Sunrise Wind Farm Project

Appendix M3
Benthic Habitat Mapping Report

Prepared for:

Sunrise Wind | Powered by Ørsted & Eversource

October 28, 2021

Revision 1 – August 19, 2022

Benthic Habitat Mapping to Support Essential Fish Habitat Consultation
Sunrise Wind Farm Project

Prepared for:

Sunrise Wind | Powered by Ørsted & Eversource

Sunrise Wind LLC

Submitted by:

INSPIRE Environmental
Newport, Rhode Island 02840

August 2022

TABLE OF CONTENTS

LIST OF ATTACHMENTS

LIST OF TABLES

Page

LIST OF FIGURES

Figure Page

LIST OF ACRONYMS

BOEM	Bureau of Ocean Energy Management
BORIS	Behavioral Observation Research Interactive Software
CMECS	Coastal and Marine Ecological Classification Standard
COP	Construction and Operations Plan
CPS	Cable Protection System
DC	direct current
EFH	Essential fish habitat
Eversource	Eversource Investment LLC
FGDC	Federal Geographic Data Committee
Fugro	Fugro USA Marine, Inc.
HAPC	Habitat Area of Particular Concern
HDD	horizontal directional drilling
IAC	Inter-Array Cables
ICW	Intracoastal Waterway
ICW HDD	Onshore Transmission Cable Route – Intracoastal Waterway horizontal directional drilling
INSPIRE	INSPIRE Environmental, LLC
MBES	multibeam echosounder
mmu	minimum mapping unit
NOAA	National Oceanic and Atmospheric Administration
NOAA Habitat	NOAA National Marine Fisheries Greater Atlantic Regional Fisheries Office Habitat Conservation and Ecosystem Services Division
OCS	outer continental shelf
OCS–DC	Offshore Converter Station
PV	Plan View
RIMA WEA	Rhode Island Massachusetts Wind Energy Area
SAV	submerged aquatic vegetation
SPI	Sediment Profile Imaging
SRWEC	Sunrise Wind Export Cable
SRWEC–NYS	Sunrise Wind Export Cable – New York State Waters

SRWEC–OCS	Sunrise Wind Export Cable – Outer Continental Shelf
SRWF	Sunrise Wind Farm
SSS	side-scan sonar
Sunrise Wind	Sunrise Wind LLC
TOY	time of year
WTG	wind turbine generator
YOY	young-of-the-year

GLOSSARY

Sunrise Wind Farm Project & Environmental Permitting: Key Terms & Abbreviations

Term	Definition
Benthic Habitat Study Area [Study Area]	Subtidal portions of the Project Area in which benthic habitats were mapped and assessed using geophysical and ground-truth data
Boulder picks	Isolated boulders, outside boulder field; Boulders >= 50 cm (0.5 m) identified from geophysical data
Coastal and Marine Ecological Classification System (CMECS)	Federal habitat classification standard recommended by BOEM for benthic assessments and applied here using NOAA Habitat's recommended modifications (NOAA Habitat 2021)
EFH Crosswalk	The process of reviewing species with mapped EFH in the Study Area and comparing their habitat preferences with the mapped benthic habitat types described in Sections 3.1 & 3.2 to identify where EFH for those species is likely to be found
Facies	Bodies of sediment that are recognizably distinct from adjacent sediments that resulted from different depositional environments.
Foundations	The bases to which the WTGs and OCS–DC are installed on the seabed. Monopile is the selected foundation type for the WTGs and a piled jacket foundation will be used for the OCS–DC.
Hard bottom	Stable cobbles and boulders found predominantly within Glacial Drift habitats and within Boulder Fields.
horizontal directional drilling (HDD)	Landfall of the SRWEC and crossing of the ICW will be completed via HDD. HDD is a subsurface installation technique that will create an underground conduit through which the SRWEC and Onshore Transmission Cable, respectively, will be installed. The HDD methodology minimizes direct disturbance to natural or cultural resources in the nearshore, coastal, and intracoastal areas.
Modifiers	Additional descriptive terms used to provide further characterization of benthic habitat types; terms consistent with CMECS are used where feasible
NOAA Complexity Category	Indicates habitat complexity using categories of complexity as defined by NOAA Habitat for the purposes of EFH consultation. These categories include: soft bottom, complex, heterogeneous complex, and large grained complex (large boulders). For purposes of the EFH consultation, complex habitats include submerged aquatic vegetation (SAV) and sediments with >5% gravel of any size (pebbles to boulders; CMECS Substrate of Rock, Groups of Gravelly, Gravel Mixes, and Gravels). Heterogeneous complex is used for habitats with a combination of soft bottom and complex features (NOAA Habitat 2021). For this assessment, NOAA Habitat has requested that habitats crosswalked to heterogeneous complex be grouped with habitats crosswalked to complex.
Project Area	For the purposes of the COP, the Project Area refers to the potential maximum footprint of the facilities including the SRWF,

Term	Definition
	SRWEC, and the Onshore Facilities (OnCS–DC, Onshore Transmission Cable, and Onshore Interconnection Cable).
Study Area	a.k.a. Benthic Habitat Study Area; see above for definition
Sunrise Wind Farm (SRWF)	The wind farm portion of the Project (i.e., the SRWF) will be located on the outer continental shelf (OCS) in the designated BOEM Renewable Energy Lease Area OCS-A 0487 (Lease Area). The SRWF will consist of up to 94 WTGs at 102 potential positions, one Offshore Converter Station (OCS–DC), and Inter-Array Cables (IAC).
Sunrise Wind Export Cable (SRWEC)	The direct current export cable system from the SRWF to its landfall location at Smith Point County Park includes segments in federal waters (SRWEC–OCS), state waters (SRWEC–NYS) and a brief segment onshore (i.e., above the MHWL) and underground, up to the transition joint bays.
Sunrise Wind Export Cable – Outer Continental Shelf (SRWEC–OCS)	The submarine segment of the export cable system located on the OCS from the SRWF to the 3-nautical mile (3.5-mile; 5.6-km) state boundary.
Sunrise Wind Export Cable – NY State Waters (SRWEC–NYS)	The submarine segment of the export cable system located within the state waters of New York to the landfall location at Smith Point County Park.
Intracoastal Waterway HDD (ICW HDD)	The submarine segment of the Onshore Transmission Cable located within the Long Island Intracoastal Waterway (i.e., the inlet between Bellport Bay and Narrow Bay), where HDD will be utilized.

EXECUTIVE SUMMARY

Sunrise Wind LLC, a 50/50 joint venture between Orsted North America Inc. and Eversource Investment LLC, proposes to construct, own, and operate the Sunrise Wind Farm Project. The wind farm portion of the Project will be located on the Outer Continental Shelf in the designated Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0487. The Sunrise Wind Export Cable will traverse both federal waters and New York state waters to landfall at Smith Point County Park, Town of Brookhaven, NY. The Sunrise Wind Export Cable will then be spliced together with the Onshore Transmission Cable at the co-located transition joint bays and link boxes located at the landfall location, and the Onshore Transmission Cable will cross under the Long Island Intracoastal Waterway via horizontal directional drilling to a paved parking lot within the Smith Point Marina. The Project will be comprised of both offshore and onshore components, which are described in detail in Section 3 of the Construction and Operations Plan.

The purpose of this benthic habitat mapping report and associated data is to provide detailed information about the physical and biological characteristics and spatial distribution of benthic habitats found within the Benthic Habitat Study Area, which is inclusive of the areas Sunrise Wind surveyed for siting the Sunrise Wind Farm, the Sunrise Wind Export Cable, and the Onshore Transmission Cable under the Intracoastal Waterway via horizontal directional drilling. These data are intended to serve as foundational data for an evaluation of benthic habitat types that may be impacted by the Sunrise Wind Farm Project and, subsequently, the demersal species with essential fish habitat designated in the Benthic Habitat Study Area that may be impacted by Project-related disturbances to these seafloor habitats. These results will be used to support the essential fish habitat consultation requested by BOEM and then performed by the National Oceanic and Atmospheric Administration National Marine Fisheries Greater Atlantic Regional Fisheries Office Habitat Conservation and Ecosystem Services Division (NOAA Habitat).

Sunrise Wind has collected extensive geophysical data and ground-truth data to support the mapping and characterization of habitats within the Benthic Habitat Study Area. The geophysical data used to support benthic habitat mapping not only meet the recommended resolution specified in BOEM's Geophysical, Geotechnical, and Geohazard Guidelines and NOAA Habitat's recommendations, but these data were collected with state-of-the-art equipment and are provided at the highest resolution possible. The benthic habitat data provided here should be viewed as the most accurate representation of the seafloor possible using the high-resolution geophysical and ground-truth data collected. In addition to mapping benthic habitats within the Benthic Habitat Study Area, INSPIRE Environmental has prepared a crosswalk of the delineated benthic habitat types to essential fish habitat for species and life stages of demersal taxa with designated essential fish habitat in the Benthic Habitat Study Area.

Five primary benthic habitat types were mapped within the Benthic Habitat Study Area: Glacial Drift, Mixed Sediment – Small Gravel and Sand, Coarse Sediment, Sand and Muddy Sand, and Mud and Sandy Mud. When habitats were updated with modifiers, a total of twenty-two habitat

types were mapped within the Benthic Habitat Study Area including mobile habitats characterized by ripples, discrete habitat areas with low or medium density boulder fields, and inshore habitats characterized by submerged aquatic vegetation.

Sand and mobile sand and coarse sediment habitats were the most prevalent habitats mapped within the Sunrise Wind Farm. Clear spatial patterns in habitat composition were evident at the Sunrise Wind Farm with Glacial Drift habitats found only in the northwestern portion, Sand and Muddy Sand found predominantly in the central, west, and southwestern portions as well as discrete areas in the southeastern tip of the Sunrise Wind Farm. The eastern portion of the Sunrise Wind Farm was composed primarily of Coarse Sediment habitats. These Coarse Sediment habitats were generally characterized by rippled, medium to coarse sands with bare granules and pebbles in ripple troughs. The Sunrise Wind Export Cable area was composed primarily of Sand and Muddy Sand and Mud and Sandy Mud habitats, and the Intracoastal Waterway area included Sand and Muddy Sand, Coarse Sediment in the dredged navigational channel, and recent and historical records of submerged aquatic vegetation along the shoreline and in coves.

NOAA Habitat recently provided updated habitat mapping recommendations, which request that the maximum potential acres that may be impacted by the Project be inventoried in terms of the NOAA Habitat Complexity Categories outlined in these recommendations. To provide an impact assessment of the Benthic Habitat Study Area in terms of NOAA Habitat Complexity Categories, the benthic habitats delineated by Sunrise Wind and detailed here have been crosswalked to the NOAA Habitat Complexity Categories. This crosswalk was used to calculate acres of each habitat category that may be impacted by Project activities. For purposes of the essential fish habitat consultation, NOAA has defined complex habitats as submerged aquatic vegetation, shell substrate, and sediments with >5% gravel of any size.

Habitats crosswalked to soft bottom habitats comprised the majority of the potential acres that may be permanently and temporarily impacted by the Project. Generally, the composition of benthic habitats crosswalked to NOAA Habitat Complexity Categories included in potential permanent and temporary impact footprints was similar to the composition documented within the given project component area (Sunrise Wind Farm, Sunrise Wind Export Cable, Intracoastal Waterway). These results indicate that significantly altered layouts would do little to measurably shift the overall composition of benthic habitats impacted by the Project. However, Sunrise Wind has, and will continue to, micro-site foundations within the micro-siting allowances that supports the agreed upon regional uniform east-west/north-south grid with 1.15 by 1.15-mi (1 by 1-nm; 1.85 by 1.85-km) spacing on a case-by-case basis to avoid significant seabed hazards such as surface and subsurface boulders and to avoid and minimize impacts to complex habitat types to the extent feasible and in consideration of other siting constraints.

Specifically, habitats crosswalked to the large grained complex habitats (Glacial Drift) are completely avoided by the foundations as Sunrise Wind has removed positions that could be located in the northwestern portion of the lease area from consideration and has micro-sited an additional fourteen positions to avoid Glacial Drift and areas with higher boulder prevalence,

among other considerations. Related potential impacts from scour protection and seafloor preparation that may occur in these habitats will be minimized to the extent feasible. Sunrise Wind will continue micro-siting efforts as design and construction plans are further refined. Sunrise Wind anticipates that boulder clearance and relocation will be minimally required for construction of the foundations, inter-array cables, and the export cable.

Almost all areas in which potential impacts could occur to habitats that were crosswalked to the complex category in the Sunrise Wind Farm were characterized as Coarse Sediment – Mobile and a majority of those were able to be refined to Gravelly Sand or no gravel based on ground-truth data. These habitats are characterized as highly dynamic habitats composed of rippled, medium to coarse sands with bare granules and pebbles in ripple troughs; in addition, scattered boulders were present in clusters in these habitats immediately east of the center of the Sunrise Wind Farm. Except for scattered boulders, the primary structure of these habitats is unlikely to provide an impediment to construction or to be adversely affected by Project activities. Areas of the Sunrise Wind Export Cable that may be impacted by the Project are almost entirely categorized as soft bottom habitats.

Sunrise Wind will utilize horizontal directional drilling to install the Onshore Transmission Cable under the Intracoastal Waterway, a methodology that will completely avoid impacts to benthic habitats including submerged aquatic vegetation, as well as tidally influenced wetlands in the area. Similarly, a temporary landing structure that is proposed to be utilized in this area will be sited to avoid or minimize impacts to subtidal vegetated habitats and tidal wetlands. In addition, a preconstruction submerged aquatic vegetations survey will be conducted.

A complete crosswalk of delineated benthic habitat types to essential fish habitat for all demersal species/life stages with designated essential fish habitat in the Benthic Habitat Study Area provides detailed information to facilitate review of potential impacts to each species/life stage. In total, 28 benthic/demersal species and 63 life stages with designated essential fish habitat within the Study Area have been crosswalked to mapped benthic habitats: 35 life stages to Glacial Drift habitats, 53 life stages to Coarse Sediment habitats, 52 to Sand and Muddy Sand habitats, and 42 to Mud and Sandy Mud Habitats. While construction and operation activities may affect essential fish habitat for demersal/benthic life stages, these impacts are also anticipated to be temporary and minor as they will disturb a small portion of available essential fish habitat in the area. Species with a preference for sandy habitats, such as Atlantic surfclam and ocean quahog, are more likely to experience long-term impacts to their habitats from the conversion of sand habitat into hard bottom habitat with the addition of materials used for cable and scour protection, where needed. Additionally, sessile species or species with benthic eggs, such as Atlantic sea scallop and winter flounder, that have limited or no mobility and increased sensitivity to turbidity are likely to be injured, displaced, or experience mortality from these activities. Sunrise Wind will employ time of year restrictions to the extent feasible to avoid or minimize direct impacts to these species.

1.0 INTRODUCTION

1.1 Sunrise Wind Project Overview and Layout

Sunrise Wind LLC (Sunrise Wind), a 50/50 joint venture between Orsted North America Inc. (Orsted NA or Orsted) and Eversource Investment LLC (Eversource), proposes to construct, own, and operate the Sunrise Wind Farm Project (hereinafter referred to as the Project). The wind farm portion of the Project (i.e., the SRWF) will be located on the Outer Continental Shelf (OCS) in the designated Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0487 (Lease Area) (Figure 1-1). The Sunrise Wind Export Cable (SRWEC) will traverse both federal waters (SRWEC–OCS) and New York state waters (SRWEC–NYS) (Figure 1-1) to landfall at Smith Point County Park, Town of Brookhaven, NY. The SRWEC will then be spliced together with the Onshore Transmission Cable at the co-located transition joint bays and link boxes located at the landfall location, and the Onshore Transmission Cable will cross under the Long Island Intracoastal Waterway (ICW) via horizontal directional drilling (HDD) to a paved parking lot within the Smith Point Marina (ICW HDD) (Figure 1-2). The Project will be comprised of both offshore and onshore components, which are described in detail in Section 3 of the Construction and Operations Plan (COP) (Sunrise Wind LLC 2021a). The offshore components are most relevant to the benthic habitat mapping assessment provided here and include:

- up to 94 Wind Turbine Generators (WTGs) at 102 potential positions and one Offshore Converter Station (OCS–DC) connected by a network of up to 180 mi (290 km) of Inter-Array Cables (IAC) (Figure 1-3);
- one direct current (DC) submarine export cable bundle (SRWEC) comprised of two cables located within an up to 104.6 mi (168.4 km)-long corridor.

This report provides a detailed assessment of benthic habitats that have been mapped from geophysical and benthic ground-truth data within the Benthic Habitat Study Area (Study Area). The Study Area is inclusive of the areas Sunrise Wind surveyed for siting the SRWF in the Lease Area, the SRWEC–OCS, the SRWEC–NYS, and ICW HDD. The SRWEC–OCS and SRWEC–NYS Study Areas are corridors that were surveyed to support siting of the export cable bundle. Ultimately, the SRWEC route will be sited within these corridors and seafloor preparation activities (e.g., boulder clearance) will be limited to an approximately 98-foot (30-meter) -wide disturbance corridor centered on each cable.

1.2 Benthic Habitat Mapping Assessment Purpose and Objectives

The purpose of this report and associated data is to provide detailed information about the physical and biological characteristics and spatial distribution of benthic habitats found within the Study Area. Sunrise Wind has collected extensive geophysical data (Sunrise Wind LLC 2021b) and ground-truth data (Attachments A, B, C, and D) to support the mapping and characterization of habitats within the Study Area. In addition to mapping benthic habitats within the Study Area, INSPIRE has prepared a crosswalk of the delineated benthic habitat types to

EFH for species and life stages of demersal taxa with designated EFH in the Study Area (Attachment E).

This report and data are provided to support the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Greater Atlantic Regional Fisheries Office Habitat Conservation and Ecosystem Services Division (NOAA Habitat) in conducting a thorough and complete essential fish habitat (EFH) consultation for the Project. NOAA Habitat developed recommendations for mapping benthic habitats to facilitate EFH consultations (May 2020) in conjunction with BOEM, and BOEM released the recommendations as a supplement to the BOEM Benthic Survey Guidelines (2019). NOAA Habitat recently (March 2021) provided a new version of these habitat mapping recommendations (NOAA Habitat 2021). The updated NOAA Habitat Complexity Categories outlined in these new recommendations have been used to inform discussion of potential Project impacts to benthic habitats.

The geophysical data used to support benthic habitat mapping not only meet the recommended resolution specified in BOEM's Geophysical, Geotechnical, and Geohazard Guidelines (BOEM 2020a) and NOAA Habitat's recommendations (NOAA Habitat 2021), but these data were collected with state-of-the-art equipment and are provided at the highest resolution possible. INSPIRE Environmental (INSPIRE) used these geophysical and ground-truth data to further delineate and refine geological seabed interpretations prepared for the Sunrise Wind Marine Site Investigation Report (Sunrise Wind LLC 2021b) into a detailed benthic habitat map for the Study Area. The benthic habitat data provided here should be viewed as the most accurate representation of the seafloor possible using the high-resolution geophysical and ground-truth data collected.

Acreage of benthic habitats tallied by NOAA Habitat Complexity Category that may be impacted by construction and installation of each component of the Project (e.g., foundations, cables) are provided in Section 4.0. As requested by NOAA Habitat and BOEM, total acres of SAV and wetlands found within the Study Area are also provided along with acres of these habitats that may potentially be impacted by the Project. Formal EFH consultation for the Project was initiated on August 8, 2022. Sunrise Wind is providing updated acres of potential impact tallied by NOAA Habitat Complexity Category based on updated layout information to support BOEM's development of the EFH Assessment document that NOAA Habitat will review in their consultation. Additional updates may be provided should updated layout information become available.

2.0 INPUT DATA AND APPROACH

Multiple sources of geophysical and ground-truth data were used as input for mapping benthic habitats within the Study Area. Brief summaries of these data sources and details pertinent to their use in the habitat mapping process are described here. Full details of geophysical and ground-truth data collection, processing, and analysis are provided in the Marine Site Investigation Report (Sunrise Wind LLC 2021b) and benthic assessment reports (INSPIRE 2021a, 2021b) appended to the Sunrise Wind COP (Sunrise Wind LLC 2021a).

2.1 Input Data

2.1.1 Geophysical Data

To support Sunrise Wind Site Investigations, Fugro USA Marine, Inc. (Fugro) conducted high-resolution multibeam echosounder (MBES) and side-scan sonar (SSS) surveys within the Study Area in 2019, 2020, and 2021 (Sunrise Wind LLC 2021b). An additional geophysical survey was conducted by Gardline in 2019 in the southeast portion of the SRWF. Geophysical data collected during surveys completed by Bay State Wind, LLC were also utilized to support and align interpretations where these data overlap with the SRWF (Sunrise Wind LLC 2021b). MBES and SSS are collected using different instruments deployed from the same survey vessel (Figure 2-1). The MBES is mounted to the vessel and provides the highest degree of positional accuracy; the MBES can be optimized for either bathymetric or backscatter data, but not for both. The geophysical surveys conducted for offshore wind development are designed to support engineering and construction design and, therefore, the MBES was optimized for bathymetric data, and backscatter data were collected as an ancillary data product.

Bathymetric data were derived from the MBES and processed to a resolution of 50 cm (Sunrise Wind LLC 2021b). Bathymetric data provide information on depth and seafloor topography (Figures 2-2 and 2-3). Bathymetric data were used to create a model of seafloor slope for the Study Area with a cell size of 3 m (Figures 2-4 and 2-5).

Backscatter data were derived from the MBES and processed to a resolution of 25 cm (Sunrise Wind LLC 2021b). Backscatter data are based on the strength of the acoustic return to the instrument and provide information on seafloor sediment composition and texture. Backscatter data are best interpreted in concert with hill-shaded bathymetry (Figures 2-6 and 2-7). Backscatter returns are relative (see below) and referred to in terms of low, medium, and high reflectance rather than absolute decibel values. Nominally, softer, fine-grained sediments absorb more of the acoustic signal and a weaker signal is returned to the MBES. Although backscatter data provide valuable information about sediment grain size, decibel values reflect not only sediment grain size, but also compaction, water content, and texture (Lurton and Lamarche 2015). For example, sand that is hard-packed and sand that has prominent ripples may have higher acoustic returns than sediments of similar grain size that do not exhibit compaction or ripples.

Backscatter decibel values are also influenced by water temperature, salinity, sensor settings, seafloor rugosity, and MBES operating frequency, among other factors (Lurton and Lamarche 2015; Brown et al. 2019). Differences in backscatter decibel values can also occur when data have been collected over a very large survey area under dynamic conditions, with different instruments, and in different years. This scenario is common and does not nullify the data; methods to optimize processing (as appropriate to the sensors) and to display the data optimal for interpretation are well developed (Lurton and Lamarche 2015; Schimel et al. 2018). Backscatter data products vary based on processing (Lucieer et al. 2017) and data display procedures. Mapping of seafloor composition and habitats, while greatly aided by backscatter data, should not rely solely on these data (see Table 1 in Brown et al. 2011). The manner in which the suite of data were used for habitat delineations is described further in Section 2.2.

SSS data were generated from a towed instrument (Figure 2-1) and, thus, have a lower positional accuracy than MBES data. However, because the SSS towfish is closer to the seafloor with a lower angle of incidence, the resolution, signal to noise ratio, and intensity contrast of SSS images are higher than those of MBES backscatter images (Lurton and Jackson 2008). The processed SSS images provide the highest resolution data on sediment textures and objects on the seafloor (boulders, debris) (Figure 2-8). Thermoclines and haline variations affect the acoustic signal and result in data artifacts, presenting as sinuous rippling of alternating low and high returns that cannot be removed from the data; these artifacts are visible when viewed at very close range. SSS data were processed to a resolution of 10 cm; this resolution permits detection of medium to large boulders but does not permit the reliable detection of individual cobbles (6.4 cm to 25.6 cm). Although individual small boulders and cobbles cannot be detected in 10-cm resolution SSS, SSS textures and patterns can indicate the presence or absence of higher densities of these features.

Individual boulders greater than or equal to 50 cm (0.5 m) in diameter were identified from the MBES and SSS data using manual detection methods to generate a “boulder pick” data set to accompany the boulder field dataset (Figure 2-9). Boulder fields were generated using heatmaps in Global Mapper and were reviewed manually to finalize the boulder field polygons. Boulder fields represent aggregations of boulders where they were present in low (20 – 99 per 10,000 m^2), medium (100 – 199 per 10,000 m^2), or high (>199 per 10,000 m^2) densities (Sunrise Wind LLC 2021b). These density values were set by the Sunrise Wind Site Investigations team and are consistent with values used for the nearby Revolution Wind project. Boulder fields are defined as a geoform by the federal Coastal and Ecological Marine Classification Standard (CMECS; FGDC 2012), however no density values are provided in CMECS. In addition to individual boulders, other solitary objects (known as “contacts” in geophysical survey terminology), such as various types of debris were identified in this manner. A combination of backscatter over hillshaded bathymetry and SSS data was used to detect large- and small-scale bedforms, such as mega-ripples and ripples (*sensu* BOEM 2020a) (Figure 2-10).

2.1.2 Ground-Truth Data

Sediment profile and plan view images (SPI/PV; Figure 2-11) were collected in triplicate at 244 stations within the SRWF in April and May 2020 (Figure 2-12), at 76 stations along the SRWEC–OCS in April and May 2020, and at 35 stations along the SRWEC–NYS in August 2020 (Figure 2-13). In addition, PV were collected at 8 stations within the vicinity of the ICW HDD in September 2020 (Figure 2-14). In addition, a total of 3,447 m across 22 transects were sampled with towed video within the ICW HDD area to identify the presence of SAV and benthic macroalgae (Figure 2-14). A follow-on survey was conducted in August 2020 at the SRWF to further delineate areas of complex hard bottom habitat and areas of high backscatter returns identified by NOAA Habitat as of additional interest. During this survey, a towed video system was used to sample ~8,700 m across 17 transects in four areas of interest (Figure 2-15). An additional area of interest was sampled using a "Pogo" PV approach when sea states precluded video sampling; 87 PV images were captured along 1,080 m (Figure 2-15). This approach mimics a continuous transect by deploying the PV system in quick succession along a transect. Summarized data results are presented in Attachments A (SPI/PV), B (Pogo PV), C (Offshore Video), and D (SAV).

SPI/PV images were used to ground-truth sediment types, bedform dynamics, presence of sensitive habitats and taxa, and to characterize benthic biological communities. SPI/PV images were analyzed for a suite of variables (Table 2-1) and were classified using CMECS Substrate and Biotic components (Tables 2-2, 2-3, 2-4, and 2-5). CMECS Substrate Subgroup was particularly useful as ground-truth data for purposes of delineating seafloor sediments and benthic habitats (Figure 2-16). CMECS Biotic Subclasses, listing of common taxa present at higher densities (e.g., cerianthids, sand dollars), and notations of sessile and mobile epifauna present (Figure 2-17) were used to provide detail about the biological communities observed within each mapped habitat type. All ICW video footage was analyzed post-collection with a focus on the detection of SAV, and, if detected, the spatial extent of the SAV patch or bed was determined. Additional parameters were analyzed where SAV was present including SAV bed extent, in accordance with federal agency protocols (Colarusso and Verkade 2016). The video analyst also documented the presence of macroalgal beds, with qualitative notes on the density of the macroalgae observed. Detailed descriptions of each SPI/PV variable analyzed and full data analysis results for the SPI/PV and ICW HDD PV and video survey can be found in the COP Benthic Assessment Appendices (INSPIRE 2021a, 2021b).

For the Sunrise Wind Project, a macrohabitat variable was generated from several SPI and PV variables to create a single variable to serve as a construct to describe repeatable physical-biological associations (Figures 2-18 and 2-19; INSPIRE 2021a). Using the methodology detailed in Figure 2-18 ensured that the presence of any gravel was detected; the "Max Gravel Size" variable is the maximum gravel size detected across all three analyzed replicate images at each station. Given the spatial scale of the SPI/PV data, benthic habitat types derived from replicate SPI/PV images are considered macrohabitats (*sensu* Greene et al. 2007). Each PV replicate image is between 0.2 and 0.5 m^2 and the replicate images were collected within approximately 10 m of each other at each station. Thus, this design can provide insight into the

degree of patchiness of habitat features, such as boulders and cobbles, within this spatial context. This sampling approach cannot capture larger habitat features such as sand waves or smaller habitat features such as cracks and crevices on a boulder. Recognizing scale is a critical component to habitat descriptions and delineations, the habitat types derived from the SPI/PV approach are most accurately described as macrohabitats, which is defined by Greene et al. 2007 as encompassing a scale of one to 10 meters. The macrohabitat type derived from SPI/PV at each station cannot be extrapolated beyond the scale of the station; however, this variable served as a key variable for ground-truthing benthic habitat types and informing full characterization of each mapped habitat polygon.

Videos collected within the SRWF were analyzed using Behavioral Observation Research Interactive Software (BORIS), an event logging software. Scaling lasers spaced at 10 cm were used in video collection and permitted feature identification and sizing. Videos were reviewed and analyzed by a single trained analyst, then reviewed for quality assurance by senior staff. Adjustments (e.g., pause, viewing speed) were made during analysis to optimize identification of seafloor features and increase reviewer efficiency. Features were logged to an interactive timeline to aid quality assurance checks. Video imagery were examined along the length of the entire transect for a single variable used to capture sediment composition and bedforms, terms from the CMECS Substrate component and SPI/PV macrohabitat variable were used (Gravels, Sandy Gravel, Gravelly Sand, sand with ripples, sand and mud). With the video at standard height off the seafloor, it is possible to distinguish the smallest gravel size (granule) from sand. In addition, point locations where boulders were observed were marked in BORIS as single point events and were mapped as such. Visual determination of boulders was possible as the minimum size of a boulder (256 cm) is approximately 2.5 times greater than the spacing of the scaling lasers. When the seafloor was not visible due to changes in the camera position or turbidity in the water column, an “Off Bottom” value was entered into the data record.

2.2 Habitat Mapping Approach

Geophysical and ground-truth data were reviewed in an iterative process to delineate benthic habitats. MBES data, viewed as backscatter draped over a hillshaded bathymetric relief model, was used at a “zoomed out” scale (~1:10,000) to identify large-scale facies – areas of sedimentary characteristics (reflectance, bedform, slope) distinct from those adjacent (Figure 2-20). These initial delineations were further refined at “zoomed in” scales (~1:2,000 or finer) using the MBES data in combination with SSS, boulder picks, and ground-truth data (Figure 2-20). Delineations must be of a size appropriate both to the resolution of the data and to the subject of interpretation. The resolution of the geophysical data, delineation size, and the use the CMECS Substrate Component meet agency recommendations (NOAA Habitat 2021).

2.2.1 Geological Seabed Characterization

Sunrise Wind developed information on the geological seabed to characterize the geological provenance and stratigraphic conditions of the seafloor inclusive of surface and subsurface features (Sunrise Wind LLC 2021b). Methods used to collect this information included MBES bathymetry and backscatter, SSS, sub-bottom profile, magnetometer, and seismic profile data.

For the purposes of defining geological seabed types present at the sediment surface, the Folk classification (Folk 1954) was used, which aligns with CMECS Substrate classifications (Figure 2-21). Seabed types present within the Study Area based solely on this scheme are Mud and Sandy Mud, Sand and Muddy Sand, Coarse Sediment, and Mixed Sediment. In addition, areas of the seabed of unconsolidated or consolidated stratified glacial deposits were mapped as Glacial Drift.

2.2.2 Delineation of Benthic Habitat Types

Geological characterizations of seabed conditions are not strictly equivalent to benthic habitats as experienced by benthic biological communities and demersal fish. To map these habitats for the purposes of assessing the potential impacts of the Project on these biotic communities, INSPIRE refined the seabed interpretations to more fully characterize and map benthic habitats within the Study Area. Multibeam 50-cm resolution bathymetry, 25-cm resolution backscatter, and 10-cm SSS data were examined along with boulder fields and picks, and ground-truth SPI/PV and video data (Figures 2-22 and 2-23) to delineate new habitat polygons and to refine the seabed classifications for the purposes of evaluating benthic habitats (Figure 2-24).

Specifically, modifiers were used to provide additional descriptive information about the benthic habitats found within the Study Area; CMECS modifiers and Geoform or Substrate terms were used to the extent practicable. These modifiers include features of the seafloor that are relevant to the biota that utilize these habitats and describe the value of the habitats for these biota beyond what is provided in the geological seabed mapping. Modifiers are related to features that describe the mobility, stability, and complexity of the benthic habitats mapped. Where bedforms, such as mega-ripples and ripples, indicating frequent physical disturbance of the seafloor were observed across the majority of a habitat polygon, the “Mobile” modifier was used (Figure 2-25). Boulder fields mapped by Sunrise Wind Site Investigations were used to refine habitat boundaries and were applied as modifiers (Figure 2-26), except where they overlapped with Glacial Drift habitats, as this habitat type is always characterized by medium and high densities of boulders. SAV provides unique habitats for certain species of benthic invertebrates and demersal fish; modifiers were applied for both recent and historical (modifier of “potential”) areas of SAV in the ICW HDD area.

All habitats and their distributions within the Study Area are described in more detail in Section 3.0. For the purposes of aiding interpretation and presentation of data in ground-truth tables, individual benthic habitat types with modifiers have been grouped and color-coded to consolidate types of related habitats that are present in very small areas (Table 2-6). In addition to the primary habitat data on types and modifiers, the geospatial data contain separate attributes to record several other features of each habitat polygon: type of bedforms observed, area, presence of scattered boulders and debris, and refinements of Coarse Sediment habitats. In addition to the natural bedforms defined in the BOEM Geophysical Survey Guidelines (2020a): mega-ripples = 5 - 60 m wavelength and 0.5 - 1.5 m height; ripples = <5 m wavelength and <0.5 m height; other bedforms such as linear depressions and trawl marks were noted where present. The presence of isolated boulders and debris identified by Sunrise Wind Site

Investigations in the geophysical analysis (boulder picks and debris contacts) were noted as "scattered boulders and debris" in the habitat data. Additionally, further characterizations of Coarse Sediment habitat polygons were recorded as "coarse sediment refinements" to provide additional detail on the nature of coarse sediment (e.g., gravelly sand or sandy gravel) where it could be reliably determined from ground-truth and geophysical data. These refinements were only applied to polygons in which ground-truth SPI/PV stations and/or video transects were located.

2.3 Benthic Habitat to EFH Crosswalk

Essential fish habitat (EFH) is implemented through the Magnuson-Stevens Fishery Conservation and Management Act. In the Mid-Atlantic and northeastern United States, the New England and Mid-Atlantic Fishery Management Councils (Councils) work with NOAA Fisheries to identify and describe EFH in published fisheries management plans. To evaluate the potential impacts to EFH for individual species/life stages resulting from activities that directly impact benthic habitats, it is important to identify which benthic habitat types fit the descriptions of habitat use for each EFH species/life stage. Therefore, a crosswalk between benthic habitat types and EFH was conducted. For the purposes of this analysis, a crosswalk is defined as the process of reviewing species with mapped EFH in the Study Area and comparing their habitat preferences with the mapped benthic habitat types described in Sections 3.1 and 3.2 to identify where EFH for those species are likely to be found. Primary benthic habitat types were used for the crosswalk with additional columns for boulders and SAV (Attachment E); habitats with modifiers were not used for the crosswalk because the level of detail supporting EFH designations is rarely available at a level that matches the detail provided by modifiers. The crosswalk includes all four components of the Study Area: the SRWF, the SRWEC–OCS, the SRWEC–NYS, and the ICW HDD.

EFH maps, data, and text descriptions were downloaded from the NOAA Habitat Conservation EFH Mapper, an online mapping application (NOAA Fisheries 2021a). Additional EFH source information was gathered from the Northeast Fisheries Science Center's series of "EFH source documents" that contain a compilation of available information on the distribution, abundance, and habitat requirements for each species managed by the Councils (NOAA Fisheries 2021b). EFH is defined by temperature, salinity, pH, physical structure, biotic structure, depth, and currents. While all these habitat variables are important to consider in the greater context of fisheries management, the focus for this report was to create a crosswalk among individual species EFH and mapped benthic habitats. The crosswalk focused on the mapped variables of physical structure, biotic structure, and depth. In addition, only demersal species and life stages were crosswalked for this report.

EFH data for all Council-managed species were queried using Geographic Information System software to determine where each species' EFH overlaps with the Study Area. Available EFH source information was then reviewed to determine habitat requirements for each demersal species/life stage. These requirements were then crosswalked to each of the Study Area habitats based on detailed characterizations and spatial distributions (See Sections 3.1 and 3.2)

to determine if the substrate, biotic structure, and depth requirements for each species/ life stage were likely to be found within a given mapped benthic habitat type.

2.4 Calculating Potential Project Impacts to Benthic Habitats

NOAA Habitat recently provided updated habitat mapping recommendations (March 2021), which request that the maximum potential acres that may be impacted by the Project be inventoried in terms of the NOAA Habitat Complexity Categories outlined in these recommendations. These habitat complexity categories were defined by NOAA Habitat for the purposes of EFH consultation. The NOAA Habitat Complexity Categories include soft bottom, complex, heterogeneous complex, and large-grained complex (large boulders). For purposes of the EFH consultation, NOAA has defined complex habitats as SAV and sediments with >5% cover of gravel of any size (CMECS Substrate Class Rock, CMECS Substrate Groups of Gravelly, Gravel Mixes, and Gravels, as well as Shell Substrate CMECS classifications). Heterogenous complex is used for habitats with a combination of soft bottom and complex features. To provide an impact assessment of the Study Area in terms of NOAA Habitat Complexity Categories, the benthic habitats delineated by Sunrise Wind and detailed here have been crosswalked to the NOAA Habitat Complexity Categories. This crosswalk was used to calculate acres of each habitat category that may be impacted by Project activities.

Project activities with the potential to impact the seafloor during construction include installation of foundations for up to 94 WTGs at 102 potential positions and 1 OCS-DC, connected by a network of up to 180 mi (290 km) of IACs, and one DC submarine export cable bundle comprised of two cables located within an up to 104.6 mi (168.4 km)-long corridor. During Operations & Maintenance, disturbance to the seafloor could result from the presence of infrastructure and temporarily anchored maintenance vessels. Over the life of the Project, the placement of foundations and scour protection will alter the seabed and associated habitat by replacing the existing seabed and habitat with hard structures that create a reefing effect, which results in colonization by assemblages of both sessile and mobile animals. Decommissioning activities will have similar impacts to the seafloor as construction.

Project activities, design parameters, and associated potential impacts through seafloor disturbance are presented in detail in the Volume I, Section 3 of the COP (Sunrise Wind, LLC 2021a). Specific Project components evaluated for seafloor disturbance are listed below. Calculations tabulated by NOAA Habitat Complexity Category of the area of the seafloor that falls within the footprints defined below were completed in ArcGIS using the current indicative layout. The resulting values may differ from values provided in the project design envelope or from values calculated using conservative or rounded values. This may result in different total numbers from those presented in the COP; for example, the current indicative IAC network is 264.2 km in GIS, whereas the project design envelope presented in the COP allows for a 10% increase in this value for a total of 290 km, allowing for some changes to the length of the IAC as Sunrise Wind further refines its design and construction plans. In addition, because 102 potential positions are in consideration for 94 WTG foundations, acres of habitat that may be impacted were calculated for the 102 positions; however, values provided in the results as

anticipated to be impacted are related to the total area that may be impacted by 94 WTG foundations.

- SRWF:
    - Foundations (see Figures 2-27 and 2-28):
        - 94 WTG monopile foundations at 102 potential positions, each with a 12-m diameter
        - 1 OCS-DC four-legged piled jacket foundation, with rock for surface leveling and scour protection covering the entire 51 m x 51 m area
        - Scour Protection and Cable Protection System (CPS) stabilization for IACs associated with each WTG foundation (extending in a ring around the foundation up to 30 m in each direction, the CPS stabilization would extend an additional 6 m from the edge of the scour protection and would be 12 m wide. There will be no more than 3 IACs per WTG foundation)
        - Scour Protection at the OCS-DC foundation, extending beyond the foundation footprint by up to 20 m in each direction
        - CPS stabilization at the OCS-DC for up to 15 IACs and the SWREC where each is pulled into the foundation, extending out to 5 m beyond the scour protection and 12-m wide
        - Seafloor preparation area for each foundation inclusive of planned permanent structures; 220-m radius from the center point of each foundation
    - IACs:
        - Cable protection, where needed, 12-m width across cable centerline
        - Cable installation and seafloor preparation area, inclusive of sand wave level and boulder clearance where needed, 30-m width across cable centerline (inclusive of area where cable protection may be placed)
- SRWEC–OCS:
    - Export cable
        - Cable protection, where needed, 12-m width across cable centerline
        - Cable installation and seafloor preparation area, inclusive of sand wave leveling and boulder clearance where needed, 30-m width across cable centerline (inclusive of area where cable protection may be placed)
- SRWEC–NYS:
    - Export cable
        - Cable protection, where needed, 12-m width across cable centerline

        - Cable installation and seafloor preparation area, inclusive of boulder clearance where needed, 30-m width across cable centerline (inclusive of area where cable protection may be placed)
    - Landfall HDD
        - Up to one HDD exit pit measuring 50 m x 15 m
        - Anchoring and support area inclusive of the exit pit, measuring 500 m x 500 m.
- ICW HDD Study Area
    - ICW HDD Assessment Area
    - Temporary Landing Structure Assessment Area

Table 2-1. SPI/PV Ground-truth Parameters with Corresponding BOEM COP Requirements and Guidelines (BOEM 2019, 2020b; NOAA Habitat 2021)

BOEM COP Guidelines and *NOAA† Recommendations*	Parameters Derived from PV Images	Parameters Derived from SPI Images
Classification of CMECS sediment type Grain size analysis	CMECS Substrate Group CMECS Substrate Subgroup Gravel measurements	CMECS Substrate Subgroup Sediment type (based on grain size major mode)
Identification of distinct horizons in subsurface sediment	None	Sediment type (based on grain size major mode) Apparent Redox Potential Discontinuity (aRPD)*
Delineate hard bottom substrates	CMECS Substrate Group CMECS Substrate Subgroup	Sediment type (based on grain size major mode)
Identification of bedforms Characterization of physical hydrodynamic properties	Bedform type	Boundary roughness
Identification of rock outcrops and boulders Characterization and delineation of any hard bottom gradients of low to high relief such as coral (heads/reefs), rock or clay outcroppings, or other shelter-forming features	CMECS Substrate Group CMECS Substrate Subgroup Gravel measurements	None
Characterization of benthic habitat attributes	Gravel measurements Sediment Descriptor* Macrohabitat	aRPD* Prism penetration depth Sediment oxygen demand and proxies (methane, *Beggiatoa*) Macrohabitat
Classification to CMECS Biotic Component to lowest taxonomic unit practicable	CMECS Dominant Biotic Subclass CMECS Co-occurring Biotic Subclass	None
Characterization of benthic community composition (identify and confirm benthic species (flora and fauna) that inhabit the area) Identification of communities of sessile and slow-moving marine invertebrates (clams, quahogs,	CMECS Dominant Biotic Subclass CMECS Co-occurring Biotic Subclass Epifauna* Sensitive taxa Attached Flora/Fauna Percent Cover*	Epifauna* Sensitive taxa Tubes/Voids Successional Stage*

BOEM COP Guidelines and *NOAA† Recommendations*	**Parameters Derived from PV Images**	**Parameters Derived from SPI Images**
mussels, polychaetes, anemones, sponges, echinoderms) *Identification of potentially sensitive seafloor habitat* *Identification of important biogenic habitats:* • *Hard bottom substrates with epifauna* • *Hard bottom substrates with macroalgae* • *Submerged aquatic vegetation (seagrass)* • *Long-lived and habitat forming taxa (e.g., emergent fauna)*	Burrows/Tubes/Tracks Emergent Taxa Common Taxa	

† NOAA Habitat Recommendations are indicated by use of italicized characters and support BOEM Guidelines with further detail.

* Indicates variable that is a CMECS modifier. CMECS Modifiers provide additional detail to further characterize habitat components using a consistent set of definitions.

Table 2-2. CMECS Classification Levels Used in Analysis and Classifications for the Sunrise Wind SPI/PV Survey in the SRWF

CMECS Term	Scale of Classification	Classifications
Substrate Component		
Substrate Origin	Site	Geologic Substrate
Substrate Class	SPI/PV	Unconsolidated Mineral Substrate
[+]Substrate Subclass	SPI/PV	**Fine Unconsolidated Substrate**; Coarse Unconsolidated Substrate
[+]Substrate Group	PV	**Sand or finer**; Gravelly; Gravel Mixes; Gravel
[+]Substrate Subgroup	SPI/PV	Silt/Clay; **Very Fine Sand; Fine Sand**; Medium Sand; Coarse Sand; Very Coarse Sand; Gravelly Sand; Mixed Sediment; Sandy Gravel; Boulder
Biotic Component		
Biotic Setting	SPI/PV	Benthic/Attached Biota
Biotic Class	SPI/PV	Faunal Bed
[+]Biotic Subclass	SPI/PV	**Soft Sediment Fauna**; Attached Fauna; Inferred Fauna
[+]Emergent and Common Taxa (not a CMECS variable, serves in place of Biotic Group)	SPI/PV	Cerianthids; Sand Dollars

[+] Indicates variability within the surveyed area at this level of the hierarchy.
Bold text indicates an overwhelming dominant classification across the surveyed area.
See INSPIRE 2021a for more detailed information about these variables

Table 2-3. CMECS Classification Levels Used in Analysis and Classifications for the Sunrise Wind SPI/PV Survey in the SRWEC–OCS

CMECS Term	Scale of Classification	Classifications
Substrate Component		
Substrate Origin	Site	Geologic Substrate
Substrate Class	SPI/PV	Unconsolidated Mineral Substrate
[+]Substrate Subclass	SPI/PV	Fine Unconsolidated Substrate; Coarse Unconsolidated Substrate
[+]Substrate Group	PV	**Sand or finer**; Gravelly
[+]Substrate Subgroup	SPI/PV	**Very Fine Sand**; Fine Sand; Medium Sand; Coarse Sand; Very Coarse Sand; Gravelly Sand
Biotic Component		
Biotic Setting	SPI/PV	Benthic/Attached Biota
Biotic Class	SPI/PV	Faunal Bed
Biotic Subclass	SPI/PV	**Soft Sediment Fauna**; Inferred Fauna
[+]Emergent and Common Taxa (not a CMECS variable, serves in place of Biotic Group)	SPI/PV	Cerianthids; Sand Dollars

[+] Indicates variability within the surveyed area at this level of the hierarchy.
Bold text indicates an overwhelming dominant classification across the surveyed area.
See INSPIRE 2021a for more detailed information about these variables

Table 2-4. CMECS Classification Levels Used in Analysis and Classifications for the Sunrise Wind SPI/PV Survey in the SRWEC–NYS

CMECS Term	Scale of Classification	Classifications
Substrate Component		
Substrate Origin	Site	Geologic Substrate
Substrate Class	SPI/PV	Unconsolidated Mineral Substrate
Substrate Subclass	SPI/PV	Fine Unconsolidated Substrate
Substrate Group	PV	Sand or finer
[+]Substrate Subgroup	SPI	**Very Fine Sand**; **Fine Sand**; Medium Sand
Biotic Component		
Biotic Setting	SPI/PV	Benthic/Attached Biota
Biotic Class	SPI/PV	**Faunal Bed;** Aquatic Vegetation Bed
[+]Biotic Subclass	SPI/PV	**Soft Sediment Fauna**; Inferred Fauna
[+]Emergent and Common Taxa (not a CMECS variable, serves in place of Biotic Group)	PV	Cerianthids; Diopatra; Sand Dollars

[+] Indicates variability within the surveyed area at this level of the hierarchy.
Bold text indicates an overwhelming dominant classification across the surveyed area.
See INSPIRE 2021b for more detailed information about these variables

Table 2-5. CMECS Classification Levels Used in Analysis and Classifications for the Sunrise Wind SPI/PV Survey in the ICW-HDD

CMECS Term	Scale of Classification	Classifications
Substrate Component		
Substrate Origin	Site	Geologic Substrate
Substrate Class	SPI/PV	Unconsolidated Mineral Substrate
[+]Substrate Subclass	SPI/PV	**Fine Unconsolidated Substrate**; Coarse Unconsolidated Substrate
[+]Substrate Group	PV	**Sand or finer**; Gravelly; Gravel Mixes
[+]Substrate Subgroup	SPI/PV	**Sand or finer**; Gravelly Sand; Sandy Gravel
Biotic Component		
Biotic Setting	SPI/PV	Benthic/Attached Biota
[+]Biotic Class	SPI/PV	**Faunal Bed**; Aquatic Vegetation Bed
[+]Biotic Subclass	SPI/PV	**Soft Sediment Fauna**; Attached Fauna; Benthic Macroalgae; Aquatic Vascular Vegetation
Emergent and Common Taxa (not a CMECS variable, serves in place of Biotic Group)	PV	None

[+] Indicates variability within the surveyed area at this level of the hierarchy.
Bold text indicates an overwhelming dominant classification across the surveyed area.
See INSPIRE 2021a for more detailed information about these variables

Table 2-6. Color-coded Key to Benthic Habitat Types with Modifiers and Related Groupings for Ground-truth Tables and Plot

Benthic Habitat Types with Modifiers	Habitat Color	Grouped Habitat Color	Benthic Habitat Category
Glacial Drift			not grouped
Mixed Sediment – Small Gravel & Sand			not grouped
Coarse Sediment with Medium Density Boulder Field			Coarse Sediment with Boulder Field
Coarse Sediment with Low Density Boulder Field			
Coarse Sediment – Mobile with High Density Boulder Field			
Coarse Sediment – Mobile with Medium Density Boulder Field			
Coarse Sediment – Mobile with Low Density Boulder Field			
Coarse Sediment – Mobile			not grouped
Coarse Sediment			not grouped
Sand and Muddy Sand with High Density Boulder Field			Sand and Muddy Sand with Boulder Field
Sand and Muddy Sand with Medium Density Boulder Field			
Sand and Muddy Sand with Low Density Boulder Field			
Sand and Muddy Sand with SAV and Benthic Macroalgae			Vegetated Habitats
Sand and Muddy Sand with Benthic Macroalgae			
Sand and Muddy Sand with Potential SAV and Benthic Macroalgae			
Sand and Muddy Sand with Potential SAV			
Sand and Muddy Sand with Potential Benthic Macroalgae			
Sand and Muddy Sand – Mobile			not grouped
Sand and Muddy Sand			not grouped
Mud and Sandy Mud with High Density Boulder Field			not grouped
Mud and Sandy Mud – Mobile			Mud and Sandy Mud
Mud and Sandy Mud			
Anthropogenic			not grouped

3.0 RESULTS

3.1 Benthic Habitat Types

Five primary benthic habitat types were mapped within the Study Area: Glacial Drift, Mixed Sediment – Small Gravel and Sand, Coarse Sediment, Sand and Muddy Sand, and Mud and Sandy Mud. When habitats were updated with modifiers, a total of 22 habitat types were mapped within the Study Area (16 within the SRWF, 6 within the SRWEC–OCS, 10 within the SRWEC–NYS, and 7 in the vicinity of the ICW HDD). A few anthropogenic features (e.g., piers) were also mapped within the ICW HDD area; these are not included in the counts of habitat types mapped. Overall descriptions of each habitat type as observed across the Study Area are provided below and descriptions of spatial distribution within the SRWF, the SRWEC–OCS, the SRWEC–NYS, and the ICW HDD, respectively, are provided in Section 3.2. Spatial distributions and characteristics of the benthic habitat types are summarized in Table 3-1 for the SRWF, in Table 3-3 for the SRWEC–OCS, Table 3-5 for the SRWEC–NYS and Table 3-7 for the ICW HDD. CMECS Substrate and Biotic component classifications derived from SPI/PV ground-truth data at stations/transects located within the various benthic habitats are presented in Table 3-2 for the SRWF, Table 3-4 for the SRWEC–OCS, Table 3-6 for the SRWEC–NYS, and in Table 3-8 for the ICW HDD. The color key presented in Table 2-6 is utilized in all of these tables. Full data results are provided for SPI/PV stations in Attachment A, Pogo PV locations in Attachment B, offshore video transects in Attachment C, and ICW HDD SAV video transects in Attachment D.

3.1.1 Glacial Drift

The SRWF and SRWEC–OCS are located immediately south of submerged end moraines, in what was an extensive glacial outwash plain. Glacial moraine habitats were not observed within the Study Area. The glacial deposits found at SRWF are termed Glacial Drift and are stratified deposited of glacial sediments that have been re-worked and sorted by the movement of water. These glacial deposits are not considered to be surface expressions of unstratified moraine deposits associated with submerged glacial moraine complexes (Sunrise Wind LLC 2021b). However, Glacial Drift provides a similar benthic habitat for invertebrates and demersal fish as do unconsolidated glacial moraine habitats found to the north of the SRWF.

Glacial Drift habitats generally exhibit medium to high reflectance in backscatter data due to the coarse nature and rugosity of the seafloor; SSS data reveal the chaotic and patchy nature of boulders and sediments (Figure 3-1). The seafloor is typically irregular and contains loose mobile sediments between patches of boulders, these areas often display morphological features (ripples) (Figure 3-1). Because boulder fields are typically a characteristic of Glacial Drift habitats, boulder field modifiers were not applied. Boulders appear continuous or patchy in ground-truth data and the seafloor recorded by video in this habitat type ranged from Gravelly Sand to Gravel, with numerous individual boulders noted in each type (Figure 3-1).

Sediments sampled with SPI/PV within Glacial Drift habitats included Medium to Very Coarse Sand, Gravelly Sand, Sandy Gravel, and areas with medium to high densities of cobbles and

boulders (Table 3-2). Ripples were also present within nearly all polygons of this habitat type mapped (Table 3-1). The 12 ground-truth stations sampled within Glacial Drift habitats in the SRWF captured the range and heterogeneity of sediment types and biota found within these habitats (Table 3-2). The percent cover of Attached Fauna most often observed was Dense (70-<90%) and a range of sessile and mobile epifauna were observed, including the sensitive taxa of the northern star coral (Table 3-2). Glacial Drift habitats were also sampled with towed video and sediment types observed reflected the heterogeneity of this habitat type, ranging from sand and mud to more continuous cover of Gravel with boulders (Attachment C). Glacial Drift habitats were limited in distribution within the SRWF (1.1%) (Table 3-1) and were not encountered in any other portion of the Study Area (Tables 3-3, 3-5, and 3-7).

3.1.2 Mixed Sediment – Small Gravel and Sand Habitats

Mixed Sediment – Small Gravel and Sand habitats composed of small gravel and sand were encountered in a small area of the SRWEC–OCS (0.85%) (Table 3-3) and were not observed in any other part of the Study Area (Tables 3-1, 3-5, 3-7). The backscatter and bathymetric relief in these habitats were irregular and distinct from the surrounding Sand and Muddy Sand habitats and ground-truth data included pebbles and granules (Figure 3-2). Ripples and trawl marks were prevalent in this habitat type (Table 3-3). Only one SPI/PV ground-truth station was sampled in Mixed Sediment – Small Gravel and Sand habitats. At that station, the CMECS Substrate Subgroup was Gravelly Sand, the CMECS Biotic Subclass was Soft Sediment Fauna, and bryozoans and sand dollars were observed (Table 3-4; Figure 3-2).

3.1.3 Coarse Sediment Habitats

Coarse Sediment habitat types encompass sands with varying degrees of gravel (~5 – 80% of the surface composition). The seafloor of these habitat types exhibited generally medium to high reflectance values in backscatter and SSS data (Figures 3-3, 3-4, and 3-5). The Coarse Sediment – Mobile habitat type describes these sand and gravel habitats where the seafloor is subjected to small, but frequent currents and storm events and is common on the OCS. The seafloor within these habitats is characterized by distinct and regular ripples visible in the SSS data (Figure 3-4). The Mobile modifier was applied where ripples were present throughout most of the given habitat polygon. However, ripples were often present in smaller discrete areas across Coarse Sediment habitat types (Tables 3-1, 3-3, 3-5) and were noted in the Bedforms attribute of the habitat data. Trawl marks were observed within 35 – 50% of the Coarse Sediment and Coarse Sediment – Mobile habitats within the SRWF and SRWEC-OCS that did not intersect with boulder fields (Tables 3-1 and 3-3).

Coarse Sediment habitats within the Study Area included a broad range of habitats. At one end of the spectrum, was Coarse Sediment – Mobile with Medium Density Boulder Fields, where the seafloor exhibited variability and rugosity, ripples were interspersed with boulders, and ground-truth data resulted in a coarse sediment refinement of Sandy Gravel based on images showing patchy cobbles and/or boulders on sand, along with pebbles and granules at the seafloor surface (Figure 3-3). Coarse Sediment habitats with boulder fields represented small and discrete portions of the Study Area (Tables 3-1 and 3-5). Of the Coarse Sediment habitat types,

Coarse Sediment – Mobile habitats were most prevalent representing a total of 38% of the mapped area at the SRWF (Table 3-1) and 15% of the SRWEC–NYS (Table 3-5). These habitats included polygons that were refined by ground-truth data to Gravelly Sand (Figure 3-4) and polygons in which no gravel was detected in the ground-truth data (Figure 3-5). Variability in the strength of the backscatter return in these areas relates to the distinct nature of the ripples, the grain size of the sand (very coarse vs medium, for example), and collections of fine sand and sandy mud in ripple troughs and on the seafloor surface (Figures 3-4 and 3-5). Coarse Sediment habitat types were prevalent at the SRWF, represented approximately 41% of the mapped area (Table 3-1), represented approximately 16% of the habitats in the SRWEC–NYS (Table 3-5), and were limited in distribution in the SRWEC–OCS and in the ICW HDD Study Area (~3.5% and 7%, respectively, Tables 3-3 and 3-7).

Coarse Sediment habitats were well sampled by SPI/PV in the SRWF with a total of 86 stations sampled (78 in Coarse Sediment – Mobile; 7 in Coarse Sediment with Boulder Fields, and one in Coarse Sediment; Table 3-2). Coarse Sediment – Mobile habitats within the SRWF were also sampled with Pogo PV and sediments were generally Gravelly Sand with pebbles/granules present, which also were the largest size gravel observed; ripples were also noted (Attachment B). Ten towed video transects captured Coarse Sediment habitats in the SRWF (Attachment C). Video transects within these habitats were generally characterized as sand and mud or sand with ripples, with a few segments classified as Gravelly Sand. Individual boulders were observed in the video in 5 transects (Attachment C). SPI/PV ground-truth stations were categorized by a range of sandy and gravelly sediments with variable cover of gravel (as expected per definition, see Section 2.2) that supported a variety of sessile and mobile epifauna (Table 3-2); common infauna observed included cerianthids (burrowing anemones) (Attachment A). The predominant percent cover of Attached Fauna ranged from None in Coarse Sediment and Coarse Sediment – Mobile habitats to Sparse (1 to <30%) in Coarse Sediment with Boulder Fields (Table 3-2). Nine ground-truth SPI/PV stations sampled Coarse Sediment – Mobile habitats along the SRWEC, two in the SRWEC–OCS and 7 in SRWEC–NYS, respectively (Tables 3-4 and 3-6). These stations were characterized by the CMECS Substrate Subgroups Very Fine Sand, Fine Sand and Medium Sand in New York state waters and Coarse Sand and Very Coarse Sand in the SRWEC–OCS, as well as a mix of CMECS Biotic Subclasses Soft Sediment Fauna and Inferred Fauna (tracks and trails of mobile epifauna) (Tables 3-4 and 3-6). A single ground-truth station in Coarse Sediment with Boulder Fields was sampled in the SRWEC–NYS and was characterized as Medium Sand with Soft Sediment Fauna (Table 3-6). Three PV ground-truth stations were sampled within Coarse Sediment in the ICW HDD Study Area and included Gravelly Sand and Sandy Gravel, and a mix of Attached and Soft Sediment Fauna (Table 3-8).

3.1.4 Sand and Muddy Sand Habitats

The Sand and Muddy Sand habitat types consist of sand that has been subjected to a wide range of oceanic processes. These habitat types are very common on the OCS and were widespread throughout the entire Study Area (Tables 3-1, 3-3, 3-5, and 3-7). The Muddy Sand included in this category has a high sand to mud ratio, ranging from an 8:2 sand to mud ratio to

100% sand (Figure 2-21). The seafloor of these habitats exhibited a range of values in backscatter and SSS data reflectance but were predominantly low to medium (Figures 3-6). The Sand and Muddy Sand – Mobile habitat type describes these sandy habitats where the seafloor is subjected to small but frequent currents and storm events and ripples and/or mega-ripples were prevalent (Figure 2-25). Ripples were also frequently present in patches of Sand and Muddy Sand habitat (Tables 3-1, 3-3, 3-5 and 3-7), as were linear depressions and trawl marks in offshore waters (Tables 3-1 and 3-3; Figure 3-6).

Sand and Muddy Sand habitats comprised nearly 60% of the area mapped at the SRWF (56% Sand and Muddy Sand, 2.3% – Mobile, and <0.4% with Boulder Fields; Table 3-1), the majority of the SRWEC–OCS (50% Sand and Muddy Sand, 36% – Mobile; Table 3-3), the majority of the SRWEC–NYS (67% Sand and Muddy Sand, 14% – Mobile, and <4% with Boulder Fields; Table 3-5), and the majority of the ICW HDD Study Area (74% Sand and Muddy Sand, <20% Sand and Muddy Sand with historical and/or recent SAV and/or benthic macroalgae; Table 3-7).

Sand and Muddy Sand habitats were well sampled by SPI/PV in the Study Area (114 stations SRWF, 69 stations SRWEC–OCS, 27 stations SRWEC–NYS, 3 stations ICW HDD; Tables 3-2, 3-4, 3-6, and 3-8). The sediments within these habitats were generally composed of Very Fine, Fine and Medium Sands, with fewer ground-truth stations classified as Coarse Sand and as Silty/Clay (Attachment A; Tables 3-2, 3-4, 3-6, and 3-8). Sand and Muddy Sand habitats were observed to be sandy with no gravel present where sampled with Pogo PV and were observed to be comprised of sand and mud where sampled with video in the SRWF (Attachments B and C). The CMECS Biotic Subclass of Soft Sediment Fauna was the predominant Biotic Subclass within Sand and Muddy Sand habitats, with Inferred Fauna (epifaunal tracks and trails) and Attached Fauna present primarily as co-occurring Subclasses (Attachment A; Tables 3-2, 3-4, 3-6, and 3-8). Sessile and mobile epifauna were generally comprised of amphipods, sand dollars, and mobile crustaceans and mollusks (Tables 3-2, 3-4, and 3-6); common infauna observed included cerianthids (burrowing anemones) and, close to shore, decorator worms *Diopatra* spp. (Attachment A).

3.1.5 Mud and Sandy Mud Habitats

The Mud and Sandy Mud habitat types consist of relatively featureless mud and sand, except where described by modifiers for boulder fields and mobility. The sand to silt/clay ratio within these habitat types is expected to be less than 8:2 (Figure 2-21). The seafloor of these habitats exhibited predominantly low backscatter and SSS reflectance indicating that the surface is less dense and the sediments more fine-grained compared to other habitat types (Figure 3-7). Mud and Sandy Mud habitat types were limited at the SRWF and SRWEC–NYS (<1% in each area; Tables 3-1 and 3-5), relatively prevalent within the SRWEC–OCS (9.4%; Table 3-3), and were not observed in the ICW HDD Study Area (Table 3-7). Trawl marks related to fishing activity were prevalent in the Mud and Sandy Mud habitats mapped within the SRWEC–OCS (Table 3-3).

Sand and Muddy Sand habitats were sampled by SPI/PV at 1 station at the SRWF and 9 stations within the SRWEC–OCS (Tables 3-2 and 3-4). The sediments within these habitats were composed of Very Fine Sand and Silt/Clay (Tables 3-2 and 3-4). The CMECS Biotic Subclasses of Soft Sediment Fauna and Inferred Fauna (epifaunal tracks and trails) were the predominant Biotic Subclass within the Sand and Muddy Sand habitats (Tables 3-2 and 3-4. Sessile and mobile epifauna were generally comprised of amphipods, Corymorpha and Tubularia hydroids, and mobile crustaceans and mollusks (Tables 3-2, 3-4, and 3-6).

3.1.6 Vegetated Habitats

Sand and Muddy Sand habitats with potential (historical) or recently confirmed (2020) presence of SAV and/or benthic macroalgae were mapped within the ICW HDD Study Area (Table 3-7; Figure 3-8). Eelgrass (*Zostera marina*) was generally observed as single strands or groups of strands, often among thick patches of benthic macroalgae (Attachment D; Figure 3-8). Dense macroalgal beds were observed across numerous transects mainly along the northern side of the channel (Figure 3-8). SAV was not observed on the south side of the channel, despite an SAV bed being documented in this area previously (NYDOS 2020a and 2020b). The individual SAV shoots that were observed occurred on the north side of the channel within dense macroalgal beds (Figure 3-8). For the purposes of summary and EFH crosswalk, these are considered collectively as “vegetated habitats.”

3.2 Benthic Habitat Distributions

Distributions of benthic habitat types in the Study Area are related to a combination of ancient and modern geological events in the region. The geophysical and benthic survey data collected by Sunrise Wind have refined the understanding of the distribution of the habitats within the Study Area. While five primary benthic habitat types were mapped, twenty-two with modifiers, not all types were present in each portion of the Study Area. Habitat composition and characteristics and corresponding ground-truth data within the SRWF, SRWEC–OCS, SRWEC–NYS, and the ICW HDD Study Area are provided in Tables 3-1 through 3-8.

3.2.1 Sunrise Wind Farm

A total of 60,346 acres were mapped at the SRWF. With the exception of Mixed Sediment – Small Gravel and Sand, all primary habitat types were mapped at the SRWF (Table 3-1; Figure 3-9). Glacial Drift habitats were only found in the northwestern portion of the SRWF (Figure 3-9). The central, west and southwestern portions of the SRWF were primarily composed of Sand and Muddy Sand habitats with discrete areas of Coarse Sediment habitats (Figure 3-9). Sand and Muddy Sand habitats also dominated the southeastern tip of the SRWF (Figure 3-9). The eastern portion of the SRWF was composed primarily of Coarse Sediment habitats (Figure 3-9).

When habitats with modifiers are considered, Sand and Muddy Sand was the most prevalent habitat type mapped at the SRWF (33,710 acres, 56%), followed by Coarse Sediment – Mobile (22,723 acres, 38%), and Sand and Muddy Sand – Mobile (1,375 acres, 2.3%) (Table 3-1; Figure 3-10). Glacial Drift represented 684 acres, 1.1 % of the SRWF (Table 3-1), and habitats with boulder fields were generally observed proximal to these habitats (Figure 3-10). A few

discrete areas of boulder fields were also mapped near the center and north of the SRWF and more individual boulders were identified in the central area of the SRWF coincident with Sand and Muddy Sand and Coarse Sediment – Mobile habitats (Figure 3-11).

A total of 213 SPI/PV stations were sampled within the area mapped at the SRWF (Table 3-2) and were distributed relatively evenly. Generally, CMECS Substrate Subgroups defined by >30% gravel composition (Sandy Gravel, Mixed Sediment, and Boulder) corresponded with Glacial Drift habitats, while those with <30% gravel (Gravelly Sand) and Very Coarse Sand were found in both Glacial Drift and Coarse Sediment habitats in the northwestern portion of the SRWF (Figure 3-12). Coarse, Medium, and Fine Sands predominated Coarse Sediment – Mobile habitats and Very Fine and Fine Sands generally predominated Sand and Muddy Sand habitats (Figure 3-12). Similar patterns were observed from towed video data with varying degrees of gravel presence recorded in Glacial Drift habitats, sand with ripples predominating transect data within Coarse Sediment – Mobile habitats, sand with ripples and sand and mud recorded in Sand and Muddy Sand habitats, and sand and mud observed in Mud and Sandy Mud habitats (Figure 3-13). Macrohabitat ground-truth data revealed similar patterns with cobbles and boulders observed coincident with Glacial Drift habitats, sand with pebbles/granules observed in Glacial Drift and Coarse Sediment habitats in the northern and central portions of the SRWF (Figure 3-14). Sand with ripples was the predominant macrohabitat type recorded in Coarse Sediment – Mobile habitats, and sand and mud was the most commonly observed macrohabitat within Sand and Muddy Sand habitats (Figure 3-14). These substrate variables all supported the application of coarse sediment refinements. Sandy Gravel refinements were applied to polygons in the northwestern portion of the SRWF where Coarse Sediment with Medium Density Boulder Fields were mapped (Figure 3-15). Gravelly Sand was applied as a refinement to Coarse Sediment – Mobile habitats in the western and central portions of the SRWF (Figure 3-15). In Coarse Sediment – Mobile habitats in the eastern portion of the site, no gravel was observed in the ground-truth data (Figure 3-15).

All habitat types were dominated by Soft Sediment Fauna, except for Glacial Drift habitats where the Attached Fauna Biotic Subclass was also recorded (Figure 3-16). The non reef-building hard coral *Astrangia poculata*, a sensitive taxa, was observed at 5 stations associated with Glacial Drift and boulders in Coarse Sediment – Mobile habitats (Figure 3-17). In addition, the presence/absence of cerianthids (burrowing anemones) was recorded in SPI/PV analysis, as the presence of this emergent taxa may be relevant to demersal fish species (NOAA Habitat 2021). These taxa were observed across habitat types at the SRWF and were most prevalent in the Sand and Muddy Sand habitat in the eastern portion of the SRWF (Figure 3-18).

Table 3-1. Composition & Characteristics of Mapped Benthic Habitat Types at the SRWF

Sunrise Wind Farm ***(~60,346 acres mapped)***	**Presence in SRWF**		**Bedforms** *Type Present in Given Percentage of Habitats*			
	Area (acres)	Percentage	Mega-ripples	Ripples	Linear Depression	Trawl marks
Glacial Drift	684	1.1%	0%	99.5%	0%	0%
Coarse Sediment - with Medium Density Boulder Field	11	0.02%	0%	100%	0%	0%
Coarse Sediment - with Low Density Boulder Field	87	0.14%	0%	94.3%	0%	0%
Coarse Sediment - Mobile with High Density Boulder Field	70	0.12%	0%	100%	0%	0%
Coarse Sediment - Mobile with Medium Density Boulder Field	499	0.83%	0%	100%	0%	0.67%
Coarse Sediment - Mobile with Low Density Boulder Field	598	0.99%	0%	99.6%	0.16%	3.4%
Coarse Sediment - Mobile	22,723	38%	0%	99.6%	0.30%	54.0%
Coarse Sediment	240	0.40%	0%	68.6%	0%	44.5%
Sand and Muddy Sand - with High Density Boulder Field	11	0.02%	0%	44.2%	0%	0%
Sand and Muddy Sand - with Medium Density Boulder Field	24	0.04%	0%	31.7%	0%	0%
Sand and Muddy Sand - with Low Density Boulder Field	162	0.27%	0%	41.5%	14.1%	0%
Sand and Muddy Sand - Mobile	1,375	2.3%	99.4%	100%	0%	0%
Sand and Muddy Sand	33,710	56%	0%	85.2%	63.3%	80.8%
Mud and Sandy Mud - with High Density Boulder Field	2.0	0.003%	0%	100%	0%	0%
Mud and Sandy Mud - Mobile	0.1	0.0001%	0%	100%	0%	0%
Mud and Sandy Mud	147	0.24%	0%	3.7%	0%	3.9%

Table 3-2. Characteristics of Mapped Benthic Habitat Types as Informed by SPI/PV Ground-truth Data at the SRWF

Sunrise Wind Farm ***(~60,346 acres mapped)***		**Glacial Drift**	**Coarse Sediment with Boulder Field**	**Coarse Sediment - Mobile**	**Coarse Sediment**	**Sand and Muddy Sand with Boulder Field**	**Sand and Muddy Sand - Mobile**	**Sand and Muddy Sand**	**Mud and Sandy Mud**
SPI/PV Ground-truth Values	Number of SPI/PV stations	12	7	78	1	3	3	108	1
	CMECS Substrate Subgroups Observed in Ground-truth Data[1]	Boulder, Sandy Gravel, Gravelly Sand, Very Coarse Sand, Coarse Sand, Medium Sand	Gravelly Sand, Very Coarse Sand, Fine Sand	Gravelly Sand, Very Coarse Sand, Coarse Sand, Medium Sand, Fine Sand, Very Fine Sand, Silt/clay	Very Fine Sand	Fine Sand	Coarse Sand, Fine Sand	Medium Sand, Fine Sand, Very Fine Sand, Silt/clay	Silt/clay
	CMECS Biotic Subclasses Observed in Ground-truth Data	Attached Fauna, Inferred Fauna, Soft Sediment Fauna	Attached Fauna, Inferred Fauna, Soft Sediment Fauna	Attached Fauna, Inferred Fauna, Soft Sediment Fauna	Soft Sediment Fauna	Soft Sediment Fauna	Soft Sediment Fauna	Attached Fauna, Inferred Fauna, Soft Sediment Fauna	Soft Sediment Fauna
	Predominant Percent Cover of Attached Fauna Observed in Ground-truth Data	Dense (70 to <90%)	Sparse (1 to <30%)	None	None	None	None	None	None
	Sessile Epifauna Observed in Ground-truth Data	Anemone(s), Barnacles, Bryozoan(s), Caprellid Amphipods, Corymorpha, Hydroid(s), Mussels, Northern Star Coral, Sea Whip(s), Sponge(s), Tubularia Hydroid(s), Tunicates	Anemone(s), Bryozoan(s), Hydroid(s), Sponge(s), Tubularia Hydroid(s)	Barnacles, Bryozoan(s), Corymorpha, Hydroid(s), Northern Star Coral, Podocerid Amphipod(s), Tubularia Hydroid(s)	None	Ampelisca Amphipod(s)	None	Ampelisca Amphipod(s), Bryozoan(s), Corymorpha, Hydroid(s), Podocerid Amphipod(s), Tube-Building Amphipods, Tubularia Hydroid(s)	None
	Mobile Epifauna Observed in Ground-truth Data	Brittle Star(s), Sea Scallop(s), Sea Star(s), Shrimp, Snails	Nudibranch(s), Sand Dollar(s), Shrimp	Chaetognath(s), Crab(s), Hermit Crab(s), Nudibranch(s), Podocerid Amphipod(s), Sand Dollar(s), Sea Scallop(s), Sea Star(s), Shrimp, Snail(s)	Shrimp	Nudibranch(s), Shrimp, Snail	Sand Dollar(s)	Brittle Star, Chaetognath(s), Crab(s), Gastropod(s), Hermit Crab(s), Jonah Crab, Moon Snail(s), Nudibranch(s), Sand Dollar(s), Sea Scallop(s), Sea Star(s), Shrimp(s), Snail(s)	None

Notes:
1 Substrate Subgroup determined from combined SPI/PV analysis.

3.2.2 SRWEC–OCS

A total of 35,396 acres were mapped within the SRWEC–OCS (Table 3-3). With the exception of Glacial Drift, all primary habitat types were mapped within the SRWEC–OCS (Table 3-3; Figure 3-19). Coarse Sediment habitats were found near the SRWF and near the state waters boundary (Figure 3-19). The majority of the SRWEC–OCS was composed of Sand and Muddy Sand habitats with discrete areas of Mud and Sandy Mud habitats and one area of Mixed Sediment – Small Gravel and Sand habitat near where the corridor bends to the west (Figure 3-19).

When habitats with modifiers are considered, Sand and Muddy Sand was the most prevalent habitat type mapped at the SRWEC–OCS (17,752 acres, 50%), followed by Sand and Muddy Sand – Mobile (12,796 acres, 36%), and Mud and Sandy Mud (3,321 acres, 9.4%) (Table 3-3; Figure 3-20). Coarse Sediment – Mobile represented 1,218 acres, 3.4 % of the SRWEC–OCS (Table 3-3). No boulder fields were mapped within the SRWEC–OCS although individual boulders were identified in the portions of the corridor located further offshore (Figure 3-21).

A total of 81 SPI/PV stations were sampled within the area mapped within the SRWEC–OCS (Table 3-4) and were distributed relatively evenly. The only station with a CMECS Substrate Subgroup classification that included a portion of gravel was within the Mixed Sediment – Small Gravel and Sand habitat (Gravelly Sand, <30% gravel; Table 3-4; Figure 3-22). Very Coarse and Coarse Sands were recorded in Coarse Sediment – Mobile habitats (Table 3-4; Figure 3-22). Medium and Fine Sand predominated in Sand and Muddy Sand – Mobile habitats and Very Fine Sands generally predominated Sand and Muddy Sand habitats (Figure 3-22). Macrohabitat ground-truth data revealed similar patterns with sand with pebble/granules observed coincident with Mixed Sediment – Small Gravel and Sand habitat (Figure 3-23). Sand with ripples was the predominant macrohabitat type recorded in Coarse Sediment – Mobile habitats (Figure 3-23). Sand and mud with and without ripples were observed in Sand and Muddy Sand habitats and sand and mud was the predominant macrohabitat observed in Mud and Sandy Mud habitats (Figure 3-23).

All habitat types were dominated by Soft Sediment Fauna (Figure 3-24). The non reef-building hard coral *Astrangia poculata*, a sensitive taxa, was not observed within the SRWEC–OCS (Attachment A). In addition, the presence/absence of cerianthids (burrowing anemones) was recorded in SPI/PV analysis, as the presence of this emergent taxa may be relevant to demersal species (NOAA Habitat 2021). These taxa were observed at two stations within Sand and Muddy Sand habitat to the northeast of where the corridor bends to the west (Figure 3-25).

Table 3-3. Composition & Characteristics of Mapped Benthic Habitat Types within the SRWEC–OCS

Sunrise Wind Export Cable–Outer Continental Shelf ***(~35,396 acres mapped)***	**Presence in SRWEC–OCS Study Area**		**Bedforms** *Type Present in Given Percentage of Habitats*				
	Area (acres)	Percentage	Mega-ripples	Ripples	Linear Depression	Trawl marks	Large Sand Accumulation Zone
Mixed Sediment - Small Gravel & Sand	301	0.85%	0%	100%	0%	98.1%	0%
Coarse Sediment - Mobile	1,218	3.4%	0%	100%	0%	39.2%	0%
Coarse Sediment	7.2	0.02%	0%	36.4%	0%	36.4%	0%
Sand and Muddy Sand - Mobile	12,796	36%	45.3%	99.9%	0%	30.2%	0%
Sand and Muddy Sand	17,752	50%	0.1%	45.1%	7.2%	86.2%	12.5%
Mud and Sandy Mud	3,321	9.4%	0%	0%	0%	93.6%	0%

Table 3-4. Characteristics of Mapped Benthic Habitat Types as Informed by SPI/PV Ground-truth Data within the SRWEC–OCS

Sunrise Wind Export Cable–Outer Continental Shelf *(~35,396 acres mapped)*		**Mixed Sediment - Small Gravel & Sand**	**Coarse Sediment - Mobile**	**Sand and Muddy Sand - Mobile**	**Sand and Muddy Sand**	**Mud and Sandy Mud**
SPI/PV Ground-truth Values	Number of SPI/PV stations	1	2	29	40	9
	CMECS Substrate Subgroups Observed in Ground-truth Data[1]	Gravelly Sand	Very Coarse Sand, Coarse Sand	Coarse Sand, Medium Sand, Fine Sand, Very Fine Sand	Medium Sand, Fine Sand, Very Fine Sand	Very Fine Sand
	CMECS Biotic Subclasses Observed in Ground-truth Data	Soft Sediment Fauna	Soft Sediment Fauna	Attached Fauna, Inferred Fauna, Soft Sediment Fauna	Inferred Fauna, Soft Sediment Fauna	Inferred Fauna, Soft Sediment Fauna
	Predominant Percent Cover of Attached Fauna Observed in Ground-truth Data	None	None	None	None	None
	Sessile Epifauna Observed in Ground-truth Data	Bryozoan(s)	Bryozoan(s), Hydroid(s)	Barnacle(s), Hydroid(s), Sponge(s)	Ampelisca Amphipod(s), Bryozoan(s), Corymorpha, Hydroid(s), Tubularia Hydroid(s)	Ampelisca Amphipod(s), Corymorpha, Tubularia Hydroid(s)
	Mobile Epifauna Observed in Ground-truth Data	Sand Dollar(s)	Hermit Crab(s), Nudibranch(s), Shrimp	Gastropod(s), Hermit Crab(s), Sand Dollar(s), Sea Scallop(s), Sea Star(s), Shrimp, Snail(s)	Chaetognath(s), Cowrie, Crab(s), Gastropod(s), Hermit Crab(s), Nudibranch(s), Sand Dollar(s), Sea Scallop(s), Sea Star(s), Shrimp(s), Snail(s)	Crab(s), Moon Snail(s), Sea Star(s)

Notes:
1 Substrate Subgroup determined from combined SPI/PV analysis.

