG | 7/25/2017 | 25 | Bare | 59.90 | 60.10 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 60.10 | 60.30 |
| ORG | 7/25/2017 | 25 | Bare | 60.30 | 60.60 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 60.60 | 60.80 |
| ORG | 7/25/2017 | 25 | Bare | 60.80 | 61.15 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 61.15 | 61.20 |
| ORG | 7/25/2017 | 25 | Bare | 61.20 | 61.30 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 61.30 | 61.90 |
| ORG | 7/25/2017 | 25 | Bare | 61.90 | 62.00 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 62.00 | 62.05 |
| ORG | 7/25/2017 | 25 | Bare | 62.05 | 62.10 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 62.10 | 62.90 |
| ORG | 7/25/2017 | 25 | Bare | 62.90 | 63.00 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 63.00 | 65.10 |
| ORG | 7/25/2017 | 25 | Bare | 65.10 | 65.35 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 65.35 | 67.90 |
| ORG | 7/25/2017 | 25 | Bare | 67.90 | 68.15 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 68.15 | 68.20 |
| ORG | 7/25/2017 | 25 | Bare | 68.20 | 69.35 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 69.35 | 69.40 |
| ORG | 7/25/2017 | 25 | Bare | 69.40 | 69.50 |
| ORG | 7/25/2017 | 25 | Vallisneria americana | 69.50 | 72.10 |
| ORG | 7/25/2017 | 38 | Ceratophyllum demersum | 0.00 | 14.20 |
| ORG | 7/25/2017 | 38 | Bare | 14.20 | 15.20 |
| ORG | 7/25/2017 | 38 | Ceratophyllum demersum | 15.20 | 18.00 |
| ORG | 7/25/2017 | 38 | Bare | 18.00 | 18.40 |
| ORG | 7/25/2017 | 38 | Ceratophyllum demersum | 18.40 | 21.10 |
| ORG | 7/25/2017 | 38 | Bare | 21.10 | 21.40 |
| ORG | 7/25/2017 | 38 | Ceratophyllum demersum | 21.40 | 21.50 |
| ORG | 7/25/2017 | 38 | Bare | 21.50 | 21.80 |
| ORG | 7/25/2017 | 38 | Ceratophyllum demersum | 21.80 | 21.95 |
| ORG | 7/25/2017 | 38 | Bare | 21.95 | 22.00 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 22.00 | 39.50 |
| ORG | 7/25/2017 | 38 | Ceratophyllum demersum | 24.05 | 24.20 |
| ORG | 7/25/2017 | 38 | Najas guadalupensis | 28.95 | 29.00 |
| ORG | 7/25/2017 | 38 | Najas guadalupensis | 30.70 | 30.75 |
| ORG | 7/25/2017 | 38 | Bare | 39.50 | 39.75 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 39.75 | 41.90 |
| ORG | 7/25/2017 | 38 | Bare | 41.90 | 42.10 |

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|---|---|---|---|---|---|
| ORG | 7/25/2017 | 38 | Vallisneria americana | 42.10 | 45.75 |
| ORG | 7/25/2017 | 38 | Bare | 45.75 | 45.90 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 45.90 | 47.95 |
| ORG | 7/25/2017 | 38 | Bare | 47.95 | 48.15 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 48.15 | 48.20 |
| ORG | 7/25/2017 | 38 | Bare | 48.20 | 48.40 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 48.40 | 49.40 |
| ORG | 7/25/2017 | 38 | Bare | 49.40 | 49.70 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 49.70 | 51.10 |
| ORG | 7/25/2017 | 38 | Bare | 51.10 | 51.60 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 51.60 | 52.15 |
| ORG | 7/25/2017 | 38 | Bare | 52.15 | 52.45 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 52.45 | 55.70 |
| ORG | 7/25/2017 | 38 | Bare | 55.70 | 55.80 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 55.80 | 57.30 |
| ORG | 7/25/2017 | 38 | Bare | 57.30 | 57.50 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 57.50 | 57.60 |
| ORG | 7/25/2017 | 38 | Bare | 57.60 | 57.65 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 57.65 | 57.70 |
| ORG | 7/25/2017 | 38 | Bare | 57.70 | 57.75 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 57.75 | 57.80 |
| ORG | 7/25/2017 | 38 | Bare | 57.80 | 57.90 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 57.90 | 58.50 |
| ORG | 7/25/2017 | 38 | Bare | 58.50 | 58.85 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 58.85 | 58.90 |
| ORG | 7/25/2017 | 38 | Bare | 58.90 | 59.00 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 59.00 | 60.30 |
| ORG | 7/25/2017 | 38 | Bare | 60.30 | 60.70 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 60.70 | 60.95 |
| ORG | 7/25/2017 | 38 | Bare | 60.95 | 61.00 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 61.00 | 61.90 |
| ORG | 7/25/2017 | 38 | Bare | 61.90 | 62.10 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 62.10 | 62.85 |
| ORG | 7/25/2017 | 38 | Bare | 62.85 | 63.00 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 63.00 | 63.10 |
| ORG | 7/25/2017 | 38 | Bare | 63.10 | 63.20 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 63.20 | 65.30 |
| ORG | 7/25/2017 | 38 | Bare | 65.30 | 65.60 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 65.60 | 67.40 |
| ORG | 7/25/2017 | 38 | Bare | 67.40 | 68.00 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 68.00 | 68.25 |
| ORG | 7/25/2017 | 38 | Bare | 68.25 | 68.50 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 68.50 | 69.00 |
| ORG | 7/25/2017 | 38 | Bare | 69.00 | 69.50 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 69.50 | 70.85 |
| ORG | 7/25/2017 | 38 | Bare | 70.85 | 70.90 |
| ORG | 7/25/2017 | 38 | Vallisneria americana | 70.90 | 71.50 |
| ORG | 7/25/2017 | 50 | Bare | 0.00 | 0.60 |
| ORG | 7/25/2017 | 50 | Ceratophyllum demersum | 0.60 | 11.40 |
| ORG | 7/25/2017 | 50 | Bare | 11.40 | 12.50 |
| ORG | 7/25/2017 | 50 | Ceratophyllum demersum | 12.50 | 13.00 |
| ORG | 7/25/2017 | 50 | Bare | 13.00 | 14.20 |

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|---|---|---|---|---|---|
| ORG | 7/25/2017 | 50 | Ceratophyllum demersum | 14.20 | 21.70 |
| ORG | 7/25/2017 | 50 | Bare | 21.70 | 22.00 |
| ORG | 7/25/2017 | 50 | Ceratophyllum demersum | 22.00 | 22.10 |
| ORG | 7/25/2017 | 50 | Bare | 22.10 | 22.30 |
| ORG | 7/25/2017 | 50 | Ceratophyllum demersum | 22.30 | 22.50 |
| ORG | 7/25/2017 | 50 | Bare | 22.50 | 22.80 |
| ORG | 7/25/2017 | 50 | Ceratophyllum demersum | 22.80 | 22.90 |
| ORG | 7/25/2017 | 50 | Bare | 22.90 | 23.20 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 23.20 | 36.95 |
| ORG | 7/25/2017 | 50 | Ceratophyllum demersum | 23.40 | 23.60 |
| ORG | 7/25/2017 | 50 | Najas guadalupensis | 23.65 | 23.70 |
| ORG | 7/25/2017 | 50 | Najas guadalupensis | 31.45 | 31.50 |
| ORG | 7/25/2017 | 50 | Najas guadalupensis | 32.85 | 32.90 |
| ORG | 7/25/2017 | 50 | Bare | 36.95 | 37.40 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 37.40 | 38.00 |
| ORG | 7/25/2017 | 50 | Bare | 38.00 | 38.05 |
| ORG | 7/25/2017 | 50 | Najas guadalupensis | 38.05 | 38.10 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 38.05 | 38.10 |
| ORG | 7/25/2017 | 50 | Bare | 38.10 | 38.35 |
| ORG | 7/25/2017 | 50 | Charophytes | 38.35 | 38.40 |
| ORG | 7/25/2017 | 50 | Bare | 38.40 | 38.45 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 38.45 | 39.40 |
| ORG | 7/25/2017 | 50 | Najas guadalupensis | 38.45 | 38.50 |
| ORG | 7/25/2017 | 50 | Najas guadalupensis | 38.60 | 38.70 |
| ORG | 7/25/2017 | 50 | Bare | 39.40 | 39.70 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 39.70 | 39.90 |
| ORG | 7/25/2017 | 50 | Bare | 39.90 | 40.05 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 40.05 | 42.10 |
| ORG | 7/25/2017 | 50 | Bare | 42.10 | 42.40 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 42.40 | 49.20 |
| ORG | 7/25/2017 | 50 | Bare | 49.20 | 49.50 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 49.50 | 53.50 |
| ORG | 7/25/2017 | 50 | Bare | 53.50 | 53.60 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 53.60 | 56.70 |
| ORG | 7/25/2017 | 50 | Bare | 56.70 | 56.90 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 56.90 | 58.00 |
| ORG | 7/25/2017 | 50 | Bare | 58.00 | 58.25 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 58.25 | 58.30 |
| ORG | 7/25/2017 | 50 | Bare | 58.30 | 58.60 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 58.60 | 59.90 |
| ORG | 7/25/2017 | 50 | Bare | 59.90 | 60.00 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 60.00 | 60.10 |
| ORG | 7/25/2017 | 50 | Bare | 60.10 | 60.20 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 60.20 | 62.70 |
| ORG | 7/25/2017 | 50 | Bare | 62.70 | 63.15 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 63.15 | 64.40 |
| ORG | 7/25/2017 | 50 | Bare | 64.40 | 64.80 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 64.80 | 67.20 |
| ORG | 7/25/2017 | 50 | Bare | 67.20 | 67.40 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 67.40 | 71.00 |
| ORG | 7/25/2017 | 50 | Bare | 71.00 | 71.50 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 71.50 | 72.70 |

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|---|---|---|---|---|---|
| ORG | 7/25/2017 | 50 | Bare | 72.70 | 72.90 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 72.90 | 73.10 |
| ORG | 7/25/2017 | 50 | Bare | 73.10 | 73.30 |
| ORG | 7/25/2017 | 50 | Vallisneria americana | 73.30 | 74.90 |
| SCA | 7/17/2017 | 0 | Bare | 0.00 | 4.10 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 4.10 | 11.50 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 9.05 | 9.10 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 10.10 | 10.15 |
| SCA | 7/17/2017 | 0 | Bare | 11.50 | 12.65 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 12.65 | 29.70 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 13.40 | 13.45 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 13.50 | 13.55 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 13.90 | 14.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 15.20 | 15.30 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 15.70 | 15.80 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 16.30 | 16.40 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 16.60 | 16.70 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 17.70 | 17.75 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 18.10 | 18.15 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 18.50 | 19.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 19.40 | 19.50 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 19.60 | 19.70 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 19.90 | 20.30 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 20.80 | 20.85 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 22.90 | 23.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 23.60 | 24.70 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 25.90 | 26.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 26.60 | 26.65 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 27.20 | 27.50 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 27.90 | 28.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 28.50 | 28.60 |
| SCA | 7/17/2017 | 0 | Charophytes | 28.50 | 32.20 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 28.60 | 28.65 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 28.80 | 28.85 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 29.40 | 29.50 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 29.60 | 29.80 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 29.80 | 29.85 |
| SCA | 7/17/2017 | 0 | Charophytes | 29.90 | 38.10 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 29.90 | 30.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 29.90 | 30.00 |
| SCA | 7/17/2017 | 0 | Sagittaria subulata | 30.00 | 30.05 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 30.00 | 30.10 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 30.20 | 30.30 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 30.30 | 30.35 |
| SCA | 7/17/2017 | 0 | Sagittaria subulata | 30.80 | 30.85 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 30.90 | 30.95 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 30.90 | 30.95 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 31.20 | 31.25 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 31.70 | 32.00 |
| SCA | 7/17/2017 | 0 | Charophytes | 31.70 | 31.75 |
| SCA | 7/17/2017 | 0 | Charophytes | 32.00 | 32.05 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 32.50 | 32.80 |

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|---|---|---|---|---|---|
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 32.50 | 32.80 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 32.90 | 33.00 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 33.00 | 33.05 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 33.20 | 34.20 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 33.60 | 33.70 |
| SCA | 7/17/2017 | 0 | Charophytes | 34.00 | 34.05 |
| SCA | 7/17/2017 | 0 | Charophytes | 34.20 | 34.25 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 34.40 | 34.45 |
| SCA | 7/17/2017 | 0 | Charophytes | 34.40 | 34.45 |
| SCA | 7/17/2017 | 0 | Charophytes | 34.60 | 34.65 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 34.60 | 35.90 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 34.60 | 34.65 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 34.90 | 34.95 |
| SCA | 7/17/2017 | 0 | Sagittaria subulata | 35.10 | 35.15 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 35.10 | 35.15 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 35.50 | 35.55 |
| SCA | 7/17/2017 | 0 | Charophytes | 35.50 | 35.55 |
| SCA | 7/17/2017 | 0 | Potamogeton pusillus | 35.60 | 35.65 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 35.90 | 36.00 |
| SCA | 7/17/2017 | 0 | Charophytes | 36.00 | 36.05 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 36.20 | 36.25 |
| SCA | 7/17/2017 | 0 | Charophytes | 36.20 | 36.40 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 36.30 | 36.40 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 36.50 | 36.55 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 36.50 | 36.60 |
| SCA | 7/17/2017 | 0 | Charophytes | 36.60 | 36.65 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 36.60 | 36.65 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 36.70 | 36.75 |
| SCA | 7/17/2017 | 0 | Charophytes | 37.20 | 37.25 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 37.20 | 40.80 |
| SCA | 7/17/2017 | 0 | Potamogeton pusillus | 37.20 | 40.80 |
| SCA | 7/17/2017 | 0 | Charophytes | 37.40 | 38.90 |
| SCA | 7/17/2017 | 0 | Potamogeton pusillus | 37.70 | 37.80 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 37.70 | 37.75 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 37.80 | 37.90 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 37.80 | 37.90 |
| SCA | 7/17/2017 | 0 | Potamogeton pusillus | 38.00 | 38.05 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 38.10 | 38.15 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 38.30 | 41.20 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 38.40 | 38.45 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 38.50 | 38.55 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 38.90 | 38.95 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 39.00 | 39.10 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 39.00 | 39.10 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 39.20 | 39.25 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 39.40 | 39.45 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 39.60 | 39.65 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 39.60 | 39.65 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 39.70 | 39.80 |
| SCA | 7/17/2017 | 0 | Charophytes | 40.10 | 40.15 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 40.10 | 40.40 |
| SCA | 7/17/2017 | 0 | Charophytes | 40.70 | 40.80 |

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|---|---|---|---|---|---|
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 40.90 | 41.20 |
| SCA | 7/17/2017 | 0 | Charophytes | 40.90 | 40.95 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 41.20 | 42.20 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 41.30 | 42.20 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 41.30 | 42.60 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 42.30 | 42.70 |
| SCA | 7/17/2017 | 0 | Charophytes | 42.30 | 42.35 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 42.70 | 42.90 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 42.70 | 42.75 |
| SCA | 7/17/2017 | 0 | Bare | 42.90 | 43.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 43.00 | 43.30 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 43.00 | 43.05 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 43.10 | 43.15 |
| SCA | 7/17/2017 | 0 | Bare | 43.30 | 43.50 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 43.50 | 43.55 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 43.50 | 43.55 |
| SCA | 7/17/2017 | 0 | Bare | 43.55 | 43.70 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 43.70 | 44.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 43.80 | 44.00 |
| SCA | 7/17/2017 | 0 | Bare | 44.00 | 44.10 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 44.10 | 44.20 |
| SCA | 7/17/2017 | 0 | Bare | 44.20 | 44.30 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 44.30 | 44.40 |
| SCA | 7/17/2017 | 0 | Bare | 44.40 | 44.60 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 44.60 | 46.60 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 45.40 | 46.00 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 46.20 | 46.60 |
| SCA | 7/17/2017 | 0 | Bare | 46.60 | 46.80 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 46.80 | 47.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 46.80 | 47.00 |
| SCA | 7/17/2017 | 0 | Bare | 47.00 | 47.20 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 47.20 | 48.60 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 47.20 | 48.30 |
| SCA | 7/17/2017 | 0 | Bare | 48.60 | 49.00 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 49.00 | 55.40 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 49.00 | 49.50 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 49.20 | 49.30 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 49.50 | 49.55 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 50.00 | 50.30 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 50.80 | 52.20 |
| SCA | 7/17/2017 | 0 | Charophytes | 51.60 | 51.70 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 51.70 | 52.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 52.40 | 52.90 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 53.00 | 53.80 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 53.10 | 54.90 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 54.20 | 56.80 |
| SCA | 7/17/2017 | 0 | Charophytes | 54.70 | 54.80 |
| SCA | 7/17/2017 | 0 | Charophytes | 55.20 | 55.50 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 55.80 | 55.85 |
| SCA | 7/17/2017 | 0 | Charophytes | 55.90 | 63.00 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 55.90 | 56.10 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 55.90 | 56.10 |

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|---|---|---|---|---|---|
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 56.20 | 57.90 |
| SCA | 7/17/2017 | 0 | Charophytes | 56.80 | 63.00 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 56.80 | 57.90 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 60.90 | 64.80 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 62.30 | 67.80 |
| SCA | 7/17/2017 | 0 | Charophytes | 63.70 | 63.80 |
| SCA | 7/17/2017 | 0 | Charophytes | 64.60 | 65.00 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 65.20 | 65.60 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 66.65 | 66.75 |
| SCA | 7/17/2017 | 0 | Charophytes | 66.70 | 66.75 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 66.90 | 67.90 |
| SCA | 7/17/2017 | 0 | Charophytes | 67.35 | 67.40 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 67.65 | 69.70 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 67.75 | 67.80 |
| SCA | 7/17/2017 | 0 | Charophytes | 67.85 | 70.70 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 70.60 | 70.70 |
| SCA | 7/17/2017 | 0 | Bare | 70.70 | 71.10 |
| SCA | 7/17/2017 | 0 | Charophytes | 71.10 | 72.10 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 71.10 | 71.20 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 71.90 | 73.60 |
| SCA | 7/17/2017 | 0 | Charophytes | 72.50 | 72.60 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 72.90 | 73.80 |
| SCA | 7/17/2017 | 0 | Charophytes | 73.70 | 74.05 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 73.80 | 77.00 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 73.90 | 74.05 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 74.30 | 74.50 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 76.10 | 76.30 |
| SCA | 7/17/2017 | 0 | Charophytes | 77.50 | 78.20 |
| SCA | 7/17/2017 | 0 | Bare | 78.20 | 78.60 |
| SCA | 7/17/2017 | 0 | Charophytes | 78.60 | 79.30 |
| SCA | 7/17/2017 | 0 | Hydrilla verticillata | 79.25 | 79.30 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 79.30 | 86.00 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 80.30 | 90.80 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 80.55 | 80.60 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 89.30 | 140.00 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 90.70 | 90.75 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 91.35 | 91.40 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 92.45 | 92.50 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 94.05 | 94.10 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 95.15 | 95.20 |
| SCA | 7/17/2017 | 0 | Micranthemum sp. | 98.15 | 98.20 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 118.30 | 118.35 |
| SCA | 7/17/2017 | 0 | Ceratophyllum demersum | 135.65 | 135.70 |
| SCA | 7/17/2017 | 0 | Bare | 140.00 | 140.25 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 140.25 | 146.80 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 141.30 | 141.35 |
| SCA | 7/17/2017 | 0 | Ruppia maritima | 146.75 | 146.80 |
| SCA | 7/17/2017 | 0 | Bare | 146.80 | 149.65 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 147.30 | 151.80 |
| SCA | 7/17/2017 | 0 | Ruppia maritima | 149.65 | 149.70 |
| SCA | 7/17/2017 | 0 | Bare | 151.80 | 152.65 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 152.60 | 153.10 |

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|---|---|---|---|---|---|
| SCA | 7/17/2017 | 0 | Ruppia maritima | 152.65 | 152.70 |
| SCA | 7/17/2017 | 0 | Bare | 153.10 | 153.50 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 153.50 | 153.55 |
| SCA | 7/17/2017 | 0 | Bare | 153.55 | 153.75 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 153.75 | 153.80 |
| SCA | 7/17/2017 | 0 | Bare | 153.80 | 154.35 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 154.35 | 156.10 |
| SCA | 7/17/2017 | 0 | Bare | 156.20 | 156.60 |
| SCA | 7/17/2017 | 0 | Najas guadalupensis | 156.60 | 158.25 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 157.30 | 157.35 |
| SCA | 7/17/2017 | 0 | Vallisneria americana | 157.85 | 157.90 |
| SCA | 7/17/2017 | 12 | Bare | 0.00 | 0.70 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 0.70 | 1.10 |
| SCA | 7/17/2017 | 12 | Bare | 1.10 | 1.30 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 1.30 | 1.35 |
| SCA | 7/17/2017 | 12 | Bare | 1.35 | 1.60 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 1.60 | 1.65 |
| SCA | 7/17/2017 | 12 | Bare | 1.65 | 1.70 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 1.70 | 1.90 |
| SCA | 7/17/2017 | 12 | Bare | 1.90 | 2.05 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 2.05 | 2.40 |
| SCA | 7/17/2017 | 12 | Bare | 2.40 | 2.50 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 2.50 | 2.60 |
| SCA | 7/17/2017 | 12 | Bare | 2.60 | 3.20 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 3.20 | 3.40 |
| SCA | 7/17/2017 | 12 | Bare | 3.40 | 4.30 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 4.30 | 4.50 |
| SCA | 7/17/2017 | 12 | Bare | 4.50 | 4.60 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 4.60 | 4.80 |
| SCA | 7/17/2017 | 12 | Bare | 4.80 | 5.10 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 5.10 | 5.20 |
| SCA | 7/17/2017 | 12 | Bare | 5.20 | 5.60 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 5.60 | 7.80 |
| SCA | 7/17/2017 | 12 | Bare | 7.80 | 8.00 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 8.00 | 13.80 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 8.30 | 8.50 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 8.40 | 8.50 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 10.70 | 10.75 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 13.10 | 13.30 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 13.60 | 13.65 |
| SCA | 7/17/2017 | 12 | Bare | 13.80 | 14.00 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 14.00 | 14.60 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 14.20 | 14.25 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 14.60 | 14.70 |
| SCA | 7/17/2017 | 12 | Bare | 14.70 | 15.00 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 15.00 | 15.05 |
| SCA | 7/17/2017 | 12 | Bare | 15.05 | 15.20 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 15.20 | 15.25 |
| SCA | 7/17/2017 | 12 | Bare | 15.25 | 15.30 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 15.30 | 16.10 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 15.30 | 25.50 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 16.40 | 16.45 |

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|---|---|---|---|---|---|
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 20.50 | 20.55 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 21.60 | 21.65 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 24.60 | 24.65 |
| SCA | 7/17/2017 | 12 | Charophytes | 24.90 | 24.95 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 25.20 | 28.60 |
| SCA | 7/17/2017 | 12 | Charophytes | 25.20 | 25.25 |
| SCA | 7/17/2017 | 12 | Charophytes | 26.10 | 26.40 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 26.40 | 26.70 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 26.60 | 43.70 |
| SCA | 7/17/2017 | 12 | Charophytes | 26.60 | 26.70 |
| SCA | 7/17/2017 | 12 | Charophytes | 26.90 | 27.70 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 27.80 | 27.85 |
| SCA | 7/17/2017 | 12 | Charophytes | 27.90 | 28.00 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 28.40 | 28.45 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 28.70 | 28.80 |
| SCA | 7/17/2017 | 12 | Charophytes | 29.20 | 29.30 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 30.20 | 30.90 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 31.50 | 34.30 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 33.40 | 33.45 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 33.60 | 34.10 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 34.60 | 35.40 |
| SCA | 7/17/2017 | 12 | Charophytes | 34.60 | 34.90 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 34.80 | 43.70 |
| SCA | 7/17/2017 | 12 | Charophytes | 35.70 | 36.00 |
| SCA | 7/17/2017 | 12 | Charophytes | 36.20 | 36.70 |
| SCA | 7/17/2017 | 12 | Charophytes | 36.80 | 36.90 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 37.00 | 37.10 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 37.20 | 37.50 |
| SCA | 7/17/2017 | 12 | Charophytes | 37.50 | 37.60 |
| SCA | 7/17/2017 | 12 | Charophytes | 38.50 | 38.80 |
| SCA | 7/17/2017 | 12 | Charophytes | 39.40 | 39.50 |
| SCA | 7/17/2017 | 12 | Potamogeton pusillus | 39.60 | 39.70 |
| SCA | 7/17/2017 | 12 | Charophytes | 40.60 | 40.70 |
| SCA | 7/17/2017 | 12 | Charophytes | 41.00 | 43.10 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 41.40 | 41.45 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 41.90 | 41.95 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 42.90 | 42.95 |
| SCA | 7/17/2017 | 12 | Charophytes | 43.50 | 49.50 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 44.30 | 44.90 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 44.50 | 51.20 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 44.80 | 45.00 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 45.10 | 45.20 |
| SCA | 7/17/2017 | 12 | Potamogeton pusillus | 45.20 | 45.30 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 45.60 | 47.30 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 48.00 | 48.20 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 49.10 | 51.20 |
| SCA | 7/17/2017 | 12 | Charophytes | 49.70 | 49.75 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 49.80 | 50.10 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 51.00 | 51.05 |
| SCA | 7/17/2017 | 12 | Bare | 51.20 | 51.60 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 51.60 | 51.80 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 51.60 | 52.00 |

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|---|---|---|---|---|---|
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 51.80 | 55.70 |
| SCA | 7/17/2017 | 12 | Charophytes | 52.60 | 53.50 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 52.80 | 57.30 |
| SCA | 7/17/2017 | 12 | Potamogeton pusillus | 53.00 | 53.05 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 53.30 | 53.90 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 54.20 | 54.30 |
| SCA | 7/17/2017 | 12 | Charophytes | 54.60 | 55.40 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 54.80 | 54.90 |
| SCA | 7/17/2017 | 12 | Charophytes | 55.80 | 57.30 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 55.90 | 56.20 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 56.20 | 57.30 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 57.00 | 57.05 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 57.40 | 57.45 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 57.60 | 67.60 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 57.60 | 67.80 |
| SCA | 7/17/2017 | 12 | Charophytes | 58.00 | 59.60 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 58.10 | 59.10 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 58.30 | 58.35 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 59.00 | 59.05 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 59.40 | 61.80 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 59.90 | 60.00 |
| SCA | 7/17/2017 | 12 | Charophytes | 60.00 | 60.50 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 61.80 | 62.00 |
| SCA | 7/17/2017 | 12 | Charophytes | 62.00 | 64.20 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 63.10 | 63.15 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 63.10 | 63.15 |
| SCA | 7/17/2017 | 12 | Potamogeton pusillus | 63.30 | 63.35 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 63.40 | 63.50 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 64.00 | 64.05 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 64.70 | 64.75 |
| SCA | 7/17/2017 | 12 | Charophytes | 65.00 | 67.00 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 65.00 | 67.60 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 65.00 | 68.00 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 65.10 | 65.20 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 65.60 | 65.65 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 66.00 | 66.05 |
| SCA | 7/17/2017 | 12 | Potamogeton pusillus | 66.60 | 66.65 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 67.00 | 67.10 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 67.50 | 67.55 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 67.50 | 67.70 |
| SCA | 7/17/2017 | 12 | Charophytes | 67.75 | 67.8 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 67.85 | 67.90 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 67.85 | 67.90 |
| SCA | 7/17/2017 | 12 | Bare | 67.90 | 68.10 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 67.95 | 68.00 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 67.95 | 68.00 |
| SCA | 7/17/2017 | 12 | Zannichellia palustris | 68.00 | 68.80 |
| SCA | 7/17/2017 | 12 | Charophytes | 68.10 | 68.20 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 68.10 | 68.20 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 68.10 | 68.15 |
| SCA | 7/17/2017 | 12 | Bare | 68.20 | 68.25 |
| SCA | 7/17/2017 | 12 | Charophytes | 68.25 | 68.30 |

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|---|---|---|---|---|---|
| SCA | 7/17/2017 | 12 | Vallisneria americana | 68.25 | 68.30 |
| SCA | 7/17/2017 | 12 | Bare | 68.30 | 68.35 |
| SCA | 7/17/2017 | 12 | Charophytes | 68.35 | 68.40 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 68.35 | 68.40 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 68.40 | 68.60 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 68.40 | 68.60 |
| SCA | 7/17/2017 | 12 | Bare | 68.60 | 68.70 |
| SCA | 7/17/2017 | 12 | Charophytes | 68.70 | 69.20 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 68.70 | 69.70 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 69.10 | 69.30 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 69.10 | 69.20 |
| SCA | 7/17/2017 | 12 | Bare | 69.30 | 69.40 |
| SCA | 7/17/2017 | 12 | Charophytes | 69.40 | 69.60 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 69.55 | 69.60 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 69.55 | 69.60 |
| SCA | 7/17/2017 | 12 | Bare | 69.60 | 69.90 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 69.75 | 69.80 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 69.85 | 69.90 |
| SCA | 7/17/2017 | 12 | Charophytes | 69.90 | 70.40 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 69.95 | 70.00 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 70.10 | 70.30 |
| SCA | 7/17/2017 | 12 | Charophytes | 70.20 | 70.40 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 70.25 | 70.30 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 70.35 | 70.40 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 70.35 | 70.40 |
| SCA | 7/17/2017 | 12 | Bare | 70.40 | 70.60 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 70.55 | 70.70 |
| SCA | 7/17/2017 | 12 | Charophytes | 70.60 | 72.70 |
| SCA | 7/17/2017 | 12 | Ceratophyllum demersum | 70.85 | 70.90 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 71.75 | 71.80 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 71.95 | 72.00 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 72.15 | 72.20 |
| SCA | 7/17/2017 | 12 | Vallisneria americana | 72.50 | 152.70 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 72.75 | 72.80 |
| SCA | 7/17/2017 | 12 | Charophytes | 72.80 | 73.00 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 73.10 | 73.50 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 73.20 | 73.50 |
| SCA | 7/17/2017 | 12 | Charophytes | 73.70 | 74.00 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 74.25 | 74.80 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 75.70 | 76.00 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 76.55 | 76.60 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 76.55 | 76.60 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 76.80 | 76.90 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 77.30 | 77.60 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 78.20 | 79.20 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 79.40 | 80.90 |
| SCA | 7/17/2017 | 12 | Hydrilla verticillata | 81.75 | 81.80 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 106.50 | 106.80 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 111.35 | 111.40 |
| SCA | 7/17/2017 | 12 | Bare | 152.80 | 153.00 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 153.00 | 153.30 |
| SCA | 7/17/2017 | 12 | Bare | 153.30 | 153.50 |

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|---|---|---|---|---|---|
| SCA | 7/17/2017 | 12 | Ruppia maritima | 153.50 | 153.80 |
| SCA | 7/17/2017 | 12 | Bare | 153.80 | 154.05 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 154.05 | 154.10 |
| SCA | 7/17/2017 | 12 | Bare | 154.10 | 154.35 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 154.35 | 154.40 |
| SCA | 7/17/2017 | 12 | Bare | 154.40 | 154.50 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 154.50 | 154.60 |
| SCA | 7/17/2017 | 12 | Bare | 154.60 | 155.50 |
| SCA | 7/17/2017 | 12 | Najas guadalupensis | 155.50 | 156.40 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 155.50 | 155.60 |
| SCA | 7/17/2017 | 12 | Bare | 156.40 | 156.45 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 156.45 | 156.50 |
| SCA | 7/17/2017 | 12 | Bare | 156.50 | 156.60 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 156.60 | 156.70 |
| SCA | 7/17/2017 | 12 | Bare | 156.70 | 157.05 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 157.05 | 157.10 |
| SCA | 7/17/2017 | 12 | Bare | 157.10 | 157.45 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 157.45 | 157.50 |
| SCA | 7/17/2017 | 12 | Bare | 157.50 | 158.60 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 158.60 | 158.80 |
| SCA | 7/17/2017 | 12 | Bare | 158.80 | 158.90 |
| SCA | 7/17/2017 | 12 | Ruppia maritima | 158.90 | 159.10 |
| SCA | 7/18/2017 | 25 | Bare | 0.00 | 1.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 1.40 | 1.45 |
| SCA | 7/18/2017 | 25 | Bare | 1.45 | 2.40 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 2.40 | 3.10 |
| SCA | 7/18/2017 | 25 | Bare | 3.10 | 3.30 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 3.30 | 4.10 |
| SCA | 7/18/2017 | 25 | Bare | 4.10 | 4.30 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 4.30 | 4.35 |
| SCA | 7/18/2017 | 25 | Bare | 4.35 | 4.40 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 4.40 | 4.70 |
| SCA | 7/18/2017 | 25 | Bare | 4.70 | 5.20 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 5.20 | 9.80 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 7.70 | 7.75 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 7.90 | 8.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 8.80 | 8.90 |
| SCA | 7/18/2017 | 25 | Bare | 9.80 | 10.20 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 10.20 | 10.25 |
| SCA | 7/18/2017 | 25 | Bare | 10.25 | 11.30 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 11.30 | 11.35 |
| SCA | 7/18/2017 | 25 | Bare | 11.35 | 11.80 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 11.80 | 11.85 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 11.80 | 12.10 |
| SCA | 7/18/2017 | 25 | Bare | 12.10 | 12.50 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 12.50 | 12.55 |
| SCA | 7/18/2017 | 25 | Bare | 12.55 | 12.60 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 12.60 | 12.80 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 12.70 | 12.75 |
| SCA | 7/18/2017 | 25 | Bare | 12.80 | 13.60 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 13.60 | 13.65 |
| SCA | 7/18/2017 | 25 | Bare | 13.65 | 13.80 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 13.80 | 13.85 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 13.80 | 14.20 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 14.00 | 14.05 |
| SCA | 7/18/2017 | 25 | Bare | 14.20 | 14.40 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 14.40 | 14.45 |
| SCA | 7/18/2017 | 25 | Bare | 14.45 | 14.70 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 14.70 | 14.75 |
| SCA | 7/18/2017 | 25 | Bare | 14.75 | 15.30 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 15.30 | 15.35 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 15.30 | 15.35 |
| SCA | 7/18/2017 | 25 | Bare | 15.35 | 15.70 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 15.70 | 15.75 |
| SCA | 7/18/2017 | 25 | Bare | 15.75 | 15.80 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 15.80 | 15.85 |
| SCA | 7/18/2017 | 25 | Bare | 15.85 | 15.90 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 15.90 | 16.10 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 15.90 | 16.10 |
| SCA | 7/18/2017 | 25 | Bare | 16.10 | 16.20 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 16.20 | 16.25 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 16.25 | 16.30 |
| SCA | 7/18/2017 | 25 | Bare | 16.30 | 16.35 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 16.35 | 16.40 |
| SCA | 7/18/2017 | 25 | Bare | 16.40 | 16.45 |
| SCA | 7/18/2017 | 25 | Bare | 16.45 | 16.70 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 16.70 | 16.80 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 16.70 | 16.80 |
| SCA | 7/18/2017 | 25 | Bare | 16.80 | 17.30 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 17.30 | 17.35 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 17.30 | 17.35 |
| SCA | 7/18/2017 | 25 | Bare | 17.35 | 17.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 17.40 | 17.45 |
| SCA | 7/18/2017 | 25 | Bare | 17.45 | 17.50 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 17.50 | 17.70 |
| SCA | 7/18/2017 | 25 | Bare | 17.70 | 17.90 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 17.90 | 18.10 |
| SCA | 7/18/2017 | 25 | Bare | 18.10 | 18.20 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 18.20 | 18.25 |
| SCA | 7/18/2017 | 25 | Bare | 18.25 | 18.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 18.40 | 18.45 |
| SCA | 7/18/2017 | 25 | Bare | 18.45 | 18.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 18.50 | 18.60 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 18.50 | 18.55 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 18.60 | 18.80 |
| SCA | 7/18/2017 | 25 | Bare | 18.80 | 18.90 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 18.90 | 18.95 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 18.90 | 18.95 |
| SCA | 7/18/2017 | 25 | Bare | 18.95 | 19.00 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 19.00 | 19.05 |
| SCA | 7/18/2017 | 25 | Bare | 19.05 | 19.10 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 19.10 | 19.15 |
| SCA | 7/18/2017 | 25 | Bare | 19.15 | 19.20 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 19.20 | 19.30 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 25 | Bare | 19.30 | 19.80 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 19.80 | 20.10 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 19.80 | 20.10 |
| SCA | 7/18/2017 | 25 | Bare | 20.10 | 20.20 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 20.20 | 20.25 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 20.20 | 20.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 20.40 | 20.50 |
| SCA | 7/18/2017 | 25 | Bare | 20.50 | 20.60 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 20.60 | 20.70 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 20.60 | 28.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 20.90 | 21.10 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 21.20 | 23.10 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 22.00 | 22.05 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 23.30 | 23.35 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 23.50 | 25.30 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 25.50 | 26.10 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 26.30 | 26.35 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 26.70 | 27.00 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 27.30 | 27.70 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 28.10 | 28.15 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 28.60 | 28.65 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 28.80 | 28.85 |
| SCA | 7/18/2017 | 25 | Bare | 28.85 | 29.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 29.50 | 30.10 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 29.50 | 37.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 30.30 | 30.90 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 31.60 | 32.10 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 31.70 | 31.75 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 32.00 | 32.05 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 32.20 | 35.00 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 33.00 | 33.05 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 35.20 | 37.00 |
| SCA | 7/18/2017 | 25 | Charophytes | 37.00 | 40.40 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 37.60 | 37.70 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 38.00 | 38.10 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 38.20 | 38.25 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 38.30 | 38.50 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 38.60 | 38.65 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 38.70 | 38.75 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 38.90 | 38.95 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 39.40 | 39.45 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 39.60 | 39.65 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 39.80 | 39.85 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 39.90 | 40.10 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 39.90 | 40.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 39.90 | 39.95 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 40.20 | 40.25 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 40.30 | 40.80 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 40.30 | 40.35 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 40.40 | 40.45 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 40.50 | 40.80 |
| SCA | 7/18/2017 | 25 | Charophytes | 40.70 | 41.10 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 40.70 | 40.90 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 40.70 | 40.90 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 40.95 | 44.40 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 41.00 | 41.10 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 41.00 | 41.10 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 41.20 | 41.40 |
| SCA | 7/18/2017 | 25 | Charophytes | 41.20 | 41.50 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 41.30 | 41.50 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 41.60 | 41.70 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 41.60 | 41.70 |
| SCA | 7/18/2017 | 25 | Charophytes | 41.60 | 41.70 |
| SCA | 7/18/2017 | 25 | Charophytes | 41.80 | 42.70 |
| SCA | 7/18/2017 | 25 | Sagittaria subulata | 41.90 | 41.95 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 41.90 | 42.30 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 42.00 | 42.05 |
| SCA | 7/18/2017 | 25 | Sagittaria subulata | 42.30 | 42.35 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 42.40 | 44.30 |
| SCA | 7/18/2017 | 25 | Charophytes | 42.80 | 44.30 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 43.20 | 43.25 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 43.30 | 44.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 44.10 | 44.15 |
| SCA | 7/18/2017 | 25 | Sagittaria subulata | 44.30 | 44.50 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 44.30 | 44.35 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 44.30 | 44.40 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 44.40 | 49.80 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 44.50 | 49.80 |
| SCA | 7/18/2017 | 25 | Sagittaria subulata | 44.60 | 44.65 |
| SCA | 7/18/2017 | 25 | Charophytes | 44.60 | 45.80 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 44.70 | 44.90 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 44.70 | 44.80 |
| SCA | 7/18/2017 | 25 | Sagittaria subulata | 44.90 | 44.95 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 44.90 | 45.20 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 44.90 | 44.95 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 45.00 | 45.20 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 45.00 | 45.05 |
| SCA | 7/18/2017 | 25 | Sagittaria subulata | 45.00 | 45.20 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 45.30 | 45.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 45.50 | 45.55 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 45.50 | 45.80 |
| SCA | 7/18/2017 | 25 | Sagittaria subulata | 45.50 | 45.55 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 45.60 | 45.65 |
| SCA | 7/18/2017 | 25 | Sagittaria subulata | 45.60 | 45.70 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 45.60 | 45.65 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 45.90 | 46.20 |
| SCA | 7/18/2017 | 25 | Charophytes | 46.00 | 46.40 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 46.00 | 46.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 46.20 | 46.25 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 46.50 | 46.55 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 46.50 | 46.55 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 46.60 | 46.80 |
| SCA | 7/18/2017 | 25 | Sagittaria subulata | 46.60 | 46.65 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 46.60 | 46.65 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 46.80 | 46.85 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 47.00 | 47.05 |
| SCA | 7/18/2017 | 25 | Charophytes | 47.00 | 48.40 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 47.10 | 48.00 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 47.20 | 47.25 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 47.30 | 47.50 |
| SCA | 7/18/2017 | 25 | Charophytes | 47.60 | 47.65 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 47.70 | 47.75 |
| SCA | 7/18/2017 | 25 | Charophytes | 47.70 | 48.20 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 47.80 | 47.85 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 47.90 | 48.00 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 48.00 | 48.80 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 48.20 | 48.25 |
| SCA | 7/18/2017 | 25 | Charophytes | 48.30 | 48.70 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 48.40 | 48.45 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 48.40 | 48.50 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 48.60 | 48.70 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 48.60 | 48.65 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 48.80 | 48.85 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 48.80 | 49.10 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 48.90 | 49.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 49.00 | 49.05 |
| SCA | 7/18/2017 | 25 | Charophytes | 49.20 | 49.60 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 49.20 | 49.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 49.60 | 49.65 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 49.70 | 49.80 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 49.70 | 49.75 |
| SCA | 7/18/2017 | 25 | Charophytes | 49.70 | 49.80 |
| SCA | 7/18/2017 | 25 | Bare | 49.80 | 50.00 |
| SCA | 7/18/2017 | 25 | Charophytes | 50.00 | 50.20 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 50.00 | 50.40 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 50.00 | 50.20 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 50.00 | 56.30 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 50.00 | 50.05 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 50.00 | 50.05 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 50.30 | 50.35 |
| SCA | 7/18/2017 | 25 | Charophytes | 50.40 | 50.80 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 50.50 | 51.20 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 50.50 | 58.50 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 50.60 | 50.80 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 50.60 | 50.65 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 50.80 | 51.00 |
| SCA | 7/18/2017 | 25 | Charophytes | 50.90 | 51.00 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 51.00 | 51.05 |
| SCA | 7/18/2017 | 25 | Charophytes | 51.10 | 51.30 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 51.20 | 51.30 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 51.30 | 51.35 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 51.40 | 52.90 |
| SCA | 7/18/2017 | 25 | Charophytes | 51.50 | 51.55 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 51.50 | 51.55 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 51.60 | 51.80 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 51.70 | 52.00 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 52.00 | 52.10 |
| SCA | 7/18/2017 | 25 | Charophytes | 52.00 | 52.10 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 52.20 | 52.30 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 52.20 | 52.70 |
| SCA | 7/18/2017 | 25 | Charophytes | 52.50 | 52.60 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 52.50 | 52.70 |
| SCA | 7/18/2017 | 25 | Charophytes | 52.80 | 53.20 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 52.80 | 52.90 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 52.80 | 53.10 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 53.00 | 53.05 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 53.20 | 53.60 |
| SCA | 7/18/2017 | 25 | Charophytes | 53.40 | 53.50 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 53.40 | 53.45 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 53.60 | 53.70 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 53.70 | 54.10 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 53.80 | 54.30 |
| SCA | 7/18/2017 | 25 | Charophytes | 54.30 | 54.50 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 54.50 | 54.55 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 54.50 | 55.30 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 54.60 | 54.70 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 54.60 | 54.70 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 54.70 | 54.80 |
| SCA | 7/18/2017 | 25 | Charophytes | 54.70 | 54.90 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 55.30 | 55.60 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 55.30 | 55.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 55.40 | 55.50 |
| SCA | 7/18/2017 | 25 | Charophytes | 55.50 | 56.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 55.50 | 55.80 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 55.80 | 56.10 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 56.10 | 56.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 56.10 | 56.80 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 56.40 | 56.60 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 56.40 | 56.50 |
| SCA | 7/18/2017 | 25 | Charophytes | 56.70 | 56.80 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 56.80 | 56.85 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 56.90 | 57.10 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 57.00 | 57.10 |
| SCA | 7/18/2017 | 25 | Charophytes | 57.10 | 58.00 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 57.20 | 57.50 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 57.30 | 57.50 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 57.30 | 57.90 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 57.40 | 57.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 57.80 | 58.00 |
| SCA | 7/18/2017 | 25 | Ruppia maritima | 57.80 | 58.10 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 57.80 | 57.90 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 58.00 | 58.10 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 58.00 | 58.20 |
| SCA | 7/18/2017 | 25 | Charophytes | 58.10 | 58.30 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 58.20 | 58.40 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 58.30 | 58.35 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 58.30 | 58.50 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 58.40 | 58.80 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 25 | Charophytes | 58.40 | 59.20 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 58.60 | 59.00 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 58.80 | 59.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 58.80 | 59.00 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 58.80 | 59.00 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 58.90 | 59.30 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 59.00 | 62.70 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 59.20 | 59.30 |
| SCA | 7/18/2017 | 25 | Charophytes | 59.30 | 59.40 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 59.40 | 59.70 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 59.40 | 59.50 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 59.50 | 59.60 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 59.50 | 59.60 |
| SCA | 7/18/2017 | 25 | Charophytes | 59.50 | 60.00 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 59.70 | 60.60 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 59.70 | 59.90 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 59.80 | 60.00 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 59.90 | 60.10 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 60.10 | 60.20 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 60.30 | 60.60 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 60.40 | 60.50 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 60.70 | 60.90 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 60.70 | 60.90 |
| SCA | 7/18/2017 | 25 | Charophytes | 60.90 | 61.00 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 60.90 | 61.00 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 61.00 | 61.80 |
| SCA | 7/18/2017 | 25 | Charophytes | 61.10 | 61.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 61.10 | 61.20 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 61.20 | 61.30 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 61.40 | 61.50 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 61.40 | 61.80 |
| SCA | 7/18/2017 | 25 | Charophytes | 61.50 | 61.60 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 61.60 | 61.65 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 61.60 | 61.65 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 61.70 | 62.10 |
| SCA | 7/18/2017 | 25 | Charophytes | 61.80 | 61.90 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 61.90 | 62.30 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 62.20 | 62.60 |
| SCA | 7/18/2017 | 25 | Charophytes | 62.30 | 62.40 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 62.40 | 63.40 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 62.50 | 63.70 |
| SCA | 7/18/2017 | 25 | Charophytes | 62.50 | 62.85 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 62.70 | 62.85 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 62.80 | 62.85 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 62.90 | 63.30 |
| SCA | 7/18/2017 | 25 | Charophytes | 62.90 | 63.10 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 63.10 | 63.20 |
| SCA | 7/18/2017 | 25 | Charophytes | 63.20 | 63.50 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 63.40 | 63.70 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 63.50 | 65.30 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 63.60 | 63.80 |
| SCA | 7/18/2017 | 25 | Charophytes | 63.60 | 63.90 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 63.80 | 65.30 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 63.90 | 64.00 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 64.00 | 64.05 |
| SCA | 7/18/2017 | 25 | Charophytes | 64.10 | 64.20 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 64.30 | 66.20 |
| SCA | 7/18/2017 | 25 | Charophytes | 64.50 | 64.60 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 64.60 | 65.00 |
| SCA | 7/18/2017 | 25 | Charophytes | 64.70 | 66.00 |
| SCA | 7/18/2017 | 25 | Ruppia maritima | 64.80 | 65.00 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 65.40 | 65.70 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 65.40 | 66.60 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 65.80 | 65.85 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 65.90 | 66.40 |
| SCA | 7/18/2017 | 25 | Charophytes | 66.20 | 66.60 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 66.30 | 66.35 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 66.50 | 66.55 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 66.50 | 66.55 |
| SCA | 7/18/2017 | 25 | Bare | 66.60 | 66.80 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 66.80 | 67.00 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 66.90 | 67.00 |
| SCA | 7/18/2017 | 25 | Charophytes | 66.90 | 67.40 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 67.20 | 67.40 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 67.30 | 67.40 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 67.40 | 67.65 |
| SCA | 7/18/2017 | 25 | Charophytes | 67.50 | 67.65 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 67.60 | 67.65 |
| SCA | 7/18/2017 | 25 | Bare | 67.65 | 67.70 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 67.70 | 67.75 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 67.70 | 67.75 |
| SCA | 7/18/2017 | 25 | Bare | 67.75 | 68.10 |
| SCA | 7/18/2017 | 25 | Charophytes | 68.10 | 68.20 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 68.10 | 72.40 |
| SCA | 7/18/2017 | 25 | Charophytes | 68.30 | 69.10 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 68.30 | 68.35 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 69.00 | 69.80 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 69.20 | 69.80 |
| SCA | 7/18/2017 | 25 | Charophytes | 69.30 | 69.35 |
| SCA | 7/18/2017 | 25 | Charophytes | 69.40 | 69.80 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 69.90 | 70.30 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 70.00 | 70.60 |
| SCA | 7/18/2017 | 25 | Charophytes | 70.10 | 71.70 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 70.10 | 70.20 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 70.10 | 70.20 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 70.30 | 70.60 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 70.40 | 70.60 |
| SCA | 7/18/2017 | 25 | Ruppia maritima | 70.40 | 70.45 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 70.70 | 70.75 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 70.80 | 70.90 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 71.50 | 72.40 |
| SCA | 7/18/2017 | 25 | Charophytes | 71.90 | 72.00 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 72.00 | 72.05 |
| SCA | 7/18/2017 | 25 | Charophytes | 72.20 | 72.40 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 72.30 | 72.60 |
| SCA | 7/18/2017 | 25 | Charophytes | 72.50 | 72.60 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 72.50 | 72.60 |
| SCA | 7/18/2017 | 25 | Bare | 72.60 | 72.90 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 72.90 | 72.95 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 72.90 | 74.20 |
| SCA | 7/18/2017 | 25 | Charophytes | 72.90 | 72.95 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 72.90 | 72.95 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 73.10 | 73.20 |
| SCA | 7/18/2017 | 25 | Charophytes | 73.10 | 74.20 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 73.50 | 73.55 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 73.80 | 73.85 |
| SCA | 7/18/2017 | 25 | Bare | 74.20 | 74.60 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 74.60 | 74.70 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 74.60 | 74.70 |
| SCA | 7/18/2017 | 25 | Charophytes | 74.60 | 74.70 |
| SCA | 7/18/2017 | 25 | Bare | 74.70 | 75.10 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 75.10 | 75.20 |
| SCA | 7/18/2017 | 25 | Charophytes | 75.20 | 75.25 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 75.20 | 75.25 |
| SCA | 7/18/2017 | 25 | Bare | 75.25 | 75.40 |
| SCA | 7/18/2017 | 25 | Charophytes | 75.40 | 75.70 |
| SCA | 7/18/2017 | 25 | Bare | 75.70 | 75.90 |
| SCA | 7/18/2017 | 25 | Charophytes | 75.90 | 76.80 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 76.50 | 76.90 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 76.50 | 76.60 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 76.70 | 77.10 |
| SCA | 7/18/2017 | 25 | Charophytes | 76.90 | 77.90 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 77.00 | 77.30 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 77.50 | 78.40 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 77.70 | 78.20 |
| SCA | 7/18/2017 | 25 | Potamogeton pusillus | 77.90 | 78.20 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 78.20 | 79.00 |
| SCA | 7/18/2017 | 25 | Charophytes | 78.20 | 78.40 |
| SCA | 7/18/2017 | 25 | Charophytes | 78.60 | 78.90 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 78.70 | 79.30 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 78.80 | 81.00 |
| SCA | 7/18/2017 | 25 | Charophytes | 79.00 | 79.05 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 79.10 | 79.40 |
| SCA | 7/18/2017 | 25 | Charophytes | 79.20 | 79.30 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 79.70 | 79.75 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 79.70 | 79.80 |
| SCA | 7/18/2017 | 25 | Vallisneria americana | 80.00 | 181.30 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 80.10 | 85.40 |
| SCA | 7/18/2017 | 25 | Charophytes | 80.20 | 80.25 |
| SCA | 7/18/2017 | 25 | Charophytes | 81.10 | 81.20 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 81.10 | 81.20 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 81.40 | 82.40 |
| SCA | 7/18/2017 | 25 | Ruppia maritima | 81.60 | 81.80 |
| SCA | 7/18/2017 | 25 | Charophytes | 82.30 | 82.40 |
| SCA | 7/18/2017 | 25 | Ruppia maritima | 82.40 | 82.45 |
| SCA | 7/18/2017 | 25 | Charophytes | 83.60 | 83.70 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 84.10 | 84.15 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 85.10 | 85.20 |
| SCA | 7/18/2017 | 25 | Najas guadalupensis | 85.60 | 85.65 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 85.80 | 85.85 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 86.20 | 89.50 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 91.30 | 91.35 |
| SCA | 7/18/2017 | 25 | Hydrilla verticillata | 94.30 | 94.40 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 96.50 | 96.55 |
| SCA | 7/18/2017 | 25 | Ceratophyllum demersum | 132.55 | 132.60 |
| SCA | 7/18/2017 | 38 | Bare | 0.00 | 15.65 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 15.65 | 15.70 |
| SCA | 7/18/2017 | 38 | Bare | 15.70 | 15.90 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 15.90 | 17.80 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 16.30 | 16.40 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 17.10 | 17.20 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 18.10 | 28.70 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 18.40 | 19.00 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 20.50 | 20.80 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 21.00 | 21.10 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 22.00 | 22.10 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 22.20 | 22.30 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 23.35 | 23.40 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 24.15 | 24.20 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 24.35 | 24.40 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 25.25 | 25.30 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 25.65 | 25.70 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 25.70 | 25.80 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 26.10 | 26.50 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 26.90 | 27.20 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 27.30 | 27.40 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 27.60 | 27.80 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 27.90 | 28.70 |
| SCA | 7/18/2017 | 38 | Bare | 28.70 | 29.10 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 29.10 | 39.10 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 29.10 | 29.60 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 29.70 | 29.90 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 30.00 | 30.20 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 30.30 | 30.60 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 30.70 | 31.10 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 30.85 | 30.90 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 31.15 | 31.20 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 31.30 | 32.40 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 32.50 | 32.70 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 32.70 | 33.00 |
| SCA | 7/18/2017 | 38 | Charophytes | 32.90 | 33.40 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 32.95 | 33.00 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 33.40 | 33.90 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 33.60 | 33.80 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 33.90 | 34.20 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 34.00 | 34.10 |
| SCA | 7/18/2017 | 38 | Charophytes | 34.20 | 34.30 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 34.30 | 34.90 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 34.40 | 34.60 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 34.95 | 35.00 |
| SCA | 7/18/2017 | 38 | Charophytes | 35.00 | 35.30 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 35.40 | 36.20 |
| SCA | 7/18/2017 | 38 | Charophytes | 35.40 | 35.90 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 36.90 | 37.40 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 38.40 | 38.90 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 38.70 | 38.90 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 38.70 | 38.80 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 39.90 | 40.30 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 40.00 | 41.80 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 40.10 | 40.20 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 40.65 | 40.70 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 40.75 | 40.80 |
| SCA | 7/18/2017 | 38 | Charophytes | 41.00 | 41.20 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 41.00 | 41.10 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 41.45 | 41.50 |
| SCA | 7/18/2017 | 38 | Charophytes | 41.50 | 43.70 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 41.70 | 41.80 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 42.15 | 42.30 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 42.70 | 45.50 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 42.70 | 43.90 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 42.70 | 42.80 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 42.80 | 43.30 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 43.60 | 43.70 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 43.80 | 43.90 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 44.50 | 44.70 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 44.60 | 45.50 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 44.65 | 44.70 |
| SCA | 7/18/2017 | 38 | Charophytes | 45.20 | 47.00 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 45.20 | 45.30 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 45.80 | 48.30 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 46.00 | 46.40 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 46.50 | 52.70 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 46.60 | 46.80 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 46.70 | 46.80 |
| SCA | 7/18/2017 | 38 | Charophytes | 47.50 | 48.10 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 47.60 | 49.00 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 48.00 | 48.10 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 48.20 | 49.00 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 48.60 | 52.40 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 48.65 | 48.70 |
| SCA | 7/18/2017 | 38 | Charophytes | 49.00 | 49.10 |
| SCA | 7/18/2017 | 38 | Charophytes | 49.15 | 49.20 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 49.15 | 49.20 |
| SCA | 7/18/2017 | 38 | Charophytes | 49.30 | 51.00 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 49.50 | 49.60 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 50.30 | 50.40 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 51.20 | 51.30 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 51.50 | 52.30 |
| SCA | 7/18/2017 | 38 | Charophytes | 51.50 | 52.00 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 51.50 | 51.70 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 38 | Charophytes | 52.20 | 53.20 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 52.45 | 52.50 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 52.60 | 53.30 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 53.20 | 54.00 |
| SCA | 7/18/2017 | 38 | Charophytes | 53.50 | 54.30 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 53.50 | 53.70 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 53.75 | 53.80 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 53.90 | 54.30 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 53.95 | 54.00 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 54.10 | 54.90 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 54.10 | 54.20 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 54.30 | 54.70 |
| SCA | 7/18/2017 | 38 | Charophytes | 54.40 | 55.20 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 54.40 | 54.75 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 54.60 | 54.70 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 54.60 | 54.70 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 54.80 | 56.80 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 54.80 | 55.50 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 54.95 | 55.00 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 55.00 | 56.10 |
| SCA | 7/18/2017 | 38 | Charophytes | 55.30 | 55.50 |
| SCA | 7/18/2017 | 38 | Charophytes | 55.70 | 58.80 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 56.00 | 56.20 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 56.20 | 56.50 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 56.80 | 57.10 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 56.90 | 57.70 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 56.90 | 57.00 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 57.40 | 58.40 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 57.50 | 57.60 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 57.60 | 57.70 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 57.80 | 57.90 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 57.80 | 58.10 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 57.90 | 58.10 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 58.20 | 58.30 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 58.40 | 58.70 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 58.60 | 58.70 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 58.80 | 58.90 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 58.80 | 58.90 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 58.90 | 59.20 |
| SCA | 7/18/2017 | 38 | Charophytes | 58.90 | 59.00 |
| SCA | 7/18/2017 | 38 | Charophytes | 59.10 | 60.60 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 59.40 | 59.80 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 59.40 | 59.80 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 59.60 | 62.30 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 60.10 | 60.70 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 60.20 | 60.80 |
| SCA | 7/18/2017 | 38 | Charophytes | 60.70 | 62.30 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 60.90 | 62.00 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 61.70 | 61.80 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 61.90 | 62.00 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 62.05 | 62.10 |
| SCA | 7/18/2017 | 38 | Charophytes | 62.40 | 63.40 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 62.40 | 63.00 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 63.20 | 63.40 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 63.20 | 63.30 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 63.50 | 74.60 |
| SCA | 7/18/2017 | 38 | Charophytes | 63.55 | 63.60 |
| SCA | 7/18/2017 | 38 | Charophytes | 63.65 | 63.70 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 63.70 | 63.80 |
| SCA | 7/18/2017 | 38 | Charophytes | 63.80 | 64.30 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 63.90 | 64.30 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 64.20 | 96.50 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 64.30 | 64.40 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 64.40 | 66.00 |
| SCA | 7/18/2017 | 38 | Charophytes | 64.55 | 64.60 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 64.60 | 65.50 |
| SCA | 7/18/2017 | 38 | Charophytes | 64.85 | 64.90 |
| SCA | 7/18/2017 | 38 | Charophytes | 65.65 | 65.70 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 67.70 | 68.90 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 67.85 | 67.90 |
| SCA | 7/18/2017 | 38 | Potamogeton pusillus | 68.80 | 68.90 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 68.85 | 68.90 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 69.00 | 69.40 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 70.60 | 70.80 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 72.00 | 72.20 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 72.55 | 72.60 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 73.15 | 73.20 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 74.85 | 74.90 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 74.90 | 76.60 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 75.10 | 75.40 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 75.50 | 75.60 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 77.00 | 77.90 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 79.50 | 79.70 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 79.55 | 79.60 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 79.90 | 96.50 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 85.10 | 86.10 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 86.60 | 87.20 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 87.90 | 88.20 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 89.40 | 91.30 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 93.10 | 95.30 |
| SCA | 7/18/2017 | 38 | Bare | 96.50 | 97.05 |
| SCA | 7/18/2017 | 38 | Hydrilla verticillata | 97.05 | 102.60 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 97.05 | 97.10 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 97.80 | 191.80 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 104.30 | 104.70 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 106.90 | 107.10 |
| SCA | 7/18/2017 | 38 | Ceratophyllum demersum | 107.70 | 107.90 |
| SCA | 7/18/2017 | 38 | Bare | 191.80 | 192.30 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 192.30 | 192.40 |
| SCA | 7/18/2017 | 38 | Bare | 192.40 | 192.60 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 192.60 | 192.90 |
| SCA | 7/18/2017 | 38 | Bare | 192.90 | 193.10 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 193.1 | 194.5 |
| SCA | 7/18/2017 | 38 | Bare | 194.50 | 194.70 |