3.2.3 SRWEC–NYS

A total of 2,346 acres were mapped within the SRWEC–NYS (Table 3-5). With the exception of Glacial Drift and Mixed Sediment – Small Gravel and Sand, all primary habitat types were mapped within the SRWEC–NYS (Table 3-5; Figure 3-19). Coarse Sediment habitats were found near the point where the SRWEC–NYS Study Area widens nearshore (Figure 3-19). The majority of the SRWEC–NYS was composed of Sand and Muddy Sand habitats (Figure 3-19).

When habitats with modifiers are considered, Sand and Muddy Sand was the most prevalent habitat type mapped at the SRWEC–NYS (1,573 acres, 67%), followed by Coarse Sediment – Mobile (348 acres, 15%), and Sand and Muddy Sand – Mobile (324 acres, 14%) (Table 3-5; Figure 3-20). Coarse Sediment – Mobile with Medium/High Density Boulder Fields represented 19.8 acres, <1% of the SRWEC–NYS (Table 3-5). Boulder fields were mapped as irregular shapes with an onshore-offshore orientation near the point where the SRWEC–NYS Study Area widens nearshore; additional individual boulders were also identified in this area (Figure 3-21).

A total of 35 SPI/PV stations were sampled within the area mapped within the SRWEC–NYS (Table 3-6) and were distributed relatively evenly. Medium, Fine, and Very Fine Sands were recorded in Coarse Sediment habitats (Table 3-6; Figure 3-22). Very Fine and Fine Sands predominated the Sand and Muddy Sand habitats (Figure 3-22). Sand and mud with and without ripples were observed in habitats within the SRWEC–NYS (Figure 3-23).

All habitat types were dominated by Soft Sediment Fauna (Figure 3-24). The non reef-building hard coral *Astrangia poculata*, a sensitive taxa, was not observed within the SRWEC–NYS (Attachment A). In addition, the presence/absence of cerianthids (burrowing anemones) was recorded in SPI/PV analysis, as the presence of this emergent taxa may be relevant to demersal species (NOAA Habitat 2021). These taxa were prevalent within Sand and Muddy Sand habitats just inshore of the state waters boundary (Figure 3-25).

Table 3-5. Composition & Characteristics of Mapped Benthic Habitat Types within the SRWEC–NYS

Sunrise Wind Export Cable–New York State Waters *(~2,346 acres mapped)*	**Presence in SRWEC–NYS Study Area**		**Bedforms** *Type Present in Given Percentage of Habitats*
	Area (acres)	Percentage	Ripples
Coarse Sediment - Mobile with High Density Boulder Field	6.8	0.29%	100%
Coarse Sediment - Mobile with Medium Density Boulder Field	13	0.55%	100%
Coarse Sediment - Mobile	348	15%	100%
Coarse Sediment	0.6	0.02%	82.5%
Sand and Muddy Sand - with High Density Boulder Field	28	1.2%	0%
Sand and Muddy Sand - with Medium Density Boulder Field	48	2.0%	0%
Sand and Muddy Sand - with Low Density Boulder Field	2.4	0.10%	0%
Sand and Muddy Sand - Mobile	324	14%	100%
Sand and Muddy Sand	1,573	67%	23.8%
Mud and Sandy Mud	1	0.04%	0%

Table 3-6. Characteristics of Mapped Benthic Habitat Types as Informed by SPI/PV Ground-truth Data within the SRWEC–NYS

Sunrise Wind Export Cable–New York State Waters *(~2,346 acres mapped)*		**Coarse Sediment with Boulder Field**	**Coarse Sediment - Mobile**	**Sand and Muddy Sand with Boulder Field**	**Sand and Muddy Sand - Mobile**	**Sand and Muddy Sand**
SPI/PV Ground-truth Values	Number of SPI/PV stations	1	7	1	4	22
	CMECS Substrate Subgroups Observed in Ground-truth Data[1]	Medium Sand	Medium Sand, Fine Sand, Very Fine Sand	Fine Sand	Fine Sand	Fine Sand, Very Fine Sand
	CMECS Biotic Subclasses Observed in Ground-truth Data	Soft Sediment Fauna	Inferred Fauna, Soft Sediment Fauna	Inferred Fauna, Soft Sediment Fauna	Soft Sediment Fauna	Inferred Fauna, Soft Sediment Fauna
	Predominant Percent Cover of Attached Fauna Observed in Ground-truth Data	None	None	None	None	None
	Sessile Epifauna Observed in Ground-truth Data	None	Ampelisca Amphipod(s)	None	None	None
	Mobile Epifauna Observed in Ground-truth Data	Hermit Crab(s)	Hermit Crab(s), Isopod(s), Sand Dollar(s), Shrimp, Snail(s)	Hermit Crab(s), Sand Dollar(s), Snail(s)	Hermit Crab(s), Isopod(s), Sand Dollar(s)	Gastropod(s), Hermit Crab(s), Isopod(s), Sand Dollar(s), Snail(s)

Notes:
1 Substrate Subgroup determined from combined SPI/PV analysis.

3.2.4 ICW HDD Study Area

Habitats within the ICW HDD Study Area were mapped using PV and video imagery, in combination with aerial imagery and historical data on the presence of SAV and benthic macroalgae (Figures 2-14 and 3-8). A total of 133 acres were mapped within the ICW HDD Study Area (Table 3-7). Sand and Muddy Sand and Coarse Sediment were the only primary habitat types mapped within the ICW HDD Study Area (Table 3-7; Figure 3-26). Sand and Muddy Sand was the dominant habitat type mapped and Coarse Sediment habitats were found across the center of the Study Area to the west of the bridge, coincident with the dredged navigational channel (Figure 3-26). Sampling with underwater imagery permitted the classification of Coarse Sediment in this deeper channel where the seafloor was not visible with aerial imagery.

When habitats with modifiers are considered, Sand and Muddy Sand was the most prevalent habitat type mapped within the ICW HDD Study Area (98 acres, 74%), followed by Sand and Muddy Sand with recent and/or potential SAV and/or benthic macroalgae (24 acres, 18%), and Coarse Sediment (9.3 acres, 7%) (Table 3-7; Figure 3-26).

A total of 8 PV stations were sampled within the ICW HDD Study Area (Table 3-8). Sands were observed except in Coarse Sediment habitats where Gravelly Sand and Sandy Gravel was recorded (Table 3-8; Figure 3-26). Sand and Muddy Sand habitats were dominated by Soft Sediment Fauna and Coarse Sediment habitats were dominated by Attached Fauna (Figure 3-27). The non reef-building hard coral *Astrangia poculata*, a sensitive taxa, was not observed within the ICW HDD Study Area; cerianthids (burrowing anemones) were also not observed (Attachment A).

Table 3-7. Composition & Characteristics of Mapped Benthic Habitat Types within the ICW HDD Study Area

Sunrise Wind - ICW HDD Study Area *(~133 acres mapped)*	**Presence in ICW-HDD Study Area**		**Bedforms** *Type Present in Given Percentage of Habitats*
	Area (acres)	Percentage	Ripples
Coarse Sediment	9.3	7.0%	0%
Sand and Muddy Sand - with SAV and Benthic Macroalgae	1.7	1.3%	0%
Sand and Muddy Sand - with Benthic Macroalgae	0.5	0.40%	0%
Sand and Muddy Sand - with Potential SAV and Benthic Macroalgae	3.4	2.5%	0%
Sand and Muddy Sand - with Potential SAV	11	8.3%	0%
Sand and Muddy Sand - with Potential Benthic Macroalgae	7.9	5.9%	0%
Sand and Muddy Sand	98	74%	18.5%
Anthropogenic	1.0	0.77%	0%

Table 3-8. Characteristics of Mapped Benthic Habitat Types as Informed by SPI/PV Ground-truth Data within the ICW HDD Study Area

Sunrise Wind - ICW HDD Study Area *(~133 acres mapped)*		**Coarse Sediment**	**Vegetated Habitats**	**Sand and Muddy Sand**
SPI/PV Ground-truth Values	Number of PV stations	3	2	3
	CMECS Substrate Subgroups Observed in Ground-truth Data[1]	Sandy Gravel, Gravelly Sand	Sand or finer	Sand or finer
	CMECS Biotic Subclasses Observed in Ground-truth Data	Attached Fauna, Soft Sediment Fauna	Attached Fauna, Soft Sediment Fauna	Inferred Fauna, Soft Sediment Fauna
	Predominant Percent Cover of Attached Fauna Observed in Ground-truth Data	Trace (<1%)	Trace (<1%)	None
	Sessile Epifauna Observed in Ground-truth Data	Bryozoan(s), Serpulid(s)	None	None
	Mobile Epifauna Observed in Ground-truth Data	Hermit Crab(s)	Unidentified Crab	None

Notes:
1 Substrate Subgroup determined from combined SPI/PV analysis

3.3 Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories

The NOAA Habitat Complexity Categories were defined by NOAA Habitat for the purposes of EFH consultation (NOAA Habitat 2021). The NOAA Habitat Complexity Categories include soft bottom, complex, heterogeneous complex, and large grained complex (large boulders). For purposes of the EFH consultation, NOAA has defined complex habitats as SAV, shell substrate, and sediments with >5% gravel of any size (pebbles to boulders; CMECS Substrate of Rock, Groups of Gravelly, Gravel Mixes, and Gravels) (NOAA Habitat 2021). Heterogenous complex is used for habitats with a combination of soft bottom and complex features (NOAA Habitat 2021). A crosswalk between benthic habitat types with modifiers mapped within the Study Area and NOAA Habitat Complexity Categories is provided in Table 3-9. Glacial Drift was crosswalked to the “large grained complex” category and 14 benthic habitat types were crosswalked to the “complex” category, based either on having >5% gravel or on the presence of SAV. In addition, on request from NOAA Habitat, sand and mud habitats with boulder fields that were previously crosswalked to the “heterogeneous complex” category, were crosswalked to “complex.” Sand and mud habitats were all crosswalked to the “soft bottom” category.

The majority of the SRWF was categorized as soft bottom and approximately 40% was categorized as complex (Figure 3-28). Large grained complex was restricted to the northwestern portions of the SRWF where Glacial Drift was mapped (Figure 3-28). Habitats crosswalked to the complex category were located predominantly in the north and east portions of the SRWF and in discrete areas along the western edge of the SRWF (Figure 3-28). Habitats crosswalked to soft bottom habitats were generally found in central, west and southwestern portions of the SRWF and in the southeastern corner of the SRWF (Figure 3-28). Boulder fields were found coincident with and proximal to Glacial Drift habitats. A high incidence of clusters of scattered boulders were located immediately east of the center of the SRWF in habitats crosswalked to complex; scattered boulders were also present and dispersed in soft bottom habitats in the center and west of the SRWF (Figure 3-28).

Nearly all of the habitats mapped in the SRWEC–OCS were categorized as soft bottom and a small portion (~5%) was categorized as complex (Figure 3-29). Discrete areas of habitats crosswalked to complex were located near the SRWF and just west of where the corridor bends to the west (Figures 3-28 and 3-29). In soft bottom habitats, one cluster of scattered boulders was mapped east of the corridor bend and dispersed scattered boulders were observed along the entire corridor east of the bend, west of the corridor bend scattered boulders were rarely observed (Figure 3-29).

Approximately 80% of the habitats mapped in SRWEC–NYS were categorized as soft bottom and the remaining ~20% were categorized as complex (Figure 3-29). Most of the habitats crosswalked to complex, as well as boulder fields and scattered boulders, were mapped in one discrete area interspersed with soft bottom habitats near the point where the SRWEC–NYS Study Area widens nearshore (Figure 3-29).

Approximately three-quarters of the ICW HDD Study Area was categorize as soft bottom with the much of the remainder categorized as complex due to the recently confirmed (2020) or historical (2002, 2018; NYDOS 2020a and 2020b) presence of SAV and benthic macroalgae (Figure 3-30). Recently confirmed SAV and/or benthic macroalgae were located on the northern shore of Bellport Bay (west of the bridge; Figure 3-30). In addition, a strip across the middle of Bellport Bay coincident with the dredged navigational channel was crosswalked to the complex category due to the presence of Coarse Sediment habitat characterized by Gravelly Sand and Sandy Gravel (Figures 3-26 and 3-30).

Table 3-9. Crosswalk of Benthic Habitat Types with Modifiers Mapped at the Project to NOAA Habitat Complexity Categories

Benthic Habitat Type with Modifiers	Color	Complex Color	NOAA Habitat Complexity Category
Anthropogenic			Anthropogenic
Glacial Drift			Large Grained Complex
Mixed Sediment – Small Gravel & Sand			Complex
Coarse Sediment – Mobile with High Density Boulder Field			Complex
Coarse Sediment (– Mobile) with Medium Density Boulder Field			Complex
Coarse Sediment (– Mobile) with Low Density Boulder Field			Complex
Coarse Sediment – Mobile			Complex
Coarse Sediment			Complex
Sand and Muddy Sand with High Density Boulder Field			Complex
Sand and Muddy Sand with Medium Density Boulder Field			Complex
Sand and Muddy Sand with Low Density Boulder Field			Complex
Sand and Muddy Sand with (Potential) Submerged Aquatic Vegetation (SAV)			Complex
Sand and Muddy Sand with (Potential) Submerged Aquatic Vegetation (SAV) and (Potential) Benthic Macroalgae			Complex
Sand and Muddy Sand with (Potential) Benthic Macroalgae			Complex
Sand and Muddy Sand – Mobile			Soft Bottom
Sand and Muddy Sand			Soft Bottom
Mud and Sandy Mud – Mobile			Soft Bottom
Mud and Sandy Mud			Soft Bottom

3.4 EFH Crosswalked to Benthic Habitats

The results of the full EFH benthic habitat crosswalk are presented in Attachment E. All species are presented in the table with presence of EFH by primary benthic habitat type and specific project area indicated. Gray cells in the table indicate that mapped EFH does not overlap with the specified project area and blank cells indicate that the species/ life stage is not anticipated to utilize the given habitat type as EFH. There were various levels of EFH information available to support the crosswalk depending on the species. Some species have more explicitly identified preferred and essential substrates, while others, such as ocean quahog and spiny dogfish, have limited information. For species with limited information, or broader substrate preferences, a conservative approach was taken when cross walking EFH to specific habitats. For example, scup adults are associated with soft, sandy bottoms; mixed sand; and mud; but prefer soft bottoms near structure. Habitats with scattered boulders or SAV are much more likely to have sand near structure than other primary benthic habitat types, and thus may have a “higher value” for these species than others. However, because sandy bottom is found in portions of the three primary habitats within the Study Area, the conservative crosswalk maps adult scup to all mapped habitat types (Attachment E).

In total, 28 benthic/demersal species and 63 life stages with designated essential fish habitat within the Study Area have been crosswalked to mapped benthic habitats: 35 life stages to Glacial Drift habitats, 53 life stages to Coarse Sediment habitats, 52 to Sand and Muddy Sand habitats, and 42 to Mud and Sandy Mud Habitats. A list of 11 priority species are discussed in more detail in Section 4.4.

4.0 DISCUSSION

A complete summary of anticipated impacts to the seafloor is provided in Table 4-1, along with associated information related to the Project Design Envelope and related assumptions; additional information can be found in the COP (Sunrise Wind, LLLC 2021a). Per NOAA Habitat recommendations (NOAA Habitat 2021), proportional representation of benthic habitats within each potential area of impact have been summarized by the NOAA Habitat Complexity Category to which they have been crosswalked. These proportional representations of benthic habitats have been calculated across the entire potential area of impact for each project component footprint (see Section 2.4 for details). Importantly, these calculated values and proportions are conservative estimates; the actual total anticipated areas of impact in acres along with Project Design Envelope context are provided in Table 4-1. For example, 3% of each foundation seafloor preparation area is a conservative estimate for anticipated boulder relocation based on worst case boulder densities at the foundation locations and this value, along with anticipated use of jack-up vessels, has been utilized to calculate a realistic estimate of the total area within the seafloor preparation footprints that may be directly impacted by the Project (Table 4-1). Certain impacts may be more likely to occur in particular habitat types; for example, boulder clearance is more likely to be needed in habitats that have been categorized as complex. Where differential impacts are anticipated, these have also been noted in Table 4-1.

With few exceptions, the composition of benthic habitats crosswalked to NOAA Habitat Complexity Categories included in potential permanent and temporary impact footprints (Table 4-1) was similar to the composition documented within the given project component area (SRWF: Figure 3-28; SRWEC: Figure 3-29, ICW HDD Study Area: Figure 3-30). These results indicate that significantly altered layouts would do little to measurably shift the overall composition of benthic habitats impacted by the Project. However, Sunrise Wind has, and will continue to, micro-site foundations within the micro-siting allowances that supports the agreed upon regional uniform east-west/north-south grid with 1.15 by 1.15-mi (1 by 1-nm; 1.85 by 1.85-km) on a case-by-case basis to avoid significant seabed hazards such as surface and subsurface boulders and to avoid and minimize impacts to complex habitat types to the extent feasible and in consideration of other siting constraints.

Table 4-1. Maximum Potential Impacts to Benthic Habitats by NOAA Habitat Complexity Category from Proposed Project Design and Associated Assumptions and Information from the COP related to Areas of Anticipated Impact*

* The current indicative GIS layout was used to determine the distribution of benthic habitat types crosswalked to NOAA Habitat Complexity Categories within the total maximum footprint of each Project element. The resulting values may differ from values provided in the project design envelope or from values calculated using conservative or rounded values. This may result in different total numbers from those presented in the COP; for example, the current indicative IAC network is 264.2 km in GIS, whereas the project design envelope presented in the COP allows for a 10% increase in this value for a total of 290 km, allowing for some changes to the length of the IAC as Sunrise Wind further refines its design and construction plans. In addition, because 102 potential positions are in consideration for 94 WTG foundations, acres of habitat that may be impacted were calculated for the 102 positions and reported on the "Total" column; however, the actual total acreage that is as anticipated to be impacted is related to the total area that may be impacted by 94 WTG foundations and is reported in the "Total Area of Anticipated Impacts to the Seafloor" column. This column is also used to report the maximum total area that may be disturbed by activities that will only conducted along certain portions of the cables (cable protection, boulder clearance); for these values the total length provided in the project design envelope, rather than the indicative GIS data, were used to calculate a conservative value.

Sunrise Offshore Wind Farm Proposed Project Design			**Unit of Measure**	**Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories** *Calculated from Current Indicative GIS Layout **				**Total Area of Anticipated Impacts to the Seafloor** (*for 94 WTGs + OCS-DC*)
				Large Grained Complex	**Complex**	**Soft Bottom**	**Total**	
WTG & OCS-DC Foundations	**PERMANENT**	**Foundations**	**acres**	0	1.52	1.96	3.49	**3.27 acres**
			%	0%	44%	56%	100%	**~94%**
		Associated Assumptions and Context Acres are based on 12-m diameter monopile WTG foundations, with an area of 0.028 acre for each WTG foundation and 0.64 acres for the four-legged piled jacket OCS-DC foundation (inclusive of rock for surface leveling and scour protection covering the entire 51 m x 51 m area), resulting in totals of 2.63 acres for all 94 WTGs (2.85 acres across the 102 potential positions) and 3.27 acres total inclusive of all 94 WTGs and the OCS-DC, which is ~94% of the total calculated across all 103 potential positions (3.49 acres) from the indicative GIS layout. This area may be disturbed by temporary installation activities before being permanently impacted by the physical structure of the foundations. **Anticipated Activities or Structures that would cause Impact** Physical structure - WTG and OCS-DC vertical hard substrate. Minimal seafloor preparation required (e.g., boulder relocation via grab and/or seafloor leveling). Impacts to complex habitats will likely be minimized through layout refinement and micro-siting.					

Sunrise Offshore Wind Farm Proposed Project Design			Unit of Measure	Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories *Calculated from Current Indicative GIS Layout* *				Total Area of Anticipated Impacts to the Seafloor (*for 94 WTGs + OCS-DC*)
				Large Grained Complex	**Complex**	**Soft Bottom**	**Total**	
WTG & OCS-DC Foundations	**PERMANENT**	**Maximum Scour Protection & Cable Protection System (CPS) Stabilization for IACs at the WTGs and for IACs and SRWEC at the OCS-DC**	**acres**	0.09	38.48	64.88	103.44	**up to 98.05 acres**
			%	0.1%	37%	63%	100%	**up 95%**

Associated Assumptions and Context

Scour protection and Cable Protection System (CPS) stabilization for IACs associated with each foundation will only be used if required for engineering purposes.

If needed, the maximum extent of scour protection for each WTG foundation would be in a ring around the foundation up to 30 m in each direction, covering 0.975 acres per foundation; the CPS stabilization would extend an additional 6 m from the edge of the scour protection and would be 12 m wide. There will be no more than 3 IACs per WTG foundation, each IAC CPS stabilization would be 0.02 acres, for a maximum of no more than 0.06 acres per WTG foundation. Therefore, the total maximum scour protection + CPS stabilization per WTG foundation would be 1.04 acres. The maximum total scour protection across the 94 WTG foundations would be 91.66 acres, and when CPS stabilization is included up to 97.30 acres for all 94 WTG foundations (as calculated from the indicative GIS layout).

Scour protection at the OCS-DC foundation would extend beyond the foundation footprint by up to 20 m in each direction (0.61 acres), additional CPS stabilization at the OCS-DC for up to 15 IACs and the SRWEC where each is pulled into the foundation would extend out to 5 m beyond the scour protection and would 12 m wide and would be an additional 0.14 acres. Together scour protection and CPS stabilization at the OCS-DC would total up to 0.75 acres.

Therefore, the total maximum scour protection and CPS stabilization that may be used in total for all 94 WTGs and the OCS-DC would be 98.05 acres (97.30 + 0.75 acres), which is approximately 95% of the total calculated across all 103 potential positions from the indicative GIS layout (103.44).

This area may be disturbed by temporary installation activities before being permanently impacted by physical structure.

Anticipated Activities or Structures that would cause Impact

Physical structure - foundation, scour protection and CPS stabilization, specific type of material to be selected at final design

Minimal seafloor preparation required (e.g., boulder relocation via grab and/or seafloor leveling).

Impacts to complex and large grained complex will likely be minimized through layout refinement and micro-siting.

Sunrise Offshore Wind Farm Proposed Project Design			Unit of Measure	Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories *Calculated from Current Indicative GIS Layout **				Total Area of Anticipated Impacts to the Seafloor (*for 94 WTGs + OCS-DC*)
				Large Grained Complex	Complex	Soft Bottom	Total	
WTG & OCS-DC Foundations	**PERMANENT**	**Total - Foundations + Maximum Scour Protection & CPS Stabilization for IACs at the WTGs and for IACs and SRWEC at the OCS-DC**	**acres**	0.09	40.00	66.84	106.93	**up to 101.3 acres**
			%	0.1%	37%	63%	100%	**up to 95%**
		Associated Assumptions and Context No more than 1.06 acre per monopile foundation would be impacted for permanent structures (foundations, 0.028 + scour protection, 0.975 + CPS stabilization, no more than 0.06), up to 99.9 acres across 94 foundations; total permanent structures (foundation, 0.64 + scour protection, 0.61 + CPS stabilization, 0.14) for the OCS-DC will cover up to 1.39 acres. The maximum total area that may be permanently impacted by foundations, scour protection and CPS stabilization totals 101.3 acres (99.9 + 1.39 acres), which is 95% of the total calculated across all 103 potential positions from the indicative GIS layout (up to 106.93 acres). **Anticipated Activities or Structures that would cause Impact** Physical structure - foundation, scour protection and CPS stabilization, specific type of material to be selected at final design. Minimal seafloor preparation required (e.g., boulder relocation via grab and/or seafloor leveling). Impacts to complex and large grained complex will likely be minimized through layout refinement and micro-siting.					

Sunrise Offshore Wind Farm Proposed Project Design			Unit of Measure	Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories *Calculated from Current Indicative GIS Layout **				Total Area of Anticipated Impacts to the Seafloor (*for 94 WTGs + OCS-DC*)
				Large Grained Complex	**Complex**	**Soft Bottom**	**Total**	
WTG & OCS-DC Foundations	**TEMPORARY**	**Seafloor Disturbance around Permanent Structures**	**acres**	22.86	1545.06	2195.13	3763.04	**up to 127.0 acres (95 foundations) to 137.7 acres (up to 103 positions)**
			%	1%	41%	58%	100%	**~ up to 3.4 to 3.7%**

Associated Assumptions and Context

Represents wide area around permanent features in which temporary disturbance is anticipated; temporary seafloor disturbance activities may be conducted at more positions than the 94 WTGs where foundations will be installed, up to at the 102 potential positions included in the project design envelope. Up to 220-m radius assumed from foundation center point for WTG and OCS-DC foundations. This 220-m radius equates to 37.6 acres per foundation; the area of seafloor preparation only that surrounds the maximum permanent footprint of the foundation, scour protection, and CPS stabilization is approximately 36.56 acres per WTG foundation (37.6 - 1.04 acres) and around the OCS-DC is 36.21 acres (37.6 – 1.39 acres), for a total of ~3,431 acres for all 94 WTGs and a total of approximately 3,467 acres inclusive of all 94 WTGs and the OCS-DC (up to approximately 3,763 acres across all 103 potential positions).

Up to approximately 3% of the 37.6-acre area (1.13 acres per foundation position) may be disturbed during boulder relocation. This is a conservative estimate based on worst case boulder densities at foundation locations. Across 95 foundation locations, the total maximum acres would be 107.35 acres (up to 116.4 acres across all 103 potential positions).

The total area of seabed disturbance per jack-up will be approximately 724.4 sq m (0.18 acre). Based on assumption of using a jack-up at each of up to 95 foundations (17.10 acres) and using a second jack-up at up to 15% of the foundations (2.57 acres), up to 19.67 acres of seabed disturbance may occur from jack-up activity during WTG installation (up to 21.32 acres across all 103 potential positions). Jack-up activity will occur within a 220-m radius surrounding each foundation location.

Therefore, the total anticipated maximum area of seafloor disturbance is estimated to be 127.0 acres (107.3 + 19.67), which is 3.7% of the 3,467 acres of seafloor preparation around the permanent structures, and 3.4% of the total calculated across all 103 potential positions from the indicative GIS layout (3,763 acres). If the remaining positions are needed as spares, up to 137.7 acres (116.4 + 21.32) may be disturbed by temporary activities, which is 3.7% of the total calculated across all 103 potential positions from the indicative GIS layout (3,763 acres).

Anticipated Activities or Structures that would cause Impact

Boulder relocation activities (via grab); Jack-up barges/spud cans to support installation activities

Boulder relocation will occur where boulders are present and cannot be avoided with micro-siting; these impacts are more likely to occur in large grained complex and complex habitats.

Jack-up and other seafloor preparation activities are anticipated to occur in soft bottom habitats with higher frequency than in complex and large grained complex habitats.

Sunrise Offshore Wind Farm Proposed Project Design		Unit of Measure	Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories *Calculated from Current Indicative GIS Layout* *				Total Area of Anticipated Impacts to the Seafloor (*for 94 WTGs + OCS-DC*)
			Large Grained Complex	**Complex**	**Soft Bottom**	**Total**	
WTG & OCS-DC Foundations	**TOTAL Permanent + Temporary 440-m diameter (220-m radius) circle around center point of foundations**	**acres**	22.94	1585.06	2261.97	3,869.97	**up to 239.02 acres**
		%	1%	41%	58%	100%	**up to 6.7%**

Associated Assumptions and Context
Represents wide area in which permanent features will be installed and in which temporary disturbance is anticipated. Up to 220-m radius assumed from foundation center point for WTG and OCS-DC foundations. This 220-m radius equates to 37.6 acres per foundation, a total of 3,534.4 acres across 94 WTG foundations and 37.6 acres at the OCS-DC foundation, totaling 3,572 acres across all foundations, which is 92% of the total calculated across all 103 potential positions from the indicative GIS layout (up to approximately 3,870 acres).

The total area anticipated to be impacted is 239.02 acres, equal to the maximum potential permanent impact for 95 foundations (101.3 acres) and the maximum total temporary impact across all 103 potential positions (137.7 acres), which represents 6.7% of the total 3,572 acres**,** and 6.1% of the total 3,870 acres calculated across all 103 positions from the indicative GIS layout.

Anticipated Activities or Structures that would cause Impact
See above rows for details on each foundation component.

Sunrise Offshore Wind Farm Proposed Project Design			Unit of Measure	Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories *Calculated from Current Indicative GIS Layout **				Total Area of Anticipated Impacts to the Seafloor (*for 94 WTGs + OCS-DC*)
				Large Grained Complex	**Complex**	**Soft Bottom**	**Total**	
Inter-Array Cables	**PERMANENT**	**Cable Protection**	**acres**	0	297.68	463.07	760.75	**up to 139.36 acres**
			%	0%	39%	61%	100%	**up to 18%**

Associated Assumptions and Context
Up to 15% of the entire up to 290-km long IAC network, 43.5 km, may require cable protection. Cable protection will measure up to 39 ft (12 m) wide. Therefore, an area of up to 129 acres may require cable protection.

Up to 7 crossings of IAC network are anticipated and will require protection. It is assumed up to 1,640 ft (500 m) of cable protection will be required per crossing, 1.48 acres per crossing. A total of up to 10.36 acres additional cable protection may be needed for these crossings.

If cable protection were needed across the entire up to 290-km long IAC network a total of 859.9 acres would be needed. Therefore, 139.36 acres (129 acres where needed + 10.36 acres for cable crossings) represents 18% of the entire IAC network.

Anticipated Activities or Structures that would cause Impact
Physical structure - concrete mattresses, frond mattresses, rock bags, and/or rock berms; specific cable protection material will be selected at final design.

Cable protection will be used where burial cannot occur, sufficient burial depth cannot be achieved due to seabed conditions or to avoid risk of interaction with external hazards. These locations are more likely to occur in areas of complex habitats, where siting in these habitats cannot be avoided.

Cable protection will also be used where cable crossings occur.

Sunrise Offshore Wind Farm Proposed Project Design			Unit of Measure	Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories *Calculated from Current Indicative GIS Layout **				Total Area of Anticipated Impacts to the Seafloor (*for 94 WTGs + OCS-DC*)
				Large Grained Complex	Complex	Soft Bottom	Total	
Inter-Array Cables	TEMPORARY	**Cable Installation & Seafloor Preparation**	**acres**	0	627.83	993.11	1,620.94	**<1620.94 acres**
			%	0%	39%	61%	100%	**<100%**
		Associated Assumptions and Context Represents 30-m wide corridor for the IAC network (up to 290 km) in which temporary disturbance activities are anticipated; this corridor encompasses a total of 1620.94 acres, once the area that overlaps with the permanent and temporary foundation footprints has been removed. Up to 10% of the IAC network, 29 km, may require boulder clearance and up to 5% of the IAC network, 14.5 km, may require sand wave leveling. The maximum area that may be temporarily disturbed by these activities would be 322.5 acres (215 acres for boulder clearance and 107.5 acres for sand wave leveling). These preparation activities will not extend beyond the 30-m installation and preparation corridor. In addition to seafloor preparation activities, temporary disturbance related to installation of the cable is anticipated along the entire length of the IAC network. The area of the full corridor of seafloor disturbance represents a conservative assumption for maximum temporary seafloor disturbance; it is anticipated that less than the full area will be temporarily disturbed by seafloor preparation and cable installation activities. **Anticipated Activities or Structures that would cause Impact** Cable laying activities will involve boulder clearance (via plow and/or grab), sand wave leveling, and pre-lay grapnel runs to locate and clear remaining obstructions prior to cable installation; cable laying installation activities may involve use of jet-plow, mechanical plowing, or mechanical cutters. Controlled flow excavation and a trailing suction hopper dredger may be used for sand wave leveling or remedial burial. Dynamic Positioning (DP) vessels will generally be used for cable burial activities. If anchoring (or a pull ahead anchor) is necessary during cable installation it will occur within the surveyed area. Boulder clearance will occur where boulders are present and cannot be avoided with micro-siting; these impacts are more likely to occur in complex habitats. Sand wave leveling is most likely to occur in soft bottom habitats. Jack-up and other seafloor preparation activities are anticipated to occur in soft bottom habitats with higher frequency than in complex habitats.					

Sunrise Offshore Wind Farm Proposed Project Design			Unit of Measure	Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories *Calculated from Current Indicative GIS Layout* *				Total Area of Anticipated Impacts to the Seafloor (*for 94 WTGs + OCS-DC*)
				Large Grained Complex	Complex	Soft Bottom	Total	
SRWEC & Landfall HDD	PERMANENT	Cable Protection	acres	0	28.85	436.81	465.66	up to 38.5 acres
			%	0%	6%	94%	100%	up to 8.3%
		Associated Assumptions and Context Up to 5% of the entire up to 160-km long SRWEC–OCS, 8 km, and up to 5% of the entire up to 10-km long SRWEC–NYS, 0.5 km, may require cable protection. Cable protection will measure up to 39 ft (12 m) wide. Therefore, a total area of up to 25.2 acres (23.7 acres for the SRWEC–OCS; 1.5 acres for the SRWEC–NYS) may require cable protection. Up to 9 crossings of SRWEC–OCS are anticipated that will require protection. It is assumed up to 1,640 ft (500 m) of cable protection will be required per crossing, 1.48 acres per crossing. A total of up to 13.3 acres of additional cable protection may be needed for these crossings. If cable protection were needed across the entire up to 170-km long SRWEC a total of 465.66 acres would be needed; therefore, 38.5 acres (25.2 acres where needed + 13.3 acres for cable crossings) represents 8.3% of the entire SRWEC. **Anticipated Activities or Structures that would cause Impact** Physical structure - concrete mattresses, frond mattresses, rock bags, and/or rock berms; specific cable protection material will be selected at final design. Cable protection will be used where burial cannot occur, sufficient burial depth cannot be achieved due to seabed conditions or to avoid risk of interaction with external hazards. These locations are more likely to occur in areas of complex habitats, where siting through these habitats cannot be avoided. Cable protection will also be used where cable crossings occur.					

Sunrise Offshore Wind Farm Proposed Project Design			Unit of Measure	Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories *Calculated from Current Indicative GIS Layout **				Total Area of Anticipated Impacts to the Seafloor (*for 94 WTGs + OCS-DC*)
				Large Grained Complex	Complex	Soft Bottom	Total	
SRWEC & Landfall HDD	**TEMPORARY**	**Cable Installation & Seafloor Preparation**	**acres**	0	72.56	1091.7	1164.26	**<1,164.26 acres**
			%	0%	6%	94%	100%	**<100%**

Associated Assumptions and Context
Represents 30-m wide corridor for the SRWEC (up to 170 km) in which temporary disturbance activities are anticipated; this corridor encompasses a total of 1,259 acres (1,185 acres for the SRWEC–OCS and 74 acres for the SRWEC–NYS).

Up to 5% of the up to 160-km long SRWEC–OCS, 8 km, and up to 30% of the up to 10-km long SRWEC–NYS, 3 km, may require boulder clearance; these equate to 59.3 acres and 22.2 acres respectively, for a total of 81.5 acres. Up to 10% of the up to 160-km long SRWEC–OCS, 16 km may require sand wave leveling; these equate to 118.5 acres.

The maximum area that may be temporarily disturbed by these activities would be 200 acres (81.5 acres for boulder clearance and 118.5 acres for sand wave leveling). These preparation activities will not extend beyond the 30-m installation and preparation corridor.

In addition to seafloor preparation activities, temporary disturbance related to installation of the cable is anticipated along the entire length of the SRWEC.

The area of the full corridor of seafloor disturbance represents a conservative assumption for maximum temporary seafloor disturbance; it is anticipated that less than the full area will be temporarily disturbed by seafloor preparation and cable installation activities.

Anticipated Activities or Structures that would cause Impact
Cable laying activities will involve boulder clearance (via plow and/or grab), sand wave leveling, and pre-lay grapnel runs to locate and clear remaining obstructions prior to cable installation; cable laying installation activities may involve use of jet-plow, mechanical plowing, or mechanical cutters. Controlled flow excavation and a trailing suction hopper dredger may be used for sand wave leveling or remedial burial.

Dynamic Positioning (DP) vessels will generally be used for cable burial activities. If anchoring (or a pull ahead anchor) is necessary during cable installation it will occur within the surveyed area.

Boulder clearance will occur where boulders are present and cannot be avoided with micro-siting; these impacts are more likely to occur in complex habitats. Sand wave leveling is most likely to occur in soft bottom habitats.

Jack-up and other seafloor preparation activities are anticipated to occur in soft bottom habitats with higher frequency than in complex habitats.

Sunrise Offshore Wind Farm Proposed Project Design			Unit of Measure	Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories *Calculated from Current Indicative GIS Layout* *				Total Area of Anticipated Impacts to the Seafloor (*for 94 WTGs + OCS-DC*)
				Large Grained Complex	Complex	Soft Bottom	Total	
SRWEC & Landfall HDD	**TEMPORARY**	**HDD Exit Pit & Support Area**	**acres**	0	0	61.8	61.8	**<61.8 acres**
			%	0%	0%	100%	100%	**<100%**
		Associated Assumptions and Context Up to one HDD exit pit will temporarily impact a seafloor area of 0.183 acres (50 m x 15 m dimensions). The HDD exit pit will be located within a 500 m x 500 m support area; this 500 m x 500 m area encompasses a total of 61.8 acres. The full support area represents a conservative assumption for maximum temporary seafloor disturbance; it is anticipated that less than the full area will be temporarily disturbed by anchoring and installation support activities. **Anticipated Activities or Structures that would cause Impact** Support barge and/or jack-up vessel, spud cans, anchoring, etc. to support installation. Post construction, all work areas would be graded and/or backfilled and returned to pre-construction conditions. All temporary impacts related to the HDD exit pit and associated support activities will occur in soft bottom habitats.							
ICW HDD Assessment Area	**TEMPORARY**	**HDD of SRWEC under ICW**	**acres**	0	15.5	17.2	32.7	**0 acres**
			%	0%	47%	53%	100%	**0%**
		Associated Assumptions and Context A 32.7-acre assessment area in which potential Project impacts related to the ICW HDD could occur and which was surveyed with underwater imagery for benthic habitats and SAV and benthic macroalgae in 2020. **Anticipated Activities or Structures that would cause Impact** Installation of the cable via HDD will avoid direct impacts to benthic habitats as this methodology avoids disturbance to the seafloor; HDD exit pit and work area will not overlap with benthic habitats in the ICW HDD Assessment Area.							

Sunrise Offshore Wind Farm Proposed Project Design			Unit of Measure	Acres of Maximum Potential Impact to Benthic Habitats Crosswalked to NOAA Habitat Complexity Categories *Calculated from Current Indicative GIS Layout **				Total Area of Anticipated Impacts to the Seafloor (*for 94 WTGs + OCS-DC*)
				Large Grained Complex	Complex	Soft Bottom	Total	
ICW Temporary Landing Structure Assessment Area	TEMPORARY	**Temporary Landing Structure to support Construction Activities**	**acres**	0	0.3	1.4	1.7	**up to 0.11 acres**
			%	0%	18%	82%	100%	**up to 6.5%**
		Associated Assumptions and Context A temporary landing structure assessment area has been evaluated, as some equipment and materials required for the Landfall HDD, ICW HDD, cable pulling and ductbank construction will be transported via barge to Smith Point County Park due to existing weight limit restrictions on the Smith Point Bridge. A temporary landing structure will be installed at Smith Point County Park, within the Fire Island National Seashore boundary, to aid in the offloading of equipment/materials. The assessment area covers 1.7 acres. Note, 0.1 acres of the assessment area is composed of anthropogenic shoreline features and this area is not included in the habitat total. The temporary landing structure will be up to 4,800 sq ft (446 sq m; 0.11 acres) and may consist of a floating module(s), bridge sections and/or a ramp or transition pad connecting the landing structure to shore. The temporary landing structure could be secured to the seabed with up to 24 spuds, piles, or anchors. The maximum potential area of impact is up to 4,800 sq ft (446 sq m; 0.11 acres), representing 6.5 % of the assessment area. Temporary indirect impacts over the entire area of overlap between the landing structure and the vegetated habitats would result from shading effects that could reduce the photosynthetically active radiation available to SAV. Depending on the structure location portions of the structure may be in direct contact with the ground; the exact area is not known and, therefore, the area of the entire temporary landing structure has been assumed as the maximum potential impact. **Anticipated Activities or Structures that would cause Impact** Portions of the temporary landing structure may be grounded at times due to tidal changes. Temporary indirect impacts from shading are also possible. Impacts are most likely to occur within soft bottom habitats, as complex habitats confirmed present by pre-construction surveys will be avoided and minimized to the extent practicable; complex habitats currently mapped in these areas were crosswalked from historical records of vegetated habitats in the area (see Section 4.3.1 and Table 4-3).					

4.1 Project Impacts to Benthic Habitats within the SRWF

Sunrise Wind is committed to an indicative layout scenario with WTGs and the OCS–DC sited in a uniform east-west/north-south grid with 1.15 by 1.15-mi (1 by 1-nm; 1.85 by 1.85-km) spacing that aligns with other proposed adjacent offshore wind projects in the RI-MA WEA and MA WEA. To support this agreed upon spacing, a diamond shaped micro-siting allowance is provided for each potential foundation location (103 total, 102 WTGs, 1 OCS–DC) (Figure 1-3). The center point of each of these diamonds represents the default position of each foundation. Sunrise Wind has, and will continue to, micro-site foundations within the micro-siting diamonds on a case-by-case basis to avoid significant seabed hazards such as surface and subsurface boulders and to avoid and minimize impacts to complex habitat types to the extent feasible and in consideration of other siting constraints. Scour protection and Cable Protection System (CPS) stabilization for IACs associated with each foundation will only be used if required for engineering purposes.

The WTG and OCS–DCS foundations and the IAC network that will connect them are generally sited across the habitats present at the SRWF approximately proportional to their spatial prevalence and distribution (roughly 55-60% soft bottom, 40-45% complex) (Table 4-1; Figure 4-1). Habitats crosswalked to the large grained complex category (Glacial Drift) are completely avoided by the foundations (Table 4-1; Figures 4-1 and 4-2), as Sunrise Wind has removed foundation positions that could be located in the northwestern portion of the SRWF from consideration and has micro-sited fourteen turbine positions; as an example, WTG 89 was micro-sited out of Glacial Drift habitat and into Coarse Sediment – Mobile habitat (Figure 4-3). This is the only foundation that remains close to large grained complex habitats and very small areas are within the potential impact footprint for scour protection and CPS stabilization and within the potential footprint for seafloor preparation; however, these habitats are completely avoided by the IAC network and SRWEC (Table 4-1). Sunrise Wind will continue micro-siting efforts as design and construction plans are further refined. Sunrise Wind anticipates that boulder clearance and relocation will be minimally required for construction of the foundations and IACs (Table 4-1).

Almost all areas in which potential impacts could occur to habitats that were crosswalked to the complex category in the SRWF were characterized as Coarse Sediment – Mobile and a majority of those were able to be refined to Gravelly Sand or no gravel based on ground-truth data (Figures 4-1, 4-2 and 3-15). These habitats are characterized as highly dynamic habitats composed of rippled, medium to coarse sands with bare granules and pebbles in ripple troughs (for examples, see Figures 3-4 and 3-5); in addition, scattered boulders were present in clusters in these habitats immediately east of the center of the SRWF (Figures 4-1 and 4-2). Except for scattered boulders, the primary structure of these habitats is unlikely to provide an impediment to construction or to be adversely affected by Project activities.

4.2 Project Impacts to Benthic Habitats within the SRWEC

Permanent and temporary impacts related to the SRWEC are anticipated to occur mostly in soft bottom habitats; specifically, 94% of the total 30-m corridor in which cable installation activities

are planned is represented by benthic habitats crosswalked to the soft bottom category (Table 4-1). This distribution of potential anticipated impacts is similar to the spatial prevalence of habitats crosswalked to soft bottom and complex categories found within the SRWEC–OCS and would impact a higher proportion of habitats crosswalked to the soft bottom category than present within the SRWEC–NYS (Figure 3-29). Temporary impacts related to the HDD exit pit and support area would be entirely contained within habitats crosswalked to soft bottom (Table 4-1). With a few exceptions, the SRWEC is generally composed of soft bottom sand and mud habitats (Figure 3-20), with few areas of scattered boulders (Figure 3-21).

4.3 Project Impacts to Benthic Habitats within the ICW HDD Study Area

Temporary impacts to benthic habitats in the ICW HDD Study Area are anticipated from the temporary landing structure; no impacts are expected from installation of the cable via HDD as this methodology avoids disturbance to the seafloor. HDD exit pit and support area will not overlap with benthic habitats in the ICW HDD Assessment Area. Habitats crosswalked to the complex category that may be temporarily impacted by the planned temporary landing structure have been mapped as predominantly historical or recent SAV and/or benthic macroalgae (Figure 4-4).

4.3.1 Impacts to Subtidal Vegetated Habitats & Tidal Wetlands

Eelgrass (*Zostera marina*) and widgeon grass (*Ruppia maritima*) are the most dominant seagrasses in New York inhabiting shallow, coastal and estuarine waters (1-8 m deep) (NYS Seagrass Task Force 2009). These SAV beds create a biogenic structure that is specifically important to the bay scallop, hard clam, and tautog and larval stages of starfish, snails, and mussels (NYS Seagrass Task Force 2009). SAV beds were once prevalent in NY, with photographs and available records estimating 200,000 acres in 1930 and a decline to 21,803 in 2009 (NYS Seagrass Task Force 2009). Loss of SAV is attributed to a suite of anthropogenic stressors including decreased water quality and clarity, increased nutrient loads, and habitat degradation (NYS Seagrass Task Force 2009). Aerial surveys conducted by the NY Department of State (NYDOS) in 2002 and 2018 mapped both SAV and benthic macroalgae beds in the vicinity of the ICW HDD (Figure 4-4).

Sunrise Wind conducted a video survey in 2020 within an assessment area in which potential Project impacts related to the ICW HDD could occur (ICW HDD Assessment Area; Figure 4-4). Historical SAV and benthic macroalgae are mapped as “potential” and comprised most of the vegetated habitats mapped in the ICW HDD Assessment Area (Table 4-2). Recently confirmed (2020) SAV and benthic macroalgae presence covered a very small area (1.7 acres) of the ICW HDD Assessment Area (32.8 acres) (Table 4-2; Figure 4-4). Installation of the cable via HDD will avoid direct impacts to subtidal vegetated habitats as this methodology avoids disturbance to the seafloor; HDD exit pit and support area will not overlap with subtidal benthic habitats in the ICW HDD Assessment Area (Table 4-2). Similarly, the extent of wetlands within the ICW HDD Assessment Area were mapped using New York State Department of Environmental Conservation tidal wetlands data (NYSDEC 1974) (Figure 4-5); and no impacts are anticipated

to these habitats from the ICW HDD installation as use of this methodology avoids disturbance to the seafloor (Table 4-2).

In addition, an assessment area has been established within which a temporary landing structure to aid in the transport of equipment and materials for the Landfall HDD and ICW HDD may be deployed to support construction activities at Smith Point County Park. The assessment area covers 1.7 acres. The temporary landing structure would be up to approximately 4,800 sq ft (446 sq m; 0.11 acres). A maximum area of 960 sq ft (0.02 acres) may be in contact with the ground, inclusive of a transition pad and up to 24 spuds, piles, or anchors (approximately 48 sq ft [4.5 sq m, 0.001 acres]. The tidal range in the ICW is approximately 2 ft and depending on the tides and water depths at the selected location, a portion of the temporary landing structure may be grounded at times, particularly closer to the shoreline. The temporary landing structure may need to remain in place year-round but the use would be limited to fall and spring. The temporary landing structure may be used during two construction periods since the Landfall HDD, ICW HDD, and SRWEC pull-in may be done in different year.

The temporary landing structure assessment areas were examined for SAV and benthic macroalgae extent, as well as wetland presence (Table 4-3; Figures 4-4 and 4-5). No recent SAV or benthic macroalgae habitats were mapped in these areas (Table 4-3; Figures 4-4). Historical data from 2002 indicate the potential presence of 0.3 acres of SAV in the assessment area; confirmatory surveys have not yet been conducted in this area (Table 4-3; Figure 4-4).

Should subtidal vegetated habitat (SAV and/or benthic macroalgae) be present in the area at the time of construction and these cannot be avoided in siting the temporary landing structure, up to up to approximately 4,800 sq ft (446 sq m; 0.11 acres) could be indirectly and temporarily impacted if these habitats completely overlap with the planned landing structure location. Temporary indirect impacts over the entire area of overlap between the structure and the vegetated habitats would result from shading effects that could reduce the photosynthetically active radiation available to SAV. Depending on the ultimate location direct temporary impacts of no more than approximately 960 sq ft (0.02 acres) to subtidal vegetated benthic habitats are possible during times that portions of the landing structure are grounded and from direct contact with the structure. A preconstruction SAV survey will be conducted prior to construction to confirm current presence of SAV. The likelihood of impacts to subtidal vegetated habitats is considered very low given that the proposed temporary landing structure will be positioned to avoid and minimize impacts to these sensitive habitats to the extent practicable. The temporary landing structure may need to remain in place year-round but the use would be limited to fall and spring.

The NYSDEC tidal wetlands (1974) category of "coastal shoals, bars, and mudflats" was the only tidal wetlands mapped within the temporary landing assessment areas, with a total of 0.05 acres in the assessment area (Table 4-3; Figure 4-5). This category is defined as "The tidal wetland zone that at high tide is covered by saline or fresh tidal waters, at low tide is exposed or is covered by water to a maximum depth of approximately one foot and is not vegetated." Direct

temporary impacts of no more than approximately 960 sq ft (0.02 acres) to these habitats is possible during times when portions of the temporary landing structure are grounded

Table 4-2. ICW HDD Assessment Area: Extent of and Anticipated Impacts to Recent and Historical Subtidal Vegetated Habitats and Tidal Wetlands

	Total Acres Within Assessment Area	Total Acres of Anticipated Impacts to the Seafloor	Associated Assumptions and Context
Subtidal Vegetated Habitats			
SAV and Benthic Macroalgae	1.7	0	Installation of the cable via HDD will avoid direct impacts to subtidal vegetated habitats as this methodology avoids disturbance to the seafloor; HDD exit pit and support area will not overlap with subtidal benthic habitats in the ICW HDD Assessment Area
Potential / Historical SAV	4.7	0	
Potential / Historical SAV and Benthic Macroalgae	1.6	0	
Benthic Macroalgae	0.5	0	
Potential / Historical Benthic Macroalgae	1.9	0	
Total Recent & Historical Vegetated Habitat Area	**10.5**	**0**	
Tidal Wetlands			
High Marsh	0	0	Installation of the cable via HDD will avoid direct impacts to tidal wetlands as this methodology avoids disturbance to the seafloor; HDD exit pit and support area will not overlap with tidal wetlands in the ICW HDD Assessment Area
Intertidal Marsh	0	0	
Coastal Shoals, Bars, Mudflats	1.6	0	
Phragmites australis and/or Multiflora Rose	0	0	
Total Tidal Wetlands Area	**1.6**	**0**	

Recent data: 2020 INSPIRE Video Survey (Benthic Macroalgae; SAV and Benthic Macroalgae); 2020 Sunrise Wind Survey of Non-native Species (Phragmites australis and/or Multiflora Rose)

Historical data: 2018 NYDOS (Potential Benthic Macroalgae); 2002 NYDOS (Potential SAV); NYDOS 2002 & 2018 (Potential SAV & Benthic Macroalgae; 1974 NYSDEC Tidal Wetlands

Table 4-3. Temporary Landing Structure Assessment Areas: Extent of and Anticipated Impacts to Recent and Historical Subtidal Vegetated Habitats and Tidal Wetlands

	Total Acres Within Assessment Area	Total Acres of Anticipated Impacts to the Seafloor	Associated Assumptions and Context
Subtidal Vegetated Habitats			
SAV and Benthic Macroalgae	0	0	A temporary landing structure will be used within the assessment area. The temporary landing structure will be a maximum of 4,800 sq ft. Therefore, the maximum potential area of indirect impact is 4,800 sq ft (446 sq m; 0.11 acres). Subtidal vegetated habitats have not been recently documented within the assessment area, only historical presence of these habitats has been documented in this area - in 2002 in the east; the 2020 survey did not include the assessment area. A preconstruction SAV survey will be conducted prior to construction to confirm current presence/absence of SAV. Should subtidal vegetated habitat (SAV and/or benthic macroalgae) be present in the area at the time of construction and these cannot be avoided in siting the temporary landing structure, up to 4,800 sq ft (446 sq m; 0.11 acres) could be indirectly and temporarily impacted if these habitats completely overlap with the planned temporary landing structure location. Temporary indirect impacts over the entire area of overlap between the temporary landing structure and the vegetated habitats would result from shading effects that could reduce the photosynthetically active radiation available to SAV. Depending on the location a maximum area of 960 sq ft may be in direct contact with the ground. Therefore, the maximum **potential area of direct impact is 960 sq ft (0.02** acres). This total is inclusive of a transition pad and up to 24 spuds, piles or anchors (approximately 48 sq ft [4.5 sq m; 0.001 acres]. The likelihood of impacts to subtidal vegetated habitats is considered very low given that the proposed temporary landing structure will be positioned to avoid and minimize impacts to these sensitive habitats to the extent practicable. The temporary landing structure may need to remain in place year-round but the use would be limited to fall and spring. The temporary landing structure may be used during two construction periods since the Landfall HDD, ICW HDD, and SRWEC pull-in may be done in different years.
Potential / Historical SAV	0.3	up to 0.11	
Potential / Historical SAV and Benthic Macroalgae	0	0	
Benthic Macroalgae	0	0	
Potential / Historical Benthic Macroalgae	0	0	
Total Recent & Historical Vegetated Habitat Area	**0.3**	**up to 0.11**	

	Total Acres Within Assessment Area	Total Acres of Anticipated Impacts to the Seafloor	Associated Assumptions and Context
Tidal Wetlands			
High Marsh	0	0	A temporary landing structure will be used within the assessment area. Depending on the location a maximum area of 960 sq ft may be in direct contact with the ground; this total is inclusive of a transition pad and up to 24 spuds, piles or anchors (approximately 48 sq ft [4.5 sq m; 0.001 acres]. Therefore, the maximum potential area of direct impact is 960 sq ft (0.02 acres). The NYSDEC Tidal wetlands (1974) category of "coastal, shoals, bars, and mudflats" were the only tidal wetlands mapped within the assessment areas. This category is defined as "The tidal wetland zone that at high tide is covered by saline or fresh tidal waters, at low tide is exposed or is covered by water to a maximum depth of approximately one foot, and is not vegetated."
Intertidal Marsh	0	0	
Coastal Shoals, Bars, Mudflats	0.05	up to 0.02	
Phragmites australis and/or Multiflora Rose	0.0	0	
Total Tidal Wetlands Area	**0.05**	**up to 0.02**	

Recent data: 2020 INSPIRE Video Survey (Benthic Macroalgae; SAV and Benthic Macroalgae); 2020 Sunrise Wind Survey of Non-native Species (Phragmites australis and/or Multiflora Rose)

Historical data: 2018 NYDOS (Potential Benthic Macroalgae); 2002 NYDOS (Potential SAV); NYDOS 2002 & 2018 (Potential SAV & Benthic Macroalgae; 1974 NYSDEC Tidal Wetlands

4.4 Project Impacts to Benthic EFH for Priority Species

Species with demersal/benthic life stages are more vulnerable to project impacts than species with pelagic life stages. Specifically, demersal/benthic life stages are vulnerable to impacts from project activities that permanently or temporarily disturb the seafloor and/or result in temporary sediment suspension and deposition, such as seafloor preparation, impact pile driving and/or vibratory pile driving/foundation installation, cable installation, and vessel anchoring (detailed impacts to EFH are outlined in Section 3.0 of the Essential Fish Habitat Technical Report, Appendix N of the Sunrise Wind Construction and Operations Plan (INSPIRE 2021c). While construction and operation activities may affect EFH for demersal/benthic life stages, these impacts are also anticipated to be temporary (except as noted below) and minor as they will disturb a small portion of available EFH in the area. Species with a preference for sandy habitats, such as Atlantic surfclam and ocean quahog, are more likely to experience long-term impacts to their habitats from the conversion of sand habitat into hard bottom habitat with the addition of materials used for cable and scour protection, where needed. Additionally, sessile species or species with benthic eggs such as Atlantic sea scallop, ocean pout, and winter flounder that have limited or no mobility and increased sensitivity to turbidity are likely to be injured, displaced, or experience mortality from these activities. Many of the potential impacts from these Project activities will be mitigated with procedures outlined in Section 4.5 Proposed Environmental Protection Measures.

In total, 28 benthic/demersal species and 63 life stages with designated essential fish habitat within the Study Area have been crosswalked to mapped benthic habitats: 35 life stages to Glacial Drift habitats, 53 life stages to Coarse Sediment habitats, 52 to Sand and Muddy Sand habitats, and 42 to Mud and Sandy Mud Habitats. A list of eleven priority species and their specific habitat preferences are highlighted and discussed in more detail below. Only impact producing factors related to physical habitat disturbance (i.e., habitat conversion, seafloor disturbance and suspended sediment deposition) are considered here. Due to the conservative approach used in crosswalking species EFH to benthic habitat types and, in a number of cases, the limited information on species' sediment preferences, it should be kept in mind that there are likely much smaller areas within each mapped habitat type that may be more valuable for each species/life stage than others. Because of the conservative crosswalk approach utilized, impacts to a given habitat may not necessarily affect all species with EFH crosswalked to that habitat type.

Atlantic Cod

EFH for both juvenile and adult cod consists of hard bottom habitats, with juveniles preferring cobble substrates, and adults preferring structurally complex hard bottom habitats composed of gravel, cobble, and boulder substrates (Lough 2004). Cobble habitats are essential for the survival of juvenile cod in that they may assist with avoiding predation by older year classes (Gotceitas and Brown 1993) and recent studies suggest that rocky, hard bottom habitats may be important for reproduction (DeCelles et al. 2017; Siceloff and Howell 2012). An active Atlantic cod winter spawning ground has been identified in a broad geographical area that includes Cox

Ledge and surrounding locations (Zemeckis et al. 2014; Dean et al. 2020), however cod were not frequently caught by NEFSC seasonal surveys in the MA WEA between 2003 and 2016 (Guida et al. 2017). Adult and juvenile cod EFH is likely to occur within the Glacial Drift habitat found the northwest portion of the SRWF and within Coarse Sediment habitats found throughout the SRWF and in small patches in the SRWEC–OCS and SRWEC–NYS. Impacts to adult and juvenile cod EFH associated with Glacial Drift will largely be avoided as no foundations or IAC routes are planned within these habitats (Figure 4-2).

As mentioned above, cod are expected to experience some impacts to their habitat from project activities that permanently or temporarily disturb the seafloor. In southern New England, cod spawn primarily from December through May (Dean et al. 2020; Langan et al. 2020), so they could be more susceptible to a disturbance to their preferred spawning habitats during that time. Given the availability of similar surrounding habitat, Project activities are not expected to result in long term adverse impacts to spawning habitat or adult or juvenile EFH; conversely, the use of gravel, boulders, and/or concrete mats for cable or scour protection will create new hard substrate, and this substrate is expected to be initially colonized by barnacles, tube-forming species, hydroids, and other fouling species found on existing hard bottom habitat in the region, which may ultimately provide additional preferred cod habitat (Reubens et al. 2013).

Atlantic Sea Scallop

Atlantic sea scallop EFH overlaps with the majority of the Study Area and they have been collected throughout the Massachusetts Wind Energy Area (MA WEA) in NEFSC seasonal trawls (Guida et al. 2017). Due to their benthic existence and limited mobility, scallops have been identified as a species of concern for habitat disturbance in the MA WEA by Guida et al. (2017).

Atlantic sea scallop eggs likely remain on the seafloor as they develop into free-swimming larvae, which settle to the seafloor (as “spat”) before metamorphosing into juveniles (Hart and Chute 2004). Hard surfaces are essential for the survival of the spat, including sedentary branching plants or animals, shells, small pebbles, or adult scallops (Stokesbury and Himmelman 1995). Because of these associations with the seafloor, egg and larval scallop EFH is likely to be found in Glacial Drift and non-mobile Coarse Sediment habitats found in a large patch in the northwest portion and in a few small patches in the SRWF, as well as in small patches within the SRWEC–OCS and SRWEC–NYS. Impacts to egg and larval scallop EFH associated with Glacial Drift will largely be avoided as no foundations or IAC routes are planned within these habitats (Figure 4-2). Similarly, juvenile scallops are primarily found on gravel, shells, and silt (Thouzeau et al. 1991; Parsons et al. 1992), or attached to branching bryozoans, hydroids or algae (Stokesbury and Himmelman 1995), and adult scallops are generally found on firm sand, gravel, shells and rock (MacKenzie et al. 1978; Langton and Robinson 1990; Thouzeau et al. 1991; Stewart and Arnold 1994). EFH for juvenile and adult scallops is also likely to be found in Glacial Drift and non-mobile Coarse Sediment habitats. Impacts to egg and larval scallop EFH associated with Glacial Drift will largely be avoided as no foundations or IAC routes are planned within these habitats (Figure 4-2).

All life stages of scallops may experience temporary direct impacts from the construction and operation of the project. Seafloor preparation may cause injury, displacement, or mortality to scallops of all life stages. These impacts are expected to be temporary as the direct impacts will cease after seafloor preparation is completed in an area, and minor as they will disturb a small portion of available EFH in the area. Scallops will be able to recolonize most areas once construction is complete.

Atlantic Surfclam and Ocean Quahog

Atlantic surfclams are found in medium to coarse sand and gravel substrates and can also be found in fine or silty sand, but not in mud (Dames and Moore, Inc. 1993; MacKenzie et al. 1985; Cargnelli et al. 1999a). They are most abundant in water depths between 26 and 217 ft (8 and 66 m) beyond the surf zone (Fay et al. 1983). EFH for adult and juvenile surfclams overlaps with a small portion of the SRWEC–OCS within Coarse Sediment and Sand and Muddy Sand habitats.

Ocean quahogs are generally distributed just below the sediment surface in medium to fine grain sand, sandy mud, silty sand, and fine to medium grained sand primarily at depths between 82 and 200 ft (25 and 61 m) (Cargnelli et al. 1999b; Merrill and Ropes 1969; Serchuk et al. 1982). Ocean quahog designated EFH overlaps with the majority of the Study Area and is likely to be found in Glacial Drift, Coarse Sediment, Sand and Muddy Sand, and Mud and Sandy Mud habitats within the SRWF and the SRWEC–OCS Study Area. Impacts to ocean quahog EFH associated with Glacial Drift will largely be avoided as no foundations or IAC routes are planned within these habitats (Figure 4-2).

Ocean quahogs are more likely to be impacted by project activities than Atlantic surfclams due to their widespread presence in the Study Area (Guida et al 2017). Due to their lack of mobility, it is possible that seafloor preparation could cause injury, displacement, or mortality to these species. Shellfish will be able to recolonize most areas once construction is complete, however they may experience small amounts of permanent habitat loss in areas around the WTGs where scour protection is needed and sections of the array and substation interconnection and export cables where cable protection may be required as they will not be able to colonize the new structured habitat. Detailed impacts to benthic and shellfish resources are discussed in Sunrise Wind COP Section 4.4.2 (Sunrise Wind LLC 2021a).

Black Sea Bass

Black sea bass juveniles and adults are well documented as having strong associations with structured habitats, including natural and artificial reefs, shellfish beds, shell hash, vegetated bottom, cobble, gravel, and boulder habitats (Drohan et al. 2007). Within the Study Area, existing structure consists primarily of boulders and cobbles and the attached epifauna that grows on them. These habitat features are found within the Glacial Drift and Coarse Sediment Habitats within the Study Area as well as in the low and medium density boulder fields found within the SRWF and the SRWEC–NYS. Impacts to juvenile and adult black sea bass

associated with Glacial Drift will largely be avoided as no foundations or IAC routes are planned within these habitats (Figure 4-2). Both juveniles and adults have shown strong site fidelity (Able and Hales 1997; Briggs 1979) so may be vulnerable to disruptions to structured habitats.

Black sea bass may experience temporary impacts to their habitat from project activities that permanently or temporarily disturb the seafloor or result in temporary sediment suspension and deposition. Long term adverse impacts to both adult and juvenile EFH are expected to be minor as the species is expected to recolonize the area post construction. Beneficial impacts are expected with the creation of additional structured habitats from WTGs and conversion of sandy and gravelly sediments into structured hard bottom habitat as was demonstrated at the Block Island Wind Farm where a dramatic increase in black sea bass occurred post-construction (HDR 2020).

Little Skate and Winter Skate

Little skate and winter skate are discussed together for the purposes of this report as they share similar habitat requirements, are frequently co-occurring (McEachran and Musick 1975), and are expected to experience similar impacts from Project activities. Both species are expected to occur throughout the Study Area and were dominant species during winter and spring NEFSC Trawl Surveys within the MA WEA between 2003 and 2016 (Guida et al. 2017).

Little skate and winter skate juveniles and adults are found throughout southern New England on sandy or gravelly substrate but have also been found on mud (Bigelow and Schroeder 1953; McEachran and Musick 1975; Langton et al. 1995; Tyler 1971). These species are likely to be associated with all habitats within the Study Area as all habitats have some component with sand, gravel, or mud.

Given the broad distribution of these species throughout all Study Areas, there are likely to be temporary and permanent impacts to their preferred habitats. These species may be temporarily displaced by seafloor disturbing activities but are anticipated to recolonize most areas once construction is complete. However, they may experience permanent habitat loss in areas that are converted from sandy and gravelly sediments to hard bottom habitats around the foundations and sections of the inter-array and export cables where scour and cable protection may be required. Loss of habitat due to conversion to hard bottom is not expected to have a significant impact on these species due the large amount of alternate suitable habitat available.

Longfin Squid

Little information is available on egg habitat locations for longfin squid (Jacobson 2005); however, egg mops are often found attached to cobbles and boulders on sandy or muddy bottoms or attached to aquatic vegetation (Arnold et al. 1974; Griswold and Prezioso 1981; Summers 1983). Due to the limited information available on suitable egg habitat, it is assumed that egg mops could be present on any substrates within adult spawning habitat and EFH for longfin squid eggs has been mapped to all habitats overlapping with designated EFH. Specifically, EFH for eggs may be found during the spawning months of May to August

(Summers 1971; Macy 1980) within the SRWEC–OCS, SRWEC–NYS, and ICW HDD Study Area. Depending on timing, longfin squid egg mops could experience injury, displacement, or mortality from construction and cable laying activities in their immediate vicinity, but most impacts are expected to be minimal as only a small amount of available spawning habitat will be disturbed.

Ocean Pout

Ocean pout eggs are demersal and laid in gelatinous masses, generally in sheltered nests, holes, or rocky crevices within hard bottom habitats (NEFMC 2017). Juvenile and adult ocean pout occur on a wide variety of substrates, including shells, rocks, algae, soft sediments, sand, and gravel (NEFMC 2017). Rocky shelter is shown to be especially important for spawning adults in the autumn when they lay their eggs (Smith 1898). EFH for eggs, juveniles, and adults is expected to occur within the Glacial Drift and Course Sediment habitats within the SRWF and the SRWEC–OCS as well as within medium and low-density boulder fields in the SRWF. Impacts to egg, juvenile, and adult ocean pout EFH associated with Glacial Drift will largely be avoided as no foundations or IAC routes are planned within these habitats (Figure 4-2).

All life stages of ocean pout may experience temporary impacts from the construction, operations and maintenance, and decommissioning phases of the Project. Eggs are particularly vulnerable to impacts due to their inability to vacate the Study Area during construction. These impacts are expected to be temporary as the direct impacts will cease after seafloor preparation is completed, and minor as they will disturb a small portion of available EFH in the area. Ocean pout are expected to recolonize the area once construction is complete and may experience permanent beneficial impacts from the creation of additional preferred habitats for eggs, juveniles, and spawning adults from the conversion of sandy and gravelly sediments into structured hard bottom habitat.

Summer Flounder

Summer flounder generally inhabit shallow inshore or estuarine waters in the summer and move offshore in the fall starting in September or October (Packer et al. 1999). Spawning occurs offshore, peaking in October and November, and then larvae migrate to inshore coastal and estuarine nursey areas where they complete their transformation to juveniles (ASMFC 2020). Juvenile flounder generally inhabit estuaries, including salt marsh creeks, seagrass beds, mudflats, and open bay areas in water temperatures greater than 37 °F while adults prefer sandy habitats, but are also found in a variety of habitat with both mud and sand substrates (Packer et al. 1999). EFH for juveniles, is expected to occur year-round within the Sand and Muddy Sand, Mud and Sandy Mud, and SAV habitats within the SRWEC–OCS, SRWEC –NYS and ICW HDD. Adults are also expected to utilize Sand and Muddy Sand, Mud and Sandy Mud, and SAV habitats throughout the Study Area, but only within the summer months. Depending on timing, summer flounder could be temporarily displaced by seafloor disturbing activities but are expected to recolonize most areas once construction is complete.

Summer flounder is the only species with designated habitat area of particular concern (HAPC) in the vicinity of the Study Area (Bellport Bay). HAPC for summer flounder includes “All native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH” (MAFMC 2016). HAPC is only expected within the ICW HDD Study Area, and disturbance of these important habitats will be avoided by use of HDD, therefore impacts to summer flounder HAPC are not expected.

Winter Flounder

Winter flounder egg clusters stick to the substrates on which they are laid, which can include mud, muddy sand, gravel, macroalgae and submerged aquatic vegetation (NEFMC 2017). Essential habitats for winter flounder eggs, young-of-the-year (YOY) juveniles, and spawning adults are likely to be found in waters less than 16.4 ft (5 m) in depth (NEFMC 2017) on Coarse Sediment, Sand and Muddy Sand, and Mud and Sandy Mud habitats. Eggs and spawning adults are most likely to be found in these habitats from January through June (Massie 1998). Non-spawning winter flounder adults and older juveniles are found in continental shelf benthic habitats and deeper coastal waters than eggs and YOY (Phelan 1992; NEFMC 2017), therefore juveniles and non-spawning adults are likely to utilize these same habitat types throughout the Study Area, however egg and spawning adult EFH is only expected within habitats in the ICW HDD Study Area.

No impacts from project activities related to installation of the SRWEC–NYS to winter flounder eggs are expected because shallow (<16.4 ft, 5 m) benthic habitats proximal to the Atlantic shoreline consist of mobile sands in a highly dynamic environment and, therefore, are likely to be unsuitable for eggs. EFH for YOY and spawning adults may be temporarily impacted from installation of the SRWEC–NYS, however these impacts are expected to be minor due to use of HDD.

EFH for winter flounder eggs, YOY, and spawning adults is found within the ICW HDD Study Area. Project activities in shallow (<16.4 ft, 5 m) inshore areas within the ICW HDD Study Area are limited to the potential use of a temporary landing structure as described in Section 4.3. The impact to spawning habitat is expected to be minor given the small portions of the structure that are expected to directly impact benthic habitats (spuds, grounding at low tide near shore, see Table 4-2). Although the current EFH definition for winter flounder eggs includes mud and muddy sand, Wilber et al. (2013) found that in New York harbors winter flounder had very specific habitat preferences and were more likely to utilize sandy sediments than muddy or silty bottoms or bottoms with a high percentage of total organic carbon. Should the subtidal sediments in the area selected for siting the temporary landing structure have higher components of mud than sand, the potential for egg habitat and, thus, the potential for the temporary landing structure to impact winter flounder eggs, may be further reduced.

Similarly, temporary displacement impacts to juveniles and adult flounder are also likely to be minor given the small portions of the landing structure that will contact the bottom. Additional

impacts to these shallow habitats will be avoided by use of HDD, therefore allowing for continued use by spawning winter flounder, YOY, and eggs.

Flounder are expected to recolonize most areas once construction is complete, however similar to other species that utilize sandy habitats, they may experience permanent habitat loss in areas that are converted from sandy and gravelly sediments to hard bottom habitats around the foundations and sections of the inter-array and export cables where scour and cable protection may be required. Loss of habitat due to conversion to hard bottom is not expected to have a significant impact on these species due to the large area of alternate suitable habitat available. In addition to mitigation measures laid out in Section 4.5, TOY in-water restrictions will be employed to the extent feasible to avoid or minimize direct impacts to species of concern, including winter flounder, during construction. If work is anticipated to occur outside of these TOY restriction periods, Sunrise Wind will work with state and federal agencies to develop construction monitoring and impact minimization plans or mitigation plans, as appropriate.

4.5 Proposed Environmental Protection Measures

Sunrise Wind will implement the following environmental protection measures to reduce potential impacts on benthic resources and shellfish. These measures are based on protocols and procedures successfully implemented for similar offshore projects.

- The SRWF and SRWEC will be sited to avoid and minimize impacts to sensitive habitats (e.g., hard bottom habitats) to the extent practicable.
- To the extent feasible, the SRWEC and IAC will typically target a burial depth of 3 to 7 ft (1 to 2 m). The target burial depth will be determined based on an assessment of seabed conditions, seabed mobility, the risk of interaction with external hazards such as fishing gear and vessel anchors, and a site-specific Cable Burial Risk Assessment.
- To the extent feasible, installation of the IAC and SRWEC will be buried using equipment such as mechanical plow, jet plow, and/or mechanical cutter. These equipment options would result in less habitat modification than dredging options. The feasibility of cable burial equipment will be determined based on an assessment of seabed conditions and the Cable Burial Risk Assessment.
- Dynamic positioning vessels will be used for installation of the IAC and SRWEC to the extent practicable. Dynamic positioning vessels minimize seafloor impacts, as compared to use of a vessel relying on multiple anchors.
- A plan for vessels will be developed prior to construction to identify no-anchorage areas to avoid documented sensitive resources.
- The SRWEC Landfall will be installed via HDD to avoid impacts to the nearshore zones and benthic resources. The Onshore Transmission Cable will also be installed via HDD under the ICW to avoid impacts to benthic resources; HDD and trenchless methods will

also be used elsewhere onshore, where appropriate, to minimize impacts to resource areas.

- Where HDD is utilized, an Inadvertent Return Plan will be prepared and implemented to minimize the potential risks associated with release of drilling fluids.
- A preconstruction SAV survey will be conducted prior to construction in the ICW, and the proposed temporary landing structure will be positioned to avoid and minimize impacts to this sensitive habitat to the extent practicable.
- Sunrise Wind is committed to collaborative science with the commercial and recreational fishing industries prior to, during, and following construction. Fisheries monitoring studies are being planned to assess the impacts associated with the Project on economically and ecologically important fisheries resources within the SRWF and along the SRWEC. These studies will be conducted in collaboration with the local fishing industry and will build upon monitoring efforts being conducted by affiliates of Sunrise Wind at other wind farms in the region.
- TOY in-water restrictions will be employed to the extent feasible to avoid or minimize direct impacts to species of concern, such as Atlantic sturgeon or winter flounder, during construction. If work is anticipated to occur outside of these TOY restriction periods, Sunrise Wind will work with state and federal agencies to develop construction monitoring and impact minimization plans or mitigation plans, as appropriate.

5.0 REFERENCES

Able, K.W. and L.S. Hales, Jr. 1997. Movements of juvenile black sea bass *Centropristis striata* (Linnaeus) in a southern New Jersey estuary. J. Exp. Mar. Biol. Ecol. 213: 153-167.

Arnold, J.M., W.C. Summers, D.L. Gilbert, R.S. Manalis, N.W. Daw, and R.J. Lasek. 1974. A guide to laboratory use of the squid, *Loligo pealei*. Marine Biological Laboratory, Woods Hole, MA. 74 p.

Atlantic Wolffish Biological Review Team (BRT). 2009. Status review of Atlantic wolffish (*Anarhichas lupus*). Report to the National Marine Fisheries Service, Northeast Regional Office. 161pp.

Atlantic States Marine Fisheries Commission (ASMFC). 2020. Summer Flounder. Accessed June 2020. http://www.asmfc.org/species/summer-flounder.

Bigelow, H.B. and W.C. Schroeder. 1953. Fishes of the Gulf of Maine. U.S. Fish Wildl. Serv., Fish. Bull. 53. 577 p.

Briggs, P.T. 1979. Black sea bass in New York waters. N.Y. Fish Game J. 25: 45-58.

Brodziak, J.K.T. 2005. Essential Fish Habitat Source Document: Haddock, *Melanogrammus aeglefinus*, Life History and Habitat Characteristics, Second Edition. NOAA Tech Memo NMFS-NE-196; 78 pp.

Brown, C.J., J. Beaudoin, M. Brissette, and V. Gazzola. 2019. Multispectral Multibeam Echo Sounder Backscatter as a Tool for Improved Seafloor Characterization. Geosciences 9(3):126.

Brown, C.J., S.J. Smith, P. Lawton, and J.T. Anderson. 2011. Benthic habitat mapping: A review of progress towards improved understanding of the spatial ecology of the seafloor using acoustic techniques. Estuarine, Coastal and Shelf Science 92(3): 502–520.

Bureau of Ocean Energy Management (BOEM) Office of Renewable Energy Programs. 2019. Guidelines for Providing Benthic Habitat Survey Information for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585. June 2019.

Bureau of Ocean Energy Management (BOEM) Office of Renewable Energy Programs. 2020a. Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585. May 27, 2020.

Bureau of Ocean Energy Management (BOEM) Office of Renewable Energy Programs. 2020b. Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan (COP). Version 4.0: May 27, 2020.

Cargnelli, L.M., S.J. Griesbach, D.B. Packer, and E. Weissberger. 1999a. Essential fish habitat source document: Atlantic surfclam, *Spisula solidissima*, life history and habitat characteristics. NOAA Tech Memo NMFSNE-142; 13 pp.

Cargnelli, L.M., S.J. Griesbach, D.B. Packer, and E. Weissberger. 1999b. Essential Fish Habitat Source Document: Ocean Quahog, *Arctica islandica*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-148; 20 pp.

Cargnelli, L.M., S.J. Griesbach, D.B. Packer, P.L. Berrien, D.L. Johnson, and W.W. Morse. 1999c. Essential Fish Habitat Source Document: Pollock*, Pollachius virens*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-131; 38 pp.

Cargnelli, L.M., S.J. Griesbach, D.B. Packer, P.L. Berrien, W.W. Morse, and D.L. Johnson. 1999d. Essential Fish Habitat Source Document: Witch Flounder, *Glyptocephalus cynoglossus*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-139; 38 pp.

Chang, S., W.W. Morse, and P.L. Berrien. 1999a. Essential Fish Habitat Source Document: White Hake, *Urophycis tenuis*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-136; 32 pp.

Chang, S., P.L. Berrien, D.L. Johnson, and W.W. Morse. 1999b. Essential Fish Habitat Source Document: Windowpane, *Scophthalmus aquosus*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-137; 40 pp.

Colarusso, P. and A. Verkade. 2016. Joint Federal Agency Submerged Aquatic Vegetation Survey Guidance for the New England Region. Prepared by NOAA Habitat, EPA R2, and USACE NAE. Updated August 11, 2016.

Dames and Moore, Inc. 1993. Benthic animal-sediment assessment of potential beach fill borrow source for the Rehoboth/Dewey Beach, Delaware interim feasibility study. Report to U.S. Army Corps of Engineers, Philadelphia District. Contract No. DACW61-93-D-0001.

Dean, M., G. DeCelles, D. Zemeckis, and T. Ames. 2020. Early Life History. In: An Interdisciplinary Review of Atlantic Cod (*Gadus morhua*) Stock Structure in the Western North Atlantic Ocean. R.S. McBride and R.K. Smedbol, eds. NOAA Tech Memo NMFS-NE-XXX. June 2020.

DeCelles, G.R., D. Martins, D.R. Zemeckis, and S.X. Cadrin. 2017. Using Fishermen's Ecological Knowledge to map Atlantic cod spawning ground on Georges Bank. ICES Journal of Marine Science, 74: 1587–1601.

Drohan, A.F., J.P. Manderson, and D.B. Packer. 2007. Essential Fish Habitat Source Document: Black sea bass, *Centropristis striata*, life history and habitat characteristics, 2nd edition. NOAA Tech. Memo. NMFS-NE-200, 68 pp.

Fay, C.W., R.J. Neves, and G.B. Pardue. 1983. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Mid- Atlantic): surf clam. U.S. Fish Wildl. Serv., Div. Biol. Serv., FWS/OBS-82/11.13.23.

Federal Geographic Data Committee (FGDC). 2012. Coastal and Marine Ecological Classification Standard. Federal Geographic Data Committee. FGDC-STD-018-2012. 337 pages.

Folk, R.L. 1954. The distinction between grain size and mineral composition in sedimentary rock nomenclature. Journal of Geology 62 (4), 344-359.

Gotceitas, V. and J.A. Brown. 1993. Substrate selection by juvenile Atlantic cod (*Gadus morhua*): effects of predation risk. Oecologia 93: 31-37.

Greene, H.G., J.J. Bizarro, V.M. O'Connell, and C.K. Brylinsky. 2007. Construction of digital potential marine benthic habitat maps using a coded classification scheme and its applications. In Todd, B.J. and H.G. Greene, eds., Mapping the Seafloor for Habitat Characterization: Geological association of Canada, Special Paper 47, p. 147-162.

Griswold, C.A. and J. Prezioso. 1981. In-situ observations on reproductive behavior of the longfinned squid, *Loligo pealei*. Fish. Bull. (U.S.) 78: 945-947.

Guida, V., A. Drohan, H. Welch, J. McHenry, D. Johnson, V. Kentner, J. Brink, D. Timmons, and E. Estela-Gomez. 2017. Habitat Mapping and Assessment of Northeast Wind Energy Areas. Sterling, VA: US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2017-088. 312 p.

Hart, D.R. and A.S. Chute. 2004. Essential Fish Habitat Source Document: Sea Scallop, *Placopecten magellanicus*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-189. 32 p.

HDR. 2020. Benthic and Epifaunal Monitoring During Wind Turbine Installation and Operation at the Block Island Wind Farm, Rhode Island – Project Report. Final Report to the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2020-044. Volume 1: 263 pp; Volume 2:380 pp.

INSPIRE Environmental, LLC. 2021a. Benthic Resources Characterization Report – Federal Waters. Appendix M1 of the Construction and Operations Plan. Prepared by INSPIRE Environmental, Newport, RI. Submitted to the Bureau of Ocean Energy Management, Sterling, VA. Submitted by Sunrise Wind LLC, New York, NY. October 2021.

INSPIRE Environmental, LLC. 2021b. Benthic Resources Characterization Report – New York State Waters. Appendix M2 of the Construction and Operations Plan. Prepared by INSPIRE Environmental, Newport, RI. Submitted to the Bureau of Ocean Energy Management, Sterling, VA. Submitted by Sunrise Wind LLC, New York, NY. October 2021.

INSPIRE Environmental, LLC. 2021c. Essential Fish Habitat Assessment. Appendix N of the Construction and Operations Plan. Prepared by INSPIRE Environmental, Newport, RI. Submitted to the Bureau of Ocean Energy Management, Sterling, VA. Submitted by Sunrise Wind LLC, New York, NY. October 2021.

Jacobson, L.D. 2005. Essential Fish Habitat Source Document: Longfin Inshore Squid*, Loligo pealeii*, life history and habitat characteristics, 2nd edition. NOAA Tech Memo NMFS-NE-193; 42 pp.

Langan, J.A., M.C. McManus, D.R. Zemeckis, and J.S. Collie. 2020. Abundance and distribution of Atlantic cod (*Gadus morhua*) in a warming southern New England. Fishery Bulletin 118: 145-156.

Langton, R.W. and W.E. Robinson. 1990. Faunal associations on scallop grounds in the western Gulf of Maine. J. Exp. Mar. Biol. Ecol. 144: 157-171.

Langton, R.W., P.J. Auster, and D.C. Schneider. 1995. A spatial and temporal perspective on research and management of groundfish in the northwest Atlantic. Rev. Fish. Sci. 3: 201-229.

Lock, M.C. and D.B. Packer. 2004. Essential Fish Habitat Source Document: Silver Hake, *Merluccius bilinearis*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-186. 78 p.

Lough, R.G. 2004. Essential fish habitat source document: Atlantic cod, *Gadus morhua*, life history and habitat characteristics. NOAA Tech Memo NMFS-NE-190.

Lucieer, V., M. Roche, K. Degrendele, M. Malik, M. Dolan, and G. Lamarche. 2017. User expectations for multibeam echo sounders backscatter strength data-looking back into the future. Marine Geophysical Research 39:23–40.

Lurton, X. and G. Lamarche (Eds). 2015. Backscatter measurements by seafloor-mapping sonars. Guidelines and Recommendations. 200p. http://geohab.org/wp-content/uploads/2014/05/BSWGREPORT-MAY2015.pdf

Lurton, X. and D. Jackson. 2008. An Introduction to Underwater Acoustics, 2nd ed.; Springer-Praxis: New York, NY, USA. ISBN 3540429670.

MacKenzie, C.L., Jr., A.S. Merrill, and F.M. Serchuk. 1978. Sea scallop resources off the northeastern U.S. coast, 1975. Mar. Fish. Rev. 40(2): 19-23.

MacKenzie, C.L. Jr., D.J. Radosh, and R.N. Reid. 1985. Densities, growth, and mortalities of juveniles of the surf clam (*Spisula solidissima*) (Dillwyn) in the New York Bight. J. Shellfish Res. 5: 81-84.

Macy, W.K., III. 1980. The ecology of the common squid, *Loligo pealei* (LeSueur 1821), in Rhode Island waters. Ph.D. dissertation, Dalhousie Univ. Halifax, Nova Scotia.

Massie, F.D. 1998. The Uncommon Guide to Common Life on Narragansett Bay. Providence, Rhode Island: Save The Bay.

McEachran, J.D. and J.A. Musick. 1975. Distribution and relative abundance of seven species of skates (Pisces: Rajidae) which occur between Nova Scotia and Cape Hatteras. Fish. Bull. (U.S.) 73: 110-136.

Merrill, A.S. and J.W. Ropes. 1969. The general distribution of the surf clam and ocean quahog. Proc. Natl. Shellfish. Assoc. 59: 40-45.

Mid-Atlantic Fishery Management Council (MAFMC). 2016. Regional Use of the Habitat Area of Particular Concern (HAPC) Designation. May 2016.

New England Fishery Management Council (NEFMC). 2017. Omnibus essential fish habitat amendment 2. Volume 2: EFH and HAPC designation alternatives and environmental impacts. October 25, 2017.

New York Department of Environmental Conservation (NYSDEC). 1974. DEC Tidal Wetland Areas (dfw_tidal_wetlands). Available from http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={E8B21766-F7F6-49B0-8346-58E71A8B3DF8}.

New York Department of State (NYDOS). 2020a. Long Island South Shore Benthic Habitat 2002 (Biotic_component). Available from http://opdgig.dos.ny.gov/#/search/SAV.

New York Department of State (NYDOS). 2020b. Long Island South Shore Benthic Habitat 2018 (LISS_Biotic_2018_Contractor_Final). Available from http://opdgig.dos.ny.gov/#/search/SAV.

New York State (NYS) Seagrass Task Force (2009). Final Report of the New Yok State Seagrass Task Force: Recommendations to the New York State Governor and Legislature. https://www.dec.ny.gov/docs/fish_marine_pdf/finalseagrassreport.pdf

NOAA Fisheries. 2017. Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan: Essential Fish Habitat. Office of Sustainable Fisheries, Atlantic Highly Migratory Species Management Division. 442 pp.

NOAA Fisheries. 2021a. NOAA Habitat Conservation Essential Fish Habitat Mapper. https://www.habitat.noaa.gov/application/efhmapper/index.html. Accessed June 2021.

NOAA Fisheries. 2021b. Essential Fish Habitat (EFH) In the Northeast - Life history and habitat characteristics of Northeastern U.S. species. https://www.fisheries.noaa.gov/newengland-mid-atlantic/habitat-conservation/essential-fish-habitat-efh-northeast. Accessed June 2021.

NOAA Habitat (NOAA National Marine Fisheries Greater Atlantic Regional Fisheries Office Habitat Conservation and Ecosystem Services Division). 2021. Recommendations for Mapping Fish Habitat. March 2021. https://media.fisheries.noaa.gov/2021-03/March292021_NMFS_Habitat_Mapping_Recommendations.pdf?null

Packer, D.B., S.J. Griesbach, P.L. Berrien, C.A. Zetlin, D.L. Johnson, and W.W. Morse. 1999. Essential Fish Habitat Source Document: Summer Flounder*, Paralichthys dentatus*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-151; 98 pp.

Packer, D.B., C.A. Zetlin, and J.J. Vitaliano. 2003a. Essential Fish Habitat Source Document: Little Skate, *Leucoraja erinacea*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-175; 76 pp.

Packer, D.B., C.A. Zetlin, and J.J. Vitaliano. 2003b. Essential Fish Habitat Source Document: Winter Skate, *Leucoraja ocellata*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-179; 68 pp.

Packer D.B., C.A. Zetlin, and J.J. Vitaliano. 2003c. Essential fish habitat source document: Barndoor skate, Dipturus laevis, life history and habitat characteristics. NOAA Tech Memo NMFS NE 173; 23 pp.

Parsons, G.J., C.R. Warren-Perry, and M.J. Dadswell. 1992. Movements of juvenile sea scallops Placopecten magellanicus (Gmelin, 1791) in Passamaquoddy Bay, New Brunswick. J. Shellfish Res. 11: 295-297.

Pereira, J.J., R. Goldberg. J.J. Ziskowski, P.L. Berrien, W.W. Morse, and D.L. Johnson. 1999. Essential Fish Habitat Source Document: Winter Flounder, *Pseudopleuronectes americanus*, Life History and Habitat Characteristics. NOAA Tech Memo NMFS-NE-138; 48 pp.

Phelan, B.A. 1992. Winter flounder movements in the inner New York Bight. Trans. Am. Fish. Soc. 121: 777-784.

Reubens, J.T., U. Braeckman, J. Vanaverbeke, C. Van Colen, S. Degraer, M. Vincx, 2013. Aggregation at windmill artificial reefs: CPUE of Atlantic cod (*Gadus morhua*) and pouting (*Trisopterus luscus*) at different habitats in the Belgian part of the North Sea, Fisheries Research, Volume 139, Pages 28-34, ISSN 0165-7836.Schimel, A.C.G., J.

Beaudoin, I.M. Parnum, T. Le Bas, V. Schmidt, G. Keith, and D. Ierodiaconou. 2018. Multibeam sonar backscatter data processing. Marine Geophysical Research 39:121–137.

Serchuk, F.M., S.A. Murawski, and J.W. Ropes. 1982. Ocean quahog *Arctica islandica*. In M.D. Grosslein and T.R. Azarovitz eds. Fish distribution. p. 144-146.

Siceloff, L. and W. Howell. 2012. Fine-scale temporal and spatial distributions of Atlantic cod (*Gadus morhua*) on a western Gulf of Maine spawning ground. Fisheries Research. 141. 31–43. 10.1016/j.fishres.2012.04.001.

Smith, H.M. 1898. The fishes found in the vicinity of Woods Hole. Bull. U.S. Fish. Comm. 17: 85-111.

Steihlik, L.L. 2007. Essential Fish Habitat Source Document: Spiny Dogfish, *Squalus acanthias*, Life History and Habitat Characteristics, Second Edition. NOAA Tech Memo NFMS-NE-203; 52 pp.

Steimle, F.W., W.W. Morse, and D.L. Johnson. 1999a. Essential fish habitat source document: goosefish*, Lophius americanus*, life history and habitat characteristics. NOAA Tech Memo NMFS-NE-127; 31 pp.

Steimle, F.W., W.W. Morse, P.L. Berrien, D.L. Johnson, and C.A. Zetlin. 1999b. Essential fish habitat source document: Ocean pout, *Macrozoarces americanus*, life history and habitat characteristics. NOAA Tech Memo NMFS-NE-129; 26 pp.

Steimle, F.W., W.W. Morse, P.L. Berrien, and D.L. Johnson. 1999c. Essential Fish Habitat Source Document: Red Hake, *Urophycis chuss*, Life History and Habitat Characteristics. NOAA Tech Memo NFMS-NE-133; 42 pp.

Steimle, F.W., C.A. Zetlin, P.L. Berrien, D.L. Johnson, and S. Chang. 1999d. Essential fish habitat source document: Scup, *Stenotomus chrysops*, life history and habitat characteristics. NOAA Tech Memo NMFS NE 149; 39 pp.

Stewart, P.L. and S.H. Arnold. 1994. Environmental requirements of the sea scallop (*Placopecten magellanicu*s) in eastern Canada and its response to human impacts. Can. Tech. Rep. Fish. Aquat. Sci. 2005: 1-36.

Stokesbury, K.D.E. and J.H. Himmelman. 1995. Biological and physical variables associated with aggregations of the giant scallop *Placopecten magellanicus*. Canadian Journal of Fisheries and Aquatic Sciences. 52. 743-753. 10.1139/f95-074.

Summers, W.C. 1971. Age and growth of *Loligo pealei*, a population study of the common Atlantic coast squid. Biol. Bull. (Woods Hole) 141: 189-201.

Summers, W.C. 1983. *Loligo pealei*. In: Boyle, P.R., editor. Cephalopod life cycles, Vol. I: Species accounts. London, England: Academic Press. P. 115-142.

Sunrise Wind LLC. 2021a. Construction and Operations Plan. Prepared by Stantec Consulting, Rochester, NY. Submitted to the Bureau of Ocean Energy Management, Sterling, VA. Submitted by Sunrise Wind LLC, New York, NY. June 7, 2021.

Sunrise Wind LLC. 2021b. Sunrise Wind Offshore Farm (SRW01) - Marine Site Investigation Report. Submitted to the Bureau of Ocean Energy Management (BOEM). October 2021.

Thouzeau, G., G. Robert, and S.J. Smith. 1991. Spatial variability in distribution and growth of juvenile and adult sea scallops *Placopecten magellanicus* (Gmelin) on eastern Georges Bank (northwest Atlantic). Mar. Ecol. Prog. Ser. 74: 205-218.

Tyler, A.V. 1971. Periodic and resident components in communities of Atlantic fishes. J. Fish. Res. Board Can. 28: 935-946.

Wilber D. H., D. G. Clarke, J. Gallo, C. J. Alcoba, A. M. Dilorenzo, and S. E. Zappala. 2013. Identification of Winter Flounder (Pseudopleuronectes americanus) estuarine spawning habitat and factors influencing egg and larval distributions. Estuaries and Coasts 36:1304–1318.

Zemeckis, D.R., M.J. Dean, and S.X. Cadrin. 2014. Spawning dynamics and associated management implications for Atlantic cod. North American Journal of Fisheries Management 34: 424–442.

Benthic Habitat Mapping to Support Essential Fish Habitat Consultation
Sunrise Wind Farm Project

FIGURES

Prepared for:

Sunrise Wind | Powered by Ørsted & Eversource

Sunrise Wind, LLC

Submitted by:

INSPIRE ENVIRONMENTAL
INSPIRE Environmental
Newport, Rhode Island 02840

August 2022

LIST OF FIGURES

Page

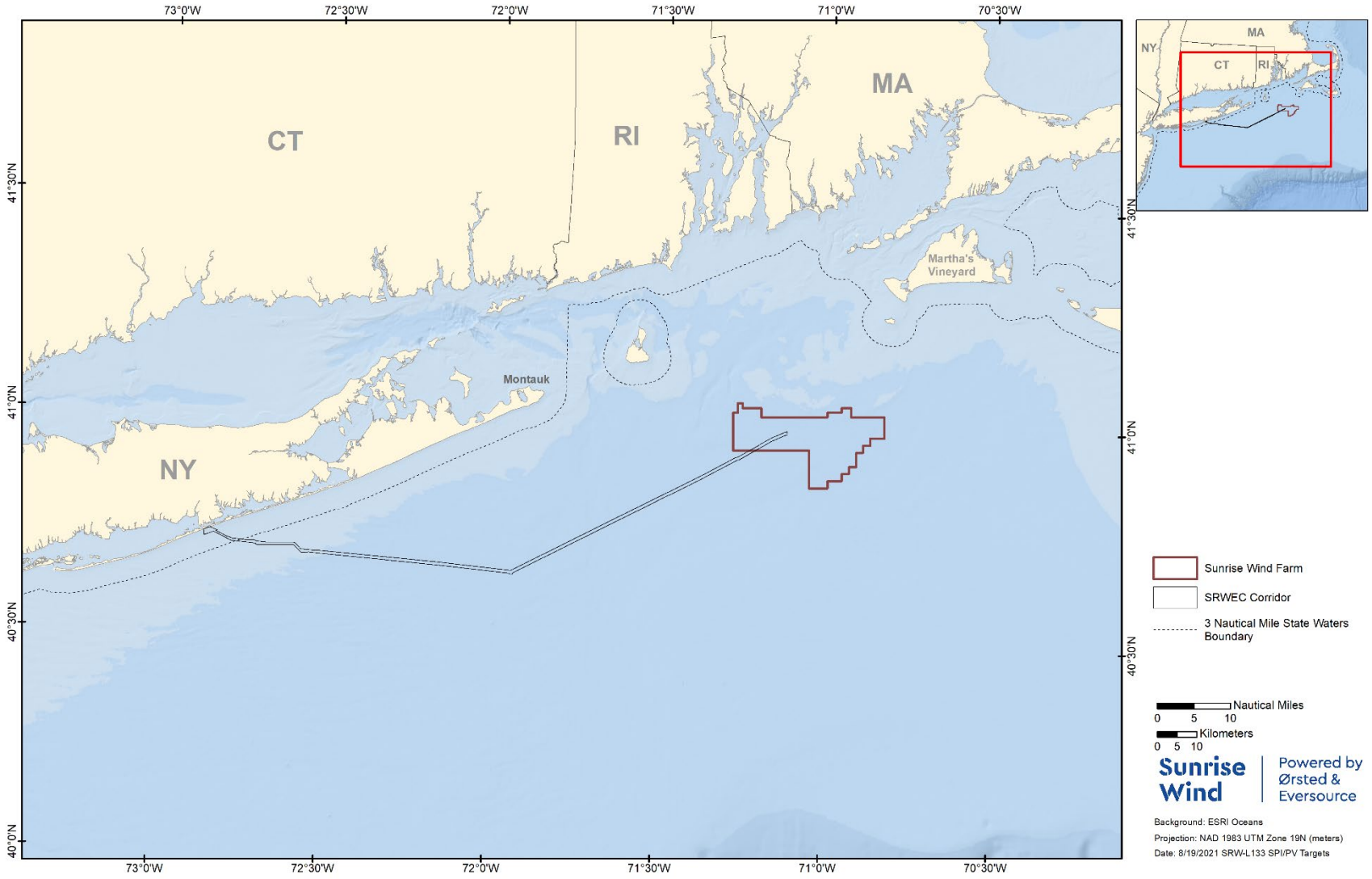


Figure 1-1. Location of the planned Sunrise Wind Farm (SRWF) and Sunrise Wind Export Cable (SRWEC) Corridor on the outer continental shelf in federal waters (SRWEC–OCS) and within New York state waters (SRWEC–NYS)

Figure 1-2. Planned location for the Onshore Transmission Cable Route – Intracoastal Waterway horizontal directional drilling between Bellport and Narrow Bays; this area is referred to as the ICW HDD Study Area

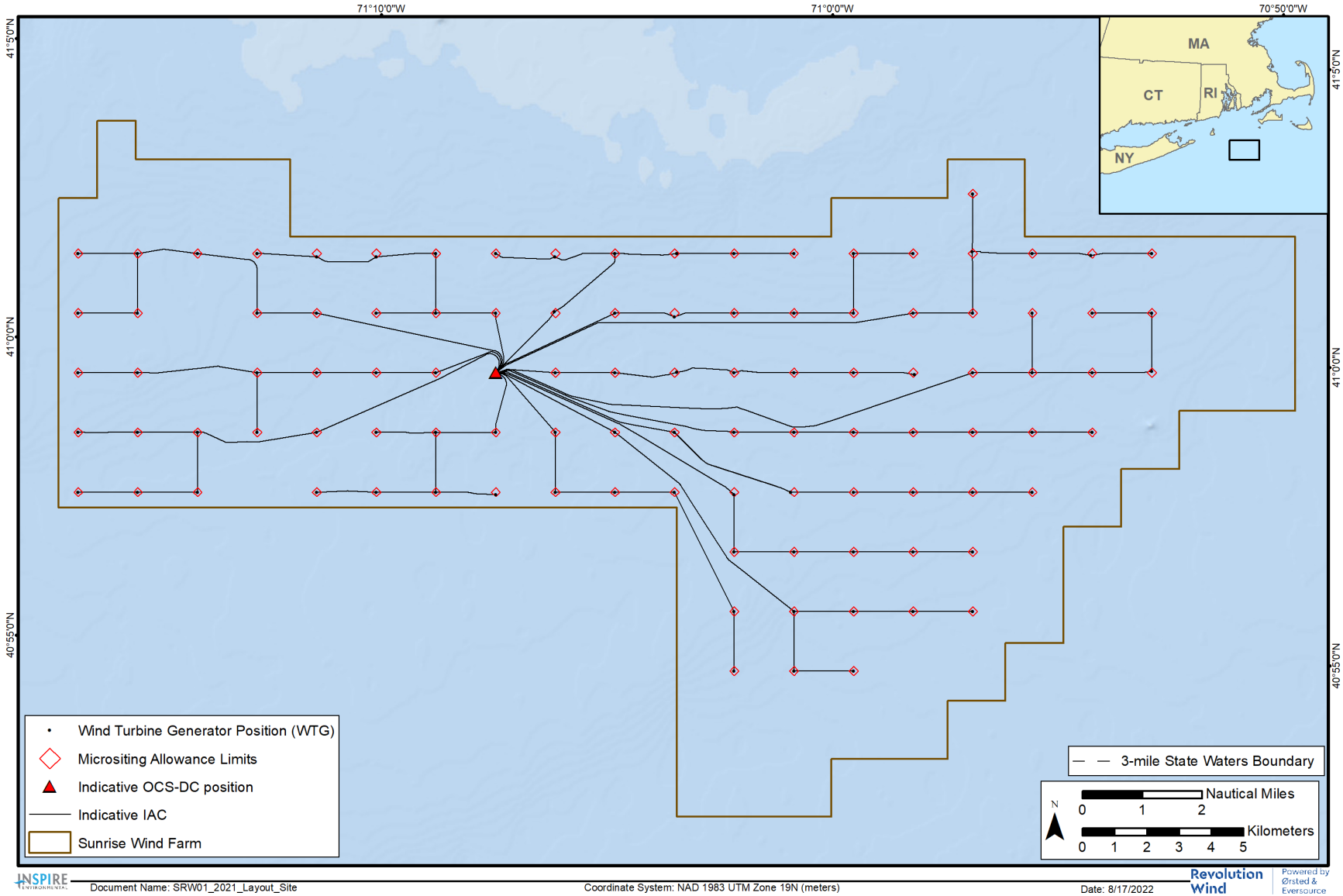


Figure 1-3. Sunrise Wind Farm proposed layout of up to 94 Wind Turbine Generators (WTGs) at 102 positions, one Offshore Converter Station (OCS-DC), and Inter-Array Cables (IACs). Micro-siting allowance limits related to navigation transit constraints are depicted as well. At this time, IAC routes between foundations are preliminary.

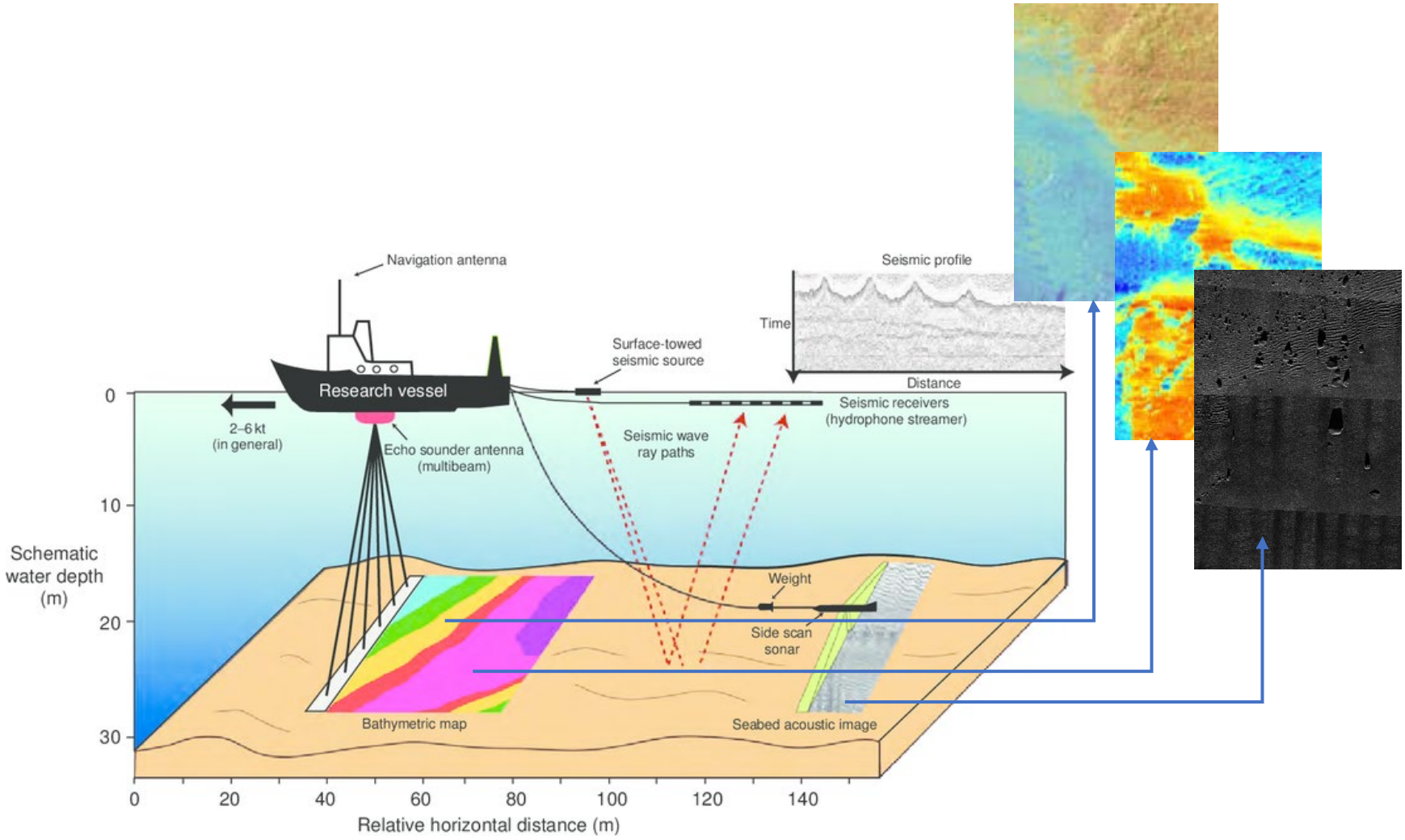


Figure 2-1. Schematic depicting a standard geophysical survey vessel set-up and data collection (after Garel et al. 2009)

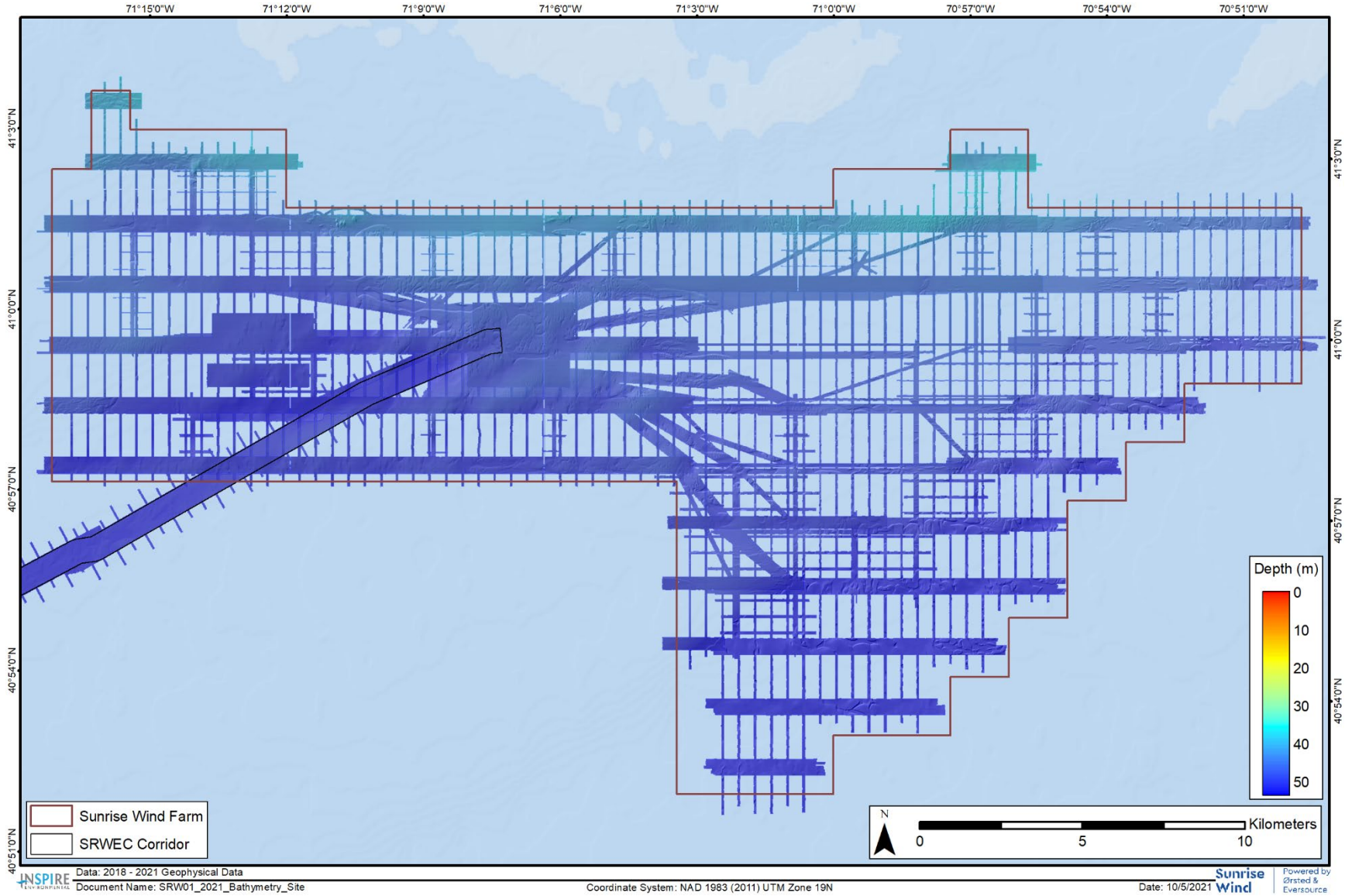


Figure 2-2. Bathymetric data at the SRWF

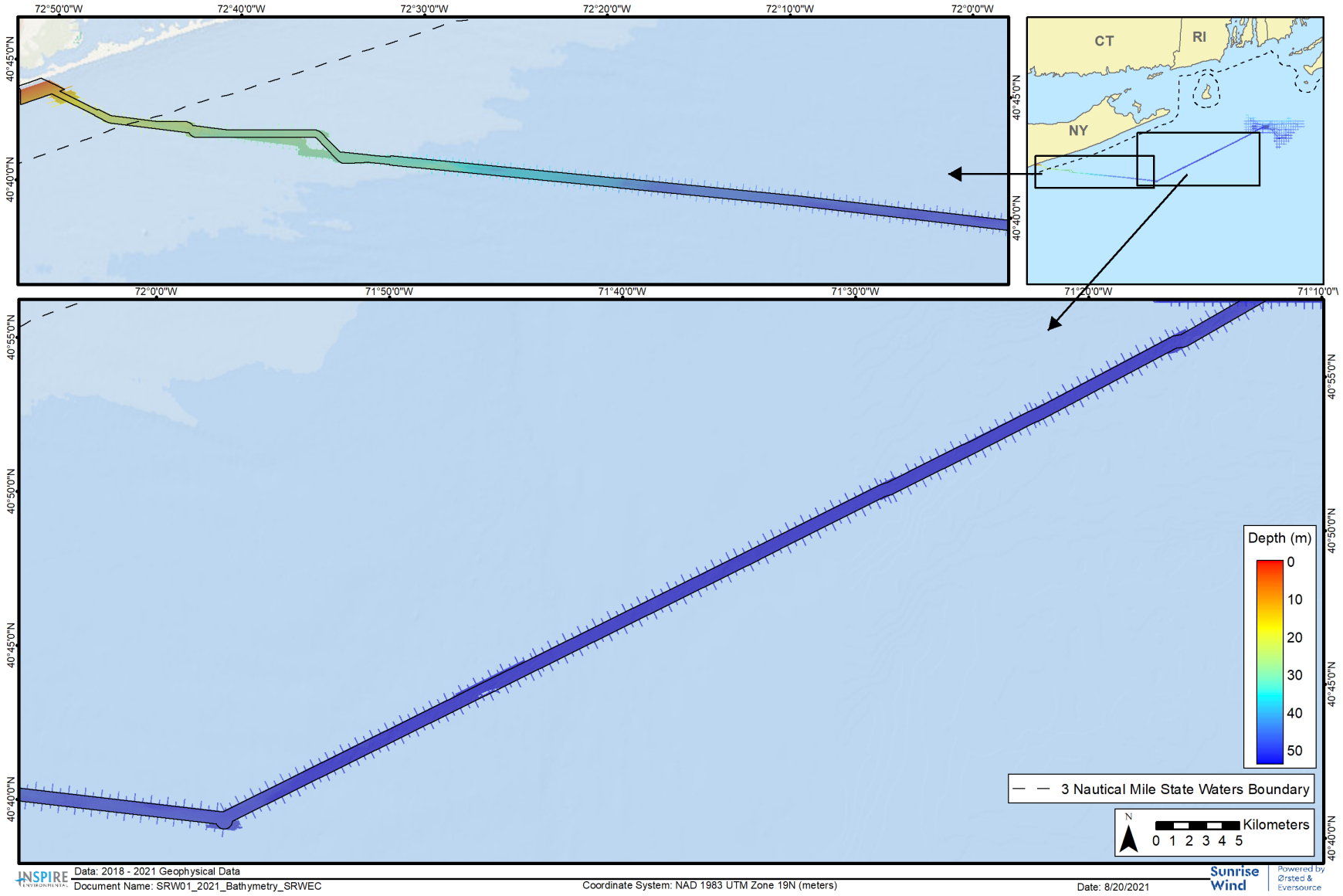


Figure 2-3. Bathymetric data along the SRWEC

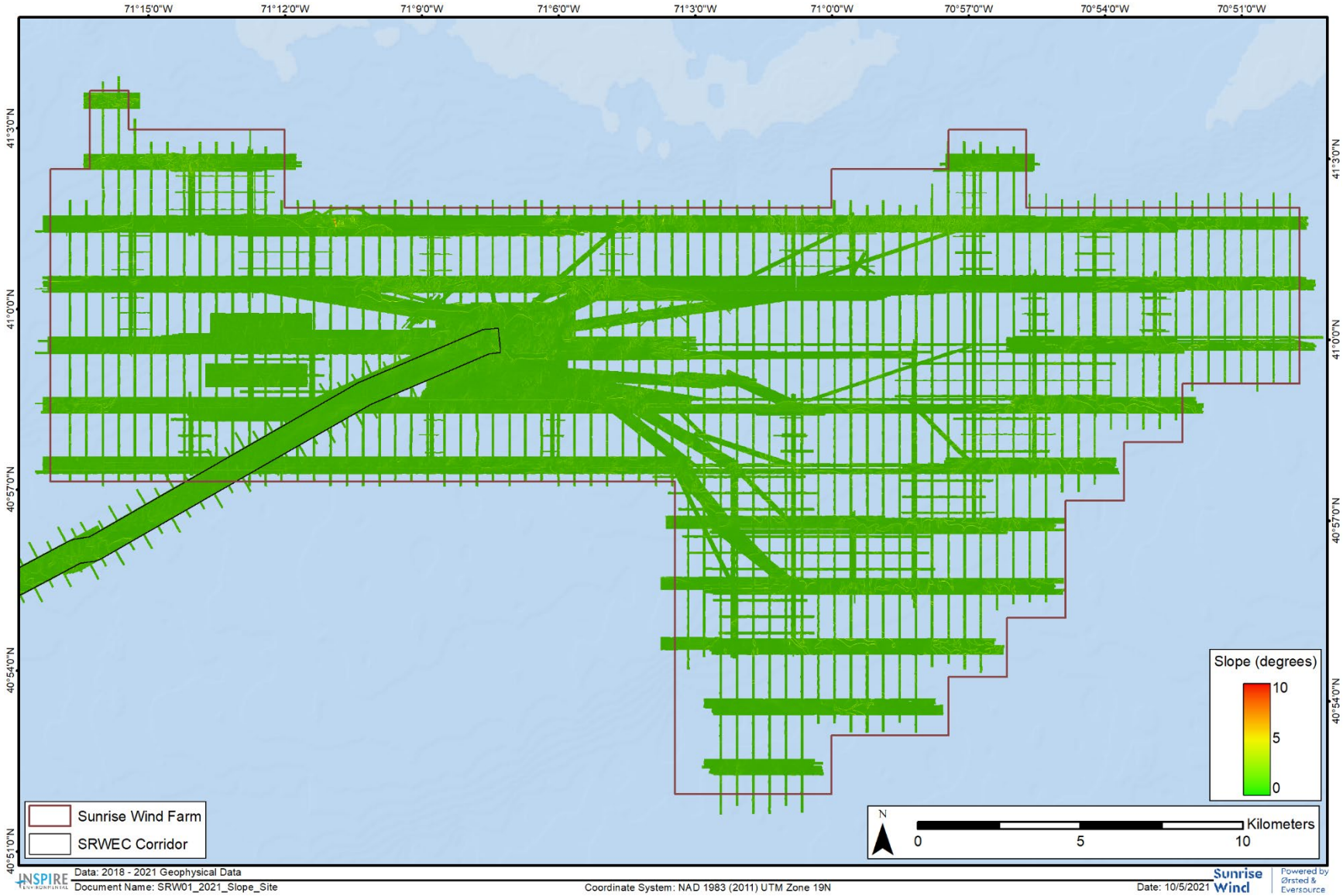


Figure 2-4. Model of seafloor slope at the SRWF

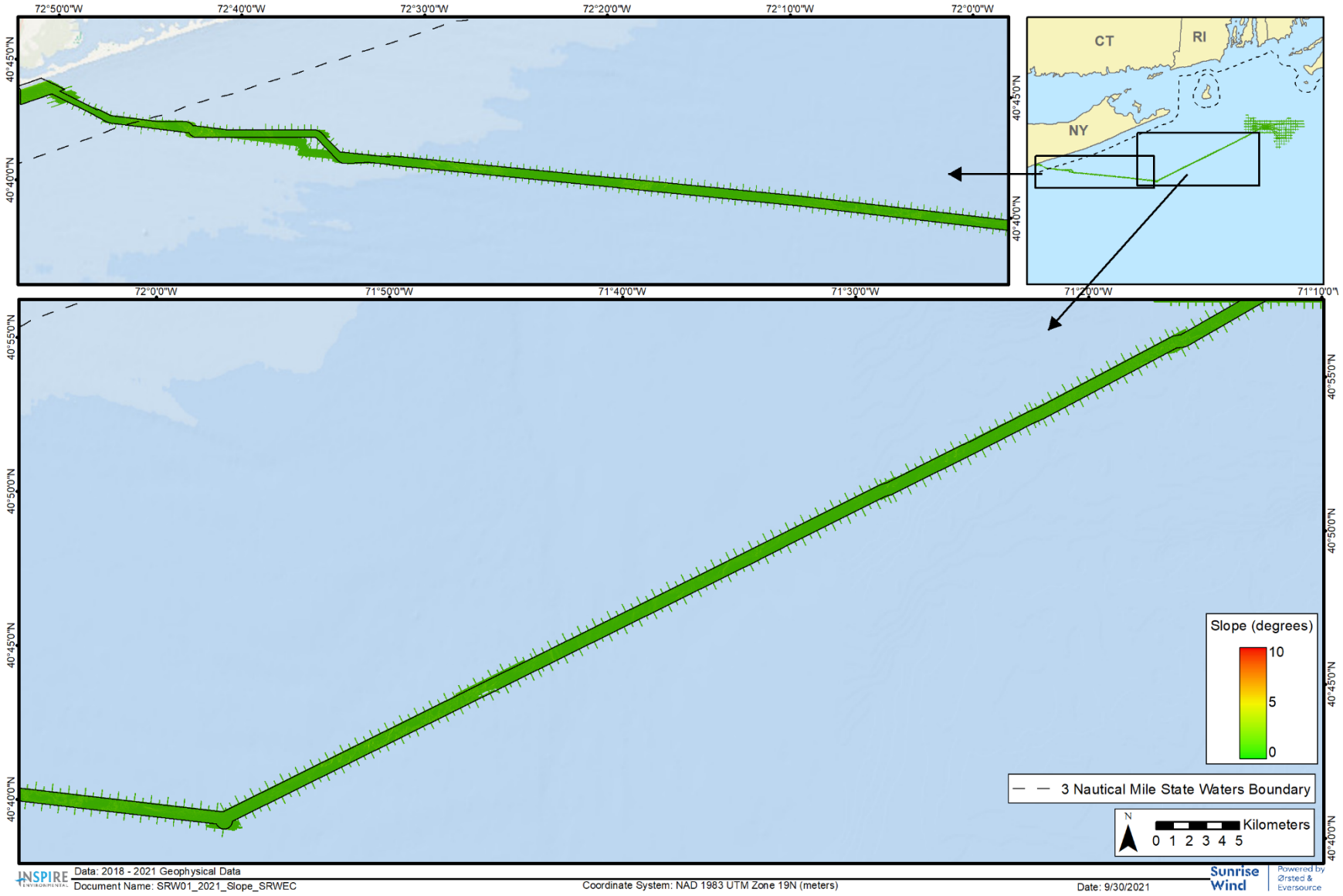


Figure 2-5. Model of seafloor slope along the SRWEC

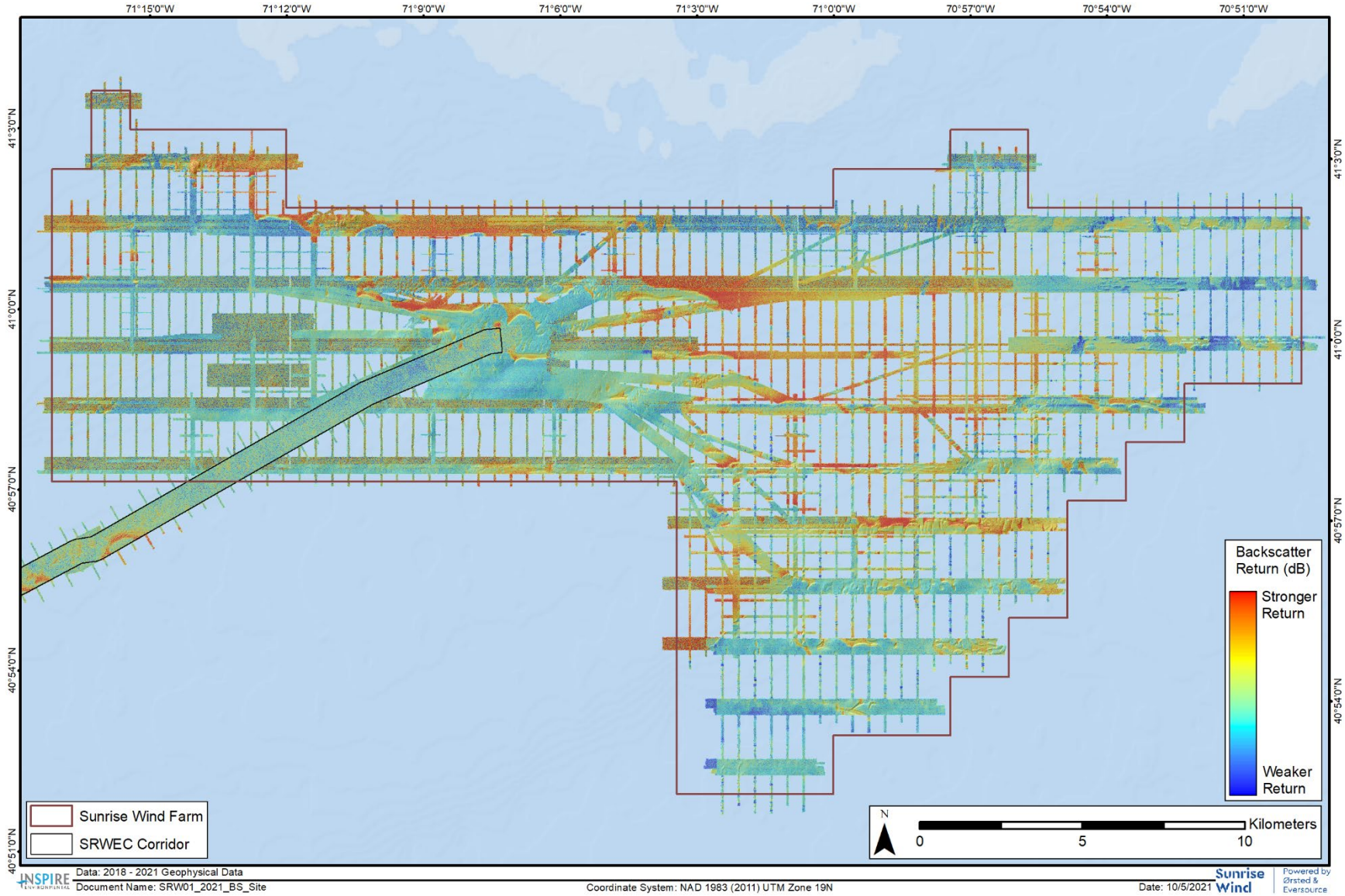


Figure 2-6. Backscatter data over hillshaded bathymetry at the SRWF

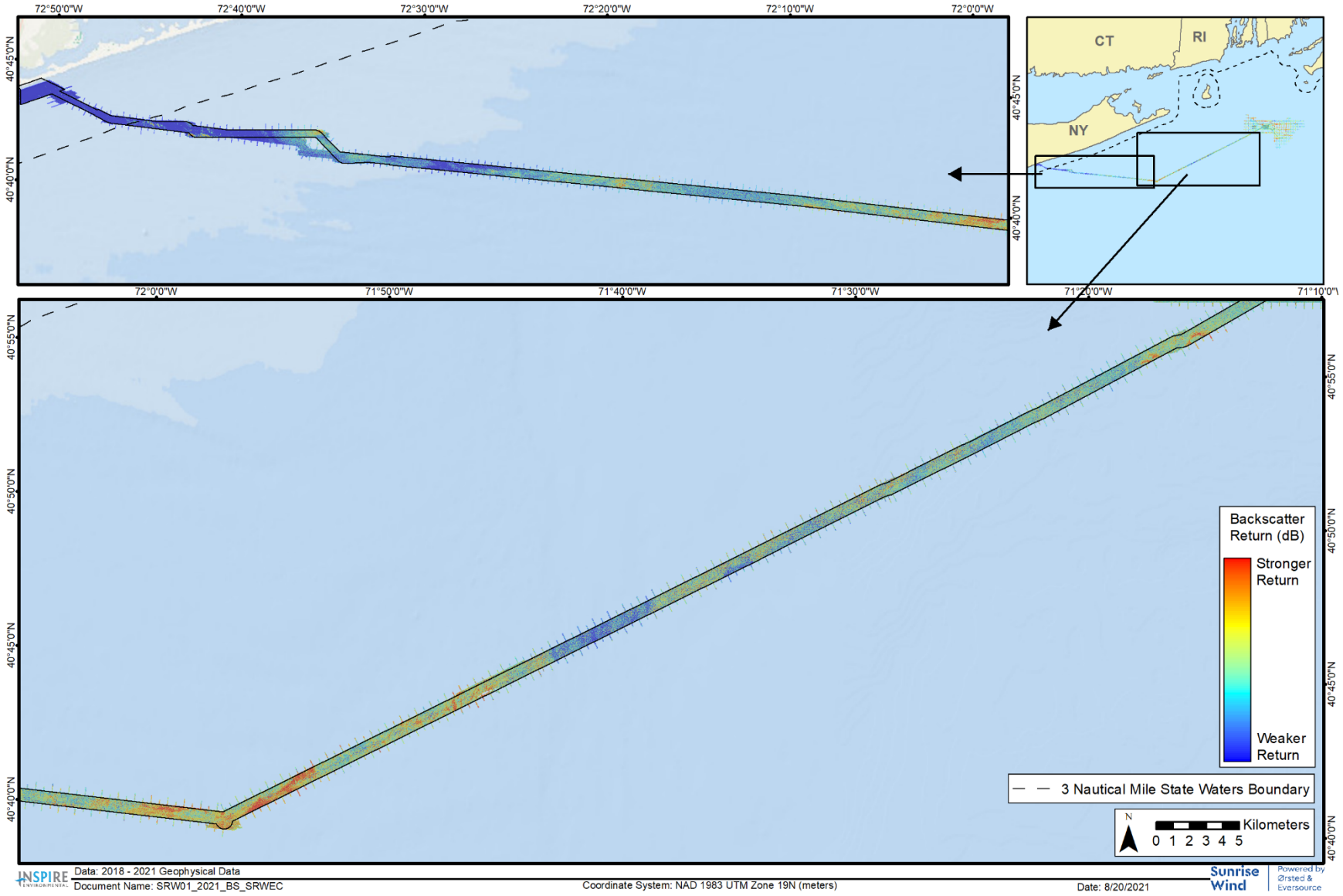


Figure 2-7. Backscatter data over hillshaded bathymetry along the SRWEC

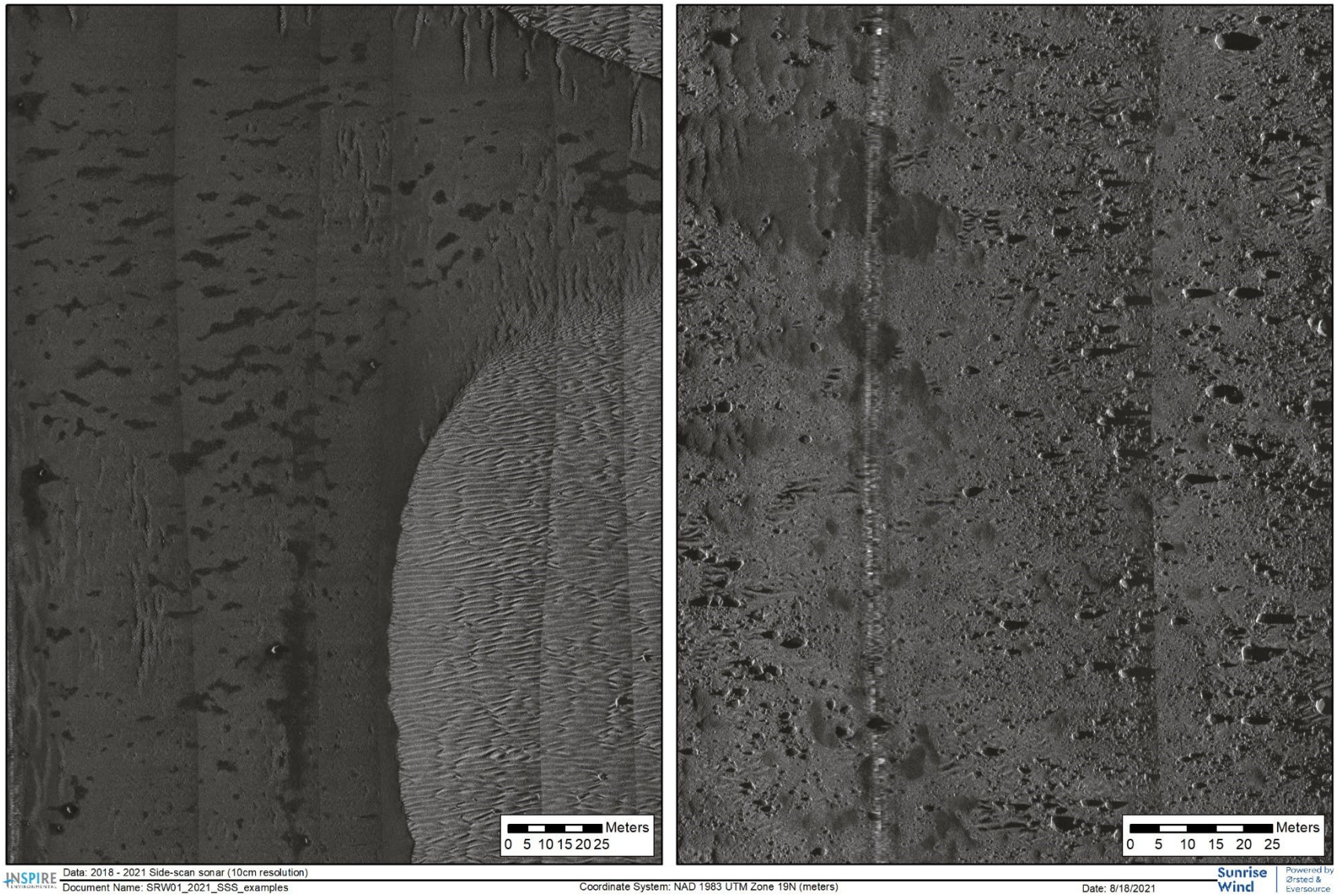


Figure 2-8. Examples of side-scan sonar data showing soft benthic habitats of sand and mud and rippled sands (left) and heterogeneous and complex hard bottom habitats of glacial drift (right)

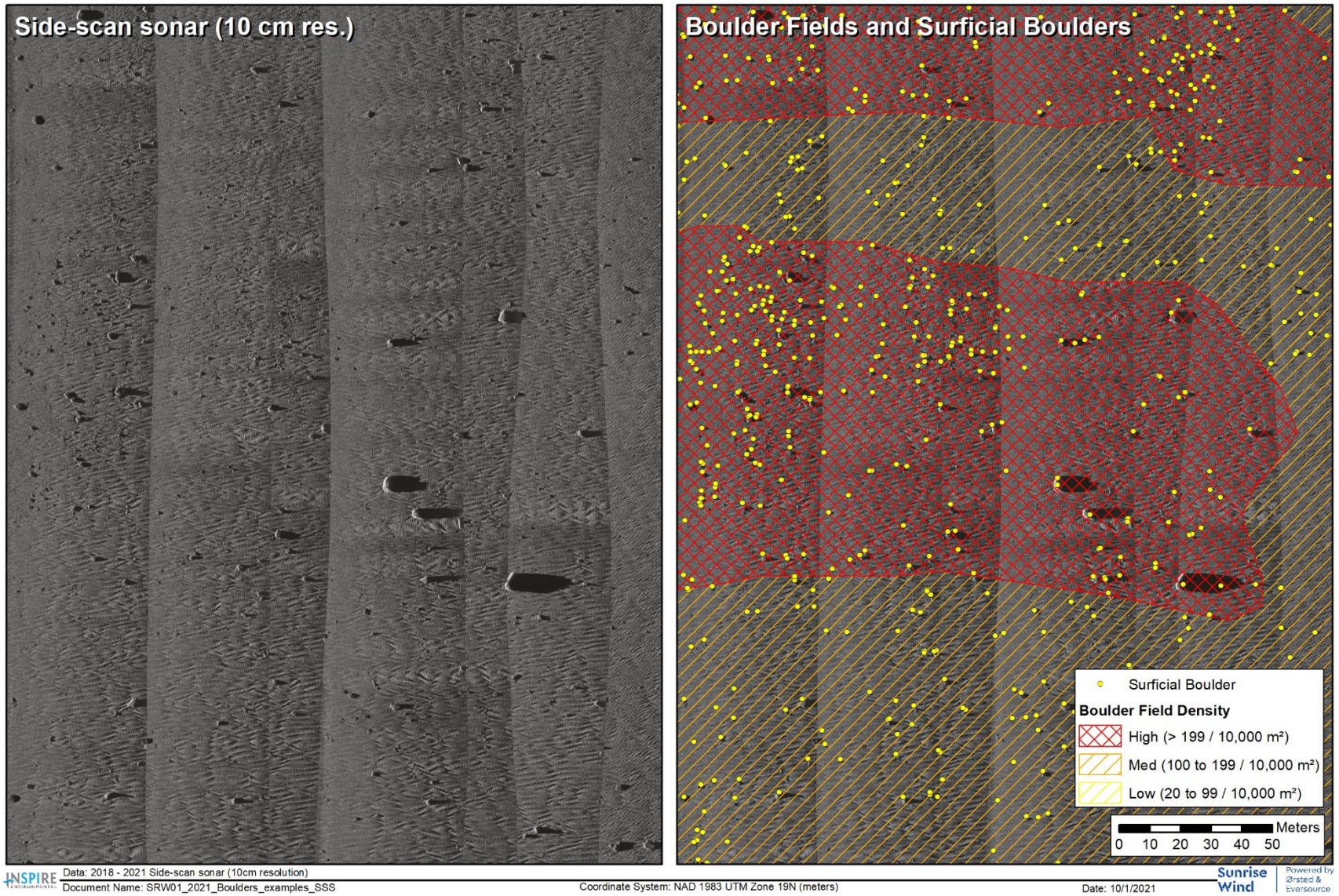


Figure 2-9. Boulder fields and surficial boulders (>0.5 m) individually identified ("picked") from the geophysical data shown here on side-scan sonar data. Note that boulders were aggregated into the boulder fields where present in densities >20 boulders per 10,000 m^2.

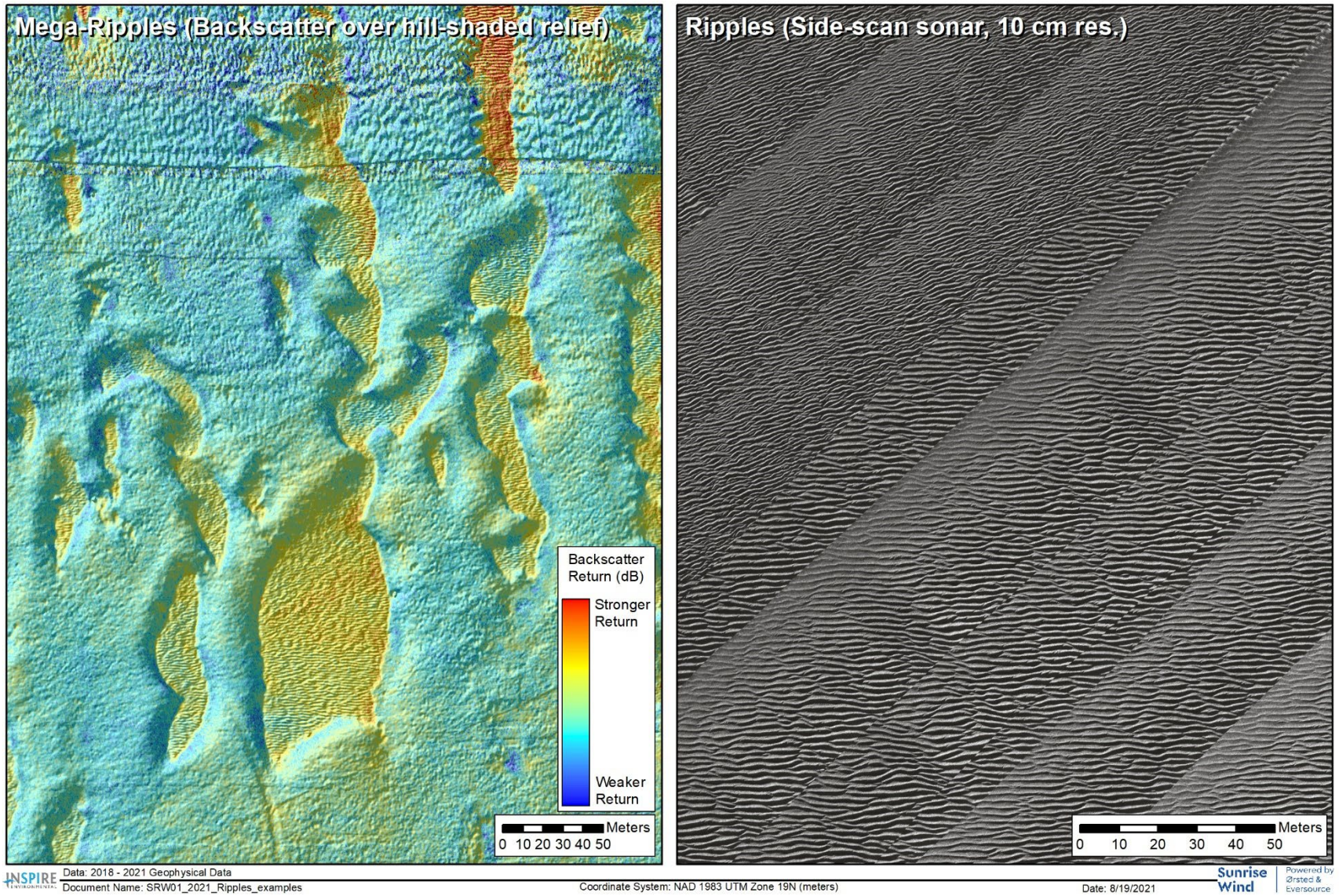
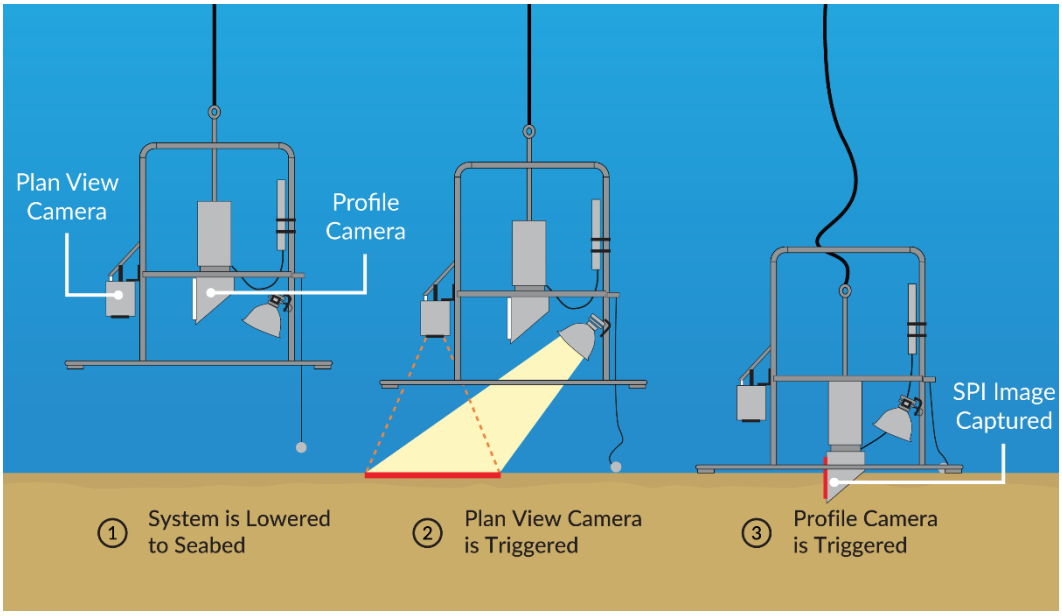


Figure 2-10. Mega-ripples visible in backscatter data over hillshaded bathymetry (left) and small-scale ripples visible in SSS data (right); two different locations are used as examples here



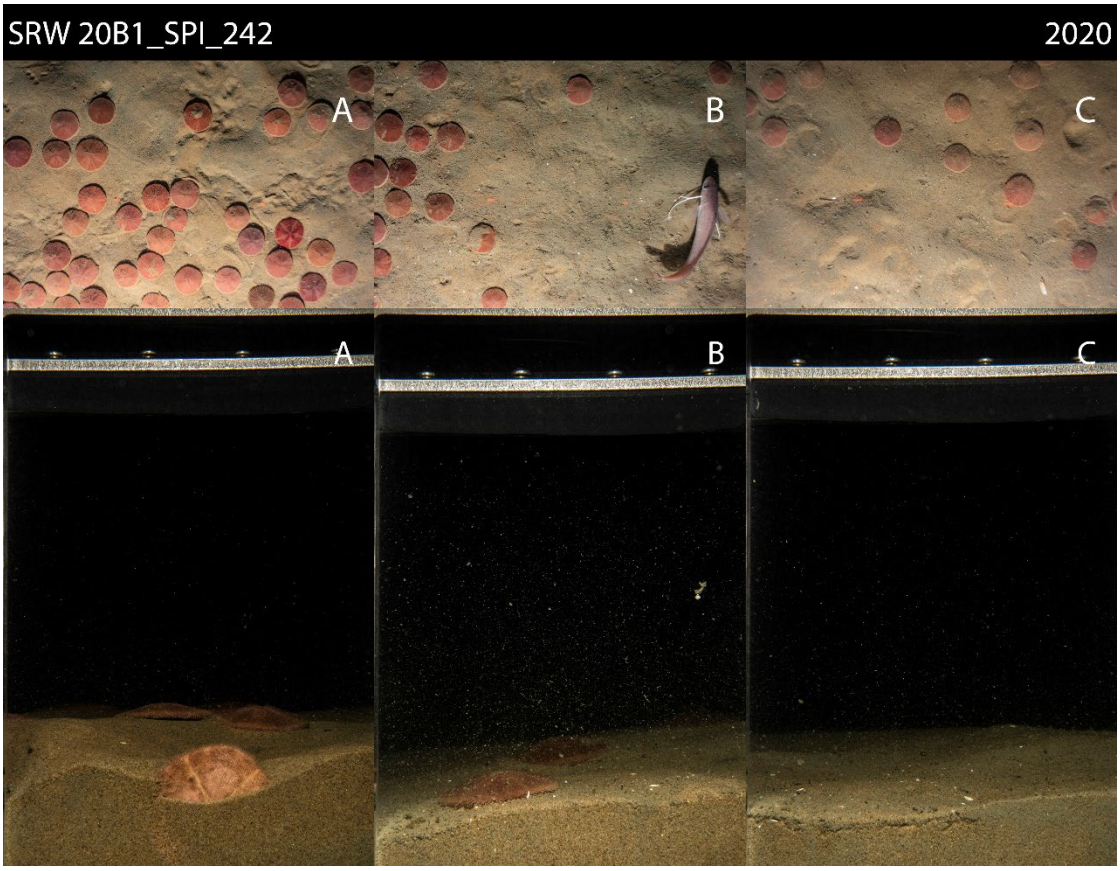


Figure 2-11. Schematic diagram of the operation of the sediment profile and plan view (SPI/PV) camera imaging system; the PV camera images an area of ~1 m^2 and the SPI camera images a profile of the sediment column that is 14.5 cm across and up to ~21 cm high. Three replicate images are analyzed at each station and a composite of these three paired replicate PV images (top) and SPI images (bottom) is prepared for use in reporting products.

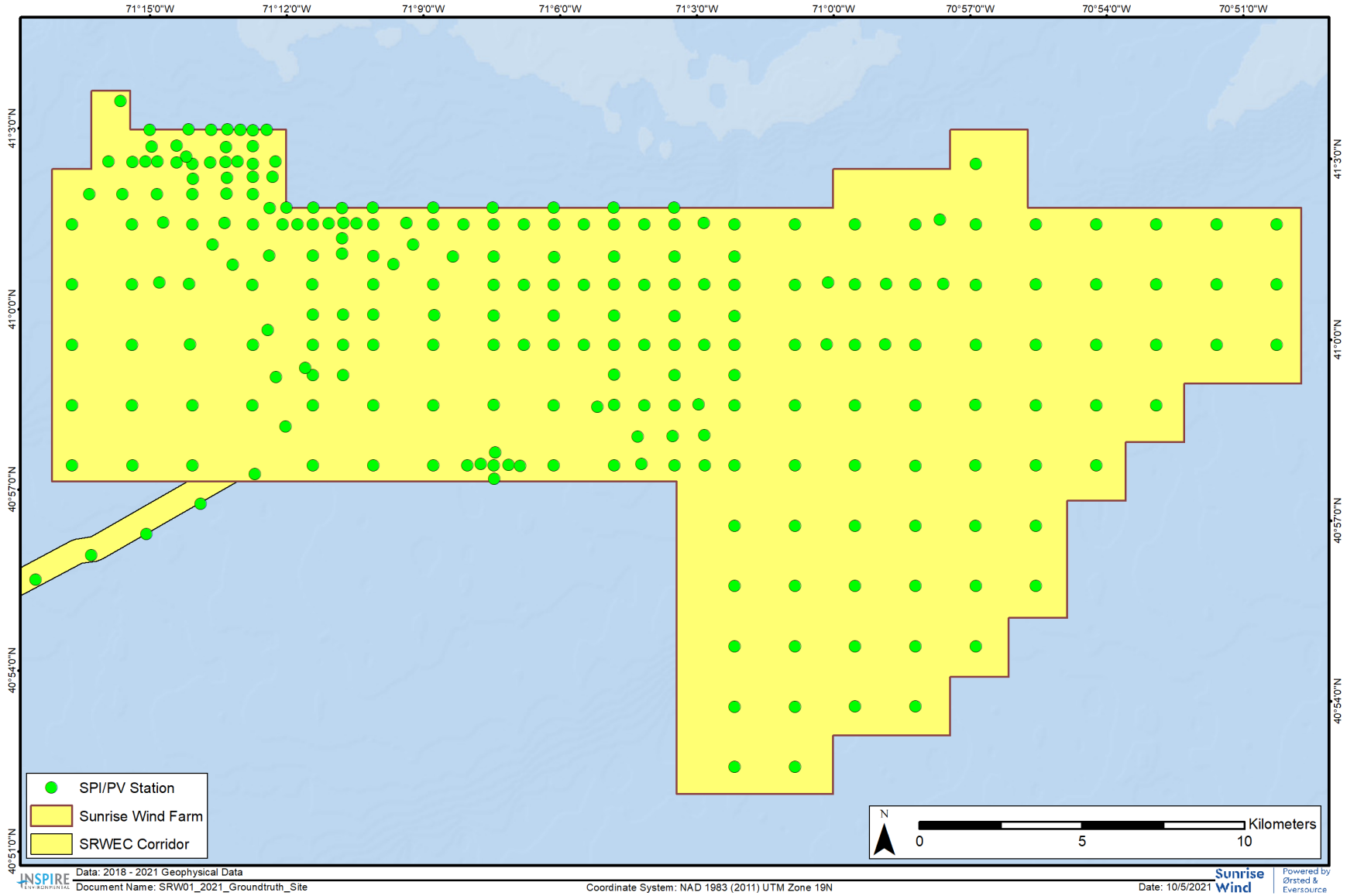


Figure 2-12. Locations sampled with sediment profile and plan view imaging (SPI/PV) used in ground-truthing geophysical data and habitat type interpretations at the SRWF

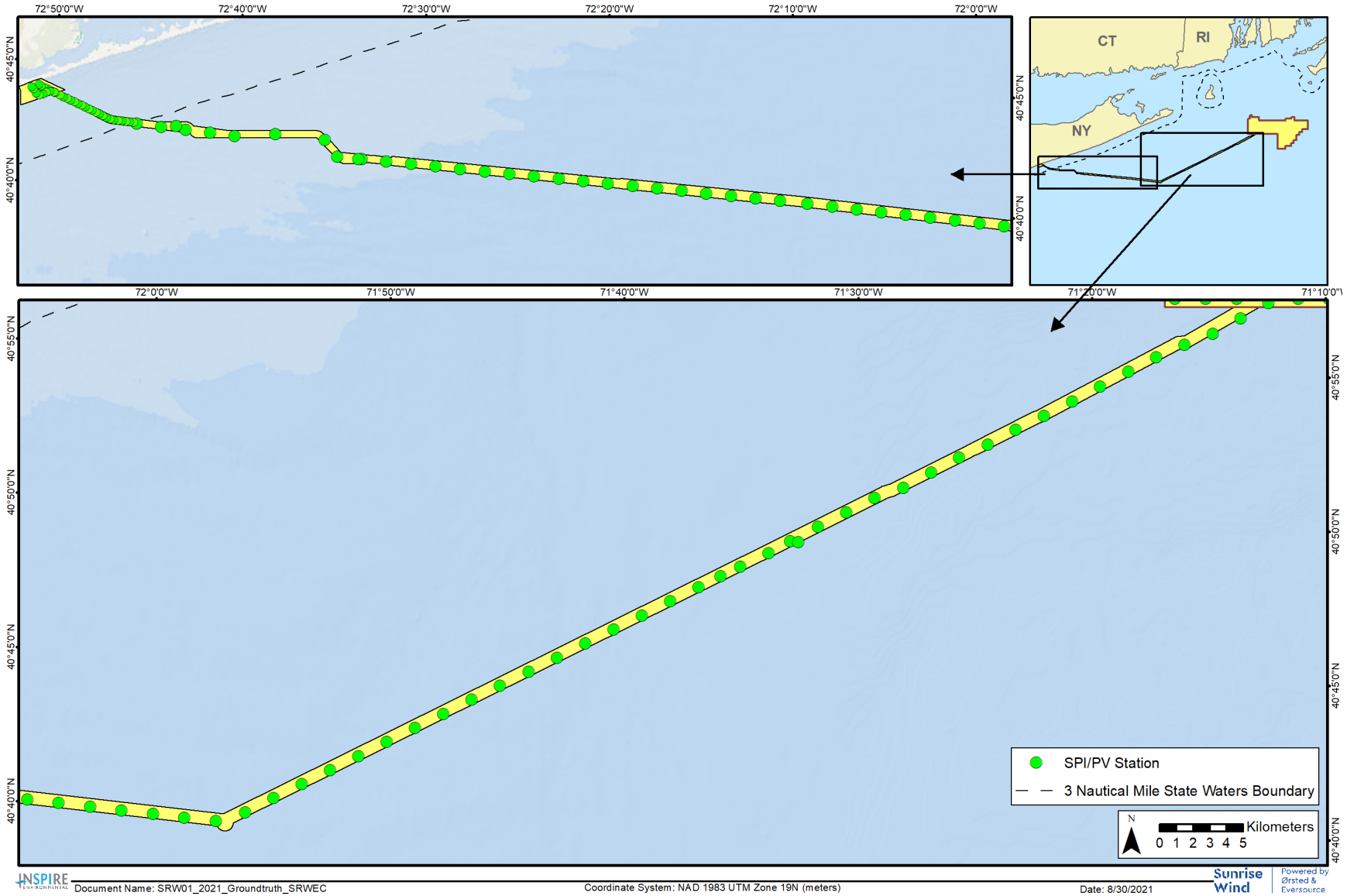


Figure 2-13. Locations sampled with SPI/PV used in ground-truthing geophysical data and habitat type interpretations along the SRWEC

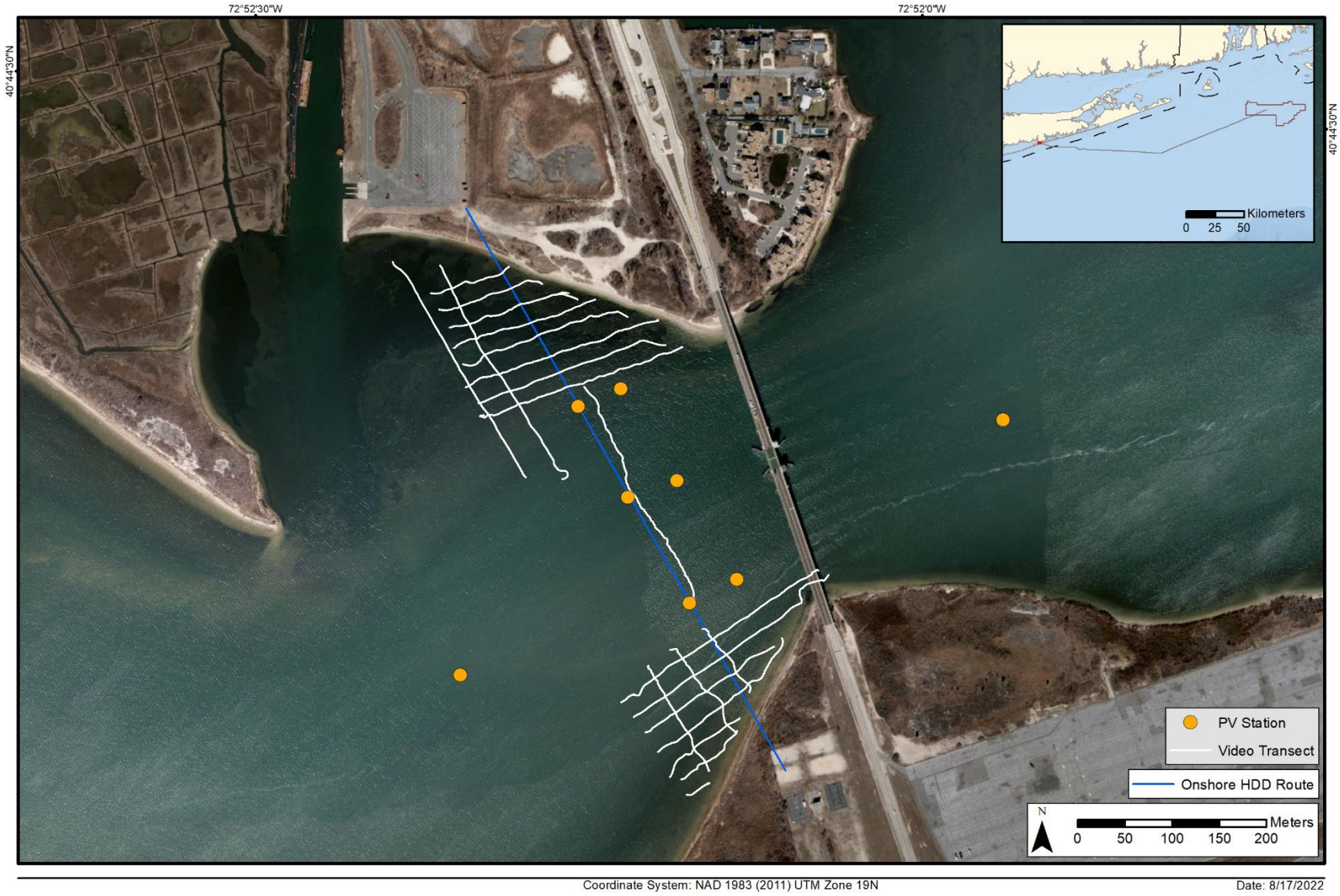


Figure 2-14. Locations of PV stations and video transects surveyed for benthic conditions and presence of submerged aquatic vegetation (SAV) in the vicinity of the ICW HDD

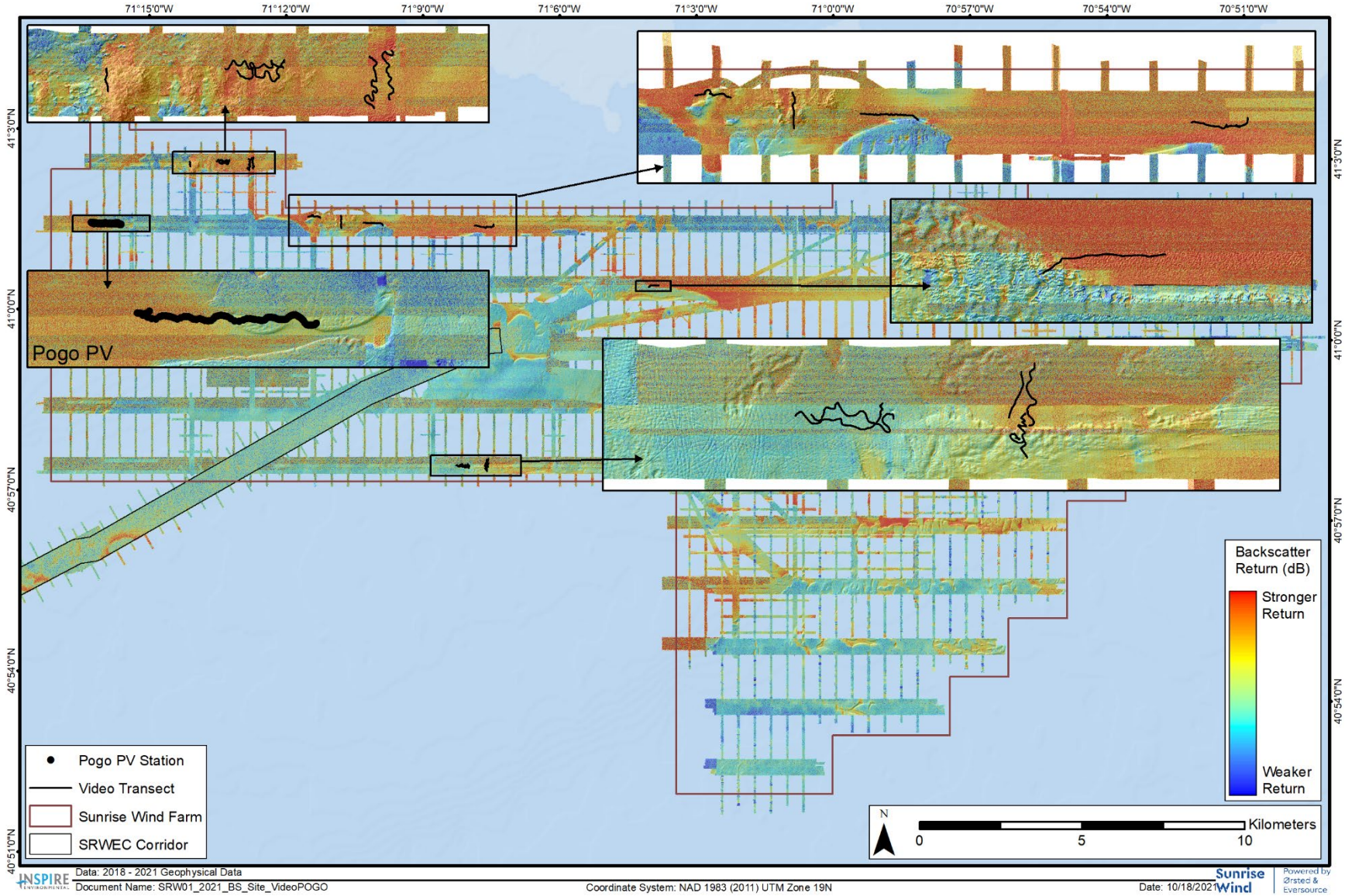


Figure 2-15. Locations of video transects and "Pogo" PV sampled for complex hard bottom habitats within the SRWF, shown here over backscatter data over hillshaded bathymetry