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|---|---|---|---|---|---|
| SCA | 7/18/2017 | 38 | Vallisneria americana | 194.70 | 194.80 |
| SCA | 7/18/2017 | 38 | Bare | 194.80 | 195.15 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 195.15 | 195.20 |
| SCA | 7/18/2017 | 38 | Bare | 195.20 | 195.35 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 195.35 | 195.40 |
| SCA | 7/18/2017 | 38 | Bare | 195.40 | 196.15 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 196.15 | 196.20 |
| SCA | 7/18/2017 | 38 | Bare | 196.20 | 196.55 |
| SCA | 7/18/2017 | 38 | Vallisneria americana | 196.55 | 196.60 |
| SCA | 7/18/2017 | 38 | Najas guadalupensis | 196.55 | 196.60 |
| SCA | 7/17/2017 | 50 | Bare | 0.00 | 0.20 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 0.20 | 0.40 |
| SCA | 7/19/2017 | 50 | Bare | 0.40 | 1.10 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 1.10 | 1.30 |
| SCA | 7/19/2017 | 50 | Bare | 1.30 | 2.10 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 2.10 | 3.10 |
| SCA | 7/19/2017 | 50 | Bare | 3.10 | 3.40 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 3.40 | 3.50 |
| SCA | 7/19/2017 | 50 | Bare | 3.50 | 3.70 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 3.70 | 4.40 |
| SCA | 7/19/2017 | 50 | Bare | 4.40 | 5.40 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 5.40 | 5.50 |
| SCA | 7/19/2017 | 50 | Bare | 5.50 | 10.40 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 10.40 | 10.45 |
| SCA | 7/19/2017 | 50 | Bare | 10.45 | 16.60 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 16.60 | 16.65 |
| SCA | 7/19/2017 | 50 | Bare | 16.65 | 19.30 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 19.30 | 19.40 |
| SCA | 7/19/2017 | 50 | Bare | 19.40 | 20.80 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 20.80 | 20.90 |
| SCA | 7/19/2017 | 50 | Bare | 20.90 | 21.20 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 21.20 | 21.40 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 21.20 | 21.40 |
| SCA | 7/19/2017 | 50 | Bare | 21.40 | 21.80 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 21.80 | 22.00 |
| SCA | 7/19/2017 | 50 | Bare | 22.00 | 22.30 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 22.30 | 22.50 |
| SCA | 7/19/2017 | 50 | Bare | 22.50 | 22.80 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 22.80 | 22.85 |
| SCA | 7/19/2017 | 50 | Bare | 22.85 | 23.00 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 23.00 | 23.90 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 23.30 | 23.35 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 23.50 | 23.60 |
| SCA | 7/19/2017 | 50 | Bare | 23.90 | 24.20 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 24.20 | 25.70 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 24.70 | 24.75 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 25.20 | 25.25 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 25.50 | 25.70 |
| SCA | 7/19/2017 | 50 | Bare | 25.70 | 26.50 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 26.50 | 26.60 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 26.50 | 26.60 |
| SCA | 7/19/2017 | 50 | Bare | 26.60 | 27.00 |

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|---|---|---|---|---|---|
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 27.00 | 27.05 |
| SCA | 7/19/2017 | 50 | Bare | 27.05 | 30.70 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 28.60 | 58.70 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 30.70 | 30.90 |
| SCA | 7/19/2017 | 50 | Bare | 30.90 | 31.10 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 31.10 | 31.30 |
| SCA | 7/19/2017 | 50 | Bare | 31.30 | 31.45 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 31.45 | 31.60 |
| SCA | 7/19/2017 | 50 | Bare | 31.60 | 31.90 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 31.90 | 36.90 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 32.80 | 33.40 |
| SCA | 7/19/2017 | 50 | Charophytes | 33.20 | 33.25 |
| SCA | 7/19/2017 | 50 | Charophytes | 33.70 | 33.90 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 33.80 | 35.50 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 33.90 | 33.95 |
| SCA | 7/19/2017 | 50 | Charophytes | 34.20 | 34.50 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 34.20 | 34.30 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 34.50 | 34.60 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 34.80 | 34.90 |
| SCA | 7/19/2017 | 50 | Charophytes | 34.90 | 35.10 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 36.00 | 36.10 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 36.00 | 36.20 |
| SCA | 7/19/2017 | 50 | Charophytes | 36.30 | 36.40 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 36.40 | 39.00 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 36.60 | 36.80 |
| SCA | 7/19/2017 | 50 | Charophytes | 36.70 | 37.40 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 37.10 | 39.00 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 37.30 | 37.50 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 37.60 | 37.70 |
| SCA | 7/19/2017 | 50 | Charophytes | 37.70 | 37.90 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 38.00 | 38.30 |
| SCA | 7/19/2017 | 50 | Charophytes | 38.20 | 40.60 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 39.10 | 41.40 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 39.10 | 39.90 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 39.20 | 39.25 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 39.80 | 39.90 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 40.20 | 41.40 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 40.30 | 40.40 |
| SCA | 7/19/2017 | 50 | Charophytes | 40.70 | 42.70 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 41.30 | 41.40 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 41.60 | 41.65 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 41.60 | 41.70 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 41.60 | 41.80 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 41.80 | 41.90 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 42.00 | 42.05 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 42.20 | 46.80 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 42.20 | 43.50 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 42.60 | 42.65 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 42.80 | 43.30 |
| SCA | 7/19/2017 | 50 | Sagittaria subulata | 42.80 | 42.85 |
| SCA | 7/19/2017 | 50 | Charophytes | 42.80 | 42.85 |
| SCA | 7/19/2017 | 50 | Charophytes | 43.20 | 43.60 |

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|---|---|---|---|---|---|
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 43.40 | 43.50 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 43.50 | 43.55 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 43.80 | 44.00 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 43.80 | 45.10 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 43.90 | 44.00 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 44.00 | 44.10 |
| SCA | 7/19/2017 | 50 | Charophytes | 44.00 | 44.20 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 44.30 | 44.50 |
| SCA | 7/19/2017 | 50 | Charophytes | 44.30 | 44.50 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 44.70 | 44.80 |
| SCA | 7/19/2017 | 50 | Charophytes | 44.70 | 45.00 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 44.70 | 44.75 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 44.80 | 44.90 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 45.00 | 45.05 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 45.30 | 47.60 |
| SCA | 7/19/2017 | 50 | Charophytes | 45.30 | 46.10 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 45.50 | 45.60 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 45.50 | 46.20 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 45.70 | 45.80 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 45.90 | 46.00 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 46.40 | 46.50 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 46.40 | 46.45 |
| SCA | 7/19/2017 | 50 | Charophytes | 46.40 | 46.80 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 46.60 | 46.70 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 46.60 | 46.80 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 46.70 | 46.80 |
| SCA | 7/19/2017 | 50 | Charophytes | 46.90 | 49.50 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 46.90 | 47.70 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 47.00 | 47.10 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 47.10 | 47.20 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 47.40 | 48.70 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 47.50 | 47.60 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 47.80 | 48.00 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 47.80 | 47.90 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 47.80 | 51.80 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 48.20 | 48.60 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 48.30 | 48.80 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 48.80 | 49.70 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 49.00 | 49.20 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 49.10 | 49.30 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 49.30 | 49.40 |
| SCA | 7/19/2017 | 50 | Charophytes | 49.60 | 49.65 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 49.80 | 49.90 |
| SCA | 7/19/2017 | 50 | Charophytes | 49.80 | 49.90 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 49.80 | 51.10 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 50.00 | 50.40 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 50.10 | 50.20 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 50.30 | 50.40 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 50.50 | 50.70 |
| SCA | 7/19/2017 | 50 | Charophytes | 50.80 | 51.00 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 50.90 | 51.80 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 51.00 | 51.30 |

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|---|---|---|---|---|---|
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 51.20 | 51.30 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 51.20 | 51.80 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 51.50 | 51.55 |
| SCA | 7/19/2017 | 50 | Bare | 51.80 | 51.90 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 51.90 | 53.80 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 51.90 | 52.30 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 52.00 | 52.05 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 52.10 | 52.50 |
| SCA | 7/19/2017 | 50 | Charophytes | 52.20 | 52.60 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 52.20 | 52.30 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 52.40 | 52.80 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 52.60 | 57.30 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 52.80 | 52.85 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 52.90 | 53.00 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 53.20 | 53.80 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 53.20 | 53.30 |
| SCA | 7/19/2017 | 50 | Charophytes | 53.60 | 54.40 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 53.90 | 55.00 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 54.00 | 54.10 |
| SCA | 7/19/2017 | 50 | Charophytes | 54.60 | 55.00 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 54.60 | 54.65 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 54.90 | 55.10 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 55.10 | 56.20 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 55.20 | 55.25 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 55.20 | 55.40 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 55.70 | 55.80 |
| SCA | 7/19/2017 | 50 | Charophytes | 56.00 | 56.30 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 56.00 | 56.05 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 56.10 | 56.15 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 56.20 | 56.50 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 56.40 | 59.60 |
| SCA | 7/19/2017 | 50 | Charophytes | 56.60 | 57.90 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 56.60 | 56.80 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 56.70 | 56.90 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 56.70 | 56.90 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 57.00 | 57.20 |
| SCA | 7/19/2017 | 50 | Micranthemum sp. | 57.10 | 57.80 |
| SCA | 7/19/2017 | 50 | Ruppia maritima | 57.20 | 57.40 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 57.20 | 58.80 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 57.30 | 57.40 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 57.70 | 58.20 |
| SCA | 7/19/2017 | 50 | Ruppia maritima | 57.70 | 57.75 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 58.00 | 58.90 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 58.00 | 58.10 |
| SCA | 7/19/2017 | 50 | Charophytes | 58.20 | 58.30 |
| SCA | 7/19/2017 | 50 | Charophytes | 58.80 | 58.90 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 59.00 | 59.20 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 59.20 | 60.10 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 59.30 | 59.50 |
| SCA | 7/19/2017 | 50 | Ruppia maritima | 59.30 | 59.50 |
| SCA | 7/19/2017 | 50 | Charophytes | 59.40 | 59.70 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 59.60 | 60.40 |

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|---|---|---|---|---|---|
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 59.60 | 59.65 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 59.70 | 69.20 |
| SCA | 7/19/2017 | 50 | Charophytes | 60.30 | 60.40 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 60.50 | 60.60 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 60.50 | 60.90 |
| SCA | 7/19/2017 | 50 | Charophytes | 61.20 | 61.70 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 61.20 | 61.25 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 61.90 | 62.10 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 62.00 | 62.30 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 62.00 | 63.60 |
| SCA | 7/19/2017 | 50 | Charophytes | 62.10 | 62.20 |
| SCA | 7/19/2017 | 50 | Charophytes | 62.40 | 62.45 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 62.80 | 63.00 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 63.40 | 63.45 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 63.40 | 63.60 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 63.70 | 63.75 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 63.80 | 63.90 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 63.80 | 64.20 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 63.80 | 64.10 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 64.00 | 64.30 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 64.20 | 64.50 |
| SCA | 7/19/2017 | 50 | Charophytes | 64.20 | 64.30 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 64.30 | 65.60 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 65.00 | 73.30 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 65.10 | 65.15 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 65.40 | 65.45 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 65.60 | 66.50 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 65.80 | 66.20 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 66.50 | 67.00 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 66.60 | 67.00 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 67.10 | 67.20 |
| SCA | 7/19/2017 | 50 | Potamogeton pusillus | 67.30 | 67.35 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 68.80 | 69.00 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 69.30 | 69.50 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 69.50 | 76.70 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 70.50 | 70.70 |
| SCA | 7/19/2017 | 50 | Najas guadalupensis | 72.50 | 72.55 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 74.30 | 76.20 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 75.30 | 75.50 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 76.50 | 76.70 |
| SCA | 7/19/2017 | 50 | Bare | 76.70 | 76.90 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 76.90 | 76.95 |
| SCA | 7/19/2017 | 50 | Bare | 76.95 | 77.40 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 77.40 | 77.50 |
| SCA | 7/19/2017 | 50 | Bare | 77.50 | 78.50 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 78.50 | 79.00 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 79.00 | 84.10 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 79.30 | 79.31 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 79.70 | 80.70 |
| SCA | 7/19/2017 | 50 | Vallisneria americana | 80.90 | 191.00 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 81.60 | 81.80 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 84.90 | 85.20 |

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|---|---|---|---|---|---|
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 84.90 | 85.20 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 86.10 | 86.50 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 86.70 | 86.90 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 87.20 | 88.30 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 87.20 | 87.30 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 88.20 | 88.40 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 92.00 | 93.60 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 94.50 | 96.90 |
| SCA | 7/19/2017 | 50 | Hydrilla verticillata | 98.20 | 104.10 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 98.70 | 98.80 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 103.60 | 103.70 |
| SCA | 7/19/2017 | 50 | Ceratophyllum demersum | 153.20 | 153.40 |
| ORG | 11/2/2017 | 0 | Bare | 0.00 | 25.60 |
| ORG | 11/2/2017 | 0 | Vallisneria americana | 25.60 | 25.65 |
| ORG | 11/2/2017 | 12 | Bare | 0.00 | 28.30 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 28.30 | 28.35 |
| ORG | 11/2/2017 | 12 | Bare | 28.35 | 29.60 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 29.60 | 29.70 |
| ORG | 11/2/2017 | 12 | Bare | 29.70 | 29.80 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 29.80 | 29.85 |
| ORG | 11/2/2017 | 12 | Bare | 29.85 | 30.10 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 30.10 | 30.15 |
| ORG | 11/2/2017 | 12 | Bare | 30.15 | 30.20 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 30.20 | 30.40 |
| ORG | 11/2/2017 | 12 | Bare | 30.40 | 30.50 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 30.50 | 30.80 |
| ORG | 11/2/2017 | 12 | Bare | 30.80 | 31.70 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 31.70 | 31.90 |
| ORG | 11/2/2017 | 12 | Bare | 31.90 | 32.00 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 32.00 | 32.40 |
| ORG | 11/2/2017 | 12 | Bare | 32.40 | 32.70 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 32.70 | 32.90 |
| ORG | 11/2/2017 | 12 | Bare | 32.90 | 33.00 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 33.00 | 33.20 |
| ORG | 11/2/2017 | 12 | Bare | 33.20 | 33.50 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 33.50 | 33.55 |
| ORG | 11/2/2017 | 12 | Bare | 33.55 | 33.80 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 33.80 | 33.85 |
| ORG | 11/2/2017 | 12 | Bare | 33.85 | 34.60 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 34.60 | 34.90 |
| ORG | 11/2/2017 | 12 | Bare | 34.90 | 35.20 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 35.20 | 35.40 |
| ORG | 11/2/2017 | 12 | Bare | 35.40 | 35.60 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 35.60 | 35.65 |
| ORG | 11/2/2017 | 12 | Bare | 35.65 | 35.80 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 35.80 | 35.85 |
| ORG | 11/2/2017 | 12 | Bare | 35.85 | 40.30 |
| ORG | 11/2/2017 | 12 | Vallisneria americana | 40.30 | 40.35 |
| ORG | 11/3/2017 | 25 | Bare | 0.00 | 31.10 |
| ORG | 11/3/2017 | 25 | Vallisneria americana | 31.10 | 31.15 |
| ORG | 11/3/2017 | 25 | Bare | 31.15 | 31.20 |
| ORG | 11/3/2017 | 25 | Vallisneria americana | 31.20 | 31.25 |

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|---|---|---|---|---|---|
| ORG | 11/3/2017 | 25 | Bare | 31.25 | 31.80 |
| ORG | 11/3/2017 | 25 | Vallisneria americana | 31.80 | 31.85 |
| ORG | 11/3/2017 | 25 | Bare | 31.85 | 32.40 |
| ORG | 11/3/2017 | 25 | Vallisneria americana | 32.40 | 32.45 |
| ORG | 11/3/2017 | 25 | Bare | 32.45 | 32.60 |
| ORG | 11/3/2017 | 25 | Vallisneria americana | 32.60 | 32.65 |
| ORG | 11/3/2017 | 25 | Bare | 32.65 | 33.10 |
| ORG | 11/3/2017 | 25 | Vallisneria americana | 33.10 | 33.20 |
| ORG | 11/3/2017 | 25 | Bare | 33.20 | 33.40 |
| ORG | 11/3/2017 | 25 | Vallisneria americana | 33.40 | 33.45 |
| ORG | 11/3/2017 | 25 | Bare | 33.45 | 33.90 |
| ORG | 11/3/2017 | 25 | Vallisneria americana | 33.90 | 34.50 |
| ORG | 11/3/2017 | 25 | Bare | 34.50 | 34.60 |
| ORG | 11/3/2017 | 25 | Vallisneria americana | 34.60 | 35.00 |
| ORG | 11/3/2017 | 38 | Bare | 0.00 | 26.10 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 26.10 | 26.15 |
| ORG | 11/3/2017 | 38 | Bare | 26.15 | 26.40 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 26.40 | 26.45 |
| ORG | 11/3/2017 | 38 | Bare | 26.45 | 26.80 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 26.80 | 26.85 |
| ORG | 11/3/2017 | 38 | Bare | 26.85 | 26.95 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 26.95 | 27.00 |
| ORG | 11/3/2017 | 38 | Bare | 27.00 | 27.25 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 27.25 | 27.30 |
| ORG | 11/3/2017 | 38 | Bare | 27.30 | 27.45 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 27.45 | 27.60 |
| ORG | 11/3/2017 | 38 | Bare | 27.60 | 27.80 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 27.80 | 28.00 |
| ORG | 11/3/2017 | 38 | Bare | 28.00 | 28.15 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 28.15 | 28.20 |
| ORG | 11/3/2017 | 38 | Bare | 28.20 | 28.40 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 28.40 | 28.45 |
| ORG | 11/3/2017 | 38 | Bare | 28.45 | 28.65 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 28.65 | 28.70 |
| ORG | 11/3/2017 | 38 | Bare | 28.70 | 29.40 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 29.40 | 29.45 |
| ORG | 11/3/2017 | 38 | Bare | 29.45 | 29.70 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 29.70 | 29.75 |
| ORG | 11/3/2017 | 38 | Bare | 29.75 | 30.00 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 30.00 | 30.05 |
| ORG | 11/3/2017 | 38 | Bare | 30.05 | 30.20 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 30.20 | 30.25 |
| ORG | 11/3/2017 | 38 | Bare | 30.25 | 30.65 |
| ORG | 11/3/2017 | 38 | Vallisneria americana | 30.65 | 30.70 |
| ORG | 11/3/2017 | 50 | Bare | 0.00 | 28.40 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 28.40 | 28.45 |
| ORG | 11/3/2017 | 50 | Bare | 28.45 | 28.70 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 28.70 | 28.75 |
| ORG | 11/3/2017 | 50 | Bare | 28.75 | 29.65 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 29.65 | 29.70 |
| ORG | 11/3/2017 | 50 | Bare | 29.70 | 30.05 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 30.05 | 30.10 |

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| ORG | 11/3/2017 | 50 | Bare | 30.10 | 30.45 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 30.45 | 30.50 |
| ORG | 11/3/2017 | 50 | Bare | 30.50 | 30.80 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 30.80 | 30.90 |
| ORG | 11/3/2017 | 50 | Bare | 30.90 | 31.50 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 31.50 | 31.55 |
| ORG | 11/3/2017 | 50 | Bare | 31.55 | 32.80 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 32.80 | 32.85 |
| ORG | 11/3/2017 | 50 | Bare | 32.85 | 33.35 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 33.35 | 33.40 |
| ORG | 11/3/2017 | 50 | Bare | 33.40 | 33.95 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 33.95 | 34.00 |
| ORG | 11/3/2017 | 50 | Bare | 34.00 | 34.10 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 34.10 | 34.15 |
| ORG | 11/3/2017 | 50 | Bare | 34.15 | 34.35 |
| ORG | 11/3/2017 | 50 | Vallisneria americana | 34.35 | 34.40 |
| MOC | 11/2/2017 | 0 | Bare | 0.00 | 5.70 |
| MOC | 11/2/2017 | 0 | Ruppia maritima | 5.70 | 5.75 |
| MOC | 11/2/2017 | 12 | Bare | 0.00 | 15.00 |
| MOC | 11/2/2017 | 12 | Vallisneria americana | 15.00 | 15.50 |
| MOC | 11/2/2017 | 12 | Bare | 15.50 | 19.60 |
| MOC | 11/2/2017 | 12 | Vallisneria americana | 19.60 | 19.65 |
| MOC | 11/2/2017 | 12 | Bare | 19.65 | 20.30 |
| MOC | 11/2/2017 | 12 | Vallisneria americana | 20.30 | 21.40 |
| MOC | 11/2/2017 | 12 | Bare | 21.40 | 51.90 |
| MOC | 11/2/2017 | 12 | Vallisneria americana | 51.90 | 51.95 |
| MOC | 11/2/2017 | 25 | Bare | 0.00 | 17.40 |
| MOC | 11/2/2017 | 25 | Vallisneria americana | 17.40 | 17.60 |
| MOC | 11/2/2017 | 25 | Bare | 17.60 | 24.90 |
| MOC | 11/2/2017 | 25 | Vallisneria americana | 24.90 | 24.95 |
| MOC | 11/2/2017 | 25 | Bare | 24.95 | 25.00 |
| MOC | 11/2/2017 | 25 | Vallisneria americana | 25.00 | 25.05 |
| MOC | 11/2/2017 | 25 | Bare | 25.05 | 25.70 |
| MOC | 11/2/2017 | 25 | Vallisneria americana | 25.70 | 25.75 |
| MOC | 11/2/2017 | 38 | Bare | 0.00 | 17.40 |
| MOC | 11/2/2017 | 38 | Vallisneria americana | 17.40 | 18.00 |
| MOC | 11/2/2017 | 38 | Bare | 18.00 | 18.40 |
| MOC | 11/2/2017 | 38 | Vallisneria americana | 18.40 | 18.45 |
| MOC | 11/2/2017 | 38 | Bare | 18.45 | 36.70 |
| MOC | 11/2/2017 | 38 | Vallisneria americana | 36.70 | 36.75 |
| MOC | 11/2/2017 | 50 | Bare | 0.00 | 11.10 |
| MOC | 11/2/2017 | 50 | Vallisneria americana | 11.10 | 11.60 |
| MOC | 11/2/2017 | 50 | Bare | 11.60 | 13.00 |
| MOC | 11/2/2017 | 50 | Vallisneria americana | 13.00 | 13.20 |
| MOC | 11/2/2017 | 50 | Bare | 13.20 | 21.80 |
| MOC | 11/2/2017 | 50 | Vallisneria americana | 21.80 | 22.20 |
| MOC | 11/2/2017 | 50 | Bare | 22.20 | 22.60 |
| MOC | 11/2/2017 | 50 | Vallisneria americana | 22.60 | 22.90 |
| MOC | 11/2/2017 | 50 | Bare | 22.90 | 23.10 |
| MOC | 11/2/2017 | 50 | Vallisneria americana | 23.10 | 23.50 |
| MOC | 11/2/2017 | 50 | Bare | 23.50 | 46.00 |
| MOC | 11/2/2017 | 50 | Ruppia maritima | 46.00 | 46.05 |

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| MOC | 11/2/2017 | 50 | Bare | 46.05 | 74.80 |
| MOC | 11/2/2017 | 50 | Vallisneria americana | 74.80 | 74.85 |
| BUC | 11/1/2017 | 0 | Bare | 0.00 | 44.00 |
| BUC | 11/1/2017 | 12 | Bare | 0.00 | 44.00 |
| BUC | 11/1/2017 | 25 | Bare | 0.00 | 44.00 |
| BUC | 11/1/2017 | 38 | Bare | 0.00 | 44.00 |
| BUC | 11/1/2017 | 50 | Bare | 0.00 | 44.00 |
| BOL | 11/1/2017 | 0 | Bare | 0.00 | 38.00 |
| BOL | 11/1/2017 | 12 | Bare | 0.00 | 38.00 |
| BOL | 11/1/2017 | 25 | Bare | 0.00 | 38.00 |
| BOL | 11/1/2017 | 38 | Bare | 0.00 | 38.00 |
| BOL | 11/1/2017 | 50 | Bare | 0.00 | 38.00 |
| SCA | 11/6/2017 | 0 | Bare | 0.00 | 61.50 |
| SCA | 11/6/2017 | 0 | Vallisneria americana | 61.50 | 61.55 |
| SCA | 11/6/2017 | 0 | Bare | 61.55 | 62.90 |
| SCA | 11/6/2017 | 0 | Vallisneria americana | 62.90 | 63.10 |
| SCA | 11/6/2017 | 0 | Bare | 63.10 | 63.80 |
| SCA | 11/6/2017 | 0 | Vallisneria americana | 63.80 | 66.20 |
| SCA | 11/6/2017 | 0 | Bare | 66.20 | 66.40 |
| SCA | 11/6/2017 | 0 | Vallisneria americana | 66.40 | 66.50 |
| SCA | 11/6/2017 | 0 | Bare | 66.50 | 67.90 |
| SCA | 11/6/2017 | 0 | Vallisneria americana | 67.90 | 68.50 |
| SCA | 11/6/2017 | 0 | Bare | 68.50 | 71.30 |
| SCA | 11/6/2017 | 0 | Ruppia maritima | 71.30 | 71.35 |
| SCA | 11/6/2017 | 0 | Bare | 71.35 | 71.80 |
| SCA | 11/6/2017 | 0 | Vallisneria americana | 71.80 | 71.85 |
| SCA | 11/6/2017 | 0 | Bare | 71.85 | 72.50 |
| SCA | 11/6/2017 | 0 | Vallisneria americana | 72.50 | 73.10 |
| SCA | 11/6/2017 | 0 | Bare | 73.10 | 73.50 |
| SCA | 11/6/2017 | 0 | Ruppia maritima | 73.50 | 73.90 |
| SCA | 11/6/2017 | 0 | Bare | 73.90 | 74.20 |
| SCA | 11/6/2017 | 0 | Vallisneria americana | 74.20 | 78.00 |
| SCA | 11/6/2017 | 0 | Bare | 78.00 | 80.30 |
| SCA | 11/6/2017 | 0 | Vallisneria americana | 80.30 | 135.00 |
| SCA | 11/6/2017 | 0 | Bare | 135.00 | 135.40 |
| SCA | 11/6/2017 | 0 | Vallisneria americana | 135.40 | 138.40 |
| SCA | 11/6/2017 | 12 | Bare | 0.00 | 61.70 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 61.70 | 61.75 |
| SCA | 11/6/2017 | 12 | Bare | 61.75 | 62.50 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 62.50 | 62.55 |
| SCA | 11/6/2017 | 12 | Bare | 62.55 | 63.80 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 63.80 | 64.00 |
| SCA | 11/6/2017 | 12 | Bare | 64.00 | 64.50 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 64.50 | 64.55 |
| SCA | 11/6/2017 | 12 | Bare | 64.55 | 65.20 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 65.20 | 65.25 |
| SCA | 11/6/2017 | 12 | Bare | 65.25 | 65.70 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 65.70 | 67.20 |
| SCA | 11/6/2017 | 12 | Bare | 67.20 | 67.50 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 67.50 | 67.80 |
| SCA | 11/6/2017 | 12 | Bare | 67.80 | 72.00 |
| SCA | 11/6/2017 | 12 | Hydrilla verticillata | 72.00 | 72.05 |

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|---|---|---|---|---|---|
| SCA | 11/6/2017 | 12 | Bare | 72.05 | 75.75 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 75.75 | 75.80 |
| SCA | 11/6/2017 | 12 | Bare | 75.80 | 76.40 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 76.40 | 76.95 |
| SCA | 11/6/2017 | 12 | Bare | 76.95 | 77.10 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 77.10 | 77.15 |
| SCA | 11/6/2017 | 12 | Bare | 77.15 | 78.60 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 78.60 | 78.70 |
| SCA | 11/6/2017 | 12 | Bare | 78.70 | 79.60 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 79.60 | 79.90 |
| SCA | 11/6/2017 | 12 | Bare | 79.90 | 82.15 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 82.15 | 82.30 |
| SCA | 11/6/2017 | 12 | Bare | 82.30 | 82.60 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 82.60 | 82.90 |
| SCA | 11/6/2017 | 12 | Bare | 82.90 | 83.60 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 83.60 | 83.65 |
| SCA | 11/6/2017 | 12 | Bare | 83.65 | 83.80 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 83.80 | 83.85 |
| SCA | 11/6/2017 | 12 | Bare | 83.85 | 84.05 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 84.05 | 84.10 |
| SCA | 11/6/2017 | 12 | Bare | 84.10 | 84.20 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 84.20 | 86.05 |
| SCA | 11/6/2017 | 12 | Bare | 86.05 | 86.20 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 86.20 | 86.60 |
| SCA | 11/6/2017 | 12 | Bare | 86.60 | 87.40 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 87.40 | 88.90 |
| SCA | 11/6/2017 | 12 | Bare | 88.90 | 89.20 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 89.20 | 89.25 |
| SCA | 11/6/2017 | 12 | Bare | 89.25 | 89.70 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 89.70 | 89.75 |
| SCA | 11/6/2017 | 12 | Bare | 89.75 | 90.40 |
| SCA | 11/6/2017 | 12 | Bare | 90.40 | 90.45 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 90.45 | 91.50 |
| SCA | 11/6/2017 | 12 | Bare | 91.50 | 91.55 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 91.55 | 91.90 |
| SCA | 11/6/2017 | 12 | Bare | 91.90 | 98.70 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 98.70 | 99.70 |
| SCA | 11/6/2017 | 12 | Bare | 99.70 | 99.75 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 99.75 | 100.90 |
| SCA | 11/6/2017 | 12 | Bare | 100.90 | 101.60 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 101.60 | 102.40 |
| SCA | 11/6/2017 | 12 | Bare | 102.40 | 102.45 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 102.45 | 103.60 |
| SCA | 11/6/2017 | 12 | Bare | 103.60 | 103.65 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 103.65 | 103.90 |
| SCA | 11/6/2017 | 12 | Bare | 103.90 | 103.95 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 103.95 | 104.25 |
| SCA | 11/6/2017 | 12 | Bare | 104.25 | 104.30 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 104.30 | 104.70 |
| SCA | 11/6/2017 | 12 | Bare | 104.70 | 104.75 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 104.75 | 105.40 |
| SCA | 11/6/2017 | 12 | Bare | 105.40 | 105.45 |

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|---|---|---|---|---|---|
| SCA | 11/6/2017 | 12 | Vallisneria americana | 105.45 | 105.70 |
| SCA | 11/6/2017 | 12 | Bare | 105.70 | 109.15 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 109.15 | 110.70 |
| SCA | 11/6/2017 | 12 | Bare | 110.70 | 110.80 |
| SCA | 11/6/2017 | 12 | Vallisneria americana | 110.80 | 112.30 |
| SCA | 11/6/2017 | 25 | Bare | 0.00 | 65.40 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 65.40 | 65.50 |
| SCA | 11/6/2017 | 25 | Bare | 65.50 | 65.70 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 65.70 | 65.90 |
| SCA | 11/6/2017 | 25 | Bare | 65.90 | 66.20 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 66.20 | 66.40 |
| SCA | 11/6/2017 | 25 | Bare | 66.40 | 67.30 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 67.30 | 67.35 |
| SCA | 11/6/2017 | 25 | Bare | 67.35 | 67.60 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 67.60 | 68.00 |
| SCA | 11/6/2017 | 25 | Bare | 68.00 | 68.70 |
| SCA | 11/6/2017 | 25 | Hydrilla verticillata | 68.70 | 68.75 |
| SCA | 11/6/2017 | 25 | Bare | 68.75 | 69.90 |
| SCA | 11/6/2017 | 25 | Hydrilla verticillata | 69.90 | 69.95 |
| SCA | 11/6/2017 | 25 | Bare | 69.95 | 82.40 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 82.40 | 82.45 |
| SCA | 11/6/2017 | 25 | Bare | 82.45 | 85.50 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 85.50 | 85.60 |
| SCA | 11/6/2017 | 25 | Bare | 85.60 | 87.40 |
| SCA | 11/6/2017 | 25 | Hydrilla verticillata | 87.40 | 87.45 |
| SCA | 11/6/2017 | 25 | Bare | 87.45 | 88.90 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 88.90 | 88.95 |
| SCA | 11/6/2017 | 25 | Bare | 88.95 | 90.30 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 90.30 | 90.35 |
| SCA | 11/6/2017 | 25 | Bare | 90.35 | 91.90 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 91.90 | 92.10 |
| SCA | 11/6/2017 | 25 | Bare | 92.10 | 92.80 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 92.80 | 92.85 |
| SCA | 11/6/2017 | 25 | Bare | 92.85 | 93.30 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 93.30 | 93.35 |
| SCA | 11/6/2017 | 25 | Bare | 93.35 | 93.80 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 93.80 | 93.90 |
| SCA | 11/6/2017 | 25 | Bare | 93.90 | 94.00 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 94.00 | 94.10 |
| SCA | 11/6/2017 | 25 | Bare | 94.10 | 94.40 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 94.40 | 94.45 |
| SCA | 11/6/2017 | 25 | Bare | 94.45 | 95.10 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 95.10 | 100.00 |
| SCA | 11/6/2017 | 25 | Bare | 100.00 | 100.50 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 100.50 | 101.10 |

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|---|---|---|---|---|---|
| SCA | 11/6/2017 | 25 | Bare | 101.10 | 101.70 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 101.70 | 101.75 |
| SCA | 11/6/2017 | 25 | Bare | 101.75 | 102.70 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 102.70 | 102.75 |
| SCA | 11/6/2017 | 25 | Bare | 102.75 | 104.40 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 104.40 | 104.45 |
| SCA | 11/6/2017 | 25 | Bare | 104.45 | 105.20 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 105.20 | 105.25 |
| SCA | 11/6/2017 | 25 | Bare | 105.25 | 106.00 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 106.00 | 106.60 |
| SCA | 11/6/2017 | 25 | Bare | 106.60 | 106.80 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 106.80 | 107.40 |
| SCA | 11/6/2017 | 25 | Bare | 107.40 | 107.80 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 107.80 | 108.70 |
| SCA | 11/6/2017 | 25 | Bare | 108.70 | 109.00 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 109.00 | 110.20 |
| SCA | 11/6/2017 | 25 | Bare | 110.20 | 110.50 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 110.50 | 111.00 |
| SCA | 11/6/2017 | 25 | Bare | 111.00 | 112.30 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 112.30 | 112.35 |
| SCA | 11/6/2017 | 25 | Bare | 112.35 | 113.60 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 113.60 | 113.65 |
| SCA | 11/6/2017 | 25 | Bare | 113.65 | 114.40 |
| SCA | 11/6/2017 | 25 | Charophytes | 114.40 | 114.45 |
| SCA | 11/6/2017 | 25 | Bare | 114.45 | 114.70 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 114.70 | 114.75 |
| SCA | 11/6/2017 | 25 | Bare | 114.75 | 116.30 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 116.30 | 116.35 |
| SCA | 11/6/2017 | 25 | Bare | 116.35 | 116.70 |
| SCA | 11/6/2017 | 25 | Charophytes | 116.70 | 116.75 |
| SCA | 11/6/2017 | 25 | Bare | 116.75 | 116.90 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 116.90 | 116.95 |
| SCA | 11/6/2017 | 25 | Bare | 116.95 | 117.60 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 117.60 | 117.80 |
| SCA | 11/6/2017 | 25 | Bare | 117.80 | 118.30 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 118.30 | 118.35 |
| SCA | 11/6/2017 | 25 | Bare | 118.35 | 118.90 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 118.90 | 118.95 |
| SCA | 11/6/2017 | 25 | Bare | 118.95 | 120.00 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 120.00 | 120.05 |
| SCA | 11/6/2017 | 25 | Bare | 120.05 | 121.70 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 121.70 | 121.75 |
| SCA | 11/6/2017 | 25 | Bare | 121.75 | 122.00 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 122.00 | 122.05 |