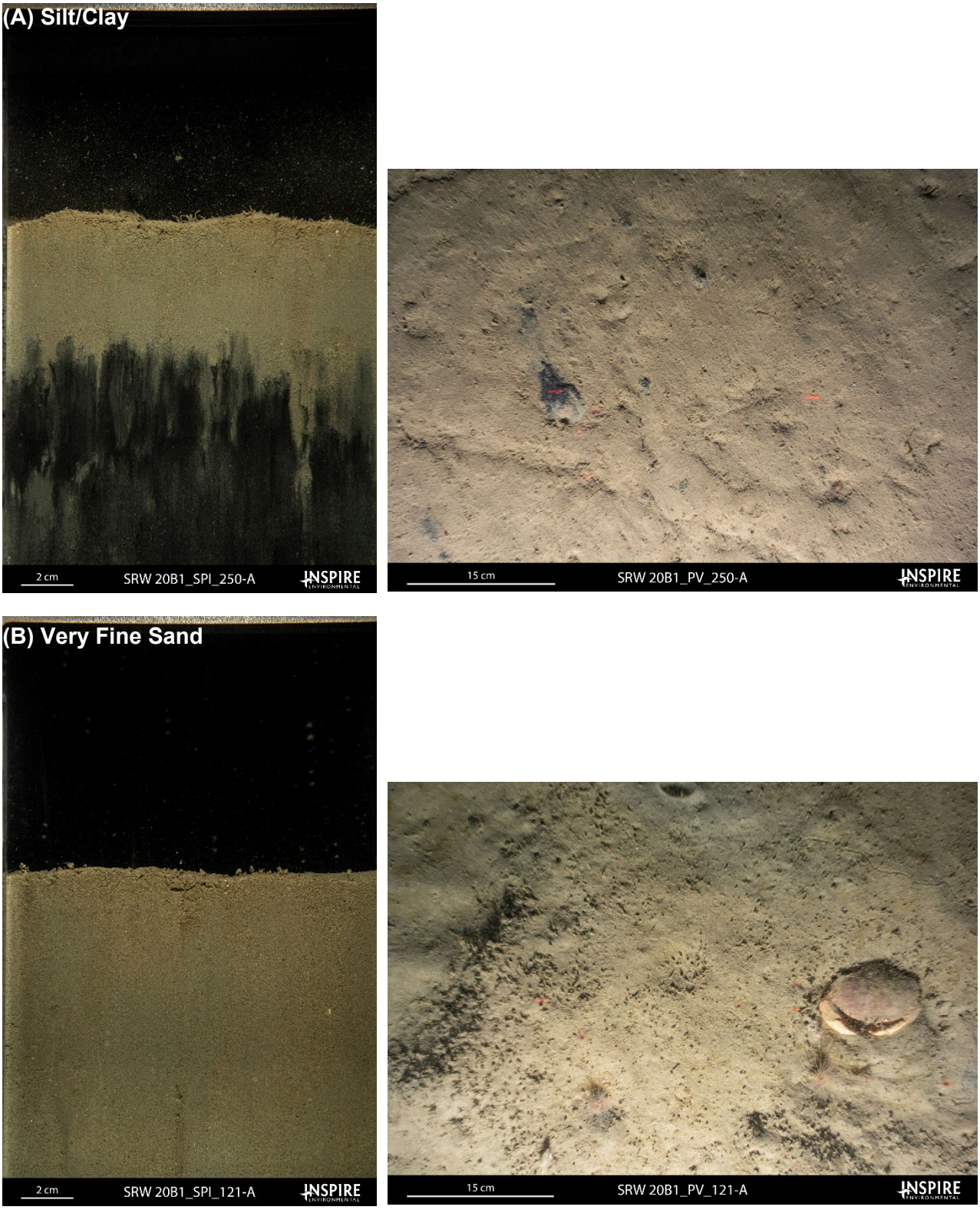


Figure 2-16. Representative SPI and PV images depicting the range of CMECS Substrate Subgroups across the Project Area: (A) Silt/Clay (B) Very Fine Sand; (C) Fine Sand; (D) Medium Sand; (E) Very Coarse Sand; (F) Gravelly Sand; (G) Sandy Gravel; and (H) Boulder

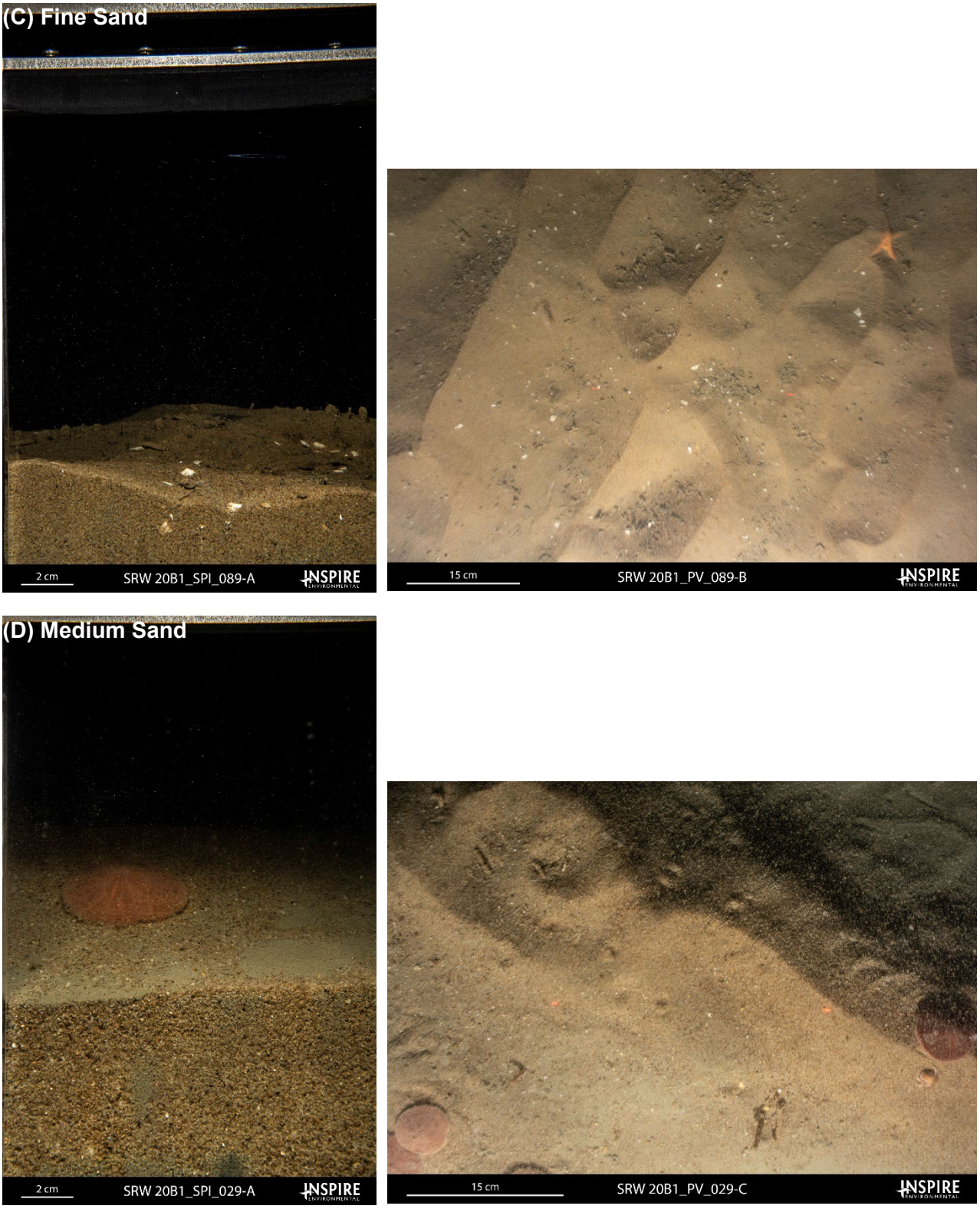


Figure 2-16. continued **Representative SPI and PV images depicting the range of CMECS Substrate Subgroups across the Project Area: (A) Silt/Clay (B) Very Fine Sand; (C) Fine Sand; (D) Medium Sand; (E) Very Coarse Sand; (F) Gravelly Sand; (G) Sandy Gravel; and (H) Boulder**

Figure 2-16. continued **Representative SPI and PV images depicting the range of CMECS Substrate Subgroups across the Project Area: (A) Silt/Clay (B) Very Fine Sand; (C) Fine Sand; (D) Medium Sand; (E) Very Coarse Sand; (F) Gravelly Sand; (G) Sandy Gravel; and (H) Boulder**

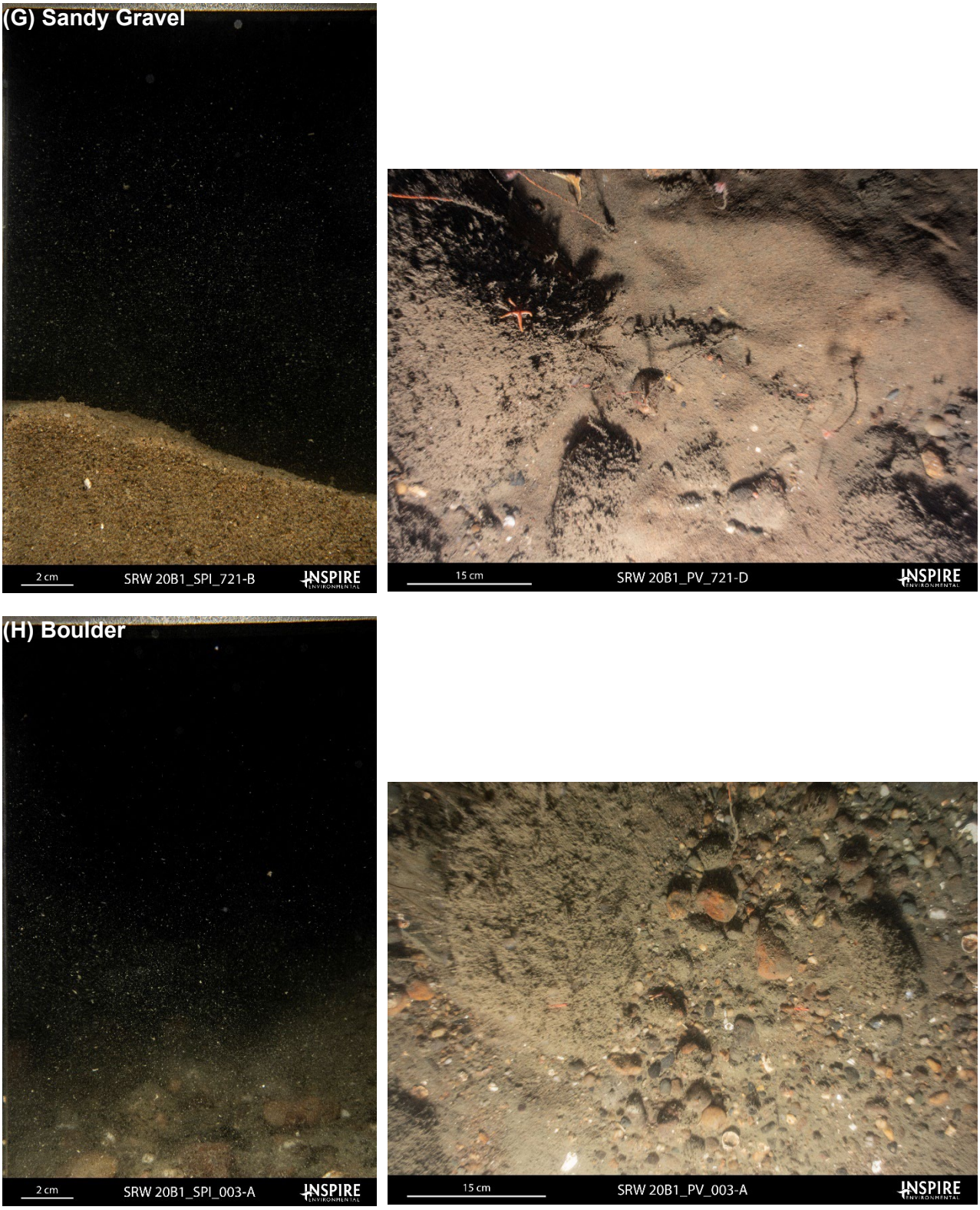


Figure 2-16. continued **Representative SPI and PV images depicting the range of CMECS Substrate Subgroups across the Project Area: (A) Silt/Clay (B) Very Fine Sand; (C) Fine Sand; (D) Medium Sand; (E) Very Coarse Sand; (F) Gravelly Sand; (G) Sandy Gravel; and (H) Boulder**

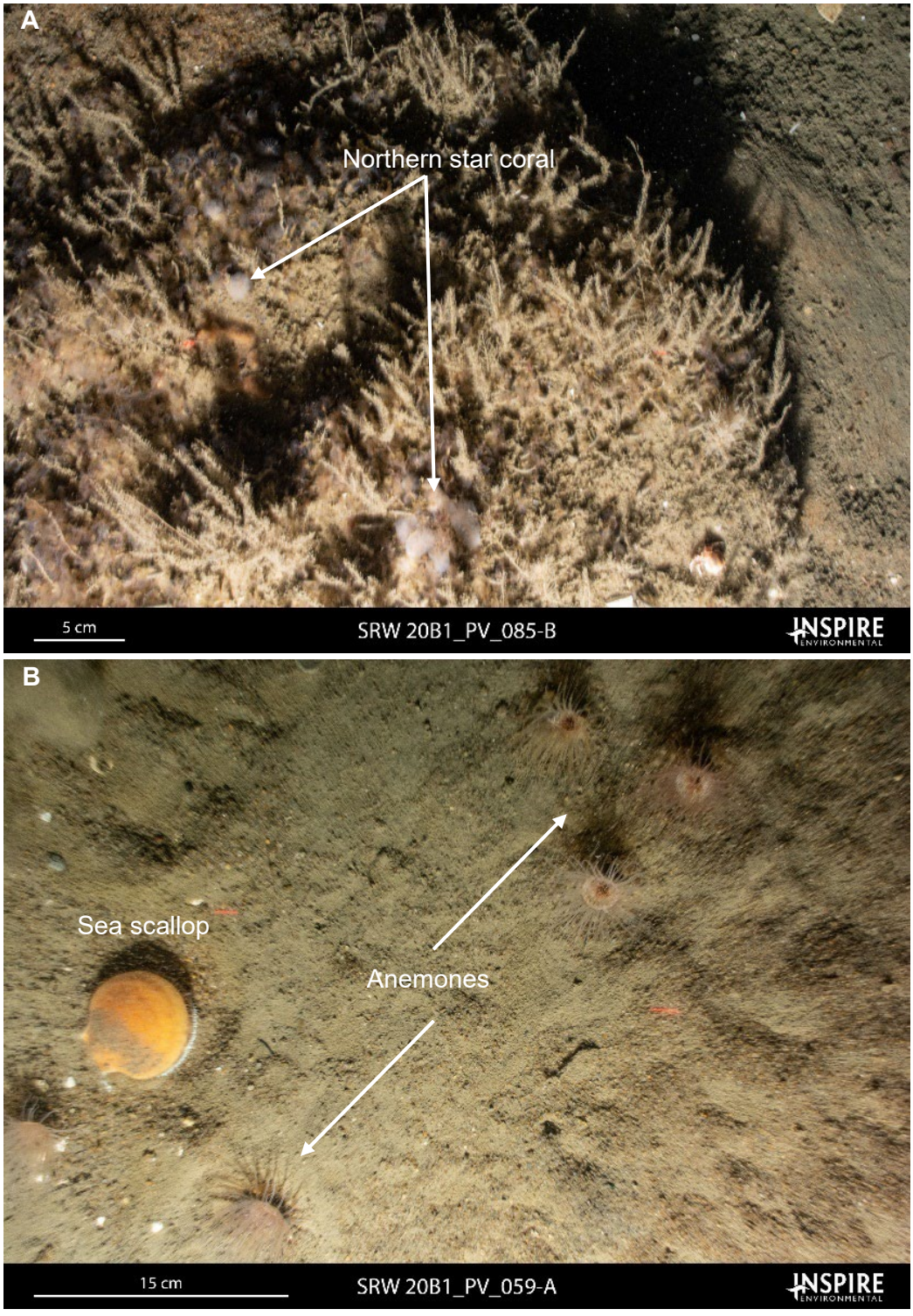


Figure 2-17. Representative PV images depicting (A) the northern star coral, *Astrangia* sp., a non reef-building hard coral and a sensitive species in the area; (B) the sea scallop, *Placopecten magellanicus*, and burrowing anemones (cerianthids); and (C) the siphon of the Ocean quahog, *Arctica islandica*; (D) sea star, sand dollar, and shrimp; (E) infaunal tubes and a Corymorpha hydroid.

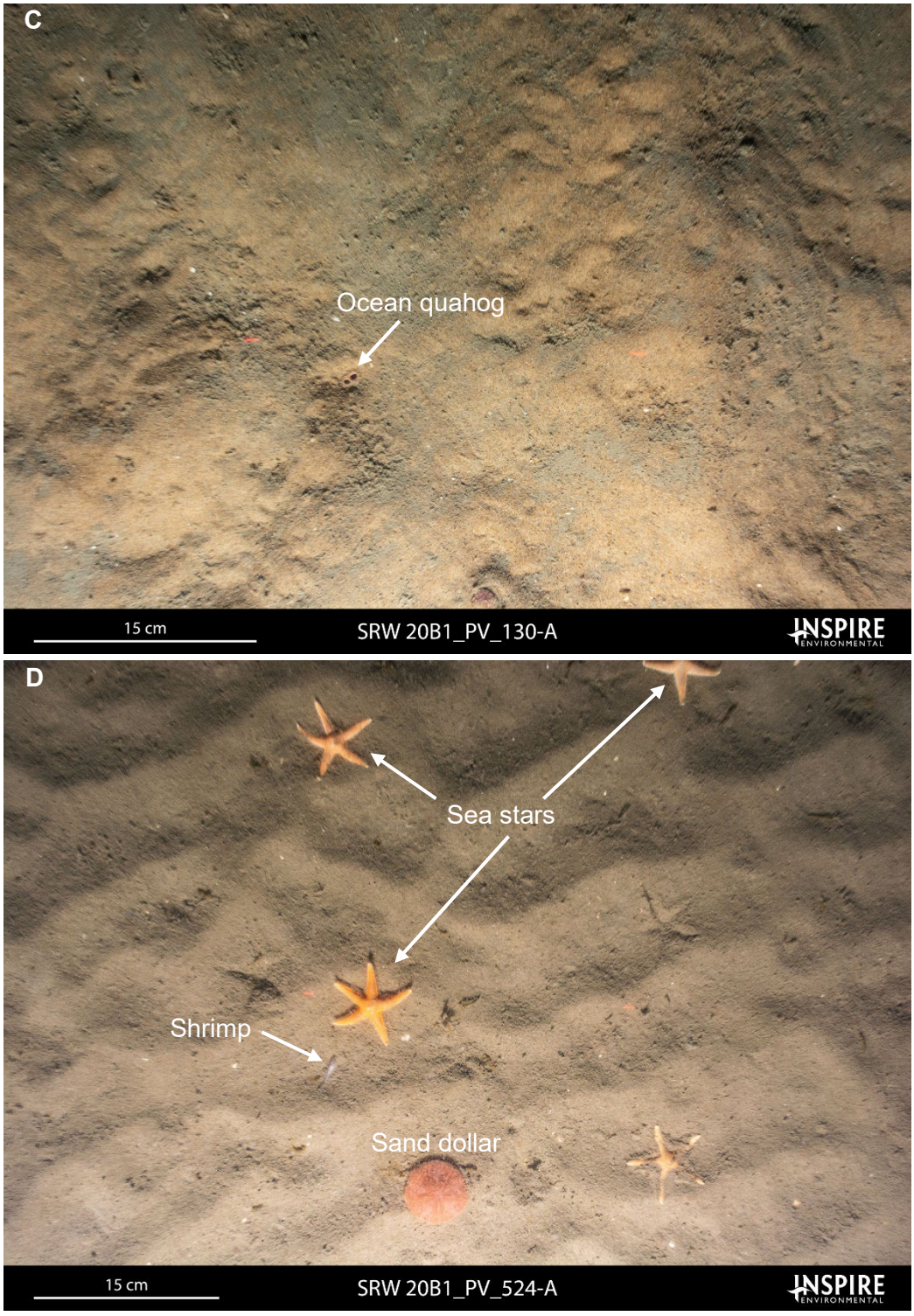


Figure 2-17. continued **Representative PV images depicting (A) the northern star coral, *Astrangia* sp., a non reef-building hard coral and a sensitive species in the area; (B) the sea scallop, *Placopecten magellanicus*, and burrowing anemones (cerianthids); and (C) the siphon of the Ocean quahog, *Arctica islandica*; (D) sea star, sand dollar, and shrimp; (E) infaunal tubes and a Corymorpha hydroid.**

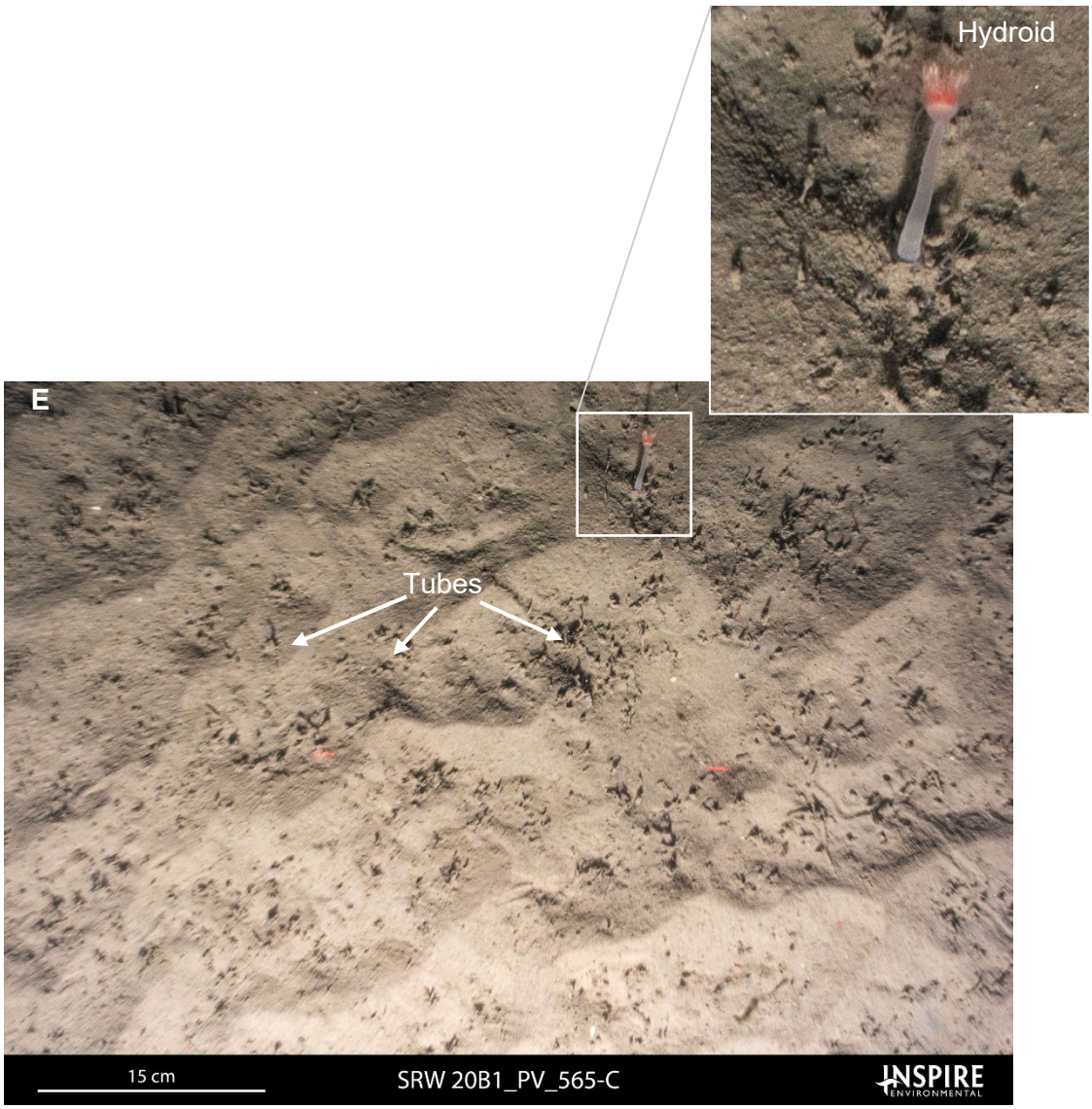


Figure 2-17. continued **Representative PV images depicting (A) the northern star coral, *Astrangia* sp., a non reef-building hard coral and a sensitive species in the area; (B) the sea scallop, *Placopecten magellanicus*, and burrowing anemones (cerianthids); and (C) the siphon of the Ocean quahog, *Arctica islandica*; (D) sea star, sand dollar, and shrimp; (E) infaunal tubes and a Corymorpha hydroid.**

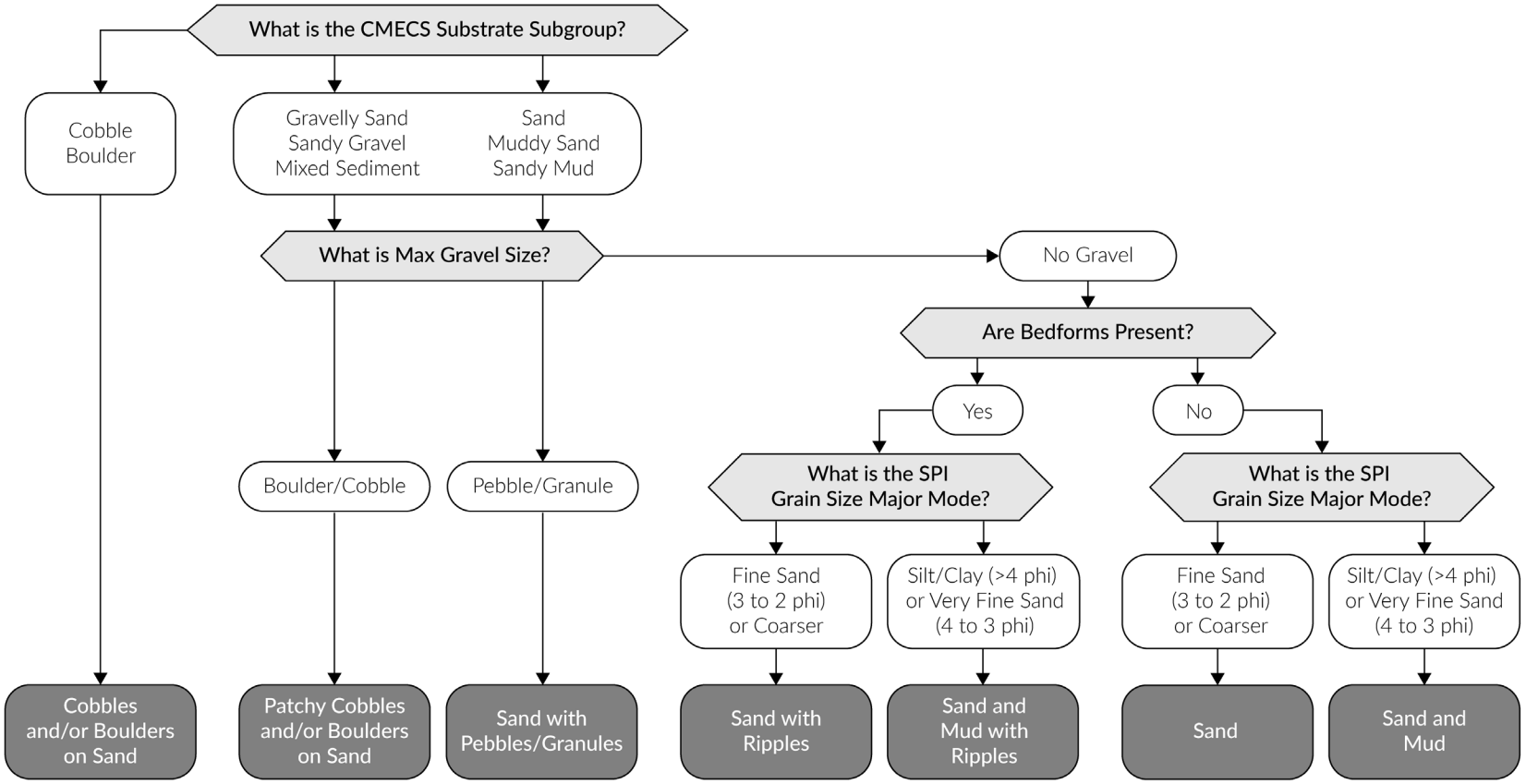


Figure 2-18. Flowchart depicting the derivation of macrohabitat types from SPI/PV data; units for grain size major mode are phi

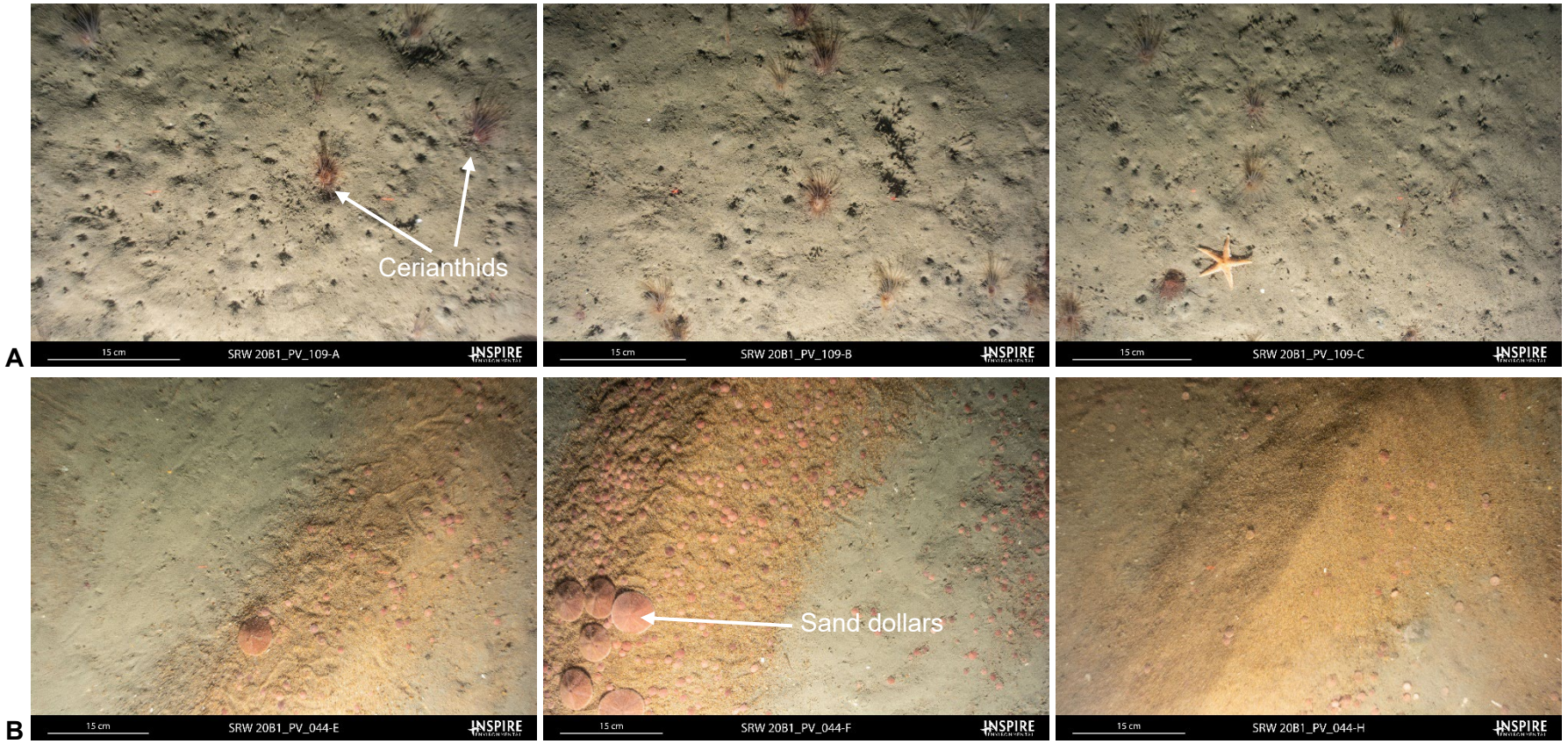


Figure 2-19. Representative PV images showing the range of macrohabitat types classified at the SRWF including (A) sand and mud inhabited by burrowing anemones (cerianthids); (B) sand with ripples, inhabited by high densities of sand dollars; (C) sand with pebbles/granules, inhabited by Tubularia hydroids; (D) patchy cobbles and/or boulders on sand, inhabited by attached epifauna, including Tubularia hydroids, bryozoa, and sea stars; and (E) cobbles and/or boulders on sand, inhabited by a fish and attached epifauna, including bryozoa, hydroids, burrowing anemones (cerianthids), and sea stars

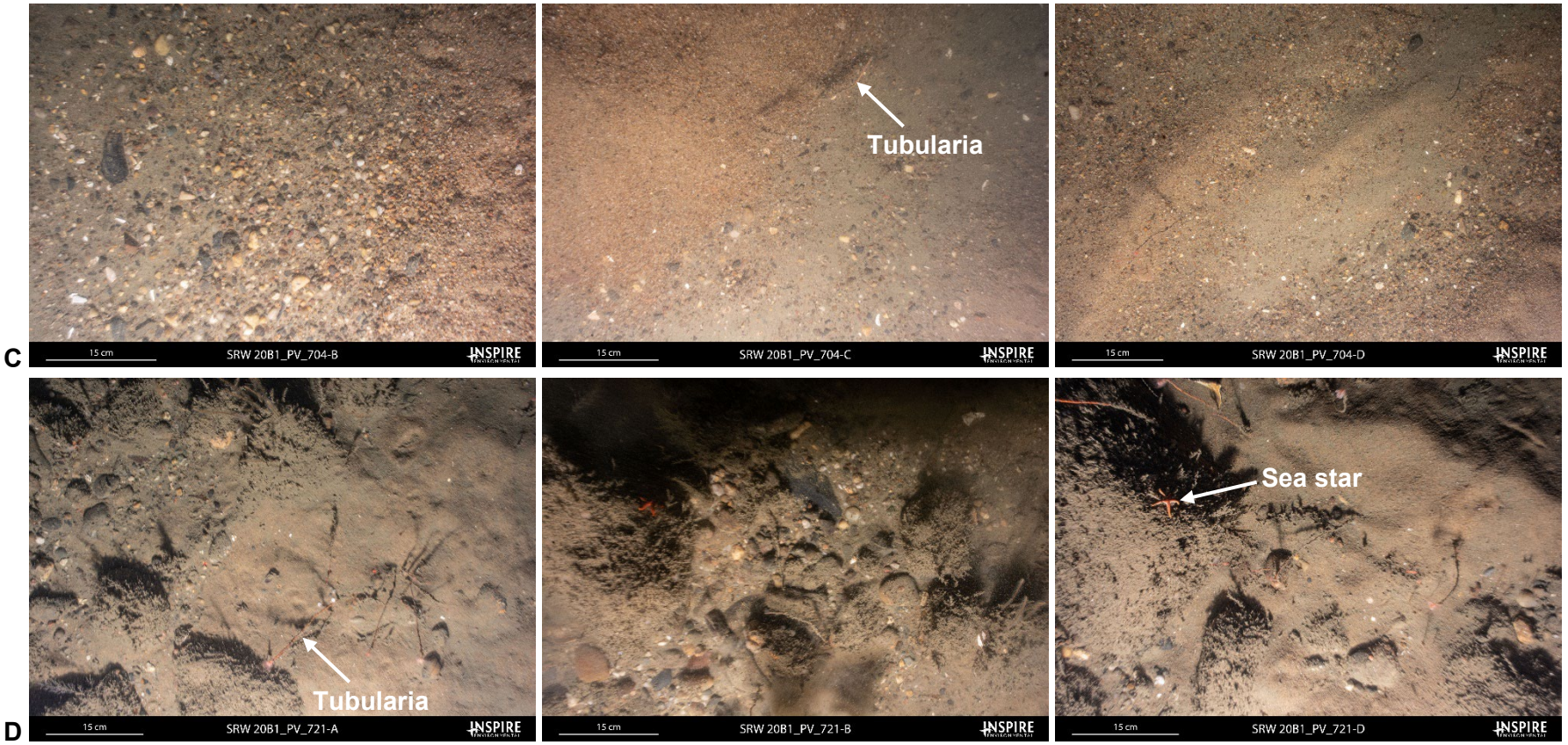


Figure 2-19. continued **Representative PV images showing the range of macrohabitat types classified at the SRWF including (A) sand and mud inhabited by burrowing anemones (cerianthids); (B) sand with ripples, inhabited by high densities of sand dollars; (C) sand with pebbles/granules, inhabited by Tubularia hydroids; (D) patchy cobbles and/or boulders on sand, inhabited by attached epifauna, including Tubularia hydroids, bryozoa, and sea stars; and (E) cobbles and/or boulders on sand, inhabited by a fish and attached epifauna, including bryozoa, hydroids, burrowing anemones (cerianthids), and sea stars**

E

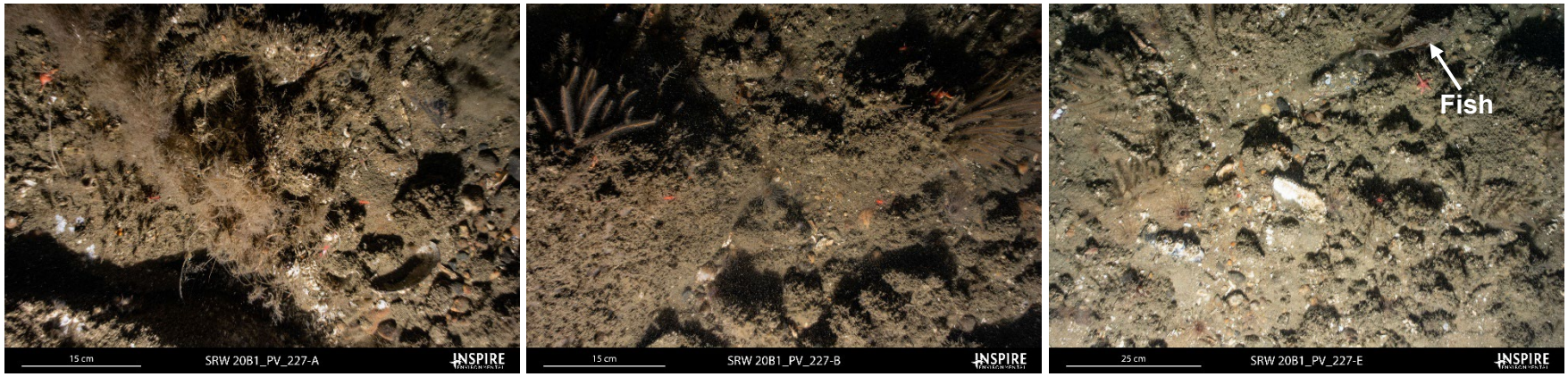


Figure 2-19. continued **Representative PV images showing the range of macrohabitat types classified at the SRWF including (A) sand and mud inhabited by burrowing anemones (cerianthids); (B) sand with ripples, inhabited by high densities of sand dollars; (C) sand with pebbles/granules, inhabited by Tubularia hydroids; (D) patchy cobbles and/or boulders on sand, inhabited by attached epifauna, including Tubularia hydroids, bryozoa, and sea stars; and (E) cobbles and/or boulders on sand, inhabited by a fish and attached epifauna, including bryozoa, hydroids, burrowing anemones (cerianthids), and sea stars**

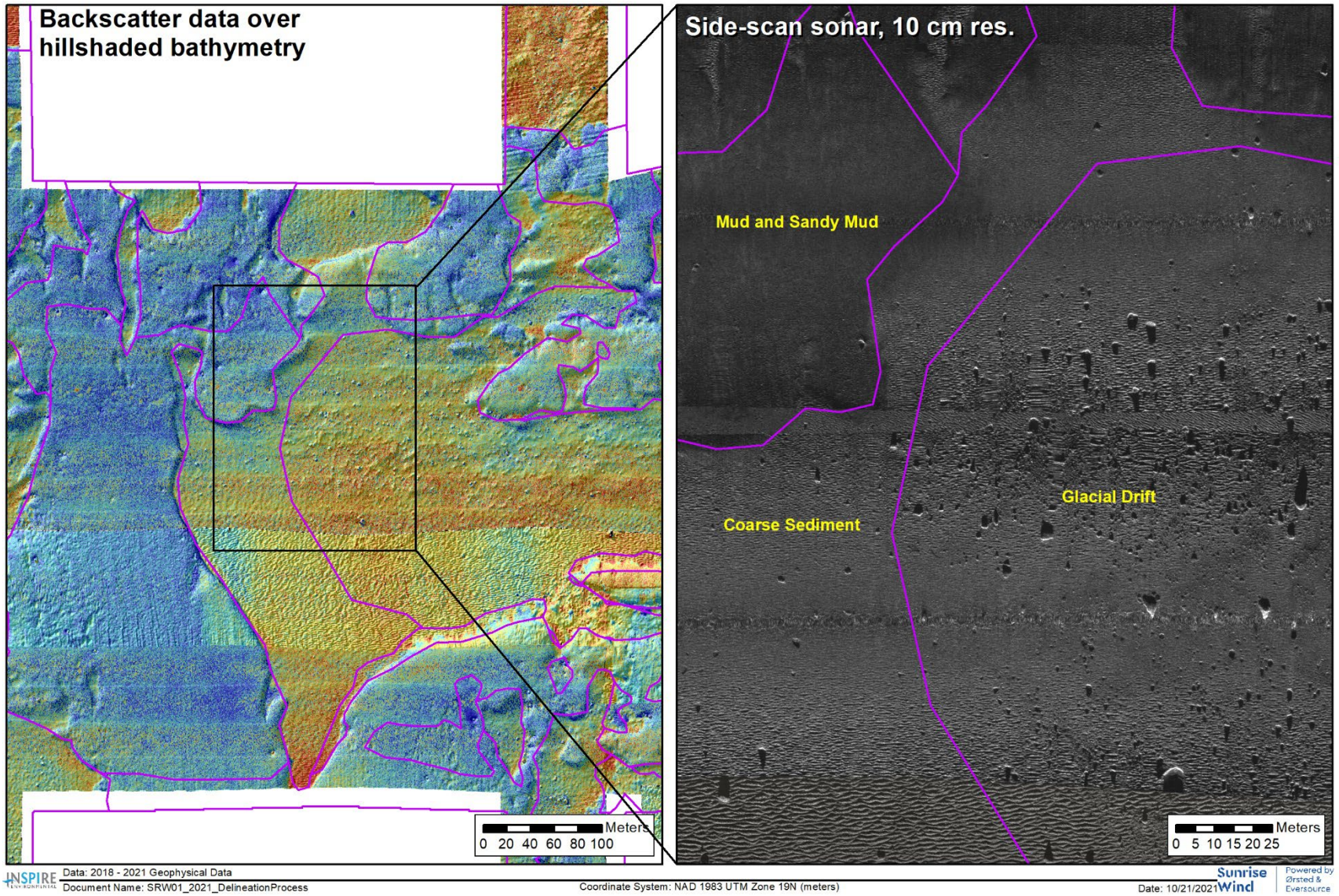


Figure 2-20. Example of delineation process, using MBES to delineate large scale facies (left) and SSS to refine seabed delineations (right)

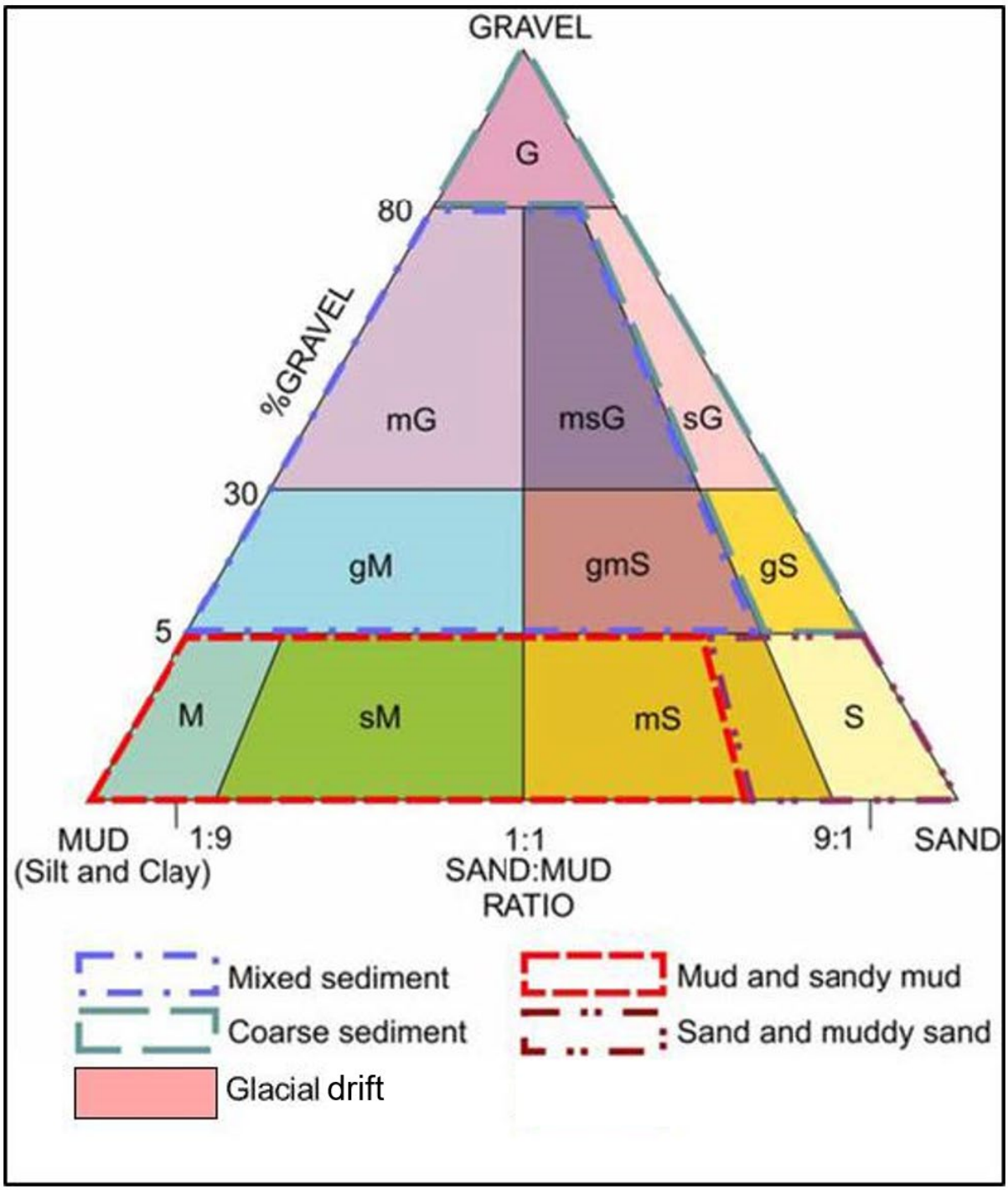


Figure 2-21. CMECS ternary diagram with Orsted's geological seabed interpretation categories

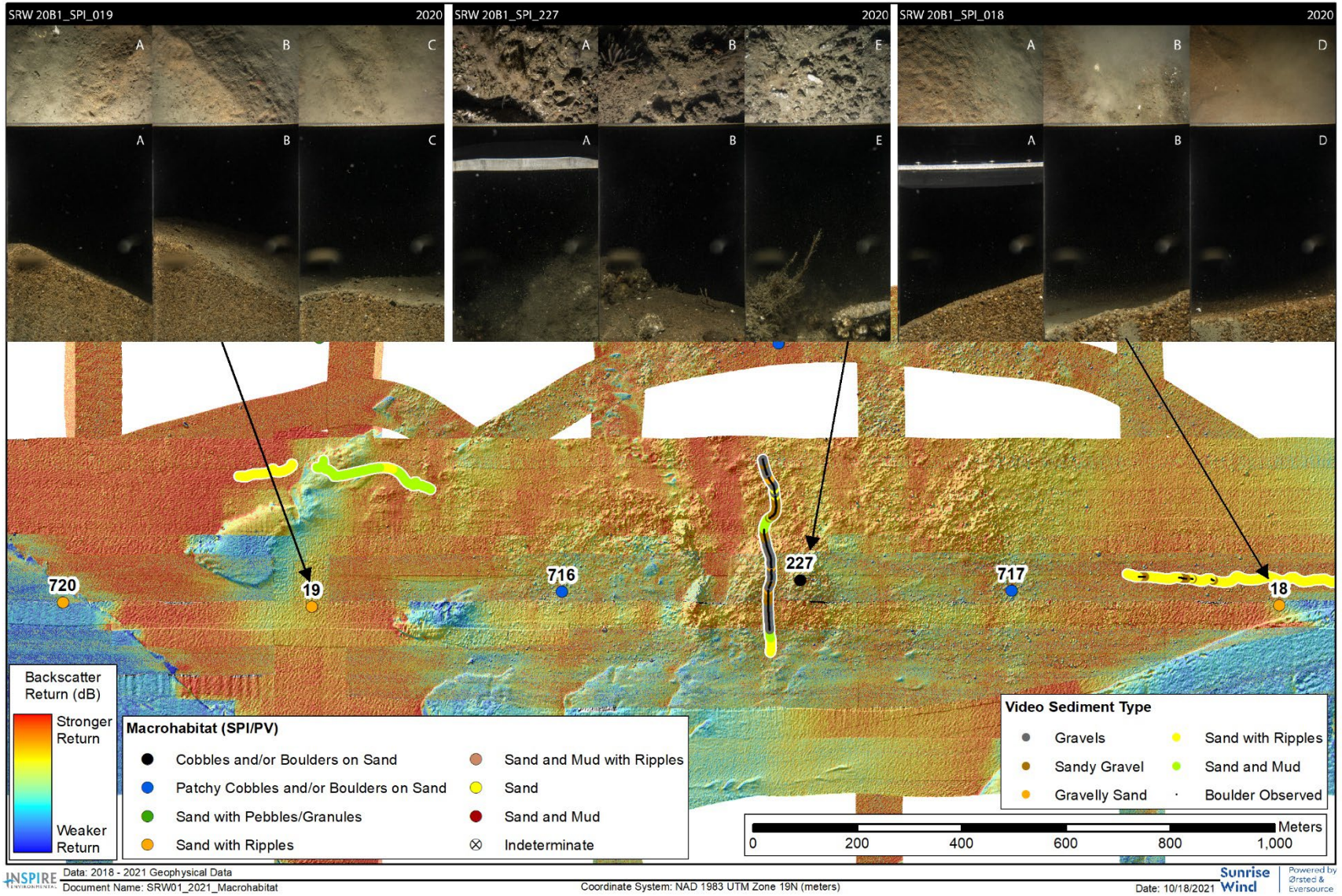


Figure 2-22. Ground-truth SPI/PV data for macrohabitat and video seafloor analysis results on backscatter data over hillshaded bathymetry; inset images for Stations 019, 227, and 018 show three paired replicate PV images (top) and SPI images (bottom)

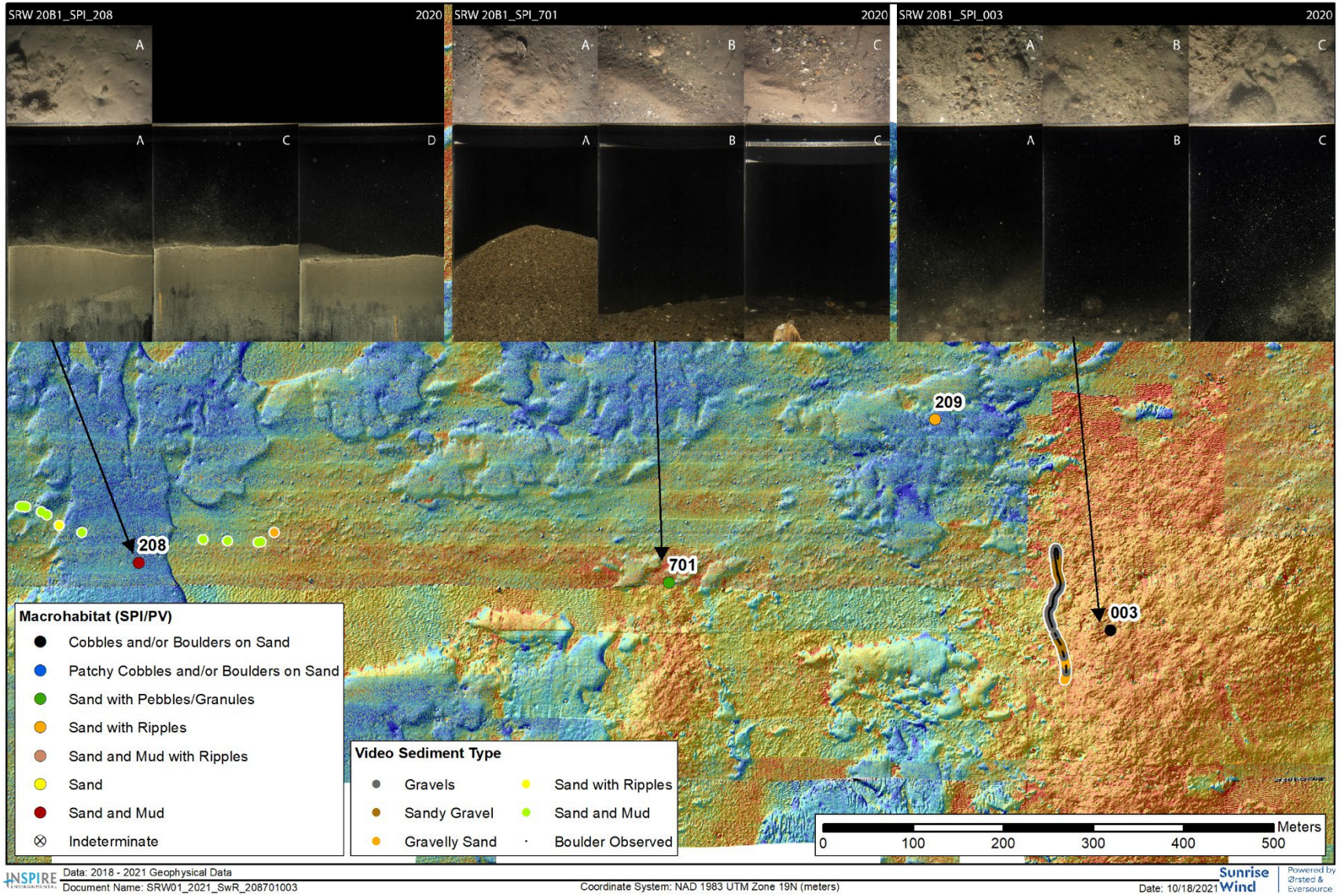


Figure 2-23. Ground-truth SPI/PV data for macrohabitat and video seafloor analysis results on backscatter data over hillshaded bathymetry; inset images for Stations 208, 701, and 003 show three paired replicate PV images (top) and SPI images (bottom)

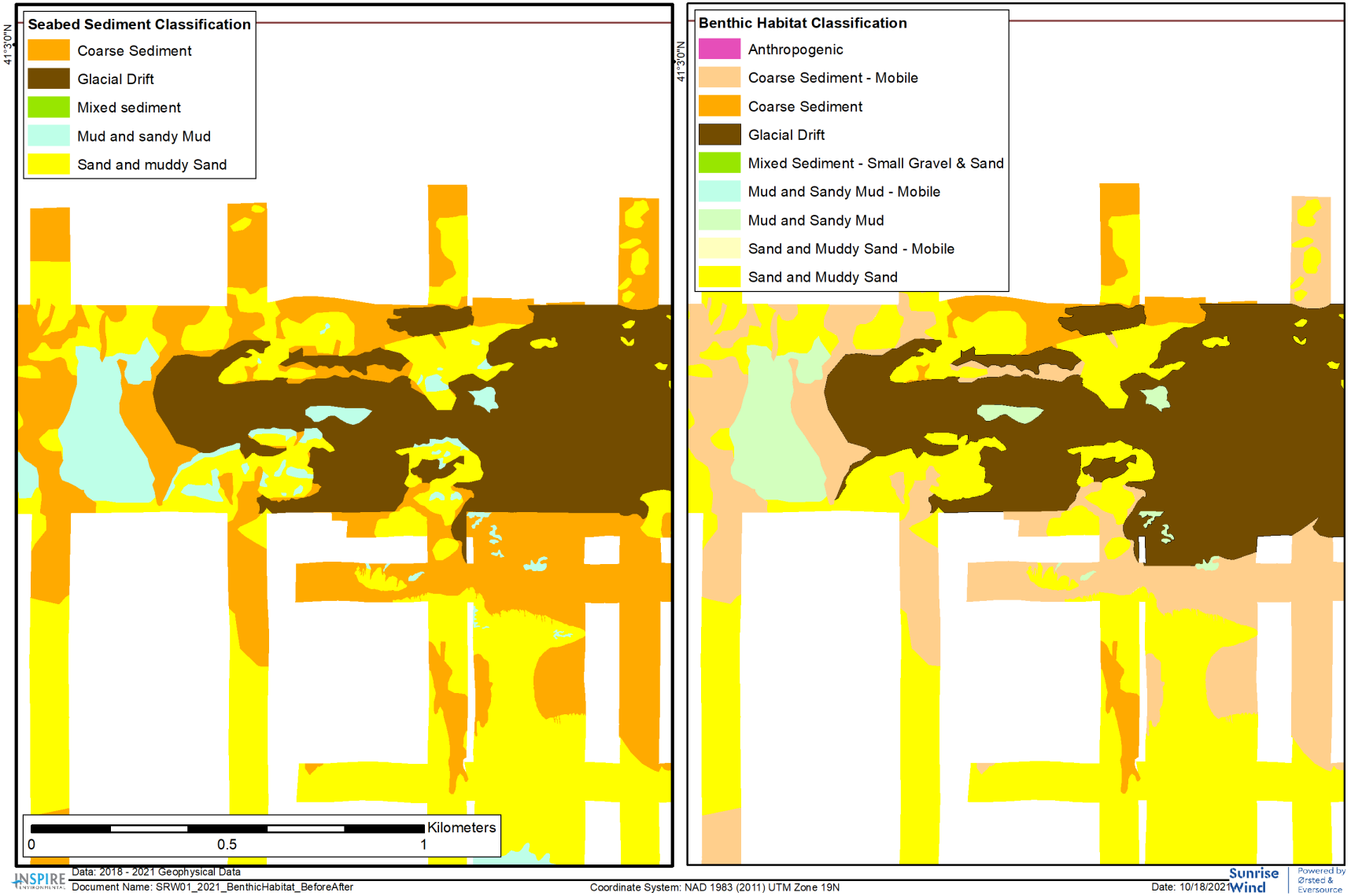


Figure 2-24. Geological seabed interpretations refined to benthic habitat types with modifiers for purposes of assessing potential impacts to essential fish habitat

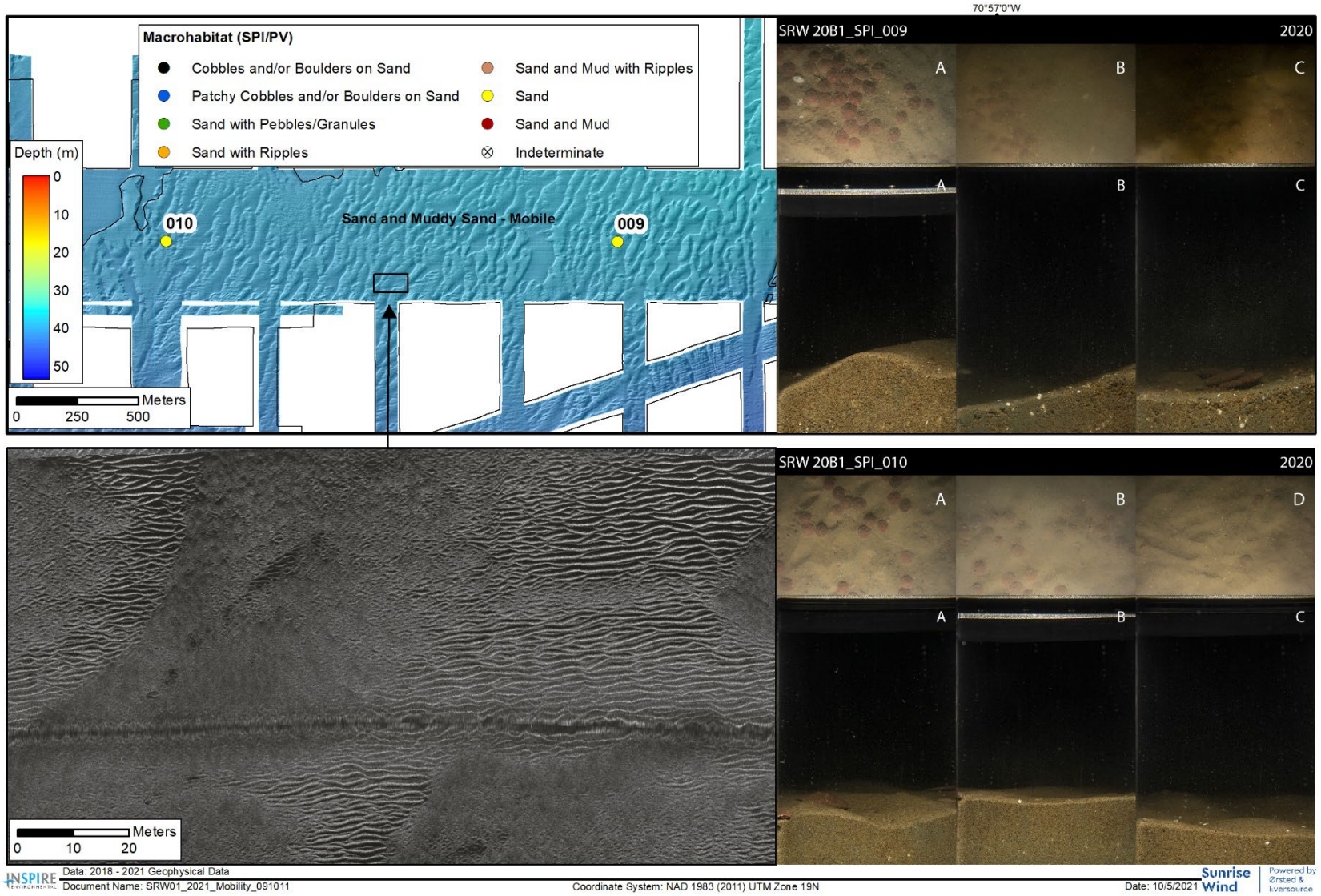


Figure 2-25. Mobility of the seafloor evident in geophysical data: mega-ripples and ripples in Sand and Muddy Sand, and ground-truth data from SPI/PV; inset images for Stations 010, and 009 show three paired replicate PV images (top) and SPI images (bottom). The modifier of "– Mobile" is applied to these habitats where seafloor features, including mega-ripples and/or ripples, are observed and cover most of the habitat polygon.

Figure 2-26. Low density (20 to 99 boulders / 10,000 m^2) (left) and medium density (100 to 199 boulders / 10,000 m^2) (right) boulder fields identified from geophysical data and included as a habitat type modifier for mud, sand, and coarse sediment habitat types where present

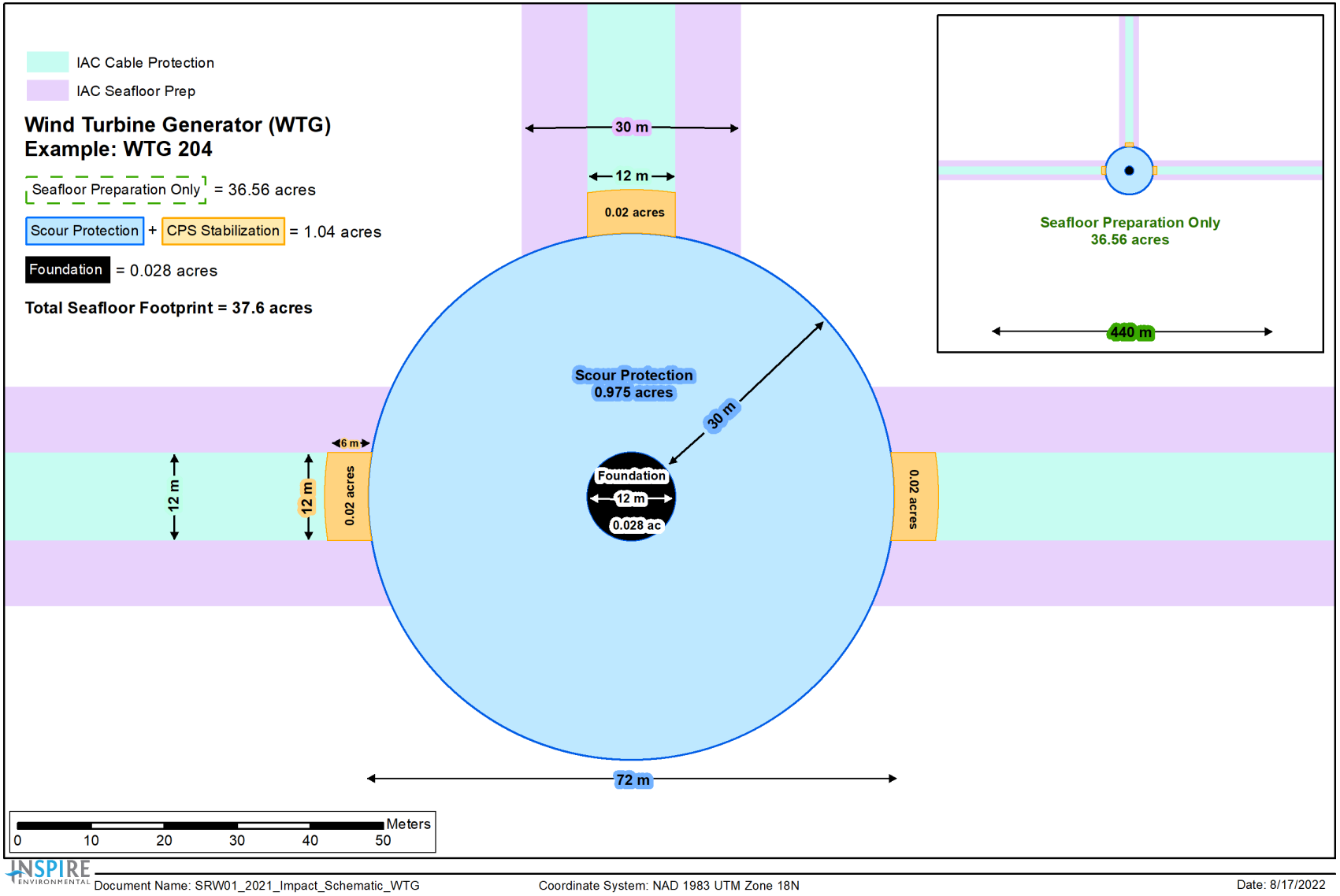


Figure 2-27. Schematic of WTG monopile foundation footprint

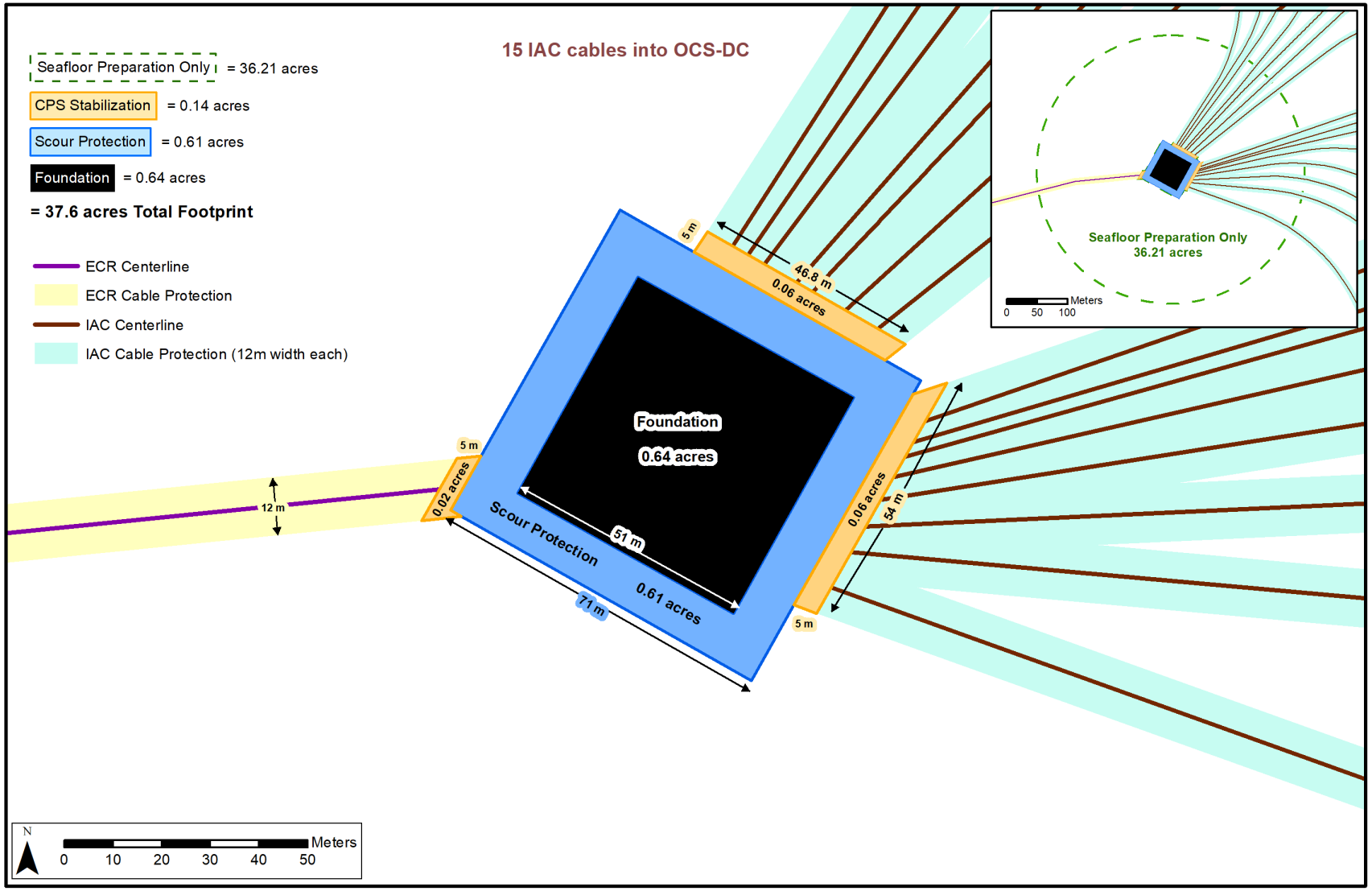


Figure 2-28. Schematic of OCS-DC piled jacket foundation footprint

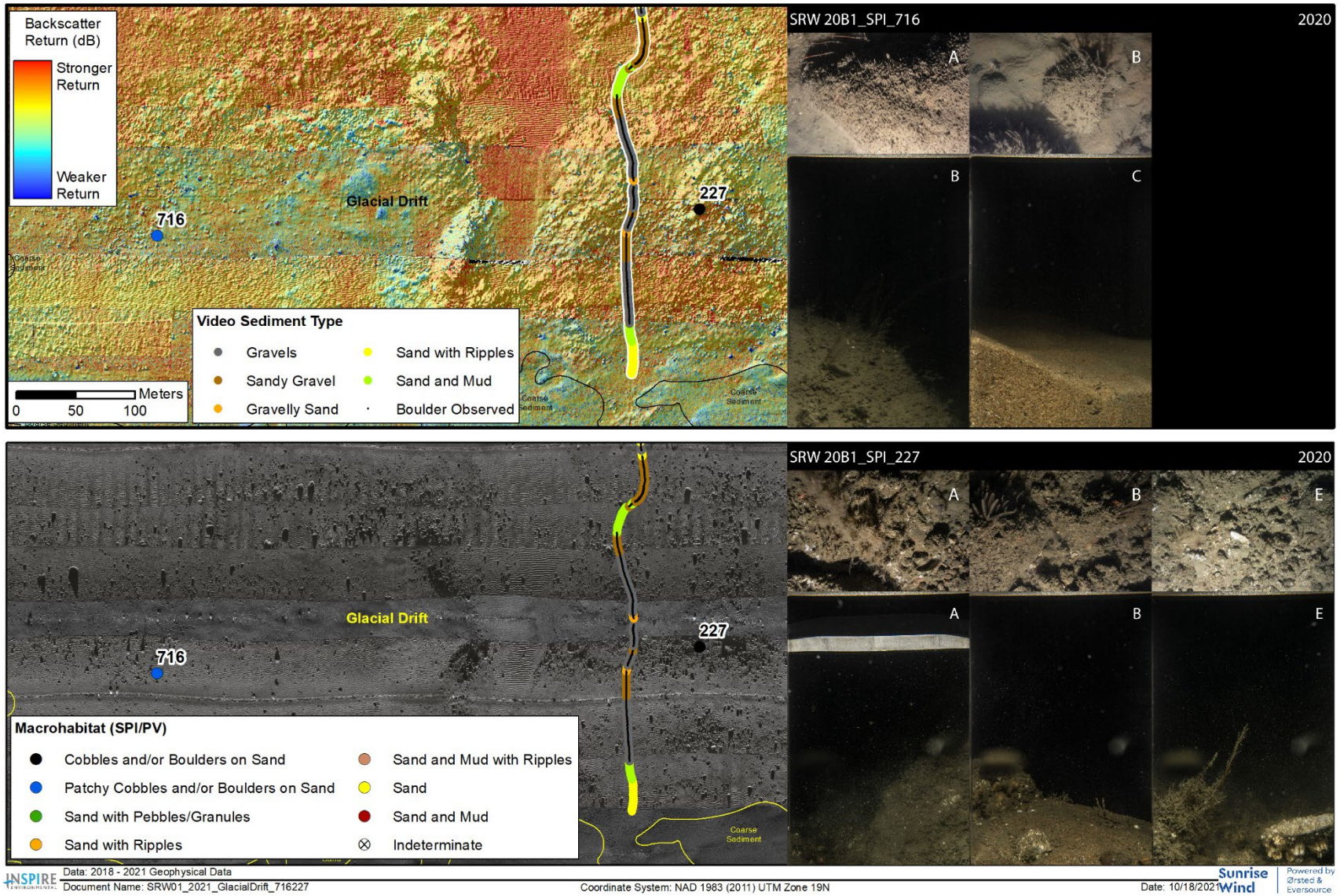


Figure 3-1. Glacial Drift habitat as detected in backscatter data over hillshaded bathymetry (top), side-scan sonar (bottom), and ground-truth data from SPI/PV and video; inset images for Stations 716 and 227 show three paired replicate PV images (top) and SPI images (bottom)

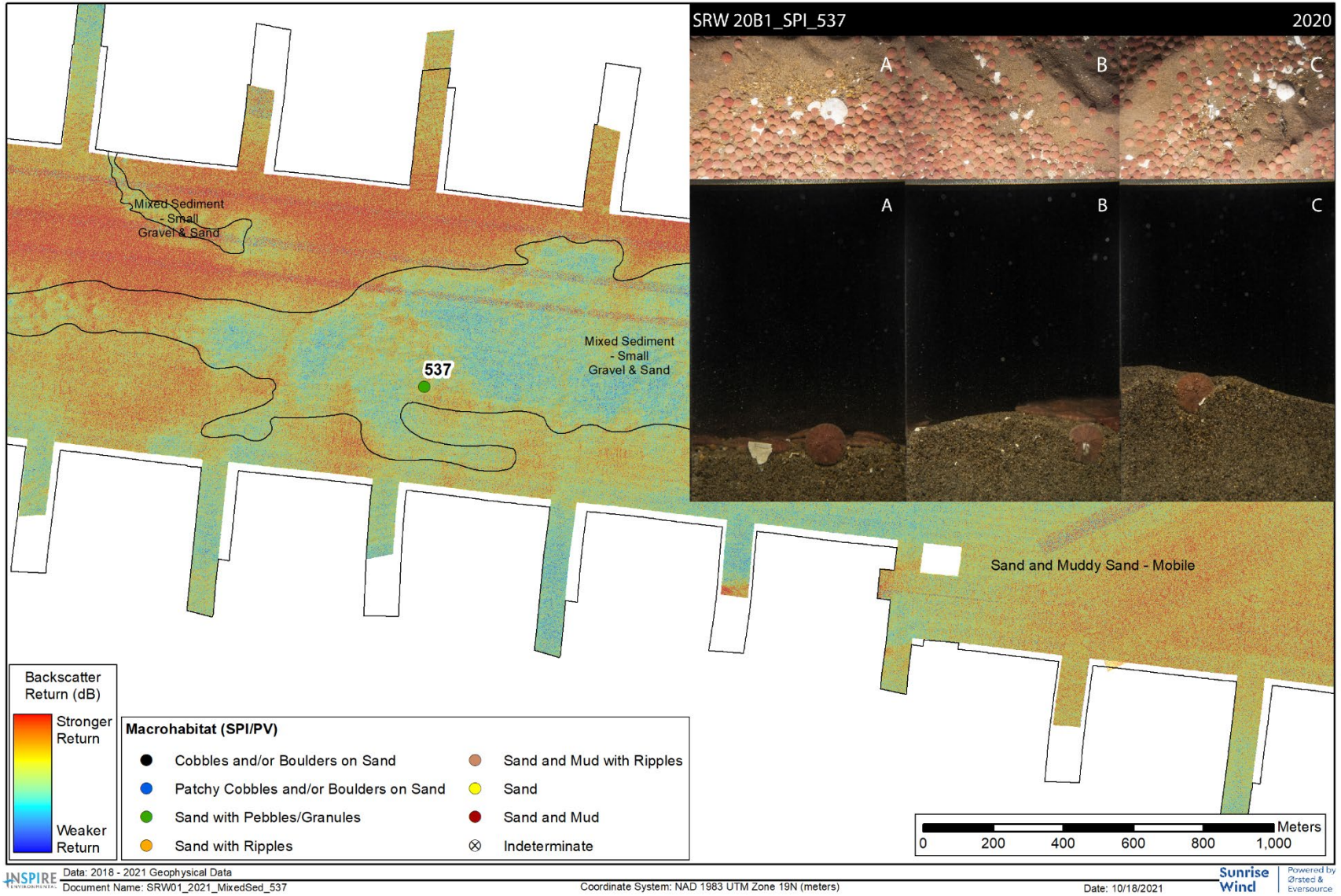


Figure 3-2. Mixed Sediment – Small Gravel and Sand habitat as detected in backscatter data over hillshaded bathymetry and ground-truth data from SPI/PV; inset image for Station 537 show three paired replicate PV images (top) and SPI images (bottom)