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|---|---|---|---|---|---|
| SCA | 11/6/2017 | 25 | Bare | 122.05 | 122.10 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 122.10 | 122.50 |
| SCA | 11/6/2017 | 25 | Bare | 122.50 | 122.80 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 122.80 | 150.20 |
| SCA | 11/6/2017 | 25 | Bare | 150.20 | 150.80 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 150.80 | 153.00 |
| SCA | 11/6/2017 | 25 | Bare | 153.00 | 153.80 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 153.80 | 173.30 |
| SCA | 11/6/2017 | 25 | Bare | 173.30 | 174.60 |
| SCA | 11/6/2017 | 25 | Vallisneria americana | 174.60 | 176.00 |
| SCA | 11/6/2017 | 38 | Bare | 0.00 | 50.10 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 50.10 | 50.15 |
| SCA | 11/6/2017 | 38 | Bare | 50.15 | 52.80 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 52.80 | 52.85 |
| SCA | 11/6/2017 | 38 | Bare | 52.85 | 54.30 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 54.30 | 54.35 |
| SCA | 11/6/2017 | 38 | Bare | 54.35 | 55.70 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 55.70 | 55.75 |
| SCA | 11/6/2017 | 38 | Bare | 55.75 | 55.90 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 55.90 | 55.95 |
| SCA | 11/6/2017 | 38 | Bare | 55.95 | 56.80 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 56.80 | 57.10 |
| SCA | 11/6/2017 | 38 | Bare | 57.10 | 59.80 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 59.80 | 59.85 |
| SCA | 11/6/2017 | 38 | Bare | 59.85 | 63.80 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 63.80 | 63.85 |
| SCA | 11/6/2017 | 38 | Bare | 63.85 | 85.30 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 85.30 | 85.35 |
| SCA | 11/6/2017 | 38 | Bare | 85.35 | 87.60 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 87.60 | 87.65 |
| SCA | 11/6/2017 | 38 | Bare | 87.65 | 89.60 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 89.60 | 89.65 |
| SCA | 11/6/2017 | 38 | Bare | 89.65 | 92.40 |
| SCA | 11/6/2017 | 38 | Hydrilla verticillata | 92.40 | 92.45 |
| SCA | 11/6/2017 | 38 | Bare | 92.45 | 94.10 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 94.10 | 94.15 |
| SCA | 11/6/2017 | 38 | Bare | 94.15 | 113.70 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 113.70 | 113.75 |
| SCA | 11/6/2017 | 38 | Bare | 113.75 | 114.35 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 114.35 | 114.40 |
| SCA | 11/6/2017 | 38 | Bare | 114.40 | 114.95 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 114.95 | 115.20 |
| SCA | 11/6/2017 | 38 | Bare | 115.20 | 116.10 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 116.10 | 116.20 |
| SCA | 11/6/2017 | 38 | Bare | 116.20 | 117.35 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 117.35 | 117.80 |
| SCA | 11/6/2017 | 38 | Bare | 117.80 | 118.05 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 118.05 | 118.15 |
| SCA | 11/6/2017 | 38 | Bare | 118.15 | 118.80 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 118.80 | 118.85 |

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|---|---|---|---|---|---|
| SCA | 11/6/2017 | 38 | Bare | 118.85 | 119.25 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 119.25 | 119.30 |
| SCA | 11/6/2017 | 38 | Bare | 119.30 | 120.35 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 120.35 | 120.40 |
| SCA | 11/6/2017 | 38 | Bare | 120.40 | 120.75 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 120.75 | 121.35 |
| SCA | 11/6/2017 | 38 | Bare | 121.35 | 121.60 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 121.60 | 121.65 |
| SCA | 11/6/2017 | 38 | Bare | 121.65 | 122.95 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 122.95 | 123.00 |
| SCA | 11/6/2017 | 38 | Bare | 123.00 | 123.40 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 123.40 | 123.55 |
| SCA | 11/6/2017 | 38 | Bare | 123.55 | 124.60 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 124.60 | 124.65 |
| SCA | 11/6/2017 | 38 | Bare | 124.65 | 125.00 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 125.00 | 125.05 |
| SCA | 11/6/2017 | 38 | Bare | 125.05 | 125.30 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 125.30 | 125.35 |
| SCA | 11/6/2017 | 38 | Bare | 125.35 | 125.70 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 125.70 | 125.75 |
| SCA | 11/6/2017 | 38 | Bare | 125.75 | 126.00 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 126.00 | 126.40 |
| SCA | 11/6/2017 | 38 | Bare | 126.40 | 126.90 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 126.90 | 126.95 |
| SCA | 11/6/2017 | 38 | Bare | 126.95 | 127.75 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 127.75 | 127.80 |
| SCA | 11/6/2017 | 38 | Bare | 127.80 | 128.15 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 128.15 | 129.65 |
| SCA | 11/6/2017 | 38 | Bare | 129.65 | 130.10 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 130.10 | 131.05 |
| SCA | 11/6/2017 | 38 | Bare | 131.05 | 132.70 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 132.70 | 133.05 |
| SCA | 11/6/2017 | 38 | Bare | 133.05 | 133.50 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 133.50 | 134.10 |
| SCA | 11/6/2017 | 38 | Bare | 134.10 | 134.40 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 134.40 | 135.20 |
| SCA | 11/6/2017 | 38 | Bare | 135.20 | 135.80 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 135.80 | 136.10 |
| SCA | 11/6/2017 | 38 | Bare | 136.10 | 136.55 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 136.55 | 161.05 |
| SCA | 11/6/2017 | 38 | Bare | 161.05 | 161.60 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 161.60 | 171.90 |
| SCA | 11/6/2017 | 38 | Bare | 171.90 | 172.55 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 172.55 | 177.90 |
| SCA | 11/6/2017 | 38 | Bare | 177.90 | 178.30 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 178.30 | 188.70 |
| SCA | 11/6/2017 | 38 | Bare | 188.70 | 189.20 |
| SCA | 11/6/2017 | 38 | Vallisneria americana | 189.20 | 189.25 |
| SCA | 11/6/2017 | 50 | Bare | 0.00 | 64.90 |
| SCA | 11/6/2017 | 50 | Hydrilla verticillata | 64.90 | 64.95 |
| SCA | 11/6/2017 | 50 | Bare | 64.95 | 98.00 |
| SCA | 11/6/2017 | 50 | Najas guadalupensis | 98.00 | 98.05 |

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| SCA | 11/6/2017 | 50 | Bare | 98.05 | 101.00 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 101.00 | 101.05 |
| SCA | 11/6/2017 | 50 | Bare | 101.05 | 102.70 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 102.70 | 103.60 |
| SCA | 11/6/2017 | 50 | Bare | 103.60 | 104.20 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 104.20 | 106.20 |
| SCA | 11/6/2017 | 50 | Bare | 106.20 | 107.80 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 107.80 | 107.90 |
| SCA | 11/6/2017 | 50 | Bare | 107.90 | 109.60 |
| SCA | 11/6/2017 | 50 | Hydrilla verticillata | 109.60 | 109.65 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 109.60 | 109.65 |
| SCA | 11/6/2017 | 50 | Bare | 109.65 | 110.80 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 110.80 | 111.20 |
| SCA | 11/6/2017 | 50 | Bare | 111.20 | 111.70 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 111.70 | 115.50 |
| SCA | 11/6/2017 | 50 | Hydrilla verticillata | 114.20 | 114.25 |
| SCA | 11/6/2017 | 50 | Bare | 115.50 | 118.10 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 118.10 | 118.15 |
| SCA | 11/6/2017 | 50 | Bare | 118.15 | 120.00 |
| SCA | 11/6/2017 | 50 | Najas guadalupensis | 120.00 | 120.05 |
| SCA | 11/6/2017 | 50 | Bare | 120.05 | 122.10 |
| SCA | 11/6/2017 | 50 | Najas guadalupensis | 122.10 | 122.15 |
| SCA | 11/6/2017 | 50 | Bare | 122.15 | 122.80 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 122.80 | 122.85 |
| SCA | 11/6/2017 | 50 | Bare | 122.85 | 124.20 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 124.20 | 124.25 |
| SCA | 11/6/2017 | 50 | Bare | 124.25 | 124.70 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 124.70 | 124.75 |
| SCA | 11/6/2017 | 50 | Bare | 124.75 | 125.50 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 125.50 | 125.90 |
| SCA | 11/6/2017 | 50 | Bare | 125.90 | 126.10 |
| SCA | 11/6/2017 | 50 | Hydrilla verticillata | 126.10 | 126.15 |
| SCA | 11/6/2017 | 50 | Bare | 126.15 | 126.40 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 126.40 | 127.10 |
| SCA | 11/6/2017 | 50 | Bare | 127.10 | 128.00 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 128.00 | 128.60 |
| SCA | 11/6/2017 | 50 | Bare | 128.60 | 128.80 |
| SCA | 11/6/2017 | 50 | Hydrilla verticillata | 128.80 | 128.85 |
| SCA | 11/6/2017 | 50 | Bare | 128.85 | 129.10 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 129.10 | 129.15 |
| SCA | 11/6/2017 | 50 | Bare | 129.15 | 129.40 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 129.40 | 130.00 |
| SCA | 11/6/2017 | 50 | Bare | 130.00 | 130.50 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 130.50 | 131.20 |
| SCA | 11/6/2017 | 50 | Bare | 131.20 | 131.50 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 131.50 | 131.55 |
| SCA | 11/6/2017 | 50 | Bare | 131.55 | 131.90 |
| SCA | 11/6/2017 | 50 | Hydrilla verticillata | 131.90 | 131.95 |
| SCA | 11/6/2017 | 50 | Bare | 131.95 | 133.10 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 133.10 | 134.20 |
| SCA | 11/6/2017 | 50 | Bare | 134.20 | 134.50 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 134.50 | 134.90 |

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|---|---|---|---|---|---|
| SCA | 11/6/2017 | 50 | Bare | 134.90 | 135.30 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 135.30 | 136.90 |
| SCA | 11/6/2017 | 50 | Bare | 136.90 | 137.30 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 137.30 | 137.35 |
| SCA | 11/6/2017 | 50 | Bare | 137.35 | 138.60 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 138.60 | 139.00 |
| SCA | 11/6/2017 | 50 | Bare | 139.00 | 139.50 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 139.50 | 142.00 |
| SCA | 11/6/2017 | 50 | Bare | 142.00 | 142.50 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 142.50 | 143.70 |
| SCA | 11/6/2017 | 50 | Bare | 143.70 | 144.10 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 144.10 | 144.60 |
| SCA | 11/6/2017 | 50 | Bare | 144.60 | 144.90 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 144.90 | 170.00 |
| SCA | 11/6/2017 | 50 | Bare | 170.00 | 170.50 |
| SCA | 11/6/2017 | 50 | Vallisneria americana | 170.50 | 184.00 |
| GT002 | 11/1/2017 | 0 | Bare | 0.00 | 10.00 |
| GT002 | 11/1/2017 | 12 | Bare | 0.00 | 10.00 |
| GT002 | 11/1/2017 | 25 | Bare | 0.00 | 10.00 |
| GT002 | 11/1/2017 | 38 | Bare | 0.00 | 10.00 |
| GT002 | 11/1/2017 | 50 | Bare | 0.00 | 10.00 |
| GT006 | 11/1/2017 | 0 | Bare | 0.00 | 10.00 |
| GT006 | 11/1/2017 | 12 | Bare | 0.00 | 10.00 |
| GT006 | 11/1/2017 | 25 | Bare | 0.00 | 10.00 |
| GT006 | 11/1/2017 | 38 | Bare | 0.00 | 10.00 |
| GT006 | 11/1/2017 | 50 | Bare | 0.00 | 10.00 |

| Site | Sample Date | Dist along shore | Dist from shore | Sediment Type | SAV Density | Depth |
|---|---|---|---|---|---|---|
| BOL | 7/14/2017 | 0 | 4.3 | 1 | 1 | 48 |
| BOL | 7/14/2017 | 0 | 10 | 1 | 1 | 52 |
| BOL | 7/14/2017 | 0 | 20 | 1 | 2 | 49 |
| BOL | 7/14/2017 | 0 | 29.2 | 1 | 1 | 49 |
| BOL | 7/14/2017 | 0 | 30 | 1 | 0 | 50 |
| BOL | 7/14/2017 | 0 | 40 | 1 | 0 | 53 |
| BOL | 7/14/2017 | 0 | 43.5 | 1 | 1 | 53 |
| BOL | 7/14/2017 | 0 | 50 | 1 | 0 | 55 |
| BOL | 7/14/2017 | 0 | 60 | 1 | 0 | 60 |
| BOL | 7/14/2017 | 0 | 70 | 1 | 0 | 63 |
| BOL | 7/14/2017 | 0 | 76.55 | 1 | 1 | 64 |
| BOL | 7/14/2017 | 12 | 7 | 1 | 1 | 48 |
| BOL | 7/14/2017 | 12 | 12 | 1 | 1 | 49 |
| BOL | 7/14/2017 | 12 | 20 | 1 | 0 | 40 |
| BOL | 7/14/2017 | 12 | 30 | 1 | 0 | 50 |
| BOL | 7/14/2017 | 12 | 31 | 1 | 1 | 50 |
| BOL | 7/14/2017 | 12 | 40 | 1 | 0 | 52 |
| BOL | 7/14/2017 | 12 | 42 | 1 | 1 | 52 |
| BOL | 7/14/2017 | 12 | 50 | 1 | 0 | 55 |
| BOL | 7/14/2017 | 12 | 60 | 1 | 0 | 58 |
| BOL | 7/14/2017 | 12 | 69.2 | 1 | 1 | 59 |
| BOL | 7/14/2017 | 25 | 6.5 | 1 | 1 | 47 |
| BOL | 7/14/2017 | 25 | 9.7 | 1 | 1 | 52 |
| BOL | 7/14/2017 | 25 | 15 | 1 | 1 | 50 |
| BOL | 7/14/2017 | 25 | 20 | 1 | 0 | 47 |
| BOL | 7/14/2017 | 25 | 25.3 | 1 | 1 | 48 |
| BOL | 7/14/2017 | 25 | 30 | 1 | 0 | 50 |
| BOL | 7/14/2017 | 25 | 35 | 1 | 1 | 50 |
| BOL | 7/14/2017 | 25 | 40.4 | 1 | 1 | 49 |
| BOL | 7/14/2017 | 25 | 45 | 1 | 0 | 53 |
| BOL | 7/14/2017 | 25 | 54.5 | 1 | 1 | 56 |
| BOL | 7/14/2017 | 38 | 3.8 | 1 | 1 | 46 |
| BOL | 7/14/2017 | 38 | 15 | 1 | 1 | 50 |
| BOL | 7/14/2017 | 38 | 19.2 | 1 | 1 | 49 |
| BOL | 7/14/2017 | 38 | 25 | 1 | 1 | 48 |
| BOL | 7/14/2017 | 38 | 29.7 | 1 | 1 | 49 |
| BOL | 7/14/2017 | 38 | 35.5 | 1 | 2 | 49 |
| BOL | 7/14/2017 | 38 | 40 | 1 | 0 | 52 |
| BOL | 7/14/2017 | 38 | 45 | 1 | 0 | 54 |
| BOL | 7/14/2017 | 38 | 50 | 1 | 0 | 58 |
| BOL | 7/14/2017 | 38 | 55 | 1 | 0 | 57 |
| BOL | 7/14/2017 | 38 | 60 | 1 | 0 | 56 |
| BOL | 7/14/2017 | 38 | 67.35 | 1 | 1 | 60 |
| BOL | 7/14/2017 | 50 | 3.5 | 1 | 1 | 42 |
| BOL | 7/14/2017 | 50 | 10 | 1 | 0 | 48 |
| BOL | 7/14/2017 | 50 | 15 | 1 | 1 | 49 |
| BOL | 7/14/2017 | 50 | 20 | 1 | 0 | 50 |
| BOL | 7/14/2017 | 50 | 25 | 1 | 0 | 48 |
| BOL | 7/14/2017 | 50 | 30 | 1 | 0 | 50 |
| BOL | 7/14/2017 | 50 | 35 | 1 | 0 | 50 |
| BOL | 7/14/2017 | 50 | 40 | 1 | 0 | 50 |
| BOL | 7/14/2017 | 50 | 45 | 1 | 0 | 53 |
| BOL | 7/14/2017 | 50 | 50 | 1 | 1 | 53 |
| BOL | 7/14/2017 | 50 | 57 | 1 | 1 | 57 |

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|---|---|---|---|---|---|---|
| BUC | 7/24/2017 | 0 | 1.6 | 1 | 1 | 54 |
| BUC | 7/24/2017 | 0 | 15 | 1 | 2 | 51 |
| BUC | 7/24/2017 | 0 | 20 | 1 | 2 | 50 |
| BUC | 7/24/2017 | 0 | 24.5 | 1 | 1 | 52 |
| BUC | 7/24/2017 | 0 | 30 | 1 | 0 | 52 |
| BUC | 7/24/2017 | 0 | 35.9 | 1 | 1 | 55 |
| BUC | 7/24/2017 | 0 | 40.7 | 2 | 1 | 55 |
| BUC | 7/24/2017 | 0 | 48.85 | 2 | 1 | 57 |
| BUC | 7/24/2017 | 0 | 50 | 2 | 0 | 56 |
| BUC | 7/24/2017 | 0 | 55 | 2 | 0 | 61 |
| BUC | 7/24/2017 | 0 | 59.85 | 2 | 1 | 65 |
| BUC | 7/24/2017 | 12 | 2.7 | 1 | 1 | 57 |
| BUC | 7/24/2017 | 12 | 12 | 1 | 1 | 62 |
| BUC | 7/24/2017 | 12 | 18 | 1 | 2 | 56 |
| BUC | 7/24/2017 | 12 | 24 | 1 | 2 | 57 |
| BUC | 7/24/2017 | 12 | 30 | 1 | 1 | 58 |
| BUC | 7/24/2017 | 12 | 36 | 1 | 1 | 60 |
| BUC | 7/24/2017 | 12 | 42.15 | 2 | 1 | 65 |
| BUC | 7/24/2017 | 12 | 48 | 2 | 1 | 62 |
| BUC | 7/24/2017 | 12 | 54 | 2 | 0 | 65 |
| BUC | 7/24/2017 | 12 | 60 | 2 | 1 | 71 |
| BUC | 7/24/2017 | 12 | 66.15 | 2 | 1 | 71 |
| BUC | 7/24/2017 | 25 | 0.8 | 1 | 1 | 60 |
| BUC | 7/24/2017 | 25 | 7 | 1 | 0 | 64 |
| BUC | 7/24/2017 | 25 | 14 | 2 | 2 | 60 |
| BUC | 7/24/2017 | 25 | 21 | 2 | 1 | 59 |
| BUC | 7/24/2017 | 25 | 28 | 1 | 1 | 62 |
| BUC | 7/24/2017 | 25 | 35 | 1 | 1 | 66 |
| BUC | 7/24/2017 | 25 | 42 | 2 | 1 | 65 |
| BUC | 7/24/2017 | 25 | 49 | 2 | 0 | 67 |
| BUC | 7/24/2017 | 25 | 55.8 | 1 | 2 | 72 |
| BUC | 7/24/2017 | 25 | 63 | 1 | 0 | 76 |
| BUC | 7/24/2017 | 25 | 71.8 | 1 | 1 | 80 |
| BUC | 7/24/2017 | 38 | 3.1 | 2 | 3 | 58 |
| BUC | 7/24/2017 | 38 | 7 | 2 | 1 | 57 |
| BUC | 7/24/2017 | 38 | 14 | 3 | 2 | 52 |
| BUC | 7/24/2017 | 38 | 21 | 3 | 1 | 52 |
| BUC | 7/24/2017 | 38 | 28 | 1 | 1 | 54 |
| BUC | 7/24/2017 | 38 | 34.9 | 1 | 1 | 58 |
| BUC | 7/24/2017 | 38 | 42 | 1 | 1 | 61 |
| BUC | 7/24/2017 | 38 | 49 | 1 | 1 | 65 |
| BUC | 7/24/2017 | 38 | 56 | 2 | 1 | 68 |
| BUC | 7/24/2017 | 38 | 62.7 | 2 | 1 | 75 |
| BUC | 7/24/2017 | 38 | 69.8 | 3 | 1 | 78 |
| BUC | 7/24/2017 | 50 | 7.1 | 2 | 2 | 42 |
| BUC | 7/24/2017 | 50 | 8 | 2 | 0 | 43 |
| BUC | 7/24/2017 | 50 | 16 | 3 | 2 | 44 |
| BUC | 7/24/2017 | 50 | 24 | 1 | 2 | 40 |
| BUC | 7/24/2017 | 50 | 32 | 3 | 2 | 40 |
| BUC | 7/24/2017 | 50 | 40 | 2 | 3 | 42 |
| BUC | 7/24/2017 | 50 | 48 | 2 | 1 | 50 |
| BUC | 7/24/2017 | 50 | 56.15 | 2 | 1 | 57 |
| BUC | 7/24/2017 | 50 | 63.5 | 2 | 0 | 58 |
| BUC | 7/24/2017 | 50 | 72 | 2 | 1 | 64 |
| BUC | 7/24/2017 | 50 | 80.95 | 2 | 1 | 74 |

| | | | | | | |
|---|---|---|---|---|---|---|
| GT002 | 7/14/2017 | 0 | 0 | 1 | 0 | 62 |
| GT002 | 7/14/2017 | 0 | 38 | 1 | 0 | 75 |
| GT002 | 7/14/2017 | 12 | 0 | 1 | 0 | 59 |
| GT002 | 7/14/2017 | 12 | 21 | 1 | 0 | 72 |
| GT002 | 7/14/2017 | 12 | 45 | 1 | 0 | 80 |
| GT002 | 7/14/2017 | 25 | 1 | 1 | 0 | 64 |
| GT002 | 7/14/2017 | 25 | 2 | 1 | 0 | 63 |
| GT002 | 7/14/2017 | 25 | 3 | 1 | 0 | 66 |
| GT002 | 7/14/2017 | 25 | 4 | 1 | 0 | 67 |
| GT002 | 7/14/2017 | 25 | 5 | 1 | 0 | 67 |
| GT002 | 7/14/2017 | 25 | 6 | 1 | 0 | 67 |
| GT002 | 7/14/2017 | 25 | 7 | 1 | 0 | 69 |
| GT002 | 7/14/2017 | 25 | 8 | 1 | 2 | 68 |
| GT002 | 7/14/2017 | 25 | 9 | 1 | 0 | 71 |
| GT002 | 7/14/2017 | 25 | 10 | 1 | 1 | 70 |
| GT002 | 7/14/2017 | 25 | 11.25 | 1 | 1 | 70 |
| GT002 | 7/14/2017 | 25 | 43 | 1 | 0 | 78 |
| GT002 | 7/14/2017 | 38 | 0 | 1 | 0 | 60 |
| GT002 | 7/14/2017 | 38 | 1 | 1 | 0 | 65 |
| GT002 | 7/14/2017 | 38 | 2 | 1 | 0 | 66 |
| GT002 | 7/14/2017 | 38 | 3 | 1 | 0 | 67 |
| GT002 | 7/14/2017 | 38 | 4 | 1 | 0 | 68 |
| GT002 | 7/14/2017 | 38 | 5 | 1 | 0 | 67 |
| GT002 | 7/14/2017 | 38 | 6 | 1 | 0 | 68 |
| GT002 | 7/14/2017 | 38 | 7 | 1 | 0 | 66 |
| GT002 | 7/14/2017 | 38 | 8 | 1 | 0 | 67 |
| GT002 | 7/14/2017 | 38 | 9 | 1 | 0 | 69 |
| GT002 | 7/14/2017 | 38 | 10 | 1 | 0 | 67 |
| GT002 | 7/14/2017 | 38 | 11 | 1 | 0 | 68 |
| GT002 | 7/14/2017 | 38 | 12.3 | 1 | 1 | 68 |
| GT002 | 7/14/2017 | 38 | 63 | 1 | 0 | 79 |
| GT002 | 7/14/2017 | 50 | 0 | 1 | 0 | 61 |
| GT002 | 7/14/2017 | 50 | 63 | 1 | 0 | 80 |
| GT006 | 7/14/2017 | 0 | 0 | 2 | 0 | 77 |
| GT006 | 7/14/2017 | 0 | 35 | 2 | 0 | 84 |
| GT006 | 7/14/2017 | 12 | 0 | 2 | 0 | 78 |
| GT006 | 7/14/2017 | 12 | 35 | 2 | 0 | 87 |
| GT006 | 7/14/2017 | 25 | 0 | 2 | 0 | 86 |
| GT006 | 7/14/2017 | 25 | 35 | 2 | 0 | 88 |
| GT006 | 7/14/2017 | 38 | 0 | 2 | 0 | 84 |
| GT006 | 7/14/2017 | 38 | 35 | 2 | 0 | 86 |
| GT006 | 7/14/2017 | 50 | 0 | 1 | 0 | 75 |
| GT006 | 7/14/2017 | 50 | 43 | 2 | 0 | 89 |
| MOC | 7/12/2017 | 0 | 2 | 1 | 1 | 28 |
| MOC | 7/12/2017 | 0 | 5.6 | 1 | 0 | 32 |
| MOC | 7/12/2017 | 0 | 17.6 | 1 | 0 | 35 |
| MOC | 7/12/2017 | 0 | 29.6 | 1 | 1 | 49 |
| MOC | 7/12/2017 | 0 | 41.6 | 1 | 1 | 42 |
| MOC | 7/12/2017 | 0 | 53.6 | 1 | 0 | 62 |
| MOC | 7/12/2017 | 0 | 65.6 | 1 | 2 | 71 |
| MOC | 7/12/2017 | 0 | 77.6 | 1 | 1 | 69 |
| MOC | 7/12/2017 | 0 | 89.6 | 1 | 1 | 66 |
| MOC | 7/12/2017 | 0 | 101.6 | 1 | 2 | 66 |
| MOC | 7/12/2017 | 0 | 113.6 | 1 | 0 | 69 |
| MOC | 7/12/2017 | 0 | 125.6 | 2 | 1 | 70 |

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|---|---|---|---|---|---|---|
| MOC | 7/12/2017 | 12 | 3.5 | 1 | 1 | 26 |
| MOC | 7/12/2017 | 12 | 16 | 1 | 1 | 48 |
| MOC | 7/12/2017 | 12 | 30 | 1 | 1 | 44 |
| MOC | 7/12/2017 | 12 | 44 | 1 | 0 | 55 |
| MOC | 7/12/2017 | 12 | 58 | 1 | 0 | 64 |
| MOC | 7/12/2017 | 12 | 72 | 1 | 1 | 79 |
| MOC | 7/12/2017 | 12 | 86 | 1 | 1 | 74 |
| MOC | 7/12/2017 | 12 | 100 | 1 | 1 | 68 |
| MOC | 7/12/2017 | 12 | 114 | 1 | 1 | 65 |
| MOC | 7/12/2017 | 12 | 128 | 1 | 1 | 71 |
| MOC | 7/12/2017 | 12 | 141.1 | 2 | 1 | 81 |
| MOC | 7/12/2017 | 25 | 8 | 1 | 1 | 23 |
| MOC | 7/12/2017 | 25 | 19 | 1 | 2 | 34 |
| MOC | 7/12/2017 | 25 | 32 | 1 | 1 | 36 |
| MOC | 7/12/2017 | 25 | 45 | 1 | 1 | 40 |
| MOC | 7/12/2017 | 25 | 58 | 1 | 1 | 47 |
| MOC | 7/12/2017 | 25 | 71 | 1 | 1 | 56 |
| MOC | 7/12/2017 | 25 | 82 | 1 | 1 | 57 |
| MOC | 7/12/2017 | 25 | 95 | 2 | 1 | 50 |
| MOC | 7/12/2017 | 25 | 108 | 2 | 0 | 51 |
| MOC | 7/12/2017 | 25 | 121 | 1 | 1 | 58 |
| MOC | 7/12/2017 | 25 | 134.7 | 2 | 1 | 78 |
| MOC | 7/13/2017 | 38 | 7 | 1 | 1 | 13 |
| MOC | 7/13/2017 | 38 | 17 | 1 | 0 | 17 |
| MOC | 7/13/2017 | 38 | 27 | 1 | 1 | 17 |
| MOC | 7/13/2017 | 38 | 37 | 1 | 1 | 21 |
| MOC | 7/13/2017 | 38 | 47 | 1 | 2 | 36 |
| MOC | 7/13/2017 | 38 | 57 | 2 | 0 | 39 |
| MOC | 7/13/2017 | 38 | 67 | 2 | 1 | 55 |
| MOC | 7/13/2017 | 38 | 77 | 1 | 1 | 55 |
| MOC | 7/13/2017 | 38 | 87 | 1 | 1 | 55 |
| MOC | 7/13/2017 | 38 | 97 | 1 | 0 | 52 |
| MOC | 7/13/2017 | 38 | 107 | 1 | 1 | 54 |
| MOC | 7/13/2017 | 38 | 117 | 1 | 1 | 55 |
| MOC | 7/13/2017 | 38 | 127 | 1 | 1 | 55 |
| MOC | 7/13/2017 | 38 | 137 | 1 | 2 | 54 |
| MOC | 7/13/2017 | 38 | 156.4 | 1 | 1 | 61 |
| MOC | 7/13/2017 | 50 | 9 | 1 | 1 | 43 |
| MOC | 7/13/2017 | 50 | 21 | 1 | 3 | 36 |
| MOC | 7/13/2017 | 50 | 35 | 1 | 0 | 45 |
| MOC | 7/13/2017 | 50 | 49 | 1 | 0 | 61 |
| MOC | 7/13/2017 | 50 | 63 | 2 | 1 | 74 |
| MOC | 7/13/2017 | 50 | 77 | 2 | 1 | 81 |
| MOC | 7/13/2017 | 50 | 81 | 2 | 0 | 80 |
| MOC | 7/13/2017 | 50 | 95 | 1 | 1 | 77 |
| MOC | 7/13/2017 | 50 | 111 | 1 | 1 | 74 |
| MOC | 7/13/2017 | 50 | 125 | 1 | 1 | 70 |
| MOC | 7/13/2017 | 50 | 139.7 | 1 | 1 | 70 |
| ORG | 7/25/2017 | 0 | 0 | 2 | 3 | 14 |
| ORG | 7/25/2017 | 0 | 8 | 3 | 3 | 37 |
| ORG | 7/25/2017 | 0 | 16 | 3 | 1 | 38 |
| ORG | 7/25/2017 | 0 | 24 | 1 | 1 | 37 |
| ORG | 7/25/2017 | 0 | 31.5 | 1 | 3 | 44 |
| ORG | 7/25/2017 | 0 | 40 | 1 | 1 | 52 |
| ORG | 7/25/2017 | 0 | 48 | 1 | 1 | 63 |

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|---|---|---|---|---|---|---|
| ORG | 7/25/2017 | 0 | 56 | 1 | 1 | 75 |
| ORG | 7/25/2017 | 0 | 64 | 1 | 1 | 88 |
| ORG | 7/25/2017 | 0 | 70.9 | 1 | 1 | 110 |
| ORG | 7/25/2017 | 12 | 0 | 3 | 3 | 16 |
| ORG | 7/25/2017 | 12 | 9 | 3 | 3 | 30 |
| ORG | 7/25/2017 | 12 | 18 | 1 | 3 | 28 |
| ORG | 7/25/2017 | 12 | 27 | 1 | 3 | 30 |
| ORG | 7/25/2017 | 12 | 36 | 1 | 3 | 31 |
| ORG | 7/25/2017 | 12 | 45 | 1 | 2 | 46 |
| ORG | 7/25/2017 | 12 | 54 | 1 | 1 | 60 |
| ORG | 7/25/2017 | 12 | 63 | 1 | 1 | 76 |
| ORG | 7/25/2017 | 12 | 69.4 | 1 | 1 | 100 |
| ORG | 7/25/2017 | 25 | 0 | 3 | 3 | 8 |
| ORG | 7/25/2017 | 25 | 9 | 3 | 3 | 29 |
| ORG | 7/25/2017 | 25 | 18 | 3 | 3 | 27 |
| ORG | 7/25/2017 | 25 | 27 | 2 | 3 | 32 |
| ORG | 7/25/2017 | 25 | 36 | 1 | 3 | 27 |
| ORG | 7/25/2017 | 25 | 45 | 1 | 1 | 44 |
| ORG | 7/25/2017 | 25 | 54 | 1 | 2 | 58 |
| ORG | 7/25/2017 | 25 | 63 | 1 | 1 | 78 |
| ORG | 7/25/2017 | 25 | 72 | 1 | 1 | 113 |
| ORG | 7/25/2017 | 38 | 0 | 3 | 3 | 20 |
| ORG | 7/25/2017 | 38 | 7 | 3 | 3 | 47 |
| ORG | 7/25/2017 | 38 | 14 | 3 | 3 | 43 |
| ORG | 7/25/2017 | 38 | 21 | 3 | 0 | 40 |
| ORG | 7/25/2017 | 38 | 28 | 1 | 3 | 38 |
| ORG | 7/25/2017 | 38 | 35 | 1 | 3 | 32 |
| ORG | 7/25/2017 | 38 | 42 | 1 | 3 | 53 |
| ORG | 7/25/2017 | 38 | 49 | 1 | 2 | 56 |
| ORG | 7/25/2017 | 38 | 56 | 1 | 2 | 68 |
| ORG | 7/25/2017 | 38 | 63 | 1 | 2 | 82 |
| ORG | 7/25/2017 | 38 | 71.5 | 2 | 2 | 109 |
| ORG | 7/25/2017 | 50 | 0.6 | 3 | 3 | 20 |
| ORG | 7/25/2017 | 50 | 12 | 3 | 0 | 58 |
| ORG | 7/25/2017 | 50 | 19 | 3 | 3 | 41 |
| ORG | 7/25/2017 | 50 | 26 | 1 | 3 | 43 |
| ORG | 7/25/2017 | 50 | 33 | 1 | 3 | 44 |
| ORG | 7/25/2017 | 50 | 40 | 1 | 1 | 34 |
| ORG | 7/25/2017 | 50 | 47 | 1 | 1 | 58 |
| ORG | 7/25/2017 | 50 | 54 | 1 | 1 | 64 |
| ORG | 7/25/2017 | 50 | 61 | 1 | 1 | 84 |
| ORG | 7/25/2017 | 50 | 68 | 1 | 1 | 99 |
| ORG | 7/25/2017 | 50 | 74.9 | 1 | 1 | 122 |
| SCA | 7/17/2017 | 0 | 4.1 | 2 | 3 | 36 |
| SCA | 7/17/2017 | 0 | 20 | 2 | 3 | 47 |
| SCA | 7/17/2017 | 0 | 35 | 2 | 3 | 50 |
| SCA | 7/17/2017 | 0 | 50 | 2 | 3 | 50 |
| SCA | 7/17/2017 | 0 | 65 | 1 | 3 | 53 |
| SCA | 7/17/2017 | 0 | 80 | 1 | 3 | 49 |
| SCA | 7/17/2017 | 0 | 95 | 1 | 3 | 50 |
| SCA | 7/17/2017 | 0 | 110 | 1 | 3 | 61 |
| SCA | 7/17/2017 | 0 | 125 | 1 | 3 | 72 |
| SCA | 7/17/2017 | 0 | 140 | 1 | 2 | 94 |
| SCA | 7/17/2017 | 0 | 158.25 | 1 | 1 | 104 |
| SCA | 7/18/2017 | 12 | 0.4 | 3 | 2 | 12 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SCA | 7/18/2017 | 12 | 16 | 2 | 3 | 22 |
| SCA | 7/18/2017 | 12 | 32 | 2 | 3 | 27 |
| SCA | 7/18/2017 | 12 | 48 | 2 | 3 | 20 |
| SCA | 7/18/2017 | 12 | 64 | 2 | 3 | 28 |
| SCA | 7/18/2017 | 12 | 80 | 1 | 3 | 27 |
| SCA | 7/18/2017 | 12 | 96 | 1 | 3 | 27 |
| SCA | 7/18/2017 | 12 | 112 | 1 | 3 | 30 |
| SCA | 7/18/2017 | 12 | 128 | 1 | 3 | 43 |
| SCA | 7/18/2017 | 12 | 144 | 1 | 3 | 52 |
| SCA | 7/18/2017 | 12 | 159.1 | 1 | 1 | 78 |
| SCA | 7/18/2017 | 25 | 2.4 | 3 | 1 | 41 |
| SCA | 7/18/2017 | 25 | 12 | 3 | 1 | 45 |
| SCA | 7/18/2017 | 25 | 24 | 3 | 1 | 50 |
| SCA | 7/18/2017 | 25 | 34 | 3 | 3 | 53 |
| SCA | 7/18/2017 | 25 | 44 | 2 | 3 | 53 |
| SCA | 7/18/2017 | 25 | 54 | 3 | 3 | 56 |
| SCA | 7/18/2017 | 25 | 64 | 3 | 3 | 61 |
| SCA | 7/18/2017 | 25 | 74 | 1 | 2 | 42 |
| SCA | 7/18/2017 | 25 | 84 | 3 | 2 | 42 |
| SCA | 7/18/2017 | 25 | 94 | 1 | 3 | 44 |
| SCA | 7/18/2017 | 25 | 104 | 1 | 3 | 38 |
| SCA | 7/18/2017 | 25 | 124 | 1 | 3 | 51 |
| SCA | 7/18/2017 | 25 | 144 | 1 | 3 | 53 |
| SCA | 7/18/2017 | 25 | 164 | 1 | 3 | 62 |
| SCA | 7/18/2017 | 25 | 181.3 | 1 | 2 | 77 |
| SCA | 7/18/2017 | 38 | 15.65 | 3 | 1 | 15 |
| SCA | 7/18/2017 | 38 | 16 | 3 | 1 | 17 |
| SCA | 7/18/2017 | 38 | 36 | 2 | 3 | 24 |
| SCA | 7/18/2017 | 38 | 56 | 2 | 3 | 22 |
| SCA | 7/18/2017 | 38 | 76 | 2 | 3 | 37 |
| SCA | 7/18/2017 | 38 | 96 | 1 | 3 | 56 |
| SCA | 7/18/2017 | 38 | 116 | 1 | 3 | 39 |
| SCA | 7/18/2017 | 38 | 136 | 1 | 3 | 44 |
| SCA | 7/18/2017 | 38 | 156 | 1 | 3 | 54 |
| SCA | 7/18/2017 | 38 | 176 | 1 | 3 | 58 |
| SCA | 7/18/2017 | 38 | 196.6 | 1 | 1 | 86 |
| SCA | 7/19/2017 | 50 | 0.2 | 3 | 1 | 26 |
| SCA | 7/19/2017 | 50 | 10 | 3 | 0 | 34 |
| SCA | 7/19/2017 | 50 | 20 | 3 | 0 | 43 |
| SCA | 7/19/2017 | 50 | 30 | 2 | 0 | 44 |
| SCA | 7/19/2017 | 50 | 40 | 2 | 3 | 48 |
| SCA | 7/19/2017 | 50 | 50 | 2 | 3 | 57 |
| SCA | 7/19/2017 | 50 | 60 | 1 | 3 | 61 |
| SCA | 7/19/2017 | 50 | 70 | 3 | 3 | 66 |
| SCA | 7/19/2017 | 50 | 80 | 3 | 2 | 77 |
| SCA | 7/19/2017 | 50 | 90 | 2 | 3 | 74 |
| SCA | 7/19/2017 | 50 | 100 | 2 | 3 | 76 |
| SCA | 7/19/2017 | 50 | 110 | 2 | 3 | 72 |
| SCA | 7/19/2017 | 50 | 120 | 1 | 3 | 64 |
| SCA | 7/19/2017 | 50 | 130 | 1 | 3 | 67 |
| SCA | 7/19/2017 | 50 | 140 | 1 | 3 | 70 |
| SCA | 7/19/2017 | 50 | 150 | 1 | 3 | 72 |
| SCA | 7/19/2017 | 50 | 160 | 1 | 3 | 83 |
| SCA | 7/19/2017 | 50 | 170 | 1 | 3 | 84 |
| SCA | 7/19/2017 | 50 | 180 | 1 | 3 | 81 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SCA | 7/19/2017 | 50 | 191 | 1 | 3 | 85 |
| ORG | 11/2/2017 | 0 | 25.6 | 2 | 1 | 64 |
| ORG | 11/2/2017 | 0 | 30 | 2 | 0 | 67 |
| ORG | 11/2/2017 | 0 | 34 | 1 | 0 | 70 |
| ORG | 11/2/2017 | 0 | 38 | 1 | 0 | 69 |
| ORG | 11/2/2017 | 0 | 42 | 1 | 0 | 73 |
| ORG | 11/2/2017 | 0 | 46 | 1 | 0 | 83 |
| ORG | 11/2/2017 | 0 | 50 | 1 | 0 | 90 |
| ORG | 11/2/2017 | 0 | 54 | 1 | 0 | 98 |
| ORG | 11/2/2017 | 0 | 58 | 1 | 0 | 101 |
| ORG | 11/2/2017 | 0 | 60 | 1 | 0 | 108 |
| ORG | 11/2/2017 | 12 | 28.3 | 1 | 1 | 56 |
| ORG | 11/2/2017 | 12 | 30 | 1 | 1 | 59 |
| ORG | 11/2/2017 | 12 | 33 | 1 | 1 | 59 |
| ORG | 11/2/2017 | 12 | 35.8 | 1 | 1 | 61 |
| ORG | 11/2/2017 | 12 | 39 | 1 | 0 | 65 |
| ORG | 11/2/2017 | 12 | 42 | 1 | 0 | 68 |
| ORG | 11/2/2017 | 12 | 45 | 1 | 0 | 74 |
| ORG | 11/2/2017 | 12 | 48 | 1 | 0 | 78 |
| ORG | 11/2/2017 | 12 | 51 | 1 | 0 | 84 |
| ORG | 11/2/2017 | 12 | 54 | 1 | 0 | 91 |
| ORG | 11/2/2017 | 12 | 57 | 1 | 0 | 95 |
| ORG | 11/2/2017 | 12 | 60 | 1 | 0 | 100 |
| ORG | 11/3/2017 | 25 | 31.1 | 1 | 1 | 55 |
| ORG | 11/3/2017 | 25 | 33 | 1 | 1 | 52 |
| ORG | 11/3/2017 | 25 | 34.6 | 1 | 1 | 54 |
| ORG | 11/3/2017 | 25 | 39 | 1 | 0 | 67 |
| ORG | 11/3/2017 | 25 | 42 | 1 | 0 | 75 |
| ORG | 11/3/2017 | 25 | 45 | 1 | 0 | 72 |
| ORG | 11/3/2017 | 25 | 48 | 1 | 0 | 72 |
| ORG | 11/3/2017 | 25 | 50 | 1 | 0 | 80 |
| ORG | 11/3/2017 | 25 | 54 | 1 | 0 | 86 |
| ORG | 11/3/2017 | 25 | 57 | 1 | 0 | 90 |
| ORG | 11/3/2017 | 25 | 60 | 1 | 0 | 93 |
| ORG | 11/3/2017 | 38 | 26.1 | 1 | 1 | 59 |
| ORG | 11/3/2017 | 38 | 28 | 1 | 1 | 66 |
| ORG | 11/3/2017 | 38 | 32 | 1 | 0 | 61 |
| ORG | 11/3/2017 | 38 | 36 | 1 | 0 | 62 |
| ORG | 11/3/2017 | 38 | 40 | 1 | 0 | 75 |
| ORG | 11/3/2017 | 38 | 44 | 1 | 0 | 77 |
| ORG | 11/3/2017 | 38 | 48 | 1 | 0 | 78 |
| ORG | 11/3/2017 | 38 | 52 | 1 | 0 | 82 |
| ORG | 11/3/2017 | 38 | 56 | 1 | 0 | 88 |
| ORG | 11/3/2017 | 38 | 60 | 1 | 0 | 97 |
| ORG | 11/3/2017 | 50 | 28.4 | 1 | 1 | 63 |
| ORG | 11/3/2017 | 50 | 33 | 1 | 1 | 65 |
| ORG | 11/3/2017 | 50 | 36 | 1 | 0 | 66 |
| ORG | 11/3/2017 | 50 | 39 | 1 | 0 | 70 |
| ORG | 11/3/2017 | 50 | 42 | 1 | 0 | 73 |
| ORG | 11/3/2017 | 50 | 45 | 1 | 0 | 76 |
| ORG | 11/3/2017 | 50 | 48 | 1 | 0 | 80 |
| ORG | 11/3/2017 | 50 | 51 | 1 | 0 | 81 |
| ORG | 11/3/2017 | 50 | 54 | 1 | 0 | 85 |
| ORG | 11/3/2017 | 50 | 57 | 1 | 0 | 90 |
| ORG | 11/3/2017 | 50 | 60 | 1 | 0 | 96 |