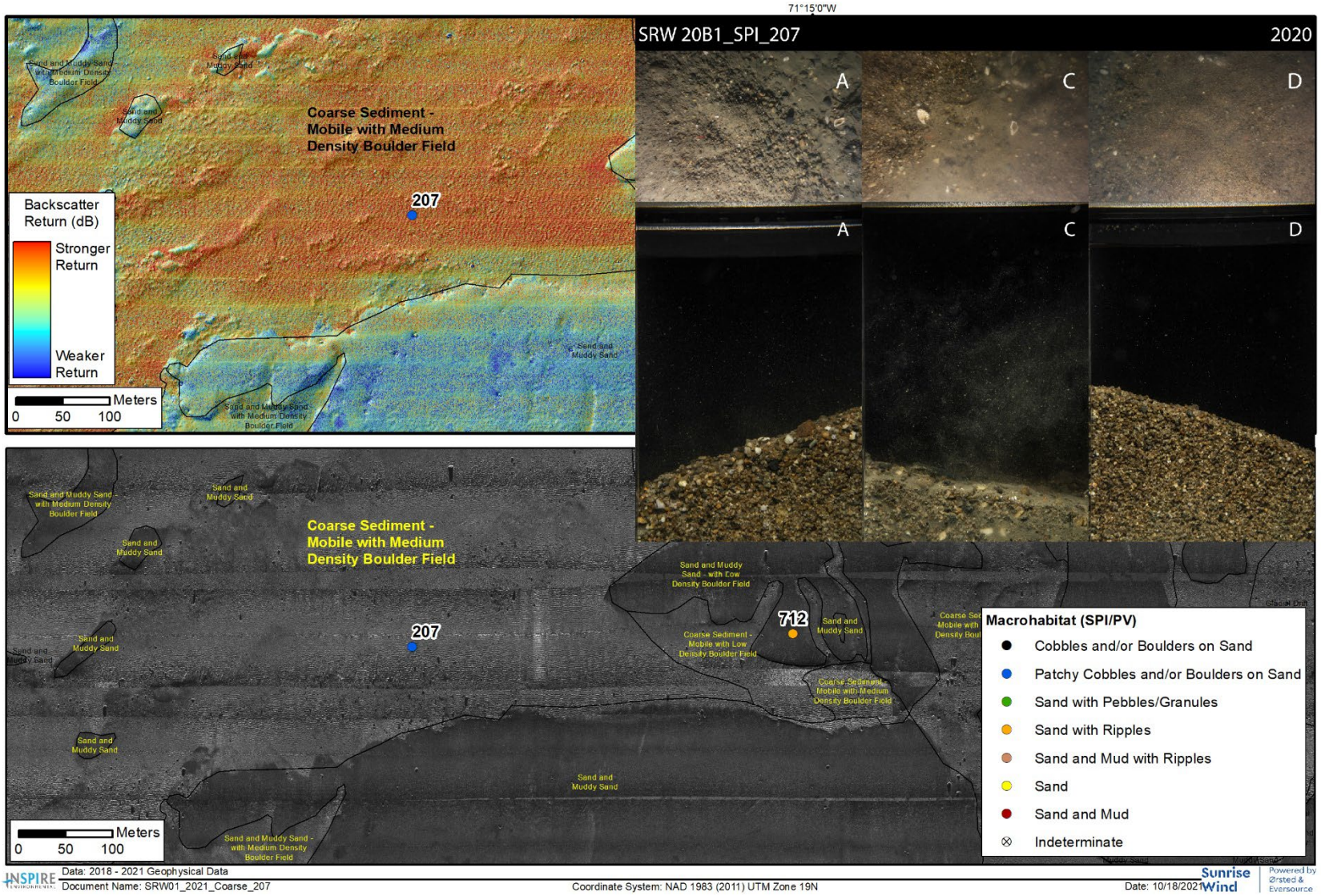


Figure 3-3. Coarse Sediment – Mobile with Medium Density Boulder Field habitat with Sandy Gravel refinement as detected in backscatter data over hillshaded bathymetry (top), side-scan sonar (bottom), and ground-truth data from SPI/PV; inset images for Station 207 show three paired replicate PV images (top) and SPI images (bottom)

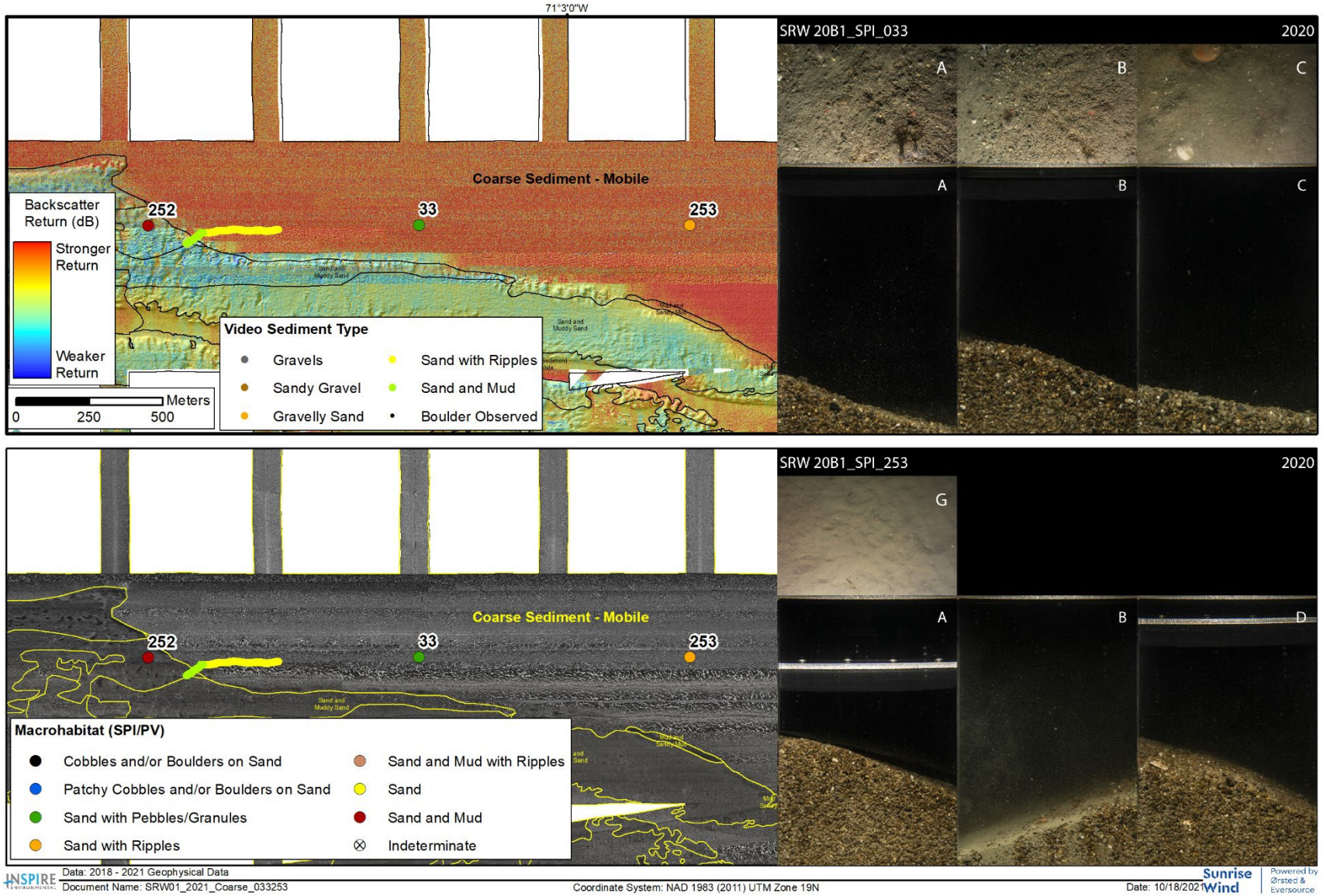


Figure 3-4. Coarse Sediment – Mobile habitat with Gravelly Sand refinement as detected in backscatter data over hillshaded bathymetry (top), side-scan sonar (bottom), and ground-truth data from SPI/PV and video; inset images for Stations 033 and 253 show three paired replicate PV images (top) and SPI images (bottom)

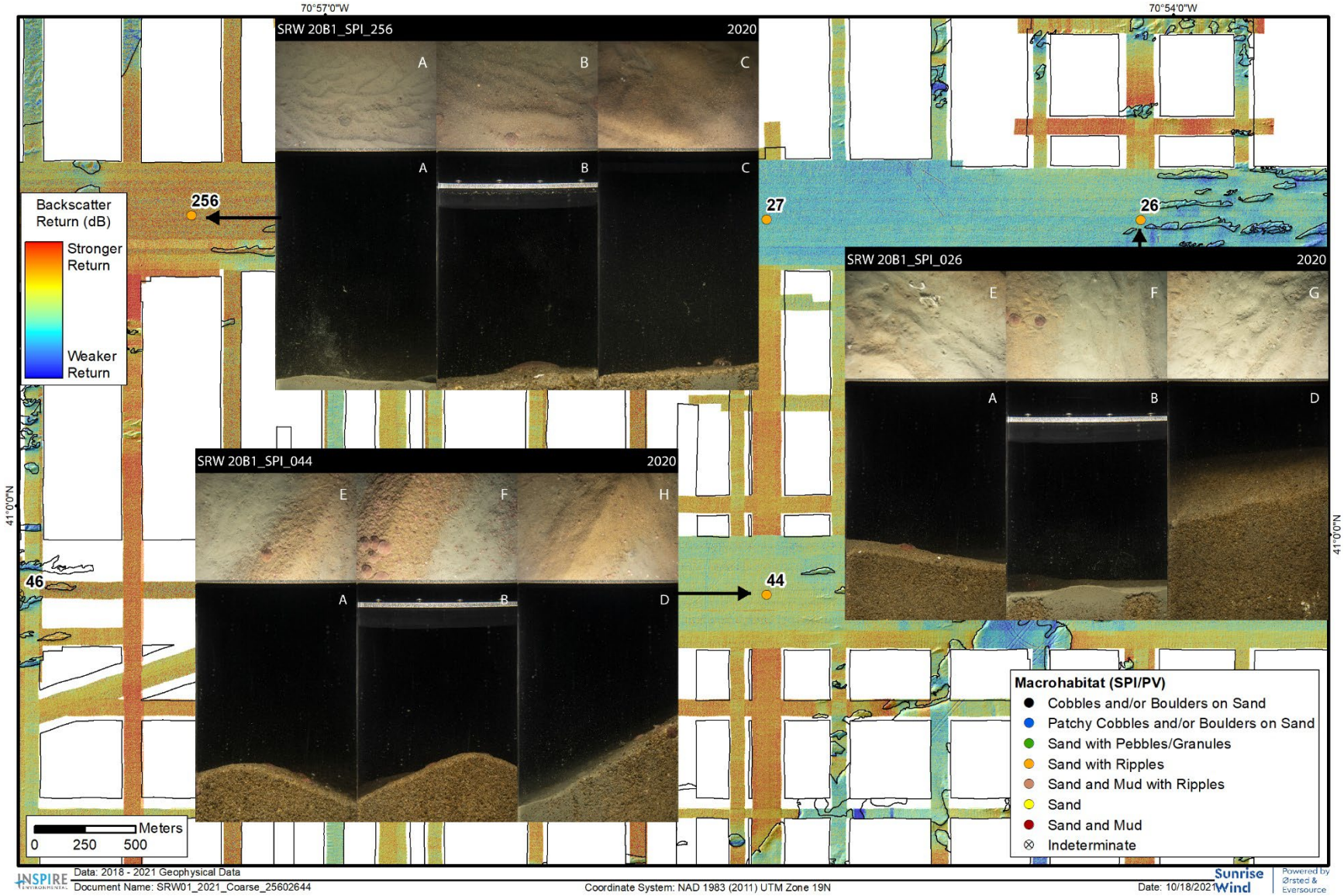


Figure 3-5. Coarse Sediment – Mobile habitat with no gravel captured in ground-truth SPI/PV imagery shown here along with backscatter data over hillshaded bathymetry; inset images for Stations 256, 026, and 044 show three paired replicate PV images (top) and SPI images (bottom)

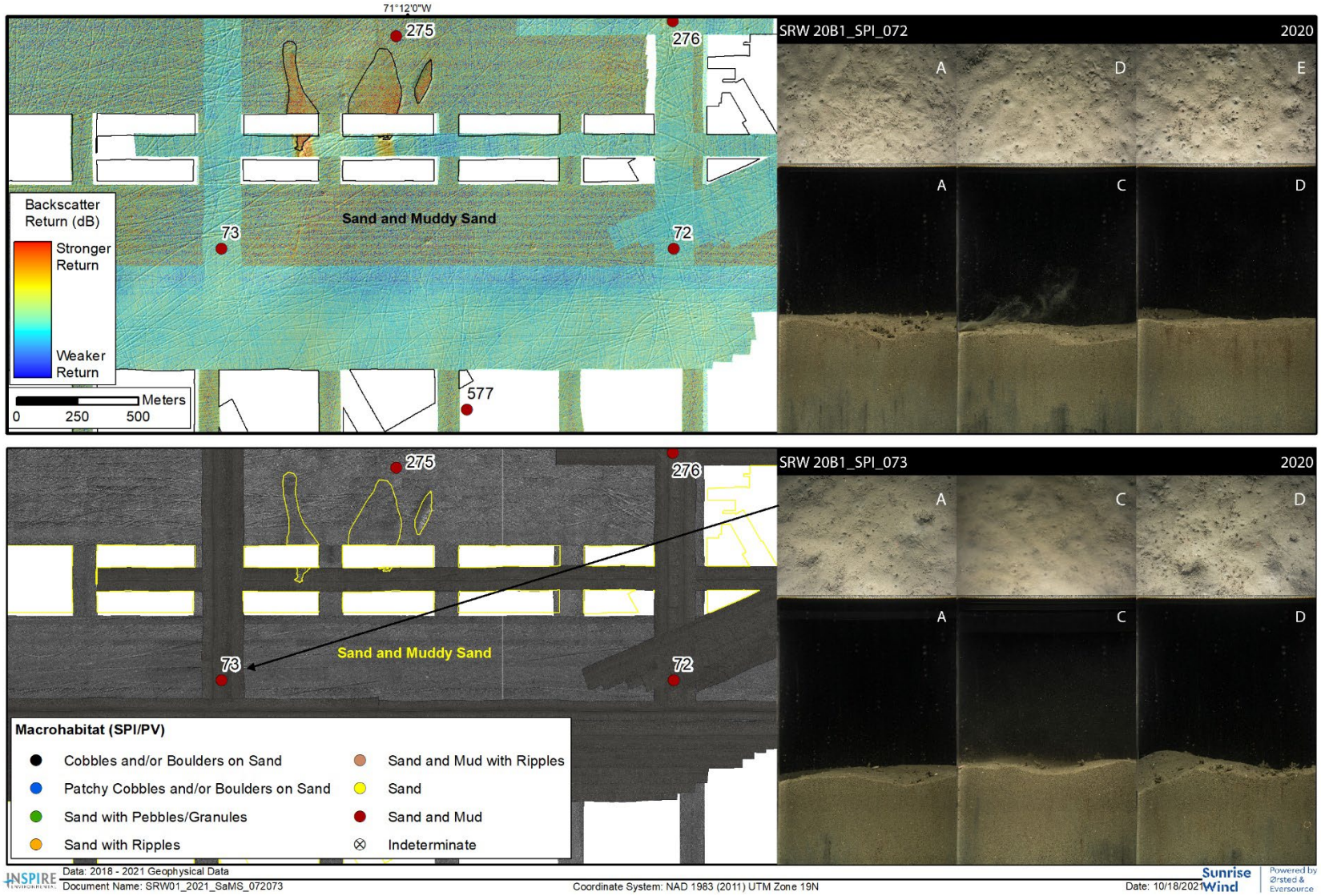


Figure 3-6. Sand and Muddy Sand habitat as detected in backscatter data over hillshaded bathymetry (top), side-scan sonar (bottom), and ground-truth data; inset images for Stations 072 and 073 show three paired replicate PV images (top) and SPI images (bottom); trawl marks are also evident. Variability in reflectivity between different survey efforts and the order of overlap of these data lines are evident in this figure.

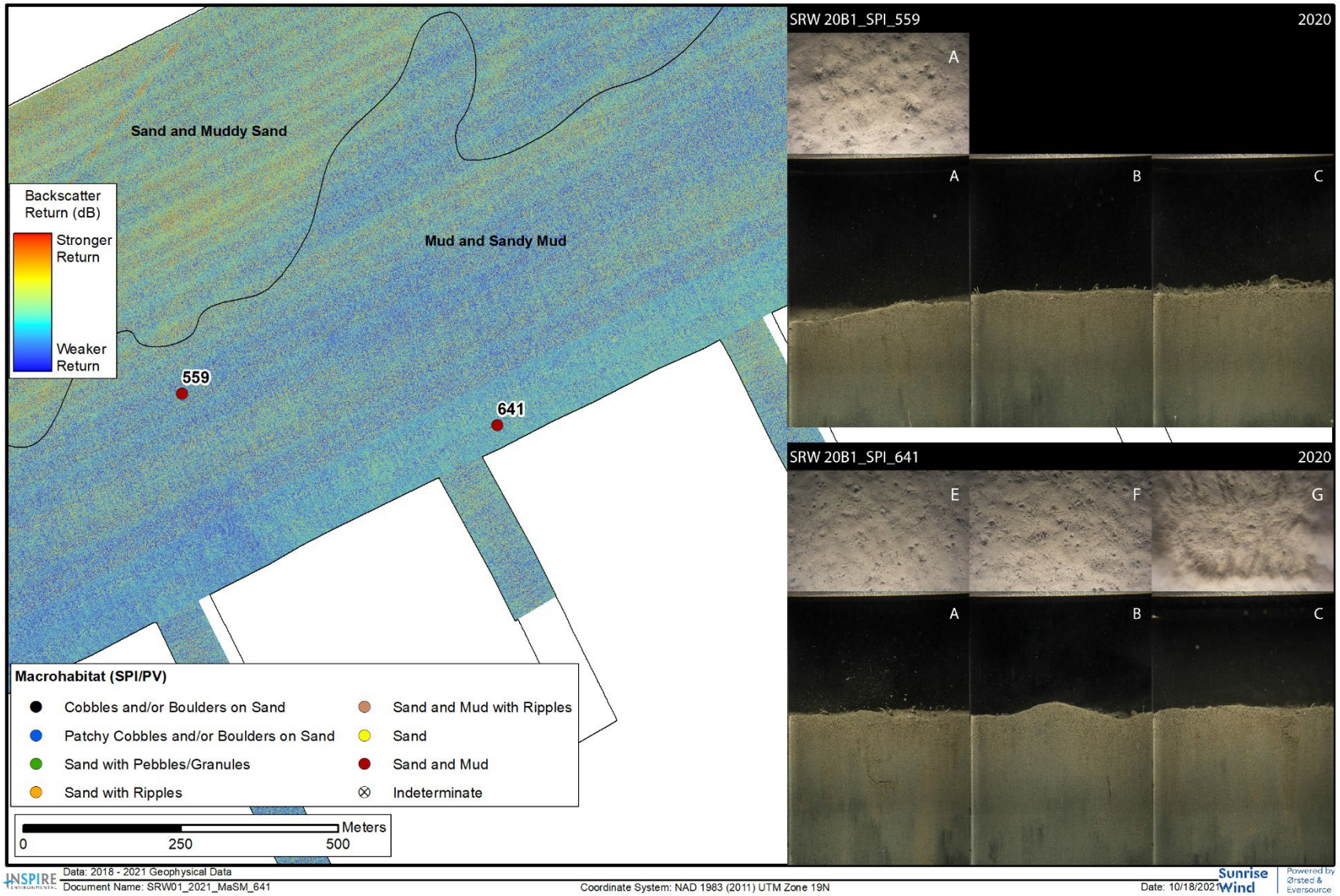


Figure 3-7. Mud and Sandy Mud habitat as detected in backscatter data over hillshaded bathymetry and ground-truth data; inset images for Stations 559 and 641 show three paired replicate PV images (top) and SPI images (bottom)

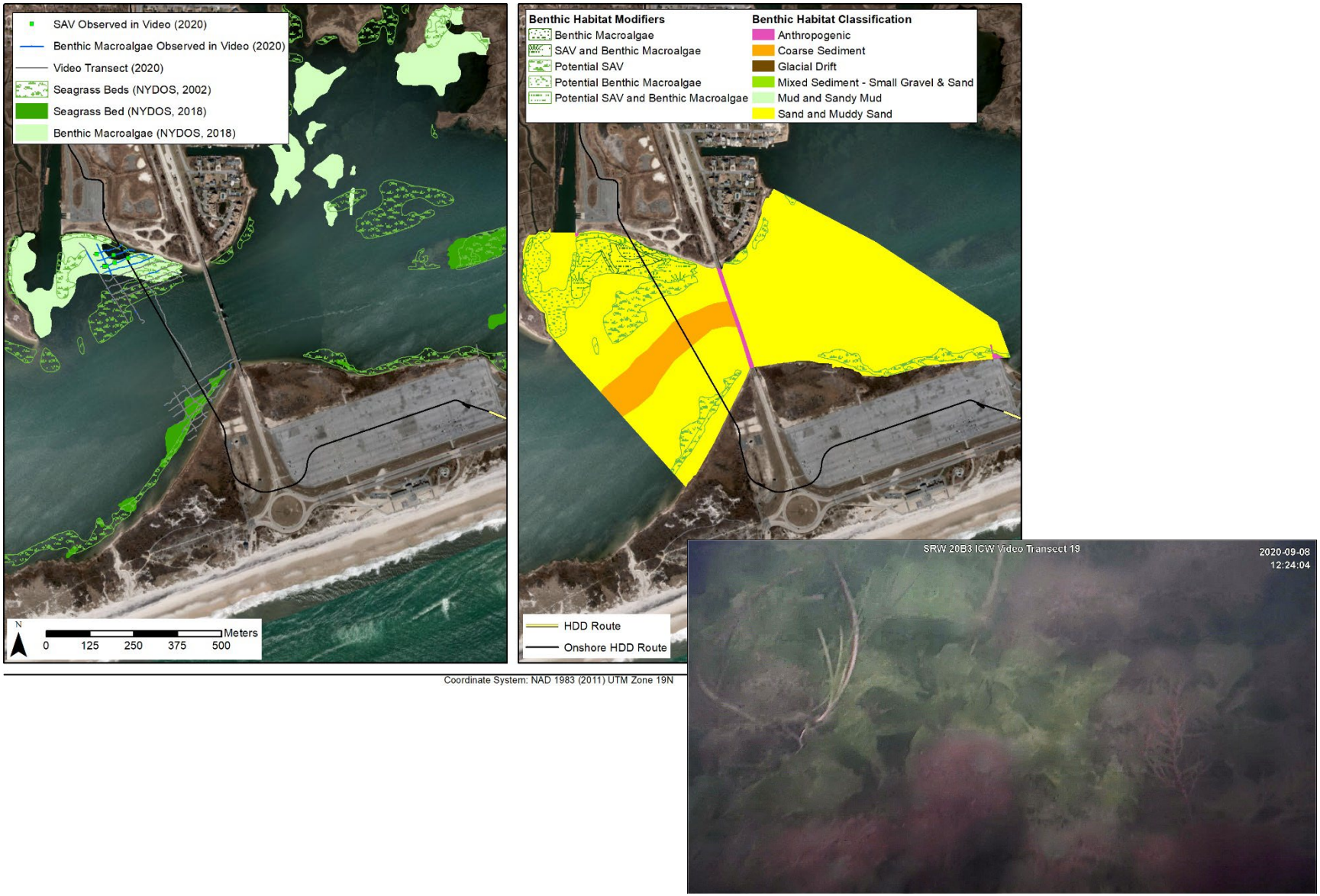


Figure 3-8. Historical (2002, 2018) and recent (2020) data showing the spatial distributions of benthic macroalgae and submerged aquatic vegetation in the vicinity of the ICW HDD (left). These data were combined with SPI/PV data and available aerial imagery to map benthic habitats in the vicinity of the ICW HDD; "potential" refers to areas where only historical data are available (right). A screenshot from the underwater video shows dense macroalgae with strands of seagrass visible.

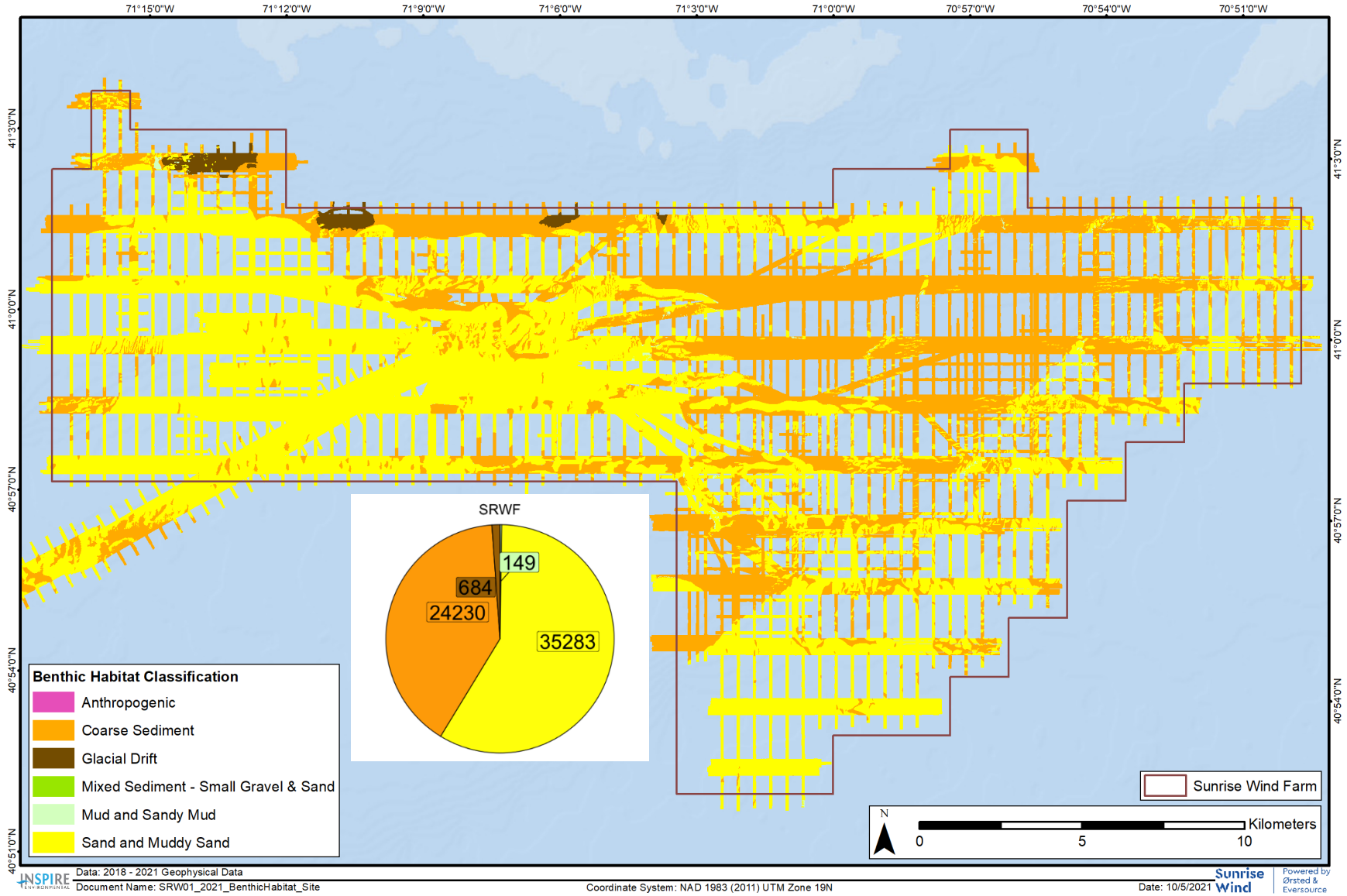


Figure 3-9. Benthic habitat types mapped at the SRWF and pie chart of habitat composition

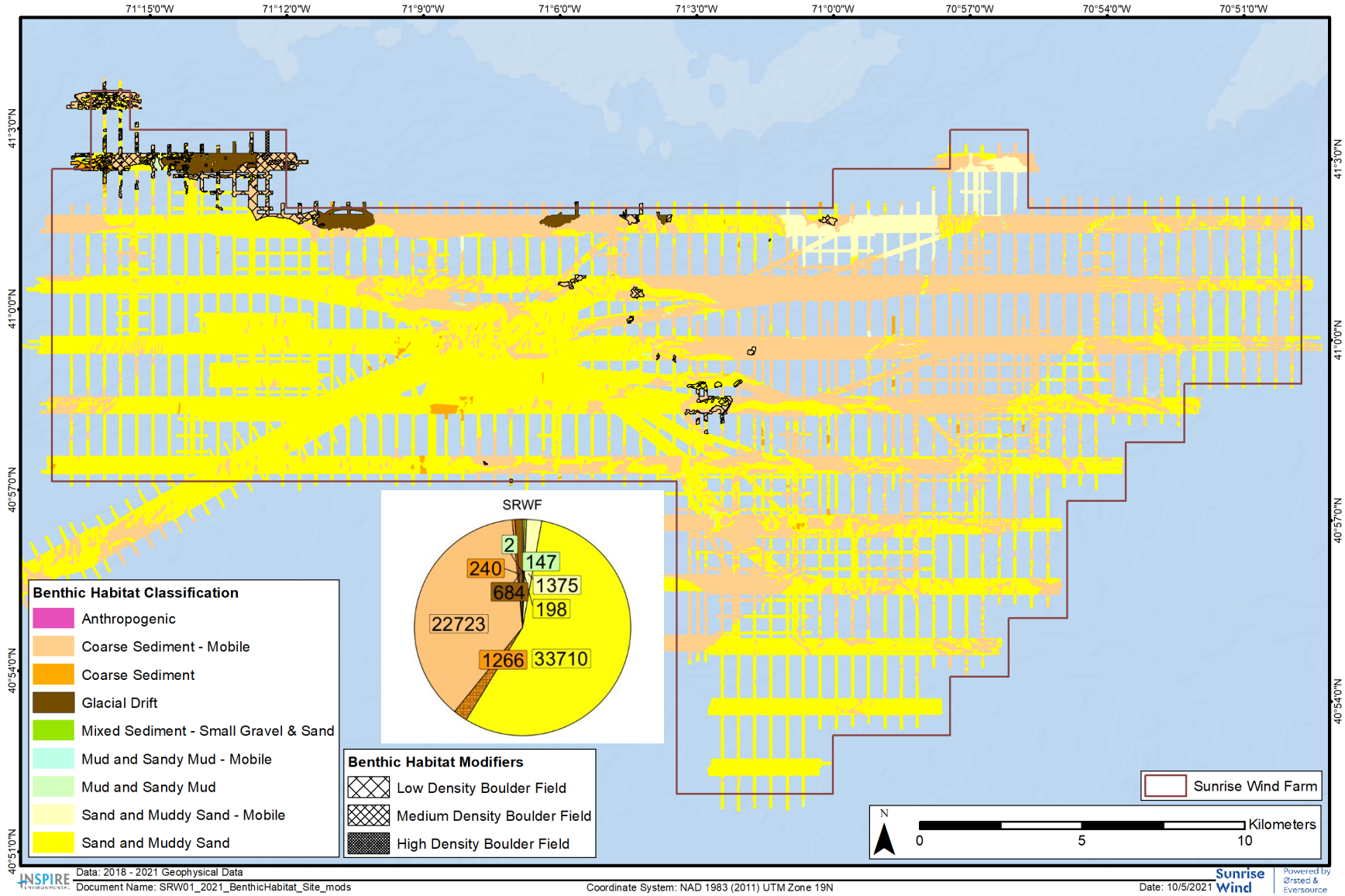


Figure 3-10. Benthic habitat types with modifiers mapped at the SRWF and pie chart of habitat composition

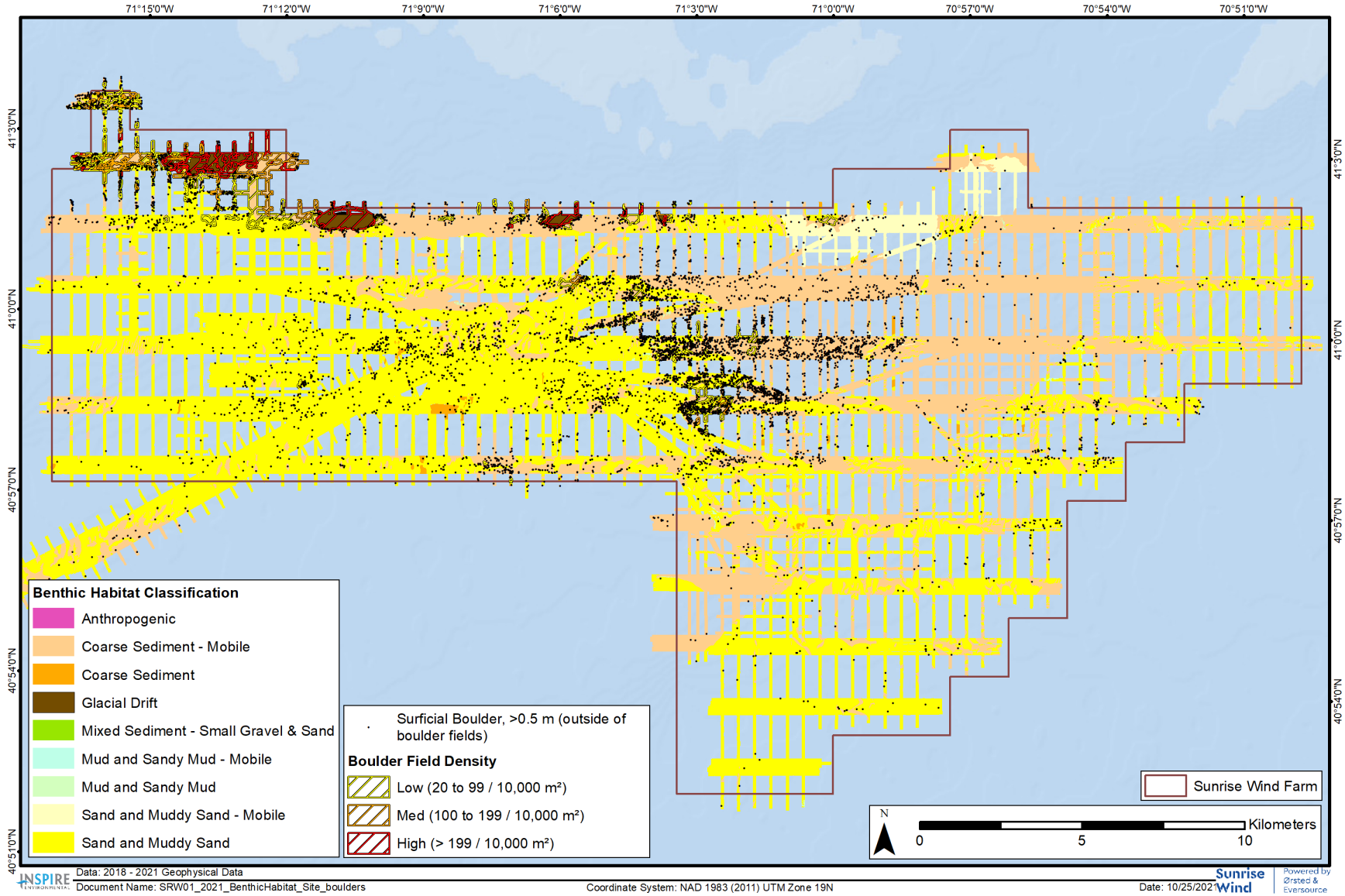


Figure 3-11. Benthic habitat types with modifiers, boulder fields and individual large boulders (>0.5 m) mapped at the SRWF

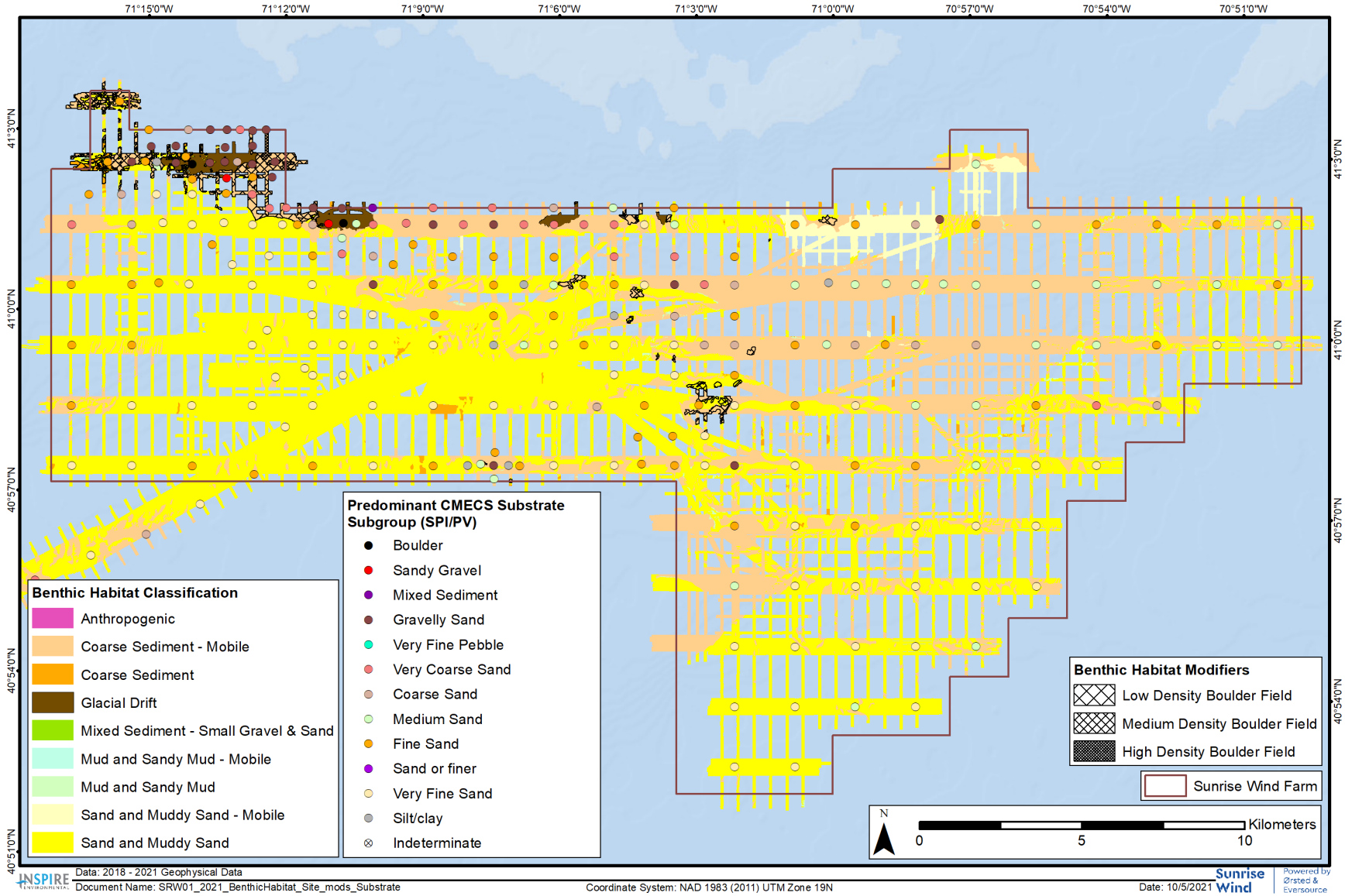


Figure 3-12. Benthic habitat types with modifiers and ground-truth CMECS Substrate Subgroup at the SRWF

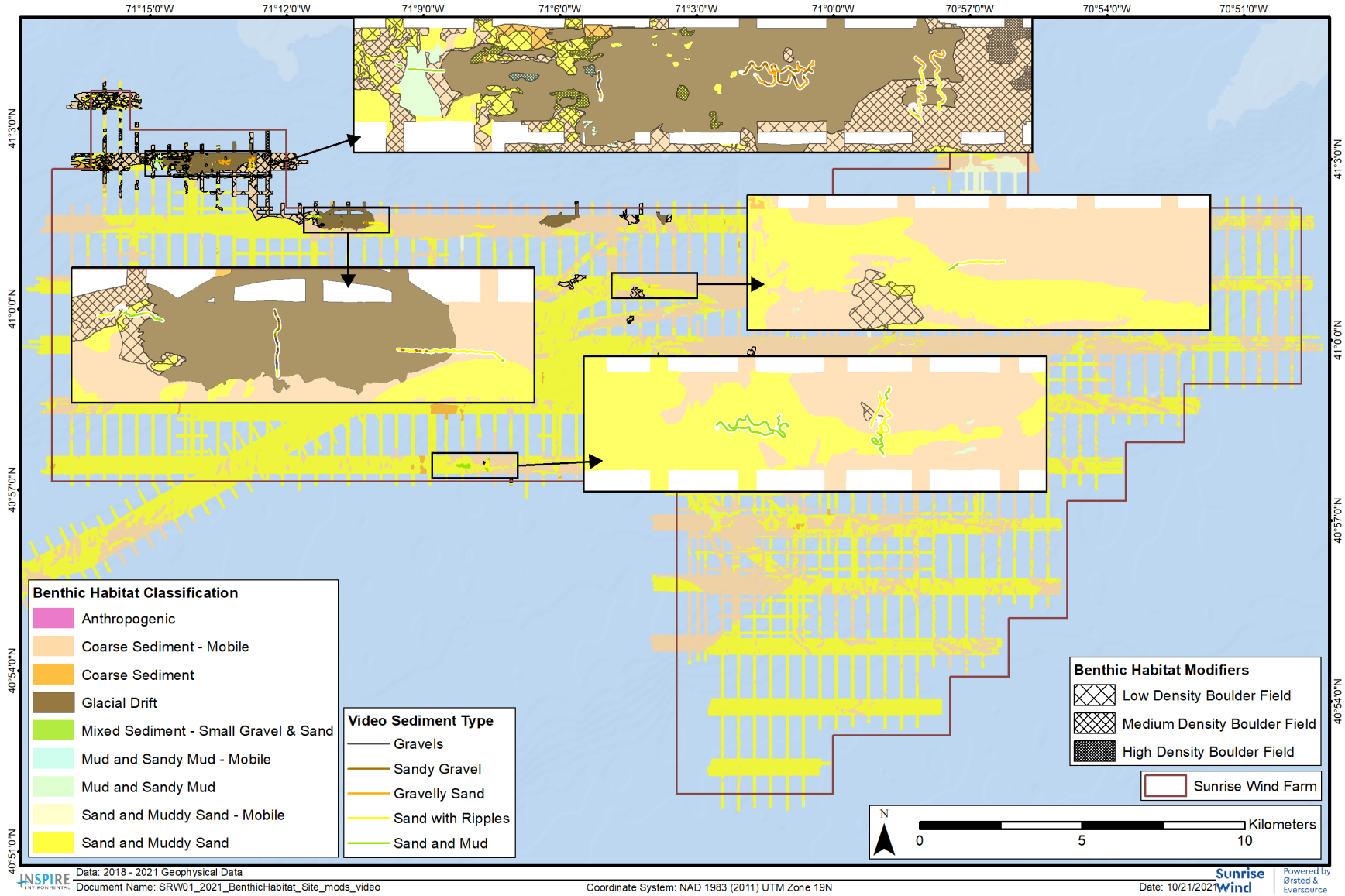


Figure 3-13. Benthic habitat types with modifiers and ground-truth analysis of sediment type along video transects sampled at the SRWF

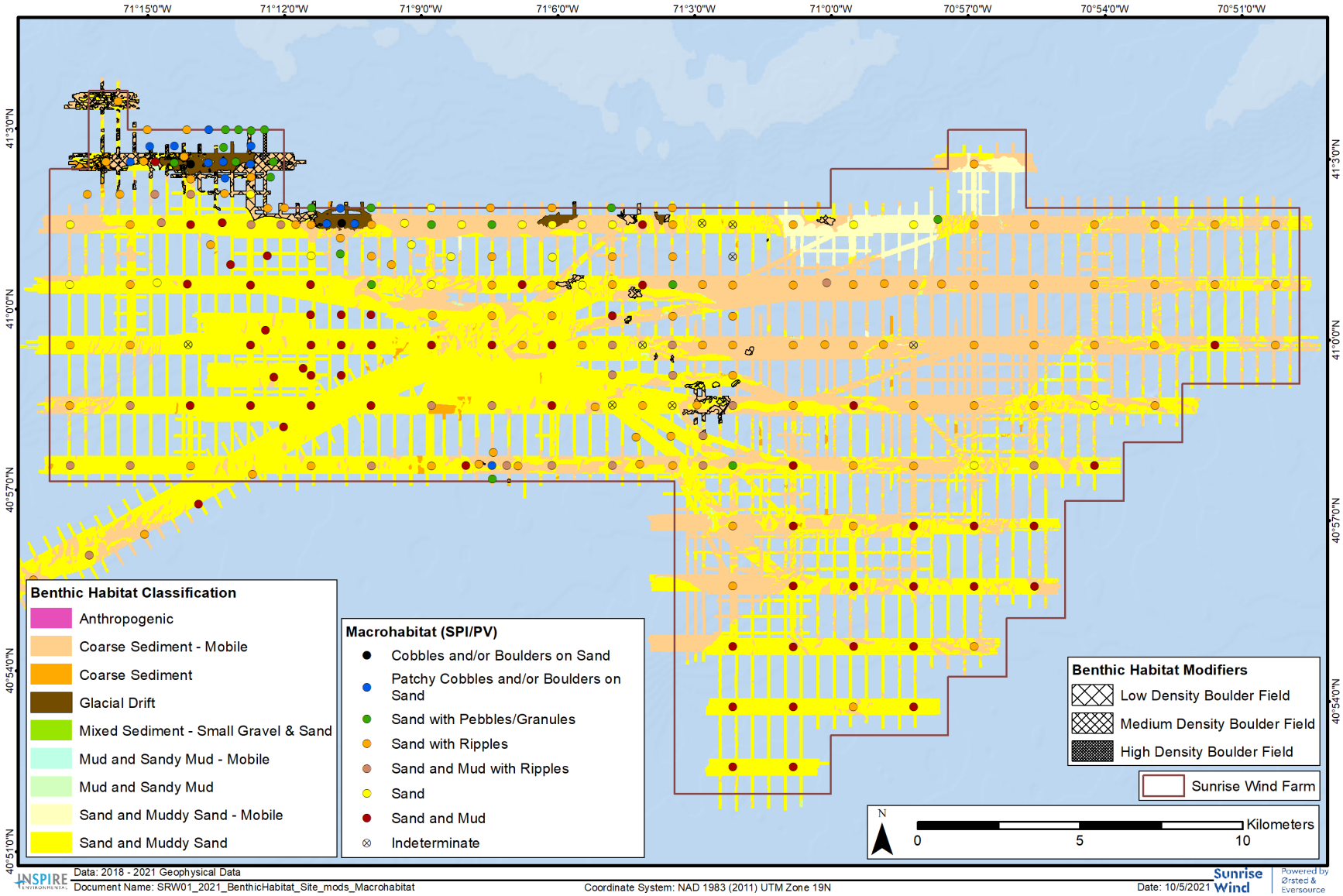


Figure 3-14. Benthic habitat types with modifiers and ground-truth macrohabitat at the SRWF

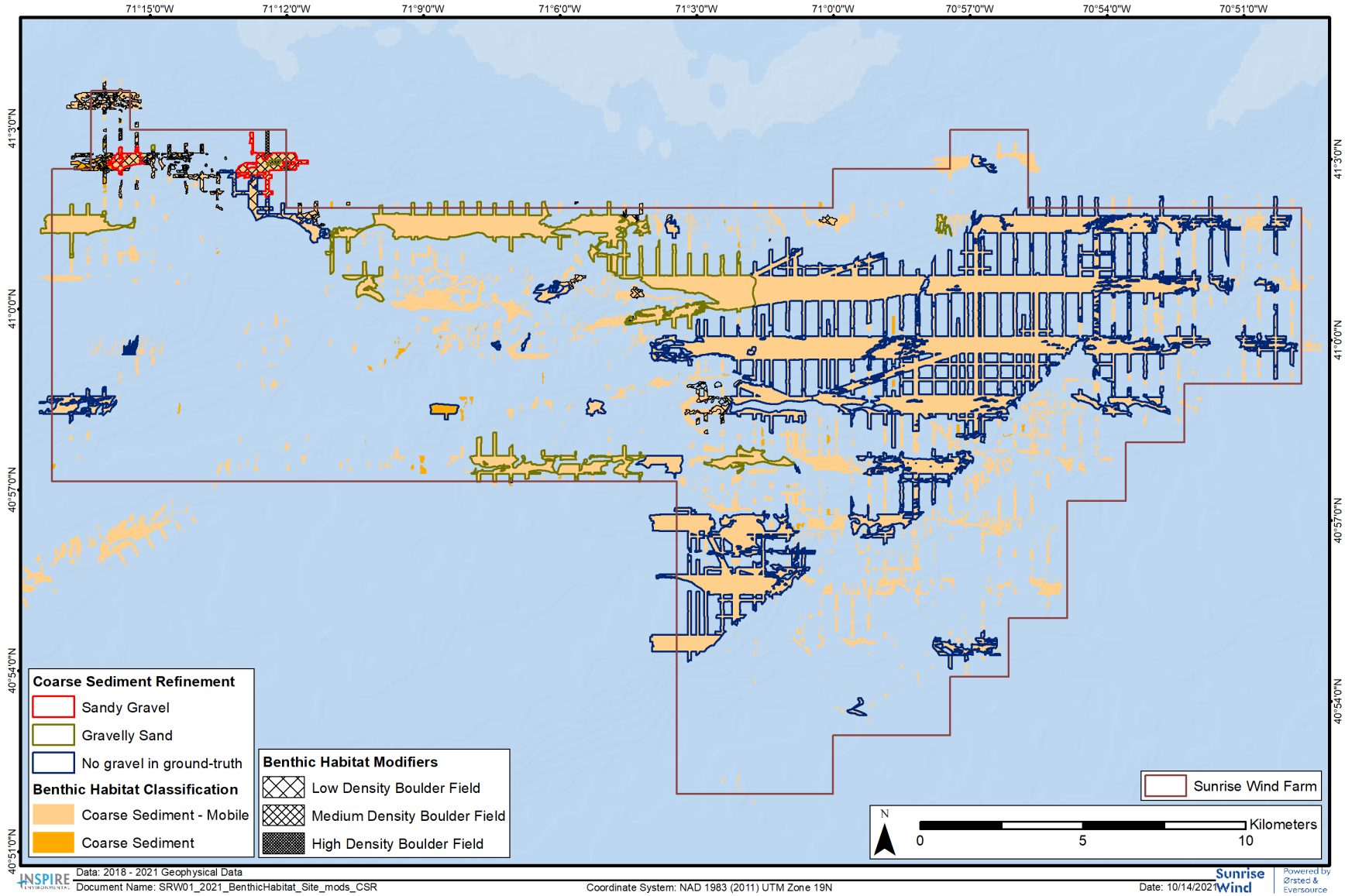


Figure 3-15. Coarse sediment habitat types with modifiers and coarse sediment refinements made based on ground-truth data

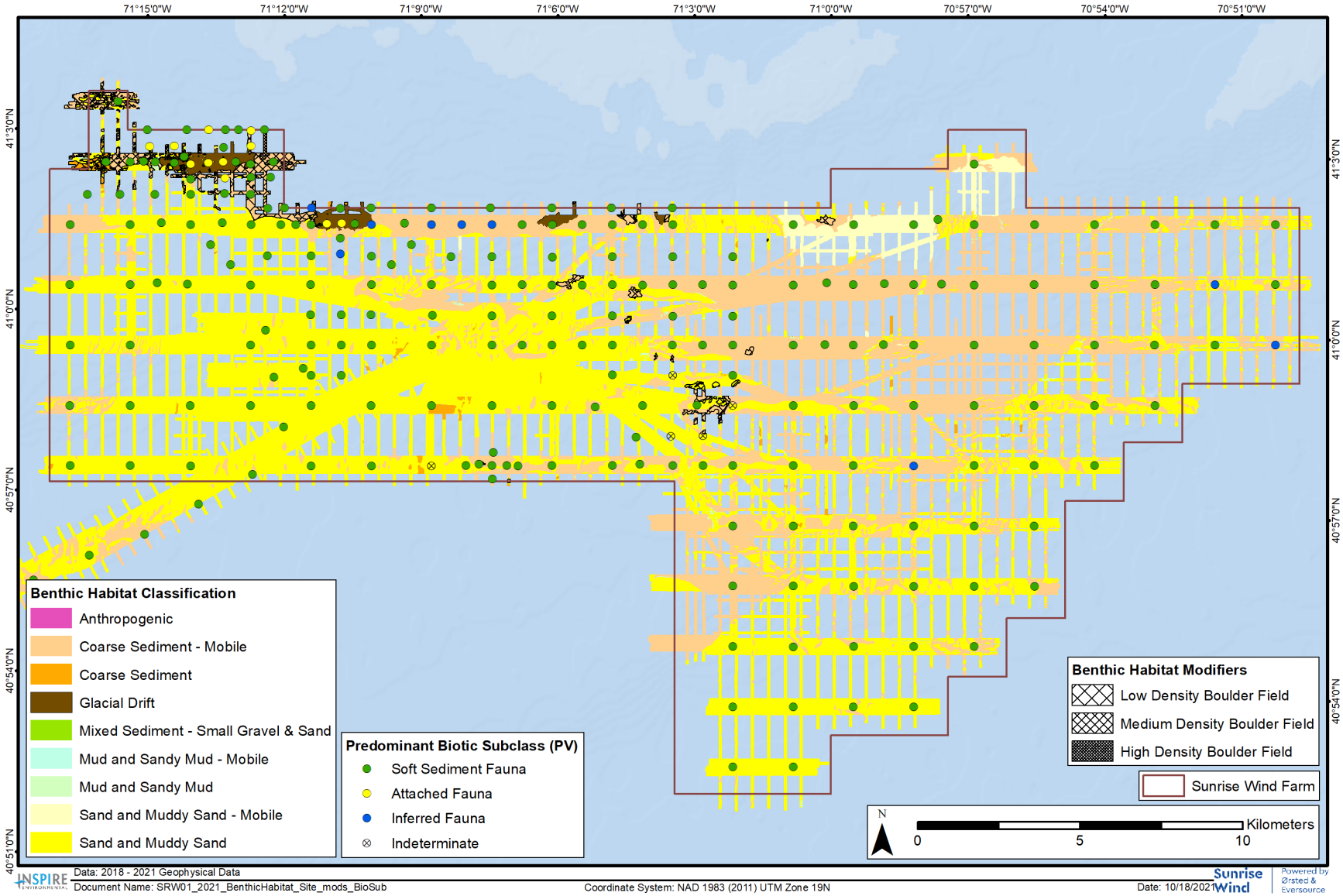


Figure 3-16. Benthic habitat types with modifiers and ground-truth CMECS Biotic Subclass at the SRWF

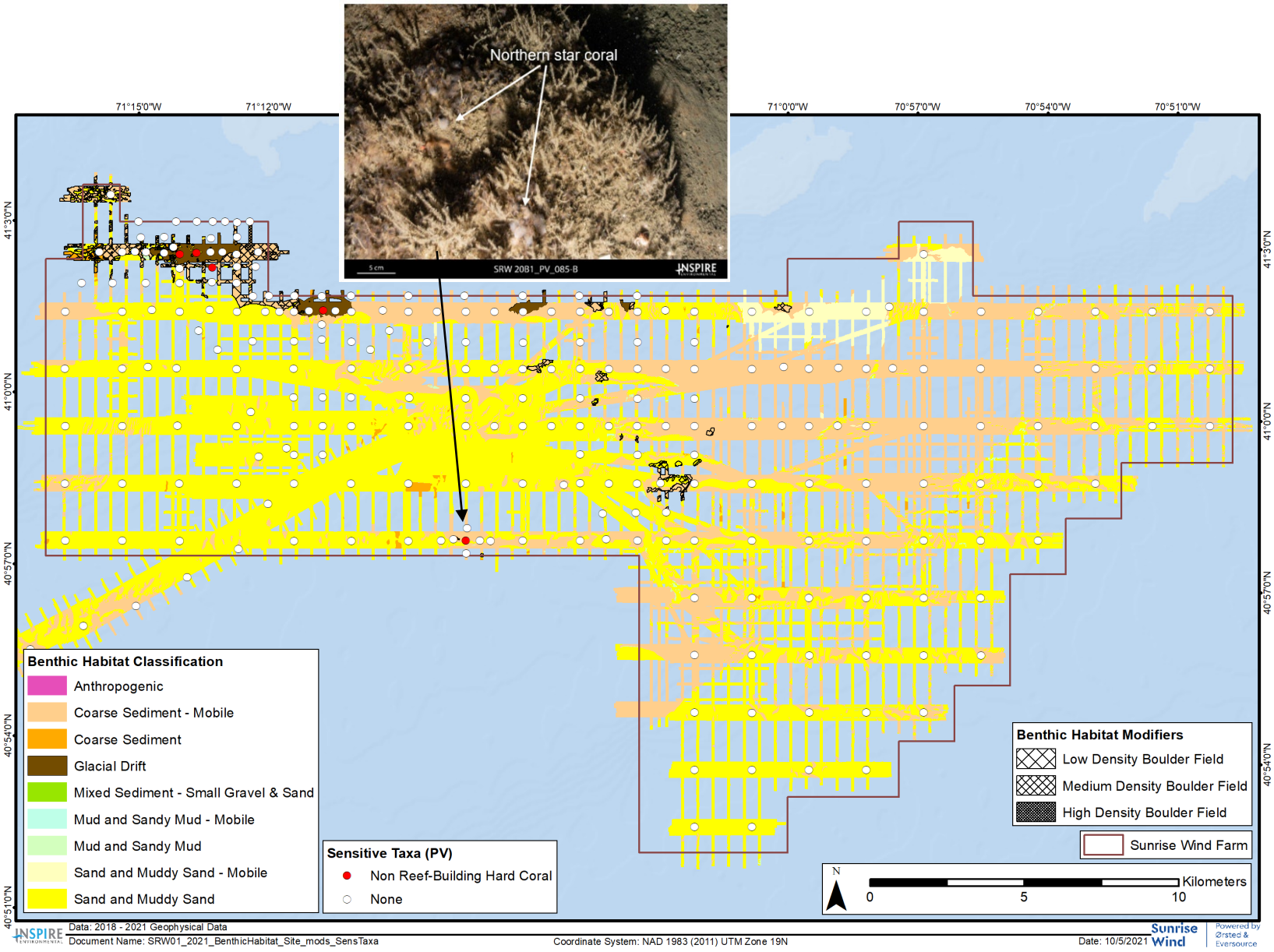


Figure 3-17. Benthic habitat types with modifiers and sensitive taxa, specifically the non reef-building hard coral *Astrangia poculata*, at the SRWF

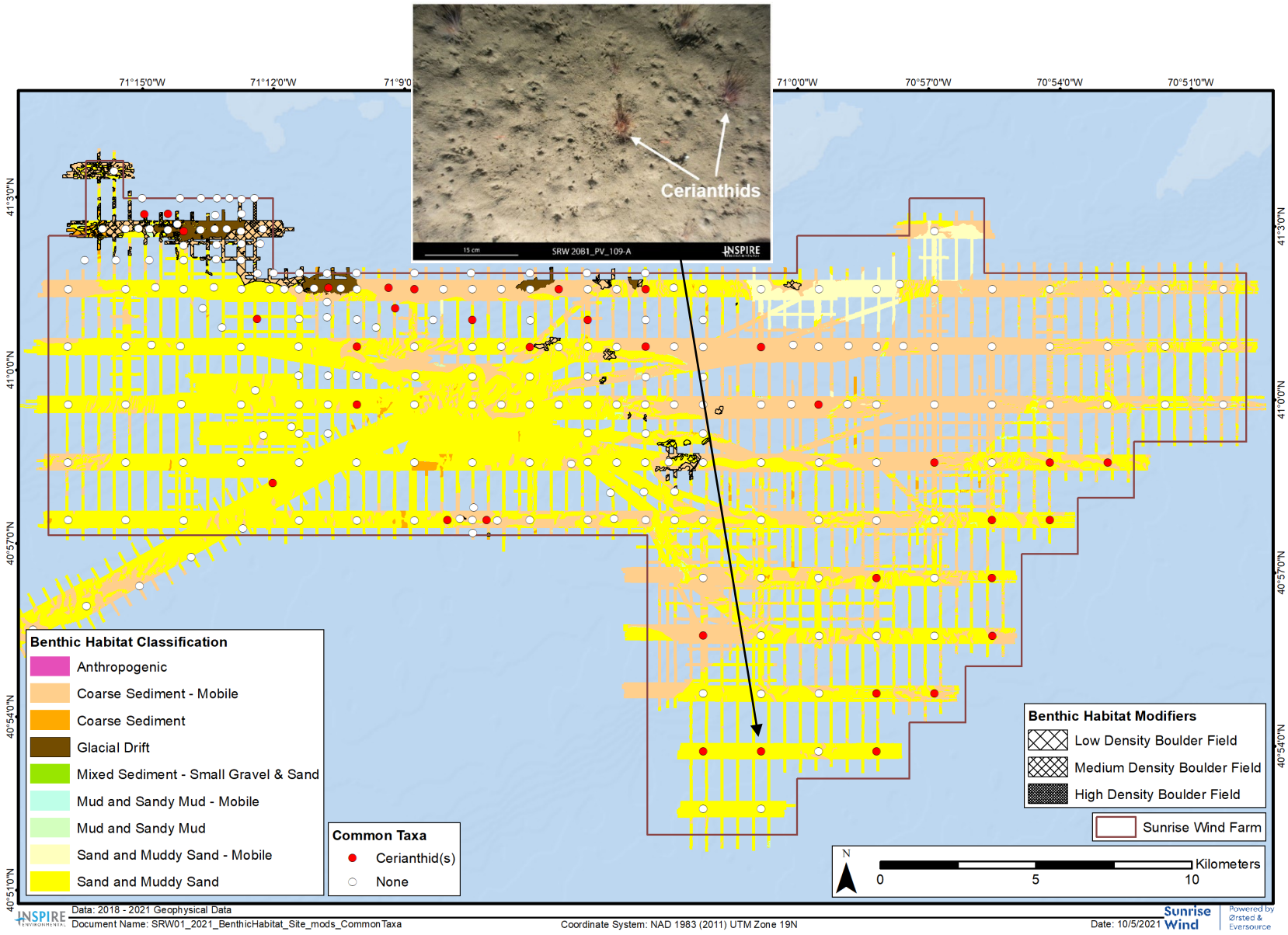


Figure 3-18. Benthic habitat types with modifiers and emergent taxa, specifically cerianthids (burrowing anemones), at the SRWF

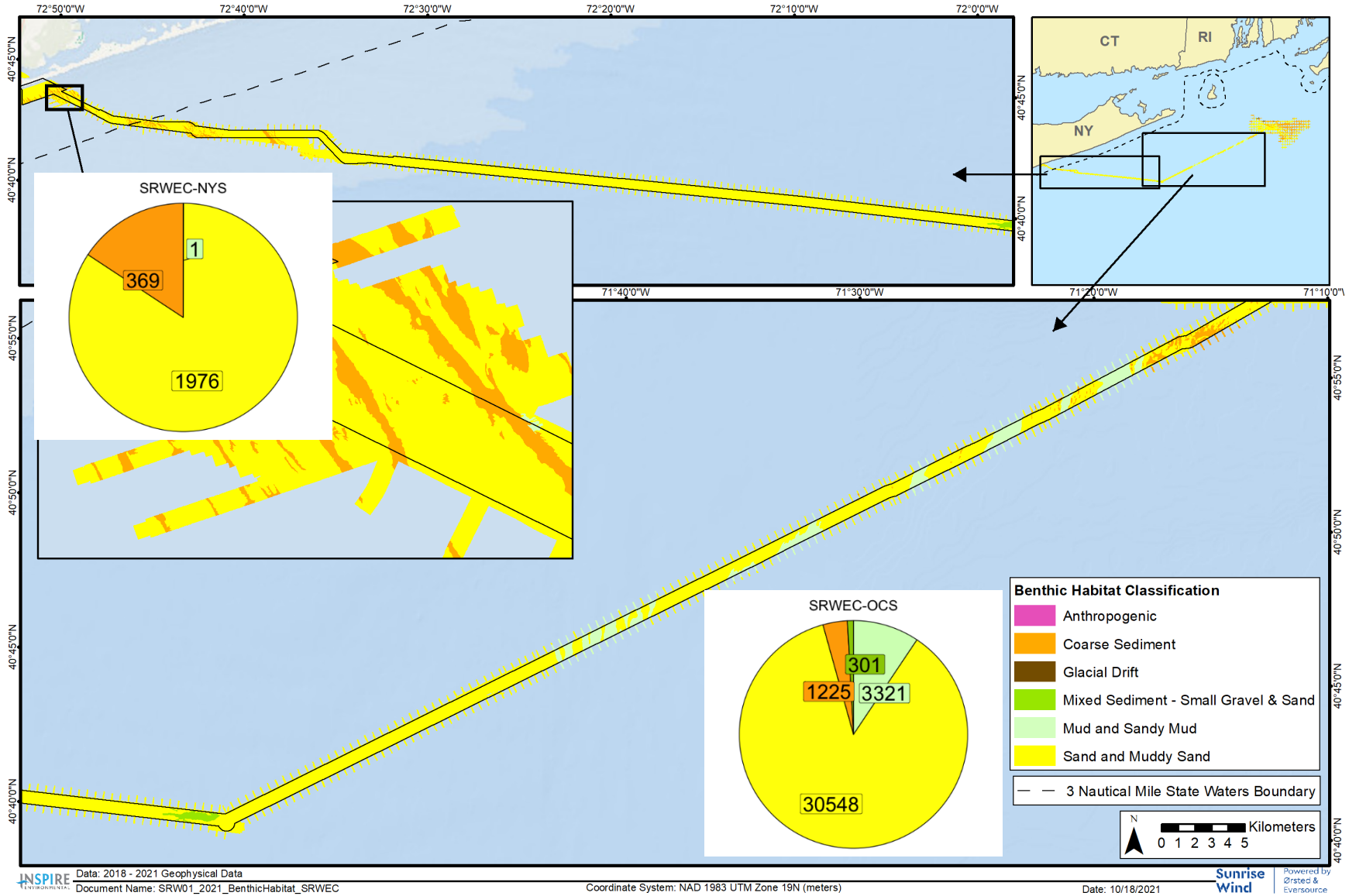


Figure 3-19. Benthic habitat types mapped along the SRWEC and pie charts of habitat composition

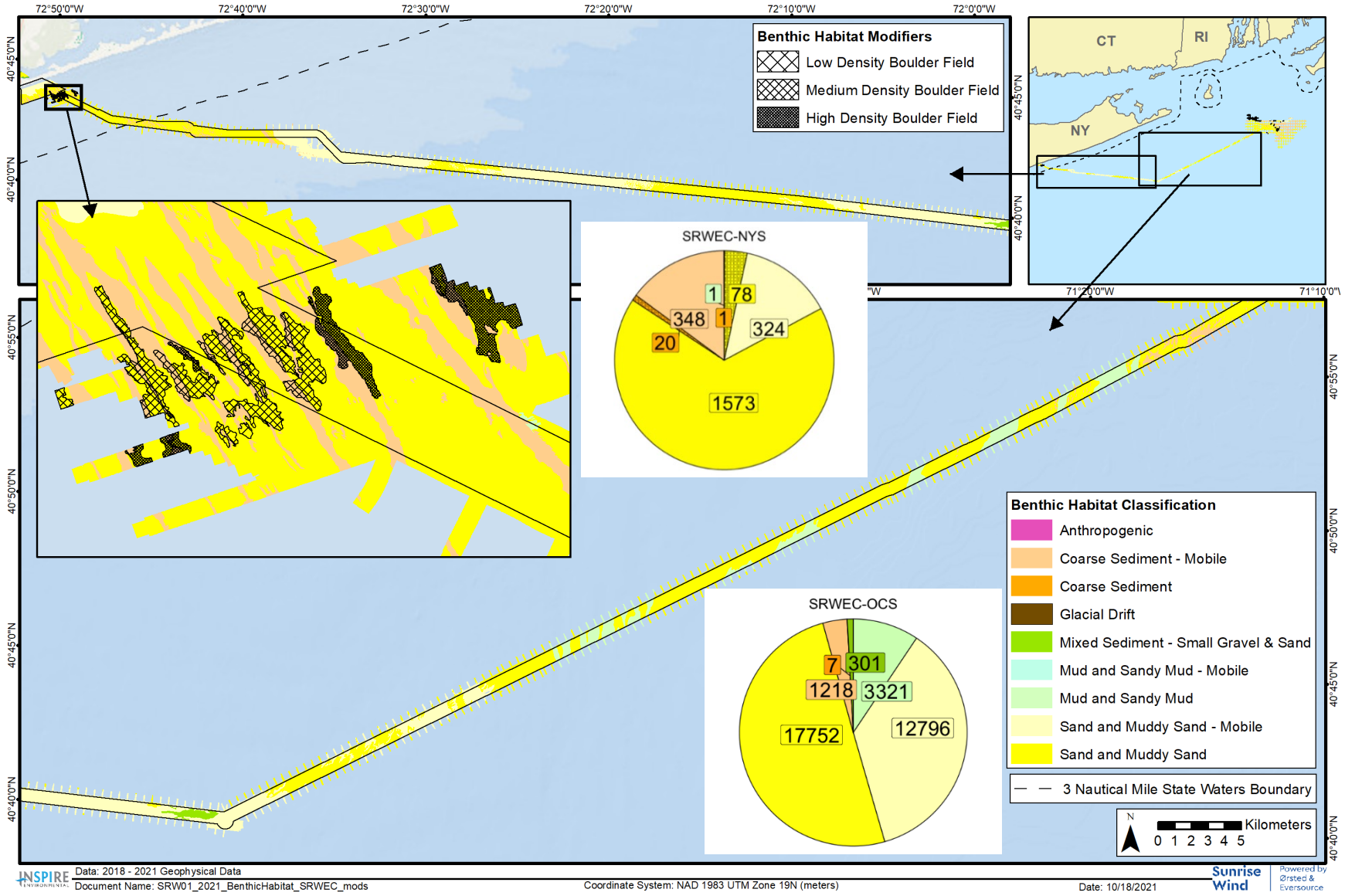


Figure 3-20. Benthic habitat types with modifiers mapped along the SRWEC and pie charts of habitat composition

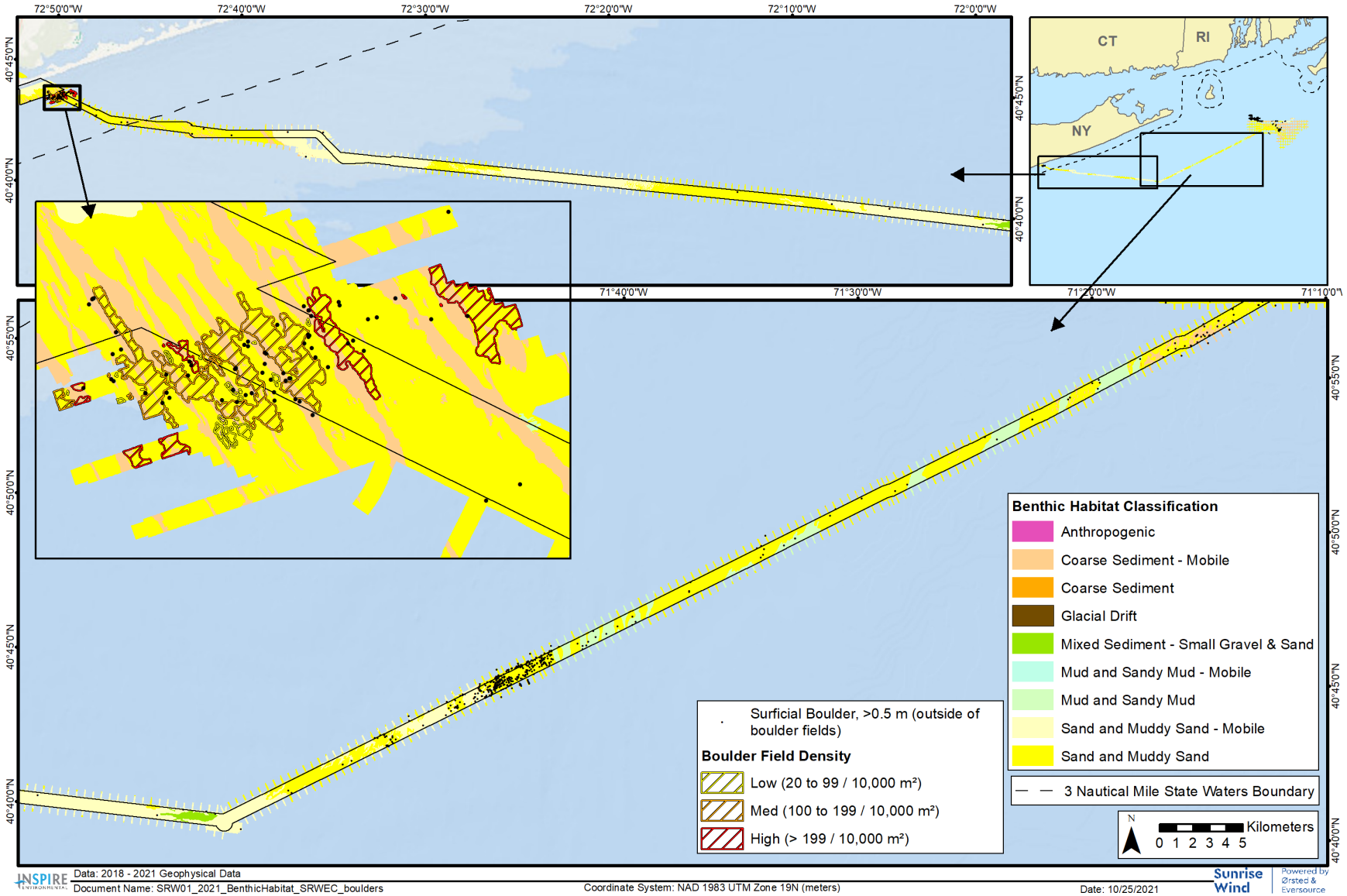


Figure 3-21. Benthic habitat types, boulder fields, and individual large boulders (>0.5 m) mapped along the SRWEC

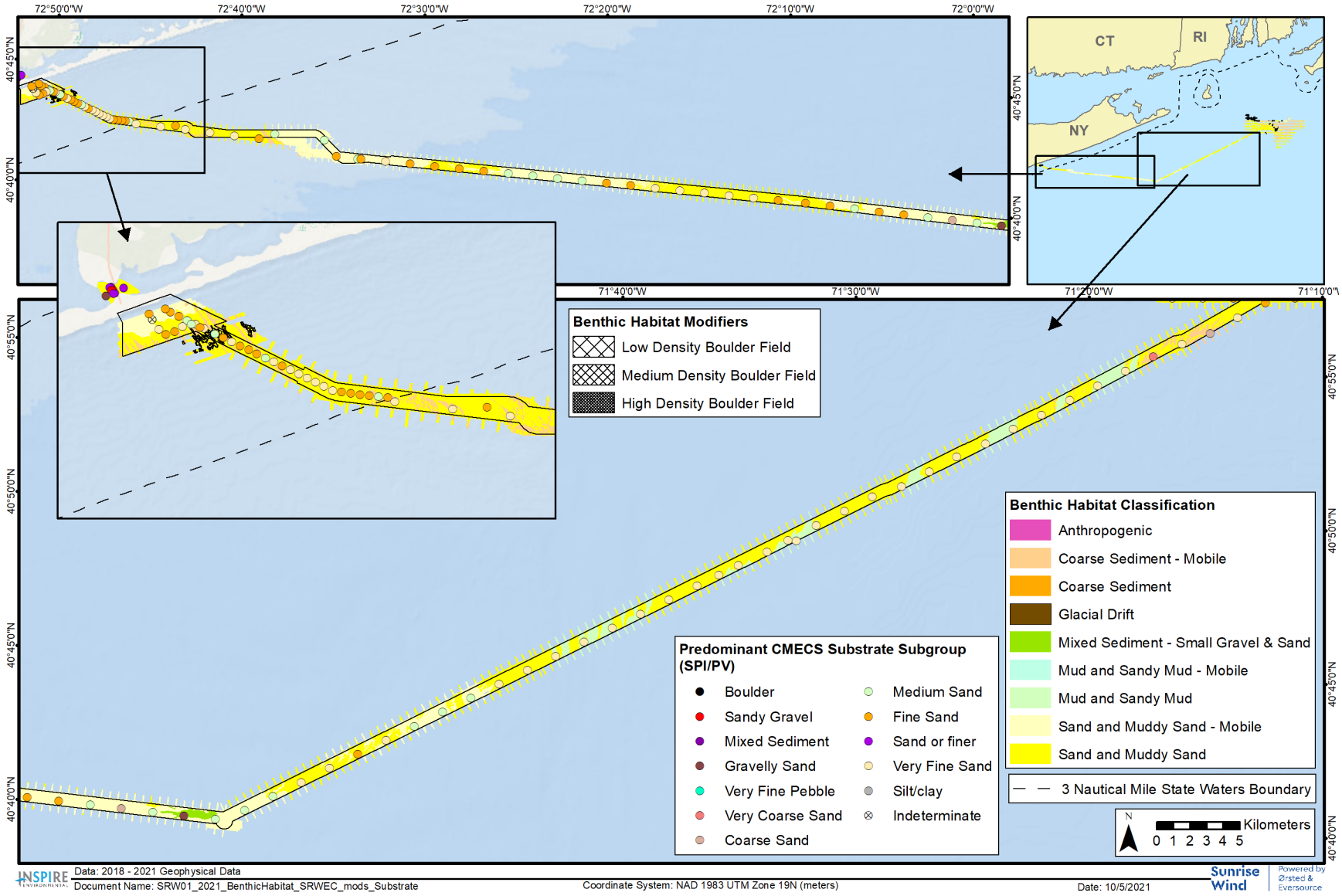


Figure 3-22. Benthic habitat types with modifiers and ground-truth CMECS Substrate Subgroup along the SRWEC

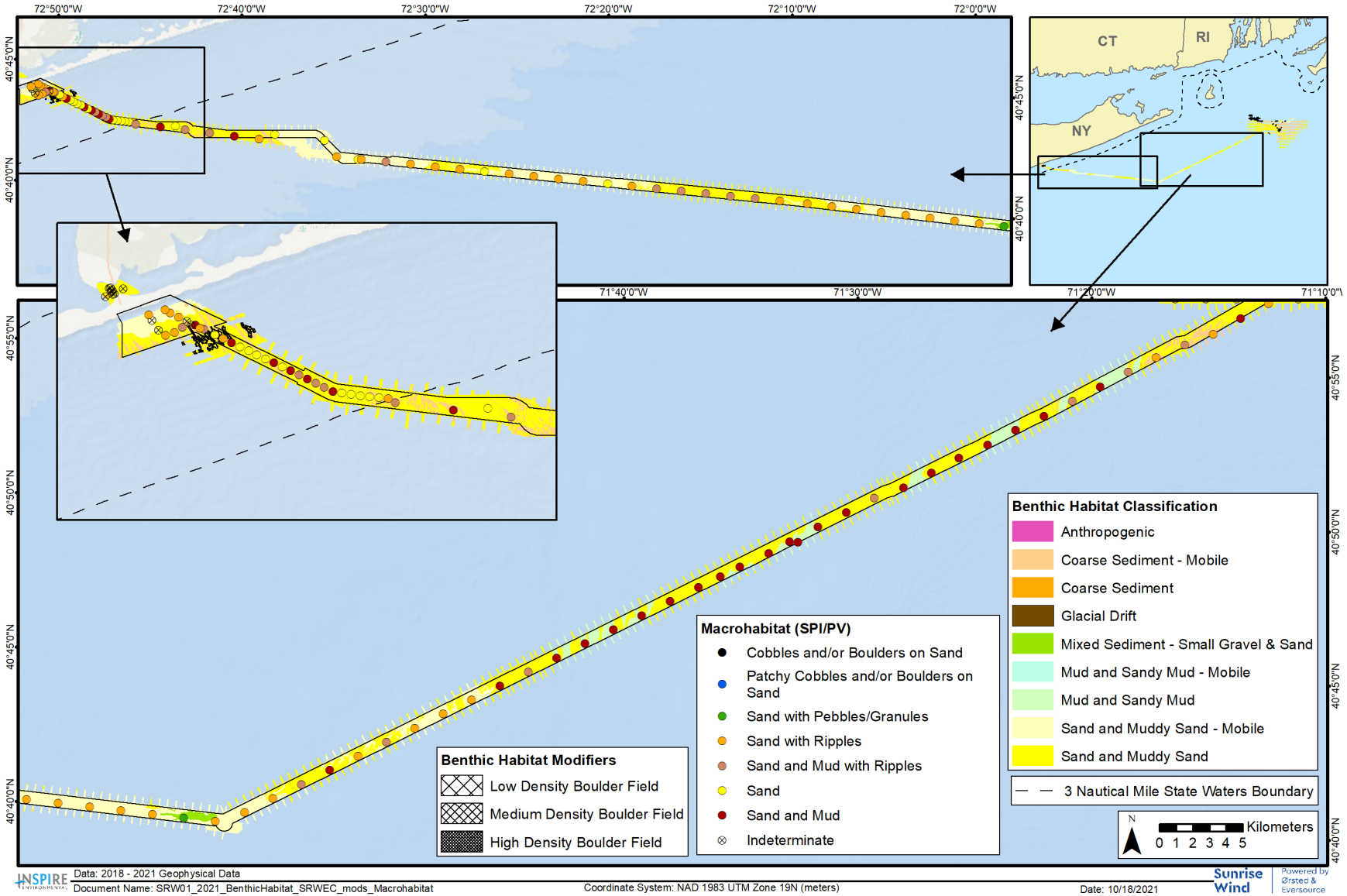


Figure 3-23. Benthic habitat types with modifiers and ground-truth macrohabitat along the SRWEC

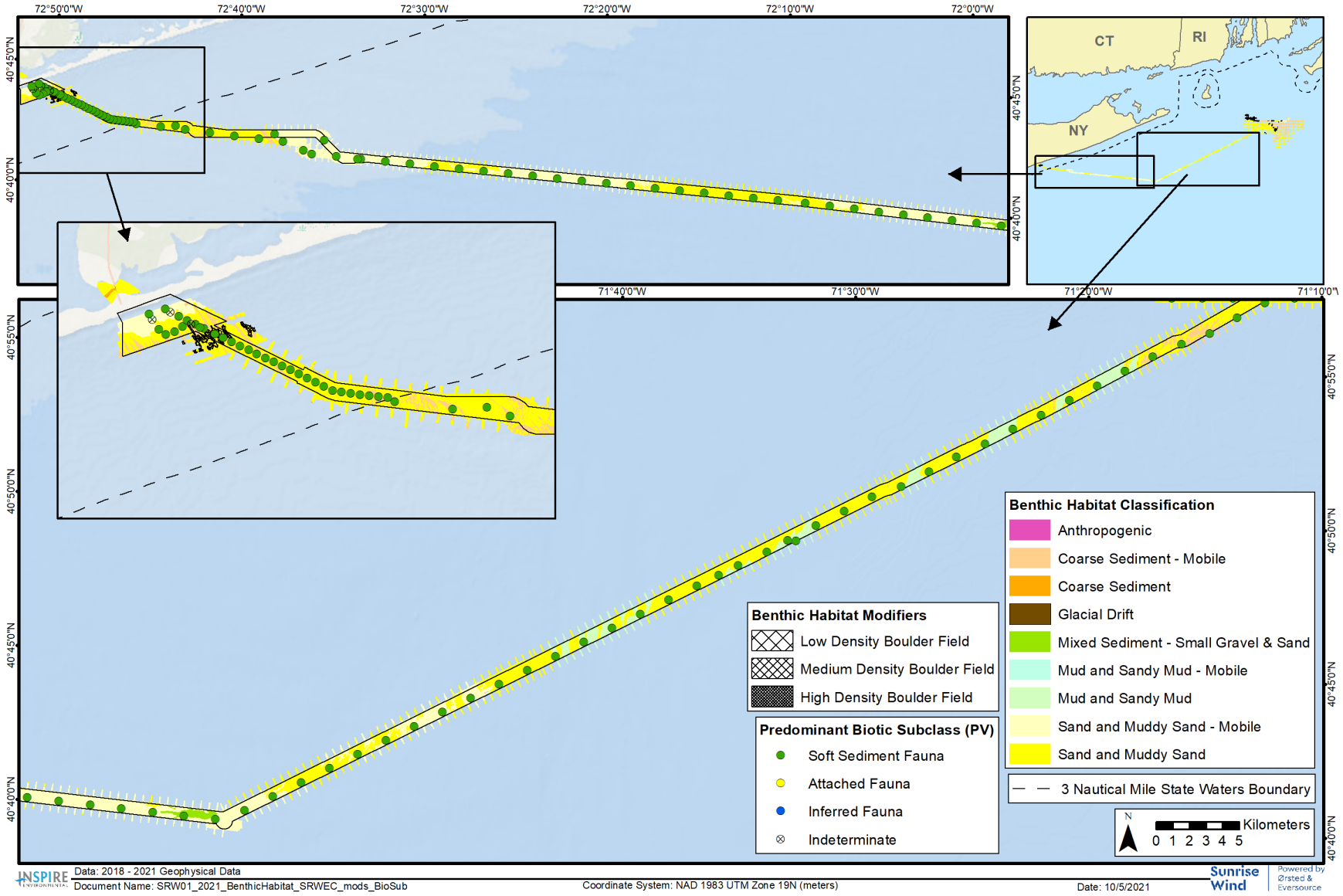


Figure 3-24. Benthic habitat types with modifiers and ground-truth CMECS Biotic Subclass along the SRWEC

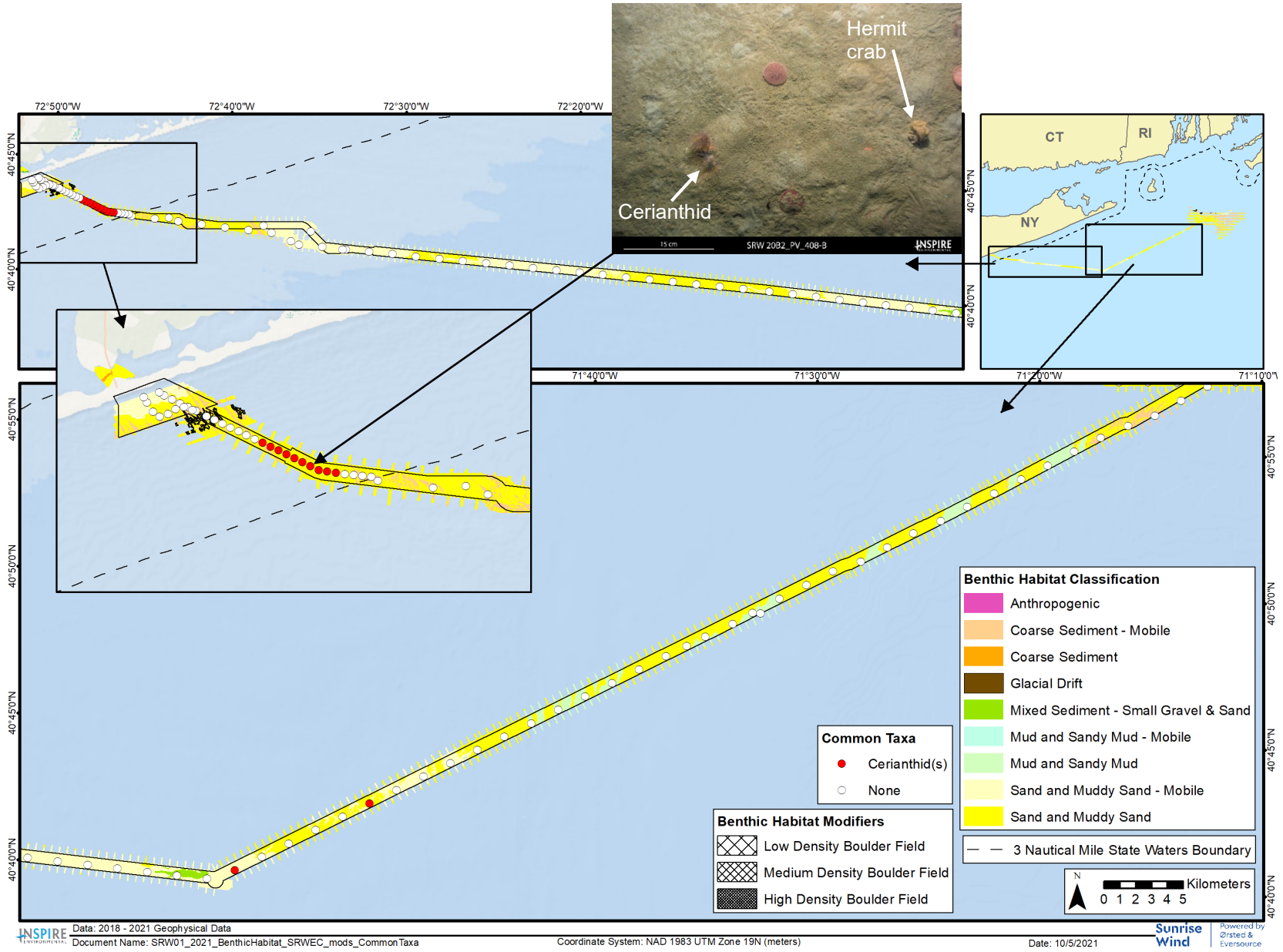


Figure 3-25. Benthic habitat types with modifiers and emergent taxa, specifically cerianthids (burrowing anemones), along the SRWEC

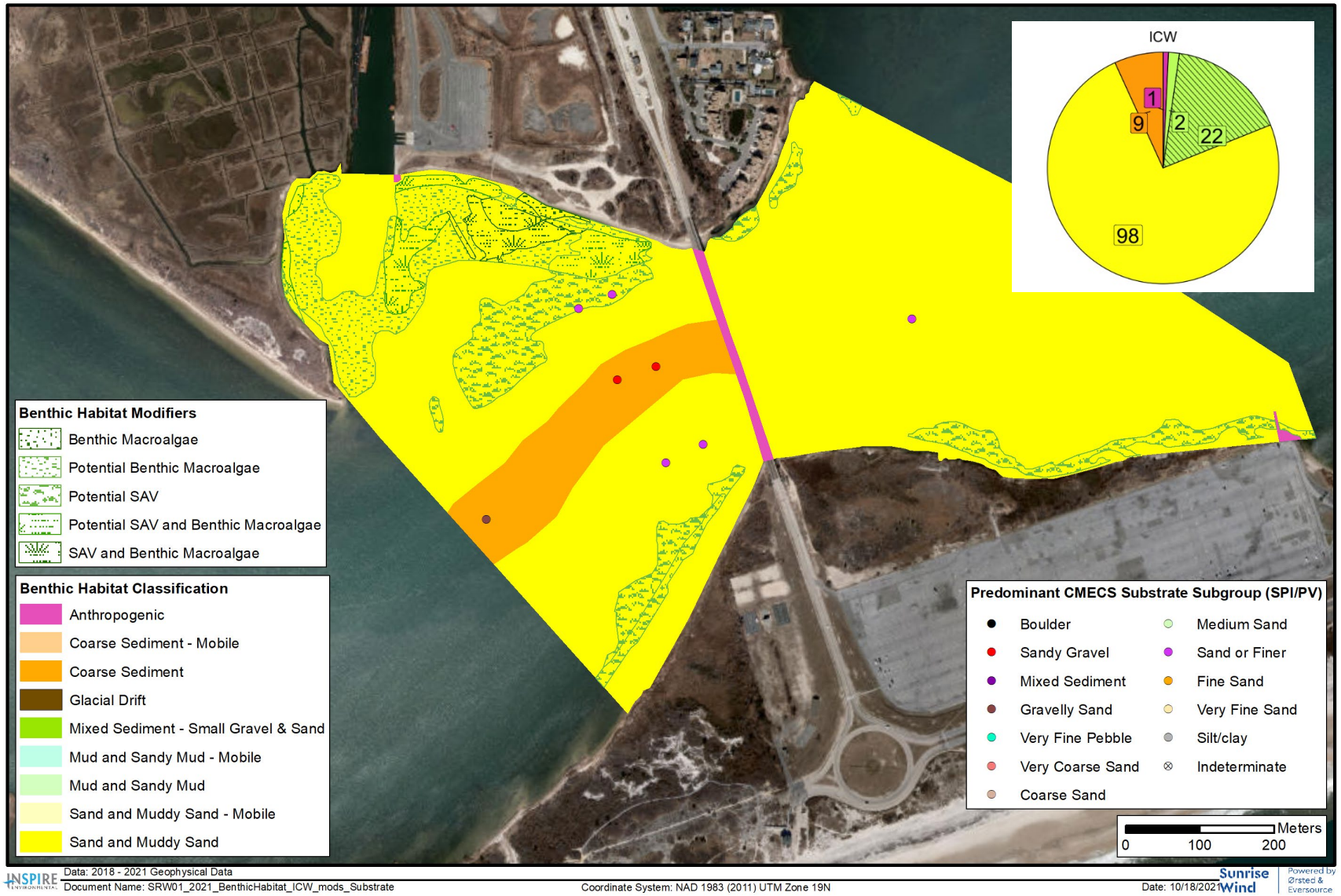


Figure 3-26. Benthic habitat types with modifiers and ground-truth CMECS Substrate Subgroup in the vicinity of the ICW HDD and a pie chart of habitat composition

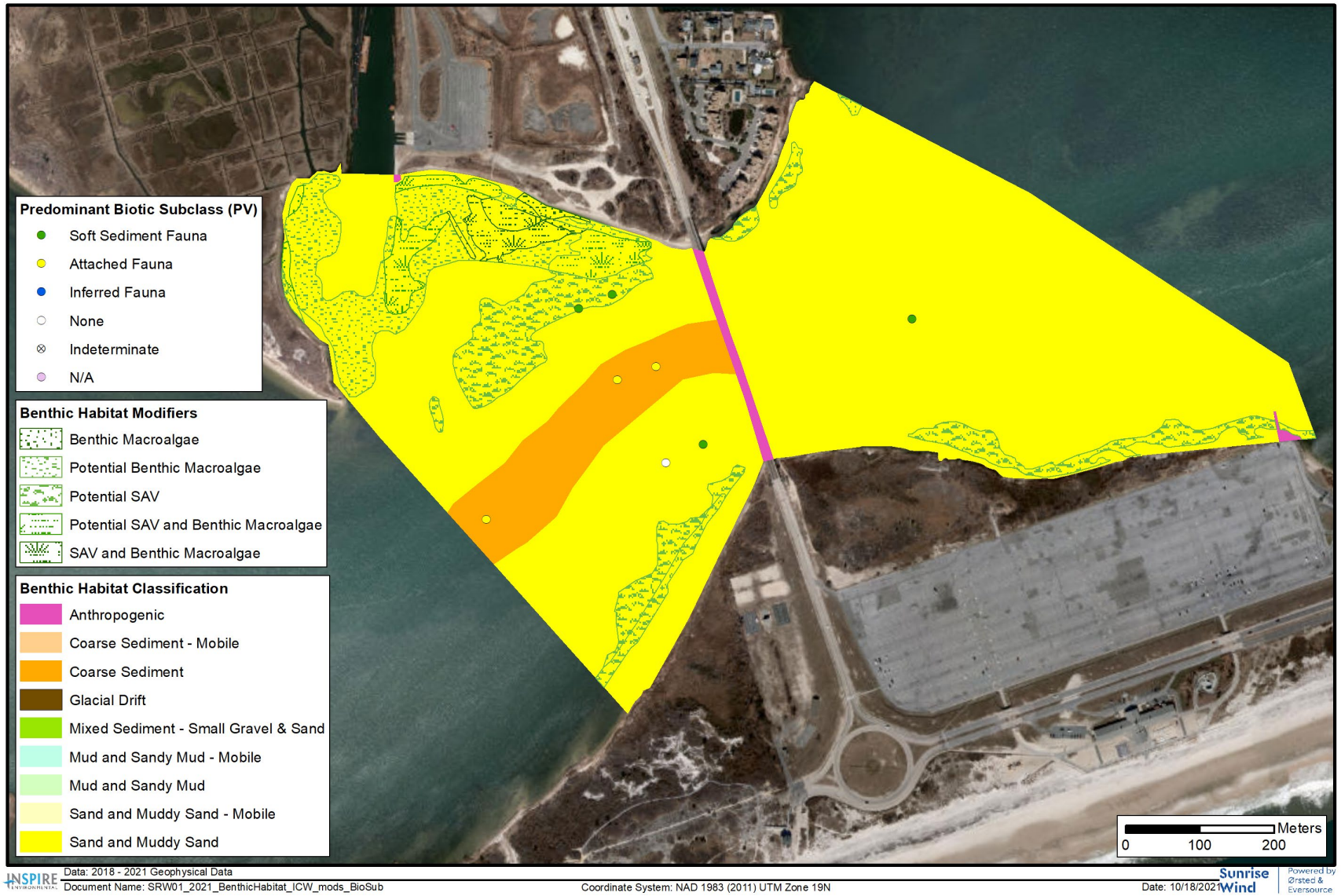


Figure 3-27. Benthic habitat types with modifiers and ground-truth CMECS Biotic Subclass in the vicinity of the ICW HDD

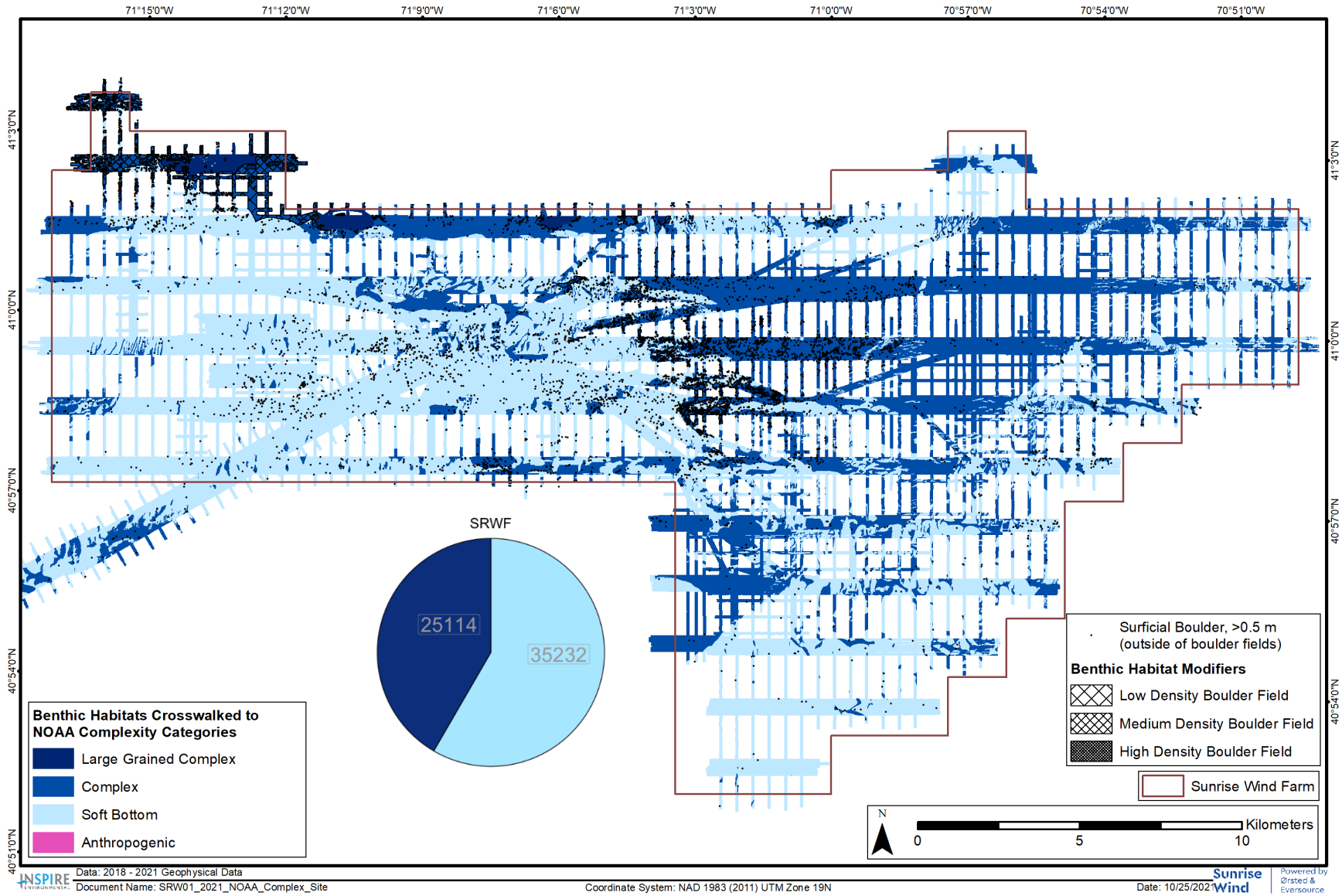


Figure 3-28. Benthic habitats categorized by NOAA Complexity Category, along with boulder fields and individual boulder picks, at the SRWF, along with a pie chart of NOAA Complexity Category composition with total acres presented as values

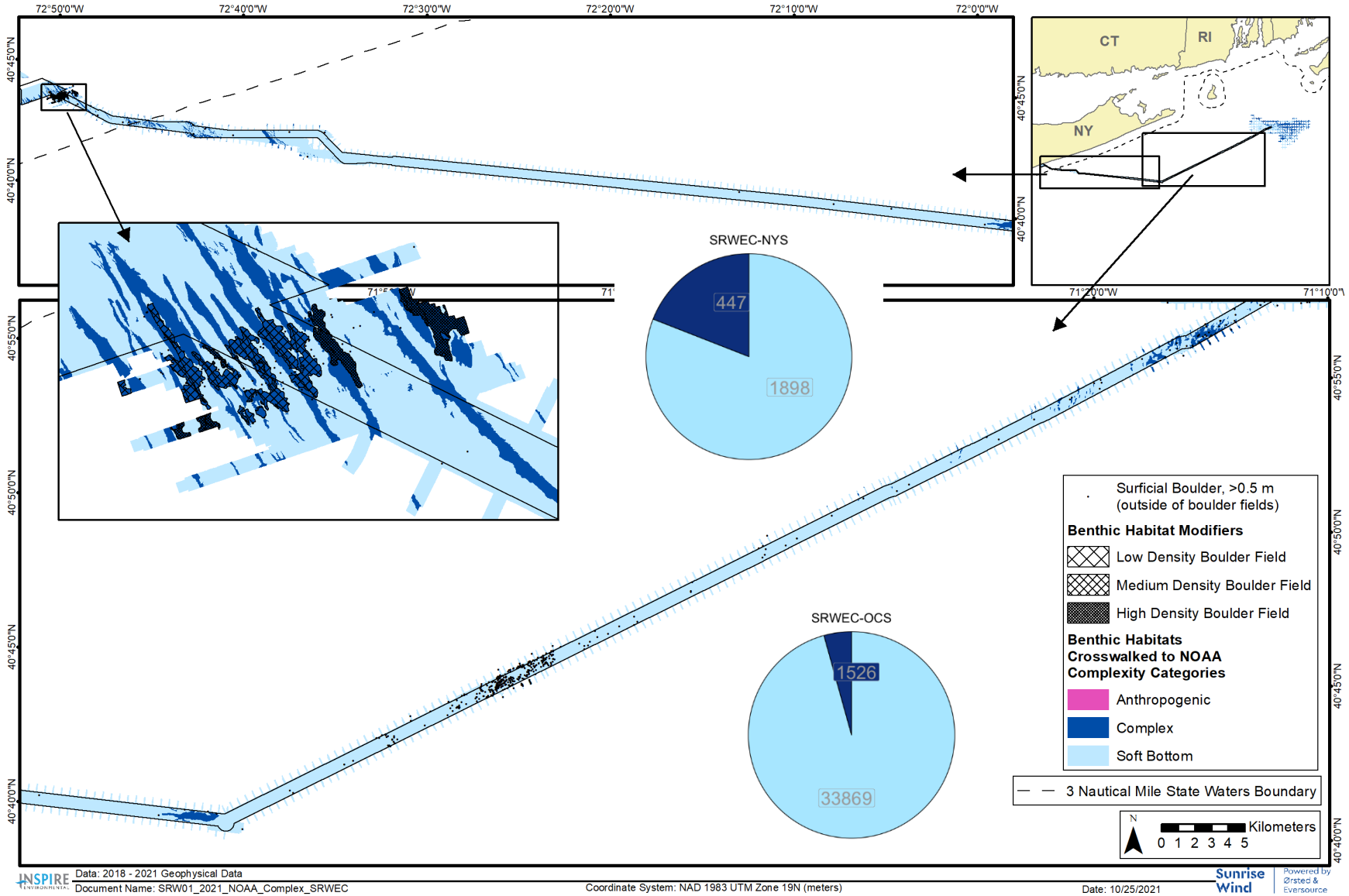


Figure 3-29. Benthic habitats categorized by NOAA Complexity Category, along with boulder fields and individual boulder picks, along the SRWEC along with pie charts of NOAA Complexity Category composition with total acres presented as values for the SRWEC–NYS and SRWEC–OCS

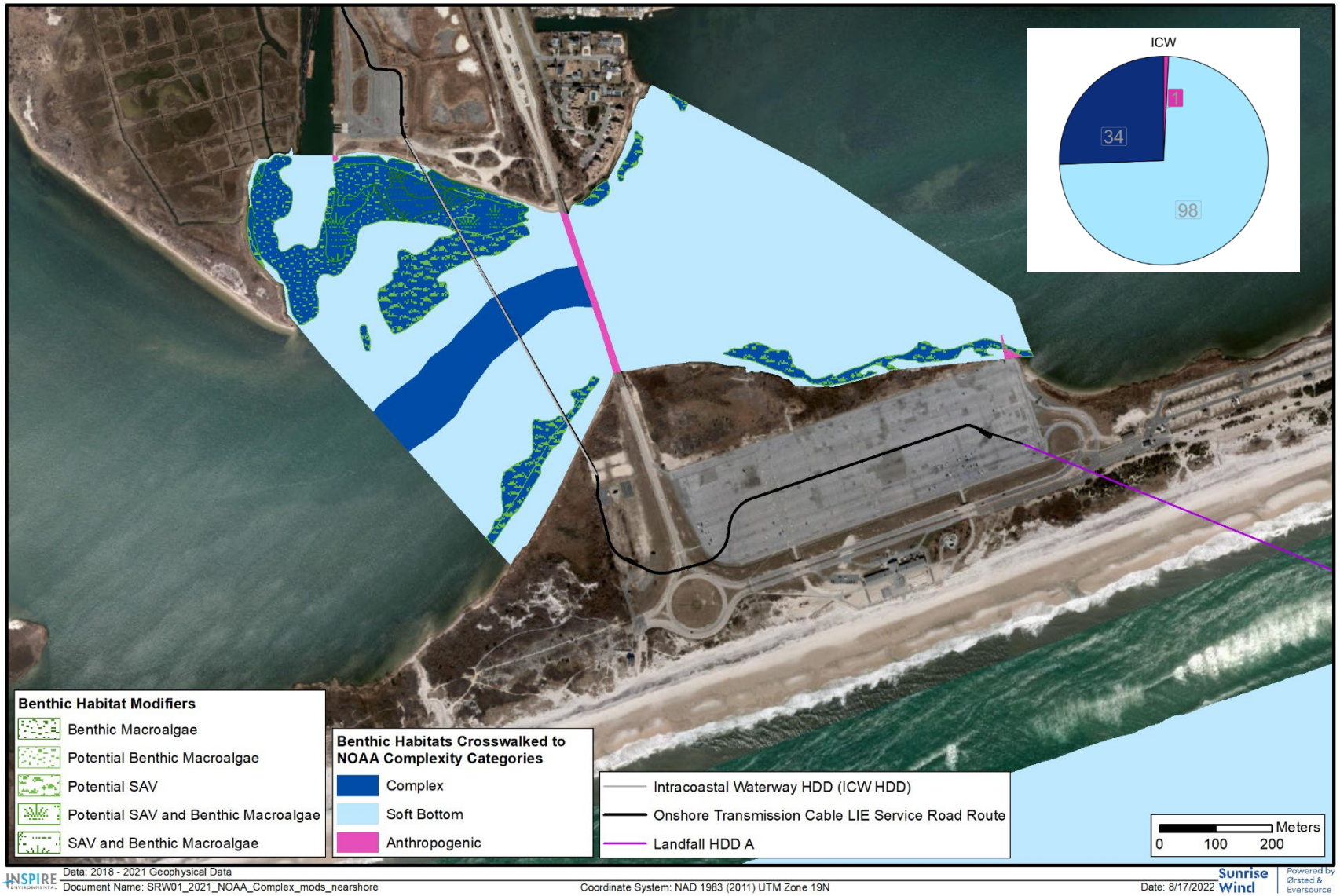


Figure 3-30. Benthic habitats categorized by NOAA Complexity Category in the vicinity of the ICW HDD along with a pie chart of NOAA Complexity Category composition with total acres presented as values

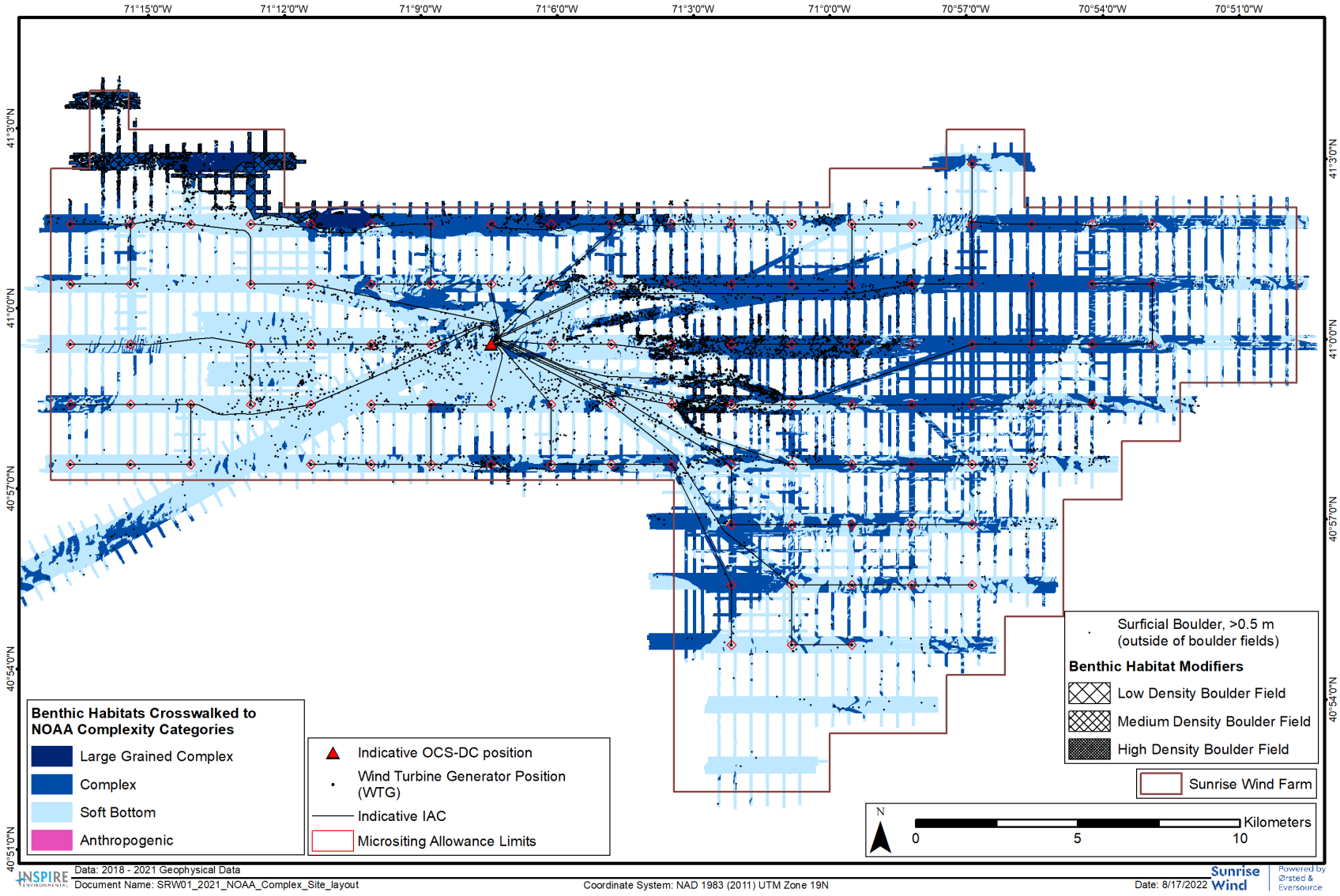


Figure 4-1. Benthic habitats categorized by NOAA Complexity Category, along with boulder fields and individual boulder picks, at the SRWF, current indicative layout showing the micro-siting allowance for each foundation, each foundation, and the indicative IAC routes

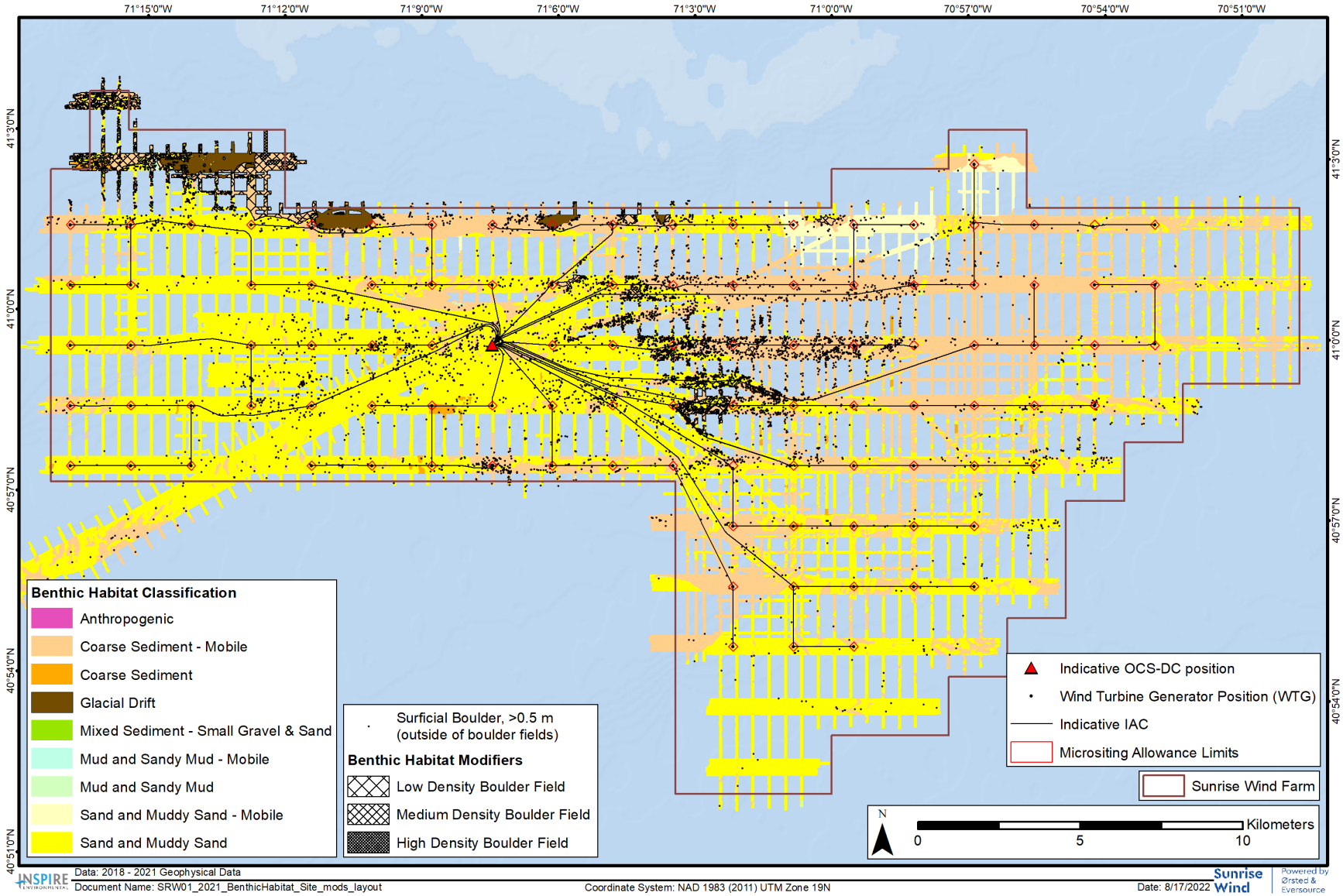


Figure 4-2. Benthic habitat types with modifiers, along with individual boulder picks, at the SRWF, current indicative layout showing the micro-siting allowance for each foundation, each foundation, and indicative IAC routes

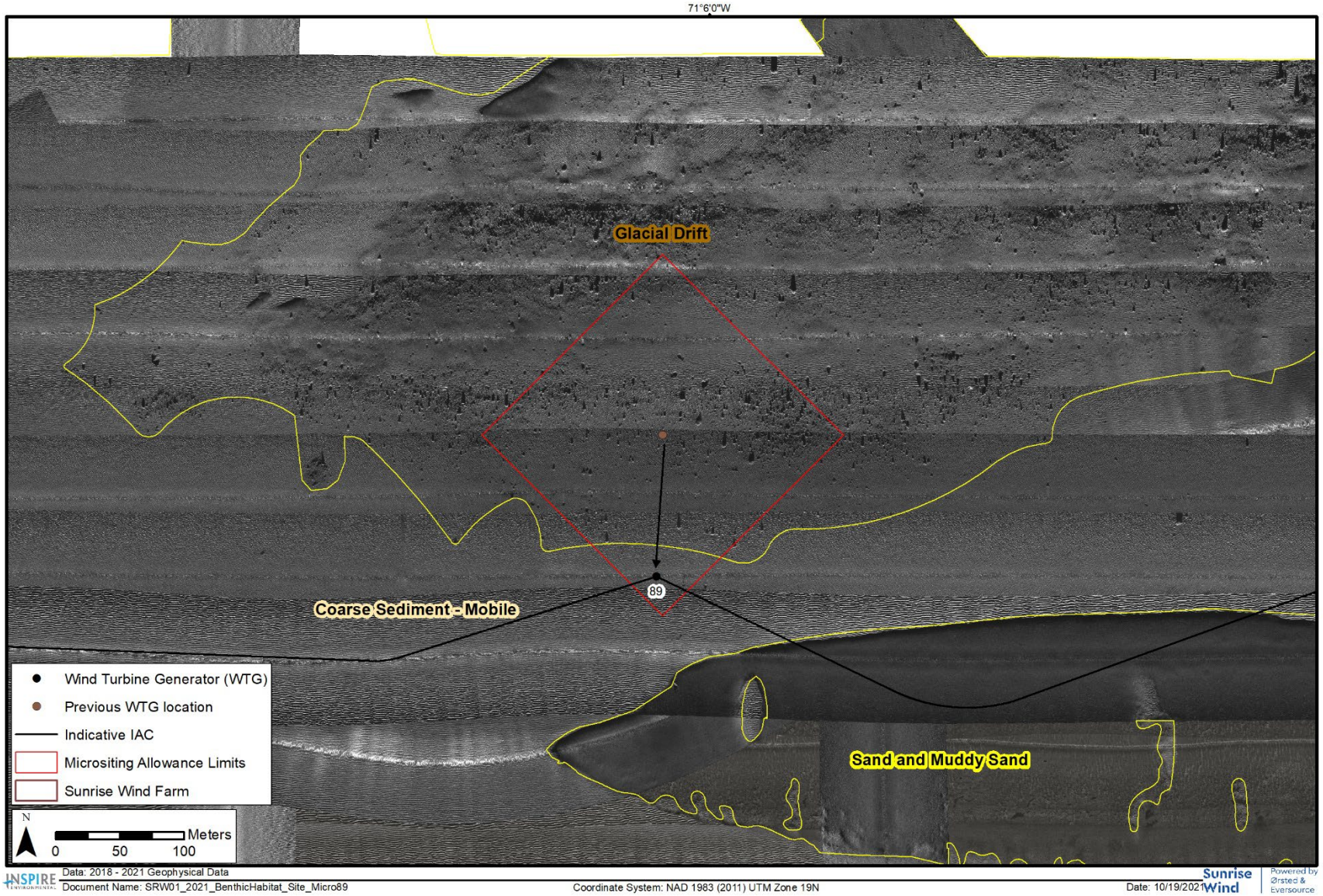


Figure 4-3. WTG foundation position #89 micro-sited to avoid Glacial Drift habitat

Figure 4-4. Historical (2002, 2018) and recent (2020) data showing the spatial distributions of benthic macroalgae and submerged aquatic vegetation in the vicinity of the ICW HDD (left) Benthic habitat data for this region categorized by NOAA Complexity Category; all areas of historical and recent SAV and benthic macroalgae, as well as an area of coarse sediment in the middle of the mapped area, were crosswalked to the "complex" NOAA Complexity Category (right). In both maps, an ICW HDD Assessment Area, an area in which potential Project impacts related to the ICW HDD could occur and which was surveyed with underwater imagery for benthic habitats and SAV and benthic macroalgae in 2020, is shown. In addition, a Temporary Landing Structure Assessment Area is depicted on the map

Figure 4-5. Tidal wetlands and non-native plant species in the vicinity of the ICW HDD. An ICW HDD Assessment Area, an area in which potential Project impacts related to the ICW HDD could occur and which was surveyed with underwater imagery for benthic habitats and SAV and benthic macroalgae in 2020, is shown. In addition, a Temporary Landing Structure Assessment Area is depicted on the map.

Benthic Habitat Mapping to Support Essential Fish Habitat Consultation
Sunrise Wind Farm Project

ATTACHMENTS

Prepared for:

Sunrise Wind | Powered by Ørsted & Eversource

Sunrise Wind, LLC

Submitted by:

INSPIRE ENVIRONMENTAL

INSPIRE Environmental
Newport, Rhode Island 02840

August 2022

LIST OF ATTACHMENTS

Attachment A – Benthic SPI/PV Ground-Truth Data Analysis Results

Notes:

IND=Indeterminate

SAV=Submerged Aquatic Vegetation

"-" Replicate image not analyzed

[1] Variable determined from combined SPI/PV analysis

2 Successional Stage: “->” indicates one Stage is progressing to another Stage (i.e., 2 -> 3).

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWF	SPI/PV	001	42.7	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	002	41.5	3	Glacial Drift	Patchy Cobbles and/ or Boulders on Sand	Gravelly	Gravelly Sand	Large ripples	Attached Fauna (1), Soft Sediment Fauna (2)	Soft Sediment Fauna (1)	Sparse (1 to <30%)	None	No	Yes
SRW_20B1	SRWF	SPI/PV	003	43.0	3	Glacial Drift	Cobbles and/ or Boulders on Sand	Gravel	Boulder	None	Attached Fauna (3)	None	Dense (70 to <90%)	None	Yes	No
SRW_20B1	SRWF	SPI/PV	004	47.6	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	005	46.1	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	006	46.1	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	007	43.9	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	008	43.6	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	009	40.3	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Coarse Sand	None	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	010	42.4	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	011	42.4	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	IND	Yes
SRW_20B1	SRWF	SPI/PV	012	43.3	0	Sand and Muddy Sand	IND	-	-	-	-	-	-	-	-	-
SRW_20B1	SRWF	SPI/PV	013	45.8	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	014	43.6	3	Coarse Sediment - Mobile	Sand	Sand or finer	Very Coarse Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	015	43.3	3	Glacial Drift	Sand	Sand or finer	Very Coarse Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	016	42.4	3	Coarse Sediment - Mobile	Sand with Pebbles/ Granules	Gravelly	Gravelly Sand	None	Inferred Fauna (2), Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	017	43.3	3	Coarse Sediment - Mobile	Sand with Pebbles/ Granules	Gravelly	Gravelly Sand	None	Inferred Fauna (2), Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	018	44.8	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Very Coarse Sand	Large ripples	Inferred Fauna (2), Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	019	46.4	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	020	49.1	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	021	50.9	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWF	SPI/PV	022	50.6	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Inferred Fauna (1), Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	023	47.0	3	Coarse Sediment - Mobile	Sand	Sand or finer	Very Coarse Sand	None	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	024	47.9	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Small ripples	Inferred Fauna (2), Soft Sediment Fauna (1)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	025	47.9	2	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Inferred Fauna (1), Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	026	47.6	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	027	46.4	2	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	028	46.4	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	029	47.9	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	030	47.3	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Inferred Fauna (1), Soft Sediment Fauna (2)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	031	47.3	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	032	46.4	2	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Small ripples	Inferred Fauna (1), Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	033	47.6	3	Coarse Sediment - Mobile	Sand with Pebbles/ Granules	Gravelly	Gravelly Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	034	48.2	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	035	49.4	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	036	47.6	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	037	47.0	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	038	49.4	3	Coarse Sediment - Mobile	Sand with Pebbles/ Granules	Gravelly	Gravelly Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	039	50.9	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	040	51.2	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	041	48.2	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	042	47.9	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	No	Yes

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWF	SPI/PV	043	50.6	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	044	48.8	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	045	47.9	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	046	48.8	1	Coarse Sediment - Mobile	IND	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (1)	None	None	None	IND	IND
SRW_20B1	SRWF	SPI/PV	047	48.2	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	048	49.4	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	049	49.1	1	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	050	50.6	2	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	IND	IND
SRW_20B1	SRWF	SPI/PV	051	48.8	2	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Inferred Fauna (1), Soft Sediment Fauna (1)	None	None	None	IND	IND
SRW_20B1	SRWF	SPI/PV	052	50.3	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	053	52.5	3	Coarse Sediment - Mobile	Sand and Mud	Sand or finer	Silt/clay	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	054	51.5	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	055	53.1	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	056	51.9	1	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (1)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	057	47.6	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Large ripples	Inferred Fauna (1), Soft Sediment Fauna (2)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	058	48.8	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	059	53.1	3	Coarse Sediment - Mobile	Sand	Sand or finer	Very Coarse Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	060	50.6	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Inferred Fauna (1), Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	061	49.4	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	062	49.7	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	063	48.8	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	No	Yes

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWF	SPI/PV	064	50.6	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	065	50.9	1	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	IND	None	None	None	IND	IND
SRW_20B1	SRWF	SPI/PV	066	51.9	0	Sand and Muddy Sand	IND	-	-	-	-	-	-	-	-	-
SRW_20B1	SRWF	SPI/PV	067	50.9	0	Sand and Muddy Sand	IND	-	-	-	-	-	-	-	-	-
SRW_20B1	SRWF	SPI/PV	068	51.9	1	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (1)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	069	50.0	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	070	51.9	3	Coarse Sediment	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	071	53.7	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	072	55.8	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	073	56.1	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	074	53.7	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	075	52.8	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	076	50.0	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	077	53.7	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	078	53.1	3	Sand and Muddy Sand	Sand	Sand or finer	Medium Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	079	50.9	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Inferred Fauna (2), Soft Sediment Fauna (1)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	080	51.5	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	081	50.6	2	Coarse Sediment - Mobile	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	082	53.1	3	Coarse Sediment - Mobile	Sand with Pebbles/ Granules	Gravelly	Gravelly Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	IND	IND
SRW_20B1	SRWF	SPI/PV	083	52.2	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	084	53.4	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	085	54.3	3	Coarse Sediment - Mobile	Patchy Cobbles and/ or Boulders on Sand	Gravelly	Gravelly Sand	None	Attached Fauna (1), Soft Sediment Fauna (2)	None	Dense (70 to <90%)	None	No	No
SRW_20B1	SRWF	SPI/PV	086	51.9	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	IND	None	None	None	IND	IND

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWF	SPI/PV	087	53.7	2	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (1)	None	None	None	IND	IND
SRW_20B1	SRWF	SPI/PV	088	52.2	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	089	54.3	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	090	54.0	1	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (1)	None	None	None	IND	IND
SRW_20B1	SRWF	SPI/PV	091	54.9	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	092	54.3	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	093	53.1	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	094	53.4	2	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	095	53.1	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	096	51.9	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	097	56.7	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	098	56.4	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	099	55.8	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	100	56.1	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	101	52.5	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	102	56.7	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	103	58.0	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	104	56.4	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	105	56.1	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	106	56.4	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	107	58.0	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	108	58.3	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	109	58.9	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWF	SPI/PV	110	59.8	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	111	47.3	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	112	50.0	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	113	51.2	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Inferred Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	114	52.8	1	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (1)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	115	49.7	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	116	53.7	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	118	54.6	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	120	55.8	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	121	55.8	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	128	58.6	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	129	59.5	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	130	52.5	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	131	52.8	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	132	53.4	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	135	54.3	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	136	51.2	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	201	42.4	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	206	43.3	3	Sand and Muddy Sand - with Low Density Boulder Field	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	207	45.4	3	Coarse Sediment - Mobile with Medium Density Boulder Field	Patchy Cobbles and/ or Boulders on Sand	Gravelly	Gravelly Sand	None	Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	208	45.4	1	Mud and Sandy Mud	Sand and Mud	Sand or finer	Silt/clay	None	Soft Sediment Fauna (1)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	209	42.7	3	Sand and Muddy Sand - with Low Density Boulder Field	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWF	SPI/PV	210	41.8	3	Glacial Drift	Patchy Cobbles and/ or Boulders on Sand	Gravelly	Gravelly Sand	None	Attached Fauna (2), Soft Sediment Fauna (1)	Attached Fauna (1)	Sparse (1 to <30%)	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	211	40.9	3	Coarse Sediment - Mobile with High Density Boulder Field	Sand with Pebbles/ Granules	Gravelly	Gravelly Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	215	49.4	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	216	45.8	2	Coarse Sediment - Mobile with Low Density Boulder Field	Sand	Sand or finer	Very Coarse Sand	None	Soft Sediment Fauna (2)	Attached Fauna (1)	Sparse (1 to <30%)	None	No	No
SRW_20B1	SRWF	SPI/PV	220	42.4	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Very Coarse Sand	Large ripples	Inferred Fauna (1), Soft Sediment Fauna (2)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	223	40.9	2	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	224	50.0	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	225	49.4	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	226	47.0	1	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (1)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	227	40.0	3	Glacial Drift	Cobbles and/ or Boulders on Sand	Gravel	Boulder	None	Attached Fauna (3)	None	Complete (90-100%)	None	Yes	No
SRW_20B1	SRWF	SPI/PV	228	43.9	3	Coarse Sediment - Mobile	Sand	Sand or finer	Very Coarse Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	229	42.7	3	Coarse Sediment - Mobile	Sand	Sand or finer	Very Coarse Sand	None	Inferred Fauna (2), Soft Sediment Fauna (1)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	230	42.4	3	Coarse Sediment - Mobile	Sand	Sand or finer	Very Coarse Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	231	43.6	3	Coarse Sediment - Mobile	Sand	Sand or finer	Very Coarse Sand	None	Inferred Fauna (1), Soft Sediment Fauna (2)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	232	43.0	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	233	43.6	0	Sand and Muddy Sand	IND	-	-	-	-	-	-	-	-	-
SRW_20B1	SRWF	SPI/PV	234	40.6	3	Coarse Sediment - Mobile	Sand with Pebbles/ Granules	Gravelly	Gravelly Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	236	45.1	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	237	50.3	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWF	SPI/PV	239	49.7	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	243	44.8	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Large ripples	Inferred Fauna (1), Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	245	48.2	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Very Coarse Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	246	46.4	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Very Coarse Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	248	48.8	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	249	49.7	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	250	48.5	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Silt/clay	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	251	48.5	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	252	48.2	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	253	46.7	1	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Very Coarse Sand	Large ripples	Soft Sediment Fauna (1)	None	None	None	IND	IND
SRW_20B1	SRWF	SPI/PV	254	47.6	1	Coarse Sediment - Mobile	Sand and Mud with Ripples	Sand or finer	Silt/clay	Large ripples	Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	255	47.6	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	256	47.3	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	260	50.3	2	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	261	48.8	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	262	48.8	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	263	51.2	1	Sand and Muddy Sand	Sand and Mud	Sand or finer	Silt/clay	None	Soft Sediment Fauna (1)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	264	49.1	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	266	51.5	0	Sand and Muddy Sand	IND	-	-	-	-	-	-	-	-	-
SRW_20B1	SRWF	SPI/PV	267	51.9	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	268	54.3	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	269	50.9	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	270	79.0	2	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	No	No

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWF	SPI/PV	271	51.2	0	Sand and Muddy Sand	IND	-	-	-	-	-	-	-	-	-
SRW_20B1	SRWF	SPI/PV	272	49.7	1	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	273	49.1	2	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (2)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	274	48.8	2	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	275	53.4	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	Attached Fauna (1)	Trace (<1%)	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	276	53.4	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	278	50.3	1	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	279	50.0	2	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	IND	None	None	None	IND	IND
SRW_20B1	SRWF	SPI/PV	280	49.4	1	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	281	49.1	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	282	51.2	2	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	284	51.5	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	IND	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	285	53.1	2	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	IND	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	286	50.9	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	287	52.5	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	289	51.9	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Inferred Fauna (1), Soft Sediment Fauna (2)	None	None	None	Yes	No
SRW_20B2	SRWEC-NYS	SPI/PV	401	26.8	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	Yes	Yes
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	402	25.6	3	Coarse Sediment - Mobile	Sand	Sand or finer	Medium Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	No	Yes
SRW_20B2	SRWEC-NYS	SPI/PV	403	25.9	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	No	Yes
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	404	25.9	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (3)	None	None	No	Yes
SRW_20B2	SRWEC-NYS	SPI/PV	405	25.6	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (3)	None	None	Yes	Yes
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	406	25.3	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	Yes	Yes

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B2	SRWEC-NYS	SPI/PV	407	24.7	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	Yes	Yes
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	408	24.4	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small isolated (linguoid) ripples	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	Yes	Yes
SRW_20B2	SRWEC-NYS	SPI/PV	409	24.4	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small isolated (linguoid) ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	Yes	Yes
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	410	23.5	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	Yes	Yes
SRW_20B2	SRWEC-NYS	SPI/PV	411	23.5	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small isolated (linguoid) ripples	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	Yes	Yes
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	412	22.3	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (3)	None	None	Yes	Yes
SRW_20B2	SRWEC-NYS	SPI/PV	413	22.3	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	Yes	Yes
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	414	21.3	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	Yes	Yes
SRW_20B2	SRWEC-NYS	SPI/PV	415	21.0	3	Coarse Sediment - Mobile	Sand	Sand or finer	Medium Sand	None	Inferred Fauna (1), Soft Sediment Fauna (2)	Inferred Fauna (2)	None	None	No	Yes
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	416	19.5	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (3)	None	None	No	Yes
SRW_20B2	SRWEC-NYS	SPI/PV	417	18.6	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	418	17.7	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	No	Yes
SRW_20B2	SRWEC-NYS	SPI/PV	419	17.7	3	Coarse Sediment - Mobile	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	420	16.8	3	Sand and Muddy Sand - with Medium Density Boulder Field	Sand with Ripples	Sand or finer	Fine Sand	Small isolated (linguoid) ripples	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	No	Yes
SRW_20B2	SRWEC-NYS	SPI/PV	421	15.2	3	Coarse Sediment - Mobile with Medium Density Boulder Field	Sand	Sand or finer	Medium Sand	None	Soft Sediment Fauna (3)	None	None	None	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	422	13.7	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	423	12.2	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B2	SRWEC-NYS	SPI/PV	424	10.7	3	Coarse Sediment - Mobile	IND	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (1)	IND	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	425	8.8	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (1)	IND	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV	426	7.3	1	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	IND	IND	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	427	4.6	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Large ripples	Soft Sediment Fauna (1)	None	None	None	No	No
SRW_20B2	SRWEC-NYS	SPI/PV	428	13.1	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (1)	IND	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	429	11.9	2	Coarse Sediment - Mobile	IND	Sand or finer	Medium Sand	IND	IND	IND	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV	430	11.6	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	431	11.9	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small isolated (linguoid) ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B2	SRWEC-NYS	SPI/PV	432	11.9	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small isolated (linguoid) ripples	Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	433	9.8	1	Sand and Muddy Sand	IND	Sand or finer	Very Fine Sand	IND	Soft Sediment Fauna (1)	IND	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV	434	7.6	0	Sand and Muddy Sand - Mobile	IND	-	IND	-	-	-	-	-	-	-
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	435	4.6	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Large ripples	Soft Sediment Fauna (2)	None	None	None	No	No
SRW_20B2	SRWEC-OCS	SPI/PV	440	27.4	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B2	SRWEC-OCS	SPI/PV	441	30.5	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Medium Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	No	Yes
SRW_20B2	SRWEC-OCS	SPI/PV	442	30.5	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Medium Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	No	Yes
SRW_20B2	SRWEC-OCS	SPI/PV	443	32.0	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Medium Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	501	27.8	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	502	29.6	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	503	29.6	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	504	30.8	2	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	No	No

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWEC-OCS	SPI/PV	505	32.9	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	506	32.9	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	507	31.4	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	508	32.0	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Inferred Fauna (1), Soft Sediment Fauna (2)	Soft Sediment Fauna (1)	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	509	32.6	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	510	32.9	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	511	33.2	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	512	34.5	3	Sand and Muddy Sand - Mobile	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	513	34.8	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	514	33.2	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	515	36.3	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	516	41.2	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	Inferred Fauna (3)	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	517	40.3	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	518	40.6	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	Trace (<1%)	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	519	41.5	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Small ripples	Soft Sediment Fauna (3)	Attached Fauna (2), Inferred Fauna (1)	Trace (<1%)	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	520	43.3	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	521	44.2	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	522	47.0	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	523	50.3	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	524	49.7	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	525	48.2	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	526	48.8	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	527	49.4	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	No	Yes

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWEC-OCS	SPI/PV	528	49.4	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	529	50.6	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	530	51.2	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	531	51.2	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	532	50.6	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	533	51.9	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	534	51.9	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	535	51.2	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	536	50.9	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	537	51.2	3	Mixed Sediment - Small Gravel & Sand	Sand with Pebbles/ Granules	Gravelly	Gravelly Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	538	51.9	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	539	52.8	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	540	54.6	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Inferred Fauna (1), Soft Sediment Fauna (2)	None	Trace (<1%)	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	541	55.2	2	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	Trace (<1%)	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	542	56.7	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	543	56.4	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	544	57.6	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	545	55.5	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	546	55.5	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	547	57.3	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWEC-OCS	SPI/PV	548	61.0	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	549	61.9	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	Sparse (1 to <30%)	None	Yes	No

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWEC-OCS	SPI/PV	550	66.5	3	Mud and Sandy Mud	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	551	67.1	2	Mud and Sandy Mud	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	552	67.7	2	Mud and Sandy Mud	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	553	68.3	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	554	65.0	1	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (1)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	555	65.0	1	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (1)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	556	65.0	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	557	66.8	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	558	65.6	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	559	65.0	1	Mud and Sandy Mud	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (1)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	560	65.3	1	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (1)	Inferred Fauna (1)	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	561	63.7	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	562	63.4	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	563	64.1	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	Inferred Fauna (1)	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	564	62.2	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	565	61.6	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	566	61.3	3	Mud and Sandy Mud	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	567	60.4	3	Mud and Sandy Mud	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	568	59.5	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	569	57.0	3	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	570	57.3	3	Mud and Sandy Mud	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	571	56.7	3	Mud and Sandy Mud	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	572	56.7	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Very Coarse Sand	Large ripples	Soft Sediment Fauna (2)	None	None	None	Yes	No

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWEC-OCS	SPI/PV	573	54.9	2	Sand and Muddy Sand	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	Yes	No
SRW_20B1	SRWEC-OCS	SPI/PV	574	54.3	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	575	53.7	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	576	53.1	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	577	54.3	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (2)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	578	53.4	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	641	65.6	3	Mud and Sandy Mud	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWEC-OCS	SPI/PV	642	65.0	3	Sand and Muddy Sand	Sand and Mud	Sand or finer	Very Fine Sand	None	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	701	45.4	3	Glacial Drift	Sand with Pebbles/ Granules	Gravelly	Gravelly Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	No
SRW_20B1	SRWF	SPI/PV	702	42.7	3	Glacial Drift	Patchy Cobbles and/ or Boulders on Sand	Gravelly	Gravelly Sand	Large ripples	Attached Fauna (2), Soft Sediment Fauna (1)	Attached Fauna (1), Soft Sediment Fauna (1)	Moderate (30 to <70%)	None	No	No
SRW_20B1	SRWF	SPI/PV	703	46.7	2	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	705	42.7	3	Glacial Drift	Sand with Pebbles/ Granules	Sand or finer	Coarse Sand	Large ripples	Soft Sediment Fauna (3)	Inferred Fauna (1)	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	707	46.7	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	708	44.2	3	Coarse Sediment - Mobile with Low Density Boulder Field	Patchy Cobbles and/ or Boulders on Sand	Gravelly	Gravelly Sand	Large ripples	Attached Fauna (2), Soft Sediment Fauna (1)	Inferred Fauna (1), Soft Sediment Fauna (2)	Sparse (1 to <30%)	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	710	43.0	3	Coarse Sediment - Mobile with Low Density Boulder Field	Sand with Ripples	Sand or finer	Fine Sand	Large ripples	Soft Sediment Fauna (3)	Attached Fauna (1), Inferred Fauna (1)	Sparse (1 to <30%)	None	No	Yes
SRW_20B1	SRWF	SPI/PV	712	45.4	3	Sand and Muddy Sand - with Low Density Boulder Field	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	713	40.9	3	Coarse Sediment - Mobile with Medium Density Boulder Field	Patchy Cobbles and/ or Boulders on Sand	Gravelly	Gravelly Sand	Small ripples	Attached Fauna (2), Soft Sediment Fauna (1)	None	Sparse (1 to <30%)	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	715	41.8	3	Glacial Drift	Patchy Cobbles and/ or Boulders on Sand	Gravelly	Gravelly Sand	Large ripples	Attached Fauna (1), Soft Sediment Fauna (2)	None	Dense (70 to <90%)	None	No	No
SRW_20B1	SRWF	SPI/PV	716	46.4	3	Glacial Drift	Patchy Cobbles and/ or Boulders on Sand	Gravel Mixes	Sandy Gravel	None	Attached Fauna (3)	Soft Sediment Fauna (2)	Dense (70 to <90%)	None	No	No

Survey ID	Area	Sample Type	Station ID	Water Depth (m)	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV CMECS Substrate Group	SPI/PV CMECS Substrate Subgroup[1]	PV Bedforms	PV CMECS Biotic Subclasses (# of reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV Predominant Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	PV Maximum Macroalgae and/or SAV Percent Cover	PV Burrow Presence	PV Tracks Presence
SRW_20B1	SRWF	SPI/PV	717	44.2	3	Glacial Drift	Patchy Cobbles and/ or Boulders on Sand	Sand or finer	Medium Sand	Large ripples	Attached Fauna (1), Soft Sediment Fauna (2)	Soft Sediment Fauna (1)	Moderate (30 to <70%)	None	No	Yes
SRW_20B1	SRWF	SPI/PV	720	46.7	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	721	44.5	3	Glacial Drift	Patchy Cobbles and/ or Boulders on Sand	Gravel Mixes	Sandy Gravel	None	Attached Fauna (3)	Soft Sediment Fauna (1)	Dense (70 to <90%)	None	No	No
SRW_20B1	SRWF	SPI/PV	723	47.6	3	Coarse Sediment - Mobile with Medium Density Boulder Field	Sand with Ripples	Sand or finer	Very Coarse Sand	Small ripples	Soft Sediment Fauna (2)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	724	53.1	3	Coarse Sediment - Mobile	Sand with Pebbles/ Granules	Sand or finer	Medium Sand	Large ripples	Inferred Fauna (1), Soft Sediment Fauna (2)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	725	53.1	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	Large ripples	Soft Sediment Fauna (3)	None	None	None	No	Yes
SRW_20B1	SRWF	SPI/PV	726	53.4	3	Coarse Sediment - Mobile	Sand and Mud with Ripples	Sand or finer	Silt/clay	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	727	52.8	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	Inferred Fauna (2)	None	None	Yes	Yes
SRW_20B1	SRWF	SPI/PV	729	52.8	2	Sand and Muddy Sand	Sand and Mud	Sand or finer	Silt/clay	None	Soft Sediment Fauna (2)	None	None	None	Yes	No
SRW_20B1	SRWF	SPI/PV	730	52.5	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Small ripples	Soft Sediment Fauna (3)	None	None	None	Yes	No
SRW_20B3	ICW HDD	PV	801	-	3	Sand and Muddy Sand - with Potential SAV	IND	Sand or finer	Sand or finer	None	Soft Sediment Fauna (3)	Attached Fauna (1)	Trace (<1%)	Sparse (1 to <30%)	No	No
SRW_20B3	ICW HDD	PV, Grab	802	-	3	Coarse Sediment	IND	Gravel Mixes	Sandy Gravel	None	Attached Fauna (3)	Soft Sediment Fauna (1)	Trace (<1%)	None	No	No
SRW_20B3	ICW HDD	PV	803	-	3	Sand and Muddy Sand	IND	Sand or finer	Sand or finer	Small ripples	Inferred Fauna (1), Soft Sediment Fauna (1)	None	None	Trace (<1%)	No	Yes
SRW_20B3	ICW HDD	PV	804	-	3	Sand and Muddy Sand - with Potential SAV	IND	Sand or finer	Sand or finer	None	Soft Sediment Fauna (3)	None	None	Sparse (1 to <30%)	No	No
SRW_20B3	ICW HDD	PV, Grab	805	-	3	Coarse Sediment	IND	Gravel Mixes	Sandy Gravel	None	Attached Fauna (3)	None	Trace (<1%)	Sparse (1 to <30%)	No	No
SRW_20B3	ICW HDD	PV	806	-	3	Sand and Muddy Sand	IND	Sand or finer	Sand or finer	Small ripples	None	None	None	Trace (<1%)	No	No
SRW_20B3	ICW HDD	PV	807	-	3	Sand and Muddy Sand	IND	Sand or finer	Sand or finer	None	Soft Sediment Fauna (1)	None	None	Trace (<1%)	No	No
SRW_20B3	ICW HDD	PV	808	-	3	Coarse Sediment	IND	Gravelly	Gravelly Sand	None	Attached Fauna (1)	None	Trace (<1%)	Trace (<1%)	No	No

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWF	SPI/PV	001	Yes	Sand Dollar(s)	None	None	3	5.8	3.1	Medium sand	Medium sand	Medium sand	IND	2 -> 3	3	IND
SRW_20B1	SRWF	SPI/PV	002	Yes	None	None	None	3	2.7	4.4	Coarse sand	Coarse sand	Coarse sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	003	No	Cerianthid(s)	Non Reef-Building Hard Coral	None	3	0.0	IND	Indeterminate	Indeterminate	Indeterminate	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	004	Yes	None	None	None	3	1.7	2.2	Fine sand	Finer sediment over medium sand	Silt/clay over fine sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	005	Yes	Sand Dollar(s)	None	None	3	4.5	1.5	Fine sand	Fine sand	Fine sand	2.77	2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	006	Yes	Sand Dollar(s)	None	None	3	4.4	3.9	Fine sand	Fine sand	Fine sand over silt/clay	3.70	2	2	2
SRW_20B1	SRWF	SPI/PV	007	Yes	Sand Dollar(s)	None	None	3	5.1	1.4	Medium sand	Medium sand	Medium sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	008	Yes	Sand Dollar(s)	None	None	3	4.0	2.3	Fine sand	Granule and sand mix	Silt/clay over fine sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	009	No	Sand Dollar(s)	None	None	3	3.6	2.8	Coarse sand over finer sediment	Coarse sand over finer sediment	Fine sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	010	Yes	Sand Dollar(s)	None	None	3	3.8	1.0	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	011	Yes	Sand Dollar(s)	None	None	3	2.9	2.1	Fine sand	Fine sand	Fine sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	012	Yes	-	-	-	3	4.1	2.2	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	013	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	3.8	3.0	Medium sand	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	014	Yes	None	None	None	3	5.0	2.8	Finer sediment over coarse sand	Very coarse sand	Very coarse sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	015	Yes	None	None	None	3	3.5	2.2	Silt/clay over very coarse sand	Very coarse sand	Very coarse sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	016	Yes	None	None	None	3	7.0	5.8	Very coarse sand	Very coarse sand	Very coarse sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	017	Yes	Cerianthid(s)	None	None	3	1.8	2.1	Silt/clay over granule	Very coarse sand	Very coarse sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	018	Yes	None	None	None	3	3.0	3.9	Silt/clay over very coarse sand	Very coarse sand	Very coarse sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	019	Yes	None	None	None	3	6.1	4.7	Coarse sand	Finer sediment over coarse sand	Finer sediment over coarse sand	IND	2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	020	Yes	None	None	None	3	7.1	1.7	Silt/clay	Very fine sand	Very fine sand	3.79	2 -> 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	021	Yes	None	None	None	3	7.8	0.8	Very fine sand	Very fine sand	Very fine sand	4.08	2 -> 3	2 -> 3	2 -> 3

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWF	SPI/PV	022	Yes	None	None	None	3	4.2	3.6	Coarse sand and finer sediment mix	Coarse sand and finer sediment mix	Very coarse sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	023	Yes	None	None	None	3	3.9	3.9	Indeterminate	Very coarse sand over sand	Very coarse sand over sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	024	No	None	None	None	3	5.1	2.5	Coarse sand over finer sediment	Medium sand and finer sediment mix	Medium sand and finer sediment mix	IND	1 -> 2	1 -> 2	1-> 2
SRW_20B1	SRWF	SPI/PV	025	No	None	None	None	3	3.6	1.4	Finer sediment over medium sand	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	026	Yes	Sand Dollar(s)	None	None	3	6.1	2.1	Finer sediment over medium sand	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	027	Yes	Sand Dollar(s)	None	None	3	5.6	1.7	Coarse sand over finer sediment	Finer sediment over medium sand	Medium sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	028	No	Sand Dollar(s)	None	None	3	3.9	3.1	Medium sand	Medium sand	Medium sand	IND	1 -> 2	1 -> 2	IND
SRW_20B1	SRWF	SPI/PV	029	Yes	Sand Dollar(s)	None	None	3	4.8	1.3	Finer sediment over medium sand	Medium sand	Medium sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	030	Yes	Sand Dollar(s)	None	None	3	4.2	3.4	Finer sediment over medium sand	Medium sand	Medium sand	IND	1 -> 2	1 -> 2	2
SRW_20B1	SRWF	SPI/PV	031	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	10.4	2.9	Coarse sand	Medium sand	Medium sand	IND	2	IND	IND
SRW_20B1	SRWF	SPI/PV	032	No	None	None	None	3	6.6	1.1	Coarse sand	Coarse sand	Coarse sand over finer sediment	IND	2 -> 3	IND	IND
SRW_20B1	SRWF	SPI/PV	033	Yes	Cerianthid(s)	None	Sea Scallop	3	3.2	3.7	Granule	Granule	Granule	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	034	Yes	None	None	None	3	4.0	0.8	Fine sand	Fine sand	Fine sand	2.89	2	2	2
SRW_20B1	SRWF	SPI/PV	035	Yes	Cerianthid(s)	None	None	3	4.3	4.8	Coarse sand and finer sediment mix	Medium sand	Medium sand	IND	1 -> 2	2	2
SRW_20B1	SRWF	SPI/PV	036	Yes	None	None	None	3	4.9	2.2	Fine sand	Fine sand	Fine sand and silt/clay mix	3.49	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWF	SPI/PV	037	Yes	None	None	None	3	3.4	1.7	Fine sand	Fine sand	Fine sand	IND	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	038	Yes	Cerianthid(s)	None	None	3	4.9	3.1	Very coarse sand	Very coarse sand	Very coarse sand over sand	IND	2 -> 3	2 -> 3	IND
SRW_20B1	SRWF	SPI/PV	039	Yes	None	None	None	3	5.0	0.7	Very fine sand	Very fine sand	Very fine sand	IND	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWF	SPI/PV	040	Yes	None	None	None	3	4.6	0.9	Very fine sand	Very fine sand	Very fine sand	3.10	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWF	SPI/PV	041	Yes	None	None	None	3	4.2	2.5	Fine sand	Fine sand	Fine sand	IND	1 -> 2	2	2
SRW_20B1	SRWF	SPI/PV	042	Yes	None	None	None	3	3.6	1.7	Fine sand	Fine sand	Fine sand	IND	2	2	2

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWF	SPI/PV	043	Yes	None	None	None	3	3.0	2.1	Medium sand	Medium sand	Medium sand and finer sediment mix	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	044	Yes	Sand Dollar(s)	None	None	3	4.2	5.1	Finer sediment over medium sand	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	045	Yes	Sand Dollar(s)	None	None	3	8.1	3.6	Coarse sand and finer sediment mix	Coarse sand and finer sediment mix	Coarse sand over finer sediment	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	046	No	Sand Dollar(s)	None	None	3	4.5	2.3	Coarse sand over finer sediment	Coarse sand over finer sediment	Finer sediment over medium sand	IND	2	IND	IND
SRW_20B1	SRWF	SPI/PV	047	No	Cerianthid(s) and Sand Dollar(s)	None	None	3	9.7	3.4	Coarse sand over finer sediment	Coarse sand over finer sediment	Medium sand	IND	2	IND	IND
SRW_20B1	SRWF	SPI/PV	048	Yes	Sand Dollar(s)	None	None	3	6.8	4.0	Fine sand	Fine sand	Medium sand	IND	2	IND	IND
SRW_20B1	SRWF	SPI/PV	049	No	None	None	None	3	6.1	4.0	Coarse sand	Coarse sand	Coarse sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	050	Yes	None	None	None	3	2.8	1.2	Very fine sand	Very fine sand	Very fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	051	Yes	Sand Dollar(s)	None	None	3	3.9	1.0	Very fine sand	Very fine sand	Very fine sand	2.65	2	2	2
SRW_20B1	SRWF	SPI/PV	052	Yes	None	None	None	3	4.4	2.3	Very fine sand	Very fine sand	Very fine sand	3.44	2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	053	Yes	None	None	None	3	3.3	2.4	Medium sand and finer sediment mix	Silt/clay over very fine sand	Silt/clay over very fine sand	3.30	1 -> 2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	054	Yes	None	None	None	3	6.4	1.0	Very fine sand	Very fine sand	Very fine sand	3.49	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	055	Yes	Cerianthid(s)	None	None	3	6.6	1.5	Very fine sand	Very fine sand	Very fine sand	2.72	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	056	Yes	None	None	None	3	6.7	1.1	Very fine sand	Very fine sand	Very fine sand	3.28	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	057	Yes	None	None	None	3	3.4	3.9	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	058	Yes	None	None	None	3	4.5	1.8	Fine sand	Fine sand	Medium sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	059	Yes	Cerianthid(s)	None	Sea Scallop	3	5.9	4.3	Silt/clay over very coarse sand	Very coarse sand	Very coarse sand	IND	1 -> 2	2	2
SRW_20B1	SRWF	SPI/PV	060	Yes	Sand Dollar(s)	None	None	3	3.8	3.4	Fine sand	Fine sand	Fine sand	IND	2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	061	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	8.9	4.4	Coarse sand over finer sediment	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	062	Yes	Sand Dollar(s)	None	None	3	5.5	4.0	Coarse sand and finer sediment mix	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	063	Yes	Sand Dollar(s)	None	None	3	3.1	0.9	Very fine sand	Very fine sand	Very fine sand	2.02	2	2	2

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWF	SPI/PV	064	Yes	None	None	None	3	3.7	3.4	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	065	Yes	None	None	None	3	2.5	1.4	Very fine sand	Very fine sand	Very fine sand	2.52	2	2	2
SRW_20B1	SRWF	SPI/PV	066	Yes	-	-	-	3	5.6	0.8	Very fine sand over silt/clay	Very fine sand over silt/clay	Very fine sand over silt/clay	3.80	2	2	2
SRW_20B1	SRWF	SPI/PV	067	Yes	-	-	-	3	2.8	1.2	Very fine sand	Very fine sand	Very fine sand	1.81	2	2	2
SRW_20B1	SRWF	SPI/PV	068	Yes	None	None	None	3	4.4	1.4	Very fine sand	Very fine sand	Very fine sand	2.41	2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	069	Yes	None	None	None	3	3.7	0.8	Very fine sand	Very fine sand	Very fine sand	2.32	2	2	2
SRW_20B1	SRWF	SPI/PV	070	Yes	None	None	None	3	4.9	1.3	Very fine sand	Very fine sand	Very fine sand	2.44	2	2	2
SRW_20B1	SRWF	SPI/PV	071	Yes	Sabellid	None	None	3	6.2	0.7	Very fine sand	Very fine sand	Very fine sand	IND	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	072	Yes	Sabellid	None	None	3	8.4	1.1	Very fine sand	Very fine sand	Very fine sand	3.34	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	073	Yes	None	None	None	3	7.3	1.5	Very fine sand	Very fine sand	Very fine sand	3.42	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	074	Yes	None	None	None	3	4.3	1.1	Very fine sand	Very fine sand	Very fine sand	IND	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	075	Yes	None	None	None	3	8.0	1.0	Very fine sand	Very fine sand	Very fine sand over silt/clay	2.64	2 -> 3	2 -> 3	1 on 3
SRW_20B1	SRWF	SPI/PV	076	Yes	None	None	None	3	2.9	3.3	Fine sand	Fine sand	Medium sand and finer sediment mix	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	077	Yes	Cerianthid(s)	None	None	3	9.6	1.3	Very fine sand	Very fine sand	Very fine sand	2.89	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	078	Yes	None	None	None	3	6.0	1.6	Medium sand	Medium sand	Silt/clay over fine sand	IND	2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	079	Yes	None	None	None	3	3.5	1.1	Fine sand	Fine sand	Silt/clay over fine sand	IND	1 -> 2	1 -> 2	2
SRW_20B1	SRWF	SPI/PV	080	Yes	None	None	Sea Scallop	3	3.3	1.4	Fine sand and silt/clay mix	Fine sand and silt/clay mix	Fine sand and silt/clay mix	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	081	Yes	None	None	None	3	4.2	2.8	Very fine sand	Very fine sand	Very fine sand	3.76	2	2	2
SRW_20B1	SRWF	SPI/PV	082	No	None	None	Sea Scallop	3	3.7	3.4	Medium sand	Very coarse sand and sand mix	Very coarse sand over sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	083	Yes	None	None	None	3	3.3	1.7	Fine sand over very fine sand	Very fine sand	Very fine sand	1.53	2	2	2 on 3
SRW_20B1	SRWF	SPI/PV	084	Yes	Sabellid	None	None	3	2.8	1.6	Very fine sand	Very fine sand	Very fine sand	2.20	2	2	IND
SRW_20B1	SRWF	SPI/PV	085	Yes	None	Non Reef-Building Hard Coral	Sea Scallop	3	1.5	2.6	Medium sand	Medium sand	Medium sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	086	Yes	None	None	None	3	5.4	1.6	Fine sand	Fine sand	Fine sand	3.48	2	2	2

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWF	SPI/PV	087	Yes	None	None	None	3	5.4	1.3	Very fine sand	Very fine sand	Very fine sand	2.87	2	2 -> 3	2 on 3
SRW_20B1	SRWF	SPI/PV	088	Yes	None	None	None	3	3.3	1.4	Fine sand	Fine sand	Fine sand	1.93	2	2	2
SRW_20B1	SRWF	SPI/PV	089	Yes	None	None	None	3	3.0	1.9	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	090	Yes	None	None	None	3	4.6	2.3	Very fine sand	Very fine sand	Very fine sand	2.41	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	091	Yes	None	None	None	3	3.9	1.7	Very fine sand	Very fine sand	Very fine sand	3.01	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	092	Yes	Sabellid	None	None	3	8.4	0.8	Very fine sand	Very fine sand	Very fine sand	3.54	2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	093	Yes	Cerianthid(s)	None	None	3	8.4	0.9	Very fine sand	Very fine sand	Very fine sand	1.90	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	094	Yes	None	None	None	3	4.7	3.0	Fine sand	Fine sand	Fine sand	3.21	2	2	2
SRW_20B1	SRWF	SPI/PV	095	Yes	Sabellid	None	None	3	6.9	0.9	Very fine sand over silt/clay	Very fine sand over silt/clay	Very fine sand over silt/clay	4.03	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWF	SPI/PV	096	Yes	None	None	None	3	3.8	2.2	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	097	Yes	Sabellid	None	None	3	10.0	1.4	Very fine sand over silt/clay	Very fine sand over silt/clay	Very fine sand over silt/clay	2.59	2 -> 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	098	Yes	Sabellid	None	Sea Scallop	3	12.2	1.2	Very fine sand	Very fine sand	Very fine sand over silt/clay	3.40	2 -> 3	1 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	099	Yes	Sabellid	None	None	3	8.1	2.9	Very fine sand	Very fine sand	Very fine sand	IND	2	2 -> 3	2 on 3
SRW_20B1	SRWF	SPI/PV	100	Yes	Sabellid	None	Sea Scallop	3	9.6	1.3	Very fine sand	Very fine sand	Very fine sand	3.68	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	101	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	6.4	3.3	Coarse sand over finer sediment	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	102	Yes	Cerianthid(s)	None	None	3	4.7	4.2	Medium sand	Medium sand	Medium sand	IND	1 -> 2	1 -> 2	1-> 2
SRW_20B1	SRWF	SPI/PV	103	Yes	Cerianthid(s)	None	None	3	11.2	0.9	Very fine sand	Very fine sand	Very fine sand	2.70	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	104	Yes	Sabellid	None	None	3	10.3	1.3	Very fine sand	Very fine sand	Very fine sand	IND	1 on 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	105	Yes	Sabellid	None	None	3	8.3	1.2	Very fine sand	Very fine sand	Very fine sand	3.00	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	106	Yes	Sabellid	None	None	3	8.8	1.2	Very fine sand	Very fine sand	Very fine sand	2.35	2 -> 3	1 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	107	Yes	Cerianthid(s)	None	None	3	10.2	1.2	Very fine sand	Very fine sand	Very fine sand	3.44	2 on 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	108	Yes	None	None	None	3	5.5	2.8	Coarse sand over finer sediment	Medium sand	Medium sand over finer sediment	IND	2	2	2 on 3
SRW_20B1	SRWF	SPI/PV	109	Yes	Cerianthid(s)	None	None	3	10.5	0.6	Very fine sand	Very fine sand	Very fine sand	2.56	2 -> 3	2 -> 3	2 -> 3