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|---|---|---|---|---|---|---|
| MOC | 11/2/2017 | 0 | 125.6 | 1 | 0 | 94 |
| MOC | 11/2/2017 | 0 | 113 | 1 | 0 | 93 |
| MOC | 11/2/2017 | 0 | 101 | 1 | 0 | 87 |
| MOC | 11/2/2017 | 0 | 89 | 1 | 0 | 90 |
| MOC | 11/2/2017 | 0 | 77 | 1 | 0 | 95 |
| MOC | 11/2/2017 | 0 | 65 | 1 | 0 | 95 |
| MOC | 11/2/2017 | 0 | 53 | 1 | 0 | 88 |
| MOC | 11/2/2017 | 0 | 41 | 1 | 0 | 79 |
| MOC | 11/2/2017 | 0 | 29 | 1 | 0 | 71 |
| MOC | 11/2/2017 | 0 | 17 | 1 | 0 | 65 |
| MOC | 11/2/2017 | 0 | 5.7 | 1 | 0 | 59 |
| MOC | 11/2/2017 | 12 | 15 | 1 | 1 | 65 |
| MOC | 11/2/2017 | 12 | 27 | 1 | 0 | 64 |
| MOC | 11/2/2017 | 12 | 39 | 1 | 0 | 75 |
| MOC | 11/2/2017 | 12 | 51.9 | 1 | 1 | 82 |
| MOC | 11/2/2017 | 12 | 63 | 1 | 0 | 85 |
| MOC | 11/2/2017 | 12 | 75 | 1 | 0 | 97 |
| MOC | 11/2/2017 | 12 | 87 | 1 | 0 | 96 |
| MOC | 11/2/2017 | 12 | 99 | 1 | 0 | 97 |
| MOC | 11/2/2017 | 12 | 111 | 1 | 0 | 93 |
| MOC | 11/2/2017 | 12 | 123 | 1 | 0 | 92 |
| MOC | 11/2/2017 | 12 | 135 | 1 | 0 | 98 |
| MOC | 11/2/2017 | 12 | 141.1 | 1 | 0 | 101 |
| MOC | 11/2/2017 | 25 | 17.4 | 1 | 1 | 67 |
| MOC | 11/2/2017 | 25 | 28 | 1 | 0 | 70 |
| MOC | 11/2/2017 | 25 | 39 | 1 | 0 | 76 |
| MOC | 11/2/2017 | 25 | 50 | 1 | 0 | 79 |
| MOC | 11/2/2017 | 25 | 61 | 1 | 0 | 88 |
| MOC | 11/2/2017 | 25 | 72 | 1 | 0 | 95 |
| MOC | 11/2/2017 | 25 | 83 | 1 | 0 | 96 |
| MOC | 11/2/2017 | 25 | 94 | 1 | 0 | 92 |
| MOC | 11/2/2017 | 25 | 105 | 1 | 0 | 90 |
| MOC | 11/2/2017 | 25 | 116 | 1 | 0 | 91 |
| MOC | 11/2/2017 | 25 | 127 | 1 | 0 | 97 |
| MOC | 11/2/2017 | 25 | 134.6 | 1 | 0 | 99 |
| MOC | 11/2/2017 | 38 | 17.4 | 1 | 1 | 53 |
| MOC | 11/2/2017 | 38 | 30 | 1 | 0 | 62 |
| MOC | 11/2/2017 | 38 | 43 | 1 | 0 | 67 |
| MOC | 11/2/2017 | 38 | 56 | 1 | 0 | 75 |
| MOC | 11/2/2017 | 38 | 69 | 1 | 0 | 90 |
| MOC | 11/2/2017 | 38 | 82 | 1 | 0 | 88 |
| MOC | 11/2/2017 | 38 | 95 | 1 | 0 | 86 |
| MOC | 11/2/2017 | 38 | 108 | 1 | 0 | 83 |
| MOC | 11/2/2017 | 38 | 121 | 1 | 0 | 87 |
| MOC | 11/2/2017 | 38 | 134 | 1 | 0 | 86 |
| MOC | 11/2/2017 | 38 | 147 | 1 | 0 | 86 |
| MOC | 11/2/2017 | 38 | 156.6 | 1 | 0 | 89 |
| MOC | 11/2/2017 | 50 | 11.1 | 1 | 1 | 44 |
| MOC | 11/2/2017 | 50 | 22 | 1 | 1 | 40 |
| MOC | 11/2/2017 | 50 | 34 | 1 | 0 | 50 |
| MOC | 11/2/2017 | 50 | 46 | 1 | 1 | 60 |
| MOC | 11/2/2017 | 50 | 58 | 1 | 0 | 66 |
| MOC | 11/2/2017 | 50 | 70 | 1 | 0 | 80 |
| MOC | 11/2/2017 | 50 | 82 | 1 | 0 | 80 |
| MOC | 11/2/2017 | 50 | 94 | 1 | 0 | 77 |

| | | | | | | |
|---|---|---|---|---|---|---|
| MOC | 11/2/2017 | 50 | 106 | 1 | 0 | 73 |
| MOC | 11/2/2017 | 50 | 118 | 1 | 0 | 76 |
| MOC | 11/2/2017 | 50 | 130 | 1 | 0 | 73 |
| MOC | 11/2/2017 | 50 | 134 | 1 | 0 | 72 |
| BUC | 11/1/2017 | 0 | 44 | 1 | 0 | 54 |
| BUC | 11/1/2017 | 0 | 0 | 1 | 0 | 47 |
| BUC | 11/1/2017 | 12 | 44 | 1 | 0 | 54 |
| BUC | 11/1/2017 | 12 | 0 | 1 | 0 | 46 |
| BUC | 11/1/2017 | 25 | 0 | 1 | 0 | 46 |
| BUC | 11/1/2017 | 38 | 0 | 1 | 0 | 44 |
| BUC | 11/1/2017 | 50 | 0 | 1 | 0 | 50 |
| BOL | 11/1/2017 | 0 | 0 | 1 | 0 | 46 |
| BOL | 11/1/2017 | 0 | 38 | 1 | 0 | 90 |
| BOL | 11/1/2017 | 12 | 0 | 1 | 0 | 59 |
| BOL | 11/1/2017 | 12 | 38 | 1 | 0 | 90 |
| BOL | 11/1/2017 | 25 | 0 | 1 | 0 | 58 |
| BOL | 11/1/2017 | 38 | 0 | 1 | 0 | 62 |
| BOL | 11/1/2017 | 50 | 0 | 1 | 0 | 59 |
| SCA | 11/6/2017 | 0 | 0 | 1 | 0 | 53 |
| SCA | 11/6/2017 | 0 | 10 | 1 | 0 | 58 |
| SCA | 11/6/2017 | 0 | 20 | 1 | 0 | 70 |
| SCA | 11/6/2017 | 0 | 30 | 1 | 0 | 68 |
| SCA | 11/6/2017 | 0 | 40 | 1 | 0 | 74 |
| SCA | 11/6/2017 | 0 | 50 | 1 | 0 | 74 |
| SCA | 11/6/2017 | 0 | 60 | 1 | 0 | 69 |
| SCA | 11/6/2017 | 0 | 70 | 1 | 0 | 74 |
| SCA | 11/6/2017 | 0 | 80 | 1 | 0 | 76 |
| SCA | 11/6/2017 | 0 | 90 | 1 | 2 | 70 |
| SCA | 11/6/2017 | 0 | 100 | 1 | 2 | 85 |
| SCA | 11/6/2017 | 0 | 110 | 1 | 3 | 87 |
| SCA | 11/6/2017 | 0 | 120 | 1 | 2 | 95 |
| SCA | 11/6/2017 | 0 | 130 | 1 | 2 | 105 |
| SCA | 11/6/2017 | 0 | 138.4 | 1 | 1 | 118 |
| SCA | 11/6/2017 | 12 | 0 | 1 | 0 | 58 |
| SCA | 11/6/2017 | 12 | 10 | 1 | 0 | 61 |
| SCA | 11/6/2017 | 12 | 20 | 1 | 0 | 70 |
| SCA | 11/6/2017 | 12 | 30 | 1 | 0 | 65 |
| SCA | 11/6/2017 | 12 | 40 | 1 | 0 | 69 |
| SCA | 11/6/2017 | 12 | 50 | 1 | 0 | 68 |
| SCA | 11/6/2017 | 12 | 60 | 1 | 0 | 71 |
| SCA | 11/6/2017 | 12 | 70 | 1 | 0 | 70 |
| SCA | 11/6/2017 | 12 | 80 | 1 | 1 | 72 |
| SCA | 11/6/2017 | 12 | 90 | 1 | 0 | 75 |
| SCA | 11/6/2017 | 12 | 100 | 1 | 0 | 77 |
| SCA | 11/6/2017 | 12 | 110 | 1 | 1 | 86 |
| SCA | 11/6/2017 | 12 | 120 | 1 | 3 | 91 |
| SCA | 11/6/2017 | 12 | 130 | 1 | 3 | 91 |
| SCA | 11/6/2017 | 12 | 140 | 1 | 3 | 102 |
| SCA | 11/6/2017 | 12 | 150 | 1 | 0 | 119 |
| SCA | 11/6/2017 | 12 | 159.1 | 1 | 0 | 131 |
| SCA | 11/6/2017 | 25 | 0 | 1 | 0 | 50 |
| SCA | 11/6/2017 | 25 | 10 | 1 | 0 | 60 |
| SCA | 11/6/2017 | 25 | 20 | 1 | 0 | 62 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SCA | 11/6/2017 | 25 | 30 | 1 | 0 | 64 |
| SCA | 11/6/2017 | 25 | 40 | 1 | 0 | 62 |
| SCA | 11/6/2017 | 25 | 50 | 1 | 0 | 68 |
| SCA | 11/6/2017 | 25 | 60 | 1 | 0 | 64 |
| SCA | 11/6/2017 | 25 | 70 | 1 | 0 | 70 |
| SCA | 11/6/2017 | 25 | 80 | 1 | 0 | 69 |
| SCA | 11/6/2017 | 25 | 90 | 1 | 1 | 71 |
| SCA | 11/6/2017 | 25 | 100 | 1 | 1 | 73 |
| SCA | 11/6/2017 | 25 | 110 | 1 | 1 | 76 |
| SCA | 11/6/2017 | 25 | 120 | 1 | 1 | 84 |
| SCA | 11/6/2017 | 25 | 130 | 1 | 2 | 90 |
| SCA | 11/6/2017 | 25 | 140 | 1 | 3 | 90 |
| SCA | 11/6/2017 | 25 | 150 | 1 | 2 | 103 |
| SCA | 11/6/2017 | 25 | 160 | 1 | 2 | 102 |
| SCA | 11/6/2017 | 25 | 170 | 1 | 2 | 105 |
| SCA | 11/6/2017 | 25 | 180 | 1 | 0 | 115 |
| SCA | 11/6/2017 | 38 | 0 | 1 | 0 | 33 |
| SCA | 11/6/2017 | 38 | 10 | 1 | 0 | 52 |
| SCA | 11/6/2017 | 38 | 20 | 1 | 0 | 57 |
| SCA | 11/6/2017 | 38 | 30 | 2 | 0 | 56 |
| SCA | 11/6/2017 | 38 | 40 | 1 | 0 | 56 |
| SCA | 11/6/2017 | 38 | 50 | 1 | 1 | 57 |
| SCA | 11/6/2017 | 38 | 59.8 | 1 | 1 | 59 |
| SCA | 11/6/2017 | 38 | 70 | 2 | 0 | 65 |
| SCA | 11/6/2017 | 38 | 80 | 1 | 0 | 73 |
| SCA | 11/6/2017 | 38 | 90 | 1 | 0 | 76 |
| SCA | 11/6/2017 | 38 | 100 | 1 | 0 | 88 |
| SCA | 11/6/2017 | 38 | 110 | 1 | 0 | 77 |
| SCA | 11/6/2017 | 38 | 120 | 1 | 0 | 70 |
| SCA | 11/6/2017 | 38 | 130.1 | 1 | 2 | 74 |
| SCA | 11/6/2017 | 38 | 140 | 1 | 3 | 79 |
| SCA | 11/6/2017 | 38 | 150 | 1 | 2 | 86 |
| SCA | 11/6/2017 | 38 | 160 | 1 | 3 | 93 |
| SCA | 11/6/2017 | 38 | 170 | 1 | 3 | 96 |
| SCA | 11/6/2017 | 38 | 180 | 1 | 3 | 98 |
| SCA | 11/6/2017 | 38 | 191 | 1 | 0 | 112 |
| SCA | 11/6/2017 | 50 | 0 | 1 | 0 | 17 |
| SCA | 11/6/2017 | 50 | 10 | 1 | 0 | 45 |
| SCA | 11/6/2017 | 50 | 20 | 1 | 0 | 46 |
| SCA | 11/6/2017 | 50 | 30 | 1 | 0 | 48 |
| SCA | 11/6/2017 | 50 | 40 | 1 | 0 | 53 |
| SCA | 11/6/2017 | 50 | 50 | 1 | 0 | 60 |
| SCA | 11/6/2017 | 50 | 60 | 1 | 0 | 59 |
| SCA | 11/6/2017 | 50 | 70 | 1 | 0 | 69 |
| SCA | 11/6/2017 | 50 | 80 | 1 | 0 | 81 |
| SCA | 11/6/2017 | 50 | 90 | 1 | 0 | 83 |
| SCA | 11/6/2017 | 50 | 100 | 1 | 0 | 80 |
| SCA | 11/6/2017 | 50 | 110.8 | 1 | 1 | 76 |
| SCA | 11/6/2017 | 50 | 120 | 1 | 1 | 77 |
| SCA | 11/6/2017 | 50 | 130 | 1 | 1 | 76 |
| SCA | 11/6/2017 | 50 | 140 | 1 | 1 | 75 |
| SCA | 11/6/2017 | 50 | 150 | 1 | 2 | 83 |

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|---|---|---|---|---|---|---|
| SCA | 11/6/2017 | 50 | 160 | 1 | 2 | 93 |
| SCA | 11/6/2017 | 50 | 170 | 1 | 3 | 92 |
| SCA | 11/6/2017 | 50 | 180 | 1 | 2 | 95 |
| SCA | 11/6/2017 | 50 | 184 | 1 | 2 | 95 |
| GT002 | 11/1/2017 | 0 | 0 | 1 | 0 | 53 |
| GT002 | 11/1/2017 | 12 | 0 | 1 | 0 | 53 |
| GT002 | 11/1/2017 | 25 | 0 | 1 | 0 | 53 |
| GT002 | 11/1/2017 | 25 | 10 | 1 | 0 | 62 |
| GT002 | 11/1/2017 | 38 | 0 | 1 | 0 | 54 |
| GT002 | 11/1/2017 | 38 | 10 | 1 | 0 | 60 |
| GT002 | 11/1/2017 | 50 | 0 | 1 | 0 | 56 |
| GT006 | 11/1/2017 | 0 | 0 | 1 | 0 | 96 |
| GT006 | 11/1/2017 | 12 | 0 | 1 | 0 | 98 |
| GT006 | 11/1/2017 | 25 | 0 | 1 | 0 | 99 |
| GT006 | 11/1/2017 | 38 | 0 | 1 | 0 | 102 |
| GT006 | 11/1/2017 | 50 | 0 | 1 | 0 | 93 |

| Site | Sample_Date | Dist_along_shore | Dist_from_shore | Species | Canopy_ Height |
|---|---|---|---|---|---|
| BOL | 07/14/17 | 0 | 4.3 | Ruppia maritima | 6 |
| BOL | 07/14/17 | 0 | 10 | Ruppia maritima | 5 |
| BOL | 07/14/17 | 0 | 20 | Ruppia maritima | 6 |
| BOL | 07/14/17 | 0 | 29.2 | Zannichellia palustris | 2 |
| BOL | 07/14/17 | 0 | 30 | Bare | 999 |
| BOL | 07/14/17 | 0 | 40 | Bare | 999 |
| BOL | 07/14/17 | 0 | 43.5 | Ruppia maritima | 6 |
| BOL | 07/14/17 | 0 | 50 | Bare | 999 |
| BOL | 07/14/17 | 0 | 60 | Bare | 999 |
| BOL | 07/14/17 | 0 | 70 | Bare | 999 |
| BOL | 07/14/17 | 0 | 76.55 | Zannichellia palustris | 2 |
| BOL | 07/14/17 | 12 | 7 | Ruppia maritima | 7 |
| BOL | 07/14/17 | 12 | 12 | Ruppia maritima | 4 |
| BOL | 07/14/17 | 12 | 20 | Bare | 999 |
| BOL | 07/14/17 | 12 | 30 | Bare | 999 |
| BOL | 07/14/17 | 12 | 31 | Ruppia maritima | 10 |
| BOL | 07/14/17 | 12 | 40 | Bare | 999 |
| BOL | 07/14/17 | 12 | 42 | Ruppia maritima | 7 |
| BOL | 07/14/17 | 12 | 50 | Bare | 999 |
| BOL | 07/14/17 | 12 | 60 | Bare | 999 |
| BOL | 07/14/17 | 12 | 69.2 | Ruppia maritima | 6 |
| BOL | 07/14/17 | 25 | 6.5 | Ruppia maritima | 6 |
| BOL | 07/14/17 | 25 | 9.7 | Ruppia maritima | 3 |
| BOL | 07/14/17 | 25 | 15 | Ruppia maritima | 9 |
| BOL | 07/14/17 | 25 | 20 | Bare | 999 |
| BOL | 07/14/17 | 25 | 25.3 | Ruppia maritima | 4 |
| BOL | 07/14/17 | 25 | 30 | Bare | 999 |
| BOL | 07/14/17 | 25 | 35 | Ruppia maritima | 7 |
| BOL | 07/14/17 | 25 | 40.4 | Ruppia maritima | 6 |
| BOL | 07/14/17 | 25 | 45 | Bare | 999 |
| BOL | 07/14/17 | 25 | 54.5 | Ruppia maritima | 14 |
| BOL | 07/14/17 | 38 | 3.8 | Ruppia maritima | 4 |
| BOL | 07/14/17 | 38 | 15 | Ruppia maritima | 7 |
| BOL | 07/14/17 | 38 | 19.2 | Ruppia maritima | 5 |
| BOL | 07/14/17 | 38 | 25 | Ruppia maritima | 7 |
| BOL | 07/14/17 | 38 | 29.7 | Ruppia maritima | 6 |
| BOL | 07/14/17 | 38 | 35.5 | Ruppia maritima | 5 |
| BOL | 07/14/17 | 38 | 40 | Bare | 999 |
| BOL | 07/14/17 | 38 | 45 | Bare | 999 |
| BOL | 07/14/17 | 38 | 50 | Bare | 999 |
| BOL | 07/14/17 | 38 | 55 | Bare | 999 |
| BOL | 07/14/17 | 38 | 60 | Bare | 999 |
| BOL | 07/14/17 | 38 | 67.35 | Ruppia maritima | 6 |
| BOL | 07/14/17 | 50 | 3.5 | Ruppia maritima | 5 |
| BOL | 07/14/17 | 50 | 10 | Bare | 999 |
| BOL | 07/14/17 | 50 | 15 | Ruppia maritima | 7 |
| BOL | 07/14/17 | 50 | 20 | Bare | 999 |
| BOL | 07/14/17 | 50 | 25 | Bare | 999 |
| BOL | 07/14/17 | 50 | 30 | Bare | 999 |
| BOL | 07/14/17 | 50 | 35 | Bare | 999 |

| | | | | | |
|---|---|---|---|---|---|
| BOL | 07/14/17 | 50 | 40 | Bare | 999 |
| BOL | 07/14/17 | 50 | 45 | Bare | 999 |
| BOL | 07/14/17 | 50 | 50 | Ruppia maritima | 6 |
| BOL | 07/14/17 | 50 | 57 | Ruppia maritima | 7 |
| BUC | 07/24/17 | 0 | 1.6 | Ruppia maritima | 5 |
| BUC | 07/24/17 | 0 | 15 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 0 | 20 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 0 | 24.5 | Ruppia maritima | 9 |
| BUC | 07/24/17 | 0 | 30 | Bare | 999 |
| BUC | 07/24/17 | 0 | 35.9 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 0 | 40.7 | Ruppia maritima | 9 |
| BUC | 07/24/17 | 0 | 48.85 | Ruppia maritima | 7 |
| BUC | 07/24/17 | 0 | 50 | Bare | 999 |
| BUC | 07/24/17 | 0 | 55 | Bare | 999 |
| BUC | 07/24/17 | 0 | 59.85 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 12 | 2.7 | Ruppia maritima | 9 |
| BUC | 07/24/17 | 12 | 12 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 12 | 18 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 12 | 24 | Ruppia maritima | 4 |
| BUC | 07/24/17 | 12 | 30 | Ruppia maritima | 5 |
| BUC | 07/24/17 | 12 | 36 | Ruppia maritima | 4 |
| BUC | 07/24/17 | 12 | 42.15 | Ruppia maritima | 9 |
| BUC | 07/24/17 | 12 | 48 | Ruppia maritima | 6 |
| BUC | 07/24/17 | 12 | 54 | Bare | 999 |
| BUC | 07/24/17 | 12 | 60 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 12 | 66.15 | Ruppia maritima | 5 |
| BUC | 07/24/17 | 25 | 0.8 | Ruppia maritima | 9 |
| BUC | 07/24/17 | 25 | 7 | Bare | 999 |
| BUC | 07/24/17 | 25 | 14 | Ruppia maritima | 5 |
| BUC | 07/24/17 | 25 | 21 | Ruppia maritima | 7 |
| BUC | 07/24/17 | 25 | 28 | Ruppia maritima | 7 |
| BUC | 07/24/17 | 25 | 35 | Ruppia maritima | 6 |
| BUC | 07/24/17 | 25 | 42 | Ruppia maritima | 5 |
| BUC | 07/24/17 | 25 | 49 | Bare | 999 |
| BUC | 07/24/17 | 25 | 55.8 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 25 | 63 | Bare | 999 |
| BUC | 07/24/17 | 25 | 71.8 | Ruppia maritima | 4 |
| BUC | 07/24/17 | 38 | 3.1 | Ruppia maritima | 9 |
| BUC | 07/24/17 | 38 | 7 | Ruppia maritima | 9 |
| BUC | 07/24/17 | 38 | 14 | Ruppia maritima | 9 |
| BUC | 07/24/17 | 38 | 21 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 38 | 28 | Ruppia maritima | 11 |
| BUC | 07/24/17 | 38 | 34.9 | Ruppia maritima | 5 |
| BUC | 07/24/17 | 38 | 42 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 38 | 49 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 38 | 56 | Ruppia maritima | 6 |
| BUC | 07/24/17 | 38 | 62.7 | Vallisneria americana | 5 |
| BUC | 07/24/17 | 38 | 69.8 | Ruppia maritima | 4 |
| BUC | 07/24/17 | 50 | 7.1 | Ruppia maritima | 10 |
| BUC | 07/24/17 | 50 | 8 | Bare | 999 |
| BUC | 07/24/17 | 50 | 16 | Ruppia maritima | 11 |
| BUC | 07/24/17 | 50 | 24 | Ruppia maritima | 15 |

| | | | | | |
|---|---|---|---|---|---|
| BUC | 07/24/17 | 50 | 32 | Ruppia maritima | 5 |
| BUC | 07/24/17 | 50 | 40 | Ruppia maritima | 8 |
| BUC | 07/24/17 | 50 | 48 | Ruppia maritima | 6 |
| BUC | 07/24/17 | 50 | 56.15 | Ruppia maritima | 4 |
| BUC | 07/24/17 | 50 | 63.5 | Vallisneria americana | 5 |
| BUC | 07/24/17 | 50 | 72 | Bare | 999 |
| BUC | 07/24/17 | 50 | 80.95 | Zannichellia palustris | 2 |
| GT002 | 07/14/17 | 0 | 0 | Bare | 999 |
| GT002 | 07/14/17 | 0 | 38 | Bare | 999 |
| GT002 | 07/14/17 | 12 | 0 | Bare | 999 |
| GT002 | 07/14/17 | 12 | 21 | Bare | 999 |
| GT002 | 07/14/17 | 12 | 45 | Bare | 999 |
| GT002 | 07/14/17 | 25 | 1 | Bare | 999 |
| GT002 | 07/14/17 | 25 | 2 | Bare | 999 |
| GT002 | 07/14/17 | 25 | 3 | Bare | 999 |
| GT002 | 07/14/17 | 25 | 4 | Bare | 999 |
| GT002 | 07/14/17 | 25 | 5 | Bare | 999 |
| GT002 | 07/14/17 | 25 | 6 | Bare | 999 |
| GT002 | 07/14/17 | 25 | 7 | Bare | 999 |
| GT002 | 07/14/17 | 25 | 8 | Ruppia maritima | 8 |
| GT002 | 07/14/17 | 25 | 9 | Bare | 999 |
| GT002 | 07/14/17 | 25 | 10 | Ruppia maritima | 7 |
| GT002 | 07/14/17 | 25 | 11.25 | Ruppia maritima | 8 |
| GT002 | 07/14/17 | 25 | 43 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 0 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 1 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 2 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 3 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 4 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 5 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 6 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 7 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 8 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 9 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 10 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 11 | Bare | 999 |
| GT002 | 07/14/17 | 38 | 12.3 | Ruppia maritima | 8 |
| GT002 | 07/14/17 | 38 | 63 | Bare | 999 |
| GT002 | 07/14/17 | 50 | 0 | Bare | 999 |
| GT002 | 07/14/17 | 50 | 63 | Bare | 999 |
| GT006 | 07/14/17 | 0 | 0 | Bare | 999 |
| GT006 | 07/14/17 | 0 | 35 | Bare | 999 |
| GT006 | 07/14/17 | 12 | 0 | Bare | 999 |
| GT006 | 07/14/17 | 12 | 35 | Bare | 999 |
| GT006 | 07/14/17 | 25 | 0 | Bare | 999 |
| GT006 | 07/14/17 | 25 | 35 | Bare | 999 |
| GT006 | 07/14/17 | 38 | 0 | Bare | 999 |
| GT006 | 07/14/17 | 38 | 35 | Bare | 999 |
| GT006 | 07/14/17 | 50 | 0 | Bare | 999 |
| GT006 | 07/14/17 | 50 | 43 | Bare | 999 |
| MOC | 07/12/17 | 0 | 2 | Ruppia maritima | 8 |
| MOC | 07/12/17 | 0 | 5.6 | Bare | 999 |

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| MOC | 07/12/17 | 0 | 17.6 | Bare | 999 |
| MOC | 07/12/17 | 0 | 29.6 | Ruppia maritima | 5.5 |
| MOC | 07/12/17 | 0 | 41.6 | Vallisneria americana | 5.5 |
| MOC | 07/12/17 | 0 | 53.6 | Bare | 999 |
| MOC | 07/12/17 | 0 | 65.6 | Vallisneria americana | 5 |
| MOC | 07/12/17 | 0 | 77.6 | Zannichellia palustris | 3 |
| MOC | 07/12/17 | 0 | 89.6 | Ruppia maritima | 8 |
| MOC | 07/12/17 | 0 | 101.6 | Vallisneria americana | 5.5 |
| MOC | 07/12/17 | 0 | 101.6 | Ruppia maritima | 3.5 |
| MOC | 07/12/17 | 0 | 113.6 | Bare | 999 |
| MOC | 07/12/17 | 0 | 125.6 | Vallisneria americana | 6 |
| MOC | 07/12/17 | 12 | 3.5 | Ruppia maritima | 6 |
| MOC | 07/12/17 | 12 | 16 | Ruppia maritima | 7 |
| MOC | 07/12/17 | 12 | 30 | Ruppia maritima | 8 |
| MOC | 07/12/17 | 12 | 44 | Bare | 999 |
| MOC | 07/12/17 | 12 | 58 | Bare | 999 |
| MOC | 07/12/17 | 12 | 72 | Zannichellia palustris | 2 |
| MOC | 07/12/17 | 12 | 86 | Zannichellia palustris | 3 |
| MOC | 07/12/17 | 12 | 100 | Vallisneria americana | 6 |
| MOC | 07/12/17 | 12 | 114 | Vallisneria americana | 10 |
| MOC | 07/12/17 | 12 | 114 | Zannichellia palustris | 3 |
| MOC | 07/12/17 | 12 | 128 | Vallisneria americana | 5.5 |
| MOC | 07/12/17 | 12 | 141.1 | Vallisneria americana | 7 |
| MOC | 07/12/17 | 25 | 8 | Ruppia maritima | 6 |
| MOC | 07/12/17 | 25 | 19 | Ruppia maritima | 10 |
| MOC | 07/12/17 | 25 | 32 | Ruppia maritima | 6 |
| MOC | 07/12/17 | 25 | 45 | Vallisneria americana | 5 |
| MOC | 07/12/17 | 25 | 58 | Vallisneria americana | 5 |
| MOC | 07/12/17 | 25 | 71 | Ruppia maritima | 5 |
| MOC | 07/12/17 | 25 | 82 | Zannichellia palustris | 3 |
| MOC | 07/12/17 | 25 | 95 | Zannichellia palustris | 2 |
| MOC | 07/12/17 | 25 | 108 | Bare | 999 |
| MOC | 07/12/17 | 25 | 121 | Vallisneria americana | 6 |
| MOC | 07/12/17 | 25 | 134.7 | Ruppia maritima | 4 |
| MOC | 07/13/17 | 38 | 7 | Ruppia maritima | 10 |
| MOC | 07/13/17 | 38 | 17 | Bare | 999 |
| MOC | 07/13/17 | 38 | 27 | Zannichellia palustris | 2 |
| MOC | 07/13/17 | 38 | 37 | Ruppia maritima | 3 |
| MOC | 07/13/17 | 38 | 47 | Ruppia maritima | 5 |
| MOC | 07/13/17 | 38 | 57 | Bare | 999 |
| MOC | 07/13/17 | 38 | 67 | Vallisneria americana | 4 |
| MOC | 07/13/17 | 38 | 77 | Vallisneria americana | 8 |
| MOC | 07/13/17 | 38 | 77 | Ruppia maritima | 5 |
| MOC | 07/13/17 | 38 | 87 | Ruppia maritima | 9 |
| MOC | 07/13/17 | 38 | 97 | Bare | 999 |
| MOC | 07/13/17 | 38 | 107 | Vallisneria americana | 9 |
| MOC | 07/13/17 | 38 | 107 | Zannichellia palustris | 2 |
| MOC | 07/13/17 | 38 | 117 | Vallisneria americana | 5 |
| MOC | 07/13/17 | 38 | 127 | Ruppia maritima | 6 |
| MOC | 07/13/17 | 38 | 137 | Vallisneria americana | 6 |
| MOC | 07/13/17 | 38 | 137 | Zannichellia palustris | 2 |
| MOC | 07/13/17 | 38 | 156.4 | Vallisneria americana | 8 |

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| MOC | 07/13/17 | 50 | 9 | Ruppia maritima | 10 |
| MOC | 07/13/17 | 50 | 9 | Eleocharis sp. | 6 |
| MOC | 07/13/17 | 50 | 21 | Eleocharis sp. | 4 |
| MOC | 07/13/17 | 50 | 35 | Bare | 999 |
| MOC | 07/13/17 | 50 | 49 | Bare | 999 |
| MOC | 07/13/17 | 50 | 63 | Vallisneria americana | 4 |
| MOC | 07/13/17 | 50 | 77 | Vallisneria americana | 5 |
| MOC | 07/13/17 | 50 | 81 | Bare | 999 |
| MOC | 07/13/17 | 50 | 95 | Vallisneria americana | 8 |
| MOC | 07/13/17 | 50 | 111 | Vallisneria americana | 5 |
| MOC | 07/13/17 | 50 | 125 | Ruppia maritima | 8 |
| MOC | 07/13/17 | 50 | 139.7 | Ruppia maritima | 5 |
| ORG | 07/25/17 | 0 | 0 | Ceratophyllum demersum | 8 |
| ORG | 07/25/17 | 0 | 8 | Ceratophyllum demersum | 28 |
| ORG | 07/25/17 | 0 | 16 | Ceratophyllum demersum | 10 |
| ORG | 07/25/17 | 0 | 24 | Vallisneria americana | 43 |
| ORG | 07/25/17 | 0 | 24 | Najas guadalupensis | 16 |
| ORG | 07/25/17 | 0 | 31.5 | Vallisneria americana | 14 |
| ORG | 07/25/17 | 0 | 40 | Vallisneria americana | 5 |
| ORG | 07/25/17 | 0 | 40 | Eleocharis sp. | 3 |
| ORG | 07/25/17 | 0 | 48 | Vallisneria americana | 5 |
| ORG | 07/25/17 | 0 | 48 | Najas guadalupensis | 4 |
| ORG | 07/25/17 | 0 | 56 | Vallisneria americana | 2 |
| ORG | 07/25/17 | 0 | 64 | Vallisneria americana | 5 |
| ORG | 07/25/17 | 0 | 70.9 | Vallisneria americana | 5 |
| ORG | 07/25/17 | 12 | 0 | Ceratophyllum demersum | 10 |
| ORG | 07/25/17 | 12 | 9 | Ceratophyllum demersum | 39 |
| ORG | 07/25/17 | 12 | 18 | Vallisneria americana | 42 |
| ORG | 07/25/17 | 12 | 18 | Ceratophyllum demersum | 24 |
| ORG | 07/25/17 | 12 | 27 | Vallisneria americana | 41 |
| ORG | 07/25/17 | 12 | 36 | Vallisneria americana | 55 |
| ORG | 07/25/17 | 12 | 45 | Vallisneria americana | 3 |
| ORG | 07/25/17 | 12 | 54 | Vallisneria americana | 4 |
| ORG | 07/25/17 | 12 | 63 | Vallisneria americana | 3 |
| ORG | 07/25/17 | 12 | 69.4 | Vallisneria americana | 4 |
| ORG | 07/25/17 | 25 | 0 | Ceratophyllum demersum | 8 |
| ORG | 07/25/17 | 25 | 9 | Ceratophyllum demersum | 29 |
| ORG | 07/25/17 | 25 | 18 | Ceratophyllum demersum | 24 |
| ORG | 07/25/17 | 25 | 27 | Najas guadalupensis | 53 |
| ORG | 07/25/17 | 25 | 36 | Vallisneria americana | 62 |
| ORG | 07/25/17 | 25 | 45 | Vallisneria americana | 2 |
| ORG | 07/25/17 | 25 | 54 | Vallisneria americana | 6 |
| ORG | 07/25/17 | 25 | 63 | Vallisneria americana | 7 |
| ORG | 07/25/17 | 25 | 72 | Vallisneria americana | 4 |
| ORG | 07/25/17 | 38 | 0 | Ceratophyllum demersum | 16 |
| ORG | 07/25/17 | 38 | 7 | Ceratophyllum demersum | 39 |
| ORG | 07/25/17 | 38 | 14 | Ceratophyllum demersum | 28 |
| ORG | 07/25/17 | 38 | 21 | Bare | 999 |
| ORG | 07/25/17 | 38 | 28 | Vallisneria americana | 53 |
| ORG | 07/25/17 | 38 | 35 | Vallisneria americana | 55 |
| ORG | 07/25/17 | 38 | 42 | Vallisneria americana | 16 |
| ORG | 07/25/17 | 38 | 49 | Vallisneria americana | 2 |

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|---|---|---|---|---|---|
| ORG | 07/25/17 | 38 | 56 | Vallisneria americana | 4 |
| ORG | 07/25/17 | 38 | 63 | Vallisneria americana | 3 |
| ORG | 07/25/17 | 38 | 71.5 | Vallisneria americana | 2 |
| ORG | 07/25/17 | 50 | 0.6 | Ceratophyllum demersum | 10 |
| ORG | 07/25/17 | 50 | 12 | Bare | 999 |
| ORG | 07/25/17 | 50 | 19 | Ceratophyllum demersum | 41 |
| ORG | 07/25/17 | 50 | 26 | Vallisneria americana | 44 |
| ORG | 07/25/17 | 50 | 33 | Vallisneria americana | 48 |
| ORG | 07/25/17 | 50 | 33 | Najas guadalupensis | 20 |
| ORG | 07/25/17 | 50 | 40 | Vallisneria americana | 3 |
| ORG | 07/25/17 | 50 | 40 | Najas guadalupensis | 4 |
| ORG | 07/25/17 | 50 | 47 | Vallisneria americana | 3 |
| ORG | 07/25/17 | 50 | 54 | Vallisneria americana | 4 |
| ORG | 07/25/17 | 50 | 61 | Vallisneria americana | 2 |
| ORG | 07/25/17 | 50 | 68 | Vallisneria americana | 5 |
| ORG | 07/25/17 | 50 | 74.9 | Vallisneria americana | 4 |
| SCA | 07/17/17 | 0 | 4.1 | Hydrilla verticillata | 14 |
| SCA | 07/17/17 | 0 | 20 | Hydrilla verticillata | 57 |
| SCA | 07/17/17 | 0 | 20 | Ceratophyllum demersum | 25 |
| SCA | 07/17/17 | 0 | 35 | Hydrilla verticillata | 37 |
| SCA | 07/17/17 | 0 | 35 | Ceratophyllum demersum | 13 |
| SCA | 07/17/17 | 0 | 50 | Vallisneria americana | 58 |
| SCA | 07/17/17 | 0 | 50 | Hydrilla verticillata | 30 |
| SCA | 07/17/17 | 0 | 65 | Vallisneria americana | 33 |
| SCA | 07/17/17 | 0 | 65 | Ceratophyllum demersum | 23 |
| SCA | 07/17/17 | 0 | 80 | Vallisneria americana | 40 |
| SCA | 07/17/17 | 0 | 95 | Vallisneria americana | 50 |
| SCA | 07/17/17 | 0 | 110 | Vallisneria americana | 69 |
| SCA | 07/17/17 | 0 | 125 | Vallisneria americana | 78 |
| SCA | 07/17/17 | 0 | 140 | Vallisneria americana | 11 |
| SCA | 07/17/17 | 0 | 158.25 | Vallisneria americana | 5 |
| SCA | 07/17/17 | 0 | 158.25 | Najas guadalupensis | 6 |
| SCA | 07/17/17 | 12 | 0.4 | Hydrilla verticillata | 22 |
| SCA | 07/17/17 | 12 | 16 | Najas guadalupensis | 22 |
| SCA | 07/17/17 | 12 | 16 | Ceratophyllum demersum | 32 |
| SCA | 07/17/17 | 12 | 32 | Hydrilla verticillata | 40 |
| SCA | 07/17/17 | 12 | 48 | Hydrilla verticillata | 30 |
| SCA | 07/17/17 | 12 | 48 | Najas guadalupensis | 30 |
| SCA | 07/17/17 | 12 | 64 | Hydrilla verticillata | 31 |
| SCA | 07/17/17 | 12 | 64 | Charophytes | 23 |
| SCA | 07/17/17 | 12 | 80 | Vallisneria americana | 28 |
| SCA | 07/17/17 | 12 | 80 | Hydrilla verticillata | 23 |
| SCA | 07/17/17 | 12 | 96 | Vallisneria americana | 58 |
| SCA | 07/17/17 | 12 | 112 | Vallisneria americana | 60 |
| SCA | 07/17/17 | 12 | 128 | Vallisneria americana | 86 |
| SCA | 07/17/17 | 12 | 144 | Vallisneria americana | 68 |
| SCA | 07/17/17 | 12 | 159.1 | Ruppia maritima | 7 |
| SCA | 07/18/17 | 25 | 2.4 | Hydrilla verticillata | 55 |
| SCA | 07/18/17 | 25 | 12 | Hydrilla verticillata | 8 |
| SCA | 07/18/17 | 25 | 24 | Hydrilla verticillata | 7 |
| SCA | 07/18/17 | 25 | 24 | Ceratophyllum demersum | 20 |
| SCA | 07/18/17 | 25 | 34 | Hydrilla verticillata | 30 |

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|---|---|---|---|---|---|
| SCA | 07/18/17 | 25 | 34 | Ceratophyllum demersum | 23 |
| SCA | 07/18/17 | 25 | 44 | Vallisneria americana | 30 |
| SCA | 07/18/17 | 25 | 44 | Hydrilla verticillata | 23 |
| SCA | 07/18/17 | 25 | 44 | Najas guadalupensis | 16 |
| SCA | 07/18/17 | 25 | 44 | Charophytes | 21 |
| SCA | 07/18/17 | 25 | 54 | Vallisneria americana | 32 |
| SCA | 07/18/17 | 25 | 54 | Hydrilla verticillata | 15 |
| SCA | 07/18/17 | 25 | 54 | Najas guadalupensis | 26 |
| SCA | 07/18/17 | 25 | 54 | Potamogeton pusillus | 31 |
| SCA | 07/18/17 | 25 | 54 | Ceratophyllum demersum | 16 |
| SCA | 07/18/17 | 25 | 64 | Najas guadalupensis | 16 |
| SCA | 07/18/17 | 25 | 64 | Ceratophyllum demersum | 20 |
| SCA | 07/18/17 | 25 | 74 | Hydrilla verticillata | 5 |
| SCA | 07/18/17 | 25 | 74 | Najas guadalupensis | 6 |
| SCA | 07/18/17 | 25 | 74 | Charophytes | 15 |
| SCA | 07/18/17 | 25 | 84 | Vallisneria americana | 35 |
| SCA | 07/18/17 | 25 | 84 | Hydrilla verticillata | 44 |
| SCA | 07/18/17 | 25 | 84 | Najas guadalupensis | 43 |
| SCA | 07/18/17 | 25 | 94 | Vallisneria americana | 58 |
| SCA | 07/18/17 | 25 | 94 | Ceratophyllum demersum | 35 |
| SCA | 07/18/17 | 25 | 104 | Vallisneria americana | 39 |
| SCA | 07/18/17 | 25 | 124 | Vallisneria americana | 72 |
| SCA | 07/18/17 | 25 | 144 | Vallisneria americana | 68 |
| SCA | 07/18/17 | 25 | 164 | Vallisneria americana | 80 |
| SCA | 07/18/17 | 25 | 181.3 | Vallisneria americana | 7 |
| SCA | 07/18/17 | 25 | 181.3 | Ruppia maritima | 5 |
| SCA | 07/18/17 | 38 | 15.65 | Ceratophyllum demersum | 29 |
| SCA | 07/18/17 | 38 | 16 | Ceratophyllum demersum | 56 |
| SCA | 07/18/17 | 38 | 36 | Hydrilla verticillata | 48 |
| SCA | 07/18/17 | 38 | 36 | Najas guadalupensis | 34 |
| SCA | 07/18/17 | 38 | 56 | Vallisneria americana | 21 |
| SCA | 07/18/17 | 38 | 56 | Hydrilla verticillata | 26 |
| SCA | 07/18/17 | 38 | 76 | Hydrilla verticillata | 30 |
| SCA | 07/18/17 | 38 | 76 | Najas guadalupensis | 14 |
| SCA | 07/18/17 | 38 | 96 | Vallisneria americana | 83 |
| SCA | 07/18/17 | 38 | 96 | Hydrilla verticillata | 90 |
| SCA | 07/18/17 | 38 | 116 | Vallisneria americana | 72 |
| SCA | 07/18/17 | 38 | 136 | Vallisneria americana | 78 |
| SCA | 07/18/17 | 38 | 156 | Vallisneria americana | 91 |
| SCA | 07/18/17 | 38 | 176 | Vallisneria americana | 86 |
| SCA | 07/18/17 | 38 | 196.6 | Vallisneria americana | 4 |
| SCA | 07/18/17 | 38 | 196.6 | Najas guadalupensis | 5 |
| SCA | 07/19/17 | 50 | 0.2 | Hydrilla verticillata | 14 |
| SCA | 07/19/17 | 50 | 10 | Bare | 999 |
| SCA | 07/19/17 | 50 | 20 | Bare | 999 |
| SCA | 07/19/17 | 50 | 30 | Bare | 999 |
| SCA | 07/19/17 | 50 | 40 | Hydrilla verticillata | 20 |
| SCA | 07/19/17 | 50 | 40 | Najas guadalupensis | 17 |
| SCA | 07/19/17 | 50 | 40 | Charophytes | 18 |
| SCA | 07/19/17 | 50 | 50 | Hydrilla verticillata | 32 |
| SCA | 07/19/17 | 50 | 50 | Potamogeton pusillus | 11 |
| SCA | 07/19/17 | 50 | 60 | Vallisneria americana | 9 |

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| SCA | 07/19/17 | 50 | 60 | Hydrilla verticillata | 11 |
| SCA | 07/19/17 | 50 | 60 | Najas guadalupensis | 14 |
| SCA | 07/19/17 | 50 | 70 | Vallisneria americana | 65 |
| SCA | 07/19/17 | 50 | 70 | Hydrilla verticillata | 54 |
| SCA | 07/19/17 | 50 | 80 | Ceratophyllum demersum | 17 |
| SCA | 07/19/17 | 50 | 90 | Vallisneria americana | 92 |
| SCA | 07/19/17 | 50 | 100 | Vallisneria americana | 81 |
| SCA | 07/19/17 | 50 | 110 | Vallisneria americana | 80 |
| SCA | 07/19/17 | 50 | 120 | Vallisneria americana | 79 |
| SCA | 07/19/17 | 50 | 130 | Vallisneria americana | 74 |
| SCA | 07/19/17 | 50 | 140 | Vallisneria americana | 83 |
| SCA | 07/19/17 | 50 | 150 | Vallisneria americana | 85 |
| SCA | 07/19/17 | 50 | 160 | Vallisneria americana | 87 |
| SCA | 07/19/17 | 50 | 170 | Vallisneria americana | 86 |
| SCA | 07/19/17 | 50 | 180 | Vallisneria americana | 79 |
| SCA | 07/19/17 | 50 | 191 | Vallisneria americana | 63 |
| ORG | 11/02/17 | 0 | 25.6 | Vallisneria americana | 2.5 |
| ORG | 11/02/17 | 0 | 30 | Bare | 999 |
| ORG | 11/02/17 | 0 | 34 | Bare | 999 |
| ORG | 11/02/17 | 0 | 38 | Bare | 999 |
| ORG | 11/02/17 | 0 | 42 | Bare | 999 |
| ORG | 11/02/17 | 0 | 46 | Bare | 999 |
| ORG | 11/02/17 | 0 | 50 | Bare | 999 |
| ORG | 11/02/17 | 0 | 54 | Bare | 999 |
| ORG | 11/02/17 | 0 | 58 | Bare | 999 |
| ORG | 11/02/17 | 0 | 60 | Bare | 999 |
| ORG | 11/02/17 | 12 | 28.3 | Vallisneria americana | 4.8 |
| ORG | 11/02/17 | 12 | 30 | Vallisneria americana | 7.5 |
| ORG | 11/02/17 | 12 | 33 | Vallisneria americana | 10 |
| ORG | 11/02/17 | 12 | 35.8 | Vallisneria americana | 3 |
| ORG | 11/02/17 | 12 | 39 | Bare | 999 |
| ORG | 11/02/17 | 12 | 42 | Bare | 999 |
| ORG | 11/02/17 | 12 | 45 | Bare | 999 |
| ORG | 11/02/17 | 12 | 48 | Bare | 999 |
| ORG | 11/02/17 | 12 | 51 | Bare | 999 |
| ORG | 11/02/17 | 12 | 54 | Bare | 999 |
| ORG | 11/02/17 | 12 | 57 | Bare | 999 |
| ORG | 11/02/17 | 12 | 60 | Bare | 999 |
| ORG | 11/03/17 | 25 | 31.1 | Vallisneria americana | 5 |
| ORG | 11/03/17 | 25 | 33 | Vallisneria americana | 4.5 |
| ORG | 11/03/17 | 25 | 34.6 | Vallisneria americana | 2.5 |
| ORG | 11/03/17 | 25 | 39 | Bare | 999 |
| ORG | 11/03/17 | 25 | 42 | Bare | 999 |
| ORG | 11/03/17 | 25 | 45 | Bare | 999 |
| ORG | 11/03/17 | 25 | 48 | Bare | 999 |
| ORG | 11/03/17 | 25 | 50 | Bare | 999 |
| ORG | 11/03/17 | 25 | 54 | Bare | 999 |
| ORG | 11/03/17 | 25 | 57 | Bare | 999 |
| ORG | 11/03/17 | 25 | 60 | Bare | 999 |
| ORG | 11/03/17 | 38 | 26.1 | Vallisneria americana | 3.5 |
| ORG | 11/03/17 | 38 | 28 | Vallisneria americana | 10.1 |
| ORG | 11/03/17 | 38 | 32 | Bare | 999 |