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWF	SPI/PV	110	Yes	Cerianthid(s)	None	None	3	11.4	2.1	Very fine sand	Very fine sand	Very fine sand	2.18	2 -> 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	111	Yes	None	None	None	3	6.4	1.1	Coarse sand over finer sediment	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	112	Yes	None	None	None	3	3.6	3.0	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	113	Yes	None	None	None	3	4.8	4.8	Medium sand	Medium sand	Medium sand	IND	1	1	2
SRW_20B1	SRWF	SPI/PV	114	Yes	None	None	None	3	13.7	1.7	Very fine sand	Very fine sand	Very fine sand	3.39	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWF	SPI/PV	115	Yes	None	None	None	3	5.2	1.6	Fine sand	Fine sand	Fine sand	IND	1 -> 2	2	2
SRW_20B1	SRWF	SPI/PV	116	Yes	Cerianthid(s)	None	None	3	11.5	4.2	Coarse sand	Very coarse sand and sand mix	Very coarse sand and sand mix	IND	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	118	Yes	Cerianthid(s)	None	None	3	10.5	0.6	Very fine sand	Very fine sand	Very fine sand	3.24	2 on 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	120	Yes	Cerianthid(s)	None	Sea Scallop	3	11.7	1.2	Very fine sand	Very fine sand	Very fine sand	2.39	2 -> 3	1 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	121	Yes	Cerianthid(s)	None	Sea Scallop	3	9.8	1.1	Very fine sand	Very fine sand	Very fine sand	2.09	2 -> 3	1 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	128	Yes	None	None	None	3	10.0	0.9	Very fine sand	Very fine sand	Very fine sand	2.41	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	129	Yes	None	None	None	3	10.1	1.8	Very fine sand	Very fine sand	Very fine sand	IND	2 -> 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	130	Yes	Sand Dollar(s)	None	Ocean Quahog	3	4.6	2.4	Fine sand	Fine sand	Fine sand	IND	2	2	1 on 3
SRW_20B1	SRWF	SPI/PV	131	Yes	None	None	None	3	5.7	1.3	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	132	Yes	None	None	None	3	6.1	5.7	Coarse sand over finer sediment	Medium sand	Medium sand	IND	1 -> 2	1 -> 2	2
SRW_20B1	SRWF	SPI/PV	135	Yes	None	None	None	3	6.6	1.2	Very fine sand	Very fine sand	Very fine sand	2.62	2	2 -> 3	2 on 3
SRW_20B1	SRWF	SPI/PV	136	Yes	None	None	None	3	4.0	1.9	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	201	Yes	None	None	None	3	4.9	1.5	Fine sand	Fine sand	Fine sand	IND	1 -> 2	1 -> 2	2
SRW_20B1	SRWF	SPI/PV	206	Yes	None	None	None	3	4.7	1.9	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	207	Yes	None	None	None	3	5.2	4.0	Granule and silt/clay mix	Granule over sand	Very coarse sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	208	Yes	None	None	None	3	9.0	0.8	Silt/clay over very fine sand	Silt/clay over very fine sand	Silt/clay over very fine sand	4.42	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	209	Yes	None	None	None	3	3.5	2.5	Fine sand	Fine sand	Fine sand	IND	2	2	2

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWF	SPI/PV	210	Yes	None	None	None	3	1.8	2.4	Coarse sand	Medium sand	Pebble	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	211	Yes	None	None	None	3	5.1	5.1	Granule	Medium sand	Very coarse sand over sand	IND	2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	215	Yes	None	None	None	3	5.5	0.8	Very fine sand	Very fine sand	Very fine sand	3.98	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	216	Yes	None	None	None	3	9.4	2.8	Medium sand	Very coarse sand	Very coarse sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	220	Yes	None	None	None	3	4.2	3.1	Coarse sand	Very coarse sand	Very coarse sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	223	Yes	None	None	None	3	4.4	1.8	Fine sand	Fine sand	Fine sand	2.73	2	2	2
SRW_20B1	SRWF	SPI/PV	224	Yes	None	None	None	3	5.4	1.2	Fine sand	Very fine sand	Very fine sand	2.49	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	225	Yes	None	None	None	3	5.9	1.2	Very fine sand	Very fine sand	Very fine sand	3.21	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	226	Yes	None	None	None	3	3.6	1.0	Very fine sand	Very fine sand	Very fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	227	Yes	Cerianthid(s)	Non Reef-Building Hard Coral	None	3	0.1	1.0	Indeterminate	Indeterminate	Indeterminate	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	228	Yes	Cerianthid(s)	None	None	3	6.2	1.7	Silt/clay over very coarse sand	Very coarse sand	Very coarse sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	229	Yes	None	None	None	3	10.4	2.9	Very coarse sand	Very coarse sand	Very coarse sand	IND	2	IND	IND
SRW_20B1	SRWF	SPI/PV	230	Yes	None	None	None	3	4.1	3.2	Very coarse sand	Very coarse sand	Very coarse sand and sand mix	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	231	Yes	Cerianthid(s)	None	None	3	2.7	2.6	Very coarse sand	Very coarse sand	Very coarse sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	232	Yes	None	None	None	3	3.5	1.2	Very fine sand	Very fine sand	Very fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	233	Yes	-	-	-	3	7.4	1.0	Silt/clay over very fine sand	Silt/clay over very fine sand	Very fine sand	4.70	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	234	Yes	Sand Dollar(s)	None	None	3	2.2	1.6	Granule	Granule and sand mix	Granule and sand mix	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	236	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	3.5	2.3	Fine sand	Fine sand	Fine sand	IND	2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	237	Yes	None	None	None	3	4.4	0.7	Very fine sand	Very fine sand	Very fine sand	IND	2 -> 3	2 -> 3	2 on 3

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWF	SPI/PV	239	Yes	Sabellid	None	None	3	8.1	1.4	Fine sand	Fine sand	Silt/clay	4.81	2 on 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	243	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	6.1	3.0	Coarse sand over finer sediment	Fine sand	Silt/clay over fine sand	3.56	2	IND	IND
SRW_20B1	SRWF	SPI/PV	245	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	6.8	2.9	Silt/clay over very coarse sand	Silt/clay over very coarse sand	Very coarse sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	246	Yes	None	None	None	3	5.5	2.5	Coarse sand	Very coarse sand over sand	Very coarse sand over sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	248	Yes	None	None	None	3	3.7	1.5	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	249	Yes	None	None	None	3	5.3	1.1	Silt/clay	Very fine sand	Very fine sand	4.74	2	2	2 on 3
SRW_20B1	SRWF	SPI/PV	250	Yes	Sabellid and Sand Dollar(s)	None	None	3	13.1	0.8	Silt/clay	Silt/clay	Silt/clay	5.16	2 -> 3	1 on 3	1 on 3
SRW_20B1	SRWF	SPI/PV	251	Yes	None	None	None	3	4.1	1.9	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	252	Yes	None	None	None	3	3.7	1.5	Very fine sand	Very fine sand	Very fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	253	No	None	None	None	3	5.9	4.4	Silt/clay over very coarse sand	Very coarse sand	Very coarse sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	254	Yes	None	None	None	3	4.4	2.3	Finer sediment over medium sand	Finer sediment over medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	255	Yes	Sand Dollar(s)	None	None	3	4.3	1.8	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	256	Yes	Sand Dollar(s)	None	None	3	0.9	1.3	Medium sand	Medium sand	Silt/clay	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	260	Yes	None	None	None	3	3.6	1.4	Fine sand	Fine sand	Fine sand	3.09	2	2	2
SRW_20B1	SRWF	SPI/PV	261	Yes	None	None	None	3	3.7	1.2	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	262	Yes	None	None	None	3	3.6	2.1	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	263	Yes	None	None	None	3	14.7	1.0	Silt/clay	Silt/clay	Silt/clay	1.23	1	2 -> 3	1 on 3
SRW_20B1	SRWF	SPI/PV	264	Yes	None	None	None	3	2.4	2.0	Coarse sand	Coarse sand	Coarse sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	266	Yes	-	-	-	3	5.0	0.9	Very fine sand	Very fine sand	Very fine sand	IND	2	2 -> 3	2 on 3
SRW_20B1	SRWF	SPI/PV	267	Yes	None	None	None	3	5.7	0.9	Very fine sand	Very fine sand	Very fine sand	3.77	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	268	Yes	None	None	None	3	4.8	1.2	Very fine sand	Very fine sand	Very fine sand	3.69	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	269	Yes	None	None	None	3	8.0	4.1	Medium sand	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	270	Yes	None	None	None	3	4.3	1.4	Fine sand	Fine sand	Fine sand	IND	2	2	2

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWF	SPI/PV	271	Yes	-	-	-	3	5.9	1.2	Very fine sand	Very fine sand over silt/clay	Very fine sand over silt/clay	1.58	2	2 -> 3	2 on 3
SRW_20B1	SRWF	SPI/PV	272	No	None	None	None	3	1.8	1.6	Coarse sand	Coarse sand	Indeterminate	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	273	No	Sand Dollar(s)	None	None	3	7.3	4.4	Medium sand	Medium sand	Very coarse sand over sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	274	Yes	Sand Dollar(s)	None	None	3	4.5	1.9	Fine sand	Fine sand	Fine sand	2.95	2	2	IND
SRW_20B1	SRWF	SPI/PV	275	Yes	None	None	None	3	3.8	1.8	Very fine sand	Very fine sand	Very fine sand	2.75	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	276	Yes	None	None	None	3	5.2	0.9	Very fine sand	Very fine sand	Very fine sand	IND	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	278	Yes	None	None	None	3	3.0	1.5	Very fine sand	Very fine sand	Very fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	279	Yes	None	None	None	3	2.6	1.9	Very fine sand	Very fine sand	Very fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	280	Yes	None	None	None	3	4.3	1.6	Fine sand	Fine sand	Very fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	281	Yes	None	None	None	3	2.6	1.3	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	282	Yes	None	None	None	3	3.3	2.5	Fine sand	Fine sand	Fine sand	IND	2	2	IND
SRW_20B1	SRWF	SPI/PV	284	Yes	None	None	None	3	4.5	1.2	Fine sand	Fine sand over very fine sand	Fine sand over very fine sand	2.68	2	2	2 on 3
SRW_20B1	SRWF	SPI/PV	285	Yes	None	None	None	3	5.8	1.1	Very fine sand	Very fine sand	Very fine sand	2.15	2	2	2
SRW_20B1	SRWF	SPI/PV	286	Yes	Sand Dollar(s)	None	None	3	4.4	2.0	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	287	Yes	None	None	None	3	3.0	1.7	Very fine sand	Very fine sand	Very fine sand	1.61	2	2	2
SRW_20B1	SRWF	SPI/PV	289	Yes	None	None	None	3	4.6	6.7	Coarse sand over finer sediment	Coarse sand over finer sediment	Medium sand	IND	2	2	2 -> 3
SRW_20B2	SRWEC-NYS	SPI/PV	401	Yes	Diopatra and Sand Dollar(s)	None	None	3	5.3	1.1	Fine sand	Fine sand	Fine sand	IND	2 -> 3	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	402	No	Sand Dollar(s)	None	None	3	6.2	1.8	Fine sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV	403	No	Sand Dollar(s)	None	None	3	4.7	1.1	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	404	Yes	Sand Dollar(s)	None	None	3	4.0	0.8	Fine sand	Fine sand	Fine sand	IND	2	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV	405	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	3.9	1.0	Fine sand	Fine sand	Fine sand	IND	2	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	406	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	3.0	0.8	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B2	SRWEC-NYS	SPI/PV	407	No	Cerianthid(s) and Sand Dollar(s)	None	None	3	2.8	1.0	Very fine sand	Very fine sand	Very fine sand	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	408	No	Cerianthid(s) and Sand Dollar(s)	None	None	3	3.6	1.0	Very fine sand	Very fine sand	Very fine sand	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV	409	No	Cerianthid(s) and Sand Dollar(s)	None	None	3	3.7	0.9	Very fine sand	Very fine sand	Very fine sand	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	410	No	Cerianthid(s) and Sand Dollar(s)	None	None	3	3.1	1.3	Very fine sand	Very fine sand	Very fine sand	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV	411	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	3.8	1.5	Very fine sand	Very fine sand	Very fine sand	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	412	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	4.0	1.2	Very fine sand	Very fine sand	Very fine sand	IND	2 -> 3	2 -> 3	IND
SRW_20B2	SRWEC-NYS	SPI/PV	413	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	3.8	1.1	Fine sand	Fine sand	Fine sand	IND	2	2 -> 3	2 -> 3
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	414	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	3.2	1.2	Very fine sand	Very fine sand	Very fine sand	IND	2 -> 3	2 -> 3	2 -> 3
SRW_20B2	SRWEC-NYS	SPI/PV	415	Yes	Sand Dollar(s)	None	None	3	6.4	1.6	Medium sand	Medium sand	Medium sand	IND	1 -> 2	2	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	416	Yes	Sand Dollar(s)	None	None	3	5.6	1.1	Fine sand	Fine sand	Fine sand	IND	1 -> 2	2	2
SRW_20B2	SRWEC-NYS	SPI/PV	417	Yes	None	None	None	3	5.0	1.2	Fine sand	Fine sand	Fine sand	IND	1 -> 2	1 -> 2	1 -> 2
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	418	Yes	Sand Dollar(s)	None	None	3	4.2	1.1	Fine sand	Fine sand	Fine sand	IND	1 -> 2	1 -> 2	2
SRW_20B2	SRWEC-NYS	SPI/PV	419	Yes	Diopatra	None	None	3	6.9	1.2	Silt/clay over very fine sand	Very fine sand	Very fine sand over silt/clay	5.36	1 -> 2	2	2 -> 3
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	420	Yes	Sand Dollar(s)	None	None	3	3.5	0.8	Fine sand	Fine sand	Very fine sand	IND	2	2	2
SRW_20B2	SRWEC-NYS	SPI/PV	421	Yes	None	None	None	3	6.2	1.9	Finer sediment over medium sand	Medium sand	Medium sand over finer sediment	IND	1 -> 2	1 -> 2	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	422	Yes	Sand Dollar(s)	None	None	3	4.1	1.2	Very fine sand	Very fine sand	Very fine sand	IND	2	2	2

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	423	Yes	Diopatra	None	None	3	5.2	1.3	Very fine sand	Very fine sand	Very fine sand	IND	2	2	2
SRW_20B2	SRWEC-NYS	SPI/PV	424	No	IND	IND	IND	3	6.1	0.9	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	425	Yes	Diopatra	IND	IND	3	3.8	2.7	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B2	SRWEC-NYS	SPI/PV	426	Yes	IND	IND	IND	3	3.2	1.5	Fine sand	Fine sand	Fine sand	IND	2	2	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	427	No	None	None	None	3	5.2	3.8	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV	428	Yes	IND	IND	IND	3	5.2	1.4	Fine sand	Fine sand	Fine sand	IND	1 -> 2	2	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	429	Yes	IND	IND	IND	3	6.4	1.4	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B2	SRWEC-NYS	SPI/PV	430	Yes	Diopatra	None	None	3	3.3	1.5	Very fine sand	Very fine sand	Very fine sand	IND	2	2	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	431	Yes	None	None	None	3	3.0	1.3	Fine sand	Fine sand	Very fine sand	IND	2	2	2
SRW_20B2	SRWEC-NYS	SPI/PV	432	Yes	Diopatra	None	None	3	6.1	1.7	Fine sand	Fine sand	Medium sand	IND	2	2	2
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	433	Yes	Sand Dollar(s)	IND	IND	3	2.4	1.2	Fine sand	Very fine sand	Very fine sand	IND	2	2	IND
SRW_20B2	SRWEC-NYS	SPI/PV	434	Yes	-	-	-	3	2.4	2.3	Very fine sand	Very fine sand	Very fine sand	IND	2	2	IND
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	435	Yes	Diopatra and Sand Dollar(s)	None	None	3	5.4	2.0	Fine sand	Fine sand	Fine sand	IND	2	IND	IND
SRW_20B2	SRWEC-OCS	SPI/PV	440	Yes	Sand Dollar(s)	None	None	3	3.9	0.7	Fine sand	Fine sand	Fine sand	IND	2	IND	IND
SRW_20B2	SRWEC-OCS	SPI/PV	441	Yes	Sand Dollar(s)	None	None	3	5.3	1.7	Medium sand	Medium sand	Medium sand	IND	1 -> 2	1 -> 2	IND
SRW_20B2	SRWEC-OCS	SPI/PV	442	Yes	Sand Dollar(s)	None	None	3	5.7	2.0	Medium sand	Medium sand	Medium sand	IND	1	1	2
SRW_20B2	SRWEC-OCS	SPI/PV	443	Yes	Sand Dollar(s)	None	None	3	8.9	1.3	Medium sand	Medium sand	Medium sand	IND	1 -> 2	1 -> 2	1 -> 2
SRW_20B1	SRWEC-OCS	SPI/PV	501	Yes	Diopatra and Sand Dollar(s)	None	None	3	3.5	2.1	Very fine sand	Very fine sand	Very fine sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	502	Yes	Sand Dollar(s)	None	None	3	3.3	1.6	Very fine sand	Very fine sand	Very fine sand	2.71	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	503	Yes	Diopatra and Sand Dollar(s)	None	None	3	3.7	2.1	Very fine sand	Very fine sand	Very fine sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	504	No	Sand Dollar(s)	None	None	3	3.1	1.4	Very fine sand	Very fine sand	Very fine sand	IND	IND	IND	IND

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWEC-OCS	SPI/PV	505	Yes	Sand Dollar(s)	None	None	3	2.2	1.2	Very fine sand	Very fine sand	Very fine sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	506	Yes	Sand Dollar(s)	None	None	3	6.4	1.7	Fine sand	Fine sand	Fine sand	1.87	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	507	No	Sand Dollar(s)	None	None	3	5.1	3.0	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	508	No	Sand Dollar(s)	None	None	3	5.3	2.0	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	509	No	Sand Dollar(s)	None	None	3	5.0	2.9	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	510	Yes	Diopatra and Sand Dollar(s)	None	None	3	3.7	3.2	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	511	Yes	Sand Dollar(s)	None	None	3	5.0	3.4	Fine sand	Fine sand	Medium sand over finer sediment	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	512	No	Sand Dollar(s)	None	None	3	4.0	1.8	Fine sand	Very fine sand	Very fine sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	513	No	Sand Dollar(s)	None	None	3	3.9	2.3	Fine sand	Fine sand	Medium sand over finer sediment	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	514	Yes	Sand Dollar(s)	None	None	3	4.7	3.2	Fine sand	Fine sand	Fine sand	IND	2	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	515	No	Sand Dollar(s)	None	None	3	4.6	1.4	Fine sand	Indeterminate	Indeterminate	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	516	No	Sand Dollar(s)	None	None	3	4.3	2.6	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	517	No	Sand Dollar(s)	None	None	3	5.7	3.2	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	518	Yes	Sand Dollar(s)	None	None	3	4.9	4.7	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	519	Yes	Sand Dollar(s)	None	None	3	4.2	2.9	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	520	No	Sand Dollar(s)	None	None	3	5.3	3.1	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	521	No	Sand Dollar(s)	None	None	3	4.5	1.5	Fine sand	Fine sand	Fine sand and silt/clay mix	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	522	No	Sand Dollar(s)	None	None	3	5.3	3.0	Fine sand	Fine sand	Fine sand	IND	1	1	1
SRW_20B1	SRWEC-OCS	SPI/PV	523	Yes	Sand Dollar(s)	None	None	3	5.3	1.1	Very fine sand	Very fine sand	Very fine sand	2.63	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	524	Yes	Sand Dollar(s)	None	None	3	3.8	1.4	Very fine sand	Very fine sand	Very fine sand	2.18	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	525	Yes	Sand Dollar(s)	None	None	3	4.0	1.4	Very fine sand	Very fine sand	Very fine sand	2.36	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	526	Yes	Sand Dollar(s)	None	None	3	3.5	1.5	Very fine sand	Very fine sand	Very fine sand	1.85	2	2	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	527	Yes	None	None	None	3	3.2	2.0	Fine sand	Very fine sand	Very fine sand	1.96	1 -> 2	2	2

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWEC-OCS	SPI/PV	528	Yes	None	None	None	3	4.2	1.2	Fine sand	Fine sand	Fine sand	2.37	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	529	Yes	None	None	None	3	5.6	1.2	Fine sand	Fine sand	Fine sand	2.36	1 -> 2	1 -> 2	2
SRW_20B1	SRWEC-OCS	SPI/PV	530	Yes	None	None	None	3	4.0	2.0	Fine sand	Fine sand	Fine sand over silt/clay	2.46	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	531	Yes	Sand Dollar(s)	None	None	3	5.9	1.1	Fine sand	Medium sand	Medium sand	2.50	1 -> 2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	532	Yes	Sand Dollar(s)	None	None	3	5.0	1.7	Fine sand	Fine sand	Fine sand and silt/clay mix	2.57	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	533	Yes	Sand Dollar(s)	None	None	3	4.5	2.0	Fine sand	Fine sand	Fine sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	534	Yes	Sand Dollar(s)	None	Sea Scallop	3	4.0	2.4	Medium sand	Medium sand	Medium sand	IND	2	2	IND
SRW_20B1	SRWEC-OCS	SPI/PV	535	No	Sand Dollar(s)	None	None	3	3.9	1.8	Coarse sand and finer sediment mix	Coarse sand and finer sediment mix	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	536	No	Sand Dollar(s)	None	None	3	5.0	1.8	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	537	Yes	Sand Dollar(s)	None	None	3	5.3	1.4	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	538	No	Sand Dollar(s)	None	None	3	3.9	2.7	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	539	Yes	Cerianthid(s) and Sand Dollar(s)	None	None	3	2.9	2.8	Medium sand	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	540	Yes	Sand Dollar(s)	None	Sea Scallop	3	1.0	1.7	Finer sediment over medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	541	Yes	None	None	None	3	3.8	1.5	Fine sand	Very fine sand	Very fine sand	IND	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	542	Yes	None	None	None	3	4.8	0.9	Very fine sand	Very fine sand	Very fine sand	3.49	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	543	Yes	None	None	None	3	2.7	1.3	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	544	Yes	Cerianthid(s)	None	None	3	3.2	1.2	Very fine sand	Very fine sand	Very fine sand	IND	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	545	Yes	Sand Dollar(s)	None	None	3	1.4	2.6	Coarse sand	Indeterminate	Medium sand	IND	1 -> 2	1 -> 2	1-> 2
SRW_20B1	SRWEC-OCS	SPI/PV	546	Yes	Sand Dollar(s)	None	None	3	2.9	3.3	Medium sand	Medium sand	Medium sand	IND	2	IND	IND
SRW_20B1	SRWEC-OCS	SPI/PV	547	Yes	Sand Dollar(s)	None	None	3	1.6	4.3	Indeterminate	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	548	Yes	None	None	None	3	5.4	1.1	Very fine sand	Very fine sand	Very fine sand	2.87	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	549	Yes	None	None	Sea Scallop	3	4.6	1.3	Very fine sand	Very fine sand	Very fine sand	2.58	2	2	2

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWEC-OCS	SPI/PV	550	Yes	None	None	None	3	11.4	1.0	Very fine sand	Very fine sand	Very fine sand	2.63	2 on 3	2 on 3	2 on 3
SRW_20B1	SRWEC-OCS	SPI/PV	551	Yes	None	None	None	3	13.1	1.0	Very fine sand	Very fine sand	Very fine sand	2.06	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWEC-OCS	SPI/PV	552	Yes	None	None	None	3	10.1	0.8	Very fine sand	Very fine sand	Very fine sand	2.27	2 -> 3	2 on 3	2 on 3
SRW_20B1	SRWEC-OCS	SPI/PV	553	Yes	None	None	None	3	10.5	1.0	Very fine sand	Very fine sand	Very fine sand	3.34	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	554	Yes	None	None	None	3	8.4	1.3	Very fine sand	Very fine sand	Very fine sand	2.59	2	2	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	555	Yes	None	None	None	3	8.6	0.8	Very fine sand	Very fine sand	Very fine sand	2.83	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWEC-OCS	SPI/PV	556	Yes	None	None	None	3	4.7	2.0	Very fine sand	Very fine sand	Very fine sand	2.23	2	2 on 3	2 on 3
SRW_20B1	SRWEC-OCS	SPI/PV	557	Yes	None	None	None	3	11.4	1.1	Very fine sand	Very fine sand	Very fine sand	2.33	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWEC-OCS	SPI/PV	558	Yes	None	None	None	3	10.1	1.7	Very fine sand	Very fine sand	Very fine sand	2.34	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	559	Yes	None	None	None	3	10.4	1.0	Very fine sand	Very fine sand	Very fine sand	2.29	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	560	Yes	None	None	None	3	11.0	0.9	Very fine sand	Very fine sand	Very fine sand	2.48	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	561	Yes	None	None	None	3	7.2	1.4	Very fine sand	Very fine sand	Very fine sand	2.51	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	562	Yes	None	None	Sea Scallop	3	9.5	0.8	Very fine sand	Very fine sand	Very fine sand	2.73	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	563	Yes	None	None	None	3	12.3	1.2	Very fine sand	Very fine sand	Very fine sand	4.06	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	564	Yes	None	None	None	3	7.9	1.3	Very fine sand	Very fine sand	Very fine sand	2.59	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWEC-OCS	SPI/PV	565	Yes	None	None	None	3	7.1	1.3	Very fine sand	Very fine sand	Very fine sand	2.46	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	566	Yes	None	None	None	3	9.5	1.0	Very fine sand	Very fine sand	Very fine sand	3.03	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWEC-OCS	SPI/PV	567	Yes	None	None	None	3	5.9	2.1	Very fine sand	Very fine sand	Very fine sand	3.06	2 -> 3	2 -> 3	2 on 3
SRW_20B1	SRWEC-OCS	SPI/PV	568	Yes	None	None	None	3	3.7	1.8	Very fine sand	Very fine sand	Very fine sand	2.44	2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	569	Yes	None	None	None	3	4.2	1.1	Very fine sand	Very fine sand	Very fine sand	2.52	2	2	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	570	Yes	None	None	None	3	5.5	1.5	Very fine sand	Very fine sand	Very fine sand	2.69	2	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	571	Yes	None	None	None	3	3.7	0.6	Very fine sand	Very fine sand	Very fine sand	IND	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	572	Yes	None	None	None	3	3.6	3.3	Very coarse sand	Very coarse sand	Very coarse sand	IND	IND	IND	IND

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWEC-OCS	SPI/PV	573	Yes	None	None	None	3	5.0	0.7	Very fine sand	Very fine sand	Very fine sand	1.94	2	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	574	Yes	None	None	None	3	6.3	4.4	Coarse sand over finer sediment	Coarse sand over finer sediment	Medium sand	IND	1 -> 2	2	2
SRW_20B1	SRWEC-OCS	SPI/PV	575	Yes	None	None	None	3	10.1	1.6	Very fine sand	Very fine sand over silt/clay	Very fine sand over silt/clay	3.31	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	576	Yes	None	None	None	3	3.7	1.2	Fine sand	Fine sand	Fine sand	1.90	2	2	2
SRW_20B1	SRWF	SPI/PV	577	Yes	Cerianthid(s)	None	None	3	4.9	0.8	Very fine sand	Very fine sand	Very fine sand	2.90	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	578	Yes	None	None	None	3	5.5	1.1	Very fine sand	Very fine sand	Very fine sand	2.94	2 -> 3	2 -> 3	2 -> 3
SRW_20B1	SRWEC-OCS	SPI/PV	641	Yes	None	None	None	3	12.4	1.0	Very fine sand	Very fine sand	Very fine sand	3.00	2 -> 3	2 on 3	2 on 3
SRW_20B1	SRWEC-OCS	SPI/PV	642	Yes	None	None	None	3	9.3	0.8	Very fine sand	Very fine sand	Very fine sand	2.44	2 on 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	701	Yes	None	None	None	3	3.4	2.4	Indeterminate	Indeterminate	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	702	Yes	None	Non Reef-Building Hard Coral	None	2	2.0	1.2	Medium sand	Medium sand	-	IND	IND	IND	-
SRW_20B1	SRWF	SPI/PV	703	Yes	None	None	None	3	2.8	1.5	Fine sand	Fine sand	Fine sand	2.08	2	2	2
SRW_20B1	SRWF	SPI/PV	705	Yes	None	None	Sea Scallop	3	5.4	3.0	Coarse sand	Coarse sand	Coarse sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	707	Yes	None	None	None	3	3.7	1.9	Fine sand	Fine sand	Fine sand	2.84	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	708	Yes	Cerianthid(s)	None	None	3	5.0	3.9	Very coarse sand	Very coarse sand	Very coarse sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	710	Yes	None	None	None	3	1.8	2.2	Fine sand	Fine sand	Fine sand	IND	1 -> 2	1 -> 2	IND
SRW_20B1	SRWF	SPI/PV	712	Yes	None	None	None	3	3.7	1.8	Fine sand	Fine sand	Fine sand	2.82	2	2	2 -> 3
SRW_20B1	SRWF	SPI/PV	713	Yes	None	None	None	3	0.0	0.3	Indeterminate	Indeterminate	Indeterminate	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	715	Yes	None	None	None	3	5.1	5.1	Sand over very coarse sand	Very coarse sand	Very coarse sand over sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	716	Yes	None	None	None	2	2.2	4.8	Indeterminate	Medium sand	-	IND	2 on 3	IND	-

Survey ID	Area	Sample Type	Station ID	SPI/PV Tubes Presence[1]	PV Common Taxa Type	PV Sensitive Taxa Type	PV Species of Concern	SPI Replicate (n)	SPI Mean Prism Penetration Depth (cm)	SPI Mean Boundary Roughness (cm)	SPI Sediment Type (by replicate)			SPI Mean aRPD Depth (cm)	SPI Successional Stage (by replicate)[2]		
SRW_20B1	SRWF	SPI/PV	717	Yes	None	None	None	3	3.8	5.2	Medium sand	Medium sand	Medium sand	IND	IND	IND	IND
SRW_20B1	SRWF	SPI/PV	720	Yes	None	None	None	2	3.4	1.3	Fine sand	Fine sand	-	2.84	2	2	-
SRW_20B1	SRWF	SPI/PV	721	Yes	None	Non Reef-Building Hard Coral	None	3	1.6	2.4	Indeterminate	Medium sand	Medium sand	IND	2	IND	IND
SRW_20B1	SRWF	SPI/PV	723	Yes	None	None	None	3	5.8	2.3	Very coarse sand	Very coarse sand	Very coarse sand	IND	2 -> 3	IND	IND
SRW_20B1	SRWF	SPI/PV	724	Yes	None	None	Sea Scallop	3	4.1	2.0	Coarse sand over finer sediment	Medium sand	Medium sand	IND	2	IND	IND
SRW_20B1	SRWF	SPI/PV	725	Yes	None	None	None	3	4.3	2.0	Medium sand	Medium sand	Medium sand	IND	2	2	2
SRW_20B1	SRWF	SPI/PV	726	Yes	Cerianthid(s)	None	None	3	9.1	1.1	Medium sand and finer sediment mix	Silt/clay	Silt/clay	3.72	1 on 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	727	Yes	None	None	None	3	4.4	1.5	Fine sand	Fine sand over very fine sand	Fine sand over very fine sand	2.30	2	2 -> 3	2 -> 3
SRW_20B1	SRWF	SPI/PV	729	Yes	Cerianthid(s)	None	Sea Scallop	3	14.2	1.7	Silt/clay	Silt/clay	Silt/clay	5.50	2 on 3	2 on 3	2 on 3
SRW_20B1	SRWF	SPI/PV	730	Yes	None	None	None	3	4.1	2.4	Fine sand	Fine sand	Fine sand	IND	2	2	2
SRW_20B3	ICW HDD	PV	801	Yes	None	None	None	-	-	-	-	-	-	-	-	-	-
SRW_20B3	ICW HDD	PV, Grab	802	No	None	None	None	-	-	-	-	-	-	-	-	-	-
SRW_20B3	ICW HDD	PV	803	No	None	None	None	-	-	-	-	-	-	-	-	-	-
SRW_20B3	ICW HDD	PV	804	Yes	None	None	None	-	-	-	-	-	-	-	-	-	-
SRW_20B3	ICW HDD	PV, Grab	805	No	None	None	None	-	-	-	-	-	-	-	-	-	-
SRW_20B3	ICW HDD	PV	806	No	None	None	None	-	-	-	-	-	-	-	-	-	-
SRW_20B3	ICW HDD	PV	807	No	None	None	None	-	-	-	-	-	-	-	-	-	-
SRW_20B3	ICW HDD	PV	808	No	None	None	None	-	-	-	-	-	-	-	-	-	-

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWF	SPI/PV	001	Corymorpha	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	002	Bryozoan(s), Corymorpha, Hydroid(s), Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	003	Anemone, Bryozoan(s), Hydroid(s), Northern Star Coral, Tubularia Hydroid	Sea Star(s)
SRW_20B1	SRWF	SPI/PV	004	None	Shrimp
SRW_20B1	SRWF	SPI/PV	005	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	006	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	007	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	008	None	Nudibranch, Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	009	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	010	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	011	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	012	None	None
SRW_20B1	SRWF	SPI/PV	013	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	014	None	None
SRW_20B1	SRWF	SPI/PV	015	None	Shrimp
SRW_20B1	SRWF	SPI/PV	016	None	Crab(s)
SRW_20B1	SRWF	SPI/PV	017	None	None
SRW_20B1	SRWF	SPI/PV	018	None	None
SRW_20B1	SRWF	SPI/PV	019	None	None
SRW_20B1	SRWF	SPI/PV	020	Podocerid Amphipod(s)	None
SRW_20B1	SRWF	SPI/PV	021	Podocerid Amphipod(s)	None

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWF	SPI/PV	022	Podocerid Amphipod(s)	Shrimp, Snail
SRW_20B1	SRWF	SPI/PV	023	None	None
SRW_20B1	SRWF	SPI/PV	024	None	Shrimp
SRW_20B1	SRWF	SPI/PV	025	Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	026	None	Sand Dollar(s), Shrimp
SRW_20B1	SRWF	SPI/PV	027	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	028	Bryozoan(s)	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	029	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	030	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	031	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	032	Bryozoan(s)	None
SRW_20B1	SRWF	SPI/PV	033	None	Sea Scallop(s)
SRW_20B1	SRWF	SPI/PV	034	None	None
SRW_20B1	SRWF	SPI/PV	035	None	None
SRW_20B1	SRWF	SPI/PV	036	None	Shrimp
SRW_20B1	SRWF	SPI/PV	037	None	None
SRW_20B1	SRWF	SPI/PV	038	None	Shrimp
SRW_20B1	SRWF	SPI/PV	039	Tube-Building Amphipods	Sea Star(s), Shrimp
SRW_20B1	SRWF	SPI/PV	040	Tube-Building Amphipods	Shrimp, Snail(s)
SRW_20B1	SRWF	SPI/PV	041	None	Shrimp
SRW_20B1	SRWF	SPI/PV	042	None	None

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWF	SPI/PV	043	None	Hermit Crab(s), Shrimp
SRW_20B1	SRWF	SPI/PV	044	None	Sand Dollar(s), Shrimp
SRW_20B1	SRWF	SPI/PV	045	None	Sand Dollar(s), Shrimp, Snail
SRW_20B1	SRWF	SPI/PV	046	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	047	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	048	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	049	None	Shrimp
SRW_20B1	SRWF	SPI/PV	050	None	Gastropod(s)
SRW_20B1	SRWF	SPI/PV	051	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	052	Podocerid Amphipod(s)	Shrimp
SRW_20B1	SRWF	SPI/PV	053	None	Shrimp
SRW_20B1	SRWF	SPI/PV	054	Podocerid Amphipod(s)	Shrimp
SRW_20B1	SRWF	SPI/PV	055	None	Sea Star(s), Shrimp(s)
SRW_20B1	SRWF	SPI/PV	056	None	None
SRW_20B1	SRWF	SPI/PV	057	None	Shrimp
SRW_20B1	SRWF	SPI/PV	058	None	Hermit Crab(s)
SRW_20B1	SRWF	SPI/PV	059	Tubularia Hydroid(s)	Sea Scallop(s), Snail(s)
SRW_20B1	SRWF	SPI/PV	060	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	061	None	Sand Dollar(s), Shrimp
SRW_20B1	SRWF	SPI/PV	062	None	Sand Dollar(s), Shrimp
SRW_20B1	SRWF	SPI/PV	063	None	Sand Dollar(s), Shrimp

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWF	SPI/PV	064	None	Hermit Crab(s), Shrimp
SRW_20B1	SRWF	SPI/PV	065	None	None
SRW_20B1	SRWF	SPI/PV	066	None	None
SRW_20B1	SRWF	SPI/PV	067	None	None
SRW_20B1	SRWF	SPI/PV	068	None	Hermit Crab(s)
SRW_20B1	SRWF	SPI/PV	069	Bryozoan(s)	Shrimp
SRW_20B1	SRWF	SPI/PV	070	None	Shrimp
SRW_20B1	SRWF	SPI/PV	071	None	Sea Star(s), Shrimp, Snail
SRW_20B1	SRWF	SPI/PV	072	None	None
SRW_20B1	SRWF	SPI/PV	073	None	Brittle Star
SRW_20B1	SRWF	SPI/PV	074	None	None
SRW_20B1	SRWF	SPI/PV	075	None	Nudibranch(s)
SRW_20B1	SRWF	SPI/PV	076	None	None
SRW_20B1	SRWF	SPI/PV	077	Podocerid Amphipod(s)	None
SRW_20B1	SRWF	SPI/PV	078	None	Shrimp
SRW_20B1	SRWF	SPI/PV	079	None	Shrimp
SRW_20B1	SRWF	SPI/PV	080	None	Sea Scallop(s)
SRW_20B1	SRWF	SPI/PV	081	None	None
SRW_20B1	SRWF	SPI/PV	082	Bryozoan(s)	Hermit Crab(s), Sea Scallop(s)
SRW_20B1	SRWF	SPI/PV	083	None	None
SRW_20B1	SRWF	SPI/PV	084	None	Shrimp
SRW_20B1	SRWF	SPI/PV	085	Barnacles, Bryozoan(s), Northern Star Coral	Hermit Crab(s), Sea Scallop(s)
SRW_20B1	SRWF	SPI/PV	086	None	None

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWF	SPI/PV	087	None	None
SRW_20B1	SRWF	SPI/PV	088	None	None
SRW_20B1	SRWF	SPI/PV	089	None	Sea Star(s), Shrimp(s)
SRW_20B1	SRWF	SPI/PV	090	None	Sea Star(s)
SRW_20B1	SRWF	SPI/PV	091	None	Jonah Crab, Sea Star(s)
SRW_20B1	SRWF	SPI/PV	092	None	None
SRW_20B1	SRWF	SPI/PV	093	None	Shrimp
SRW_20B1	SRWF	SPI/PV	094	None	None
SRW_20B1	SRWF	SPI/PV	095	None	Shrimp
SRW_20B1	SRWF	SPI/PV	096	None	Shrimp
SRW_20B1	SRWF	SPI/PV	097	None	Shrimp
SRW_20B1	SRWF	SPI/PV	098	None	Sea Scallop(s)
SRW_20B1	SRWF	SPI/PV	099	None	Shrimp
SRW_20B1	SRWF	SPI/PV	100	Bryozoan(s), Hydroid(s)	Sea Scallop, Shrimp
SRW_20B1	SRWF	SPI/PV	101	None	Sand Dollar(s), Shrimp
SRW_20B1	SRWF	SPI/PV	102	None	Nudibranch(s)
SRW_20B1	SRWF	SPI/PV	103	None	None
SRW_20B1	SRWF	SPI/PV	104	None	Shrimp, Snail(s)
SRW_20B1	SRWF	SPI/PV	105	Podocerid Amphipod(s)	Shrimp
SRW_20B1	SRWF	SPI/PV	106	None	Shrimp
SRW_20B1	SRWF	SPI/PV	107	None	None
SRW_20B1	SRWF	SPI/PV	108	None	Hermit Crab(s), Sea Star(s), Shrimp
SRW_20B1	SRWF	SPI/PV	109	None	Sea Star(s), Shrimp(s)

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWF	SPI/PV	110	None	Shrimp
SRW_20B1	SRWF	SPI/PV	111	None	Shrimp
SRW_20B1	SRWF	SPI/PV	112	None	Shrimp
SRW_20B1	SRWF	SPI/PV	113	None	Shrimp
SRW_20B1	SRWF	SPI/PV	114	Podocerid Amphipod(s)	None
SRW_20B1	SRWF	SPI/PV	115	Podocerid Amphipod(s)	Shrimp
SRW_20B1	SRWF	SPI/PV	116	None	None
SRW_20B1	SRWF	SPI/PV	118	Podocerid Amphipod(s)	None
SRW_20B1	SRWF	SPI/PV	120	Bryozoan(s)	Crab(s), Sea Scallop(s), Shrimp
SRW_20B1	SRWF	SPI/PV	121	None	Jonah Crab, Sea Scallop(s), Shrimp
SRW_20B1	SRWF	SPI/PV	128	Corymorpha	Sea Star(s)
SRW_20B1	SRWF	SPI/PV	129	Ampelisca Amphipod(s), Corymorpha	None
SRW_20B1	SRWF	SPI/PV	130	Bryozoan(s)	Sand Dollar(s), Shrimp
SRW_20B1	SRWF	SPI/PV	131	None	Shrimp
SRW_20B1	SRWF	SPI/PV	132	None	Hermit Crab(s), Shrimp
SRW_20B1	SRWF	SPI/PV	135	Bryozoan(s), Hydroid(s)	Hermit Crab(s)
SRW_20B1	SRWF	SPI/PV	136	None	None
SRW_20B1	SRWF	SPI/PV	201	None	Shrimp
SRW_20B1	SRWF	SPI/PV	206	Ampelisca Amphipod(s)	None
SRW_20B1	SRWF	SPI/PV	207	Bryozoan(s), Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	208	None	None
SRW_20B1	SRWF	SPI/PV	209	Ampelisca Amphipod(s)	Shrimp, Snail

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWF	SPI/PV	210	Bryozoan(s), Hydroid(s), Sea Whip(s), Sponge(s), Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	211	Bryozoan(s), Hydroid(s)	Shrimp
SRW_20B1	SRWF	SPI/PV	215	Podocerid Amphipod(s), Tube-Building Amphipods	Shrimp, Snail(s)
SRW_20B1	SRWF	SPI/PV	216	Bryozoan(s), Hydroids, Tubularia Hydroid(s)	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	220	None	Shrimp
SRW_20B1	SRWF	SPI/PV	223	None	Shrimp
SRW_20B1	SRWF	SPI/PV	224	Tube-Building Amphipods	Shrimp
SRW_20B1	SRWF	SPI/PV	225	Tube-Building Amphipods	Shrimp
SRW_20B1	SRWF	SPI/PV	226	Tube-Building Amphipods	None
SRW_20B1	SRWF	SPI/PV	227	Barnacles, Bryozoan(s), Caprellid Amphipods, Hydroid(s), Mussels, Northern Star Coral, Tunicates	Brittle Star(s), Sea Star(s), Snails
SRW_20B1	SRWF	SPI/PV	228	None	None
SRW_20B1	SRWF	SPI/PV	229	None	None
SRW_20B1	SRWF	SPI/PV	230	None	None
SRW_20B1	SRWF	SPI/PV	231	None	Shrimp
SRW_20B1	SRWF	SPI/PV	232	None	Shrimp
SRW_20B1	SRWF	SPI/PV	233	None	None
SRW_20B1	SRWF	SPI/PV	234	None	Nudibranch, Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	236	None	Sand Dollar(s), Snail
SRW_20B1	SRWF	SPI/PV	237	Tube-Building Amphipods	None

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWF	SPI/PV	239	None	Moon Snail(s), Shrimp, Snail
SRW_20B1	SRWF	SPI/PV	243	None	Sand Dollar(s), Shrimp
SRW_20B1	SRWF	SPI/PV	245	Corymorpha	Chaetognath, Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	246	None	Chaetognath(s), Shrimp
SRW_20B1	SRWF	SPI/PV	248	None	Shrimp
SRW_20B1	SRWF	SPI/PV	249	Corymorpha	Shrimp
SRW_20B1	SRWF	SPI/PV	250	Corymorpha	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	251	None	Sea Star(s), Shrimp(s)
SRW_20B1	SRWF	SPI/PV	252	None	Chaetognath, Shrimp, Snail
SRW_20B1	SRWF	SPI/PV	253	None	None
SRW_20B1	SRWF	SPI/PV	254	None	None
SRW_20B1	SRWF	SPI/PV	255	None	Hermit Crab(s), Sand Dollar(s), Shrimp
SRW_20B1	SRWF	SPI/PV	256	Bryozoan(s), Hydroid(s)	Hermit Crab(s), Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	260	None	Chaetognath, Hermit Crab(s), Shrimp
SRW_20B1	SRWF	SPI/PV	261	None	Snail(s)
SRW_20B1	SRWF	SPI/PV	262	None	Shrimp
SRW_20B1	SRWF	SPI/PV	263	None	Shrimp
SRW_20B1	SRWF	SPI/PV	264	Bryozoan(s), Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	266	None	None
SRW_20B1	SRWF	SPI/PV	267	None	Shrimp
SRW_20B1	SRWF	SPI/PV	268	None	None
SRW_20B1	SRWF	SPI/PV	269	None	Chaetognath(s), Hermit Crab(s)
SRW_20B1	SRWF	SPI/PV	270	None	None

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWF	SPI/PV	271	None	None
SRW_20B1	SRWF	SPI/PV	272	None	Hermit Crab(s)
SRW_20B1	SRWF	SPI/PV	273	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	274	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	275	Bryozoan(s)	None
SRW_20B1	SRWF	SPI/PV	276	None	Chaetognath(s), Sea Star(s)
SRW_20B1	SRWF	SPI/PV	278	None	None
SRW_20B1	SRWF	SPI/PV	279	None	None
SRW_20B1	SRWF	SPI/PV	280	Ampelisca Amphipod(s)	None
SRW_20B1	SRWF	SPI/PV	281	Ampelisca Amphipod(s)	None
SRW_20B1	SRWF	SPI/PV	282	None	None
SRW_20B1	SRWF	SPI/PV	284	None	None
SRW_20B1	SRWF	SPI/PV	285	None	None
SRW_20B1	SRWF	SPI/PV	286	None	Sand Dollar(s)
SRW_20B1	SRWF	SPI/PV	287	None	None
SRW_20B1	SRWF	SPI/PV	289	None	None
SRW_20B2	SRWEC-NYS	SPI/PV	401	Ampelisca Amphipod(s)	Hermit Crab(s), Sand Dollar(s), Shrimp
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	402	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV	403	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	404	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV	405	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	406	None	Hermit Crab(s), Sand Dollar(s)

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B2	SRWEC-NYS	SPI/PV	407	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	408	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV	409	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	410	None	Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV	411	None	Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	412	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV	413	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	414	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV	415	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	416	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV	417	None	Hermit Crab(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	418	None	Gastropod, Hermit Crab(s), Sand Dollar(s), Snail(s)
SRW_20B2	SRWEC-NYS	SPI/PV	419	None	Hermit Crab(s), Snail(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	420	None	Hermit Crab(s), Sand Dollar(s), Snail(s)
SRW_20B2	SRWEC-NYS	SPI/PV	421	None	Hermit Crab(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	422	None	Hermit Crab(s), Sand Dollar(s)

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	423	None	Hermit Crab(s), Isopod(s), Snail(s)
SRW_20B2	SRWEC-NYS	SPI/PV	424	None	Hermit Crab(s), Isopod(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	425	None	Gastropod(s), Hermit Crab(s), Isopod(s)
SRW_20B2	SRWEC-NYS	SPI/PV	426	None	Isopod(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	427	None	Hermit Crab(s)
SRW_20B2	SRWEC-NYS	SPI/PV	428	None	Hermit Crab(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	429	None	None
SRW_20B2	SRWEC-NYS	SPI/PV	430	None	Hermit Crab(s), Snail(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	431	None	Hermit Crab(s)
SRW_20B2	SRWEC-NYS	SPI/PV	432	None	Hermit Crab(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	433	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B2	SRWEC-NYS	SPI/PV	434	None	Isopod(s)
SRW_20B2	SRWEC-NYS	SPI/PV, Grab	435	None	Hermit Crab(s), Isopod(s), Sand Dollar(s)
SRW_20B2	SRWEC-OCS	SPI/PV	440	None	Hermit Crab(s), Nudibranch(s), Sand Dollar(s), Snail(s)
SRW_20B2	SRWEC-OCS	SPI/PV	441	None	Hermit Crab(s), Sand Dollar(s), Snail(s)
SRW_20B2	SRWEC-OCS	SPI/PV	442	None	Sand Dollar(s), Snail(s)
SRW_20B2	SRWEC-OCS	SPI/PV	443	None	Hermit Crab(s), Sand Dollar(s), Snail(s)
SRW_20B1	SRWEC-OCS	SPI/PV	501	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	502	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	503	None	Gastropod(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	504	None	Sand Dollar(s)

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWEC-OCS	SPI/PV	505	None	Gastropod(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	506	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	507	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	508	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	509	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	510	None	Gastropod(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	511	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	512	None	Gastropod(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	513	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	514	None	Gastropod(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	515	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	516	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	517	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	518	Barnacle(s)	Gastropod(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	519	Hydroid(s), Sponge(s)	Hermit Crab(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	520	None	Gastropod(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	521	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	522	None	Sand Dollar(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	523	None	Hermit Crab(s), Sand Dollar(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	524	None	Sand Dollar(s), Sea Star(s), Shrimp
SRW_20B1	SRWEC-OCS	SPI/PV	525	None	Hermit Crab(s), Sand Dollar(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	526	None	Sand Dollar(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	527	None	Sea Star(s)

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWEC-OCS	SPI/PV	528	None	Sea Star(s), Shrimp(s)
SRW_20B1	SRWEC-OCS	SPI/PV	529	None	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	530	None	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	531	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	532	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	533	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	534	None	Hermit Crab(s), Sand Dollar(s), Sea Scallop(s), Shrimp
SRW_20B1	SRWEC-OCS	SPI/PV	535	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	536	None	Hermit Crab(s), Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	537	Bryozoan(s)	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	538	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	539	None	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	540	Bryozoan(s), Hydroid(s)	Sand Dollar(s), Sea Scallop(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	541	Bryozoan(s)	Chaetognath(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	542	None	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	543	None	Hermit Crab(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	544	None	Gastropod(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	545	None	Sand Dollar(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	546	None	Sand Dollar(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	547	Hydroid(s)	Sand Dollar(s)
SRW_20B1	SRWEC-OCS	SPI/PV	548	Hydroid(s)	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	549	Bryozoan(s), Hydroid(s)	Sea Scallop(s), Sea Star(s), Shrimp(s)

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWEC-OCS	SPI/PV	550	Ampelisca Amphipod(s), Corymorpha, Tubularia Hydroid(s)	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	551	None	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	552	None	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	553	None	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	554	Corymorpha	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	555	None	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	556	Ampelisca Amphipod(s), Hydroid(s)	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	557	None	Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	558	Corymorpha	Crab(s)
SRW_20B1	SRWEC-OCS	SPI/PV	559	None	None
SRW_20B1	SRWEC-OCS	SPI/PV	560	None	None
SRW_20B1	SRWEC-OCS	SPI/PV	561	None	None
SRW_20B1	SRWEC-OCS	SPI/PV	562	Bryozoan(s), Tubularia Hydroid(s)	Sea Scallop(s)
SRW_20B1	SRWEC-OCS	SPI/PV	563	Hydroid(s)	Hermit Crab(s)
SRW_20B1	SRWEC-OCS	SPI/PV	564	None	None
SRW_20B1	SRWEC-OCS	SPI/PV	565	Corymorpha	Cowrie, Hermit Crab(s), Snail(s)
SRW_20B1	SRWEC-OCS	SPI/PV	566	Corymorpha	None
SRW_20B1	SRWEC-OCS	SPI/PV	567	None	None
SRW_20B1	SRWEC-OCS	SPI/PV	568	None	None
SRW_20B1	SRWEC-OCS	SPI/PV	569	Ampelisca Amphipod(s)	Nudibranch(s)
SRW_20B1	SRWEC-OCS	SPI/PV	570	Ampelisca Amphipod(s)	Moon Snail(s)
SRW_20B1	SRWEC-OCS	SPI/PV	571	None	Crab(s)
SRW_20B1	SRWEC-OCS	SPI/PV	572	None	Hermit Crab(s)

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWEC-OCS	SPI/PV	573	None	None
SRW_20B1	SRWEC-OCS	SPI/PV	574	Bryozoan(s), Hydroid(s)	Nudibranch(s), Shrimp
SRW_20B1	SRWEC-OCS	SPI/PV	575	Ampelisca Amphipod(s)	None
SRW_20B1	SRWF	SPI/PV	576	None	Crab(s)
SRW_20B1	SRWF	SPI/PV	577	None	Snail(s)
SRW_20B1	SRWF	SPI/PV	578	None	Hermit Crab(s), Sea Star(s)
SRW_20B1	SRWEC-OCS	SPI/PV	641	None	None
SRW_20B1	SRWEC-OCS	SPI/PV	642	None	Chaetognath(s)
SRW_20B1	SRWF	SPI/PV	701	Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	702	Anemone(s), Bryozoan(s), Corymorpha, Hydroid(s), Northern Star Coral, Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	703	None	None
SRW_20B1	SRWF	SPI/PV	705	Tubularia Hydroid(s)	Sea Scallop(s)
SRW_20B1	SRWF	SPI/PV	707	None	Snail(s)
SRW_20B1	SRWF	SPI/PV	708	Bryozoan(s), Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	710	Anemone(s), Bryozoan(s)	None
SRW_20B1	SRWF	SPI/PV	712	None	Nudibranch(s)
SRW_20B1	SRWF	SPI/PV	713	Bryozoan(s), Hydroids, Sponge(s), Tubularia Hydroid(s)	Nudibranch(s)
SRW_20B1	SRWF	SPI/PV	715	Bryozoan(s), Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	716	Bryozoan(s), Hydroids, Tubularia Hydroid(s)	None

Survey ID	Area	Sample Type	Station ID	SPI/PV Sessile Epifauna Present[1]	SPI/PV Mobile Epifauna Present[1]
SRW_20B1	SRWF	SPI/PV	717	Bryozoan(s), Hydroids, Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	720	None	Shrimp
SRW_20B1	SRWF	SPI/PV	721	Bryozoan(s), Northern Star Coral, Tubularia Hydroid(s)	Sea Star(s)
SRW_20B1	SRWF	SPI/PV	723	Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	724	Bryozoan(s), Tubularia Hydroid(s)	Sea Scallop(s)
SRW_20B1	SRWF	SPI/PV	725	Bryozoan(s), Tubularia Hydroid(s)	None
SRW_20B1	SRWF	SPI/PV	726	None	None
SRW_20B1	SRWF	SPI/PV	727	Tubularia Hydroid(s)	Sea Star(s), Snail(s)
SRW_20B1	SRWF	SPI/PV	729	Tubularia Hydroid(s)	Sea Scallop(s)
SRW_20B1	SRWF	SPI/PV	730	None	Podocerid Amphipod(s)
SRW_20B3	ICW HDD	PV	801	None	Unidentified Crab
SRW_20B3	ICW HDD	PV, Grab	802	Bryozoan(s), Serpulid(s)	Hermit Crab(s)
SRW_20B3	ICW HDD	PV	803	None	None
SRW_20B3	ICW HDD	PV	804	None	None
SRW_20B3	ICW HDD	PV, Grab	805	Bryozoan(s)	None
SRW_20B3	ICW HDD	PV	806	None	None
SRW_20B3	ICW HDD	PV	807	None	None
SRW_20B3	ICW HDD	PV	808	Bryozoan(s), Serpulid(s)	None

Attachment B – Benthic PV Pogo Ground-Truth Data Analysis Results

Notes:

N/A=Not Applicable

[1] Variable determined from combined SPI/PV analysis

Survey ID	Sample Type	Station ID	PV Replicate (n)	Mapped Habitat Type	Macrohabitat[1]	CMECS Substrate Subgroup	Maximum CMECS Gravel Size Category	Bedforms
SRW_20B2	PV	E01	1	Coarse Sediment - Mobile	Sand with Pebbles/ Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E02	1	Coarse Sediment - Mobile	Sand with Pebbles/ Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E03	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E04	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E05	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E06	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E07	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E08	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E09	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E10	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E11	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	IND
SRW_20B2	PV	E12	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E13	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E14	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E15	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	IND
SRW_20B2	PV	E16	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E17	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E18	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E19	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E20	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	IND
SRW_20B2	PV	E21	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E22	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E23	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E24	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E25	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E26	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E27	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E28	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E29	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E30	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	IND
SRW_20B2	PV	E31	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E32	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E33	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None

Survey ID	Sample Type	Station ID	PV Replicate (n)	Mapped Habitat Type	Macrohabitat[1]	CMECS Substrate Subgroup	Maximum CMECS Gravel Size Category	Bedforms
SRW_20B2	PV	E34	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E35	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	IND
SRW_20B2	PV	E36	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E37	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E38	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	Large ripples
SRW_20B2	PV	E39	1	Coarse Sediment - Mobile	IND	Sand or finer	N/A	None
SRW_20B2	PV	E40	1	Coarse Sediment - Mobile	IND	Sand or finer	N/A	None
SRW_20B2	PV	E41	1	Coarse Sediment - Mobile	IND	Sand or finer	N/A	None
SRW_20B2	PV	E42	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	None
SRW_20B2	PV	E43	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly Sand	Pebble/Granule	IND
SRW_20B2	PV	E44	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E45	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E46	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E47	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E48	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E49	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E50	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E51	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E52	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E53	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E54	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E55	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E56	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E57	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E58	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E59	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E60	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E61	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E62	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E63	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E64	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E65	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E66	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None

Survey ID	Sample Type	Station ID	PV Replicate (n)	Mapped Habitat Type	Macrohabitat[1]	CMECS Substrate Subgroup	Maximum CMECS Gravel Size Category	Bedforms
SRW_20B2	PV	E67	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E68	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E69	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E70	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E71	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E72	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E73	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E74	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E75	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E76	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E77	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E78	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E79	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E80	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E81	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E82	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E83	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E84	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E85	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E86	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None
SRW_20B2	PV	E87	1	Sand and Muddy Sand	IND	Sand or finer	N/A	None

Attachment C – Benthic Offshore Video Ground-Truth Data Analysis Results

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	A-1	8/14/2020	00:14:57	Start	Start	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Low Density Boulder Field	321357.85	4536518.05	40.96028329	-71.12278186
SRW_20B2	A-1	8/14/2020	00:16:09	-	-	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile	321355.68	4536510.21	40.9602123	-71.12280531
SRW_20B2	A-1	8/14/2020	00:19:30	-	End	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile	321377.18	4536493.47	40.96006629	-71.12254515
SRW_20B2	A-1	8/14/2020	00:19:31	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321377.2	4536493.14	40.96006332	-71.12254481
SRW_20B2	A-1	8/14/2020	00:34:00	-	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321353.2	4536443.77	40.95961366	-71.1228156
SRW_20B2	A-1	8/14/2020	00:34:01	-	Start	-	Sand and Mud	No	None	Coarse Sediment - Mobile	321352.99	4536443.77	40.95961361	-71.12281815
SRW_20B2	A-1	8/14/2020	00:35:10	-	-	-	Sand and Mud	No	None	Sand and Muddy Sand	321359.78	4536432.62	40.95951467	-71.12273424
SRW_20B2	A-1	8/14/2020	00:40:36	-	-	Start/End	Sand and Mud	Yes	None	Sand and Muddy Sand	321370.26	4536392.93	40.95915971	-71.12259838
SRW_20B2	A-1	8/14/2020	00:49:40	-	End	-	Sand and Mud	No	None	Sand and Muddy Sand	321385.44	4536316.19	40.9584722	-71.12239597
SRW_20B2	A-1	8/14/2020	00:49:41	-	Start	-	Sand with Ripples	No	None	Sand and Muddy Sand	321385.54	4536315.94	40.95846999	-71.12239472
SRW_20B2	A-1	8/14/2020	00:49:42	-	-	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321385.56	4536315.6	40.95846692	-71.1223944
SRW_20B2	A-1	8/14/2020	00:49:50	End	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321386.35	4536314.12	40.95845377	-71.12238453
SRW_20B2	A-2	8/14/2020	00:57:42	Start	Start	-	Off Bottom	N/A	N/A	Sand and Muddy Sand	321340.91	4536389.82	40.95912524	-71.122946
SRW_20B2	A-2	8/14/2020	00:58:02	-	End	-	Off Bottom	N/A	N/A	Sand and Muddy Sand	321344.01	4536390.84	40.95913509	-71.12290948
SRW_20B2	A-2	8/14/2020	00:58:03	-	Start	-	Sand and Mud	No	None	Sand and Muddy Sand	321344.08	4536390.77	40.9591345	-71.12290855
SRW_20B2	A-2	8/14/2020	01:07:13	End	End	-	Sand and Mud	No	None	Sand and Muddy Sand	321371.48	4536375.95	40.95900713	-71.12257899
SRW_20B2	A-3	8/14/2020	02:12:31	Start	Start	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile	321364.53	4536664.99	40.96160756	-71.12274492
SRW_20B2	A-3	8/14/2020	02:12:53	-	End	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile	321364.11	4536658.42	40.96154834	-71.122748
SRW_20B2	A-3	8/14/2020	02:12:54	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321363.96	4536657.98	40.96154427	-71.12274963
SRW_20B2	A-3	8/14/2020	02:22:07	-	-	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Low Density Boulder Field	321341.12	4536545.65	40.96052807	-71.12298839
SRW_20B2	A-3	8/14/2020	02:23:22	-	-	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321331.52	4536524.69	40.96033731	-71.12309644
SRW_20B2	A-3	8/14/2020	02:26:28	End	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321312.92	4536474.35	40.95988006	-71.1233027
SRW_20B2	A-4	8/14/2020	02:30:36	Start	Start	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile	321383.26	4536443.6	40.9596187	-71.12245856
SRW_20B2	A-4	8/14/2020	02:31:26	-	End	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile	321395.97	4536444.1	40.95962595	-71.12230785
SRW_20B2	A-4	8/14/2020	02:31:27	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321396.31	4536443.92	40.95962437	-71.12230366
SRW_20B2	A-4	8/14/2020	02:46:23	-	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321398.72	4536624.23	40.96124808	-71.12232711
SRW_20B2	A-4	8/14/2020	02:46:24	-	Start	-	Sand and Mud	No	None	Coarse Sediment - Mobile	321398.63	4536624.44	40.96124994	-71.12232821
SRW_20B2	A-4	8/14/2020	02:52:08	-	End	-	Sand and Mud	No	None	Coarse Sediment - Mobile	321417.83	4536696.59	40.96190369	-71.12212102
SRW_20B2	A-4	8/14/2020	02:52:09	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321417.98	4536696.8	40.96190562	-71.12211931
SRW_20B2	A-4	8/14/2020	02:52:14	End	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321417.38	4536697.85	40.96191492	-71.1221268
SRW_20B2	A-5	8/14/2020	03:46:20	Start	Start	-	Off Bottom	N/A	N/A	Sand and Muddy Sand	320442.01	4536462.26	40.95958025	-71.13364127
SRW_20B2	A-5	8/14/2020	03:47:51	-	End	-	Off Bottom	N/A	N/A	Sand and Muddy Sand	320438.38	4536483.07	40.95976679	-71.13369037
SRW_20B2	A-5	8/14/2020	03:47:52	-	Start	-	Sand and Mud	No	None	Sand and Muddy Sand	320438.5	4536483.3	40.95976889	-71.13368902
SRW_20B2	A-5	8/14/2020	04:32:25	End	End	-	Sand and Mud	No	None	Sand and Muddy Sand	320838.69	4536471.21	40.95974797	-71.12893329
SRW_20B2	A-6	8/14/2020	04:44:35	Start	Start	-	Off Bottom	N/A	N/A	Sand and Muddy Sand	320798.12	4536540.29	40.9603609	-71.12943509
SRW_20B2	A-6	8/14/2020	04:45:17	-	End	-	Off Bottom	N/A	N/A	Sand and Muddy Sand	320793.94	4536533.75	40.96030109	-71.12948278
SRW_20B2	A-6	8/14/2020	04:45:18	-	Start	-	Sand and Mud	No	None	Sand and Muddy Sand	320793.98	4536533.67	40.9603004	-71.12948226
SRW_20B2	A-6	8/14/2020	04:50:01	-	End	-	Sand and Mud	No	None	Sand and Muddy Sand	320787.28	4536484.79	40.95985894	-71.12954768
SRW_20B2	A-6	8/14/2020	04:50:02	-	Start	-	Off Bottom	N/A	N/A	Sand and Muddy Sand	320787.23	4536484.07	40.95985238	-71.12954816
SRW_20B2	A-6	8/14/2020	04:51:15	-	End	-	Off Bottom	N/A	N/A	Sand and Muddy Sand	320757.86	4536442.36	40.95947049	-71.12988476
SRW_20B2	A-6	8/14/2020	04:51:16	-	Start	-	Sand and Mud	No	None	Sand and Muddy Sand	320757.32	4536441.6	40.95946355	-71.12989103
SRW_20B2	A-6	8/14/2020	05:05:10	End	End	-	Sand and Mud	No	None	Sand and Muddy Sand	320502.19	4536488.27	40.95982758	-71.13293413
SRW_20B2	B-1	8/14/2020	18:48:49	Start	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	326653.15	4542021	41.01096435	-71.06144072
SRW_20B2	B-1	8/14/2020	19:02:27	-	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	326396.66	4542009.79	41.01080885	-71.06448576
SRW_20B2	B-1	8/14/2020	19:02:28	-	Start	-	Sand and Mud	No	None	Coarse Sediment - Mobile	326396.24	4542009.83	41.01080913	-71.06449079
SRW_20B2	B-1	8/14/2020	19:04:49	-	-	-	Sand and Mud	No	None	Sand and Muddy Sand	326366.31	4541990.7	41.01063055	-71.06484113
SRW_20B2	B-1	8/14/2020	19:06:19	End	End	-	Sand and Mud	No	None	Sand and Muddy Sand	326339.71	4541973.23	41.01046758	-71.06515235
SRW_20B2	C-1	8/14/2020	14:01:58	Start	Start	-	Sand and Mud	No	None	Glacial Drift	316250.78	4544106.27	41.02745702	-71.18568289

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	C-1	8/14/2020	14:03:41	-	-	Start/End	Sand and Mud	Yes	None	Glacial Drift	316230.08	4544114.11	41.027523	-71.18593119
SRW_20B2	C-1	8/14/2020	14:03:58	-	End	-	Sand and Mud	No	None	Glacial Drift	316226.41	4544114.09	41.02752198	-71.18597486
SRW_20B2	C-1	8/14/2020	14:03:59	-	Start	-	Off Bottom	N/A	N/A	Glacial Drift	316226.35	4544114.18	41.02752278	-71.1859756
SRW_20B2	C-1	8/14/2020	14:04:11	-	End	-	Off Bottom	N/A	N/A	Glacial Drift	316224.64	4544115.43	41.02753362	-71.18599627
SRW_20B2	C-1	8/14/2020	14:04:12	-	Start	-	Sand and Mud	No	None	Glacial Drift	316224.45	4544115.45	41.02753375	-71.18599856
SRW_20B2	C-1	8/14/2020	14:07:55	-	-	Start/End	Sand and Mud	Yes	None	Glacial Drift	316213.31	4544117.89	41.02755325	-71.18613175
SRW_20B2	C-1	8/14/2020	14:08:09	-	-	Start/End	Sand and Mud	Yes	None	Glacial Drift	316210.58	4544117.6	41.02754996	-71.18616407
SRW_20B2	C-1	8/14/2020	14:09:04	-	-	-	Sand and Mud	No	None	Coarse Sediment - Mobile with Low Density Boulder Field	316203.07	4544122.89	41.02759594	-71.18625492
SRW_20B2	C-1	8/14/2020	14:10:01	-	End	-	Sand and Mud	No	None	Coarse Sediment - Mobile with Low Density Boulder Field	316178.6	4544144.59	41.02778576	-71.18655226
SRW_20B2	C-1	8/14/2020	14:10:02	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Low Density Boulder Field	316178.04	4544144.76	41.02778712	-71.18655893
SRW_20B2	C-1	8/14/2020	14:10:37	-	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Low Density Boulder Field	316153.35	4544147.75	41.02780849	-71.18685337
SRW_20B2	C-1	8/14/2020	14:10:38	-	Start	-	Sand and Mud	No	None	Coarse Sediment - Mobile with Low Density Boulder Field	316152.7	4544147.67	41.02780762	-71.18686109
SRW_20B2	C-1	8/14/2020	14:10:54	-	-	Start/End	Sand and Mud	Yes	None	Coarse Sediment - Mobile with Low Density Boulder Field	316142.89	4544146.34	41.02779344	-71.18697724
SRW_20B2	C-1	8/14/2020	14:11:00	-	-	Start/End	Sand and Mud	Yes	None	Coarse Sediment - Mobile with Low Density Boulder Field	316139.98	4544145.9	41.0277888	-71.18701169
SRW_20B2	C-1	8/14/2020	14:11:30	-	-	Start/End	Sand and Mud	Yes	None	Coarse Sediment - Mobile with Low Density Boulder Field	316125.83	4544142.81	41.02775779	-71.18717903
SRW_20B2	C-1	8/14/2020	14:11:44	-	-	Start/End	Sand and Mud	Yes	None	Coarse Sediment - Mobile with Low Density Boulder Field	316119.34	4544141.32	41.02774289	-71.1872557
SRW_20B2	C-1	8/14/2020	14:12:46	-	-	-	Sand and Mud	No	None	Sand and Muddy Sand with Low Density Boulder Field	316095.87	4544136.29	41.02769236	-71.18753311
SRW_20B2	C-1	8/14/2020	14:19:42	-	End	-	Sand and Mud	No	None	Sand and Muddy Sand with Low Density Boulder Field	316044.81	4544162.44	41.02791619	-71.18814791
SRW_20B2	C-1	8/14/2020	14:19:43	-	Start	-	Off Bottom	N/A	N/A	Sand and Muddy Sand with Low Density Boulder Field	316044.67	4544162.85	41.02791983	-71.18814965
SRW_20B2	C-1	8/14/2020	14:20:01	-	-	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Low Density Boulder Field	316036.9	4544177.46	41.02804958	-71.18824643
SRW_20B2	C-1	8/14/2020	14:20:11	-	-	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Medium Density Boulder Field	316028.94	4544183.8	41.02810492	-71.18834289
SRW_20B2	C-1	8/14/2020	14:20:59	-	-	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Low Density Boulder Field	315991.38	4544176.24	41.02802837	-71.18878717
SRW_20B2	C-1	8/14/2020	14:21:39	-	End	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Low Density Boulder Field	315984.87	4544155.11	41.02783667	-71.18885815
SRW_20B2	C-1	8/14/2020	14:21:40	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Low Density Boulder Field	315984.9	4544154.95	41.02783528	-71.18885781
SRW_20B2	C-1	8/14/2020	14:24:06	-	-	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	315957.14	4544139.65	41.02769129	-71.18918324
SRW_20B2	C-1	8/14/2020	14:30:48	End	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	315883.23	4544131.74	41.02760339	-71.19005939
SRW_20B2	C-2	8/14/2020	15:13:53	Start	Start	-	Off Bottom	N/A	N/A	Glacial Drift	316902.27	4543791.58	41.02477102	-71.17784548
SRW_20B2	C-2	8/14/2020	15:14:18	-	End	-	Off Bottom	N/A	N/A	Glacial Drift	316901.86	4543794.67	41.02479874	-71.17785122
SRW_20B2	C-2	8/14/2020	15:14:19	-	Start	-	Sand with Ripples	No	None	Glacial Drift	316901.99	4543794.44	41.02479668	-71.17784964
SRW_20B2	C-2	8/14/2020	15:15:37	-	End	-	Sand with Ripples	No	None	Glacial Drift	316902.06	4543820.77	41.02503366	-71.17785662
SRW_20B2	C-2	8/14/2020	15:15:38	-	Start	-	Sand and Mud	No	None	Glacial Drift	316902.07	4543821.18	41.02503735	-71.17785655

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	C-2	8/14/2020	15:16:11	-	End	-	Sand and Mud	No	None	Glacial Drift	316899.79	4543835.91	41.02516951	-71.17788807
SRW_20B2	C-2	8/14/2020	15:16:12	-	Start	Start	Gravels	Yes	None	Glacial Drift	316899.78	4543836.55	41.02517521	-71.1778884
SRW_20B2	C-2	8/14/2020	15:18:00	-	End	-	Gravels	Yes	None	Glacial Drift	316897.07	4543890.7	41.02566208	-71.17793665
SRW_20B2	C-2	8/14/2020	15:18:01	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	316897.12	4543891.07	41.02566541	-71.17793613
SRW_20B2	C-2	8/14/2020	15:18:52	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	316897.31	4543911.72	41.02585134	-71.17794004
SRW_20B2	C-2	8/14/2020	15:18:53	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	316897.33	4543912.25	41.02585608	-71.17793988
SRW_20B2	C-2	8/14/2020	15:19:08	-	End	-	Gravelly Sand	No	None	Glacial Drift	316898.08	4543916.51	41.02589463	-71.17793234
SRW_20B2	C-2	8/14/2020	15:19:09	-	Start	Start	Gravels	Yes	None	Glacial Drift	316898.2	4543916.87	41.02589785	-71.17793092
SRW_20B2	C-2	8/14/2020	15:19:53	-	End	-	Gravels	Yes	None	Glacial Drift	316902.79	4543929.14	41.02600933	-71.17788009
SRW_20B2	C-2	8/14/2020	15:19:54	-	Start	End	Sandy Gravel	Yes	None	Glacial Drift	316902.85	4543929.25	41.02601039	-71.17787931
SRW_20B2	C-2	8/14/2020	15:20:06	-	End	-	Sandy Gravel	No	None	Glacial Drift	316903.31	4543932.93	41.02604364	-71.17787504
SRW_20B2	C-2	8/14/2020	15:20:07	-	Start	Start	Gravels	Yes	None	Glacial Drift	316903.26	4543933.35	41.02604739	-71.17787569
SRW_20B2	C-2	8/14/2020	15:21:28	-	End	-	Gravels	Yes	None	Glacial Drift	316903.62	4543951.36	41.02620961	-71.17787682
SRW_20B2	C-2	8/14/2020	15:21:29	-	Start	End	Off Bottom	Yes	N/A	Glacial Drift	316903.66	4543951.7	41.02621268	-71.1778764
SRW_20B2	C-2	8/14/2020	15:21:43	-	End	-	Off Bottom	N/A	N/A	Glacial Drift	316903.44	4543956.39	41.0262548	-71.17788036
SRW_20B2	C-2	8/14/2020	15:21:44	-	Start	Start	Gravelly Sand	Yes	None	Glacial Drift	316903.43	4543956.72	41.02625779	-71.17788061
SRW_20B2	C-2	8/14/2020	15:21:55	-	End	-	Gravelly Sand	Yes	None	Glacial Drift	316902.81	4543960.81	41.02629444	-71.17788926
SRW_20B2	C-2	8/14/2020	15:21:56	-	Start	-	Gravels	Yes	None	Glacial Drift	316902.72	4543961.24	41.02629831	-71.17789038
SRW_20B2	C-2	8/14/2020	15:23:53	-	End	-	Gravels	Yes	None	Glacial Drift	316891.36	4544012.04	41.02675306	-71.17804049
SRW_20B2	C-2	8/14/2020	15:23:54	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	316891.35	4544012.44	41.02675668	-71.17804072
SRW_20B2	C-2	8/14/2020	15:24:34	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	316889.31	4544028.62	41.0269018	-71.17806982
SRW_20B2	C-2	8/14/2020	15:24:35	-	Start	End	Sand and Mud	Yes	None	Glacial Drift	316889.37	4544028.94	41.02690473	-71.17806923
SRW_20B2	C-2	8/14/2020	15:25:52	-	End	-	Sand and Mud	No	None	Glacial Drift	316899.31	4544050.35	41.0270997	-71.17795744
SRW_20B2	C-2	8/14/2020	15:25:53	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	316899.49	4544050.66	41.0271025	-71.17795531
SRW_20B2	C-2	8/14/2020	15:26:05	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	316901.52	4544052.99	41.02712394	-71.17793185
SRW_20B2	C-2	8/14/2020	15:26:06	-	Start	End	Sand and Mud	Yes	None	Glacial Drift	316901.75	4544052.76	41.02712193	-71.17792907
SRW_20B2	C-2	8/14/2020	15:26:22	-	End	-	Sand and Mud	No	None	Glacial Drift	316904.59	4544054.56	41.02713873	-71.17789592
SRW_20B2	C-2	8/14/2020	15:26:23	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	316904.71	4544054.84	41.02714132	-71.17789455
SRW_20B2	C-2	8/14/2020	15:26:56	-	-	-	Sandy Gravel	Yes	Lobster	Glacial Drift	316910.14	4544060.78	41.027196	-71.17783172
SRW_20B2	C-2	8/14/2020	15:28:22	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	316910.85	4544092.56	41.02748225	-71.17783278
SRW_20B2	C-2	8/14/2020	15:28:23	-	Start	End	Sand with Ripples	Yes	None	Glacial Drift	316910.7	4544093.02	41.02748636	-71.17783471
SRW_20B2	C-2	8/14/2020	15:28:33	-	End	-	Sand with Ripples	No	None	Glacial Drift	316910.15	4544097.2	41.02752383	-71.17784243
SRW_20B2	C-2	8/14/2020	15:28:34	-	Start	Start	Gravels	Yes	None	Glacial Drift	316909.95	4544097.76	41.02752887	-71.17784503
SRW_20B2	C-2	8/14/2020	15:28:50	-	End	-	Gravels	Yes	None	Glacial Drift	316909.05	4544104.69	41.02759098	-71.17785779
SRW_20B2	C-2	8/14/2020	15:28:51	-	Start	-	Sand with Ripples	Yes	None	Glacial Drift	316909.19	4544105.08	41.02759454	-71.17785616
SRW_20B2	C-2	8/14/2020	15:29:05	-	End	-	Sand with Ripples	Yes	None	Glacial Drift	316908.14	4544111.34	41.0276507	-71.17787048
SRW_20B2	C-2	8/14/2020	15:29:06	-	Start	-	Gravels	Yes	None	Glacial Drift	316908.01	4544111.8	41.02765478	-71.17787215
SRW_20B2	C-2	8/14/2020	15:29:33	-	End	-	Gravels	Yes	None	Glacial Drift	316900.19	4544124.46	41.02776702	-71.17796896
SRW_20B2	C-2	8/14/2020	15:29:34	-	Start	-	Gravelly Sand	Yes	None	Glacial Drift	316900.05	4544124.74	41.02776945	-71.17797064
SRW_20B2	C-2	8/14/2020	15:29:44	-	-	End	Gravelly Sand	Yes	None	Glacial Drift	316898.03	4544128.45	41.02780238	-71.17799574
SRW_20B2	C-2	8/14/2020	15:29:59	-	End	-	Gravelly Sand	No	None	Glacial Drift	316895.52	4544133.75	41.02784955	-71.17802713
SRW_20B2	C-2	8/14/2020	15:30:00	-	Start	Start	Gravels	Yes	None	Glacial Drift	316895.33	4544134.12	41.0278529	-71.17802959
SRW_20B2	C-2	8/14/2020	15:30:48	-	End	-	Gravels	Yes	None	Glacial Drift	316889.91	4544151.5	41.02800812	-71.17809908
SRW_20B2	C-2	8/14/2020	15:30:49	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	316889.65	4544152.27	41.02801495	-71.17810248
SRW_20B2	C-2	8/14/2020	15:31:02	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	316887.82	4544158.46	41.02807027	-71.17812602
SRW_20B2	C-2	8/14/2020	15:31:03	-	Start	-	Gravels	Yes	None	Glacial Drift	316888.02	4544158.66	41.02807212	-71.1781237
SRW_20B2	C-2	8/14/2020	15:31:13	End	End	End	Gravels	Yes	None	Glacial Drift	316887.16	4544163.72	41.02811749	-71.17813541
SRW_20B2	C-3	8/14/2020	15:56:00	Start	Start	-	Off Bottom	N/A	N/A	Sand and Muddy Sand	318184	4543876.1	41.02581882	-71.16263532
SRW_20B2	C-3	8/14/2020	15:56:07	-	End	-	Off Bottom	N/A	N/A	Sand and Muddy Sand	318182.89	4543877.13	41.02582779	-71.16264875
SRW_20B2	C-3	8/14/2020	15:56:08	-	Start	-	Sand and Mud	No	None	Sand and Muddy Sand	318182.74	4543877.31	41.02582945	-71.16265063

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	C-3	8/14/2020	15:57:12	-	-	-	Sand and Mud	No	None	Coarse Sediment - Mobile	318174.44	4543886.24	41.02590797	-71.16275186
SRW_20B2	C-3	8/14/2020	15:57:20	-	End	-	Sand and Mud	No	None	Coarse Sediment - Mobile	318173.52	4543887.03	41.02591485	-71.16276306
SRW_20B2	C-3	8/14/2020	15:57:21	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	318173.23	4543887.37	41.02591782	-71.16276656
SRW_20B2	C-3	8/14/2020	16:07:21	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile	318014.64	4543929.46	41.02626131	-71.16466409
SRW_20B2	C-3	8/14/2020	16:15:58	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile	317917.69	4543930.89	41.02625253	-71.16581688
SRW_20B2	C-3	8/14/2020	16:17:32	-	-	-	Sand with Ripples	No	None	Glacial Drift	317902.84	4543937.96	41.02631291	-71.16599554
SRW_20B2	C-3	8/14/2020	16:21:10	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317865.23	4543936.8	41.02629404	-71.16644224
SRW_20B2	C-3	8/14/2020	16:21:48	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317859.27	4543938.6	41.02630887	-71.16651361
SRW_20B2	C-3	8/14/2020	16:23:24	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317847.35	4543936.49	41.02628721	-71.16665463
SRW_20B2	C-3	8/14/2020	16:23:58	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317842.91	4543936.66	41.02628773	-71.16670746
SRW_20B2	C-3	8/14/2020	16:24:40	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317836.32	4543933.8	41.02626054	-71.16678503
SRW_20B2	C-3	8/14/2020	16:26:14	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317819.07	4543932.72	41.02624697	-71.16698968
SRW_20B2	C-3	8/14/2020	16:26:55	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317811.86	4543933.91	41.02625604	-71.16707583
SRW_20B2	C-3	8/14/2020	16:27:08	-	-	Start/End	Sand with Ripples	Yes	Lobster	Glacial Drift	317809.86	4543934.43	41.02626031	-71.1670997
SRW_20B2	C-3	8/14/2020	16:28:04	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317800.75	4543938.18	41.02629203	-71.16720911
SRW_20B2	C-3	8/14/2020	16:30:29	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317774.79	4543928.42	41.0261984	-71.16751485
SRW_20B2	C-3	8/14/2020	16:30:36	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317773.45	4543928.23	41.02619637	-71.16753065
SRW_20B2	C-3	8/14/2020	16:31:19	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317762.27	4543929.2	41.02620255	-71.16766387
SRW_20B2	C-3	8/14/2020	16:32:04	-	End	-	Sand with Ripples	No	None	Glacial Drift	317751.89	4543931.17	41.02621802	-71.16778782
SRW_20B2	C-3	8/14/2020	16:32:05	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	317751.9	4543931.26	41.02621877	-71.16778772
SRW_20B2	C-3	8/14/2020	16:32:31	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	317747.38	4543933.72	41.02623991	-71.16784218
SRW_20B2	C-3	8/14/2020	16:32:32	-	Start	End	Sand with Ripples	Yes	None	Glacial Drift	317747.18	4543933.91	41.0262416	-71.16784463
SRW_20B2	C-3	8/14/2020	16:34:46	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317725.67	4543931.15	41.02621192	-71.16809953
SRW_20B2	C-3	8/14/2020	16:35:53	-	End	-	Sand with Ripples	No	None	Glacial Drift	317711.59	4543934.28	41.026237	-71.16826777
SRW_20B2	C-3	8/14/2020	16:35:54	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	317711.35	4543934.31	41.02623717	-71.16827066
SRW_20B2	C-3	8/14/2020	16:36:07	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	317708.07	4543935.15	41.02624403	-71.1683098
SRW_20B2	C-3	8/14/2020	16:36:08	-	Start	End	Sand with Ripples	Yes	None	Glacial Drift	317707.94	4543935.16	41.02624408	-71.16831142
SRW_20B2	C-3	8/14/2020	16:36:19	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317705.85	4543935.6	41.0262476	-71.16833642
SRW_20B2	C-3	8/14/2020	16:36:47	-	End	-	Sand with Ripples	No	None	Glacial Drift	317699.74	4543935.13	41.02624195	-71.16840886
SRW_20B2	C-3	8/14/2020	16:36:48	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	317699.18	4543935.22	41.02624271	-71.16841553
SRW_20B2	C-3	8/14/2020	16:37:52	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	317685.4	4543937.34	41.02625866	-71.16857993
SRW_20B2	C-3	8/14/2020	16:37:53	-	Start	End	Sand with Ripples	Yes	None	Glacial Drift	317685.14	4543937.32	41.02625842	-71.1685831
SRW_20B2	C-3	8/14/2020	16:38:23	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317677.78	4543937.58	41.02625909	-71.16867062
SRW_20B2	C-3	8/14/2020	16:38:36	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317675.02	4543936.67	41.02625032	-71.16870318
SRW_20B2	C-3	8/14/2020	16:39:10	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317667.07	4543934.56	41.02622958	-71.16879704
SRW_20B2	C-3	8/14/2020	16:42:40	-	End	-	Sand with Ripples	No	None	Glacial Drift	317619.99	4543938.98	41.02625882	-71.16935795
SRW_20B2	C-3	8/14/2020	16:42:41	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	317619.9	4543939.05	41.02625938	-71.16935899
SRW_20B2	C-3	8/14/2020	16:43:49	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	317607.45	4543939.09	41.02625694	-71.169507
SRW_20B2	C-3	8/14/2020	16:43:50	-	Start	End	Sand with Ripples	Yes	None	Glacial Drift	317607.49	4543938.95	41.02625569	-71.16950651
SRW_20B2	C-3	8/14/2020	16:44:35	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	317599.74	4543939.97	41.02626319	-71.16959899
SRW_20B2	C-3	8/14/2020	16:46:00	End	End	-	Sand with Ripples	No	None	Glacial Drift	317586.55	4543944.04	41.02629682	-71.16975695
SRW_20B2	C-4	8/14/2020	17:16:47	Start	Start	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile	321582.02	4543900.05	41.02678551	-71.12225068
SRW_20B2	C-4	8/14/2020	17:16:55	-	End	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile	321581.92	4543897.92	41.02676635	-71.12225127
SRW_20B2	C-4	8/14/2020	17:16:56	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321582.04	4543897.72	41.02676455	-71.12224981
SRW_20B2	C-4	8/14/2020	17:54:48	-	-	-	Sand with Ripples	No	Lobster	Coarse Sediment - Mobile	321122.08	4543843.41	41.02617485	-71.12770155
SRW_20B2	C-4	8/14/2020	18:00:10	End	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile	321000.92	4543851.94	41.02622498	-71.12914425
SRW_20B2	D-1	8/14/2020	07:27:15	Start	Start	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Medium Density Boulder Field	314085.8	4545551.26	41.03997295	-71.2118524
SRW_20B2	D-1	8/14/2020	07:27:42	-	End	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Medium Density Boulder Field	314083.78	4545557.13	41.04002537	-71.21187825

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	D-1	8/14/2020	07:27:43	-	Start	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314083.87	4545557.16	41.04002565	-71.21187716
SRW_20B2	D-1	8/14/2020	07:28:25	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314080.78	4545565.54	41.04010032	-71.21191643
SRW_20B2	D-1	8/14/2020	07:29:18	-	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314070.29	4545577.38	41.04020456	-71.21204471
SRW_20B2	D-1	8/14/2020	07:29:19	-	Start	Start	Gravelly Sand	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314070.06	4545577.73	41.04020763	-71.21204753
SRW_20B2	D-1	8/14/2020	07:29:50	-	End	-	Gravelly Sand	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314055.58	4545585.39	41.04027328	-71.21222198
SRW_20B2	D-1	8/14/2020	07:29:51	-	Start	End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314054.99	4545585.56	41.04027467	-71.21222911
SRW_20B2	D-1	8/14/2020	07:29:56	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314051.96	4545586.7	41.04028426	-71.21226536
SRW_20B2	D-1	8/14/2020	07:30:07	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314046.6	4545589.13	41.04030491	-71.21232986
SRW_20B2	D-1	8/14/2020	07:30:22	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314039.41	4545593.45	41.04034219	-71.21241671
SRW_20B2	D-1	8/14/2020	07:30:36	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314033.69	4545597.65	41.04037867	-71.21248588
SRW_20B2	D-1	8/14/2020	07:30:42	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314031.5	4545599.61	41.04039575	-71.21251257
SRW_20B2	D-1	8/14/2020	07:31:24	-	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314022.25	4545614.81	41.04053049	-71.21262712
SRW_20B2	D-1	8/14/2020	07:31:25	-	Start	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Medium Density Boulder Field	314022.01	4545615.33	41.04053511	-71.21263007
SRW_20B2	D-1	8/14/2020	07:31:43	-	-	-	Off Bottom	N/A	N/A	Glacial Drift	314020.46	4545624.64	41.04061857	-71.2126514
SRW_20B2	D-1	8/14/2020	07:33:39	-	-	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Medium Density Boulder Field	314059.83	4545619.18	41.04057844	-71.21218161
SRW_20B2	D-1	8/14/2020	07:34:32	-	End	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Medium Density Boulder Field	314072.35	4545608.09	41.04048144	-71.21202947
SRW_20B2	D-1	8/14/2020	07:34:33	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314072.69	4545607.98	41.04048056	-71.2120254
SRW_20B2	D-1	8/14/2020	07:36:04	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314079.82	4545627.84	41.0406609	-71.21194663
SRW_20B2	D-1	8/14/2020	07:36:12	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314079.55	4545630.33	41.0406833	-71.21195058
SRW_20B2	D-1	8/14/2020	07:36:16	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314079.65	4545631.36	41.04069257	-71.21194965
SRW_20B2	D-1	8/14/2020	07:36:31	-	-	-	Sand with Ripples	No	None	Glacial Drift	314078.74	4545635.7	41.04073143	-71.21196183
SRW_20B2	D-1	8/14/2020	07:36:32	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314078.81	4545635.9	41.04073326	-71.21196104
SRW_20B2	D-1	8/14/2020	07:37:08	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314075.76	4545646.12	41.04082456	-71.21200033
SRW_20B2	D-1	8/14/2020	07:37:33	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314074	4545651.94	41.04087653	-71.21202303
SRW_20B2	D-1	8/14/2020	07:38:02	-	End	-	Sand with Ripples	No	None	Glacial Drift	314074.71	4545659.34	41.04094332	-71.21201681
SRW_20B2	D-1	8/14/2020	07:38:03	-	Start	-	Off Bottom	N/A	N/A	Glacial Drift	314074.85	4545659.65	41.04094612	-71.21201524
SRW_20B2	D-1	8/14/2020	07:38:22	-	-	Start/End	Off Bottom	Yes	N/A	Glacial Drift	314074.58	4545665.3	41.04099691	-71.21202015
SRW_20B2	D-1	8/14/2020	07:39:03	-	End	-	Off Bottom	N/A	N/A	Glacial Drift	314075.82	4545675.09	41.04108536	-71.21200839
SRW_20B2	D-1	8/14/2020	07:39:04	-	Start	-	Sand with Ripples	No	None	Glacial Drift	314075.96	4545675.18	41.0410862	-71.21200673
SRW_20B2	D-1	8/14/2020	07:39:11	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314076.91	4545675.35	41.04108794	-71.21199552
SRW_20B2	D-1	8/14/2020	07:39:31	-	End	-	Sand with Ripples	No	None	Glacial Drift	314081.1	4545673.28	41.04107029	-71.2119451
SRW_20B2	D-1	8/14/2020	07:39:32	-	Start	Start	Gravelly Sand	Yes	None	Glacial Drift	314081.4	4545672.9	41.04106692	-71.21194142

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	D-1	8/14/2020	07:40:35	-	End	-	Gravelly Sand	Yes	None	Glacial Drift	314098.03	4545668.2	41.04102838	-71.21174227
SRW_20B2	D-1	8/14/2020	07:40:36	-	Start	End	Sand with Ripples	Yes	None	Glacial Drift	314098.44	4545668.05	41.04102713	-71.21173734
SRW_20B2	D-1	8/14/2020	07:41:08	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314102.81	4545672.87	41.04107152	-71.21168686
SRW_20B2	D-1	8/14/2020	07:42:08	-	End	-	Sand with Ripples	No	None	Glacial Drift	314102.99	4545681.99	41.04115366	-71.21168745
SRW_20B2	D-1	8/14/2020	07:42:09	-	Start	-	Gravelly Sand	No	None	Glacial Drift	314103.05	4545682.09	41.04115461	-71.21168677
SRW_20B2	D-1	8/14/2020	07:43:32	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	314088.26	4545702.28	41.04133293	-71.21186868
SRW_20B2	D-1	8/14/2020	07:43:39	-	End	-	Gravelly Sand	No	None	Glacial Drift	314086.27	4545703.18	41.04134058	-71.21189266
SRW_20B2	D-1	8/14/2020	07:43:40	-	Start	-	Off Bottom	N/A	N/A	Glacial Drift	314085.89	4545703.36	41.04134212	-71.21189726
SRW_20B2	D-1	8/14/2020	07:44:26	-	End	-	Off Bottom	N/A	N/A	Glacial Drift	314069.06	4545711.85	41.04141465	-71.21209984
SRW_20B2	D-1	8/14/2020	07:44:27	-	Start	-	Sand with Ripples	No	None	Glacial Drift	314068.64	4545712.24	41.04141809	-71.21210493
SRW_20B2	D-1	8/14/2020	07:45:31	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314066.86	4545730.93	41.04158592	-71.21213171
SRW_20B2	D-1	8/14/2020	07:47:16	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314077.42	4545747.35	41.04173615	-71.21201112
SRW_20B2	D-1	8/14/2020	07:48:25	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314097.91	4545741.01	41.04168376	-71.2117657
SRW_20B2	D-1	8/14/2020	07:48:46	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314100.47	4545744.35	41.04171439	-71.21173628
SRW_20B2	D-1	8/14/2020	07:49:32	-	-	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314098.9	4545758.1	41.04183781	-71.21175905
SRW_20B2	D-1	8/14/2020	07:49:40	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314098.72	4545760.28	41.04185737	-71.21176188
SRW_20B2	D-1	8/14/2020	07:50:04	-	End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314097.74	4545765.68	41.04190576	-71.21177506
SRW_20B2	D-1	8/14/2020	07:50:05	-	Start	Start	Gravelly Sand	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314097.66	4545765.98	41.04190843	-71.21177611
SRW_20B2	D-1	8/14/2020	07:50:31	-	-	End	Gravelly Sand	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314097.21	4545773.45	41.04197564	-71.21178377
SRW_20B2	D-1	8/14/2020	07:51:11	-	End	-	Gravelly Sand	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314095.73	4545784.73	41.04207684	-71.21180473
SRW_20B2	D-1	8/14/2020	07:51:12	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314095.63	4545785.08	41.04207994	-71.211806
SRW_20B2	D-1	8/14/2020	07:51:43	-	-	-	Sand with Ripples	No	None	Glacial Drift	314094.26	4545792.44	41.0421459	-71.21182459
SRW_20B2	D-1	8/14/2020	07:51:49	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314093.71	4545794.51	41.04216435	-71.21183169
SRW_20B2	D-1	8/14/2020	07:52:29	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314090.73	4545805.89	41.04226615	-71.21187055
SRW_20B2	D-1	8/14/2020	07:53:02	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314087.74	4545815.09	41.04234827	-71.21190893
SRW_20B2	D-1	8/14/2020	07:53:54	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314081.62	4545829.06	41.04247264	-71.21198583
SRW_20B2	D-1	8/14/2020	07:54:09	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314080.38	4545835.04	41.04252615	-71.21200241
SRW_20B2	D-1	8/14/2020	07:55:20	-	End	-	Sand with Ripples	No	None	Glacial Drift	314092.54	4545851.43	41.04267651	-71.21186285
SRW_20B2	D-1	8/14/2020	07:55:21	-	Start	-	Gravelly Sand	No	None	Glacial Drift	314092.71	4545851.55	41.0426776	-71.21186076
SRW_20B2	D-1	8/14/2020	07:59:28	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	314059.2	4545901.53	41.04311988	-71.21227429
SRW_20B2	D-1	8/14/2020	07:59:54	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	314054.78	4545907.4	41.04317171	-71.21232865
SRW_20B2	D-1	8/14/2020	08:00:15	End	End	-	Gravelly Sand	No	None	Glacial Drift	314052.35	4545913.51	41.04322607	-71.21235934
SRW_20B2	D-2	8/14/2020	08:38:56	Start	Start	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Medium Density Boulder Field	314190.23	4545612.34	41.04054664	-71.21062924
SRW_20B2	D-2	8/14/2020	08:39:02	-	End	-	Off Bottom	N/A	N/A	Coarse Sediment - Mobile with Medium Density Boulder Field	314189.92	4545615.03	41.04057078	-71.21063376
SRW_20B2	D-2	8/14/2020	08:39:03	-	Start	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314189.84	4545615.44	41.04057446	-71.2106349
SRW_20B2	D-2	8/14/2020	08:39:38	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314186.36	4545629.69	41.04070187	-71.21068058
SRW_20B2	D-2	8/14/2020	08:40:22	-	-	-	Sand with Ripples	No	None	Glacial Drift	314183.73	4545644.01	41.04083024	-71.21071609
SRW_20B2	D-2	8/14/2020	08:42:08	-	End	-	Sand with Ripples	No	None	Glacial Drift	314201.87	4545659.25	41.04097151	-71.21050506
SRW_20B2	D-2	8/14/2020	08:42:09	-	Start	-	Gravelly Sand	No	None	Glacial Drift	314201.87	4545659.53	41.04097401	-71.2105051

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	D-2	8/14/2020	08:43:09	-	End	-	Gravelly Sand	No	None	Glacial Drift	314211.69	4545668.49	41.04105694	-71.21039104
SRW_20B2	D-2	8/14/2020	08:43:10	-	Start	-	Sand with Ripples	No	None	Glacial Drift	314212.08	4545668.37	41.04105594	-71.21038643
SRW_20B2	D-2	8/14/2020	08:46:26	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314183.64	4545723.21	41.0415431	-71.21074104
SRW_20B2	D-2	8/14/2020	08:46:54	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314181.58	4545730.78	41.0416108	-71.21076779
SRW_20B2	D-2	8/14/2020	08:48:05	-	-	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314190.15	4545744.84	41.04173933	-71.21067014
SRW_20B2	D-2	8/14/2020	08:48:37	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314194.47	4545749.52	41.0417824	-71.21062022
SRW_20B2	D-2	8/14/2020	08:49:14	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314199.01	4545757.02	41.04185097	-71.21056856
SRW_20B2	D-2	8/14/2020	08:49:52	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314198.57	4545765.77	41.04192959	-71.21057632
SRW_20B2	D-2	8/14/2020	08:50:50	-	-	Start/End	Sand with Ripples	Yes	None	Coarse Sediment - Mobile with Medium Density Boulder Field	314182.53	4545783.85	41.04208871	-71.21077246
SRW_20B2	D-2	8/14/2020	08:51:12	-	-	-	Sand with Ripples	No	None	Glacial Drift	314179.92	4545793.49	41.04217487	-71.21080645
SRW_20B2	D-2	8/14/2020	08:51:49	-	-	Start/End	Sand with Ripples	Yes	None	Glacial Drift	314170.09	4545805.68	41.04228237	-71.21092697
SRW_20B2	D-2	8/14/2020	08:53:28	-	End	-	Sand with Ripples	No	None	Glacial Drift	314172.59	4545833.14	41.04253015	-71.2109055
SRW_20B2	D-2	8/14/2020	08:53:29	-	Start	-	Gravelly Sand	No	None	Glacial Drift	314172.71	4545833.31	41.04253168	-71.21090412
SRW_20B2	D-2	8/14/2020	08:54:38	-	End	-	Gravelly Sand	No	None	Glacial Drift	314184.13	4545844.38	41.04263389	-71.21077169
SRW_20B2	D-2	8/14/2020	08:54:39	-	Start	Start/End	Sandy Gravel	Yes	None	Glacial Drift	314184.18	4545844.6	41.04263595	-71.21077116
SRW_20B2	D-2	8/14/2020	08:54:57	-	End	-	Sandy Gravel	No	None	Glacial Drift	314186.03	4545848.49	41.04267133	-71.21075044
SRW_20B2	D-2	8/14/2020	08:54:58	-	Start	-	Gravelly Sand	No	None	Glacial Drift	314185.98	4545848.85	41.04267458	-71.21075103
SRW_20B2	D-2	8/14/2020	08:55:21	-	End	-	Gravelly Sand	No	None	Glacial Drift	314184.66	4545855.11	41.04273066	-71.21076869
SRW_20B2	D-2	8/14/2020	08:55:22	-	Start	-	Sandy Gravel	No	None	Glacial Drift	314184.45	4545855.44	41.04273354	-71.21077132
SRW_20B2	D-2	8/14/2020	08:55:32	-	End	-	Sandy Gravel	No	None	Glacial Drift	314180.73	4545859.53	41.04276948	-71.21081676
SRW_20B2	D-2	8/14/2020	08:55:33	-	Start	-	Gravelly Sand	No	None	Glacial Drift	314180.4	4545860.01	41.04277378	-71.21082082
SRW_20B2	D-2	8/14/2020	08:55:54	-	End	-	Gravelly Sand	No	None	Glacial Drift	314169.65	4545868.97	41.04285195	-71.21095134
SRW_20B2	D-2	8/14/2020	08:55:55	-	Start	-	Sandy Gravel	No	None	Glacial Drift	314169.37	4545869.34	41.04285526	-71.21095475
SRW_20B2	D-2	8/14/2020	08:56:25	-	End	-	Sandy Gravel	No	None	Glacial Drift	314161.05	4545879.75	41.042947	-71.21105674
SRW_20B2	D-2	8/14/2020	08:56:26	-	Start	Start	Gravels	Yes	None	Glacial Drift	314160.76	4545880.08	41.04294994	-71.21106036
SRW_20B2	D-2	8/14/2020	08:56:34	-	End	-	Gravels	Yes	None	Glacial Drift	314158.99	4545882.31	41.04296964	-71.21108201
SRW_20B2	D-2	8/14/2020	08:56:35	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	314158.86	4545882.7	41.04297312	-71.21108376
SRW_20B2	D-2	8/14/2020	08:58:57	-	End	-	Gravelly Sand	No	None	Glacial Drift	314141.91	4545927.31	41.04337078	-71.21129873
SRW_20B2	D-2	8/14/2020	08:58:58	-	Start	-	Sandy Gravel	No	None	Glacial Drift	314142	4545927.71	41.04337435	-71.21129774
SRW_20B2	D-2	8/14/2020	08:59:24	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	314146.95	4545935.69	41.04344737	-71.21124129
SRW_20B2	D-2	8/14/2020	08:59:41	-	End	-	Sandy Gravel	No	None	Glacial Drift	314150.33	4545939.63	41.04348358	-71.21120232
SRW_20B2	D-2	8/14/2020	08:59:42	-	Start	-	Gravelly Sand	No	None	Glacial Drift	314150.68	4545939.54	41.0434829	-71.21119814
SRW_20B2	D-2	8/14/2020	09:00:44	-	End	-	Gravelly Sand	No	None	Glacial Drift	314163.67	4545941.84	41.04350648	-71.21104439
SRW_20B2	D-2	8/14/2020	09:00:45	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	314163.82	4545941.57	41.04350411	-71.2110425
SRW_20B2	D-2	8/14/2020	09:01:14	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	314169.42	4545933.76	41.04343512	-71.21097353
SRW_20B2	D-2	8/14/2020	09:01:15	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	314169.64	4545933.19	41.04343006	-71.21097074
SRW_20B2	D-2	8/14/2020	09:02:39	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	314194.97	4545920.66	41.04332301	-71.21066586
SRW_20B2	D-2	8/14/2020	09:02:59	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	314202.34	4545918.7	41.04330702	-71.21057762
SRW_20B2	D-2	8/14/2020	09:03:13	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	314205.24	4545918.56	41.04330649	-71.21054306
SRW_20B2	D-2	8/14/2020	09:03:22	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	314207.44	4545919.68	41.04331706	-71.21051731
SRW_20B2	D-2	8/14/2020	09:05:01	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	314209.31	4545944.73	41.04354295	-71.21050265
SRW_20B2	D-2	8/14/2020	09:05:14	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	314207.01	4545947.16	41.04356426	-71.21053063
SRW_20B2	D-2	8/14/2020	09:05:15	End	End	-	Gravelly Sand	No	None	Glacial Drift	314206.62	4545947.39	41.04356625	-71.21053544
SRW_20B2	D-3	8/14/2020	09:48:35	Start	Start	-	Off Bottom	N/A	N/A	Glacial Drift	313059.88	4545832.4	41.04226882	-71.22413439
SRW_20B2	D-3	8/14/2020	09:49:37	-	End	-	Off Bottom	N/A	N/A	Glacial Drift	313076.41	4545823.83	41.0421954	-71.22393526

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	D-3	8/14/2020	09:49:38	-	Start	-	Sandy Gravel	No	None	Glacial Drift	313076.62	4545824.04	41.04219737	-71.22393284
SRW_20B2	D-3	8/14/2020	09:49:45	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313078.92	4545823.67	41.04219457	-71.22390543
SRW_20B2	D-3	8/14/2020	09:53:55	-	End	-	Sandy Gravel	No	None	Glacial Drift	313134.81	4545871.07	41.04263404	-71.22325526
SRW_20B2	D-3	8/14/2020	09:53:56	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313135.14	4545870.72	41.04263095	-71.22325131
SRW_20B2	D-3	8/14/2020	09:54:31	-	End	-	Gravelly Sand	No	None	Glacial Drift	313143.21	4545857.45	41.04251344	-71.22315129
SRW_20B2	D-3	8/14/2020	09:54:32	-	Start	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313143.43	4545857.56	41.04251446	-71.2231487
SRW_20B2	D-3	8/14/2020	09:56:12	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313169.26	4545850.32	41.04245522	-71.2228395
SRW_20B2	D-3	8/14/2020	09:56:23	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313172.05	4545851.31	41.04246471	-71.22280652
SRW_20B2	D-3	8/14/2020	09:57:00	-	End	-	Sandy Gravel	No	None	Glacial Drift	313179.59	4545857.27	41.04252011	-71.22271876
SRW_20B2	D-3	8/14/2020	09:57:01	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313179.7	4545857.61	41.04252317	-71.22271752
SRW_20B2	D-3	8/14/2020	09:57:18	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	313181.72	4545860.4	41.04254882	-71.22269435
SRW_20B2	D-3	8/14/2020	09:57:33	-	End	-	Gravelly Sand	No	None	Glacial Drift	313183.25	4545863.96	41.04258121	-71.22267724
SRW_20B2	D-3	8/14/2020	09:57:34	-	Start	-	Gravels	No	None	Glacial Drift	313183.48	4545864.2	41.04258343	-71.22267454
SRW_20B2	D-3	8/14/2020	09:57:42	-	-	Start/End	Gravels	Yes	None	Glacial Drift	313184.92	4545866.42	41.04260371	-71.22265818
SRW_20B2	D-3	8/14/2020	09:57:50	-	End	-	Gravels	No	None	Glacial Drift	313186.28	4545868.43	41.04262208	-71.22264255
SRW_20B2	D-3	8/14/2020	09:57:51	-	Start	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313186.47	4545868.72	41.04262472	-71.22264036
SRW_20B2	D-3	8/14/2020	09:59:59	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313209.62	4545866.33	41.0426086	-71.22236442
SRW_20B2	D-3	8/14/2020	10:00:12	-	-	Start	Sandy Gravel	Yes	None	Glacial Drift	313211.21	4545862.15	41.04257125	-71.22234429
SRW_20B2	D-3	8/14/2020	10:00:28	-	End	End	Sandy Gravel	Yes	None	Glacial Drift	313213.55	4545855.63	41.04251312	-71.22231446
SRW_20B2	D-3	8/14/2020	10:00:29	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313213.61	4545855.08	41.04250821	-71.22231358
SRW_20B2	D-3	8/14/2020	10:02:43	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	313242.79	4545827.45	41.04226616	-71.2219583
SRW_20B2	D-3	8/14/2020	10:03:03	-	End	-	Gravelly Sand	No	None	Glacial Drift	313246.83	4545829.18	41.04228269	-71.22191085
SRW_20B2	D-3	8/14/2020	10:03:04	-	Start	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313246.96	4545829.42	41.0422849	-71.22190936
SRW_20B2	D-3	8/14/2020	10:03:37	-	End	-	Sandy Gravel	No	None	Glacial Drift	313243.77	4545839.21	41.04237224	-71.22195019
SRW_20B2	D-3	8/14/2020	10:03:38	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313243.56	4545839.68	41.04237645	-71.22195285
SRW_20B2	D-3	8/14/2020	10:03:56	-	End	-	Gravelly Sand	No	None	Glacial Drift	313239.15	4545847.83	41.04244884	-71.22200775
SRW_20B2	D-3	8/14/2020	10:03:57	-	Start	-	Sandy Gravel	No	None	Glacial Drift	313238.87	4545848.31	41.04245304	-71.22201128
SRW_20B2	D-3	8/14/2020	10:05:02	-	End	-	Sandy Gravel	No	None	Glacial Drift	313241.33	4545866.63	41.04261857	-71.22198757
SRW_20B2	D-3	8/14/2020	10:05:03	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313241.61	4545866.79	41.04262006	-71.22198426
SRW_20B2	D-3	8/14/2020	10:05:17	-	End	-	Gravelly Sand	No	None	Glacial Drift	313245.71	4545867.99	41.04263174	-71.22193583
SRW_20B2	D-3	8/14/2020	10:05:18	-	Start	-	Sandy Gravel	No	None	Glacial Drift	313245.97	4545867.93	41.04263126	-71.22193278
SRW_20B2	D-3	8/14/2020	10:05:22	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313246.84	4545868.18	41.04263373	-71.22192254
SRW_20B2	D-3	8/14/2020	10:05:31	-	-	Start/End	Sandy Gravel	Yes	Northern Star Coral	Glacial Drift	313248.47	4545867.96	41.04263218	-71.22190308
SRW_20B2	D-3	8/14/2020	10:05:47	-	End	-	Sandy Gravel	No	None	Glacial Drift	313250.93	4545866.46	41.04261921	-71.22187341
SRW_20B2	D-3	8/14/2020	10:05:48	-	Start	Start	Gravels	Yes	None	Glacial Drift	313251.15	4545866.56	41.04262012	-71.22187079
SRW_20B2	D-3	8/14/2020	10:06:55	-	End	-	Gravels	Yes	None	Glacial Drift	313260.61	4545852.97	41.04249998	-71.2217542
SRW_20B2	D-3	8/14/2020	10:06:56	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	313260.73	4545852.59	41.04249663	-71.22175266
SRW_20B2	D-3	8/14/2020	10:07:07	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	313261.4	4545849.53	41.04246918	-71.22174371
SRW_20B2	D-3	8/14/2020	10:08:46	-	End	-	Gravelly Sand	No	None	Glacial Drift	313282.91	4545832.09	41.04231712	-71.22148275
SRW_20B2	D-3	8/14/2020	10:08:47	-	Start	-	Sandy Gravel	No	None	Glacial Drift	313283.07	4545832.02	41.04231653	-71.22148085
SRW_20B2	D-3	8/14/2020	10:10:11	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313299.35	4545837.79	41.04237228	-71.221289
SRW_20B2	D-3	8/14/2020	10:10:33	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313304.06	4545840.94	41.04240166	-71.22123395
SRW_20B2	D-3	8/14/2020	10:12:16	-	End	-	Sandy Gravel	No	None	Glacial Drift	313322.9	4545856.34	41.04254461	-71.22101458
SRW_20B2	D-3	8/14/2020	10:12:17	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313322.98	4545856.8	41.04254876	-71.22101376
SRW_20B2	D-3	8/14/2020	10:12:51	-	End	-	Gravelly Sand	No	None	Glacial Drift	313329.16	4545859.37	41.0425733	-71.22094118
SRW_20B2	D-3	8/14/2020	10:12:52	-	Start	-	Sandy Gravel	No	None	Glacial Drift	313329.46	4545859.44	41.042574	-71.22093755
SRW_20B2	D-3	8/14/2020	10:13:57	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313343.2	4545850.28	41.04249472	-71.22077143
SRW_20B2	D-3	8/14/2020	10:14:36	-	End	-	Sandy Gravel	No	None	Glacial Drift	313350.14	4545843.91	41.04243893	-71.220687
SRW_20B2	D-3	8/14/2020	10:14:37	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313350.3	4545843.74	41.04243746	-71.220685
SRW_20B2	D-3	8/14/2020	10:14:52	-	End	-	Gravelly Sand	No	None	Glacial Drift	313353.05	4545841.53	41.04241819	-71.22065167

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	D-3	8/14/2020	10:14:53	-	Start	-	Sandy Gravel	No	None	Glacial Drift	313353.23	4545841.27	41.0424159	-71.22064953
SRW_20B2	D-3	8/14/2020	10:16:02	-	-	Start	Sandy Gravel	Yes	None	Glacial Drift	313370.27	4545833.84	41.04235297	-71.22044467
SRW_20B2	D-3	8/14/2020	10:16:13	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313373.89	4545834.04	41.04235559	-71.22040163
SRW_20B2	D-3	8/14/2020	10:16:14	-	Start	-	Gravels	Yes	None	Glacial Drift	313374.36	4545833.83	41.04235382	-71.22039598
SRW_20B2	D-3	8/14/2020	10:16:40	-	End	-	Gravels	Yes	None	Glacial Drift	313381.83	4545834.78	41.042364	-71.22030753
SRW_20B2	D-3	8/14/2020	10:16:41	-	Start	End	Sandy Gravel	Yes	None	Glacial Drift	313382.13	4545834.57	41.04236218	-71.22030383
SRW_20B2	D-3	8/14/2020	10:17:04	-	End	-	Sandy Gravel	No	None	Glacial Drift	313385.96	4545836.52	41.04238062	-71.22025895
SRW_20B2	D-3	8/14/2020	10:17:05	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313386.24	4545836.58	41.04238129	-71.22025558
SRW_20B2	D-3	8/14/2020	10:18:21	-	End	-	Gravelly Sand	No	None	Glacial Drift	313388.99	4545854.77	41.04254564	-71.22022836
SRW_20B2	D-3	8/14/2020	10:18:22	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	313388.85	4545855.17	41.0425492	-71.22023017
SRW_20B2	D-3	8/14/2020	10:18:39	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313386.91	4545860.73	41.0425988	-71.22025498
SRW_20B2	D-3	8/14/2020	10:18:40	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	313386.84	4545860.85	41.04259988	-71.22025581
SRW_20B2	D-3	8/14/2020	10:18:44	-	End	-	Gravelly Sand	No	None	Glacial Drift	313386.2	4545862.05	41.04261051	-71.22026377
SRW_20B2	D-3	8/14/2020	10:18:45	-	Start	Start	Gravels	Yes	None	Glacial Drift	313386.25	4545862.01	41.04261019	-71.22026316
SRW_20B2	D-3	8/14/2020	10:18:58	-	End	-	Gravels	Yes	None	Glacial Drift	313385.05	4545866.2	41.04264761	-71.22027871
SRW_20B2	D-3	8/14/2020	10:18:59	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	313385.09	4545866.37	41.04264913	-71.22027825
SRW_20B2	D-3	8/14/2020	10:19:16	-	End	-	Gravelly Sand	No	None	Glacial Drift	313384.08	4545872.68	41.04270568	-71.22029221
SRW_20B2	D-3	8/14/2020	10:19:17	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	313383.98	4545873.21	41.0427105	-71.22029357
SRW_20B2	D-3	8/14/2020	10:20:05	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	313383.05	4545882.16	41.04279078	-71.22030726
SRW_20B2	D-3	8/14/2020	10:20:43	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313382.58	4545879.89	41.04277024	-71.22031219
SRW_20B2	D-3	8/14/2020	10:21:09	-	-	Start	Sandy Gravel	Yes	None	Glacial Drift	313384.02	4545871.29	41.04269319	-71.22029249
SRW_20B2	D-3	8/14/2020	10:21:23	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	313385.82	4545867.21	41.04265686	-71.22026988
SRW_20B2	D-3	8/14/2020	10:21:37	-	-	Start	Sandy Gravel	Yes	None	Glacial Drift	313388.2	4545863.73	41.04262607	-71.22024052
SRW_20B2	D-3	8/14/2020	10:22:35	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313401.07	4545855.76	41.04255729	-71.22008503
SRW_20B2	D-3	8/14/2020	10:22:36	-	Start	-	Gravels	Yes	None	Glacial Drift	313401.32	4545855.84	41.04255808	-71.22008215
SRW_20B2	D-3	8/14/2020	10:23:20	-	End	-	Gravels	Yes	None	Glacial Drift	313410.94	4545850.73	41.04251425	-71.21996625
SRW_20B2	D-3	8/14/2020	10:23:21	-	Start	-	Gravelly Sand	Yes	None	Glacial Drift	313411.2	4545850.55	41.04251271	-71.2199631
SRW_20B2	D-3	8/14/2020	10:23:44	-	End	-	Gravelly Sand	Yes	None	Glacial Drift	313417.06	4545846.82	41.04248046	-71.2198923
SRW_20B2	D-3	8/14/2020	10:23:45	-	Start	-	Gravels	Yes	None	Glacial Drift	313417.22	4545847.22	41.04248413	-71.21989043
SRW_20B2	D-3	8/14/2020	10:24:16	-	End	-	Gravels	Yes	None	Glacial Drift	313424.61	4545844.11	41.04245779	-71.21980173
SRW_20B2	D-3	8/14/2020	10:24:17	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	313424.9	4545844.27	41.04245929	-71.21979824
SRW_20B2	D-3	8/14/2020	10:24:23	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	313426.83	4545843.53	41.04245308	-71.21977516
SRW_20B2	D-3	8/14/2020	10:24:36	-	End	-	Gravelly Sand	No	None	Glacial Drift	313430.73	4545842.24	41.0424424	-71.21972838
SRW_20B2	D-3	8/14/2020	10:24:37	-	Start	Start	Gravels	Yes	None	Glacial Drift	313430.96	4545842.24	41.04244249	-71.21972562
SRW_20B2	D-3	8/14/2020	10:25:09	-	End	-	Gravels	Yes	None	Glacial Drift	313440.01	4545840.91	41.04243251	-71.21961765
SRW_20B2	D-3	8/14/2020	10:25:10	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	313440.15	4545841.17	41.04243489	-71.21961603
SRW_20B2	D-3	8/14/2020	10:25:19	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313442.57	4545841.01	41.04243408	-71.21958718
SRW_20B2	D-3	8/14/2020	10:25:20	-	Start	-	Gravels	Yes	None	Glacial Drift	313442.85	4545841.06	41.04243459	-71.21958392
SRW_20B2	D-3	8/14/2020	10:25:26	-	End	-	Gravels	Yes	None	Glacial Drift	313444.26	4545841.21	41.04243619	-71.21956722
SRW_20B2	D-3	8/14/2020	10:25:27	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	313444.35	4545841.47	41.04243863	-71.21956624
SRW_20B2	D-3	8/14/2020	10:25:35	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313445.66	4545843.11	41.04245367	-71.21955116
SRW_20B2	D-3	8/14/2020	10:25:36	-	Start	End	Sand with Ripples	Yes	None	Glacial Drift	313445.99	4545843.11	41.04245375	-71.21954721
SRW_20B2	D-3	8/14/2020	10:25:52	-	End	-	Sand with Ripples	No	None	Glacial Drift	313448.02	4545848.46	41.04250237	-71.21952474
SRW_20B2	D-3	8/14/2020	10:25:53	-	Start	Start	Gravels	Yes	None	Glacial Drift	313447.97	4545849.14	41.04250849	-71.21952544
SRW_20B2	D-3	8/14/2020	10:26:04	-	End	-	Gravels	Yes	None	Glacial Drift	313448.86	4545853.5	41.04254789	-71.21951625
SRW_20B2	D-3	8/14/2020	10:26:05	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	313449.02	4545853.75	41.04255023	-71.21951438
SRW_20B2	D-3	8/14/2020	10:26:12	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313449.75	4545855.63	41.04256725	-71.21950626
SRW_20B2	D-3	8/14/2020	10:26:13	-	Start	End	Sand with Ripples	Yes	None	Glacial Drift	313449.78	4545855.99	41.04257053	-71.21950609
SRW_20B2	D-3	8/14/2020	10:26:29	-	End	-	Sand with Ripples	No	None	Glacial Drift	313451.07	4545860.35	41.04261011	-71.21949198
SRW_20B2	D-3	8/14/2020	10:26:30	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313451.29	4545860.49	41.04261135	-71.21948948
SRW_20B2	D-3	8/14/2020	10:27:22	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	313457.26	4545869.43	41.04269327	-71.21942122

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	D-3	8/14/2020	10:27:37	-	End	-	Gravelly Sand	No	None	Glacial Drift	313460.41	4545871.07	41.04270868	-71.21938423
SRW_20B2	D-3	8/14/2020	10:27:38	-	Start	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313460.65	4545871.05	41.04270861	-71.21938141
SRW_20B2	D-3	8/14/2020	10:27:45	-	End	-	Sandy Gravel	No	None	Glacial Drift	313461.66	4545871.84	41.04271594	-71.21936959
SRW_20B2	D-3	8/14/2020	10:27:46	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313461.8	4545871.98	41.04271722	-71.21936795
SRW_20B2	D-3	8/14/2020	10:29:50	-	End	-	Gravelly Sand	No	None	Glacial Drift	313470.24	4545875.86	41.04275408	-71.2192688
SRW_20B2	D-3	8/14/2020	10:29:51	-	Start	-	Sand and Mud	No	None	Glacial Drift	313470.14	4545876.15	41.0427567	-71.21927011
SRW_20B2	D-3	8/14/2020	10:30:07	-	End	-	Sand and Mud	No	None	Glacial Drift	313468.92	4545880.18	41.04279268	-71.21928582
SRW_20B2	D-3	8/14/2020	10:30:08	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313468.86	4545880.4	41.04279461	-71.2192866
SRW_20B2	D-3	8/14/2020	10:30:40	End	End	-	Gravelly Sand	No	None	Glacial Drift	313470.28	4545888.9	41.04287144	-71.21927226
SRW_20B2	D-4	8/14/2020	11:07:34	Start	Start	-	Off Bottom	N/A	N/A	Glacial Drift	313141.85	4545816.83	41.04214741	-71.2231552
SRW_20B2	D-4	8/14/2020	11:08:24	-	End	-	Off Bottom	N/A	N/A	Glacial Drift	313154.46	4545804.87	41.04204265	-71.22300163
SRW_20B2	D-4	8/14/2020	11:08:25	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313154.66	4545804.53	41.04203965	-71.2229991
SRW_20B2	D-4	8/14/2020	11:08:44	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	313158.56	4545798.45	41.04198582	-71.22295096
SRW_20B2	D-4	8/14/2020	11:08:57	-	End	-	Gravelly Sand	No	None	Glacial Drift	313161.12	4545793.66	41.04194326	-71.2229191
SRW_20B2	D-4	8/14/2020	11:08:58	-	Start	-	Sandy Gravel	No	None	Glacial Drift	313161.28	4545793.32	41.04194028	-71.22291704
SRW_20B2	D-4	8/14/2020	11:09:12	-	-	Start/End	Sandy Gravel	Yes	Lobster	Glacial Drift	313163.96	4545790.25	41.04191321	-71.22288424
SRW_20B2	D-4	8/14/2020	11:09:25	-	End	-	Sandy Gravel	No	None	Glacial Drift	313166.27	4545786.05	41.041876	-71.22285551
SRW_20B2	D-4	8/14/2020	11:09:26	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313166.51	4545785.9	41.04187466	-71.2228526
SRW_20B2	D-4	8/14/2020	11:09:36	-	End	-	Gravelly Sand	No	None	Glacial Drift	313168.4	4545783.11	41.04184998	-71.2228293
SRW_20B2	D-4	8/14/2020	11:09:37	-	Start	Start	Gravels	Yes	None	Glacial Drift	313168.56	4545782.88	41.04184799	-71.22282729
SRW_20B2	D-4	8/14/2020	11:09:47	-	End	-	Gravels	Yes	None	Glacial Drift	313170.1	4545780.43	41.04182624	-71.22280824
SRW_20B2	D-4	8/14/2020	11:09:48	-	Start	End	Sandy Gravel	Yes	None	Glacial Drift	313170.31	4545780.2	41.04182427	-71.2228057
SRW_20B2	D-4	8/14/2020	11:10:08	-	End	-	Sandy Gravel	No	None	Glacial Drift	313174.63	4545777.36	41.04179967	-71.22275346
SRW_20B2	D-4	8/14/2020	11:10:09	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313174.89	4545777.17	41.04179801	-71.22275034
SRW_20B2	D-4	8/14/2020	11:10:28	-	End	-	Gravelly Sand	No	None	Glacial Drift	313180.08	4545775	41.04177964	-71.22268801
SRW_20B2	D-4	8/14/2020	11:10:29	-	Start	Start	Gravels	Yes	None	Glacial Drift	313180.38	4545774.87	41.04177857	-71.22268443
SRW_20B2	D-4	8/14/2020	11:10:38	-	End	-	Gravels	Yes	None	Glacial Drift	313182.89	4545773.96	41.04177099	-71.22265428
SRW_20B2	D-4	8/14/2020	11:10:39	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	313183.21	4545774.15	41.04177278	-71.22265055
SRW_20B2	D-4	8/14/2020	11:10:45	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	313184.93	4545773.57	41.04176792	-71.22262993
SRW_20B2	D-4	8/14/2020	11:10:49	-	End	-	Sandy Gravel	No	None	Glacial Drift	313186.1	4545773.02	41.04176323	-71.22261576
SRW_20B2	D-4	8/14/2020	11:10:50	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313186.43	4545772.98	41.04176298	-71.22261192
SRW_20B2	D-4	8/14/2020	11:10:58	-	End	-	Gravelly Sand	No	None	Glacial Drift	313188.54	4545771.89	41.04175362	-71.22258649
SRW_20B2	D-4	8/14/2020	11:10:59	-	Start	Start	Gravels	Yes	None	Glacial Drift	313188.74	4545771.87	41.04175348	-71.22258411
SRW_20B2	D-4	8/14/2020	11:11:05	-	End	-	Gravels	Yes	None	Glacial Drift	313190.09	4545771.18	41.04174756	-71.22256784
SRW_20B2	D-4	8/14/2020	11:11:06	-	Start	End	Sand and Mud	Yes	None	Glacial Drift	313190.33	4545771.18	41.04174762	-71.222565
SRW_20B2	D-4	8/14/2020	11:11:19	-	-	Start/End	Sand and Mud	Yes	None	Glacial Drift	313193.25	4545769.64	41.04173447	-71.22252979
SRW_20B2	D-4	8/14/2020	11:11:27	-	End	-	Sand and Mud	No	None	Glacial Drift	313195.24	4545768.5	41.04172469	-71.22250582
SRW_20B2	D-4	8/14/2020	11:11:28	-	Start	-	Sandy Gravel	No	None	Glacial Drift	313195.54	4545768.43	41.04172406	-71.22250218
SRW_20B2	D-4	8/14/2020	11:12:30	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313212.87	4545758.52	41.04163883	-71.22229317
SRW_20B2	D-4	8/14/2020	11:12:37	-	End	-	Sandy Gravel	No	None	Glacial Drift	313214.77	4545758.78	41.04164162	-71.22227063
SRW_20B2	D-4	8/14/2020	11:12:38	-	Start	Start	Gravels	Yes	None	Glacial Drift	313215.06	4545758.76	41.04164149	-71.22226719
SRW_20B2	D-4	8/14/2020	11:12:50	-	End	-	Gravels	Yes	None	Glacial Drift	313217.94	4545758.82	41.04164275	-71.22223297
SRW_20B2	D-4	8/14/2020	11:12:51	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	313218.18	4545758.65	41.04164128	-71.2222301
SRW_20B2	D-4	8/14/2020	11:13:16	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	313225.2	4545758.69	41.04164322	-71.22214659
SRW_20B2	D-4	8/14/2020	11:13:33	-	End	-	Sandy Gravel	No	None	Glacial Drift	313229.99	4545757.56	41.04163411	-71.22208933
SRW_20B2	D-4	8/14/2020	11:13:34	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313230.11	4545757.99	41.04163803	-71.22208801
SRW_20B2	D-4	8/14/2020	11:16:10	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	313254.43	4545795.56	41.04198176	-71.22181027
SRW_20B2	D-4	8/14/2020	11:16:14	-	End	-	Gravelly Sand	No	None	Glacial Drift	313254.23	4545797.18	41.04199635	-71.22181318
SRW_20B2	D-4	8/14/2020	11:16:15	-	Start	-	Sandy Gravel	No	None	Glacial Drift	313254.02	4545797.65	41.04200053	-71.2218158
SRW_20B2	D-4	8/14/2020	11:16:22	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313253.99	4545800.26	41.042024	-71.22181687

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	D-4	8/14/2020	11:16:38	-	End	-	Sandy Gravel	No	None	Glacial Drift	313253.12	4545806.18	41.04207706	-71.22182908
SRW_20B2	D-4	8/14/2020	11:16:39	-	Start	Start	Gravels	Yes	None	Glacial Drift	313253.37	4545806.18	41.0420772	-71.22182604
SRW_20B2	D-4	8/14/2020	11:16:53	-	End	-	Gravels	Yes	None	Glacial Drift	313253.2	4545810.95	41.04212009	-71.2218296
SRW_20B2	D-4	8/14/2020	11:16:54	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	313253.21	4545811.25	41.04212275	-71.22182952
SRW_20B2	D-4	8/14/2020	11:17:37	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	313254.92	4545828.1	41.04227483	-71.22181426
SRW_20B2	D-4	8/14/2020	11:17:41	-	End	-	Gravelly Sand	No	None	Glacial Drift	313255.61	4545829.51	41.04228765	-71.22180651
SRW_20B2	D-4	8/14/2020	11:17:42	-	Start	Start	Gravels	Yes	None	Glacial Drift	313255.82	4545829.65	41.04228902	-71.22180412
SRW_20B2	D-4	8/14/2020	11:18:08	-	End	-	Gravels	Yes	None	Glacial Drift	313259.35	4545837.04	41.04235635	-71.22176432
SRW_20B2	D-4	8/14/2020	11:18:09	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	313259.55	4545837.24	41.04235815	-71.22176197
SRW_20B2	D-4	8/14/2020	11:18:25	-	End	-	Gravelly Sand	No	None	Glacial Drift	313263.76	4545838.49	41.0423704	-71.22171237
SRW_20B2	D-4	8/14/2020	11:18:26	-	Start	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313264.02	4545838.31	41.04236883	-71.22170922
SRW_20B2	D-4	8/14/2020	11:22:33	-	-	Start	Sandy Gravel	Yes	None	Glacial Drift	313293.26	4545770.74	41.04176734	-71.22134107
SRW_20B2	D-4	8/14/2020	11:23:09	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	313304.59	4545768.09	41.04174603	-71.22120559
SRW_20B2	D-4	8/14/2020	11:23:55	-	-	Start	Sandy Gravel	Yes	None	Glacial Drift	313315.95	4545764.77	41.04171877	-71.22106952
SRW_20B2	D-4	8/14/2020	11:24:40	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	313327.79	4545768.4	41.04175416	-71.22092981
SRW_20B2	D-4	8/14/2020	11:25:04	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313332.09	4545774.03	41.04180577	-71.22088047
SRW_20B2	D-4	8/14/2020	11:25:35	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313336.21	4545782.25	41.04188079	-71.22083396
SRW_20B2	D-4	8/14/2020	11:25:52	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313337.49	4545786.9	41.04192291	-71.22082019
SRW_20B2	D-4	8/14/2020	11:25:56	-	End	-	Sandy Gravel	No	None	Glacial Drift	313337.37	4545788.51	41.04193734	-71.22082211
SRW_20B2	D-4	8/14/2020	11:25:57	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313337.45	4545788.82	41.04194017	-71.22082126
SRW_20B2	D-4	8/14/2020	11:26:46	-	End	-	Gravelly Sand	No	None	Glacial Drift	313339.61	4545805.11	41.04208732	-71.22080051
SRW_20B2	D-4	8/14/2020	11:26:47	-	Start	-	Sandy Gravel	No	None	Glacial Drift	313339.66	4545805.55	41.0420913	-71.22079996
SRW_20B2	D-4	8/14/2020	11:27:17	-	End	-	Sandy Gravel	No	None	Glacial Drift	313343.12	4545809.67	41.04212918	-71.22076009
SRW_20B2	D-4	8/14/2020	11:27:18	-	Start	-	Gravelly Sand	No	None	Glacial Drift	313343.27	4545809.98	41.04213197	-71.22075842
SRW_20B2	D-4	8/14/2020	11:27:33	-	End	-	Gravelly Sand	No	None	Glacial Drift	313347.27	4545811.21	41.04214395	-71.22071129
SRW_20B2	D-4	8/14/2020	11:27:34	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	313347.67	4545811.54	41.04214706	-71.22070659
SRW_20B2	D-4	8/14/2020	11:27:46	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	313351.85	4545811.04	41.04214345	-71.22065667
SRW_20B2	D-4	8/14/2020	11:27:57	-	-	Start	Sandy Gravel	Yes	None	Glacial Drift	313355.25	4545809.68	41.04213201	-71.22061591
SRW_20B2	D-4	8/14/2020	11:28:05	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313357.28	4545807.44	41.04211236	-71.22059109
SRW_20B2	D-4	8/14/2020	11:28:06	-	Start	-	Gravels	Yes	None	Glacial Drift	313357.6	4545807.55	41.04211338	-71.22058736
SRW_20B2	D-4	8/14/2020	11:29:31	-	End	-	Gravels	Yes	None	Glacial Drift	313370.92	4545783.92	41.04190371	-71.22042179
SRW_20B2	D-4	8/14/2020	11:29:32	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	313371.06	4545783.72	41.04190195	-71.22042011
SRW_20B2	D-4	8/14/2020	11:31:09	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313384.04	4545750.19	41.04160313	-71.22025562
SRW_20B2	D-4	8/14/2020	11:31:10	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	313384.29	4545749.87	41.04160032	-71.22025249
SRW_20B2	D-4	8/14/2020	11:31:28	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	313389.21	4545743.71	41.041546	-71.22019215
SRW_20B2	D-4	8/14/2020	11:31:41	-	End	-	Gravelly Sand	No	None	Glacial Drift	313392.76	4545741.3	41.04152514	-71.22014929
SRW_20B2	D-4	8/14/2020	11:31:42	-	Start	Start	Gravels	Yes	None	Glacial Drift	313393.15	4545740.95	41.04152207	-71.22014454
SRW_20B2	D-4	8/14/2020	11:32:01	-	End	-	Gravels	Yes	None	Glacial Drift	313398.27	4545741.84	41.04153122	-71.22008388
SRW_20B2	D-4	8/14/2020	11:32:02	-	Start	-	Gravelly Sand	Yes	None	Glacial Drift	313398.57	4545741.84	41.04153131	-71.22008028
SRW_20B2	D-4	8/14/2020	11:32:51	-	End	-	Gravelly Sand	Yes	None	Glacial Drift	313408.54	4545746.31	41.0415738	-71.21996312
SRW_20B2	D-4	8/14/2020	11:32:52	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	313408.81	4545746.35	41.04157422	-71.21996
SRW_20B2	D-4	8/14/2020	11:33:15	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313411.81	4545750.67	41.04161376	-71.21992562
SRW_20B2	D-4	8/14/2020	11:33:16	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	313411.94	4545750.88	41.04161571	-71.21992412
SRW_20B2	D-4	8/14/2020	11:35:13	-	-	Start/End	Gravelly Sand	Yes	None	Glacial Drift	313433.99	4545768.66	41.04178081	-71.21966732
SRW_20B2	D-4	8/14/2020	11:35:23	-	End	-	Gravelly Sand	No	None	Glacial Drift	313435.15	4545769.94	41.04179264	-71.21965396
SRW_20B2	D-4	8/14/2020	11:35:24	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	313435.21	4545770.07	41.04179381	-71.2196533
SRW_20B2	D-4	8/14/2020	11:36:31	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313430.36	4545787.47	41.04194932	-71.21971624
SRW_20B2	D-4	8/14/2020	11:36:32	-	Start	-	Gravelly Sand	Yes	None	Glacial Drift	313429.98	4545787.79	41.04195212	-71.21972077
SRW_20B2	D-4	8/14/2020	11:36:43	-	End	-	Gravelly Sand	Yes	None	Glacial Drift	313426.26	4545790.68	41.04197729	-71.21976585
SRW_20B2	D-4	8/14/2020	11:36:44	-	Start	-	Gravels	Yes	None	Glacial Drift	313425.75	4545791.08	41.04198073	-71.21977206
SRW_20B2	D-4	8/14/2020	11:37:08	-	End	-	Gravels	Yes	None	Glacial Drift	313419.21	4545798.24	41.04204368	-71.21985206

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	D-4	8/14/2020	11:37:09	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	313419.14	4545798.42	41.0420453	-71.21985285
SRW_20B2	D-4	8/14/2020	11:37:27	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	313418.36	4545806.8	41.04212055	-71.21986475
SRW_20B2	D-4	8/14/2020	11:37:28	-	Start	End	Off Bottom	Yes	N/A	Glacial Drift	313418.5	4545807.45	41.04212642	-71.21986326
SRW_20B2	D-4	8/14/2020	11:38:05	-	End	-	Off Bottom	N/A	N/A	Glacial Drift	313420.21	4545822.69	41.04226405	-71.21984752
SRW_20B2	D-4	8/14/2020	11:38:06	-	Start	Start	Sandy Gravel	Yes	None	Glacial Drift	313420.35	4545822.83	41.04226534	-71.21984585
SRW_20B2	D-4	8/14/2020	11:38:43	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	313429.13	4545833.29	41.04236151	-71.21974463
SRW_20B2	D-4	8/14/2020	11:38:55	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313432.24	4545835.34	41.04238067	-71.21970834
SRW_20B2	D-4	8/14/2020	11:39:13	-	-	Start	Sandy Gravel	Yes	None	Glacial Drift	313436.24	4545838.64	41.04241127	-71.21966174
SRW_20B2	D-4	8/14/2020	11:39:42	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	313447.64	4545839.35	41.04242028	-71.21952645
SRW_20B2	D-4	8/14/2020	11:39:55	-	-	Start/End	Sandy Gravel	Yes	None	Glacial Drift	313451.29	4545839.89	41.04242597	-71.2194832
SRW_20B2	D-4	8/14/2020	11:40:04	-	-	Start	Sandy Gravel	Yes	None	Glacial Drift	313453.28	4545839.63	41.04242406	-71.21945947
SRW_20B2	D-4	8/14/2020	11:40:38	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	313462.86	4545834.12	41.04237664	-71.21934389
SRW_20B2	D-4	8/14/2020	11:40:43	End	End	-	Sandy Gravel	No	None	Glacial Drift	313464.42	4545833.34	41.04237002	-71.21932518
SRW_20B2	D-5	8/14/2020	12:21:41	Start	Start	-	Off Bottom	N/A	N/A	Glacial Drift	312265.85	4545672	41.0406423	-71.23352583
SRW_20B2	D-5	8/14/2020	12:22:06	-	End	-	Off Bottom	N/A	N/A	Glacial Drift	312266.16	4545682.79	41.04073952	-71.23352535
SRW_20B2	D-5	8/14/2020	12:22:07	-	Start	-	Gravelly Sand	No	None	Glacial Drift	312266.27	4545683	41.04074139	-71.23352412
SRW_20B2	D-5	8/14/2020	12:22:46	-	End	-	Gravelly Sand	No	None	Glacial Drift	312267.93	4545690.95	41.04081333	-71.23350679
SRW_20B2	D-5	8/14/2020	12:22:47	-	Start	Start	Gravels	Yes	None	Glacial Drift	312267.81	4545691.41	41.04081744	-71.23350837
SRW_20B2	D-5	8/14/2020	12:23:05	-	End	-	Gravels	Yes	None	Glacial Drift	312267.38	4545698.75	41.04088345	-71.23351573
SRW_20B2	D-5	8/14/2020	12:23:06	-	Start	End	Gravelly Sand	Yes	None	Glacial Drift	312267.55	4545699.01	41.04088581	-71.23351377
SRW_20B2	D-5	8/14/2020	12:23:24	-	End	-	Gravelly Sand	No	None	Glacial Drift	312265.57	4545708	41.04096628	-71.23354011
SRW_20B2	D-5	8/14/2020	12:23:25	-	Start	Start	Gravels	Yes	None	Glacial Drift	312265.29	4545708.63	41.04097189	-71.2335436
SRW_20B2	D-5	8/14/2020	12:23:36	-	End	-	Gravels	Yes	None	Glacial Drift	312263.83	4545714.35	41.04102307	-71.23356271
SRW_20B2	D-5	8/14/2020	12:23:37	-	Start	End	Sandy Gravel	Yes	None	Glacial Drift	312263.8	4545714.8	41.04102706	-71.23356319
SRW_20B2	D-5	8/14/2020	12:23:53	-	-	Start	Sandy Gravel	Yes	None	Glacial Drift	312261.38	4545722.28	41.04109389	-71.23359422
SRW_20B2	D-5	8/14/2020	12:24:10	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	312258.03	4545728.37	41.04114795	-71.23363593
SRW_20B2	D-5	8/14/2020	12:24:11	-	Start	End	Off Bottom	Yes	N/A	Glacial Drift	312257.68	4545728.84	41.04115209	-71.23364018
SRW_20B2	D-5	8/14/2020	12:24:18	-	End	-	Off Bottom	N/A	N/A	Glacial Drift	312256.65	4545731.21	41.04117321	-71.23365314
SRW_20B2	D-5	8/14/2020	12:24:19	-	Start	Start	Gravels	Yes	None	Glacial Drift	312256.55	4545731.56	41.04117631	-71.23365453
SRW_20B2	D-5	8/14/2020	12:24:27	-	End	-	Gravels	Yes	None	Glacial Drift	312255.02	4545734.99	41.0412068	-71.2336737
SRW_20B2	D-5	8/14/2020	12:24:28	-	Start	-	Off Bottom	Yes	N/A	Glacial Drift	312254.95	4545735.26	41.0412092	-71.23367457
SRW_20B2	D-5	8/14/2020	12:24:44	-	End	-	Off Bottom	Yes	N/A	Glacial Drift	312252.56	4545741.32	41.0412632	-71.2337049
SRW_20B2	D-5	8/14/2020	12:24:45	-	Start	-	Gravels	Yes	None	Glacial Drift	312252.26	4545741.78	41.04126728	-71.2337086
SRW_20B2	D-5	8/14/2020	12:28:20	-	End	-	Gravels	Yes	None	Glacial Drift	312258.44	4545801.17	41.04180331	-71.23365326
SRW_20B2	D-5	8/14/2020	12:28:21	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	312258.38	4545801.38	41.04180521	-71.23365403
SRW_20B2	D-5	8/14/2020	12:28:57	-	End	-	Sandy Gravel	Yes	None	Glacial Drift	312255.68	4545816.91	41.04194439	-71.23369076
SRW_20B2	D-5	8/14/2020	12:28:58	-	Start	-	Gravels	Yes	None	Glacial Drift	312255.6	4545817.45	41.0419492	-71.2336919
SRW_20B2	D-5	8/14/2020	12:30:36	-	End	-	Gravels	Yes	None	Glacial Drift	312258.2	4545818.02	41.04195492	-71.23366115
SRW_20B2	D-5	8/14/2020	12:30:37	-	Start	-	Sandy Gravel	Yes	None	Glacial Drift	312258.34	4545817.7	41.04195207	-71.23365945
SRW_20B2	D-5	8/14/2020	12:31:22	-	-	End	Sandy Gravel	Yes	None	Glacial Drift	312260.79	4545794.56	41.04174431	-71.23362322
SRW_20B2	D-5	8/14/2020	12:31:23	End	End	-	Sandy Gravel	No	None	Glacial Drift	312260.91	4545793.9	41.04173843	-71.23362165
SRW_20B2	D-6	8/14/2020	12:54:17	Start	Start/End	-	Gravelly Sand	No	None	Glacial Drift	311388.33	4545846.62	41.0420114	-71.24401163
SRW_20B2	D-6	8/14/2020	12:55:22	-	Start	-	Sand and Mud	No	None	Glacial Drift	311373.86	4545836.38	41.04191585	-71.2441806
SRW_20B2	D-6	8/14/2020	12:55:36	-	-	-	Sand and Mud	No	None	Coarse Sediment - Mobile with Low Density Boulder Field	311370.46	4545836.03	41.0419119	-71.24422092
SRW_20B2	D-6	8/14/2020	12:59:46	-	-	-	Sand and Mud	No	None	Mud and Sandy Mud	311309.32	4545838.87	41.04192327	-71.24494857
SRW_20B2	D-6	8/14/2020	13:13:20	-	End	-	Sand and Mud	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	311174.61	4545846.77	41.04196319	-71.24655261
SRW_20B2	D-6	8/14/2020	13:15:51	-	Start/End	-	Sand with Ripples	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	311149.79	4545854.87	41.0420303	-71.24685012

Survey ID	Transect ID	Date	Time	Transect	Substrate Period	Boulder Period	Substrate Type	Boulders Present?	Type of Sensitive Taxa	Mapped Habitat Type	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B2	D-6	8/14/2020	13:17:37	-	Start	-	Sand and Mud	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	311135.89	4545866.29	41.04212994	-71.24701893
SRW_20B2	D-6	8/14/2020	13:21:13	End	End	-	Sand and Mud	No	None	Coarse Sediment - Mobile with Medium Density Boulder Field	311106.55	4545875.7	41.04220783	-71.24737064

Attachment D – ICW HDD SAV Video Ground-Truth Data Analysis Results

Notes:

SAV=Submerged Aquatic Vegetation

Survey ID	Transect ID	Date	Time	Transect	SAV Period	SAV Present?	SAV Type	Macroalgae Present?	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B3	T01	9/8/2020	7:44:50	Start	-	No	None	Yes	172960.35	4517116.62	40.74001497	-72.87300703
SRW_20B3	T01	9/8/2020	7:46:15	-	-	No	None	Yes	172972.91	4517104.02	40.7399067	-72.87285214
SRW_20B3	T01	9/8/2020	7:46:59	-	-	No	None	Yes	172982.13	4517090.72	40.73979087	-72.87273623
SRW_20B3	T01	9/8/2020	7:55:12	-	-	No	None	Yes	173048.71	4516973.48	40.7387635	-72.87188826
SRW_20B3	T01	9/8/2020	8:01:14	End	-	No	None	Yes	173096.98	4516894.65	40.7380742	-72.8712767
SRW_20B3	T02	9/8/2020	8:07:10	Start	-	No	None	No	173143.23	4516894.9	40.73809473	-72.87073029
SRW_20B3	T02	9/8/2020	8:08:43	-	-	No	None	Yes	173131.04	4516904.58	40.73817695	-72.87087943
SRW_20B3	T02	9/8/2020	8:09:38	-	-	No	None	Yes	173123.63	4516917.86	40.73829332	-72.87097393
SRW_20B3	T02	9/8/2020	8:18:00	-	-	No	None	Yes	173053.15	4517024.44	40.73922333	-72.87186242
SRW_20B3	T02	9/8/2020	8:24:30	-	Start	Poor visibility	Poor visibility	Yes	173017.33	4517099.49	40.73988364	-72.87232484
SRW_20B3	T02	9/8/2020	8:25:04	-	End	Poor visibility	Poor visibility	Yes	173013.76	4517107.34	40.73995284	-72.8723711
SRW_20B3	T02	9/8/2020	8:25:34	End	-	No	None	Yes	173011.01	4517111.87	40.73999241	-72.87240599
SRW_20B3	T03	9/8/2020	8:35:37	Start	-	No	None	Yes	173056.9	4516951.62	40.73857033	-72.87178005
SRW_20B3	T03	9/8/2020	8:50:16	End	-	No	None	Yes	173265.68	4517025.66	40.73931863	-72.86935157
SRW_20B3	T04	9/8/2020	8:52:24	Start	-	No	None	Yes	173241.7	4517028.62	-72.86963647	40.73933574
SRW_20B3	T04	9/8/2020	9:04:18	End	-	No	None	Yes	173053	4516967.02	-72.87183422	40.73870715
SRW_20B3	T05	9/8/2020	9:13:00	Start	-	No	None	Yes	173206.82	4516653.23	40.7359479	-72.86985279
SRW_20B3	T05	9/8/2020	9:29:00	End	-	No	None	Yes	173397.07	4516781.66	40.73717768	-72.86767171
SRW_20B3	T06	9/8/2020	9:33:41	Start	-	No	None	Yes	173416.11	4516779.04	40.73716169	-72.86744543
SRW_20B3	T06	9/8/2020	9:35:08	-	-	No	None	Yes	173391.11	4516766.62	40.73704013	-72.8677343
SRW_20B3	T06	9/8/2020	9:39:00	-	Start	Poor visibility	Poor visibility	Yes	173353.75	4516728.88	40.73668612	-72.86815607
SRW_20B3	T06	9/8/2020	9:39:10	-	End	Poor visibility	Poor visibility	Yes	173351.67	4516727.92	40.73667666	-72.86818026
SRW_20B3	T06	9/8/2020	9:47:45	End	-	No	None	Yes	173216.81	4516635.86	40.7357957	-72.86972578
SRW_20B3	T07	9/8/2020	9:50:19	Start	-	No	None	Yes	173230.78	4516619.2	40.73565147	-72.86955198
SRW_20B3	T07	9/8/2020	10:01:06	End	-	No	None	Yes	173361.03	4516707.89	40.73650029	-72.86805922
SRW_20B3	T08	9/8/2020	10:04:46	Start	-	No	None	Yes	173373.22	4516714.72	40.73656651	-72.86791872
SRW_20B3	T08	9/8/2020	10:16:34	End	-	No	None	Yes	173243.05	4516599.58	40.73548004	-72.86939674
SRW_20B3	T09	9/8/2020	10:21:21	Start	-	No	None	Yes	173256.73	4516576.94	40.73528199	-72.86922326
SRW_20B3	T09	9/8/2020	10:26:54	End	-	No	None	Yes	173325.94	4516632.23	40.73580639	-72.86843434
SRW_20B3	T10	9/8/2020	10:28:58	Start	-	No	None	Yes	173322.35	4516616.02	40.73565923	-72.86846835
SRW_20B3	T10	9/8/2020	10:34:44	End	-	No	None	Yes	173267.06	4516569.15	40.735216	-72.86909713
SRW_20B3	T11	9/8/2020	10:38:06	Start	-	No	None	Yes	173274.67	4516552.11	40.7350659	-72.86899836
SRW_20B3	T11	9/8/2020	10:39:49	End	-	No	None	Yes	173295.43	4516564.79	40.73518814	-72.86875975
SRW_20B3	T12	9/8/2020	10:49:51	Start	-	No	None	Yes	173294.73	4516578.11	40.73530758	-72.86877485
SRW_20B3	T12	9/8/2020	10:58:25	End	-	No	None	Yes	173230.87	4516688.95	40.73627846	-72.86958726
SRW_20B3	T13	9/8/2020	11:01:28	Start	-	No	None	Yes	173261.65	4516705.65	40.7364408	-72.86923225
SRW_20B3	T13	9/8/2020	11:07:40	End	-	No	None	Yes	173322.64	4516618.98	40.73568593	-72.86846643
SRW_20B3	T14	9/8/2020	11:11:45	Start	-	No	None	Yes	173338.84	4516664.04	40.73609743	-72.86829851
SRW_20B3	T14	9/8/2020	11:16:35	End	-	No	None	Yes	173293.45	4516725.65	40.73663311	-72.86886691
SRW_20B3	T15	9/8/2020	11:28:51	Start	-	No	None	Yes	173044.43	4516987.06	40.7388839	-72.87194588
SRW_20B3	T15	9/8/2020	11:37:34	-	-	No	None	Yes	173159.62	4517027.98	40.73929741	-72.87060612
SRW_20B3	T15	9/8/2020	11:39:30	-	-	No	None	Yes	173188.52	4517036.67	40.73938695	-72.87026913
SRW_20B3	T15	9/8/2020	11:42:27	End	-	No	None	Yes	173238.68	4517053.39	40.73955719	-72.8696851
SRW_20B3	T16	9/8/2020	11:45:36	Start	-	No	None	Yes	173201.8	4517062.22	40.73962188	-72.87012554
SRW_20B3	T16	9/8/2020	11:55:32	End	-	No	None	Yes	173037.72	4517007.16	40.73906187	-72.87203563
SRW_20B3	T17	9/8/2020	11:58:21	Start	-	No	None	Yes	173028.57	4517027.76	40.73924339	-72.8721545
SRW_20B3	T17	9/8/2020	12:07:00	End	-	No	None	Yes	173173.48	4517075.92	40.73973383	-72.87046733

Survey ID	Transect ID	Date	Time	Transect	SAV Period	SAV Present?	SAV Type	Macroalgae Present?	X_UTM19N_m	Y_UTM19N_m	Lat_WGS84_N	Lon_WGS84_W
SRW_20B3	T18	9/8/2020	12:11:44	Start	-	No	None	Yes	173143.61	4517083.49	40.73978998	-72.8708242
SRW_20B3	T18	9/8/2020	12:12:37	End	-	No	None	Yes	173134.03	4517081.71	40.73977019	-72.87093647
SRW_20B3	T19	9/8/2020	12:15:40	Start	-	No	None	Yes	173152.79	4517078.16	40.73974568	-72.87071299
SRW_20B3	T19	9/8/2020	12:19:53	-	Start/End	Yes	Strands	Yes	173100.21	4517072.03	40.73966974	-72.87133112
SRW_20B3	T19	9/8/2020	12:22:41	-	Start/End	Yes	Strand	Yes	173062.34	4517058.83	40.73953606	-72.87177171
SRW_20B3	T19	9/8/2020	12:24:04	-	Start/End	Yes	Clumps	Yes	173038.43	4517049.47	40.73944243	-72.87204939
SRW_20B3	T19	9/8/2020	12:24:21	-	Start/End	Yes	Strands	Yes	173033.05	4517048.43	40.73943097	-72.87211239
SRW_20B3	T19	9/8/2020	12:24:54	End	-	No	None	Yes	173022.62	4517047.11	40.73941497	-72.87223492
SRW_20B3	T20	9/8/2020	12:30:50	Start	-	No	None	Yes	173013.92	4517065.12	40.73957341	-72.87234716
SRW_20B3	T20	9/8/2020	12:33:58	-	Start/End	Yes	Patch	Yes	173059.53	4517080.17	40.73972676	-72.87181602
SRW_20B3	T20	9/8/2020	12:37:40	End	-	No	None	Yes	173118.65	4517092.85	40.7398642	-72.87112402
SRW_20B3	T21	9/8/2020	12:42:07	Start	-	No	None	Yes	173007.95	4517082.73	40.73972934	-72.8724269
SRW_20B3	T21	9/8/2020	12:42:15	-	Start/End	Yes	Indeterminate	Yes	173011.04	4517083.46	40.73973704	-72.87239081
SRW_20B3	T21	9/8/2020	12:46:28	End	-	No	None	Yes	173083.43	4517111.05	40.74001377	-72.87154981
SRW_20B3	T22	9/8/2020	12:52:38	Start	-	No	None	Yes	173167.27	4516978.45	40.73885531	-72.8704898
SRW_20B3	T22	9/8/2020	13:09:00	End	-	No	None	Yes	173278.83	4516766.32	40.73699289	-72.86906096

Attachment E – Benthic Species & Life Stages with EFH in the Study Area Crosswalked to Mapped Benthic Habitat Types

Notes:

• NOAA designated EFH overlaps with the given project component and given habitat falls within the species life stage EFH definition.
- NOAA designated EFH overlaps with the given project component but the given habitat does not fall within the species life stage EFH definition.
☐ NOAA designated EFH does not overlap with the given project component.

[1] Species life stage unlikely to utilize mobile habitats.

[2] Species life stage may be present on any given project habitat type with the presence of boulders or SAV.

References: Atlantic Wolffish BRT 2009, Brodziak 2005, Cargnelli et al. 1999a, 1999b, 1999c, 1999d, Chang et al. 1999a, 1999b, Drohan et al. 2007, Hart and Chute 2004, Jacobson 2005, Lock and Packer 2004, Lough 2004, NEFMC 2017, NOAA Fisheries 2017, Packer at al. 1999, Packer et al. 2003a, 2003b, 2003c, Pereira et al. 1999, Steihlik 2007, Steimle et al. 1999a, 1999b, 1999c, 1999d

Species Name	Benthic Life Stage	Sunrise Wind Habitat Types													Distinct habitat features that serve as EFH regardless of underlying substrate[2]	
		Glacial Drift	Coarse Sediment				Sand and Muddy Sand				Mud and Sandy Mud					
		SRWF	SRWF	SRWEC-OCS	SRWEC-NYS	ICW HDD	SRWF	SRWEC-OCS	SRWEC-NYS	ICW HDD	SRWF	SRWEC-OCS	SRWEC-NYS	ICW HDD	Boulders	SAV (ICW HDD)
New England Finfish																
Atlantic Cod	Juveniles	•	•	•			-	-			-	-			•	
	Adults	•	•	•	-		-	-	-		-	-	-		•	
Atlantic Herring	Eggs	•	•				-				-				•	
Atlantic Wolffish	Eggs	•	•				-				-				•	
	Larvae	•	•[1]				-				-				•	
	Adults	•	•				•				-				•	
Haddock	Juveniles	•	•	•			-	-			-	-			•	
	Adults			•				•				-			•	
Monkfish	Juveniles	-	•	•			•	•			•	•			•	
	Adults	-	•	•	•		•	•	•		•	•	•		•	
Ocean Pout	Eggs	•	•	•			•	•			-	-			•	
	Juveniles	•	•	•			•	•			•	•			•	
	Adults	•	•	•			•	•			•	•			•	
Pollock	Juveniles	•	-	-	-	-	-	-	-	-	-	-	-	-	•	•
Red Hake	Juveniles	•	•	•	•		•	•	•		•	•	•		-	
	Adults	•	•	•	•		•	•	•		•	•	•		•	
Silver Hake	Juveniles	-	-	-			•	•			•	•			-	
	Adults			•				•				-			•	
White Hake	Juveniles	-	-	-	-	-	•	•	•	•	•	•	•	•	-	•
	Adults			•				•				•			-	
Windowpane Flounder	Juveniles	-	-	-	-	-	•	•	•	•	•	•	•	•	-	-
	Adults	-	-	-	-	-	•	•	•	•	•	•	•	•	-	-
Winter Flounder	Eggs				-	•[1]			•[1]	•[1]			-	•	-	•
	Juveniles	-	•	•	•	•	•	•	•	•	•	•	•	•	-	•
	Adults	-	•	•	•	•	•	•	•	•	•	•	•	•	-	•
Witch Flounder	Juveniles			-				-				•			-	
	Adults	-	-	-	-		-	-	-		•	•	-		-	
Yellowtail Flounder	Juveniles	-	-	-			•	•			-	-			-	
	Adults	-	•	•	•		•	•	•		-	-	-		-	
Mid-Atlantic Finfish																
Black Sea Bass	Juveniles	•	•	•	•	•	-	-	-	-	-	-	-	-	•	•
	Adults	•	•	•	•	•	-	-	-	-	-	-	-	-	•	•
Scup	Juveniles	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Adults	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Species Name	Benthic Life Stage	Sunrise Wind Habitat Types													Distinct habitat features that serve as EFH regardless of underlying substrate[2]	
		Glacial Drift	Coarse Sediment				Sand and Muddy Sand				Mud and Sandy Mud					
		SRWF	SRWF	SRWEC-OCS	SRWEC-NYS	ICW HDD	SRWF	SRWEC-OCS	SRWEC-NYS	ICW HDD	SRWF	SRWEC-OCS	SRWEC-NYS	ICW HDD	Boulders	SAV (ICW HDD)
Summer Flounder	Juveniles			-	-	-		•	•	•		•	•	•	-	HAPC
	Adults	-	-	-	-	-	•	•	•	•	•	•	•	•	-	HAPC
Invertebrates																
Atlantic Sea Scallop	Eggs	•	•	•	•		•	•	•		-	-	-		-	
	Larvae	•	•[1]	•[1]	•[1]		•[1]	•[1]	•[1]		-	-	-		-	
	Juveniles	•	•	•	•		•	•	•		-	-	-		-	
	Adults	•	•	•	•		•	•	•		-	-	-		-	
Atlantic Surfclam	Juveniles			•				•				-			-	
	Adults			•				•				-			-	
Longfin Inshore Squid	Eggs			•	•	•		•	•	•		•	•	•	•	•
Ocean Quahog	Juveniles	•	•	•			•	•			•	•			-	
	Adults	•	•	•			•	•			•	•			-	
Skates																
Barndoor Skate	Juveniles	•	•	•			•	•			•	•			-	
	Adults	•	•	•			•	•			•	•			-	
Little Skate	Juveniles	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
	Adults	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
Winter Skate	Juveniles	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
	Adults	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
Sharks																
Sandbar Shark	Neonate/YOY			-	•			-	•			-	•		-	
	Juveniles	-	-	-	•	•	-	-	•	•	-	-	•	•	-	-
	Adults	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
Sand Tiger Shark	Neonate/YOY	-	-	-	•	•	-	-	•	•	-	-	•	•	•	-
	Juveniles	-	-	-	•	•	-	-	•	•	-	-	•	•	•	-
Smoothhound Shark Complex (Atlantic Stock)	Neonate/YOY	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
	Juveniles	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
	Adults	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
Spiny Dogfish	Juveniles			•				•				•			-	
	Sub-adult male			•				•				•			-	
	Sub-adult female	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
	Adult male	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
	Adult female	•	•	•			•	•			•	•			-	