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|---|---|---|---|---|---|
| ORG | 11/03/17 | 38 | 36 | Bare | 999 |
| ORG | 11/03/17 | 38 | 40 | Bare | 999 |
| ORG | 11/03/17 | 38 | 44 | Bare | 999 |
| ORG | 11/03/17 | 38 | 48 | Bare | 999 |
| ORG | 11/03/17 | 38 | 52 | Bare | 999 |
| ORG | 11/03/17 | 38 | 56 | Bare | 999 |
| ORG | 11/03/17 | 38 | 60 | Bare | 999 |
| ORG | 11/03/17 | 50 | 28.4 | Vallisneria americana | 6 |
| ORG | 11/03/17 | 50 | 33 | Vallisneria americana | 2 |
| ORG | 11/03/17 | 50 | 36 | Bare | 999 |
| ORG | 11/03/17 | 50 | 39 | Bare | 999 |
| ORG | 11/03/17 | 50 | 42 | Bare | 999 |
| ORG | 11/03/17 | 50 | 45 | Bare | 999 |
| ORG | 11/03/17 | 50 | 48 | Bare | 999 |
| ORG | 11/03/17 | 50 | 51 | Bare | 999 |
| ORG | 11/03/17 | 50 | 54 | Bare | 999 |
| ORG | 11/03/17 | 50 | 57 | Bare | 999 |
| ORG | 11/03/17 | 50 | 60 | Bare | 999 |
| MOC | 11/02/17 | 0 | 125.6 | Bare | 999 |
| MOC | 11/02/17 | 0 | 113 | Bare | 999 |
| MOC | 11/02/17 | 0 | 101 | Bare | 999 |
| MOC | 11/02/17 | 0 | 89 | Bare | 999 |
| MOC | 11/02/17 | 0 | 77 | Bare | 999 |
| MOC | 11/02/17 | 0 | 65 | Bare | 999 |
| MOC | 11/02/17 | 0 | 53 | Bare | 999 |
| MOC | 11/02/17 | 0 | 41 | Bare | 999 |
| MOC | 11/02/17 | 0 | 29 | Bare | 999 |
| MOC | 11/02/17 | 0 | 17 | Bare | 999 |
| MOC | 11/02/17 | 0 | 5.7 | Ruppia maritima | 8.5 |
| MOC | 11/02/17 | 12 | 15 | Vallisneria americana | 3.5 |
| MOC | 11/02/17 | 12 | 27 | Bare | 999 |
| MOC | 11/02/17 | 12 | 39 | Bare | 999 |
| MOC | 11/02/17 | 12 | 51.9 | Vallisneria americana | 3 |
| MOC | 11/02/17 | 12 | 63 | Bare | 999 |
| MOC | 11/02/17 | 12 | 75 | Bare | 999 |
| MOC | 11/02/17 | 12 | 87 | Bare | 999 |
| MOC | 11/02/17 | 12 | 99 | Bare | 999 |
| MOC | 11/02/17 | 12 | 111 | Bare | 999 |
| MOC | 11/02/17 | 12 | 123 | Bare | 999 |
| MOC | 11/02/17 | 12 | 135 | Bare | 999 |
| MOC | 11/02/17 | 12 | 141.1 | Bare | 999 |
| MOC | 11/02/17 | 25 | 17.4 | Vallisneria americana | 2 |
| MOC | 11/02/17 | 25 | 28 | Bare | 999 |
| MOC | 11/02/17 | 25 | 39 | Bare | 999 |
| MOC | 11/02/17 | 25 | 50 | Bare | 999 |
| MOC | 11/02/17 | 25 | 61 | Bare | 999 |
| MOC | 11/02/17 | 25 | 72 | Bare | 999 |
| MOC | 11/02/17 | 25 | 83 | Bare | 999 |
| MOC | 11/02/17 | 25 | 94 | Bare | 999 |
| MOC | 11/02/17 | 25 | 105 | Bare | 999 |
| MOC | 11/02/17 | 25 | 116 | Bare | 999 |
| MOC | 11/02/17 | 25 | 127 | Bare | 999 |

| | | | | | |
|---|---|---|---|---|---|
| MOC | 11/02/17 | 25 | 134.6 | Bare | 999 |
| MOC | 11/02/17 | 38 | 17.4 | Vallisneria americana | 2 |
| MOC | 11/02/17 | 38 | 30 | Bare | 999 |
| MOC | 11/02/17 | 38 | 43 | Bare | 999 |
| MOC | 11/02/17 | 38 | 56 | Bare | 999 |
| MOC | 11/02/17 | 38 | 69 | Bare | 999 |
| MOC | 11/02/17 | 38 | 82 | Bare | 999 |
| MOC | 11/02/17 | 38 | 95 | Bare | 999 |
| MOC | 11/02/17 | 38 | 108 | Bare | 999 |
| MOC | 11/02/17 | 38 | 121 | Bare | 999 |
| MOC | 11/02/17 | 38 | 134 | Bare | 999 |
| MOC | 11/02/17 | 38 | 147 | Bare | 999 |
| MOC | 11/02/17 | 38 | 156.6 | Bare | 999 |
| MOC | 11/02/17 | 50 | 11.1 | Vallisneria americana | 2 |
| MOC | 11/02/17 | 50 | 22 | Vallisneria americana | 2 |
| MOC | 11/02/17 | 50 | 34 | Bare | 999 |
| MOC | 11/02/17 | 50 | 46 | Ruppia maritima | 8 |
| MOC | 11/02/17 | 50 | 58 | Bare | 999 |
| MOC | 11/02/17 | 50 | 70 | Bare | 999 |
| MOC | 11/02/17 | 50 | 82 | Bare | 999 |
| MOC | 11/02/17 | 50 | 94 | Bare | 999 |
| MOC | 11/02/17 | 50 | 106 | Bare | 999 |
| MOC | 11/02/17 | 50 | 118 | Bare | 999 |
| MOC | 11/02/17 | 50 | 130 | Bare | 999 |
| MOC | 11/02/17 | 50 | 134 | Bare | 999 |
| BUC | 11/01/17 | 0 | 44 | Bare | 999 |
| BUC | 11/01/17 | 0 | 0 | Bare | 999 |
| BUC | 11/01/17 | 12 | 44 | Bare | 999 |
| BUC | 11/01/17 | 12 | 0 | Bare | 999 |
| BUC | 11/01/17 | 25 | 0 | Bare | 999 |
| BUC | 11/01/17 | 38 | 0 | Bare | 999 |
| BUC | 11/01/17 | 50 | 0 | Bare | 999 |
| BOL | 11/01/17 | 0 | 0 | Bare | 999 |
| BOL | 11/01/17 | 0 | 38 | Bare | 999 |
| BOL | 11/01/17 | 12 | 0 | Bare | 999 |
| BOL | 11/01/17 | 12 | 38 | Bare | 999 |
| BOL | 11/01/17 | 25 | 0 | Bare | 999 |
| BOL | 11/01/17 | 38 | 0 | Bare | 999 |
| BOL | 11/01/17 | 50 | 0 | Bare | 999 |
| SCA | 11/06/17 | 0 | 0 | Bare | 999 |
| SCA | 11/06/17 | 0 | 10 | Bare | 999 |
| SCA | 11/06/17 | 0 | 20 | Bare | 999 |
| SCA | 11/06/17 | 0 | 30 | Bare | 999 |
| SCA | 11/06/17 | 0 | 40 | Bare | 999 |
| SCA | 11/06/17 | 0 | 50 | Bare | 999 |
| SCA | 11/06/17 | 0 | 60 | Bare | 999 |
| SCA | 11/06/17 | 0 | 70 | Bare | 999 |
| SCA | 11/06/17 | 0 | 80 | Bare | 999 |
| SCA | 11/06/17 | 0 | 90 | Vallisneria americana | 31 |
| SCA | 11/06/17 | 0 | 100 | Vallisneria americana | 41 |
| SCA | 11/06/17 | 0 | 110 | Vallisneria americana | 55 |
| SCA | 11/06/17 | 0 | 120 | Vallisneria americana | 38 |

| | | | | | |
|---|---|---|---|---|---|
| SCA | 11/06/17 | 0 | 130 | Vallisneria americana | 25 |
| SCA | 11/06/17 | 0 | 138.4 | Vallisneria americana | 18 |
| SCA | 11/06/17 | 12 | 0 | Bare | 999 |
| SCA | 11/06/17 | 12 | 10 | Bare | 999 |
| SCA | 11/06/17 | 12 | 20 | Bare | 999 |
| SCA | 11/06/17 | 12 | 30 | Bare | 999 |
| SCA | 11/06/17 | 12 | 40 | Bare | 999 |
| SCA | 11/06/17 | 12 | 50 | Bare | 999 |
| SCA | 11/06/17 | 12 | 60 | Bare | 999 |
| SCA | 11/06/17 | 12 | 70 | Bare | 999 |
| SCA | 11/06/17 | 12 | 80 | Vallisneria americana | 11 |
| SCA | 11/06/17 | 12 | 90 | Bare | 999 |
| SCA | 11/06/17 | 12 | 100 | Bare | 999 |
| SCA | 11/06/17 | 12 | 110 | Vallisneria americana | 23 |
| SCA | 11/06/17 | 12 | 120 | Vallisneria americana | 38 |
| SCA | 11/06/17 | 12 | 130 | Vallisneria americana | 58 |
| SCA | 11/06/17 | 12 | 140 | Vallisneria americana | 67 |
| SCA | 11/06/17 | 12 | 150 | Bare | 999 |
| SCA | 11/06/17 | 12 | 159.1 | Bare | 999 |
| SCA | 11/06/17 | 25 | 0 | Bare | 999 |
| SCA | 11/06/17 | 25 | 10 | Bare | 999 |
| SCA | 11/06/17 | 25 | 20 | Bare | 999 |
| SCA | 11/06/17 | 25 | 30 | Bare | 999 |
| SCA | 11/06/17 | 25 | 40 | Bare | 999 |
| SCA | 11/06/17 | 25 | 50 | Bare | 999 |
| SCA | 11/06/17 | 25 | 60 | Bare | 999 |
| SCA | 11/06/17 | 25 | 70 | Bare | 999 |
| SCA | 11/06/17 | 25 | 80 | Bare | 999 |
| SCA | 11/06/17 | 25 | 90 | Vallisneria americana | 36 |
| SCA | 11/06/17 | 25 | 100 | Vallisneria americana | 27 |
| SCA | 11/06/17 | 25 | 110 | Vallisneria americana | 18 |
| SCA | 11/06/17 | 25 | 120 | Vallisneria americana | 11 |
| SCA | 11/06/17 | 25 | 130 | Vallisneria americana | 61 |
| SCA | 11/06/17 | 25 | 140 | Vallisneria americana | 48 |
| SCA | 11/06/17 | 25 | 150 | Vallisneria americana | 49 |
| SCA | 11/06/17 | 25 | 160 | Vallisneria americana | 44 |
| SCA | 11/06/17 | 25 | 170 | Vallisneria americana | 32 |
| SCA | 11/06/17 | 25 | 180 | Bare | 999 |
| SCA | 11/06/17 | 38 | 0 | Bare | 999 |
| SCA | 11/06/17 | 38 | 10 | Bare | 999 |
| SCA | 11/06/17 | 38 | 20 | Bare | 999 |
| SCA | 11/06/17 | 38 | 30 | Bare | 999 |
| SCA | 11/06/17 | 38 | 40 | Bare | 999 |
| SCA | 11/06/17 | 38 | 50 | Vallisneria americana | 13.5 |
| SCA | 11/06/17 | 38 | 59.8 | Vallisneria americana | 2 |
| SCA | 11/06/17 | 38 | 70 | Bare | 999 |
| SCA | 11/06/17 | 38 | 80 | Bare | 999 |
| SCA | 11/06/17 | 38 | 90 | Bare | 999 |
| SCA | 11/06/17 | 38 | 100 | Bare | 999 |
| SCA | 11/06/17 | 38 | 110 | Bare | 999 |
| SCA | 11/06/17 | 38 | 120 | Bare | 999 |
| SCA | 11/06/17 | 38 | 130.1 | Vallisneria americana | 38 |

| | | | | | |
|---|---|---|---|---|---|
| SCA | 11/06/17 | 38 | 140 | Vallisneria americana | 47 |
| SCA | 11/06/17 | 38 | 150 | Vallisneria americana | 39 |
| SCA | 11/06/17 | 38 | 160 | Vallisneria americana | 56 |
| SCA | 11/06/17 | 38 | 170 | Vallisneria americana | 72 |
| SCA | 11/06/17 | 38 | 180 | Vallisneria americana | 59 |
| SCA | 11/06/17 | 38 | 191 | Bare | 999 |
| SCA | 11/06/17 | 50 | 0 | Bare | 999 |
| SCA | 11/06/17 | 50 | 10 | Bare | 999 |
| SCA | 11/06/17 | 50 | 20 | Bare | 999 |
| SCA | 11/06/17 | 50 | 30 | Bare | 999 |
| SCA | 11/06/17 | 50 | 40 | Bare | 999 |
| SCA | 11/06/17 | 50 | 50 | Bare | 999 |
| SCA | 11/06/17 | 50 | 60 | Bare | 999 |
| SCA | 11/06/17 | 50 | 70 | Bare | 999 |
| SCA | 11/06/17 | 50 | 80 | Bare | 999 |
| SCA | 11/06/17 | 50 | 90 | Bare | 999 |
| SCA | 11/06/17 | 50 | 100 | Bare | 999 |
| SCA | 11/06/17 | 50 | 110.8 | Vallisneria americana | 40 |
| SCA | 11/06/17 | 50 | 120 | Najas guadalupensis | 10 |
| SCA | 11/06/17 | 50 | 130 | Vallisneria americana | 29 |
| SCA | 11/06/17 | 50 | 140 | Vallisneria americana | 5 |
| SCA | 11/06/17 | 50 | 150 | Vallisneria americana | 10 |
| SCA | 11/06/17 | 50 | 160 | Vallisneria americana | 43 |
| SCA | 11/06/17 | 50 | 170 | Vallisneria americana | 69 |
| SCA | 11/06/17 | 50 | 180 | Vallisneria americana | 66 |
| SCA | 11/06/17 | 50 | 184 | Vallisneria americana | 75 |
| GT002 | 11/01/17 | 0 | 0 | Bare | 999 |
| GT002 | 11/01/17 | 12 | 0 | Bare | 999 |
| GT002 | 11/01/17 | 25 | 0 | Bare | 999 |
| GT002 | 11/01/17 | 25 | 10 | Bare | 999 |
| GT002 | 11/01/17 | 38 | 0 | Bare | 999 |
| GT002 | 11/01/17 | 38 | 10 | Bare | 999 |
| GT002 | 11/01/17 | 50 | 0 | Bare | 999 |
| GT006 | 11/01/17 | 0 | 0 | Bare | 999 |
| GT006 | 11/01/17 | 12 | 0 | Bare | 999 |
| GT006 | 11/01/17 | 25 | 0 | Bare | 999 |
| GT006 | 11/01/17 | 38 | 0 | Bare | 999 |
| GT006 | 11/01/17 | 50 | 0 | Bare | 999 |

| Site | Sample_Date | Transect_Number | Dist_along_shore | Total_bed_length |
|---|---|---|---|---|
| BOL | 07/14/17 | 1 | 0 | 76.55 |
| BOL | 07/14/17 | 2 | 12 | 69.20 |
| BOL | 07/14/17 | 3 | 25 | 54.50 |
| BOL | 07/14/17 | 4 | 38 | 67.35 |
| BOL | 07/14/17 | 5 | 50 | 57.00 |
| BUC | 07/24/17 | 1 | 0 | 59.85 |
| BUC | 07/24/17 | 2 | 12 | 66.15 |
| BUC | 07/24/17 | 3 | 25 | 71.80 |
| BUC | 07/24/17 | 4 | 38 | 69.80 |
| BUC | 07/24/17 | 5 | 50 | 80.95 |
| GT006 | 07/14/17 | 1 | 0 | 0.00 |
| GT006 | 07/14/17 | 2 | 12 | 0.00 |
| GT006 | 07/14/17 | 3 | 25 | 0.00 |
| GT006 | 07/14/17 | 4 | 38 | 0.00 |
| GT006 | 07/14/17 | 5 | 50 | 0.00 |
| GT002 | 07/14/17 | 1 | 0 | 0.00 |
| GT002 | 07/14/17 | 2 | 12 | 0.00 |
| GT002 | 07/14/17 | 3 | 25 | 11.25 |
| GT002 | 07/14/17 | 4 | 38 | 12.30 |
| GT002 | 07/14/17 | 5 | 50 | 0.00 |
| MOC | 07/12/17 | 1 | 0 | 125.60 |
| MOC | 07/12/17 | 2 | 12 | 141.10 |
| MOC | 07/12/17 | 3 | 25 | 134.70 |
| MOC | 07/13/17 | 4 | 38 | 156.40 |
| MOC | 07/17/17 | 5 | 50 | 139.70 |
| ORG | 07/25/17 | 1 | 0 | 70.90 |
| ORG | 07/25/17 | 2 | 12 | 69.40 |
| ORG | 07/25/17 | 3 | 25 | 72.10 |
| ORG | 07/25/17 | 4 | 38 | 71.50 |
| ORG | 07/25/17 | 5 | 50 | 74.90 |
| SCA | 07/17/17 | 1 | 0 | 158.25 |
| SCA | 07/17/17 | 2 | 12 | 159.10 |
| SCA | 07/18/17 | 3 | 25 | 181.30 |
| SCA | 07/18/17 | 4 | 38 | 196.60 |
| SCA | 07/19/17 | 5 | 50 | 191.00 |
| GT002 | 11/01/17 | 1 | 0 | 0.00 |
| GT002 | 11/01/17 | 2 | 12 | 0.00 |
| GT002 | 11/01/17 | 3 | 25 | 0.00 |
| GT002 | 11/01/17 | 4 | 38 | 0.00 |
| GT002 | 11/01/17 | 5 | 50 | 0.00 |
| GT006 | 11/01/17 | 1 | 0 | 0.00 |
| GT006 | 11/01/17 | 2 | 12 | 0.00 |
| GT006 | 11/01/17 | 3 | 25 | 0.00 |
| GT006 | 11/01/17 | 4 | 38 | 0.00 |
| GT006 | 11/01/17 | 5 | 50 | 0.00 |
| BOL | 11/01/17 | 1 | 0 | 0.00 |
| BOL | 11/01/17 | 2 | 12 | 0.00 |
| BOL | 11/01/17 | 3 | 25 | 0.00 |
| BOL | 11/01/17 | 4 | 38 | 0.00 |
| BOL | 11/01/17 | 5 | 50 | 0.00 |
| BUC | 11/01/17 | 1 | 0 | 0.00 |

| | | | | |
|---|---|---|---|---|
| BUC | 11/01/17 | 2 | 12 | 0.00 |
| BUC | 11/01/17 | 3 | 25 | 0.00 |
| BUC | 11/01/17 | 4 | 38 | 0.00 |
| BUC | 11/01/17 | 5 | 50 | 0.00 |
| MOC | 11/02/17 | 1 | 0 | 5.75 |
| MOC | 11/02/17 | 2 | 12 | 51.95 |
| MOC | 11/02/17 | 3 | 25 | 25.75 |
| MOC | 11/02/17 | 4 | 38 | 36.75 |
| MOC | 11/02/17 | 5 | 50 | 74.85 |
| ORG | 11/02/17 | 1 | 0 | 25.65 |
| ORG | 11/02/17 | 2 | 12 | 40.35 |
| ORG | 11/03/17 | 3 | 25 | 35.00 |
| ORG | 11/03/17 | 4 | 38 | 30.70 |
| ORG | 11/03/17 | 5 | 50 | 34.40 |
| SCA | 11/06/17 | 1 | 0 | 138.40 |
| SCA | 11/06/17 | 2 | 12 | 143.70 |
| SCA | 11/06/17 | 3 | 25 | 176.00 |
| SCA | 11/06/17 | 4 | 38 | 189.25 |
| SCA | 11/06/17 | 5 | 50 | 184.00 |

**General Notes:**

Data Collection Methods are described in Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler). 2017. Final Submerged Aquatic Vegetation Biological Monitoring Plan, Monitoring in Support of the Jacksonville Harbor Deepening Project, St. Johns River, Florida. USACE Contract No. W91278-16-D-0062. July 2017.

| Term | Definition | Units |
|---|---|---|
| BOL | Bolles High School | 30.24158587, -81.63045888 |
| BUC | Buckman Bridge | 30.17340726, -81.64465053 |
| GT002 | Groundtruth Site 002 | 30.28822814, -81.70599232 |
| GT006 | Groundtruth Site 006 | 30.27056542, -81.65392662 |
| MOC | Moccasin Slough | 30.12913761, -81.69408859 |
| ORG | Orangedale | 30.00480725, -81.61272327 |
| SCA | Scratch Ankle | 29.83708419, -81.60278267 |
| Distance Along Shore | Meter mark on the transect tape running parallel along shore from the benchmark at Transect 1 to Transect 5 | meters |
| Open | Meter mark on the transect tape running perpendicular to shore, marking the starting point of a species presence along the transect. | meters |
| Close | Meter mark on the transect tape running perpendicular to shore, marking the end point of a species presence along the transect | meters |
| Sediment Type 0 | Other substrates such as rock or clay | NA |
| Sediment Type 1 | Sandy | NA |
| Sediment Type 2 | Mucky-Sand | NA |
| Sediment Type 3 | Muck | NA |
| SAV Density 0 | Bare | 0% cover |
| SAV Density 1 | Sparse | 1-32% cover |
| SAV Density 2 | Moderate | 33-65% over |
| SAV Density 3 | Heavy | 66-100% cover |
| Depth | Water Depth | meters |
| Canopy Height | Height of SAV canopy | centimeters, 999 = Bare (no SAV) |
| Total Bed Length | End point of SAV along perpendicular transect corresponding to deep-water edge of SAV bed. | meters |

# Appendix 4
# Wetlands Photo Record

# Photograph Record - Wetland Annual Report

**Client:** USACE - Jacksonville District

**Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening

**Site Location:** Pottsburg Creek

**Photographer:**
Joy Ryan

**Date:**
June 6, 2017

**Photo #:** 1

**Description:**

Representative View into plot PC1, from PC1a corner (view to NW)

**Photographer:**
Joy Ryan

**Date:**
June 6, 2017

**Photo #:** 2

**Description:**

Representative View of plot PC2 with Pottsburg Creek on left, from PC2a corner (view to N).

# Photograph Record - Wetland Annual Report

**Client:** USACE - Jacksonville District

**Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening

**Site Location:** Pottsburg Creek

**Photographer:**
Joy Ryan

**Date:**
June 6, 2017

**Photo #:** 3

**Description:**

Representative View into plot PC2, from corner PC2a (view to NW).

**Photographer:**
Joy Ryan

**Date:**
September 21, 2017

**Photo #:** 4

**Description:**

Representative View into plot PC3, from near corner PC3a (view to SE).

# Photograph Record - Wetland Annual Report

**Client:** USACE - Jacksonville District

**Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening

**Site Location:** Ortega River

**Photographer:**
Joy Ryan

**Date:**
June 7, 2017

**Photo #:** 5

**Description:**

View of Ortega River adjacent to plot OR1, from corner OR1b (view to N).

**Photographer:**
Joy Ryan

**Date:**
June 7, 2017

**Photo #:** 6

**Description:**

Representative View into plot OR1, from corner OR1b (view to S).

## Photograph Record - Wetland Annual Report

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Ortega River

**Photographer:** Joy Ryan

**Date:** June 9, 2017

**Photo #:** 7

**Description:**

Representative View of plot OR2, from corner OR2d. Bank is underwater; downed tree on right, in background, represents Ortega River location. (view to W).

**Photographer:** Joy Ryan

**Date:** June 7, 2017

**Photo #:** 8

**Description:**

Representative View into plot OR3, from corner OR3d (view to SE).

# Photograph Record - Wetland Annual Report

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Julington Creek

**Photographer:**
Joy Ryan

**Date:**
June 5, 2017

**Photo #:** 9

**Description:**

Representative View into plot JC1, from corner JC1b (view to NW).

**Photographer:**
Joy Ryan

**Date:**
June 5, 2017

**Photo #:** 10

**Description:**

Representative View of plot JC2 with Julington Creek in background, from corner JC2d (view to E), corner flag for JC2a in photo.

# Photograph Record - Wetland Annual Report

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Julington Creek

**Photographer:**
Joy Ryan

**Date:**
June 5, 2017

**Photo #:** 11

**Description:**

Representative View into plot JC2, from corner JC2b (view to S).

**Photographer:**
Joy Ryan

**Date:**
June 5, 2017

**Photo #:** 12

**Description:**

Representative View into plot JC3, from corner JC3d (view to SE).

# Photograph Record - Wetland Annual Report

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Black Creek

**Photographer:**
Joy Ryan

**Date:**
September 20, 2017

**Photo #:** 13

**Description:**

Representative View into plot BC1 (view to N).

**Photographer:**
Joy Ryan

**Date:**
September 20, 2017

**Photo #:** 14

**Description:**

Standing water near plot BC1 (view to S).

## Photograph Record - Wetland Annual Report

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Black Creek

**Photographer:**
Joy Ryan

**Date:**
June 9, 2017

**Photo #:** 15

**Description:**

Representative View into plot BC2, from corner BC2a (view to NW).

**Photographer:**
Joy Ryan

**Date:**
September 20, 2017

**Photo #:** 16

**Description:**

Representative View into plot BC3, from corner BC3a (view to NNE).

## Photograph Record - Wetland Annual Report

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Six Mile Creek

**Photographer:**
Joy Ryan

**Date:**
June 8, 2017

**Photo #:** 17

**Description:**

Representative View into plot SMC2, from corner SMC2a (view to E).

**Photographer:**
Joy Ryan

**Date:**
October 13, 2017

**Photo #:** 18

**Description:**

Representative View into plot SMC3, from corner SMC3b (view to NE).

## Photograph Record - Wetland Annual Report

**Client:** USACE - Jacksonville District

**Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening

**Site Location:** Six Mile Creek

**Photographer:**
Joy Ryan

**Date:**
October 13, 2017

**Photo #:** 19

**Description:**

Representative View of plot SMC3, from corner SMCb (view to NE)

**Photographer:**
Joy Ryan

**Date:**
October 13, 2017

**Photo #:** 20

**Description:**

Representative View of plot SMC3, from corner SMC3d (view to SW). Large dark area on right side of photo is root base of downed tree. Can see boat and field personnel in background, on Six Mile Creek.

# Appendix 5
# Final Wetlands Biological Monitoring Plan

**Prepared for:**
**U.S. Army Corps of Engineers**
**701 San Marco Boulevard**
**Jacksonville, FL 32207-8175**
**USACE Contract No. W91278-16-D-0062**

**Prepared by:**
**Amec Foster Wheeler Environment & Infrastructure, Inc.**
**404 SW 140th Terrace**
**Newberry, Florida 32669**
**Project Number 6063170288**


Jennifer Sagan, MS
Senior Scientist

Mark Diblin, PG
Project Manager


**November 3, 2017**

# Table of Contents

**1.0 Introduction ..... 1-1**

**2.0 Background ..... 2-1**

**3.0 Objectives ..... 3-1**

**4.0 Methodology ..... 4-1**

4.1 Freshwater Wetlands Monitoring Station Locations ..... 4-1
4.2 Freshwater Wetlands Monitoring Timeline ..... 4-4
4.3 Freshwater Wetlands Survey Methods ..... 4-4
4.3.1 Freshwater Wetlands Vegetation Data Collection Method ..... 4-4
4.3.2 Freshwater Wetlands Soil Data Collection Method ..... 4-6
4.4 Spatial Distribution and Plant Community Delineation ..... 4-9

**5.0 Data Analysis and Reporting ..... 5-1**

5.1 Data Analysis - Rationale ..... 5-1
5.2 Statistical Analyses ..... 5-1
5.3 Tabular and Graphical Representations ..... 5-2
5.4 Data Reporting ..... 5-2

**6.0 References ..... 6-1**

# Table of Contents (continued)

## Tables/Diagrams

**Table 1.** Wetland Monitoring Stations - Plot Coordinates
**Table 2.** Summary of Soil/Sediment Data Collection per Monitoring Plot
**Diagram 1.** Example of Canopy Percent Cover in Wetlands Monitoring Plot

## Figures

**Figure 1.** Wetland Plots Location Map
**Figure 2.** Wetland Plots – Pottsburg Creek
**Figure 3.** Wetland Plots – Ortega River
**Figure 4.** Wetland Plots – Julington Creek
**Figure 5.** Wetland Plots – Black Creek
**Figure 6.** Wetland Plots – Six Mile Creek

## Appendices

**Appendix** Photographic Record of Freshwater Wetland Monitoring Plots

## Acronyms

| | |
|---|---|
| Amec Foster Wheeler | Amec Foster Wheeler Environment & Infrastructure, Inc. |
| ASTM | American Society for Testing and Materials |
| BMP | Biological Monitoring Plan |
| dbh | diameter at breast height |
| ERP | Environmental Resource Permit |
| et al. | and others |
| FDEP | Florida Department of Environmental Protection |
| GPS | Global Positioning System |
| JAXPORT | Jacksonville Port Authority |
| km | kilometer |
| LABINS | Land Boundary Information System |
| LSJR | Lower St. Johns River |
| m | meter |
| NRCS | Natural Resources Conservation Service |
| ORP | oxidation-reduction potential |
| POC | Point of Contact |
| ppt | parts per thousand |
| SAV | Submerged Aquatic Vegetation |
| SOP/SOPs | Standard Operating Procedure(s) |
| USACE | United States Army Corps of Engineers |
| USDA | United States Department of Agriculture |

# 1.0 Introduction

As a condition of contract W91278-16-D-0062 between Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) and the U.S. Army Corps of Engineers (USACE) to provide Submerged Aquatic Vegetation (SAV) and Freshwater Wetlands Monitoring in Support of Jacksonville Harbor Deepening Project, a Biological Monitoring Plan (BMP) for required freshwater forested wetlands monitoring must be submitted. The following is the BMP that describes the wetlands monitoring methodology and data analysis for five locations within the Lower St. Johns River (LSJR). This Wetlands BMP identifies wetland plot locations within five tributaries of the LSJR.

# 2.0 Background

Jacksonville's federal navigation channel is a 21-mile reach of the LSJR extending from the Atlantic Ocean at Mayport, Florida to the Jacksonville Port Authority (JAXPORT) Talleyrand Marine Terminal just north of downtown Jacksonville, Florida. In accordance with the Water Resources Reform Development Act of 2014, the USACE has been authorized to deepen the channel from 40 to 47 feet between river miles 0 and 13. This will allow Post-Panamax vessels to access the JAXPORT marine terminals near Blount Island.

Hydrodynamic modeling conducted by the USACE indicates the proposed deepening would result in a minor upstream shift in salinity. The authorized deepening plan, as well as the State permit, requires monitoring of selected freshwater forested wetlands within five tributaries of the LSJR. The data will be used to document community trends over time.

# 3.0 Objectives

The primary objective of this plan is to describe the freshwater wetlands monitoring approach, outlined in USACE Contract No. W91278-16-D-0062 and FDEP ERP Number: 0129277-017-BI, which will be used to identify potential adverse secondary impacts that may occur due to salinity stress to freshwater wetland vegetation, due to the deepening of the LSJR as identified above. The freshwater wetland monitoring results will be used to support the results of the hydrodynamic and ecological modeling performed by the USACE. This BMP describes the methods that will be used to assess freshwater wetlands within the LSJR to document the pre-dredge status and post-dredge status site conditions.

# 4.0 Methodology

## 4.1 Freshwater Wetlands Monitoring Station Locations

Freshwater wetland monitoring stations will be established adjacent to the following five tributaries of the LSJR (see Figure 1):

- Pottsburg Creek
- Ortega River
- Julington Creek
- Black Creek
- Six Mile Creek

**Tributary Descriptions**

Pottsburg Creek, located in Duval County, is approximately 8.2 miles long, and drains an area of about 9.1 square miles within the Jacksonville city limits (southeast portion of Duval County). The Creek is located on the east side of the St. Johns River, and is the most northern tributary in the project area. Pottsburg Creek is a second-order stream that flows directly into the Arlington River, a tributary to the St. Johns River. Interstate 95 passes through this densely-urbanized watershed (FDEP 2009a).

The Ortega River is also located in Duval County, on the west side of the St. Johns River, in a densely urban area west of the Jacksonville Naval Air Station. It drains an approximately 88.6 square mile area. The Ortega River watershed is located entirely within the highly-urbanized Jacksonville city limits, in the southern portion of Duval County. The Cedar River flows approximately 2.5 miles from northwest to southeast and then converges with the north-flowing Ortega River. From that convergence, the river flows approximately 1.5 miles eastward to the St. Johns River (FDEP 2009b).

Julington Creek, located on the east side of the St. Johns River in Duval County, is approximately 9.1 miles and drains approximately 20.4 square miles. Julington Creek flows into Durbin Creek, which is also a tributary to the St. Johns River. The Julington Creek watershed is located within the Jacksonville city limits, in the southeast portion of Duval County (FDEP 2009a).

Black Creek is a major tributary of the St. Johns River. It is 13 miles long, and drains an approximately 479-square-mile area. Black Creek is located on the west side of the St. Johns River, and the majority of Black Creek is in Clay County, Florida. Tributaries to Black Creek include North Fork Black Creek, South Fork Black Creek, Little Black Creek, Greens Creek, Peters Creek, and Grog Branch. The West Indian manatee, a federally endangered species, is found in the St. Johns River (FDEP 2009c).

Six Mile Creek is located on the east side of the St. Johns River, in St. Johns County, and is the most upstream tributary to the St. Johns River for this monitoring project area. The Six Mile Creek watershed covers an area approximately 122 square miles in size. Mill Creek and Turnbull Creek are tributaries of Six Mile Creek. Land in the Six Mile Creek watershed is primarily undeveloped; upland forests and wetlands. Urban and agricultural land comprise about 21% of the watershed land use (USEPA 2013).

**Location of Wetland Monitoring Stations**

Adjacent to each tributary, three freshwater wetland monitoring stations will be permanently established and repeatedly surveyed as reflected in the monitoring timeline (Section 4.2). Vegetation and soil/sediment data will be collected from each monitoring station. The monitoring stations will be established in locations that meet the criteria below:

- The wetland will be forested;
- The wetland (and wetland monitoring plot) will be located adjacent to the designated tributaries, to ensure the site is representative to detect potential salinity effects;

- The stretch of tributary will be tidally influenced; and
- The stretch of tributary will have prior salinity measurements less than 0.5 parts per thousand (ppt).

The first wetland monitoring station adjacent to each tributary will be located the furthest downstream in a tidally influenced stretch of the tributary where previous data indicates there was no prior salinity measurements greater than 0.5 ppt. The second and third monitoring stations will be located upstream of the first station, approximately one kilometer (km) apart, and on the same side of the tributary, if practicable. Wetland stations will be ground-truthed to ensure the wetlands do not have any visible signs of salinity intrusion or salt-stress. Some of the areas adjacent to the tributaries are urban or upland, and the wetland plot locations may need to be adjusted to locations within a freshwater forested wetland community. Justification for deviation from the wetland plot criteria and plot distances will be documented and reported.

Using the criteria above, wetland monitoring stations have been identified for each of the tributaries (Figure 1). The location of each wetland monitoring station is shown on Figures 2 through 6. A 10m x 20m monitoring plot was established at each station; the long side (20m) of the monitoring plot is oriented parallel to the tributary. Global Positioning System (GPS) coordinates for the corners of each monitoring plot are reflected in Table 1. Photographs of representative views of each wetland monitoring plot are provided in the Appendix.

**Deviations from Wetland Plot Criteria**

Deviations from the monitoring station criteria were made on four of the five tributaries: Pottsburg Creek, Julington Creek, Black Creek, and Six Mile Creek. The explanation and justification for these wetland plot criteria deviations are provided below.

1) Pottsburg Creek: The plots for the freshwater wetland monitoring stations are approximately 0.7 km apart. Locations for these monitoring stations was limited due to the presence of businesses and parking lots on both sides of the Pottsburg Creek (stormwater runoff) and the limited areas with habitat consistent with a freshwater forested wetland.

2) Julington Creek: The plots for the freshwater monitoring stations adjacent to Julington Creek were limited due to the short stretch of the Creek (approximately 1.1 km) that met both of the following conditions: tidally influenced and with salinities below 0.5 ppt. The three plots proposed are evenly spaced apart within this 1.1 km stretch of Julington Creek.

3) Black Creek: The distance between the plots for the first (most downstream) and second freshwater wetland monitoring stations is approximately 0.9 km, and the distance between the second and third (most upstream) monitoring station is approximately 1.4 km. A second deviation is that the third plot is located on the opposite side of Black Creek from the first and second monitoring plots. These distance-between-plot and location deviations were unavoidable due to a lack of freshwater forested wetlands that meet the project criteria on lands that were approved for access by landowners.

4) Six Mile Creek: The distance between the plots for the first (most downstream) and second freshwater wetland monitoring stations is approximately 1 km, and the distance between the second and third (most upstream) monitoring stations is approximately 0.6 km. The third monitoring station is the furthest upstream possible on land with permission to access. The landowner for the adjacent (upstream) land did not authorize land access. The first plot is located on the opposite side of the Six Mile Creek from the second and third plots. This location deviation was unavoidable due to land access permission.

**Table 1. Wetland Monitoring Stations - Plot Corner Coordinates**

| Tributary Name | Wetland Station Name | Longitude (DD) | Latitude (DD) |
|---|---|---|---|
| Pottsburg Creek | PC1A | -81.586010 | 30.271924 |
| | PC1B | -81.586214 | 30.271953 |
| | PC1C | -81.586239 | 30.272045 |
| | PC1D | -81.586035 | 30.272066 |
| | PC2A | -81.590613 | 30.266840 |
| | PC2B | -81.590632 | 30.266662 |
| | PC2C | -81.590720 | 30.266653 |
| | PC2D | -81.590717 | 30.266842 |
| | PC3A | -81.586819 | 30.261147 |
| | PC3B | -81.586615 | 30.261140 |
| | PC3C | -81.586613 | 30.261053 |
| | PC3D | -81.586832 | 30.261055 |
| Ortega River | OR1A | -81.744427 | 30.188555 |
| | OR1B | -81.744619 | 30.188624 |
| | OR1C | -81.744648 | 30.188513 |
| | OR1D | -81.744436 | 30.188469 |
| | OR2A | -81.753341 | 30.188238 |
| | OR2B | -81.753324 | 30.188059 |
| | OR2C | -81.753244 | 30.188044 |
| | OR2D | -81.753247 | 30.188196 |
| | OR3A | -81.764291 | 30.188615 |
| | OR3B | -81.764058 | 30.188689 |
| | OR3C | -81.764103 | 30.188759 |
| | OR3D | -81.764242 | 30.188691 |
| Julington Creek | JC1A | -81.555952 | 30.146161 |
| | JC1B | -81.555912 | 30.145979 |
| | JC1C | -81.556028 | 30.146007 |
| | JC1D | -81.556020 | 30.146191 |
| | JC2A | -81.555624 | 30.150199 |
| | JC2B | -81.555595 | 30.150017 |
| | JC2C | -81.555702 | 30.149988 |
| | JC2D | -81.555717 | 30.150179 |
| | JC3A | -81.556845 | 30.154174 |
| | JC3B | -81.556893 | 30.153978 |
| | JC3C | -81.556982 | 30.153988 |
| | JC3D | -81.556929 | 30.154182 |
| Black Creek | BC1A | -81.828377 | 30.067111 |
| | BC1B | -81.828390 | 30.067285 |
| | BC1C | -81.828508 | 30.067278 |
| | BC1D | -81.828469 | 30.067089 |
| | BC2A | -81.829553 | 30.074626 |
| | BC2B | -81.829736 | 30.074717 |
| | BC2C | -81.829781 | 30.074663 |
| | BC2D | -81.829616 | 30.074559 |
| | BC3A | -81.841675 | 30.082537 |
| | BC3B | -81.841835 | 30.082444 |
| | BC3C | -81.841915 | 30.082497 |
| | BC3D | -81.841736 | 30.082603 |
| Six Mile Creek | SMC1A | -81.538431 | 29.952256 |
| | SMC1B | -81.538599 | 29.952349 |
| | SMC1C | -81.538666 | 29.952253 |
| | SMC1D | -81.538493 | 29.952156 |
| | SMC2A | -81.532923 | 29.945029 |
| | SMC2B | -81.532835 | 29.944822 |
| | SMC2C | -81.532738 | 29.944870 |
| | SMC2D | -81.532821 | 29.945035 |
| | SMC3A | -81.528287 | 29.941141 |
| | SMC3B | -81.528272 | 29.940975 |
| | SMC3C | -81.528191 | 29.940988 |
| | SMC3D | -81.528202 | 29.941153 |

Prepared by: SEB Checked by: JMR

**Legend:**

Example: Ortega River

OR1A, where 1 = most downstream station and A = one of four station corners

OR3B, where 3 = most upstream station, and B = one of four station corners

## 4.2 Freshwater Wetlands Monitoring Timeline

The wetland monitoring timeline will be in accordance with the State permit. Each of the pre-dredge freshwater wetland monitoring stations will be monitored at least one time prior to the start of construction during the peak growing season. During the dredging phase of the project, the freshwater wetland stations will be monitored twice per year for the duration of the dredging. After the dredging is complete and the last construction contract is complete, monitoring of the freshwater wetland stations will be conducted twice a year for at least 10 years. The bi-annual freshwater wetland monitoring events will be conducted in April-May and September-October, the beginning and ending of the growing season, respectively.

In the calendar year 2017, data will be collected at the wetland monitoring stations in October 2017, prior to commencement of the harbor deepening.

## 4.3 Freshwater Wetlands Survey Methods

The rationale for the methodology outlined in this Freshwater Wetlands BMP was stipulated by, and will be performed in accordance with, the USACE Contract No. W91278-16-D-0062, and FDEP permit (ERP Permit No.: 0129277-017-BI). For temporal consistency, wetland monitoring assessments will be conducted at the same approximate, representative tide phase for each monitoring site location, to the extent practicable. Logistics, field efficiency, site conditions, and the monitoring assessment date could affect achievement of this goal. The potential effects of tide heights from lunar cycles, rainfall, or offshore weather conditions will also be considered when selecting the assessment date, to the extent practicable. The field notes/forms will include information regarding tide stage and direction at the time of the assessment.

### 4.3.1 Freshwater Wetlands Vegetation Data Collection Method

Data collection will occur within the wetland monitoring plots identified in Section 4.1. The corners of each 10m x 20m wetland monitoring plot will be marked in the field with fiberglass posts. A nested plot design will be established to include 1m x 1m sub-plots (quadrats). At least 20 quadrats will be identified; the corners of each quadrat will be marked in the field with a pin flag. Quadrats will be selected randomly, but may be modified in the field to ensure a representative sample of ground layer vegetation is included. A grid showing monitored quadrats will be reported and used in conjunction with GPS plot coordinates to reestablish the quadrats during subsequent monitoring events.

Vegetation monitoring will be conducted for living plants at three vegetative strata:

- Canopy;
- Sub-canopy/understory; and
- Ground layer.

For purposes of this study, the canopy will be defined as woody vegetation, 20 feet or more in height and three inches or larger at diameter breast height (dbh); the sub-canopy/understory will be defined as plants below the canopy and includes woody plants between approximately 3 and 20 feet in height and less than 3 inches dbh; and the ground layer will be defined as herbaceous (non-woody) vegetation less than approximately three feet in height (USACE 2010).

All plants observed within the 10m x 20m wetland plot will be identified to the lowest possible taxonomic level, and all plant taxa present within each plot will be recorded and reported on field data forms and/or a tablet device (presence/absence). Data will also indicate if the identified plant is observed in the canopy, sub-canopy/understory, and / or ground layer.

The same visual census technique(s) identified below for quantifying percent cover of wetland plants in each vegetative stratum will be used over time and across sites.

The Contractor will assess the condition / health of the plants within each plot. Any visually conspicuous signs of salt stress will be noted during each survey, such as yellowing needles / leaves, loss of needles / leaves, and dying limbs or trees, at a minimum.

**Canopy Monitoring**

The abundance (i.e., percent cover) of plant taxa in the canopy will include the total percent canopy cover of all canopy plants, and the percent cover for each of the dominant tree taxa (i.e., the top five most abundant plants [by cover] or those plants that constitute greater than 20% cover) within each monitoring plot. Canopy cover will be visually estimated using a spherical densiometer. If trees are rooted outside of the monitoring plot, and the tree canopy extends into the monitoring plot space, then that tree(s) will be included in the canopy percent cover estimates. If an upland tree species rooted outside of the monitoring plot is part of the monitoring plot canopy cover, and the upland tree species cannot be avoided, field personnel will document and record this anomalous site condition. Canopy plants will be defined as woody vegetation, 20 feet or more in height and three inches or larger dbh (USACE 2010).

A simplistic illustration of a 10m x 20m wetland plot with representative canopy plants can be seen in Diagram 1. The canopy data depicted in Diagram 1 is an illustration only for this BMP.

**Diagram 1. Example of Canopy Percent Cover in Wetlands Monitoring Plot**

<table>
<tr><td rowspan="3">30% Taxodium distichum</td><td colspan="3">10% Quercus laurifolia</td></tr>
<tr><td rowspan="2">8% Acer rubrum</td><td rowspan="2">8% open canopy</td><td>2% Pinus elliottii</td></tr>
<tr><td>2% Gordonia lasianthus</td></tr>
<tr><td>20% Fraxinus caroliniana</td><td colspan="3">20% Betula nigra</td></tr>
</table>

For this diagrammed example, the following data would be reported in tabular form:

1) A list of each species observed and percent cover of each species observed (30% *Taxodium distichum*, 10% *Quercus laurifolia*, 8% *Acer rubrum*, 2% *Pinus elliottii*, 2% *Gordonia lasianthus*, 20% *Fraxinus caroliniana*, and 20% *Betula nigra*).
2) The total canopy cover: 92% cover
3) The percent cover of each dominant species in the canopy: 30% *T. distichum*, 20% *F. caroliniana*, 20% *B. nigra*.

**Sub-canopy/Understory Monitoring**

Sub-canopy and understory vegetation will be combined for purposes of this survey. The monitoring methodology for this stratum is the same as the canopy vegetation monitoring. The abundance (i.e., percent cover) of plant taxa in the sub-canopy/understory stratum will include the total percent canopy cover of all sub-canopy/understory vegetation, and the percent cover for each of the dominant plant taxa (i.e., the top five most abundant plants [by cover], or those plants that constitute greater than 20% cover) within each 10m x 20m monitoring plot. If sub-canopy/understory plants are rooted outside of the monitoring plot, and this plant cover extends into the monitoring plot space, then that plant (s) will be included in the sub-canopy/understory percent cover estimates. The sub-canopy/understory will include plants below the canopy; woody plants between approximately 3 and 20 feet in height and less than 3 inches dbh (USACE 2010).

**Ground Layer Monitoring**

In the ground layer vegetative stratum, the total percent plant cover and percent cover of each dominant plant taxa (i.e., the top five most abundant plants [by cover] or those plants that constitute greater than 20% cover) will be quantified within each 10m x 20m monitoring plot. Additionally, at least 20 randomly placed quadrats will be permanently established in each 10m x 20m plot. The Contractor will also determine the abundance (i.e. percent cover) of all vegetation in each of these 20 (1m x 1m) quadrats in the ground layer. Percent cover will be estimated by visual assessment as precisely as possible, and will be reported to at least the nearest 10%. The ground layer vegetation will be defined as herbaceous (non-woody) vegetation less than approximately three feet in height (USACE 2010).

### 4.3.2 Freshwater Wetlands Soil Data Collection Method

Soils in the freshwater wetland monitoring stations will be evaluated qualitatively and quantitatively, as described in the following subsections and shown in Table 2 following this discussion. Two soil/sediment samples will be collected from each monitoring station. For sample collection, the soil/sediment sample material will be collected at a uniform depth, between 12 and 24 inches, in all monitoring plots. Although not anticipated, in the event the uniform sampling depth is not possible at a monitoring station, the sampling depth and the reason for the non-uniform sampling depth will be documented in the field (and provided in the annual report). To the extent practicable, the non-uniform sampling depth will be implemented for all three (3) monitoring plots in that tributary. Tidally-influenced groundwater effects will also be considered when identifying the sample location.

The methods and instrumentation used for the soil/sediment quantitative measurements will meet FDEP criteria as described in the FDEP Standard Operating Procedures (SOPs) for field measurements. At a minimum, field instruments will be calibrated before use each day and verified at the end of each day with appropriate standards; and the instrument calibration/verification documentation will be recorded. Additional field records will include date and time of measurement, source and location of measurement test sample, analyte or parameter measured, measurement value and unit, field staff initials, and identification number for the instrument.

#### 4.3.2.1 Qualitative Description of Soils

A qualitative description of soil/sediment conditions and characteristics based on field observation (e.g., soil texture, saturation, coloration) will be determined in the field at each wetland monitoring plot. The soil texture will be determined in the field by the “Feel Method” (modified from Thien 1979). To determine soil/sediment texture, a small grab sample of the wet soil material will be gently rubbed between the forefinger and thumb; the type of soil ribbon formed will determine if the soil/sediment is coarse, moderately coarse, medium, or fine textured (Thien 1979, and USDA-NRCS 2017). Soil/sediment saturation will be qualitatively determined based on the soil/sediment moisture by feel and appearance approach [U.S. Department of Agriculture (USDA) - Natural Resources Conservation

Service (NRCS) 1998]. A small (approximately one tablespoon) grab sample of soil/sediment will be firmly squeezed in the hand into a ball shape; characteristics such as texture, ability to ribbon, water staining, water glistening, etc. will be noted and compared with photographs/charts to estimate the percent saturation of the soil/sediment (USDA-NRCS 1998). Soil/sediment color will be determined by comparison of moistened soil color with Munsell soil color charts (Munsell 1990[1]), and the soil color hue, chroma, and value will be documented and reported.

#### 4.3.2.2 Quantitative Field Measurements of Soils

**Soil/Sediment Oxidation – Reduction Potential (ORP)**

To help determine if methanogenic or sulfate-reducing conditions are present, soil oxidation-reduction potential (ORP) will be measured in two soil/sediment samples collected within each monitoring plot using an ORP probe and meter (Hanna® Instruments HI1297D and HI36183, respectively) in accordance with the instrument manufacturer's instructions, and in general accordance with ASTM G200-09 Standard Test Method for Measurement of Oxidation-Reduction Potential (ORP) of Soil (ASTM 2014). Briefly, additional soil samples will be collected at two locations as described above and placed in labeled plastic bags. The cleaned and calibrated ORP probe will be inserted into the soil, and a reading is recorded. This process is conducted a total of three times at different locations in the soil sample; three ORP readings will be reported for each sample. The Contractor's field personnel will also note if the soil/sediment sample exudes a sulfur (rotten egg) odor, which is indicative of the conversion from sulfate to hydrogen sulfide gas (USDA-NRCS 2017).

**Porewater pH and Salinity**

If water fills the borehole created by the collection of the two soil/sediment cores discussed below (Section 4.3.2.3), pH and salinity of the water filling each sampling borehole will be immediately measured in situ with appropriate field instruments/field probes (e.g. multi probe instrument). Measurement of these water quality parameters will be conducted in accordance with the instrument manufacturer's instructions, and in general accordance with FT1100, Field Measurement of Hydrogen Ion Activity (pH) and in general accordance with the Conductivity Method identified in FDEP SOP FT1300, Field Measurement of Salinity (FDEP SOPs 2014), respectively.

In the event the wetland monitoring station is inundated with surface water at the time of monitoring, this site condition will be documented in the field (and included in the annual report). Under this circumstance, the pH and salinity in the surface water will be measured and recorded as same.

NOTE: If the borehole does not fill with water, field personnel will dig up to 24-inches total for water in the borehole. If water is still not observed within the borehole, another random location within the plot will be chosen and the process repeated.

**Soil/Sediment Conductivity**

Using a direct soil conductivity instrument with automatic temperature compensation (e.g. Soil Test™ Direct Soil EC Tester, Hanna® Instruments), conductivity will be measured in the soil/sediment temporarily collected at three random locations within each wetland monitoring plot. Methodology for performing this field analysis will be in accordance with the instrument manufacturer's instructions, and in general accordance with FDEP SOP FT1200, Field Measurement of Specific Conductance (Conductivity) (FDEP SOPs 2014).

[1] Munsell has produced a newer version (2015) of the Munsell Soil Color Book. The revised edition features the same colors available in previous books (e.g. 1990), plus additional color charts. These additional color charts in the 2015 version include adding soil charts for Australia, Southeast Asia, and a specific soil type found in New Jersey,

#### 4.3.2.3 Quantitative Laboratory Measurements of Soils - Salinity and pH

Two soil/sediment samples will be collected as described in section 4.3.2, using a sample scoop (e.g. garden shovel) constructed of stainless steel, Teflon, Teflon-coated, polyethylene, polypropylene, or plastic. The sediment material will be temporarily placed on the ground, on clean plastic sheeting to collect the sample material and to perform other in situ measurements in the soil/sediment. A sub-sample of approximately 250 grams from each sample will be placed in a sample container for analysis of conductivity/salinity in the Contractor's laboratory. A sub-sample of approximately 50 grams of each sample will be placed in a sample container for analysis of pH in the Contractor's laboratory. In unusual situations where the site is denuded with water (such as following a tropical storm, nor'easter, etc.), sampling with a shovel may not be possible. In that case, sediment sampling using a sediment core sampler will be conducted. Collected sediment will be extruded so that only the sediment between 12 and 24 inches in depth is captured for analysis.

Sample containers will be plastic (e.g. sealed plastic bag, Teflon, polypropylene, polyethylene, polyvinyl chloride, neoprene, or tygon), or glass (FDEP SOP FS1000, *General Sampling Procedures*) (FDEP SOPs 2014). Methodology for collecting the two soil/sediment samples will be in general accordance with FDEP SOP FS4000, *Sediment Sampling* (FDEP SOPs 2014). The labeled samples will be preserved on ice and transported to the Contractor's laboratory. Sample chain-of-custody will be maintained and documented. All activities related to the sampling event will be documented, including sample collection, equipment calibration, equipment cleaning, and sample transport.

In the Contractor's laboratory, processing of the soil/sediment sample material for measurement of pH using a 5:1 water-to-soil mix method (USDA-NRCS 2011). Measurement of pH is time sensitive, and the sample processing for pH will begin on the date of sample collection. Salinity of the collected soil/sediment will be measured using the saturated paste method (Miller et al. 2013, and USDA 1969). The measurement of salinity is not time sensitive; the collected soil/sediment will be analyzed for salinity in the Contractor's laboratory within two weeks of sample collection.

Table 2 summarizes the soil/sediment sampling, data collection, sample handling, and associated methods.

**Table 2. Summary of Soil/Sediment Data Collection per Monitoring Plot**

| Soil/Sediment Analysis or Characterization | Sample Location Identification | Quantity | Sample Retained | Sample Transported to Laboratory | Analysis or Characterization Method |
|---|---|---|---|---|---|
| Soil texture, Saturation, coloration (In situ) | 1 and 2 | 2 | No | No | Munsell 1990; Thien 1970; USDA-NRCS 1998, 2017; |
| ORP (In situ) | 3 and 4 | 2 | No | No | ASTM G200-09 2014; USDA-NRCS 2017 |
| pH and salinity (In situ) | 1 and 2 | 2 | No | No | FDEP SOPs FT1110 and FT1300 |
| Conductivity (In situ) | 1, 2 and 5 | 3 | No | No | FDEP FT1200 |
| pH and salinity (Laboratory) | 1 and 2 | 2 | Yes | Yes | Miller et al. 2013; USDA-NRCS 2011 |

Created by: JMR Checked by: JJS

## 4.4 Spatial Distribution and Plant Community Delineation

Plant communities located within and between wetland monitoring plots shall be mapped to document spatial distribution and to delineate distinct plant community types using the most recent high resolution and infrared aerial photographs. Aerial photographs may be obtained from public sources such as Land Boundary Information System (LABINS), Department of Revenue, Department of Transportation, or NRCS, whichever is the most recent. The Contractor will photo-interpret plant communities to document the spatial distribution and delineate distinct plant community types.

# 5.0 Data Analysis and Reporting

The primary goal of the freshwater wetlands monitoring is to determine changes in vegetation/ vegetation condition throughout time at each wetland monitoring plot. Changes in condition will primarily be defined as changes in taxonomic vegetation composition or abundance. The primary null hypotheses to be tested are that no long-term changes occur in condition of the wetland communities at each site, in excess of natural variation, beginning with pre-construction data. Changes in community composition will be assessed by comparing species composition (species richness), total plant densities, and the densities of individual taxa.

## 5.1 Data Analysis - Rationale

The use of non-parametric (distribution-free) statistical methods is preferred because the great majority of the monitoring data (percentages and ratios of percentages) will not be normally distributed. Further, environmental data frequently contains outliers due to uncontrolled factors such as weather. Distribution-free methods are powerful and less sensitive to outliers, and they avoid the problems associated with transforming data to meet normality requirements of parametric methods.

The following statistical methods will be employed: Multiple-site Sørensen similarity metric (Jost *et al*. 2011) and the Seasonal Kendall test (Helsel & Hirsch 2002). The Sørensen similarity metric will highlight wetland monitoring plots where long-term changes in species richness were unusually large or small. The Seasonal Kendal tests will show any significant, monotonic trends in wetland species cover over time and provide slopes (rate of change) for these trends.

Calculations and statistical tests will be done separately for each of the three structural categories for wetland vegetation: canopy, subcanopy/understory, and ground layer.

## 5.2 Statistical Analyses

The Sørensen similarity metric will be used to quantify variation in annual species composition (richness) for each wetland monitoring plot across sampling years. Annual aggregate species data are used for this calculation to avoid effects of seasonality. Ground cover species identified in individual sub-plots will be aggregated for this measurement to give a single ground cover species list for the entire plot. At least two samples are needed for comparison, but two full years of sampling are needed to avoid effects of seasonality.

Tests for significant temporal trends and calculations of slopes will be done for the following variables at each wetland monitoring plot using the non-parametric regression Seasonal Kendall Test. If this test shows significant seasonal effects, then trends will be evaluated separately for each season. A minimum of two full years of data are needed for this test, and three years are needed to test seasonal effects.

- Species richness (number of taxon) for each structural category
- Total percent cover for each structural category
- Percent cover and percent composition of dominant plant taxa for each structural category. Percent composition is the percent cover for each taxon divided by the total percent cover for that structural category. For ground cover species, percent cover and percent composition measured in individual sub-plots will be averaged to characterize the entire plot.

## 5.3 Tabular and Graphical Representations

Results from statistical analyses will be presented in tabular or graphic formats. Graphical representations of the data and the trend analyses will be complementary in examination of changes in wetland vegetation through time. Time-series graphs will illustrate the degree and direction of changes and the variability in the data.

Summary tables will include a matrix of wetland species present for each wetland monitoring plot by year for each of the three structural categories. Summary graphs will include point plots of annual data by site for the following metrics:

- Species richness for each vegetative structural category,
- Total percent cover for each structural category,
- Percent cover of dominant wetland taxa for each structural category, and
- Percent composition of dominant plant taxa for each structural category.

A summary table showing the soil data measured in the field and the laboratory will be provided for each monitoring event and the annual report. The table will include:

- Field data for soil and water parameters: conductivity and ORP in soil; pH and salinity in water filling the soil borehole, and
- Laboratory data for soil: pH and salinity.

## 5.4 Data Reporting

Raw wetlands monitoring data will be provided to the USACE in Excel format and as copies of scanned field forms no later than three days after each wetland monitoring event.

Upon completion of annual surveys, a draft and final Annual Wetlands Monitoring Report will be submitted that will contain:

- Detailed descriptions of the methods used to collect and analyze data
- Summary of all biological data collected (vegetation, aerial photo interpretation, soils)
- Descriptions of current condition of the biological communities
- Statistical comparisons as described in Section 5.2 (Data Analysis)
- Representative photos from each wetland monitoring 10m x 20m plot
- A statement that the monitoring results indicate, or do not indicate, a change in the condition of the freshwater wetlands vegetation/vegetative condition that exceeds the natural variation in these systems.

The draft report submittal shall include draft electronic files in native Microsoft Word format and a draft PDF format. The final report submittal shall include a final electronic document in PDF format and three (3) hard copies. The Contractor shall provide the draft and final submittals to the USACE Technical Point of Contact.

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FS4000, Sediment Sampling
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FT1300, Field Measurement of Salinity
FT1200, Field Measurement of Specific Conductance (Conductivity)

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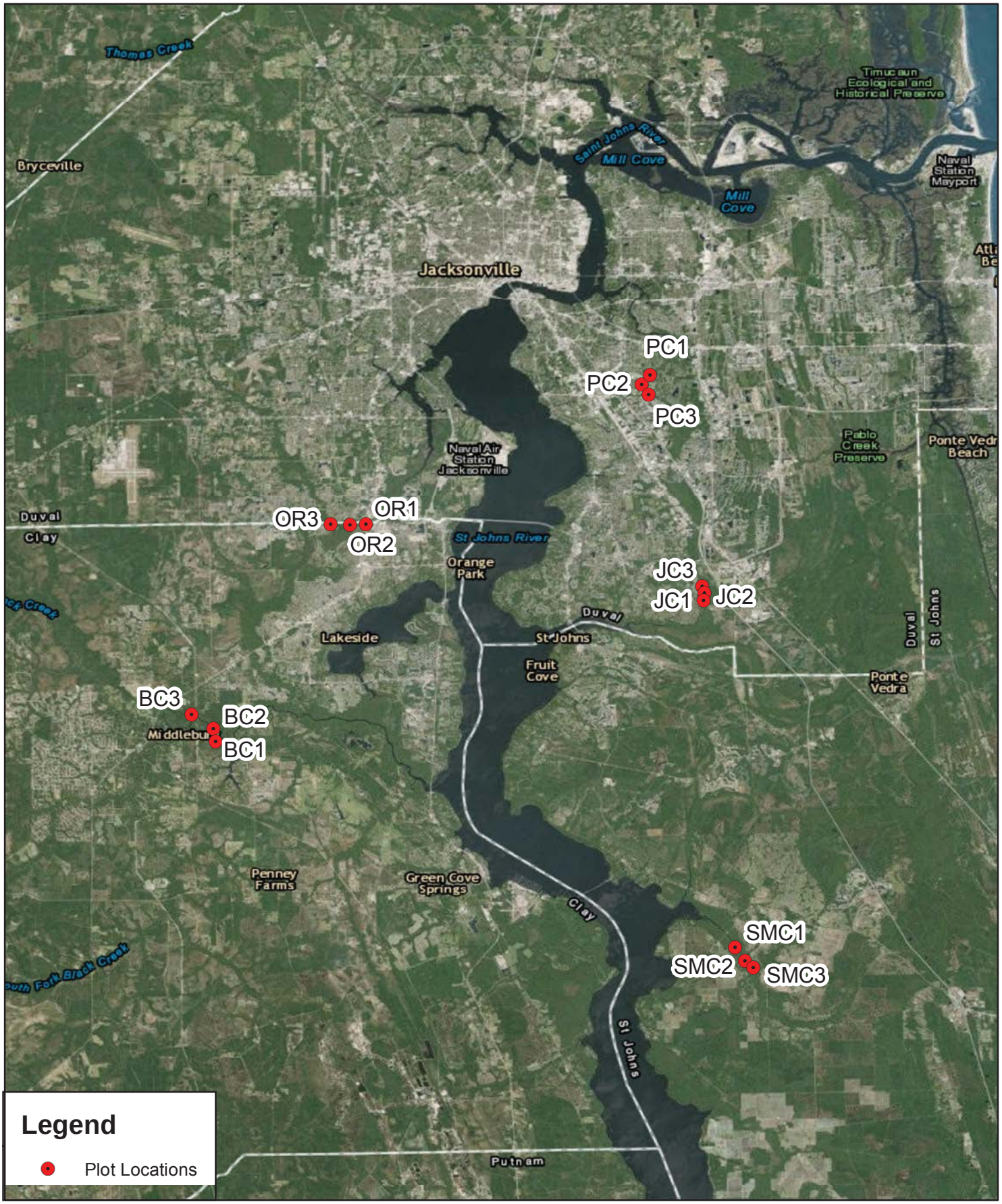
# Figures




Source: ESRI 2014; AMECFW 2017

N

1 inch = 5 miles

0 2.5 5 Miles

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Freshwater Wetland Monitoring Plots - All Tributaries | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 1 |
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

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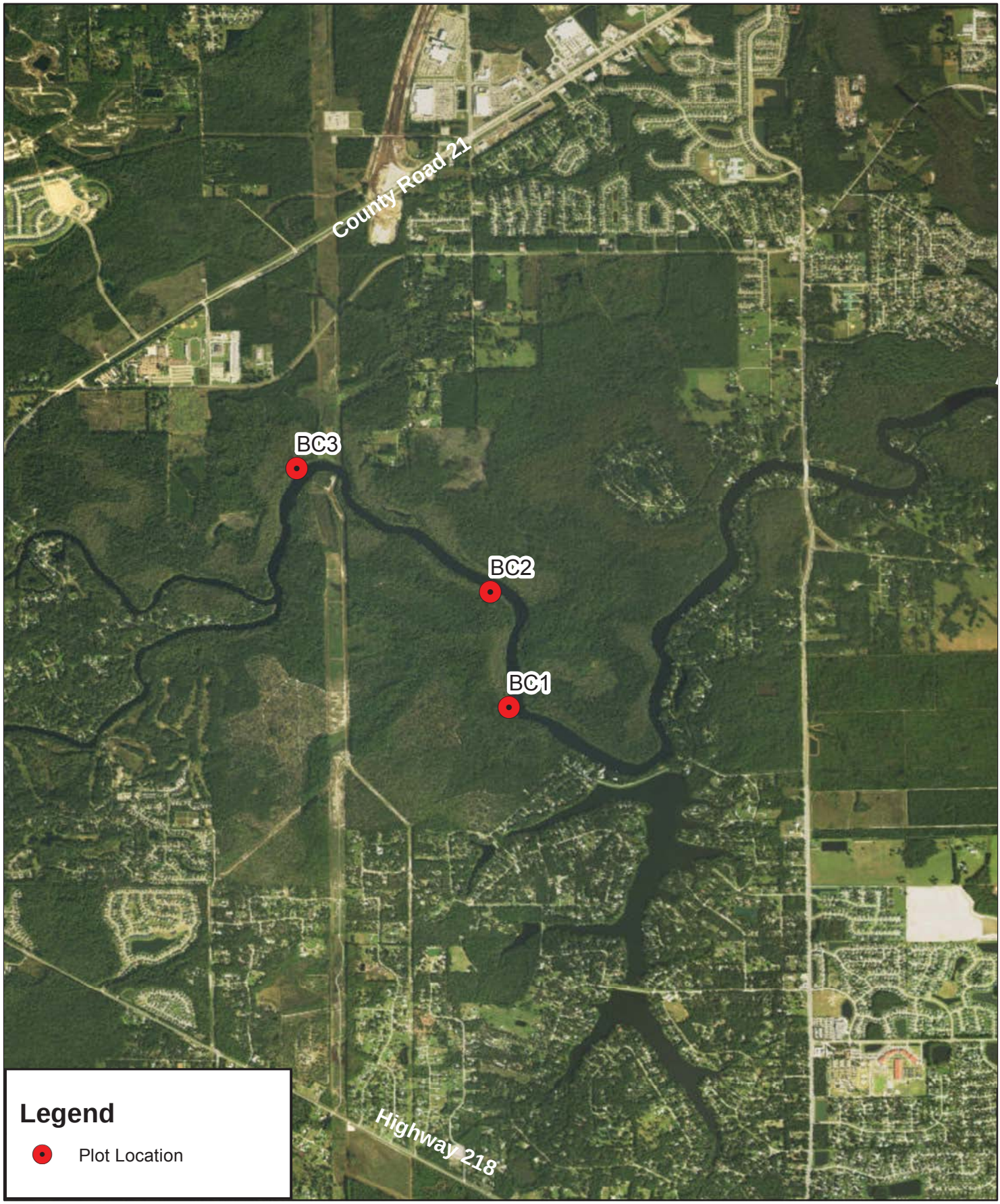



Source: ESRI 2014; AMECFW 2017

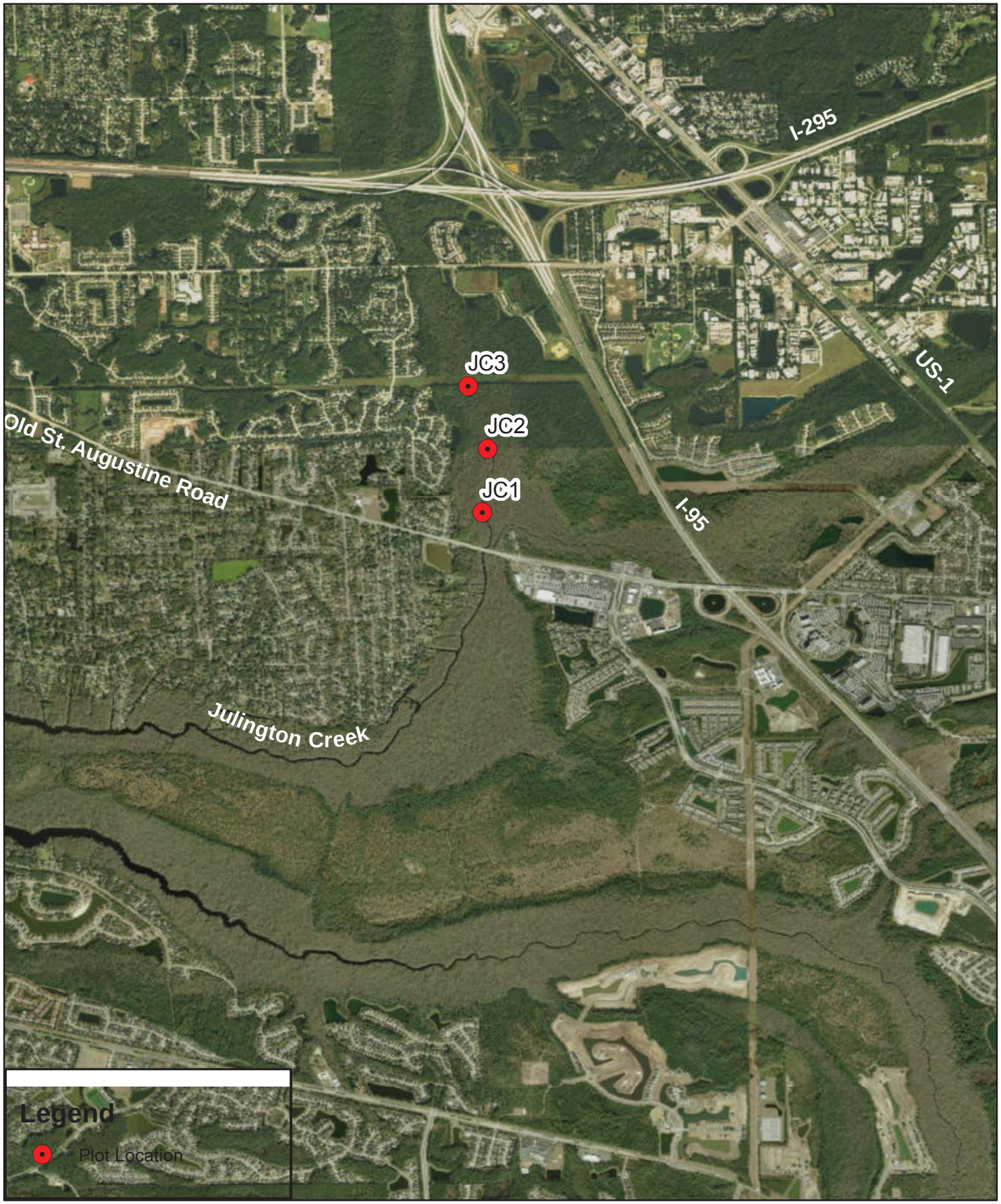
N

1 inch = 3,000 feet

0 1,500 3,000 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Freshwater Wetland Monitoring Plots - Black Creek | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 2 |
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

Path: \\GNV-FS1\projects\EAT\2017\Projects\USACE_SAV_Wetlands\GIS\MXD\Wetland BMP\Figure 2 Parcel Map_Black Creek.mxd joy.ryan Date Saved: 10/27/2017 4:21:55 PM




Source: ESRI 2014; AMECFW 2017

N

1 inch = 3,000 feet

0 1,500 3,000 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Freshwater Wetland Monitoring Plots - Julington Creek | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 3 |
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

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Source: ESRI 2014; AMECFW 2017

N

1 inch = 3,000 feet

0 1,500 3,000 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Freshwater Wetland Monitoring Plots - Ortega River | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 4 |
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

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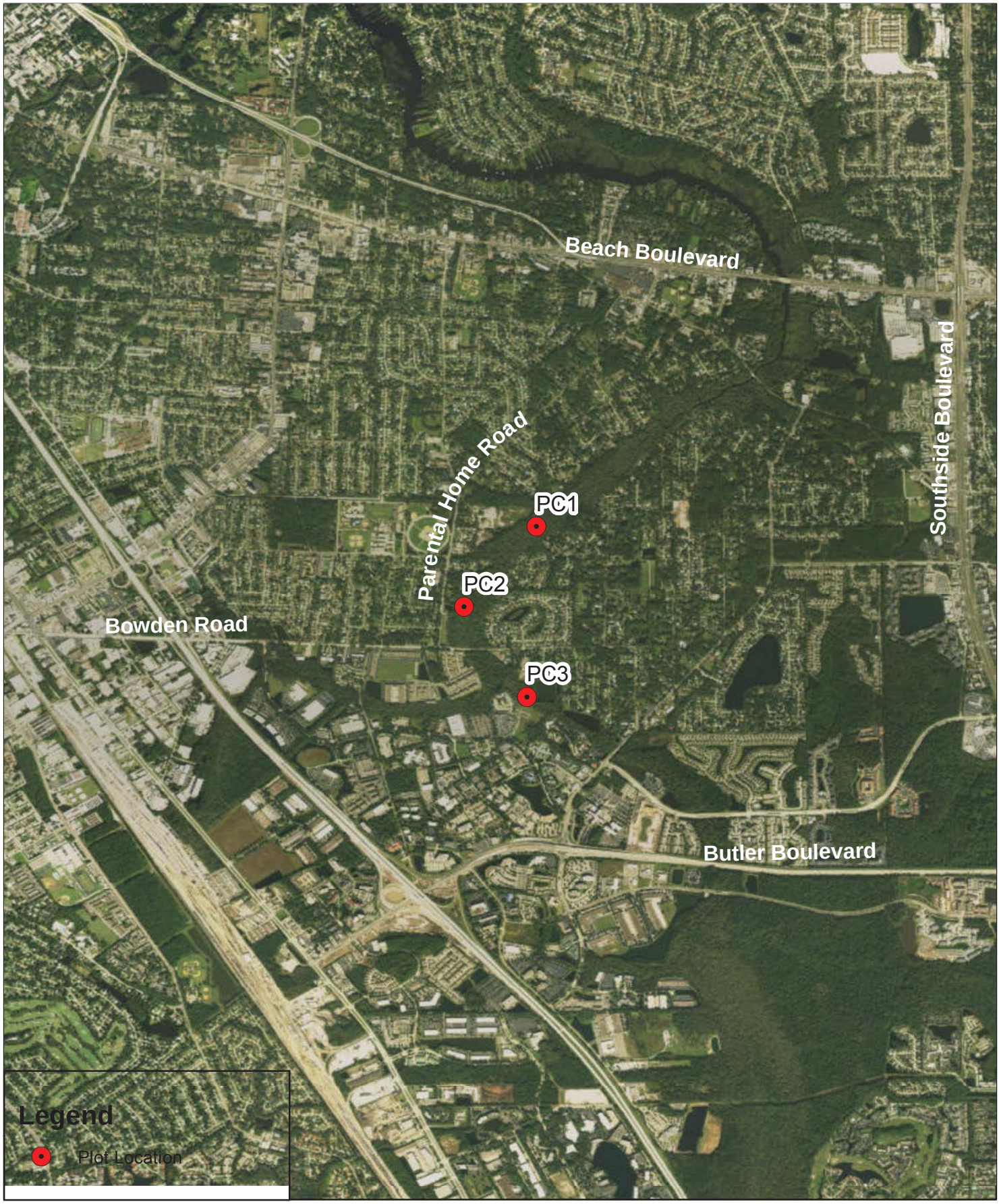


Source: ESRI 2014; AMECFW 2017

N

1 inch = 3,000 feet

0 1,500 3,000 Feet

**USACE - SAV and Wetlands Monitoring Project**

**Freshwater Wetland Monitoring Plots - Pottsburg Creek**

| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 5 |
|---|---|---|---|---|
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

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Source: ESRI 2014; AMECFW 2017

N

1 inch = 4,000 feet

0 2,000 4,000 Feet

| USACE - SAV and Wetlands Monitoring Project | | | | |
|---|---|---|---|---|
| Freshwater Wetland Monitoring Plots - Six Mile Creek | | | | |
| Drawn | Date | Gainesville Florida Project No. 6063170288 | amec foster wheeler | Figure 6 |
| SEB | 10/30/2017 | | | |
| Checked | Date | | | |
| JMR | 10/30/2017 | | | |

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# Appendix

# Photographic Record of Freshwater Wetland Monitoring Plots

# Photograph Record - Wetland BMP

**Client:** USACE - Jacksonville District

**Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening

**Site Location:** Pottsburg Creek

**Photographer:**
Joy Ryan

**Date:**
June 6, 2017

**Photo #:** 1

**Description:**

Representative View into plot PC1, from PC1a corner (view to NW)

**Photographer:**
Joy Ryan

**Date:**
June 6, 2017

**Photo #:** 2

**Description:**

Representative View of plot PC2 with Pottsburg Creek on left, from PC2a corner (view to N).

# Photograph Record - Wetland BMP

**Client:** USACE - Jacksonville District

**Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening

**Site Location:** Pottsburg Creek

**Photographer:**
Joy Ryan

**Date:**
June 6, 2017

**Photo #:** 3

**Description:**

Representative View into plot PC2, from corner PC2a (view to NW).

**Photographer:**
Joy Ryan

**Date:**
September 21, 2017

**Photo #:** 4

**Description:**

Representative View into plot PC3, from near corner PC3a (view to SE).

# Photograph Record - Wetland BMP

**Client:** USACE - Jacksonville District

**Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening

**Site Location:** Ortega River

**Photographer:**
Joy Ryan

**Date:**
June 7, 2017

**Photo #:** 5

**Description:**

View of Ortega River adjacent to plot OR1, from corner OR1b (view to N).

**Photographer:**
Joy Ryan

**Date:**
June 7, 2017

**Photo #:** 6

**Description:**

Representative View into plot OR1, from corner OR1b (view to S).

## Photograph Record - Wetland BMP

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Ortega River

**Photographer:**
Joy Ryan

**Date:**
June 9, 2017

**Photo #:** 7

**Description:**

Representative View of plot OR2, from corner OR2d. Bank is underwater; downed tree on right, in background, represents Ortega River location. (view to W).

**Photographer:**
Joy Ryan

**Date:**
June 7, 2017

**Photo #:** 8

**Description:**

Representative View into plot OR3, from corner OR3d (view to SE).

## Photograph Record - Wetland BMP

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Julington Creek

**Photographer:** Joy Ryan

**Date:** June 5, 2017

**Photo #:** 9

**Description:**

Representative View into plot JC1, from corner JC1b (view to NW).

**Photographer:** Joy Ryan

**Date:** June 5, 2017

**Photo #:** 10

**Description:**

Representative View of plot JC2 with Julington Creek in background, from corner JC2d (view to E), corner flag for JC2a in photo.

# Photograph Record - Wetland BMP

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Julington Creek

**Photographer:**
Joy Ryan

**Date:**
June 5, 2017

**Photo #:** 11

**Description:**

Representative View into plot JC2, from corner JC2b (view to S).

**Photographer:**
Joy Ryan

**Date:**
June 5, 2017

**Photo #:** 12

**Description:**

Representative View into plot JC3, from corner JC3d (view to SE).

# Photograph Record - Wetland BMP

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Black Creek

**Photographer:**
Joy Ryan

**Date:**
September 20, 2017

**Photo #:** 13

**Description:**

Representative View into plot BC1 (view to N).

**Photographer:**
Joy Ryan

**Date:**
September 20, 2017

**Photo #:** 14

**Description:**

Standing water near plot BC1 (view to S).

## Photograph Record - Wetland BMP

**Client:** USACE - Jacksonville District

**Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening

**Site Location:** Black Creek

**Photographer:**
Joy Ryan

**Date:**
June 9, 2017

**Photo #:** 15

**Description:**

Representative View into plot BC2, from corner BC2a (view to NW).

**Photographer:**
Joy Ryan

**Date:**
September 20, 2017

**Photo #:** 16

**Description:**

Representative View into plot BC3, from corner BC3a (view to NNE).

## Photograph Record - Wetland BMP

**Client:** USACE - Jacksonville District **Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening **Site Location:** Six Mile Creek

**Photographer:**
Joy Ryan

**Date:**
June 8, 2017

**Photo #:** 17

**Description:**

Representative View into plot SMC2, from corner SMC2a (view to E).

**Photographer:**
Joy Ryan

**Date:**
October 13, 2017

**Photo #:** 18

**Description:**

Representative View into plot SMC3, from corner SMC3b (view to NE).

## Photograph Record - Wetland BMP

**Client:** USACE - Jacksonville District

**Project Number:** 6063170288

**Project Name:** Jacksonville Harbor Deepening

**Site Location:** Six Mile Creek

**Photographer:**
Joy Ryan

**Date:**
October 13, 2017

**Photo #:** 19

**Description:**

Representative View of plot SMC3, from corner SMCb (view to NE)

**Photographer:**
Joy Ryan

**Date:**
October 13, 2017

**Photo #:** 20

**Description:**

Representative View of plot SMC3, from corner SMC3d (view to SW). Large dark area on right side of photo is root base of downed tree. Can see boat and field personnel in background, on Six Mile Creek.

# Appendix 6
# Wetlands Database

| Tributary Name | Plot Name | County | Monitoring Date | Time | Surface Water Coverage of Plot (%) | Approximate Depth of SW (inches) | Densio-meter (% canopy cover) | Tidal Phase | Tide Times | Lunar |
|---|---|---|---|---|---|---|---|---|---|---|
| Black Creek | BC1 | Clay | 10/10/2017 | 11:10 | 5 | 5 | 88 | Ebb | High tide 0525; Low tide 1207 | Waning Gibbous |
| Black Creek | BC2 | Clay | 10/10/2017 | 14:30 | 95 | 8 | 83 | Flood | High tide 0525; Low tide 1207 | Waning Gibbous |
| Black Creek | BC3 | Clay | 10/11/2017 | 10:35 | 10 | 6 | 88 | Ebb | High tide 0624; Low tide 1307 | Waning Gibbous |
| Julington Creek | JC1 | Duval | 10/17/2017 | 16:30 | 100 | 24 | 89.3 | Ebb | High tide 1136; Low tide 1845 | Waning Crescent |
| Julington Creek | JC2 | Duval | 10/17/2017 | 13:40 | 100 | 24 | 89.3 | Ebb | High tide 1136; Low tide 1845 | Waning Crescent |
| Julington Creek | JC3 | Duval | 10/17/2017 | 11:45 | 100 | 24 | 46 | High | High tide 1136; Low tide 1845 | Waning Crescent |
| Ortega River | OR1 | Clay | 10/11/2017 | 14:30 | 100 | 18 | 81 | Flood | Low tide 0959; High tide 1613 | Waning Gibbous |
| Ortega River | OR2 | Clay | 10/19/2017 | 9:25 | 100 | 40 | 94.8 | Flood | Low tide 0520; High tide 1115 | New Moon |
| Ortega River | OR3 | Clay | 10/16/2017 | 13:30 | 10 | 3 | 90.6 | Ebb | High tide 0857; Low tide 1528 | Waning Crescent |
| Pottsburg Creek | PC1 | Duval | 10/18/2017 | 9:40 | 100 | 30 | 91.4 | High | Low tide 0401; High tide 0955 | Waning Crescent |
| Pottsburg Creek | PC2 | Duval | 10/18/2017 | 15:15 | 90 | 8 | 78.9 | Ebb | High tide 0955; Low tide 1628 | Waning Crescent |
| Pottsburg Creek | PC3 | Duval | 10/19/2017 | 13:00 | 99 | 20 | 89.1 | Ebb | High tide 1037; Low tide 1711 | New Moon |
| Sixmile Creek | SMC1 | St. Johns | 10/12/2017 | 11:30 | 100 | 12 | 75 | Ebb | High tide 0716; Low tide 1358 | Last Quarter |
| Sixmile Creek | SMC2 | St. Johns | 10/12/2017 | 14:30 | 100 | 6 | 80 | Flood | High tide 0716; Low tide 1358 | Last Quarter |
| Sixmile Creek | SMC3 | St. Johns | 10/13/2017 | 10:00 | 100 | 10 | 8.1 | Ebb | High tide 0818; Low tide 1458 | Last Quarter |

| Tributary Name | Plot Name | Monitoring Date | Vegetative Stratum | Scientific Name | Common Name | Absolute Cover | Dominant Species | USACE Indicator Status |
|---|---|---|---|---|---|---|---|---|
| Black Creek | BC1 | 10/10/2017 | Canopy | *Quercus nigra* | Water Oak | 60 | Y | FAC |
| Black Creek | BC1 | 10/10/2017 | Canopy | *Persea palustris* | Swamp Bay | 10 | N | FACW |
| Black Creek | BC1 | 10/10/2017 | Canopy | *Taxodium distichum* | Southern Bald-Cypress | 5 | N | OBL |
| Black Creek | BC1 | 10/10/2017 | Canopy | *Carya aquatica* | Water Hickory | 15 | N | OBL |
| Black Creek | BC1 | 10/10/2017 | Sub-canopy/Understory | *Liquidambar styraciflua* | Sweet-Gum | 5 | N | FAC |
| Black Creek | BC1 | 10/10/2017 | Sub-canopy/Understory | *Quercus michauxii* | Swamp Chestnut Oak | 10 | N | FACW |
| Black Creek | BC1 | 10/10/2017 | Sub-canopy/Understory | *Lyonia lucida* | Shinyleaf | 20 | Y | FACW |
| Black Creek | BC1 | 10/10/2017 | Sub-canopy/Understory | *Serenoa repens* | Saw-Palmetto | 10 | N | FACU |
| Black Creek | BC1 | 10/10/2017 | Sub-canopy/Understory | *Sabal minor* | Dwarf Palmetto | 5 | N | FACW |
| Black Creek | BC1 | 10/10/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 10 | N | FAC |
| Black Creek | BC1 | 10/10/2017 | Sub-canopy/Understory | *Cyrilla racemiflora* | Little-Leaf Titi | 15 | N | FACW |
| Black Creek | BC1 | 10/10/2017 | Sub-canopy/Understory | *Agarista populifolia* | Florida-Hobblebush | 20 | Y | FACW |
| Black Creek | BC1 | 10/10/2017 | Sub-canopy/Understory | *Persea palustris* | Swamp Bay | 5 | N | FACW |
| Black Creek | BC2 | 10/10/2017 | Canopy | *Nyssa aquatica* | Water Tupelo | 60 | Y | OBL |
| Black Creek | BC2 | 10/10/2017 | Canopy | *Liquidambar styraciflua* | Sweet-Gum | 1 | N | FAC |
| Black Creek | BC2 | 10/10/2017 | Canopy | *Quercus nigra* | Water Oak | 10 | N | FAC |
| Black Creek | BC2 | 10/10/2017 | Canopy | *Carya aquatica* | Water Hickory | 1 | N | OBL |
| Black Creek | BC2 | 10/10/2017 | Sub-canopy/Understory | *Serenoa repens* | Saw-Palmetto | 5 | N | FACU |
| Black Creek | BC2 | 10/10/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 5 | N | FAC |
| Black Creek | BC2 | 10/10/2017 | Sub-canopy/Understory | *Morella cerifera* | Southern Bayberry | 5 | N | FAC |
| Black Creek | BC2 | 10/10/2017 | Sub-canopy/Understory | *Agarista populifolia* | Florida-Hobblebush | 1 | N | FACW |
| Black Creek | BC2 | 10/10/2017 | Sub-canopy/Understory | *Lyonia lucida* | Shinyleaf | 1 | N | FACW |
| Black Creek | BC2 | 10/10/2017 | Sub-canopy/Understory | *Ilex opaca* | American Holly | 2 | N | FAC |
| Black Creek | BC2 | 10/10/2017 | Ground Layer | *Pontederia cordata* | Pickerelweed | 3 | N | OBL |
| Black Creek | BC2 | 10/10/2017 | Ground Layer | *Polygonum sp.* | Knotweed | 5 | N | NA |
| Black Creek | BC2 | 10/10/2017 | Ground Layer | *Saururus cernuus* | Lizard's-Tail | 10 | N | OBL |
| Black Creek | BC2 | 10/10/2017 | Ground Layer | *Rhynchospora sp.* | NA | <1 | N | NA |
| Black Creek | BC2 | 10/10/2017 | Ground Layer | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | 15 | N | OBL |
| Black Creek | BC2 | 10/10/2017 | Ground Layer | *Salvinia sp.* | floating fern | <1 | N | OBL |
| Black Creek | BC2 | 10/10/2017 | Ground Layer | *Schoenoplectus pungens* | Three-Square | 1 | N | OBL |
| Black Creek | BC3 | 10/11/2017 | Canopy | *Taxodium distichum* | Southern Bald-Cypress | 65 | Y | OBL |
| Black Creek | BC3 | 10/11/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 15 | N | OBL |
| Black Creek | BC3 | 10/11/2017 | Canopy | *Liquidambar styraciflua* | Sweet-Gum | 10 | N | FAC |
| Black Creek | BC3 | 10/11/2017 | Sub-canopy/Understory | *Persea palustris* | Swamp Bay | 5 | N | FACW |
| Black Creek | BC3 | 10/11/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 5 | N | FAC |
| Black Creek | BC3 | 10/11/2017 | Sub-canopy/Understory | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 1 | N | OBL |
| Black Creek | BC3 | 10/11/2017 | Sub-canopy/Understory | *Taxodium distichum* | Southern Bald-Cypress | 2 | N | OBL |
| Black Creek | BC3 | 10/11/2017 | Sub-canopy/Understory | *Acer rubrum* | Red Maple | 2 | N | FAC |
| Black Creek | BC3 | 10/11/2017 | Sub-canopy/Understory | *Cyrilla racemiflora* | Little-Leaf Titi | 5 | N | FACW |
| Black Creek | BC3 | 10/11/2017 | Sub-canopy/Understory | *Lyonia lucida* | Shinyleaf | 3 | N | FACW |
| Black Creek | BC3 | 10/11/2017 | Sub-canopy/Understory | *Sabal minor* | Dwarf Palmetto | 2 | N | FACW |
| Black Creek | BC3 | 10/11/2017 | Sub-canopy/Understory | *Pinus elliottii* | Slash Pine | 1 | N | FACW |
| Black Creek | BC3 | 10/11/2017 | Ground Layer | *Carex sp.* | sedge | 25 | Y | NA |
| Black Creek | BC3 | 10/11/2017 | Ground Layer | *Salvinia sp.* | floating fern | <1 | N | OBL |

| Tributary Name | Plot Name | Monitoring Date | Vegetative Stratum | Scientific Name | Common Name | Absolute Cover | Dominant Species | USACE Indicator Status |
|---|---|---|---|---|---|---|---|---|
| Black Creek | BC3 | 10/11/2017 | Ground Layer | *Woodwardia areolata* | Netted Chain Fern | 3 | N | OBL |
| Black Creek | BC3 | 10/11/2017 | Ground Layer | *Osmundastrum cinnamomeum* | Cinnamon Fern | 1 | N | FACW |
| Black Creek | BC3 | 10/11/2017 | Ground Layer | *Fraxinus caroliniana* | Carolina Ash | <1 | N | OBL |
| Black Creek | BC3 | 10/11/2017 | Ground Layer | *Lyonia lucida* | Shinyleaf | <1 | N | FACW |
| Black Creek | BC3 | 10/11/2017 | Ground Layer | *Paspalum sp.* | grass | <1 | N | NA |
| Black Creek | BC3 | 10/11/2017 | Ground Layer | *Schoenoplectus pungens* | Three-Square | 1 | N | OBL |
| Julington Creek | JC1 | 10/17/2017 | Canopy | *Acer rubrum* | Red Maple | 20 | Y | FAC |
| Julington Creek | JC1 | 10/17/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 60 | Y | OBL |
| Julington Creek | JC1 | 10/17/2017 | Canopy | *Carya aquatica* | Water Hickory | 15 | N | OBL |
| Julington Creek | JC1 | 10/17/2017 | Canopy | *Quercus nigra* | Water Oak | 5 | N | FAC |
| Julington Creek | JC1 | 10/17/2017 | Sub-canopy/Understory | *Alnus serrulata* | Brookside Alder | 30 | Y | FACW |
| Julington Creek | JC1 | 10/17/2017 | Sub-canopy/Understory | *Fraxinus caroliniana* | Carolina Ash | 30 | Y | OBL |
| Julington Creek | JC1 | 10/17/2017 | Sub-canopy/Understory | *Serenoa repens* | Saw-Palmetto | 10 | N | FACU |
| Julington Creek | JC1 | 10/17/2017 | Sub-canopy/Understory | *Taxodium distichum* | Southern Bald-Cypress | 5 | N | OBL |
| Julington Creek | JC1 | 10/17/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 10 | N | FAC |
| Julington Creek | JC1 | 10/17/2017 | Sub-canopy/Understory | *Quercus nigra* | Water Oak | 5 | N | FAC |
| Julington Creek | JC1 | 10/17/2017 | Sub-canopy/Understory | *Ilex cassine* | Dahoon | 1 | N | FACW |
| Julington Creek | JC1 | 10/17/2017 | Ground Layer | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | 20 | Y | OBL |
| Julington Creek | JC1 | 10/17/2017 | Ground Layer | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | 5 | N | OBL |
| Julington Creek | JC1 | 10/17/2017 | Ground Layer | *Pontederia cordata* | Pickerelweed | 10 | N | OBL |
| Julington Creek | JC2 | 10/17/2017 | Canopy | *Taxodium distichum* | Southern Bald-Cypress | 20 | Y | OBL |
| Julington Creek | JC2 | 10/17/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 45 | Y | OBL |
| Julington Creek | JC2 | 10/17/2017 | Canopy | *Quercus laurifolia* | Laurel Oak | 15 | N | FACW |
| Julington Creek | JC2 | 10/17/2017 | Sub-canopy/Understory | *Taxodium distichum* | Southern Bald-Cypress | 5 | N | OBL |
| Julington Creek | JC2 | 10/17/2017 | Sub-canopy/Understory | *Acer rubrum* | Red Maple | 10 | N | FAC |
| Julington Creek | JC2 | 10/17/2017 | Sub-canopy/Understory | *Fraxinus caroliniana* | Carolina Ash | 8 | N | OBL |
| Julington Creek | JC2 | 10/17/2017 | Sub-canopy/Understory | *Liquidambar styraciflua* | Sweet-Gum | 10 | N | FAC |
| Julington Creek | JC2 | 10/17/2017 | Sub-canopy/Understory | *Cephalanthus occidentalis* | Common Buttonbush | 5 | N | OBL |
| Julington Creek | JC2 | 10/17/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 5 | N | FAC |
| Julington Creek | JC2 | 10/17/2017 | Sub-canopy/Understory | *Morella cerifera* | Southern Bayberry | 1 | N | FAC |
| Julington Creek | JC2 | 10/17/2017 | Ground Layer | *Polygonum sp.* | Knotweed | 5 | N | NA |
| Julington Creek | JC2 | 10/17/2017 | Ground Layer | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | 20 | Y | OBL |
| Julington Creek | JC2 | 10/17/2017 | Ground Layer | *Pontederia cordata* | Pickerelweed | 10 | N | OBL |
| Julington Creek | JC2 | 10/17/2017 | Ground Layer | *Saururus cernuus* | Lizard's-Tail | 5 | N | OBL |
| Julington Creek | JC2 | 10/17/2017 | Ground Layer | *Colocasia esculenta* | Coco-Yam | 1 | N | FACW |
| Julington Creek | JC3 | 10/17/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 30 | Y | OBL |
| Julington Creek | JC3 | 10/17/2017 | Canopy | *Liquidambar styraciflua* | Sweet-Gum | 20 | Y | FAC |
| Julington Creek | JC3 | 10/17/2017 | Canopy | *Acer rubrum* | Red Maple | 10 | N | FAC |
| Julington Creek | JC3 | 10/17/2017 | Sub-canopy/Understory | *Alnus serrulata* | Brookside Alder | 60 | Y | FACW |
| Julington Creek | JC3 | 10/17/2017 | Sub-canopy/Understory | *Morella cerifera* | Southern Bayberry | 10 | N | FAC |
| Julington Creek | JC3 | 10/17/2017 | Sub-canopy/Understory | *Serenoa repens* | Saw-Palmetto | 1 | N | FACU |
| Julington Creek | JC3 | 10/17/2017 | Sub-canopy/Understory | *Acer rubrum* | Red Maple | 5 | N | FAC |
| Julington Creek | JC3 | 10/17/2017 | Sub-canopy/Understory | *Ilex cassine* | Dahoon | 5 | N | FACW |
| Julington Creek | JC3 | 10/17/2017 | Sub-canopy/Understory | *Diospyros virginiana* | Common Persimmon | 2 | N | FAC |

| Tributary Name | Plot Name | Monitoring Date | Vegetative Stratum | Scientific Name | Common Name | Absolute Cover | Dominant Species | USACE Indicator Status |
|---|---|---|---|---|---|---|---|---|
| Julington Creek | JC3 | 10/17/2017 | Sub-canopy/Understory | *Cephalanthus occidentalis* | Common Buttonbush | 6 | N | OBL |
| Julington Creek | JC3 | 10/17/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 5 | N | FAC |
| Julington Creek | JC3 | 10/17/2017 | Ground Layer | *Osmunda spectabilis* | Royal Fern | 10 | N | OBL |
| Julington Creek | JC3 | 10/17/2017 | Ground Layer | *Polygonum sp.* | Knotweed | 15 | N | NA |
| Julington Creek | JC3 | 10/17/2017 | Ground Layer | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | 15 | Y | OBL |
| Julington Creek | JC3 | 10/17/2017 | Ground Layer | *Osmundastrum cinnamomeum* | Cinnamon Fern | 10 | N | FACW |
| Julington Creek | JC3 | 10/17/2017 | Ground Layer | *Pontederia cordata* | Pickerelweed | 10 | N | OBL |
| Julington Creek | JC3 | 10/17/2017 | Ground Layer | *Zizania aquatica* | Indian Wild Rice | 5 | N | OBL |
| Julington Creek | JC3 | 10/17/2017 | Ground Layer | *Iris sp.* | Iris | 5 | N | NA |
| Julington Creek | JC3 | 10/17/2017 | Ground Layer | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | 5 | N | OBL |
| Ortega River | OR1 | 10/11/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 81 | Y | OBL |
| Ortega River | OR1 | 10/11/2017 | Sub-canopy/Understory | *Serenoa repens* | Saw-Palmetto | 50 | Y | FACU |
| Ortega River | OR1 | 10/11/2017 | Sub-canopy/Understory | *Cephalanthus occidentalis* | Common Buttonbush | 2 | N | OBL |
| Ortega River | OR1 | 10/11/2017 | Sub-canopy/Understory | *Fraxinus caroliniana* | Carolina Ash | 20 | Y | OBL |
| Ortega River | OR1 | 10/11/2017 | Sub-canopy/Understory | *Itea virginica* | Virginia Sweetspire | 40 | Y | FACW |
| Ortega River | OR1 | 10/11/2017 | Sub-canopy/Understory | *Acer rubrum* | Red Maple | 5 | N | FAC |
| Ortega River | OR1 | 10/11/2017 | Sub-canopy/Understory | *Cyrilla racemiflora* | Little-Leaf Titi | 2 | N | FACW |
| Ortega River | OR1 | 10/11/2017 | Sub-canopy/Understory | *Taxodium distichum* | Southern Bald-Cypress | 2 | N | OBL |
| Ortega River | OR1 | 10/11/2017 | Ground Layer | *Osmunda spectabilis* | Royal Fern | 2 | N | OBL |
| Ortega River | OR1 | 10/11/2017 | Ground Layer | *Pontederia cordata* | Pickerelweed | 5 | N | OBL |
| Ortega River | OR1 | 10/11/2017 | Ground Layer | *Saururus cernuus* | Lizard's-Tail | 10 | N | OBL |
| Ortega River | OR2 | 10/19/2017 | Canopy | *Ulmus americana* | American Elm | 10 | N | FAC |
| Ortega River | OR2 | 10/19/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 60 | Y | OBL |
| Ortega River | OR2 | 10/19/2017 | Canopy | *Quercus laurifolia* | Laurel Oak | 20 | Y | FACW |
| Ortega River | OR2 | 10/19/2017 | Sub-canopy/Understory | *Taxodium distichum* | Southern Bald-Cypress | 5 | N | OBL |
| Ortega River | OR2 | 10/19/2017 | Sub-canopy/Understory | *Fraxinus caroliniana* | Carolina Ash | 10 | N | OBL |
| Ortega River | OR2 | 10/19/2017 | Sub-canopy/Understory | *Acer rubrum* | Red Maple | 15 | N | FAC |
| Ortega River | OR2 | 10/19/2017 | Sub-canopy/Understory | *Serenoa repens* | Saw-Palmetto | 1 | N | FACU |
| Ortega River | OR2 | 10/19/2017 | Ground Layer | *Zizania aquatica* | Indian Wild Rice | 10 | N | OBL |
| Ortega River | OR2 | 10/19/2017 | Ground Layer | *Itea virginica* | Virginia Sweetspire | 1 | N | FACW |
| Ortega River | OR2 | 10/19/2017 | Ground Layer | *Saururus cernuus* | Lizard's-Tail | 1 | N | OBL |
| Ortega River | OR2 | 10/19/2017 | Ground Layer | *Boehmeria cylindrica* | Small-Spike False Nettle | 1 | N | FACW |
| Ortega River | OR3 | 10/16/2017 | Canopy | *Acer rubrum* | Red Maple | 20 | Y | FAC |
| Ortega River | OR3 | 10/16/2017 | Canopy | *Quercus laurifolia* | Laurel Oak | 10 | N | FACW |
| Ortega River | OR3 | 10/16/2017 | Canopy | *Quercus nigra* | Water Oak | 15 | N | FAC |
| Ortega River | OR3 | 10/16/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 25 | Y | OBL |
| Ortega River | OR3 | 10/16/2017 | Canopy | *Liquidambar styraciflua* | Sweet-Gum | 5 | N | FAC |
| Ortega River | OR3 | 10/16/2017 | Canopy | *Taxodium distichum* | Southern Bald-Cypress | 5 | N | OBL |
| Ortega River | OR3 | 10/16/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 25 | Y | FAC |
| Ortega River | OR3 | 10/16/2017 | Sub-canopy/Understory | *Quercus laurifolia* | Laurel Oak | 5 | N | FACW |
| Ortega River | OR3 | 10/16/2017 | Sub-canopy/Understory | *Quercus nigra* | Water Oak | 15 | N | FAC |
| Ortega River | OR3 | 10/16/2017 | Sub-canopy/Understory | *Fraxinus caroliniana* | Carolina Ash | 6 | N | OBL |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Serenoa repens* | Saw-Palmetto | 1 | N | FACU |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Viola sp.* | violet | 1 | N | NA |

| Tributary Name | Plot Name | Monitoring Date | Vegetative Stratum | Scientific Name | Common Name | Absolute Cover | Dominant Species | USACE Indicator Status |
|---|---|---|---|---|---|---|---|---|
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | 10 | N | FACW |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Dichanthelium commutatum* | Variable Rosette Grass | 5 | N | FAC |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Justicia ovata* | Loose-Flower Water-Willow | 20 | Y | OBL |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Hydrocotyle sp.* | pennywort | 1 | N | NA |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Centella asiatica* | Asiatic Spadeleaf | 1 | N | FACW |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Polygonum sp.* | Knotweed | 1 | N | NA |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Saururus cernuus* | Lizard's-Tail | 3 | N | OBL |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | Unknown grass, purple base | NA | 1 | N | NA |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Schoenoplectus pungens* | Three-Square | 1 | N | OBL |
| Ortega River | OR3 | 10/16/2017 | Ground Layer | *Zizania aquatica* | Indian Wild Rice | 2 | N | OBL |
| Pottsburg Creek | PC1 | 10/18/2017 | Canopy | *Triadica sebifera* | Chinese Tallowtree | 15 | N | FAC |
| Pottsburg Creek | PC1 | 10/18/2017 | Canopy | *Taxodium distichum* | Southern Bald-Cypress | 25 | Y | OBL |
| Pottsburg Creek | PC1 | 10/18/2017 | Canopy | *Acer rubrum* | Red Maple | 20 | Y | FAC |
| Pottsburg Creek | PC1 | 10/18/2017 | Canopy | *Quercus nigra* | Water Oak | 15 | N | FAC |
| Pottsburg Creek | PC1 | 10/18/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 20 | Y | OBL |
| Pottsburg Creek | PC1 | 10/18/2017 | Sub-canopy/Understory | *Cephalanthus occidentalis* | Common Buttonbush | 1 | N | OBL |
| Pottsburg Creek | PC1 | 10/18/2017 | Sub-canopy/Understory | *Itea virginica* | Virginia Sweetspire | 1 | N | FACW |
| Pottsburg Creek | PC1 | 10/18/2017 | Sub-canopy/Understory | *Acer rubrum* | Red Maple | 5 | N | FAC |
| Pottsburg Creek | PC1 | 10/18/2017 | Sub-canopy/Understory | *Fraxinus caroliniana* | Carolina Ash | 10 | N | OBL |
| Pottsburg Creek | PC1 | 10/18/2017 | Ground Layer | *Colocasia esculenta* | Coco-Yam | 25 | Y | FACW |
| Pottsburg Creek | PC1 | 10/18/2017 | Ground Layer | *Saururus cernuus* | Lizard's-Tail | 10 | N | OBL |
| Pottsburg Creek | PC1 | 10/18/2017 | Ground Layer | *Boehmeria cylindrica* | Small-Spike False Nettle | 1 | N | FACW |
| Pottsburg Creek | PC1 | 10/18/2017 | Ground Layer | *Alternanthera philoxeroides* | Alligator-Weed | 1 | N | OBL |
| Pottsburg Creek | PC1 | 10/18/2017 | Ground Layer | *Cicuta maculata* | Spotted Water-Hemlock | 1 | N | OBL |
| Pottsburg Creek | PC1 | 10/18/2017 | Ground Layer | *Osmundastrum cinnamomeum* | Cinnamon Fern | 1 | N | FACW |
| Pottsburg Creek | PC2 | 10/18/2017 | Canopy | *Taxodium distichum* | Southern Bald-Cypress | 40 | Y | OBL |
| Pottsburg Creek | PC2 | 10/18/2017 | Canopy | *Quercus nigra* | Water Oak | 15 | N | FAC |
| Pottsburg Creek | PC2 | 10/18/2017 | Canopy | *Liquidambar styraciflua* | Sweet-Gum | 15 | N | FAC |
| Pottsburg Creek | PC2 | 10/18/2017 | Canopy | *Quercus laurifolia* | Laurel Oak | 10 | N | FACW |
| Pottsburg Creek | PC2 | 10/18/2017 | Sub-canopy/Understory | *Serenoa repens* | Saw-Palmetto | 10 | N | FACU |
| Pottsburg Creek | PC2 | 10/18/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 40 | Y | FAC |
| Pottsburg Creek | PC2 | 10/18/2017 | Sub-canopy/Understory | *Liquidambar styraciflua* | Sweet-Gum | 10 | N | FAC |
| Pottsburg Creek | PC2 | 10/18/2017 | Sub-canopy/Understory | *Quercus laurifolia* | Laurel Oak | 5 | N | FACW |
| Pottsburg Creek | PC2 | 10/18/2017 | Ground Layer | *Woodwardia areolata* | Netted Chain Fern | 20 | Y | OBL |
| Pottsburg Creek | PC2 | 10/18/2017 | Ground Layer | *Tradescantia sp.* | Spiderwort | 5 | N | NA |
| Pottsburg Creek | PC2 | 10/18/2017 | Ground Layer | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | 50 | Y | OBL |
| Pottsburg Creek | PC2 | 10/18/2017 | Ground Layer | *Viola sp.* | Violet | 30 | Y | NA |
| Pottsburg Creek | PC2 | 10/18/2017 | Ground Layer | *Acer rubrum* | Red Maple | 1 | N | FAC |
| Pottsburg Creek | PC2 | 10/18/2017 | Ground Layer | *Hydrocotyle sp.* | Pennywort | 1 | N | NA |
| Pottsburg Creek | PC2 | 10/18/2017 | Ground Layer | *Serenoa repens* | Saw-Palmetto | 1 | N | FACU |
| Pottsburg Creek | PC2 | 10/18/2017 | Ground Layer | *Polygonum sp.* | Knotweed | 1 | N | NA |
| Pottsburg Creek | PC2 | 10/18/2017 | Ground Layer | *Ampelaster carolinianus* | Climbing-Aster | 1 | N | OBL |
| Pottsburg Creek | PC3 | 10/19/2017 | Canopy | *Quercus nigra* | Water Oak | 10 | N | FAC |
| Pottsburg Creek | PC3 | 10/19/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 40 | Y | OBL |

| Tributary Name | Plot Name | Monitoring Date | Vegetative Stratum | Scientific Name | Common Name | Absolute Cover | Dominant Species | USACE Indicator Status |
|---|---|---|---|---|---|---|---|---|
| Pottsburg Creek | PC3 | 10/19/2017 | Canopy | *Acer rubrum* | Red Maple | 10 | N | FAC |
| Pottsburg Creek | PC3 | 10/19/2017 | Canopy | *Taxodium distichum* | Southern Bald-Cypress | 10 | N | OBL |
| Pottsburg Creek | PC3 | 10/19/2017 | Canopy | *Ulmus americana* | American Elm | 20 | Y | FAC |
| Pottsburg Creek | PC3 | 10/19/2017 | Sub-canopy/Understory | *Acer rubrum* | Red Maple | 10 | N | FAC |
| Pottsburg Creek | PC3 | 10/19/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 5 | N | FAC |
| Pottsburg Creek | PC3 | 10/19/2017 | Sub-canopy/Understory | *Itea virginica* | Virginia Sweetspire | 1 | N | FACW |
| Pottsburg Creek | PC3 | 10/19/2017 | Sub-canopy/Understory | *Taxodium distichum* | Southern Bald-Cypress | 20 | Y | OBL |
| Pottsburg Creek | PC3 | 10/19/2017 | Sub-canopy/Understory | *Morella cerifera* | Southern Bayberry | 3 | N | FAC |
| Pottsburg Creek | PC3 | 10/19/2017 | Sub-canopy/Understory | *Cephalanthus occidentalis* | Common Buttonbush | 3 | N | OBL |
| Pottsburg Creek | PC3 | 10/19/2017 | Sub-canopy/Understory | *Cyrilla racemiflora* | Little-Leaf Titi | 5 | N | FACW |
| Pottsburg Creek | PC3 | 10/19/2017 | Sub-canopy/Understory | *Baccharis halimifolia* | Groundseltree | 1 | N | FAC |
| Pottsburg Creek | PC3 | 10/19/2017 | Sub-canopy/Understory | *Fraxinus caroliniana* | Carolina Ash | 5 | N | OBL |
| Pottsburg Creek | PC3 | 10/19/2017 | Sub-canopy/Understory | *Quercus nigra* | Water Oak | 5 | N | FAC |
| Pottsburg Creek | PC3 | 10/19/2017 | Ground Layer | *Justicia ovata* | Loose-Flower Water-Willow | 5 | N | OBL |
| Pottsburg Creek | PC3 | 10/19/2017 | Ground Layer | *Polygonum sp.* | Knotweed | 15 | N | NA |
| Pottsburg Creek | PC3 | 10/19/2017 | Ground Layer | *Saururus cernuus* | Lizard's-Tail | 20 | Y | OBL |
| Pottsburg Creek | PC3 | 10/19/2017 | Ground Layer | *Ampelaster carolinianus* | Climbing-Aster | 5 | N | OBL |
| Pottsburg Creek | PC3 | 10/19/2017 | Ground Layer | *Viola sp.* | Violet | 1 | N | NA |
| Pottsburg Creek | PC3 | 10/19/2017 | Ground Layer | *Hydrocotyle sp.* | Pennywort | 1 | N | NA |
| Pottsburg Creek | PC3 | 10/19/2017 | Ground Layer | *Ludwigia repens* | Creeping Primrose-Willow | 1 | N | OBL |
| Pottsburg Creek | PC3 | 10/19/2017 | Ground Layer | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | 5 | N | OBL |
| Sixmile Creek | SMC1 | 10/12/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 65 | Y | OBL |
| Sixmile Creek | SMC1 | 10/12/2017 | Canopy | *Taxodium distichum* | Southern Bald-Cypress | 2 | N | OBL |
| Sixmile Creek | SMC1 | 10/12/2017 | Canopy | *Quercus laurifolia* | Laurel Oak | 5 | N | FACW |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Acer rubrum* | Red Maple | 3 | N | FAC |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 10 | N | OBL |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 8 | N | FAC |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Morella cerifera* | Southern Bayberry | 12 | N | FAC |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Serenoa repens* | Saw-Palmetto | 25 | Y | FACU |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Eubotrys racemosa* | Swamp Deciduous-Doghobble | 10 | N | FACW |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Ilex cassine* | Dahoon | 3 | N | FACW |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Taxodium distichum* | Southern Bald-Cypress | 1 | N | OBL |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Carya aquatica* | Water Hickory | 15 | N | OBL |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Cornus foemina* | Stiff Dogwood | 1 | N | FACW |
| Sixmile Creek | SMC1 | 10/12/2017 | Sub-canopy/Understory | *Baccharis halimifolia* | Groundseltree | 1 | N | FAC |
| Sixmile Creek | SMC1 | 10/12/2017 | Ground Layer | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | 20 | Y | OBL |
| Sixmile Creek | SMC1 | 10/12/2017 | Ground Layer | *Pontederia cordata* | Pickerelweed | 10 | N | OBL |
| Sixmile Creek | SMC1 | 10/12/2017 | Ground Layer | *Osmunda spectabilis* | Royal Fern | 20 | Y | OBL |
| Sixmile Creek | SMC1 | 10/12/2017 | Ground Layer | *Polygonum sp.* | Knotweed | 1 | N | NA |
| Sixmile Creek | SMC1 | 10/12/2017 | Ground Layer | *Osmundastrum cinnamomeum* | Cinnamon Fern | 2 | N | FACW |
| Sixmile Creek | SMC1 | 10/12/2017 | Ground Layer | *Schoenoplectus pungens* | Three-Square | 1 | N | OBL |
| Sixmile Creek | SMC2 | 10/12/2017 | Canopy | *Taxodium distichum* | Southern Bald-Cypress | 35 | Y | OBL |
| Sixmile Creek | SMC2 | 10/12/2017 | Canopy | *Acer rubrum* | Red Maple | 5 | N | FAC |
| Sixmile Creek | SMC2 | 10/12/2017 | Canopy | *Quercus nigra* | Water Oak | 5 | N | FAC |

| Tributary Name | Plot Name | Monitoring Date | Vegetative Stratum | Scientific Name | Common Name | Absolute Cover | Dominant Species | USACE Indicator Status |
|---|---|---|---|---|---|---|---|---|
| Sixmile Creek | SMC2 | 10/12/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 25 | Y | OBL |
| Sixmile Creek | SMC2 | 10/12/2017 | Canopy | *Liquidambar styraciflua* | Sweet-Gum | 2 | N | FAC |
| Sixmile Creek | SMC2 | 10/12/2017 | Sub-canopy/Understory | *Serenoa repens* | Saw-Palmetto | 25 | Y | FACU |
| Sixmile Creek | SMC2 | 10/12/2017 | Sub-canopy/Understory | *Carya aquatica* | Water Hickory | 5 | N | OBL |
| Sixmile Creek | SMC2 | 10/12/2017 | Sub-canopy/Understory | *Taxodium distichum* | Southern Bald-Cypress | 5 | N | OBL |
| Sixmile Creek | SMC2 | 10/12/2017 | Sub-canopy/Understory | *Liquidambar styraciflua* | Sweet-Gum | 1 | N | FAC |
| Sixmile Creek | SMC2 | 10/12/2017 | Sub-canopy/Understory | *Cephalanthus occidentalis* | Common Buttonbush | 1 | N | OBL |
| Sixmile Creek | SMC2 | 10/12/2017 | Sub-canopy/Understory | *Ulmus americana* | American Elm | 10 | N | FAC |
| Sixmile Creek | SMC2 | 10/12/2017 | Sub-canopy/Understory | *Cornus foemina* | Stiff Dogwood | 1 | N | FACW |
| Sixmile Creek | SMC2 | 10/12/2017 | Sub-canopy/Understory | *Sabal minor* | Dwarf Palmetto | 1 | N | FACW |
| Sixmile Creek | SMC2 | 10/12/2017 | Sub-canopy/Understory | *Acer rubrum* | Red Maple | 1 | N | FAC |
| Sixmile Creek | SMC2 | 10/12/2017 | Ground Layer | *Saururus cernuus* | Lizard's-Tail | 5 | N | OBL |
| Sixmile Creek | SMC2 | 10/12/2017 | Ground Layer | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | 1 | N | OBL |
| Sixmile Creek | SMC2 | 10/12/2017 | Ground Layer | *Pontederia cordata* | Pickerelweed | 2 | N | OBL |
| Sixmile Creek | SMC2 | 10/12/2017 | Ground Layer | *Polygonum sp.* | Knotweed | 1 | N | NA |
| Sixmile Creek | SMC2 | 10/12/2017 | Ground Layer | *Crinum americanum* | Seven-Sisters | 1 | N | OBL |
| Sixmile Creek | SMC2 | 10/12/2017 | Ground Layer | *Iris sp.* | Iris | 5 | N | NA |
| Sixmile Creek | SMC2 | 10/12/2017 | Ground Layer | *Schoenoplectus pungens* | Three-Square | 1 | N | OBL |
| Sixmile Creek | SMC3 | 10/13/2017 | Canopy | *Taxodium distichum* | Southern Bald-Cypress | 60 | Y | OBL |
| Sixmile Creek | SMC3 | 10/13/2017 | Canopy | *Nyssa sylvatica var. biflora* | Swamp Tupelo | 40 | Y | OBL |
| Sixmile Creek | SMC3 | 10/13/2017 | Canopy | *Ulmus americana* | American Elm | 5 | N | FAC |
| Sixmile Creek | SMC3 | 10/13/2017 | Canopy | *Liquidambar styraciflua* | Sweet-Gum | 5 | N | FAC |
| Sixmile Creek | SMC3 | 10/13/2017 | Sub-canopy/Understory | *Acer rubrum* | Red Maple | 10 | N | FAC |
| Sixmile Creek | SMC3 | 10/13/2017 | Sub-canopy/Understory | *Cephalanthus occidentalis* | Common Buttonbush | 20 | Y | OBL |
| Sixmile Creek | SMC3 | 10/13/2017 | Sub-canopy/Understory | *Carpinus caroliniana* | American Hornbeam | 15 | N | FAC |
| Sixmile Creek | SMC3 | 10/13/2017 | Sub-canopy/Understory | *Diospyros virginiana* | Common Persimmon | 15 | N | FAC |
| Sixmile Creek | SMC3 | 10/13/2017 | Sub-canopy/Understory | *Ilex cassine* | Dahoon | 5 | N | FACW |
| Sixmile Creek | SMC3 | 10/13/2017 | Sub-canopy/Understory | *Serenoa repens* | Saw-Palmetto | 3 | N | FACU |
| Sixmile Creek | SMC3 | 10/13/2017 | Sub-canopy/Understory | *Cyrilla racemiflora* | Little-Leaf Titi | 5 | N | FACW |
| Sixmile Creek | SMC3 | 10/13/2017 | Sub-canopy/Understory | *Quercus laurifolia* | Laurel Oak | 5 | N | FACW |
| Sixmile Creek | SMC3 | 10/13/2017 | Ground Layer | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | 3 | N | OBL |
| Sixmile Creek | SMC3 | 10/13/2017 | Ground Layer | *Saururus cernuus* | Lizard's-Tail | 5 | N | OBL |
| Sixmile Creek | SMC3 | 10/13/2017 | Ground Layer | *Schoenoplectus pungens* | Three-Square | 1 | N | OBL |
| Sixmile Creek | SMC3 | 10/13/2017 | Ground Layer | *Polygonum sp.* | Knotweed | 1 | N | NA |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Black Creek | BC1 | 10/10/2017 | 6 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 7 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 21 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 31 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 35 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 48 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 54 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 57 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 83 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 107 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 116 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 126 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 138 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 144 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 152 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 159 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 162 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 164 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 171 | Bare ground | NA | NA | 100 |
| Black Creek | BC1 | 10/10/2017 | 190 | Bare ground | NA | NA | 100 |
| Black Creek | BC2 | 10/10/2017 | 9 | Bare ground | NA | NA | 100 |
| Black Creek | BC2 | 10/10/2017 | 12 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 15 |
| Black Creek | BC2 | 10/10/2017 | 12 | *Rhynchospora sp.* | sedge | NA | 20 |
| Black Creek | BC2 | 10/10/2017 | 15 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 50 |
| Black Creek | BC2 | 10/10/2017 | 48 | Bare ground | NA | NA | 100 |
| Black Creek | BC2 | 10/10/2017 | 59 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 1 |
| Black Creek | BC2 | 10/10/2017 | 61 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 5 |
| Black Creek | BC2 | 10/10/2017 | 90 | *Pontederia cordata* | Pickerelweed | OBL | 1 |
| Black Creek | BC2 | 10/10/2017 | 90 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 50 |
| Black Creek | BC2 | 10/10/2017 | 90 | *Salvinia sp.* | floating fern | NA | 1 |
| Black Creek | BC2 | 10/10/2017 | 105 | *Polygonum sp.* | Knotweed | NA | 3 |
| Black Creek | BC2 | 10/10/2017 | 105 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 3 |
| Black Creek | BC2 | 10/10/2017 | 114 | *Polygonum sp.* | Knotweed | NA | 1 |
| Black Creek | BC2 | 10/10/2017 | 114 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 5 |
| Black Creek | BC2 | 10/10/2017 | 119 | *Polygonum sp.* | Knotweed | NA | 2 |
| Black Creek | BC2 | 10/10/2017 | 119 | *Woodwardia areolata* | Netted Chain Fern | OBL | 3 |
| Black Creek | BC2 | 10/10/2017 | 120 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Black Creek | BC2 | 10/10/2017 | 120 | *Salvinia sp.* | floating fern | NA | 1 |
| Black Creek | BC2 | 10/10/2017 | 145 | *Polygonum sp.* | Knotweed | NA | 2 |
| Black Creek | BC2 | 10/10/2017 | 151 | *Polygonum sp.* | Knotweed | NA | 5 |
| Black Creek | BC2 | 10/10/2017 | 151 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 2 |
| Black Creek | BC2 | 10/10/2017 | 152 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 10 |
| Black Creek | BC2 | 10/10/2017 | 161 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 1 |
| Black Creek | BC2 | 10/10/2017 | 175 | *Polygonum sp.* | Knotweed | NA | 3 |
| Black Creek | BC2 | 10/10/2017 | 175 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Black Creek | BC2 | 10/10/2017 | 175 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 1 |
| Black Creek | BC2 | 10/10/2017 | 176 | *Polygonum sp.* | Knotweed | NA | 10 |
| Black Creek | BC2 | 10/10/2017 | 176 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Black Creek | BC2 | 10/10/2017 | 184 | Bare ground | NA | NA | 100 |
| Black Creek | BC2 | 10/10/2017 | 192 | *Pontederia cordata* | Pickerelweed | OBL | 5 |
| Black Creek | BC2 | 10/10/2017 | 192 | Bare ground | NA | NA | 1 |
| Black Creek | BC2 | 10/10/2017 | 193 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Black Creek | BC3 | 10/11/2017 | 3 | *Schoenoplectus pungens* | Three-Square | OBL | 1 |
| Black Creek | BC3 | 10/11/2017 | 3 | Bare ground | NA | NA | 99 |
| Black Creek | BC3 | 10/11/2017 | 10 | *Carex sp.* | sedge | NA | 10 |
| Black Creek | BC3 | 10/11/2017 | 10 | Bare ground | NA | NA | 90 |
| Black Creek | BC3 | 10/11/2017 | 22 | Bare ground | NA | NA | 100 |
| Black Creek | BC3 | 10/11/2017 | 34 | *Woodwardia areolata* | Netted Chain Fern | OBL | 3 |
| Black Creek | BC3 | 10/11/2017 | 34 | *Carex sp.* | sedge | NA | 2 |
| Black Creek | BC3 | 10/11/2017 | 34 | Bare ground | NA | NA | 95 |
| Black Creek | BC3 | 10/11/2017 | 34 | *Woodwardia areolata* | Netted Chain Fern | OBL | <1 |
| Black Creek | BC3 | 10/11/2017 | 34 | *Schoenoplectus pungens* | Three-Square | OBL | 2 |
| Black Creek | BC3 | 10/11/2017 | 34 | *Carex sp.* | sedge | NA | 25 |
| Black Creek | BC3 | 10/11/2017 | 34 | Fraxinus caroliniana | Carolina Ash | OBL | <1 |
| Black Creek | BC3 | 10/11/2017 | 50 | *Woodwardia areolata* | Netted Chain Fern | OBL | <1 |
| Black Creek | BC3 | 10/11/2017 | 50 | Bare ground | NA | NA | 99 |
| Black Creek | BC3 | 10/11/2017 | 51 | *Woodwardia areolata* | Netted Chain Fern | OBL | <1 |
| Black Creek | BC3 | 10/11/2017 | 51 | *Smilax sp.* | greenbrier | NA | <1 |
| Black Creek | BC3 | 10/11/2017 | 51 | *Carex sp.* | sedge | NA | 40 |
| Black Creek | BC3 | 10/11/2017 | 51 | Bare ground | NA | NA | ~58 |
| Black Creek | BC3 | 10/11/2017 | 51 | *Fraxinus caroliniana* | Carolina Ash | OBL | <1 |
| Black Creek | BC3 | 10/11/2017 | 60 | *Woodwardia areolata* | Netted Chain Fern | OBL | 1 |
| Black Creek | BC3 | 10/11/2017 | 60 | Bare ground | NA | NA | 90 |
| Black Creek | BC3 | 10/11/2017 | 67 | *Schoenoplectus pungens* | Three-Square | OBL | <1 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Black Creek | BC3 | 10/11/2017 | 106 | *Carex sp.* | sedge | NA | 5 |
| Black Creek | BC3 | 10/11/2017 | 106 | Bare ground | NA | NA | 95 |
| Black Creek | BC3 | 10/11/2017 | 109 | Bare ground | NA | NA | 100 |
| Black Creek | BC3 | 10/11/2017 | 110 | Bare ground | NA | NA | 100 |
| Black Creek | BC3 | 10/11/2017 | 117 | *Carex sp.* | sedge | NA | 25 |
| Black Creek | BC3 | 10/11/2017 | 117 | Bare ground | NA | NA | 75 |
| Black Creek | BC3 | 10/11/2017 | 141 | *Salvinia sp.* | floating fern | NA | <1 |
| Black Creek | BC3 | 10/11/2017 | 141 | Bare ground | NA | NA | ~99 |
| Black Creek | BC3 | 10/11/2017 | 142 | Bare ground | NA | NA | 100 |
| Black Creek | BC3 | 10/11/2017 | 153 | Bare ground | NA | NA | 100 |
| Black Creek | BC3 | 10/11/2017 | 158 | *Osmunda spectabilis* | Royal Fern | OBL | <1 |
| Black Creek | BC3 | 10/11/2017 | 158 | *Woodwardia areolata* | Netted Chain Fern | OBL | <1 |
| Black Creek | BC3 | 10/11/2017 | 158 | Bare ground | NA | NA | 98 |
| Black Creek | BC3 | 10/11/2017 | 159 | *Osmundastrum cinnamomeum* | Cinnamon Fern | FACW | 1 |
| Black Creek | BC3 | 10/11/2017 | 159 | *Woodwardia areolata* | Netted Chain Fern | OBL | 5 |
| Black Creek | BC3 | 10/11/2017 | 159 | *Paspalum sp.* | grass | NA | <1 |
| Black Creek | BC3 | 10/11/2017 | 159 | Bare ground | NA | NA | ~90 |
| Black Creek | BC3 | 10/11/2017 | 159 | *Fraxinus caroliniana* | Carolina Ash | OBL | 1 |
| Black Creek | BC3 | 10/11/2017 | 159 | *Lyonia lucida* | Shinyleaf | FACW | 3 |
| Black Creek | BC3 | 10/11/2017 | 162 | Bare ground | NA | NA | 100 |
| Julington Creek | JC1 | 10/17/2017 | 37 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 10 |
| Julington Creek | JC1 | 10/17/2017 | 37 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 44 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 20 |
| Julington Creek | JC1 | 10/17/2017 | 44 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 52 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 77 | *Pontederia cordata* | Pickerelweed | OBL | 10 |
| Julington Creek | JC1 | 10/17/2017 | 77 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 25 |
| Julington Creek | JC1 | 10/17/2017 | 77 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 81 | *Pontederia cordata* | Pickerelweed | OBL | 25 |
| Julington Creek | JC1 | 10/17/2017 | 81 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 91 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 106 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 115 | *Pontederia cordata* | Pickerelweed | OBL | 5 |
| Julington Creek | JC1 | 10/17/2017 | 115 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 117 | *Pontederia cordata* | Pickerelweed | OBL | 20 |
| Julington Creek | JC1 | 10/17/2017 | 117 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 118 | *Pontederia cordata* | Pickerelweed | OBL | 10 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Julington Creek | JC1 | 10/17/2017 | 118 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 128 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 10 |
| Julington Creek | JC1 | 10/17/2017 | 128 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 129 | *Pontederia cordata* | Pickerelweed | OBL | 5 |
| Julington Creek | JC1 | 10/17/2017 | 129 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 25 |
| Julington Creek | JC1 | 10/17/2017 | 129 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 146 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 40 |
| Julington Creek | JC1 | 10/17/2017 | 146 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 147 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 40 |
| Julington Creek | JC1 | 10/17/2017 | 147 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 161 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 10 |
| Julington Creek | JC1 | 10/17/2017 | 161 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 172 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 15 |
| Julington Creek | JC1 | 10/17/2017 | 172 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 177 | Rhynchospora corniculata | Short-Bristle Horned Beak Sedge | OBL | 40 |
| Julington Creek | JC1 | 10/17/2017 | 177 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 181 | *Pontederia cordata* | Pickerelweed | OBL | 20 |
| Julington Creek | JC1 | 10/17/2017 | 181 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 5 |
| Julington Creek | JC1 | 10/17/2017 | 181 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 186 | Surface water | NA | NA | NA |
| Julington Creek | JC1 | 10/17/2017 | 192 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 15 |
| Julington Creek | JC1 | 10/17/2017 | 192 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 26 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC2 | 10/17/2017 | 26 | *Pontederia cordata* | Pickerelweed | OBL | 20 |
| Julington Creek | JC2 | 10/17/2017 | 26 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 20 |
| Julington Creek | JC2 | 10/17/2017 | 26 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 28 | *Pontederia cordata* | Pickerelweed | OBL | 40 |
| Julington Creek | JC2 | 10/17/2017 | 28 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 10 |
| Julington Creek | JC2 | 10/17/2017 | 28 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 36 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 5 |
| Julington Creek | JC2 | 10/17/2017 | 36 | *Colocasia esculenta* | Coco-Yam | FACW | 5 |
| Julington Creek | JC2 | 10/17/2017 | 36 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 37 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 10 |
| Julington Creek | JC2 | 10/17/2017 | 37 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Julington Creek | JC2 | 10/17/2017 | 37 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 47 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC2 | 10/17/2017 | 47 | *Pontederia cordata* | Pickerelweed | OBL | 20 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Julington Creek | JC2 | 10/17/2017 | 47 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 5 |
| Julington Creek | JC2 | 10/17/2017 | 47 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 55 | *Saururus cernuus* | Lizard's-Tail | OBL | 25 |
| Julington Creek | JC2 | 10/17/2017 | 55 | *Iris sp.* | Iris | NA | 5 |
| Julington Creek | JC2 | 10/17/2017 | 55 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 104 | *Polygonum sp.* | Knotweed | NA | 1 |
| Julington Creek | JC2 | 10/17/2017 | 104 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 30 |
| Julington Creek | JC2 | 10/17/2017 | 104 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 107 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC2 | 10/17/2017 | 107 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 112 | *Polygonum sp.* | Knotweed | NA | 15 |
| Julington Creek | JC2 | 10/17/2017 | 112 | *Pontederia cordata* | Pickerelweed | OBL | 5 |
| Julington Creek | JC2 | 10/17/2017 | 112 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 130 | *Pontederia cordata* | Pickerelweed | OBL | 15 |
| Julington Creek | JC2 | 10/17/2017 | 130 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 5 |
| Julington Creek | JC2 | 10/17/2017 | 130 | *Woodwardia areolata* | Netted Chain Fern | OBL | 1 |
| Julington Creek | JC2 | 10/17/2017 | 130 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 133 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 134 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 10 |
| Julington Creek | JC2 | 10/17/2017 | 134 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 136 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC2 | 10/17/2017 | 136 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 139 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 140 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 141 | *Pontederia cordata* | Pickerelweed | OBL | 20 |
| Julington Creek | JC2 | 10/17/2017 | 141 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 148 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 25 |
| Julington Creek | JC2 | 10/17/2017 | 148 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 150 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 159 | Surface water | NA | NA | NA |
| Julington Creek | JC2 | 10/17/2017 | 171 | *Pontederia cordata* | Pickerelweed | OBL | 5 |
| Julington Creek | JC2 | 10/17/2017 | 171 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 4 | *Osmunda spectabilis* | Royal Fern | OBL | 25 |
| Julington Creek | JC3 | 10/17/2017 | 4 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC3 | 10/17/2017 | 4 | *Pontederia cordata* | Pickerelweed | OBL | 15 |
| Julington Creek | JC3 | 10/17/2017 | 4 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 14 | *Polygonum sp.* | Knotweed | NA | 1 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Julington Creek | JC3 | 10/17/2017 | 14 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 50 |
| Julington Creek | JC3 | 10/17/2017 | 14 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 34 | Rhynchospora inundata | Narrow-Fruit Horned Beak Sedge | OBL | 80 |
| Julington Creek | JC3 | 10/17/2017 | 34 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 37 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 5 |
| Julington Creek | JC3 | 10/17/2017 | 37 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 55 |
| Julington Creek | JC3 | 10/17/2017 | 37 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 47 | *Polygonum sp.* | Knotweed | NA | 1 |
| Julington Creek | JC3 | 10/17/2017 | 47 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 64 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 66 | *Polygonum sp.* | Knotweed | NA | 1 |
| Julington Creek | JC3 | 10/17/2017 | 66 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 84 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 86 | *Polygonum sp.* | Knotweed | NA | 1 |
| Julington Creek | JC3 | 10/17/2017 | 86 | *Pontederia cordata* | Pickerelweed | OBL | 2 |
| Julington Creek | JC3 | 10/17/2017 | 86 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 90 | *Osmunda spectabilis* | Royal Fern | OBL | 10 |
| Julington Creek | JC3 | 10/17/2017 | 90 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC3 | 10/17/2017 | 90 | *Sagittaria lancifolia* | Bull-Tongue Arrowhead | OBL | 1 |
| Julington Creek | JC3 | 10/17/2017 | 90 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 101 | *Osmunda spectabilis* | Royal Fern | OBL | 25 |
| Julington Creek | JC3 | 10/17/2017 | 101 | *Osmundastrum cinnamomeum* | Cinnamon Fern | FACW | 25 |
| Julington Creek | JC3 | 10/17/2017 | 101 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC3 | 10/17/2017 | 101 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 116 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC3 | 10/17/2017 | 116 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 129 | *Polygonum sp.* | Knotweed | NA | 80 |
| Julington Creek | JC3 | 10/17/2017 | 129 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 137 | *Osmundastrum cinnamomeum* | Cinnamon Fern | FACW | 60 |
| Julington Creek | JC3 | 10/17/2017 | 137 | *Polygonum sp.* | Knotweed | NA | 1 |
| Julington Creek | JC3 | 10/17/2017 | 137 | *Pontederia cordata* | Pickerelweed | OBL | 1 |
| Julington Creek | JC3 | 10/17/2017 | 137 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 153 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC3 | 10/17/2017 | 153 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 156 | *Polygonum sp.* | Knotweed | NA | 10 |
| Julington Creek | JC3 | 10/17/2017 | 156 | *Pontederia cordata* | Pickerelweed | OBL | 5 |
| Julington Creek | JC3 | 10/17/2017 | 156 | *Sagittaria lancifolia* | Bull-Tongue Arrowhead | OBL | 5 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Julington Creek | JC3 | 10/17/2017 | 156 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 157 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC3 | 10/17/2017 | 157 | *Pontederia cordata* | Pickerelweed | OBL | 10 |
| Julington Creek | JC3 | 10/17/2017 | 157 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 178 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC3 | 10/17/2017 | 178 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 5 |
| Julington Creek | JC3 | 10/17/2017 | 178 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 182 | *Osmunda spectabilis* | Royal Fern | OBL | 25 |
| Julington Creek | JC3 | 10/17/2017 | 182 | *Polygonum sp.* | Knotweed | NA | 5 |
| Julington Creek | JC3 | 10/17/2017 | 182 | *Pontederia cordata* | Pickerelweed | OBL | 15 |
| Julington Creek | JC3 | 10/17/2017 | 182 | Surface water | NA | NA | NA |
| Julington Creek | JC3 | 10/17/2017 | 184 | *Osmunda spectabilis* | Royal Fern | OBL | 5 |
| Julington Creek | JC3 | 10/17/2017 | 184 | *Polygonum sp.* | Knotweed | NA | 20 |
| Julington Creek | JC3 | 10/17/2017 | 184 | *Pontederia cordata* | Pickerelweed | OBL | 5 |
| Julington Creek | JC3 | 10/17/2017 | 184 | *Iris sp.* | Iris | NA | 20 |
| Julington Creek | JC3 | 10/17/2017 | 184 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 7 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Ortega River | OR1 | 10/11/2017 | 7 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 10 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Ortega River | OR1 | 10/11/2017 | 10 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 13 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Ortega River | OR1 | 10/11/2017 | 13 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 34 | *Saururus cernuus* | Lizard's-Tail | OBL | 20 |
| Ortega River | OR1 | 10/11/2017 | 34 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 45 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 51 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Ortega River | OR1 | 10/11/2017 | 51 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 66 | *Saururus cernuus* | Lizard's-Tail | OBL | 2 |
| Ortega River | OR1 | 10/11/2017 | 66 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 97 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 105 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 120 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 127 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 133 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Ortega River | OR1 | 10/11/2017 | 133 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 138 | *Pontederia cordata* | Pickerelweed | OBL | <1 |
| Ortega River | OR1 | 10/11/2017 | 138 | Surface water | NA | NA | NA |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Ortega River | OR1 | 10/11/2017 | 138 | *Serenoa repens* | Saw-Palmetto | FACU | <1 |
| Ortega River | OR1 | 10/11/2017 | 143 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 145 | *Saururus cernuus* | Lizard's-Tail | OBL | <1 |
| Ortega River | OR1 | 10/11/2017 | 145 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 161 | *Saururus cernuus* | Lizard's-Tail | OBL | <1 |
| Ortega River | OR1 | 10/11/2017 | 161 | *Smilax sp.* | greenbrier | NA | <1 |
| Ortega River | OR1 | 10/11/2017 | 161 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 174 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 176 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 187 | Surface water | NA | NA | NA |
| Ortega River | OR1 | 10/11/2017 | 195 | Surface water | NA | NA | NA |
| Ortega River | OR2 | 10/19/2017 | none | *Zizania aquatica* | No subplots in OR2 plot. Unable to see vegetation due to water depth. Did observe *Z. aquatica* above water surface in several areas of plot OR2. | OBL | 10 |
| Ortega River | OR3 | 10/16/2017 | 2 | Unknown grass, purple base | NA | NA | 25 |
| Ortega River | OR3 | 10/16/2017 | 2 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 1 |
| Ortega River | OR3 | 10/16/2017 | 2 | Bare ground | NA | NA | 74 |
| Ortega River | OR3 | 10/16/2017 | 3 | *Dichanthelium commutatum* | Variable Rosette Grass | FAC | 10 |
| Ortega River | OR3 | 10/16/2017 | 3 | *Hydrocotlye sp.* | NA | NA | 1 |
| Ortega River | OR3 | 10/16/2017 | 3 | *Centella asiatica* | Asiatic Spadeleaf | FACW | 1 |
| Ortega River | OR3 | 10/16/2017 | 3 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 5 |
| Ortega River | OR3 | 10/16/2017 | 3 | Bare ground | NA | NA | 83 |
| Ortega River | OR3 | 10/16/2017 | 5 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 2 |
| Ortega River | OR3 | 10/16/2017 | 5 | *Dichanthelium commutatum* | Variable Rosette Grass | FAC | 1 |
| Ortega River | OR3 | 10/16/2017 | 5 | *Hydrocotyle sp.* | Pennywort | NA | 1 |
| Ortega River | OR3 | 10/16/2017 | 5 | *Centella asiatica* | Asiatic Spadeleaf | FACW | 1 |
| Ortega River | OR3 | 10/16/2017 | 5 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 1 |
| Ortega River | OR3 | 10/16/2017 | 5 | Bare ground | NA | NA | 94 |
| Ortega River | OR3 | 10/16/2017 | 13 | *Dichanthelium commutatum* | Variable Rosette Grass | FAC | 10 |
| Ortega River | OR3 | 10/16/2017 | 13 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 5 |
| Ortega River | OR3 | 10/16/2017 | 13 | Bare ground | NA | NA | 85 |
| Ortega River | OR3 | 10/16/2017 | 49 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Ortega River | OR3 | 10/16/2017 | 49 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 1 |
| Ortega River | OR3 | 10/16/2017 | 49 | Bare ground | NA | NA | 98 |
| Ortega River | OR3 | 10/16/2017 | 54 | *Dichanthelium commutatum* | Variable Rosette Grass | FAC | 2 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Ortega River | OR3 | 10/16/2017 | 54 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 5 |
| Ortega River | OR3 | 10/16/2017 | 54 | Bare ground | NA | | 93 |
| Ortega River | OR3 | 10/16/2017 | 66 | *Viola sp.* | Violet | NA | 2 |
| Ortega River | OR3 | 10/16/2017 | 66 | *Saururus cernuus* | Lizard's-Tail | OBL | 2 |
| Ortega River | OR3 | 10/16/2017 | 66 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 1 |
| Ortega River | OR3 | 10/16/2017 | 66 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 10 |
| Ortega River | OR3 | 10/16/2017 | 66 | Bare ground | NA | | 85 |
| Ortega River | OR3 | 10/16/2017 | 76 | *Woodwardia areolata* | Netted Chain Fern | OBL | 1 |
| Ortega River | OR3 | 10/16/2017 | 76 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 5 |
| Ortega River | OR3 | 10/16/2017 | 76 | Bare ground | NA | | 94 |
| Ortega River | OR3 | 10/16/2017 | 78 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 1 |
| Ortega River | OR3 | 10/16/2017 | 78 | *Dichanthelium commutatum* | Variable Rosette Grass | FAC | 2 |
| Ortega River | OR3 | 10/16/2017 | 78 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 1 |
| Ortega River | OR3 | 10/16/2017 | 78 | Bare ground | NA | | 96 |
| Ortega River | OR3 | 10/16/2017 | 80 | *Viola sp.* | Violet | NA | 1 |
| Ortega River | OR3 | 10/16/2017 | 80 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 10 |
| Ortega River | OR3 | 10/16/2017 | 80 | *Centella asiatica* | Asiatic Spadeleaf | FACW | 1 |
| Ortega River | OR3 | 10/16/2017 | 80 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 10 |
| Ortega River | OR3 | 10/16/2017 | 80 | Bare ground | NA | | 78 |
| Ortega River | OR3 | 10/16/2017 | 86 | *Viola sp.* | Violet | NA | 1 |
| Ortega River | OR3 | 10/16/2017 | 86 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 1 |
| Ortega River | OR3 | 10/16/2017 | 86 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 20 |
| Ortega River | OR3 | 10/16/2017 | 86 | Bare ground | NA | | 78 |
| Ortega River | OR3 | 10/16/2017 | 91 | *Viola sp.* | Violet | NA | 1 |
| Ortega River | OR3 | 10/16/2017 | 91 | *Polygonum sp.* | Knotweed | NA | 1 |
| Ortega River | OR3 | 10/16/2017 | 91 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 1 |
| Ortega River | OR3 | 10/16/2017 | 91 | *Dichanthelium commutatum* | Variable Rosette Grass | FAC | 2 |
| Ortega River | OR3 | 10/16/2017 | 91 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 2 |
| Ortega River | OR3 | 10/16/2017 | 91 | *Schoenoplectus pungens* | Three-Square | OBL | 15 |
| Ortega River | OR3 | 10/16/2017 | 91 | Bare ground | NA | | 78 |
| Ortega River | OR3 | 10/16/2017 | 93 | *Viola sp.* | Violet | NA | 2 |
| Ortega River | OR3 | 10/16/2017 | 93 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 25 |
| Ortega River | OR3 | 10/16/2017 | 93 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 2 |
| Ortega River | OR3 | 10/16/2017 | 93 | Bare ground | NA | | 71 |
| Ortega River | OR3 | 10/16/2017 | 96 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 1 |
| Ortega River | OR3 | 10/16/2017 | 96 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 30 |
| Ortega River | OR3 | 10/16/2017 | 96 | Bare ground | NA | | 69 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Ortega River | OR3 | 10/16/2017 | 112 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 3 |
| Ortega River | OR3 | 10/16/2017 | 112 | *Schoenoplectus pungens* | Three-Square | OBL | 2 |
| Ortega River | OR3 | 10/16/2017 | 112 | Bare ground | NA | NA | 95 |
| Ortega River | OR3 | 10/16/2017 | 131 | *Saururus cernuus* | Lizard's-Tail | OBL | 2 |
| Ortega River | OR3 | 10/16/2017 | 131 | Bare ground | NA | NA | 98 |
| Ortega River | OR3 | 10/16/2017 | 145 | *Viola sp.* | Violet | NA | 1 |
| Ortega River | OR3 | 10/16/2017 | 145 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 1 |
| Ortega River | OR3 | 10/16/2017 | 145 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 5 |
| Ortega River | OR3 | 10/16/2017 | 145 | Bare ground | NA | | 93 |
| Ortega River | OR3 | 10/16/2017 | 146 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Ortega River | OR3 | 10/16/2017 | 146 | *Hypoxis curtissii* | Curtiss' Yellow Star-Grass | FACW | 2 |
| Ortega River | OR3 | 10/16/2017 | 146 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 5 |
| Ortega River | OR3 | 10/16/2017 | 146 | Bare ground | NA | | 93 |
| Ortega River | OR3 | 10/16/2017 | 168 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Ortega River | OR3 | 10/16/2017 | 168 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 3 |
| Ortega River | OR3 | 10/16/2017 | 168 | Bare ground | NA | | 96 |
| Ortega River | OR3 | 10/16/2017 | 183 | *Serenoa repens* | Saw-Palmetto | FACU | 1 |
| Ortega River | OR3 | 10/16/2017 | 183 | *Viola sp.* | Violet | NA | 1 |
| Ortega River | OR3 | 10/16/2017 | 183 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 1 |
| Ortega River | OR3 | 10/16/2017 | 183 | *Schoenoplectus pungens* | Three-Square | OBL | 5 |
| Ortega River | OR3 | 10/16/2017 | 183 | Bare ground | NA | | 92 |
| Pottsburg Creek | PC1 | 10/16/2017 | 4 | *Polygonum sp.* | Knotweed | NA | 1 |
| Pottsburg Creek | PC1 | 10/16/2017 | 4 | *Saururus cernuus* | Lizard's-Tail | OBL | 15 |
| Pottsburg Creek | PC1 | 10/16/2017 | 4 | *Colocasia esculenta* | Coco-Yam | FACW | 20 |
| Pottsburg Creek | PC1 | 10/16/2017 | 4 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 27 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Pottsburg Creek | PC1 | 10/16/2017 | 27 | *Colocasia esculenta* | Coco-Yam | FACW | 30 |
| Pottsburg Creek | PC1 | 10/16/2017 | 27 | *Cicuta maculata* | Spotted Water-Hemlock | OBL | 5 |
| Pottsburg Creek | PC1 | 10/16/2017 | 27 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 38 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Pottsburg Creek | PC1 | 10/16/2017 | 38 | *Colocasia esculenta* | Coco-Yam | FACW | 30 |
| Pottsburg Creek | PC1 | 10/16/2017 | 38 | *Boehmeria cylindrica* | Small-Spike False Nettle | FACW | 1 |
| Pottsburg Creek | PC1 | 10/16/2017 | 38 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 42 | *Saururus cernuus* | Lizard's-Tail | OBL | 10 |
| Pottsburg Creek | PC1 | 10/16/2017 | 42 | *Colocasia esculenta* | Coco-Yam | FACW | 5 |
| Pottsburg Creek | PC1 | 10/16/2017 | 42 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 47 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Pottsburg Creek | PC1 | 10/16/2017 | 47 | *Colocasia esculenta* | Coco-Yam | FACW | 30 |
| Pottsburg Creek | PC1 | 10/16/2017 | 47 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 52 | *Colocasia esculenta* | Coco-Yam | FACW | 10 |
| Pottsburg Creek | PC1 | 10/16/2017 | 52 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 59 | Saururus cernuus | Lizard's-Tail | OBL | 2 |
| Pottsburg Creek | PC1 | 10/16/2017 | 59 | *Colocasia esculenta* | Coco-Yam | FACW | 70 |
| Pottsburg Creek | PC1 | 10/16/2017 | 59 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 64 | *Saururus cernuus* | Lizard's-Tail | OBL | 25 |
| Pottsburg Creek | PC1 | 10/16/2017 | 64 | *Colocasia esculenta* | Coco-Yam | FACW | 5 |
| Pottsburg Creek | PC1 | 10/16/2017 | 64 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 67 | *Saururus cernuus* | Lizard's-Tail | OBL | 2 |
| Pottsburg Creek | PC1 | 10/16/2017 | 67 | *Colocasia esculenta* | Coco-Yam | FACW | 75 |
| Pottsburg Creek | PC1 | 10/16/2017 | 67 | *Cicuta maculata* | Spotted Water-Hemlock | OBL | 1 |
| Pottsburg Creek | PC1 | 10/16/2017 | 67 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 77 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Pottsburg Creek | PC1 | 10/16/2017 | 77 | *Colocasia esculenta* | Coco-Yam | FACW | 70 |
| Pottsburg Creek | PC1 | 10/16/2017 | 77 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 79 | *Saururus cernuus* | Lizard's-Tail | OBL | 10 |
| Pottsburg Creek | PC1 | 10/16/2017 | 79 | *Colocasia esculenta* | Coco-Yam | FACW | 25 |
| Pottsburg Creek | PC1 | 10/16/2017 | 79 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 85 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Pottsburg Creek | PC1 | 10/16/2017 | 85 | *Colocasia esculenta* | Coco-Yam | FACW | 5 |
| Pottsburg Creek | PC1 | 10/16/2017 | 85 | *Cicuta maculata* | Spotted Water-Hemlock | OBL | 1 |
| Pottsburg Creek | PC1 | 10/16/2017 | 85 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 87 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Pottsburg Creek | PC1 | 10/16/2017 | 87 | *Colocasia esculenta* | Coco-Yam | FACW | 60 |
| Pottsburg Creek | PC1 | 10/16/2017 | 87 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 98 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Pottsburg Creek | PC1 | 10/16/2017 | 98 | *Colocasia esculenta* | Coco-Yam | FACW | 5 |
| Pottsburg Creek | PC1 | 10/16/2017 | 98 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/18/2017 | 102 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Pottsburg Creek | PC1 | 10/18/2017 | 102 | *Colocasia esculenta* | Coco-Yam | FACW | 25 |
| Pottsburg Creek | PC1 | 10/18/2017 | 102 | *Alternanthera philoxeroides* | Alligator-Weed | OBL | 1 |
| Pottsburg Creek | PC1 | 10/18/2017 | 102 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/18/2017 | 104 | *Saururus cernuus* | Lizard's-Tail | OBL | 40 |
| Pottsburg Creek | PC1 | 10/18/2017 | 104 | *Colocasia esculenta* | Coco-Yam | FACW | 15 |
| Pottsburg Creek | PC1 | 10/18/2017 | 104 | Surface water | NA | NA | NA |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Pottsburg Creek | PC1 | 10/16/2017 | 126 | *Colocasia esculenta* | Coco-Yam | FACW | 50 |
| Pottsburg Creek | PC1 | 10/16/2017 | 126 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 140 | *Colocasia esculenta* | Coco-Yam | FACW | 10 |
| Pottsburg Creek | PC1 | 10/16/2017 | 140 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/18/2017 | 141 | *Saururus cernuus* | Lizard's-Tail | OBL | 10 |
| Pottsburg Creek | PC1 | 10/18/2017 | 141 | *Colocasia esculenta* | Coco-Yam | FACW | 30 |
| Pottsburg Creek | PC1 | 10/18/2017 | 141 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC1 | 10/16/2017 | 175 | *Colocasia esculenta* | Coco-Yam | FACW | 5 |
| Pottsburg Creek | PC1 | 10/16/2017 | 175 | Surface water | NA | NA | NA |
| Pottsburg Creek | PC2 | 10/18/2017 | 1 | *Viola sp.* | Violet | NA | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 1 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 60 |
| Pottsburg Creek | PC2 | 10/18/2017 | 1 | *Serenoa repens* | Saw-Palmetto | FACU | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 1 | Bare ground | NA | NA | 30 |
| Pottsburg Creek | PC2 | 10/18/2017 | 20 | Bare ground | NA | NA | 100 |
| Pottsburg Creek | PC2 | 10/18/2017 | 24 | *Viola sp.* | Violet | NA | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 24 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 80 |
| Pottsburg Creek | PC2 | 10/18/2017 | 24 | Bare ground | NA | NA | 15 |
| Pottsburg Creek | PC2 | 10/18/2017 | 29 | *Polygonum sp.* | Knotweed | NA | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 29 | *Viola sp.* | Violet | NA | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 29 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 10 |
| Pottsburg Creek | PC2 | 10/18/2017 | 29 | Bare ground | NA | NA | 88 |
| Pottsburg Creek | PC2 | 10/18/2017 | 37 | *Woodwardia areolata* | Netted Chain Fern | OBL | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 37 | *Viola sp.* | Violet | NA | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 37 | Bare ground | NA | NA | 98 |
| Pottsburg Creek | PC2 | 10/18/2017 | 53 | *Viola sp.* | Violet | NA | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 53 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 10 |
| Pottsburg Creek | PC2 | 10/18/2017 | 53 | Bare ground | NA | NA | 89 |
| Pottsburg Creek | PC2 | 10/18/2017 | 56 | *Woodwardia areolata* | Netted Chain Fern | OBL | 3 |
| Pottsburg Creek | PC2 | 10/18/2017 | 56 | *Viola sp.* | Violet | NA | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 56 | Bare ground | NA | NA | 96 |
| Pottsburg Creek | PC2 | 10/18/2017 | 62 | *Viola sp.* | Violet | NA | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 62 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 50 |
| Pottsburg Creek | PC2 | 10/18/2017 | 62 | Bare ground | NA | NA | 45 |
| Pottsburg Creek | PC2 | 10/18/2017 | 70 | *Viola sp.* | Violet | NA | 20 |
| Pottsburg Creek | PC2 | 10/18/2017 | 70 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 10 |
| Pottsburg Creek | PC2 | 10/18/2017 | 70 | Bare ground | NA | NA | 70 |
| Pottsburg Creek | PC2 | 10/18/2017 | 73 | *Woodwardia areolata* | Netted Chain Fern | OBL | 1 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Pottsburg Creek | PC2 | 10/18/2017 | 73 | *Viola sp.* | Violet | NA | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 73 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 10 |
| Pottsburg Creek | PC2 | 10/18/2017 | 73 | *Hydrocotlye sp.* | NA | NA | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 73 | Bare ground | NA | NA | 83 |
| Pottsburg Creek | PC2 | 10/18/2017 | 85 | *Viola sp.* | Violet | NA | 20 |
| Pottsburg Creek | PC2 | 10/18/2017 | 85 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 70 |
| Pottsburg Creek | PC2 | 10/18/2017 | 85 | Bare ground | NA | NA | 10 |
| Pottsburg Creek | PC2 | 10/18/2017 | 97 | *Woodwardia areolata* | Netted Chain Fern | OBL | 3 |
| Pottsburg Creek | PC2 | 10/18/2017 | 97 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 97 | *Viola sp.* | Violet | NA | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 97 | Bare ground | NA | NA | 87 |
| Pottsburg Creek | PC2 | 10/18/2017 | 123 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 75 |
| Pottsburg Creek | PC2 | 10/18/2017 | 123 | *Viola sp.* | Violet | NA | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 123 | Bare ground | NA | NA | 24 |
| Pottsburg Creek | PC2 | 10/18/2017 | 131 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 25 |
| Pottsburg Creek | PC2 | 10/18/2017 | 131 | *Viola sp.* | Violet | NA | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 131 | Bare ground | NA | NA | 70 |
| Pottsburg Creek | PC2 | 10/18/2017 | 145 | *Woodwardia areolata* | Netted Chain Fern | OBL | 10 |
| Pottsburg Creek | PC2 | 10/18/2017 | 145 | *Tradescantia sp.* | Spiderwort | NA | 10 |
| Pottsburg Creek | PC2 | 10/18/2017 | 145 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 145 | Bare ground | NA | NA | 75 |
| Pottsburg Creek | PC2 | 10/18/2017 | 147 | *Woodwardia areolata* | Netted Chain Fern | OBL | 10 |
| Pottsburg Creek | PC2 | 10/18/2017 | 147 | *Acer rubrum* | Red Maple | FAC | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 147 | Bare ground | NA | NA | 89 |
| Pottsburg Creek | PC2 | 10/18/2017 | 148 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 148 | *Viola sp.* | Violet | NA | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 148 | *Acer rubrum* | Red Maple | FAC | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 148 | Bare ground | NA | NA | 93 |
| Pottsburg Creek | PC2 | 10/18/2017 | 165 | *Woodwardia areolata* | Netted Chain Fern | OBL | 2 |
| Pottsburg Creek | PC2 | 10/18/2017 | 165 | *Tradescantia sp.* | Spiderwort | NA | 5 |
| Pottsburg Creek | PC2 | 10/18/2017 | 165 | Bare ground | NA | NA | 93 |
| Pottsburg Creek | PC2 | 10/18/2017 | 171 | *Woodwardia areolata* | Netted Chain Fern | OBL | 30 |
| Pottsburg Creek | PC2 | 10/18/2017 | 171 | Bare ground | NA | NA | 70 |
| Pottsburg Creek | PC2 | 10/18/2017 | 174 | *Woodwardia areolata* | Netted Chain Fern | OBL | 10 |
| Pottsburg Creek | PC2 | 10/18/2017 | 174 | *Hydrocotlye sp.* | NA | NA | 1 |
| Pottsburg Creek | PC2 | 10/18/2017 | 174 | Bare ground | NA | NA | 89 |
| Pottsburg Creek | PC3 | 10/19/2017 | 37 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 5 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Pottsburg Creek | PC3 | 10/19/2017 | 37 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 2 |
| Pottsburg Creek | PC3 | 10/19/2017 | 37 | Bare ground | NA | NA | 93 |
| Pottsburg Creek | PC3 | 10/19/2017 | 42 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 42 | Bare ground | NA | NA | 99 |
| Pottsburg Creek | PC3 | 10/19/2017 | 44 | *Polygonum sp.* | Knotweed | NA | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 44 | *Saururus cernuus* | Lizard's-Tail | OBL | 60 |
| Pottsburg Creek | PC3 | 10/19/2017 | 44 | *Ampelaster carolinianus* | Climbing-Aster | OBL | 2 |
| Pottsburg Creek | PC3 | 10/19/2017 | 44 | Bare ground | NA | NA | 37 |
| Pottsburg Creek | PC3 | 10/19/2017 | 48 | *Hydrocotlye sp.* | NA | NA | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 48 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 10 |
| Pottsburg Creek | PC3 | 10/19/2017 | 48 | Bare ground | NA | NA | 89 |
| Pottsburg Creek | PC3 | 10/19/2017 | 67 | *Polygonum sp.* | Knotweed | NA | 15 |
| Pottsburg Creek | PC3 | 10/19/2017 | 67 | *Saururus cernuus* | Lizard's-Tail | OBL | 25 |
| Pottsburg Creek | PC3 | 10/19/2017 | 67 | *Ampelaster carolinianus* | Climbing-Aster | OBL | 10 |
| Pottsburg Creek | PC3 | 10/19/2017 | 67 | Bare ground | NA | NA | 50 |
| Pottsburg Creek | PC3 | 10/19/2017 | 81 | Bare ground | NA | NA | 100 |
| Pottsburg Creek | PC3 | 10/19/2017 | 85 | *Polygonum sp.* | Knotweed | NA | 15 |
| Pottsburg Creek | PC3 | 10/19/2017 | 85 | *Saururus cernuus* | Lizard's-Tail | OBL | 20 |
| Pottsburg Creek | PC3 | 10/19/2017 | 85 | *Ampelaster carolinianus* | Climbing-Aster | OBL | 5 |
| Pottsburg Creek | PC3 | 10/19/2017 | 85 | *Alternanthera philoxeroides* | Alligator-Weed | OBL | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 85 | Bare ground | NA | NA | 59 |
| Pottsburg Creek | PC3 | 10/19/2017 | 94 | *Saururus cernuus* | Lizard's-Tail | OBL | 3 |
| Pottsburg Creek | PC3 | 10/19/2017 | 94 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 94 | Bare ground | NA | NA | 96 |
| Pottsburg Creek | PC3 | 10/19/2017 | 99 | *Saururus cernuus* | Lizard's-Tail | OBL | 4 |
| Pottsburg Creek | PC3 | 10/19/2017 | 99 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 3 |
| Pottsburg Creek | PC3 | 10/19/2017 | 99 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 5 |
| Pottsburg Creek | PC3 | 10/19/2017 | 99 | Bare ground | NA | NA | 88 |
| Pottsburg Creek | PC3 | 10/19/2017 | 101 | Bare ground | NA | NA | 100 |
| Pottsburg Creek | PC3 | 10/19/2017 | 107 | *Polygonum sp.* | Knotweed | NA | 60 |
| Pottsburg Creek | PC3 | 10/19/2017 | 107 | *Saururus cernuus* | Lizard's-Tail | OBL | 20 |
| Pottsburg Creek | PC3 | 10/19/2017 | 107 | Bare ground | NA | NA | 20 |
| Pottsburg Creek | PC3 | 10/19/2017 | 127 | *Saururus cernuus* | Lizard's-Tail | OBL | 60 |
| Pottsburg Creek | PC3 | 10/19/2017 | 127 | Bare ground | NA | NA | 40 |
| Pottsburg Creek | PC3 | 10/19/2017 | 143 | Bare ground | NA | NA | 100 |
| Pottsburg Creek | PC3 | 10/19/2017 | 146 | *Saururus cernuus* | Lizard's-Tail | OBL | 20 |
| Pottsburg Creek | PC3 | 10/19/2017 | 146 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 5 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Pottsburg Creek | PC3 | 10/19/2017 | 146 | Bare ground | NA | NA | 75 |
| Pottsburg Creek | PC3 | 10/19/2017 | 154 | *Woodwardia areolata* | Netted Chain Fern | OBL | 5 |
| Pottsburg Creek | PC3 | 10/19/2017 | 154 | *Alternanthera philoxeroides* | Alligator-Weed | OBL | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 154 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 154 | Bare ground | NA | NA | 93 |
| Pottsburg Creek | PC3 | 10/19/2017 | 162 | Bare ground | NA | NA | NA |
| Pottsburg Creek | PC3 | 10/19/2017 | 174 | *Woodwardia areolata* | Netted Chain Fern | OBL | 3 |
| Pottsburg Creek | PC3 | 10/19/2017 | 174 | *Hydrocotlye sp.* | NA | NA | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 174 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 174 | *Viola sp.* | Violet | NA | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 174 | Bare ground | NA | NA | 94 |
| Pottsburg Creek | PC3 | 10/19/2017 | 181 | *Ludwigia repens* | Creeping Primrose-Willow | OBL | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 181 | Bare ground | NA | NA | 99 |
| Pottsburg Creek | PC3 | 10/19/2017 | 184 | *Saururus cernuus* | Lizard's-Tail | OBL | 50 |
| Pottsburg Creek | PC3 | 10/19/2017 | 184 | *Justicia ovata* | Loose-Flower Water-Willow | OBL | 10 |
| Pottsburg Creek | PC3 | 10/19/2017 | 184 | Bare ground | NA | NA | 40 |
| Pottsburg Creek | PC3 | 10/19/2017 | 196 | *Saururus cernuus* | Lizard's-Tail | OBL | 10 |
| Pottsburg Creek | PC3 | 10/19/2017 | 196 | *Viola sp.* | Violet | NA | 1 |
| Pottsburg Creek | PC3 | 10/19/2017 | 196 | *Hydrocotlye sp.* | NA | NA | 2 |
| Pottsburg Creek | PC3 | 10/19/2017 | 196 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 5 |
| Pottsburg Creek | PC3 | 10/19/2017 | 196 | Bare ground | NA | NA | 82 |
| Sixmile Creek | SMC1 | 10/12/2017 | 7 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 10 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 13 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 34 | *Pontederia cordata* | Pickerelweed | OBL | 20 |
| Sixmile Creek | SMC1 | 10/12/2017 | 34 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 50 |
| Sixmile Creek | SMC1 | 10/12/2017 | 34 | Bare ground | NA | NA | 30 |
| Sixmile Creek | SMC1 | 10/12/2017 | 45 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 51 | *Pontederia cordata* | Pickerelweed | OBL | 5 |
| Sixmile Creek | SMC1 | 10/12/2017 | 51 | Bare ground | NA | NA | 95 |
| Sixmile Creek | SMC1 | 10/12/2017 | 66 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 97 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 90 |
| Sixmile Creek | SMC1 | 10/12/2017 | 97 | Bare ground | NA | NA | 10 |
| Sixmile Creek | SMC1 | 10/12/2017 | 105 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 120 | *Pontederia cordata* | Pickerelweed | OBL | 20 |
| Sixmile Creek | SMC1 | 10/12/2017 | 120 | Bare ground | NA | NA | 80 |
| Sixmile Creek | SMC1 | 10/12/2017 | 127 | *Pontederia cordata* | Pickerelweed | OBL | 30 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Sixmile Creek | SMC1 | 10/12/2017 | 127 | *Rhynchospora inundata* | Narrow-Fruit Horned Beak Sedge | OBL | 60 |
| Sixmile Creek | SMC1 | 10/12/2017 | 127 | Bare ground | NA | NA | 10 |
| Sixmile Creek | SMC1 | 10/12/2017 | 133 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 138 | *Polygonum sp.* | Knotweed | NA | 2 |
| Sixmile Creek | SMC1 | 10/12/2017 | 138 | *Pontederia cordata* | Pickerelweed | OBL | 75 |
| Sixmile Creek | SMC1 | 10/12/2017 | 138 | Bare ground | NA | NA | 23 |
| Sixmile Creek | SMC1 | 10/12/2017 | 143 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 148 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 161 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 174 | *Polygonum sp.* | Knotweed | NA | 5 |
| Sixmile Creek | SMC1 | 10/12/2017 | 174 | Bare ground | NA | NA | 95 |
| Sixmile Creek | SMC1 | 10/12/2017 | 176 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC1 | 10/12/2017 | 187 | *Osmunda spectabilis* | Royal Fern | OBL | 5 |
| Sixmile Creek | SMC1 | 10/12/2017 | 187 | Bare ground | NA | NA | 95 |
| Sixmile Creek | SMC1 | 10/12/2017 | 195 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC2 | 10/12/2017 | 4 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC2 | 10/12/2017 | 5 | *Pontederia cordata* | Pickerelweed | OBL | 15 |
| Sixmile Creek | SMC2 | 10/12/2017 | 5 | Bare ground | NA | NA | 85 |
| Sixmile Creek | SMC2 | 10/12/2017 | 31 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC2 | 10/12/2017 | 35 | Bare ground | NA | NA | 99 |
| Sixmile Creek | SMC2 | 10/12/2017 | 35 | *Crinum americanum* | Seven-Sisters | OBL | 1 |
| Sixmile Creek | SMC2 | 10/12/2017 | 40 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Sixmile Creek | SMC2 | 10/12/2017 | 40 | Bare ground | NA | NA | 99 |
| Sixmile Creek | SMC2 | 10/12/2017 | 57 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Sixmile Creek | SMC2 | 10/12/2017 | 57 | Bare ground | NA | NA | 95 |
| Sixmile Creek | SMC2 | 10/12/2017 | 63 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Sixmile Creek | SMC2 | 10/12/2017 | 63 | Bare ground | NA | NA | 95 |
| Sixmile Creek | SMC2 | 10/12/2017 | 84 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Sixmile Creek | SMC2 | 10/12/2017 | 84 | Bare ground | NA | NA | 99 |
| Sixmile Creek | SMC2 | 10/12/2017 | 87 | *Pontederia cordata* | Pickerelweed | OBL | 10 |
| Sixmile Creek | SMC2 | 10/12/2017 | 87 | Bare ground | NA | NA | 90 |
| Sixmile Creek | SMC2 | 10/12/2017 | 103 | *Pontederia cordata* | Pickerelweed | OBL | 10 |
| Sixmile Creek | SMC2 | 10/12/2017 | 103 | *Saururus cernuus* | Lizard's-Tail | OBL | 5 |
| Sixmile Creek | SMC2 | 10/12/2017 | 103 | Bare ground | NA | NA | 85 |
| Sixmile Creek | SMC2 | 10/12/2017 | 112 | Bare ground | NA | NA | 99 |
| Sixmile Creek | SMC2 | 10/12/2017 | 112 | *Alternanthera philoxeroides* | Alligator-Weed | OBL | 1 |
| Sixmile Creek | SMC2 | 10/12/2017 | 126 | Bare ground | NA | NA | 100 |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Sixmile Creek | SMC2 | 10/12/2017 | 150 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC2 | 10/12/2017 | 152 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC2 | 10/12/2017 | 157 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC2 | 10/12/2017 | 160 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC2 | 10/12/2017 | 165 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC2 | 10/12/2017 | 176 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC2 | 10/12/2017 | 179 | Bare ground | NA | NA | 100 |
| Sixmile Creek | SMC2 | 10/12/2017 | 191 | *Schoenoplectus pungens* | Three-Square | OBL | 25 |
| Sixmile Creek | SMC2 | 10/12/2017 | 191 | Bare ground | NA | NA | 75 |
| Sixmile Creek | SMC3 | 10/13/2017 | 19 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 25 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 26 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 26 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 50 |
| Sixmile Creek | SMC3 | 10/13/2017 | 33 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Sixmile Creek | SMC3 | 10/13/2017 | 33 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 42 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 59 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 61 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 62 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 72 | *Saururus cernuus* | Lizard's-Tail | OBL | 4 |
| Sixmile Creek | SMC3 | 10/13/2017 | 72 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 72 | *Iris sp.* | Iris | NA | 2 |
| Sixmile Creek | SMC3 | 10/13/2017 | 78 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 105 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 109 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 131 | *Saururus cernuus* | Lizard's-Tail | OBL | 2 |
| Sixmile Creek | SMC3 | 10/13/2017 | 131 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 134 | *Saururus cernuus* | Lizard's-Tail | OBL | 2 |
| Sixmile Creek | SMC3 | 10/13/2017 | 134 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 139 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 139 | *Schoenoplectus pungens* | Three-Square | OBL | 3 |
| Sixmile Creek | SMC3 | 10/13/2017 | 158 | *Polygonum sp.* | Knotweed | NA | 1 |
| Sixmile Creek | SMC3 | 10/13/2017 | 158 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 158 | *Rhynchospora corniculata* | Short-Bristle Horned Beak Sedge | OBL | 75 |
| Sixmile Creek | SMC3 | 10/13/2017 | 175 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 179 | *Polygonum sp.* | Knotweed | NA | 1 |
| Sixmile Creek | SMC3 | 10/13/2017 | 179 | Surface water | NA | NA | NA |

| Tributary Name | Plot Name | Monitoring Date | Subplot Grid Location | Scientific Name | Common Name | USACE Wetland Status | Percent Cover of Species |
|---|---|---|---|---|---|---|---|
| Sixmile Creek | SMC3 | 10/13/2017 | 182 | *Saururus cernuus* | Lizard's-Tail | OBL | 1 |
| Sixmile Creek | SMC3 | 10/13/2017 | 182 | Surface water | NA | NA | NA |
| Sixmile Creek | SMC3 | 10/13/2017 | 188 | Surface water | NA | NA | NA |

| Tributary Name | Plot Name | Monitoring Date | Sample ID | Measurement taken from Borehole or Surface Water (SW)? | Borehole Depth (inches) | pH | Salinity (ppt) |
|---|---|---|---|---|---|---|---|
| Black Creek | BC1 | 10/10/2017 | BC1-1 | Borehole | 17 | 4.18 | 0.1 |
| Black Creek | BC1 | 10/10/2017 | BC1-2 | Borehole | 17 | 4.46 | 0.0 |
| Black Creek | BC2 | 10/10/2017 | BC2-1 | SW | NA | 4.84 | 0.0 |
| Black Creek | BC2 | 10/10/2017 | BC2-2 | SW | NA | 4.84 | 0.0 |
| Black Creek | BC3 | 10/11/2017 | BC3-1 | Borehole | 14 | 4.11 | 0.3 |
| Black Creek | BC3 | 10/11/2017 | BC3-2 | Borehole | 14 | 4.97 | 0.1 |
| Julington Creek | JC1 | 10/17/2017 | JC1-1 | SW | NA | 6.97 | 0.1 |
| Julington Creek | JC1 | 10/17/2017 | JC1-2 | SW | NA | 6.97 | 0.1 |
| Julington Creek | JC2 | 10/17/2017 | JC2-1 | SW | NA | 6.80 | 0.1 |
| Julington Creek | JC2 | 10/17/2017 | JC2-2 | SW | NA | 6.80 | 0.1 |
| Julington Creek | JC3 | 10/17/2017 | JC3-1 | SW | NA | 6.34 | 0.1 |
| Julington Creek | JC3 | 10/17/2017 | JC3-2 | SW | NA | 6.34 | 0.1 |
| Ortega River | OR1 | 10/11/2017 | OR1-1 | SW | NA | 5.78 | 0.0 |
| Ortega River | OR1 | 10/11/2017 | OR1-2 | SW | NA | 5.78 | 0.0 |
| Ortega River | OR2 | 10/19/2017 | OR2-1 | SW | NA | 6.29 | 0.0 |
| Ortega River | OR2 | 10/19/2017 | OR2-2 | SW | NA | 6.29 | 0.0 |
| Ortega River | OR3 | 10/16/2017 | OR3-1 | Borehole | 17 | 5.26 | 0.1 |
| Ortega River | OR3 | 10/16/2017 | OR3-2 | Borehole | 15 | 5.38 | 0.1 |
| Pottsburg Creek | PC1 | 10/18/2017 | PC1-1 | SW | NA | 6.32 | 0.1 |
| Pottsburg Creek | PC1 | 10/18/2017 | PC1-2 | SW | NA | 6.32 | 0.1 |
| Pottsburg Creek | PC2 | 10/18/2017 | PC2-1 | SW | NA | 6.24 | 0.1 |
| Pottsburg Creek | PC2 | 10/18/2017 | PC2-2 | Borehole | 18 | 5.90 | 0.1 |
| Pottsburg Creek | PC3 | 10/19/2017 | PC3-1 | SW | NA | 6.55 | 0.1 |
| Pottsburg Creek | PC3 | 10/19/2017 | PC3-2 | SW | NA | 6.55 | 0.1 |
| Sixmile Creek | SMC1 | 10/12/2017 | SMC1-1 | SW | NA | 6.10 | 0.1 |
| Sixmile Creek | SMC1 | 10/12/2017 | SMC1-2 | SW | NA | 6.10 | 0.1 |
| Sixmile Creek | SMC2 | 10/12/2017 | SMC2-1 | SW | NA | 5.80 | 0.1 |
| Sixmile Creek | SMC2 | 10/12/2017 | SMC2-2 | SW | NA | 5.80 | 0.1 |
| Sixmile Creek | SMC3 | 10/13/2017 | SMC3-1 | SW | NA | 6.17 | 0.1 |
| Sixmile Creek | SMC3 | 10/13/2017 | SMC3-2 | SW | NA | 6.17 | 0.1 |

| Tributary Name | Plot Name | Monitoring Date | Max Sample Sediment Depth (inches) | Sample ID | Munsell Soil Color | Soil Texture (a) | Soil Saturation (%) | ORP 1 (mV) | ORP 2 (mV) | ORP 3 (mV) | Soil Conductivity (uS/cm) | Sulfur Odor at 12" Depth | Paste Method Salinity (ppt) | 5:1 Method pH | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Black Creek | BC1 | 10/10/2017 | 17 | BC1-1 | 10YR 2/2 | loamy sand C | 100 | | | | 109.1 | | 0.14 | 5.1 | |
| Black Creek | BC1 | 10/10/2017 | 17 | BC1-2 | 10YR 2/2 | loamy sand C | 100 | | | | 88.3 | | 0.18 | 4.5 | |
| Black Creek | BC1 | 10/10/2017 | 13 | BC1-3 | | | | | | | 85.1 | | | | |
| Black Creek | BC1 | 10/10/2017 | 16 | BC1-4 | | | | 38.6 | 3.0 | 84.7 | | 0 | | | |
| Black Creek | BC1 | 10/10/2017 | 17 | BC1-5 | | | | 37.8 | 33.4 | 33.1 | | 0 | | | |
| Black Creek | BC2 | 10/10/2017 | 12 | BC2-1 | 10YR 2/2 | loamy sand C | 100 | | | | 103.3 | | 0.16 | 5.8 | <200 g obtained for paste method |
| Black Creek | BC2 | 10/10/2017 | 12 | BC2-2 | 10YR 2/2 | loamy sand C | 100 | | | | 135.2 | | 0.16 | 5.4 | <200 g obtained for paste method |
| Black Creek | BC2 | 10/10/2017 | 12 | BC2-3 | | | | | | | 115.4 | | | | |
| Black Creek | BC2 | 10/10/2017 | 12 | BC2-4 | | | | 87.2 | 84.1 | 86.5 | | 0 | | | |
| Black Creek | BC2 | 10/10/2017 | 12 | BC2-5 | | | | -248.6 | -286.9 | -281.3 | | 0 | | | |
| Black Creek | BC3 | 10/11/2017 | 14 | BC3-1 | 10YR 3/2 | loamy sand C | 100 | | | | 152.3 | | 0.25 | 4.9 | |
| Black Creek | BC3 | 10/11/2017 | 14 | BC3-2 | 10YR 4/2 | loamy sand C | 75-100 | | | | 676.9 | | 0.18 | 6.2 | |
| Black Creek | BC3 | 10/11/2017 | 14 | BC3-3 | | | | | | | 113.8 | | | | |
| Black Creek | BC3 | 10/11/2017 | 14 | BC3-4 | | | | 110.2 | 67.3 | 27.8 | | 0 | | | |
| Black Creek | BC3 | 10/11/2017 | 14 | BC3-5 | | | | 80.2 | 38.6 | 17.0 | | 0 | | | |
| Julington Creek | JC1 | 10/17/2017 | 24 | JC1-1 | 10YR 2/1 | silt or silt/loam M | 100 | | | | 410.0 | | 0.24 | 6.4 | |
| Julington Creek | JC1 | 10/17/2017 | 20 | JC1-2 | 10YR 2/1 | silt or silt/loam M | 100 | | | | 308.0 | | 0.16 | 6.5 | |
| Julington Creek | JC1 | 10/17/2017 | 16 | JC1-3 | | | | | | | 320.0 | | | | |
| Julington Creek | JC1 | 10/17/2017 | 16 | JC1-4 | | | | -222.2 | -266.0 | -262.2 | | 0 | | | |
| Julington Creek | JC1 | 10/17/2017 | 18 | JC1-5 | | | | -226.3 | -243.7 | -232.5 | | 0 | | | |
| Julington Creek | JC2 | 10/17/2017 | 24 | JC2-1 | 10YR 2/1 | silt or silt/loam M | 100 | | | | 795.0 | | 0.40 | 6.2 | <200 g obtained for paste method |
| Julington Creek | JC2 | 10/17/2017 | 24 | JC2-2 | 10YR 2/1 | silt or silt/loam M | 100 | | | | 478.0 | | 0.18 | 7.0 | <200 g obtained for paste method |
| Julington Creek | JC2 | 10/17/2017 | 24 | JC2-3 | | | | | | | 595.0 | | | | |
| Julington Creek | JC2 | 10/17/2017 | 24 | JC2-4 | | | | -222.5 | -149.2 | -177.8 | | 0 | | | |
| Julington Creek | JC2 | 10/17/2017 | 24 | JC2-5 | | | | -85.4 | -142.5 | -192.2 | | 0 | | | |
| Julington Creek | JC3 | 10/17/2017 | 24 | JC3-1 | 10YR 2/1 | silt or silt/loam M | 100 | | | | 215.0 | | 0.06 | 6.6 | |
| Julington Creek | JC3 | 10/17/2017 | 24 | JC3-2 | 10YR 2/1 | silt or silt/loam M | 75-100 | | | | 155.3 | | 0.10 | 7.0 | |
| Julington Creek | JC3 | 10/17/2017 | 16 | JC3-3 | | | | | | | 218.0 | | | | |
| Julington Creek | JC3 | 10/17/2017 | 16 | JC3-4 | | | | -82 | -89.3 | -101.1 | | 0 | | | |
| Julington Creek | JC3 | 10/17/2017 | 16 | JC3-5 | | | | 50.1 | 13.2 | 62.9 | | 0 | | | |
| Ortega River | OR1 | 10/11/2017 | 16 | OR1-1 | 7.5YR 3/2 | silt or silt/loam M | 100 | | | | 302.0 | | 0.24 | 5.9 | <200 g obtained for paste method |
| Ortega River | OR1 | 10/11/2017 | 16 | OR1-2 | 7.5YR 3/2 | silt or silt/loam M | 100 | | | | 205.0 | | 0.27 | 6.0 | <200 g obtained for paste method |
| Ortega River | OR1 | 10/11/2017 | 14 | OR1-3 | | | | | | | 368.0 | | | | |
| Ortega River | OR1 | 10/11/2017 | 14 | OR1-4 | | | | -189.4 | -189.7 | -215.9 | | 0 | | | |
| Ortega River | OR1 | 10/11/2017 | 14 | OR1-5 | | | | -253.2 | -286.6 | -279.4 | | 0 | | | |
| Ortega River | OR2 | 10/19/2017 | 6 | OR2-1 | 7.5YR 3/2 | silt or silt/loam M | 100 | | | | 144.4 | | 0.15 | 6.9 | <200 g obtained for paste method |
| Ortega River | OR2 | 10/19/2017 | 6 | OR2-2 | 7.5YR 3/2 | silt or silt/loam M | 100 | | | | 222.0 | | 0.12 | 6.9 | <200 g obtained for paste method |
| Ortega River | OR2 | 10/19/2017 | 6 | OR2-3 | | | | | | | 282.0 | | | | |
| Ortega River | OR2 | 10/19/2017 | 6 | OR2-4 | | | | -53.5 | -44.3 | -92.5 | | 0 | | | |

| Tributary Name | Plot Name | Monitoring Date | Max Sample Sediment Depth (inches) | Sample ID | Munsell Soil Color | Soil Texture (a) | Soil Saturation (%) | ORP 1 (mV) | ORP 2 (mV) | ORP 3 (mV) | Soil Conductivity (uS/cm) | Sulfur Odor at 12" Depth | Paste Method Salinity (ppt) | 5:1 Method pH | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ortega River | OR2 | 10/19/2017 | 6 | OR2-5 | | | | -110.4 | -150.2 | -150.3 | | 0 | | | |
| Ortega River | OR3 | 10/16/2017 | 17 | OR3-1 | 10YR 5/2 | sand C | 100 | | | | 48.8 | | 0.13 | 7.9 | |
| Ortega River | OR3 | 10/16/2017 | 15 | OR3-2 | 10YR 5/2 | sand C | 100 | | | | 65.9 | | 0.10 | 7.4 | |
| Ortega River | OR3 | 10/16/2017 | 13 | OR3-3 | | | | | | | 104.2 | | | | |
| Ortega River | OR3 | 10/16/2017 | 15 | OR3-4 | | | | -228.7 | -250.4 | -233.3 | | 0 | | | |
| Ortega River | OR3 | 10/16/2017 | 14 | OR3-5 | | | | -178.9 | -230.3 | -209.6 | | 0 | | | |
| Pottsburg Creek | PC1 | 10/18/2017 | 24 | PC1-1 | 10YR 2/2 | silt or silt/loam M | 100 | | | | 601.0 | | 0.56 | 7.2 | <200 g obtained for paste method |
| Pottsburg Creek | PC1 | 10/18/2017 | 24 | PC1-2 | 10YR 2/2 | silt or silt/loam M | 100 | | | | 599.0 | | 0.47 | 7.4 | <200 g obtained for paste method |
| Pottsburg Creek | PC1 | 10/18/2017 | 24 | PC1-3 | | | | | | | | | | | |
| Pottsburg Creek | PC1 | 10/18/2017 | 24 | PC1-4 | | | | -230.9 | -251.6 | -247.7 | 461.0 | 0 | | | |
| Pottsburg Creek | PC1 | 10/18/2017 | 24 | PC1-5 | | | | -285.4 | -254.3 | -236.5 | | 0 | | | |
| Pottsburg Creek | PC2 | 10/18/2017 | 24 | PC2-1 | 10YR 3/2 | loamy sand C | 100 | | | | 79.2 | | 0.17 | 7.0 | |
| Pottsburg Creek | PC2 | 10/18/2017 | 18 | PC2-2 | 10YR 5/2 | loamy sand C | 100 | | | | 123.7 | | 0.09 | 7.3 | |
| Pottsburg Creek | PC2 | 10/18/2017 | 16 | PC2-3 | | | | | | | 83.4 | | | | |
| Pottsburg Creek | PC2 | 10/18/2017 | 18 | PC2-4 | | | | -50.4 | -41.2 | -58.6 | | 0 | | | |
| Pottsburg Creek | PC2 | 10/18/2017 | 18 | PC2-5 | | | | 54.3 | 71.6 | 79.6 | | 0 | | | |
| Pottsburg Creek | PC3 | 10/19/2017 | 24 | PC3-1 | 10YR 3/2 | sandy loam MC | 100 | | | | 275.0 | | 0.35 | 6.8 | |
| Pottsburg Creek | PC3 | 10/19/2017 | 24 | PC3-2 | 10YR 3/2 | sandy loam MC | 100 | | | | 149.5 | | 0.29 | 6.9 | |
| Pottsburg Creek | PC3 | 10/19/2017 | 24 | PC3-3 | | | | | | | | | | | |
| Pottsburg Creek | PC3 | 10/19/2017 | 24 | PC3-4 | | | | -145.0 | -121.0 | -103.3 | | 0 | | | |
| Pottsburg Creek | PC3 | 10/19/2017 | 24 | PC3-5 | | | | 30.2 | 15.0 | 29.0 | 159.0 | 0 | | | |
| Sixmile Creek | SMC1 | 10/12/2017 | 16 | SMC1-1 | 7.5 YR 3/2 | silty clay loam F | 100 | | | | 757.0 | | 0.48 | 6.6 | <200 g obtained for paste method |
| Sixmile Creek | SMC1 | 10/12/2017 | 16 | SMC1-2 | 7.5 YR 3/2 | silty clay loam F | 100 | | | | 803.0 | | 0.55 | 6.5 | <200 g obtained for paste method |
| Sixmile Creek | SMC1 | 10/12/2017 | 16 | SMC1-3 | | | | | | | 791.0 | | | | |
| Sixmile Creek | SMC1 | 10/12/2017 | 16 | SMC1-4 | | | | -300.9 | -299.6 | -310.8 | | 2 | | | |
| Sixmile Creek | SMC1 | 10/12/2017 | 16 | SMC1-5 | | | | -313.8 | -326.0 | -313.0 | | 2 | | | |
| Sixmile Creek | SMC2 | 10/12/2017 | 14 | SMC2-1 | 7.5YR 3/2 | silty clay loam F | 100 | | | | 600.0 | | 0.48 | 6.2 | |
| Sixmile Creek | SMC2 | 10/12/2017 | 14 | SMC2-2 | 7.5YR 3/2 | silty clay loam F | 100 | | | | 655.0 | | 0.52 | 6.7 | |
| Sixmile Creek | SMC2 | 10/12/2017 | 13 | SMC2-3 | | | | | | | 628.0 | | | | |
| Sixmile Creek | SMC2 | 10/12/2017 | 14 | SMC2-4 | | | | -284.1 | -295.0 | -285.3 | | 2 | | | |
| Sixmile Creek | SMC2 | 10/12/2017 | 14 | SMC2-5 | | | | -295.6 | -285.7 | -257.2 | | 2 | | | |
| Sixmile Creek | SMC3 | 10/13/2017 | 20 | SMC3-1 | 10YR 2/2 | silty clay loam F | 100 | | | | 784.0 | | 0.51 | 6.5 | <200 g obtained for paste method |
| Sixmile Creek | SMC3 | 10/13/2017 | 19 | SMC3-2 | 10YR 2/2 | silty clay loam F | 100 | | | | 862.0 | | 0.53 | 6.5 | <200 g obtained for paste method |
| Sixmile Creek | SMC3 | 10/13/2017 | 18 | SMC3-3 | | | | | | | 666.0 | | | | |
| Sixmile Creek | SMC3 | 10/13/2017 | 20 | SMC3-4 | | | | -308.2 | -299.9 | -334.6 | | 1 | | | |
| Sixmile Creek | SMC3 | 10/13/2017 | 18 | SMC3-5 | | | | -256.7 | -278.8 | -225.3 | | 1 | | | |
| | | | | | | (a) F = Fine; C = Coarse; M = Medium; MC = Moderately Coarse | | | | | | | | | |

| Contract No. W91278-16-D-0062 | Amec Foster Wheeler Project No. 6063170288.06 |
|---|---|
| **METADATA for Pre-Dredge Freshwater Forested Wetlands Monitoring Conducted in October 2017** | |
| | |
| **PLOT INFORMATION TABLE** | |
| Tributary Name | Five tributaries were included in this project and are identified in this column. |
| Plot Name | Plot names are based on tributary names. BC=Black Creek; JC=Julington Creek; OR=Ortega River; PC=Pottsburg Creek; SMC=Sixmile Creek |
| County | Tributaries were located in one of three Florida counties: Duval, Clay, St. Johns. |
| Monitoring Date | Date wetlands plot was monitored/field characteristics and measurements were taken. |
| Time | Time of day the plot was monitored. Specific times for sample collection and vegetative observations can be found on the "Site Conditions and Characteristics" form and "Freshwater Forested Wetland Vegetation Monitoring" form, respectively. |
| Surface Water Coverage of Plot (%) | Percent estimate for surface water cover for the plot on the date and time indicated. |
| Approximate Depth of SW (inches) | Estimated depth of surface water for the plot on the date and time indicated. |
| Densiometer (% canopy cover) | Percent canopy cover using a Densiometer. |
| Tidal Phase | Represents the tidal phase (ebb, flood, high) during the time period the wetlands plot was monitored. |
| Tide | Tide information was obtained from Weather Underground (www.wunderground.com) |
| Lunar | Lunar information was obtained from Weather Underground (www.wunderground.com). |
| | |
| **VEGETATION SUB-PLOT DATA TABLE** | |
| Subplot Grid Location | Using a random numbers table, twenty 1m x 1m sub-plots were randomly identified for each 10m x 20m plot. Ground layer vegetation was observed in the random subplot grids listed. In the event the random sub-plots were not representative of the 10m x 20m plot, sub-plots were modified by field personnel to more accurately represent the plot conditions (ex. if Polygonum sp. was a dominant species within the 10m x 20m plot, and the random number sub-plot did not include any plots with Polygonum sp., sub-plots were modified to include some sub-plots with this species). |
| Scientific Name | Plant scientific name (Genus species). This column also includes "Bare Ground," which indicates vegetation at the soil surface level could be seen. This column also includes "Surface Water," which indicates vegetation at the sediment surface could not be seen, typically due to high water depth. |
| Common Name | Common name for plant. Also, for line items in the Scientific Name column for "Surface Water" and "Bare Ground;" NA is listed. |
| USACE Wetland Status | Wetland indicator status, as determined by USACE. Not applicable (NA) applies to "Bare Ground" and "Surface Water" as identified in the Scientific Name column. |
| Percent Cover of Species | Percent cover of the plant species, in each stratum is identified. Also, the percent of "Bare Ground" observed is also identified. Percentage of "Surface Water" is Not Applicable (NA). |
| | |
| **PLOT VEGETATION DATA TABLE** | |
| Vegetative Stratum | Vegetative stratum. For this project, three strata were used: Canopy, Sub-canopy/Understory, and Ground Layer. |
| Absolute Cover | Percent of Absolute Cover of plants in each of the three vegetative strata, by plot. |
| Dominant Species | Dominant species is defined as the top five most abundant plants [by cover] or those plants that constitute greater than 20% cover at the monitoring plot in each stratum. |
| USACE Indicator Status | Wetland indicator status, as determined by USACE. Not applicable (NA) applies to "Bare Ground" and "Surface Water" as identified in the Scientific Name column. |
| | |
| **BOREHOLE WATER QUALITY DATA TABLE** | |
| Sample ID | Sample identification (ID) includes the plot name and the sample number. For example, BC1-1 and BC1-2, represents sediment samples collected from Black Creek plot BC1, sample 1 and sample 2 from that plot. |
| Measurement taken from Borehole or Surface Water (SW)? | Water quality measurements taken in the borehole at a sediment sample collection location. However, many of the freshwater forested wetland monitoring plots were covered with surface water at the time of the monitoring event and measurement in a borehole was not possible. In that event, the water quality measurements were recorded in the surface water. |
| Borehole Depth (inches) | Depth in borehole where water quality measurements were measured. Not Applicable (NA) applies to water quality measurements taken in the surface water. |
| pH | pH was measured in the field, in the borehole water or surface water, as indicated in column, "Measurement taken from Borehole or Surface Water (SW)?" in general accordance with FT1100, *Field Measurement of Hydrogen Ion Activity (pH)* (FDEP 2014). |
| Salinity (ppt) | Salinity (ppt) was measured in the field, in the borehole water or surface water, as indicated in column, "Measurement taken from Borehole or Surface Water (SW)?" in general accordance with FDEP SOP FT1300, *Field Measurement of Salinity* (FDEP 2014). |
| | |

| Contract No. W91278-16-D-0062 | Amec Foster Wheeler Project No. 6063170288.06 |
|---|---|
| **METADATA for Pre-Dredge Freshwater Forested Wetlands Monitoring Conducted in October 2017** | |
| **FIELD AND LABORATORY SEDIMENT DATA TABLE** | |
| Max Sample Sediment Depth (inches) | Max Sample Sediment Depth (inches) was measured in the field, in the borehole water or surface water, as indicated in column, "Measurement taken from Borehole or Surface Water (SW)?," and reflects the maximum depth for sediment collection. |
| Munsell Soil Color | Soil/sediment color was determined in the field using the Munsell Color Book (Munsell 1990). |
| Soil Texture | Soil/sediment texture was determined in the field, using the *Feel Method* modified from Thien, Steven J., Kansas State University, 1979. |
| Soil Saturation (%) | Soil/sediment saturation (%) was determined in the field, using the *Estimating Soil Moisture by Feel and Appearance* (USDA-NRCS, Program Aid Number 1619, April 1998). |
| ORP 1, ORP 2, and ORP 3 (mV) | Oxidation-Reduction Potential (ORP) (mV) was measured in the field, in sediment collected from two locations within the 10m x 20m plot, in three locations (ORP 1, ORP2, and ORP 3) within each non-retained sediment sample, in accordance with *ASTM G200-09 Standard Test Method for Measurement of Oxidation-Reduction Potential (ORP) of Soil* (ASTM 2014). |
| Soil Conductivity (uS/cm) | Soil Conductivity (uS/cm) was measured in the field, in a non-retained sediment in general accordance with FT1200 *Field Measurement of Specific Conductance* (FDEP 2014). |
| Odor @ 12" | Sediment odor at 12" depth was determined in the field by field personnel's olfactory sense, and was characterized as 0=no odor; 1=slight odor; and 2=strong odor. |
| Paste Method Salinity (ppt) | Sediment salinity was measured in a field-collected sample in the Bio-Laboratory using the Paste Method (Miller et al. 2013, and USDA 1969). |
| 5:1 Method pH | Sediment pH was measured in a field-collected sample in the Bio-Laboratory using the 5:1 Water to Soil Mix Method (USDA-NRCS 2011). |
| | |
| **QUALITY ASSURANCE** | |
| Data Tables | The Data Tables identified above were generated based on completed information supplied on field data forms: "Site Conditions and Characteristics" form and the "Freshwater Forested Wetland Vegetation Monitoring" form. The entered table data was then checked by a second party for accuracy and completeness. |
| Data | Field and laboratory data were reviewed for anomalies and inconsistencies. |