Sunrise Wind Farm Project

Appendix V
Commercial and Recreational Fisheries Data Report

Prepared for:

Sunrise Wind | Powered by
Ørsted &
Eversource

August 23, 2021

Revision 1 – October 28, 2021

Revision 2 – August 19, 2022

Commercial and Recreational Fisheries Data Report

Sunrise Wind Farm Project

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LIST OF ACRONYMS

ACCSP	Atlantic Coastal Cooperative Statistics Program
BMP	Best Management Practice
COP	Construction and Operations Plan
CT DEEP	Connecticut Department of Energy and Environmental Protection
DC	direct current
EEZ	exclusive economic zone
EFH	essential fish habitat
GARFO	Greater Atlantic Regional Fisheries Office
GIS	geographic information system
HDD	horizontal directional drill
IAC	Inter-Array Cables
ICW	Intracoastal Waterway
INSPIRE	INSPIRE Environmental, LLC
IPF	impact-producing factor
Lease Area	BOEM-designated Renewable Energy Lease Area OCS-A 0487
MADMF	Massachusetts Division of Marine Fisheries
MRIP	Marine Recreational Information Program
NOAA Fisheries	National Marine Fisheries Service
NROC	Northeast Regional Ocean Council
NYSDEC	New York State Department of Environmental Conservation
NYSERDA	New York State Energy Research and Development Authority
O&M	operations and maintenance
OCS	Outer Continental Shelf
OCS–DC	Offshore Converter Station-Direct Current
OnCS–DC	Onshore Converter Station-Direct Current
OREC	Offshore Wind Renewable Energy Certificate
RIDEM	Rhode Island Department of Environmental Management
RI-MA WEA	Rhode Island-Massachusetts Wind Energy Area
SRWEC	Sunrise Wind Export Cable
SRWEC–OCS	Sunrise Wind Export Cable – Outer Continental Shelf
SRWEC–NYS	Sunrise Wind Export Cable – New York State Waters
SRWF	Sunrise Wind Farm
Sunrise Wind	Sunrise Wind LLC
TJB	transition joint bay
VTR	Vessel Trip Report
VMS	Federal Vessel Monitoring System
WEA	Wind Energy Area
WTG	wind turbine generator

1.0 INTRODUCTION

1.1 DESCRIPTION OF THE PROPOSED ACTION

Sunrise Wind LLC (Sunrise Wind), a 50/50 joint venture between Orsted North America Inc. (Orsted NA) and Eversource Investment LLC (Eversource), proposes to construct, own, and operate the Sunrise Wind Farm (SRWF) Project (the Project). The Project will be located in federal waters on the Outer Continental Shelf (OCS) in the designated Renewable Energy Lease Areas OCS-A 0487 (Lease Area)[1], approximately 18.9 statute miles (mi) (16.4 nautical miles [nm], 30.4 kilometers [km]) south of Martha's Vineyard, Massachusetts, and approximately 30.5 mi (26.5 nm, 48.1 km) east of Montauk, New York, and 16.7 mi (14.5 nm, 26.8 km) from Block Island, Rhode Island (Figure 1.1-1). A portion of the Sunrise Wind Export Cable (SRWEC) will be located on the OCS, and other components of the Project will be located in state waters of New York, and onshore in the Town of Brookhaven, Long Island, New York. The proposed interconnection location is the Holbrook Substation, which is owned and operated by Long Island Power Authority (LIPA). Sunrise Wind executed a contract with the New York State Energy Research and Development Authority (NYSERDA) for a 25-year Offshore Wind Renewable Energy Certificate (OREC) Agreement in October 2019.
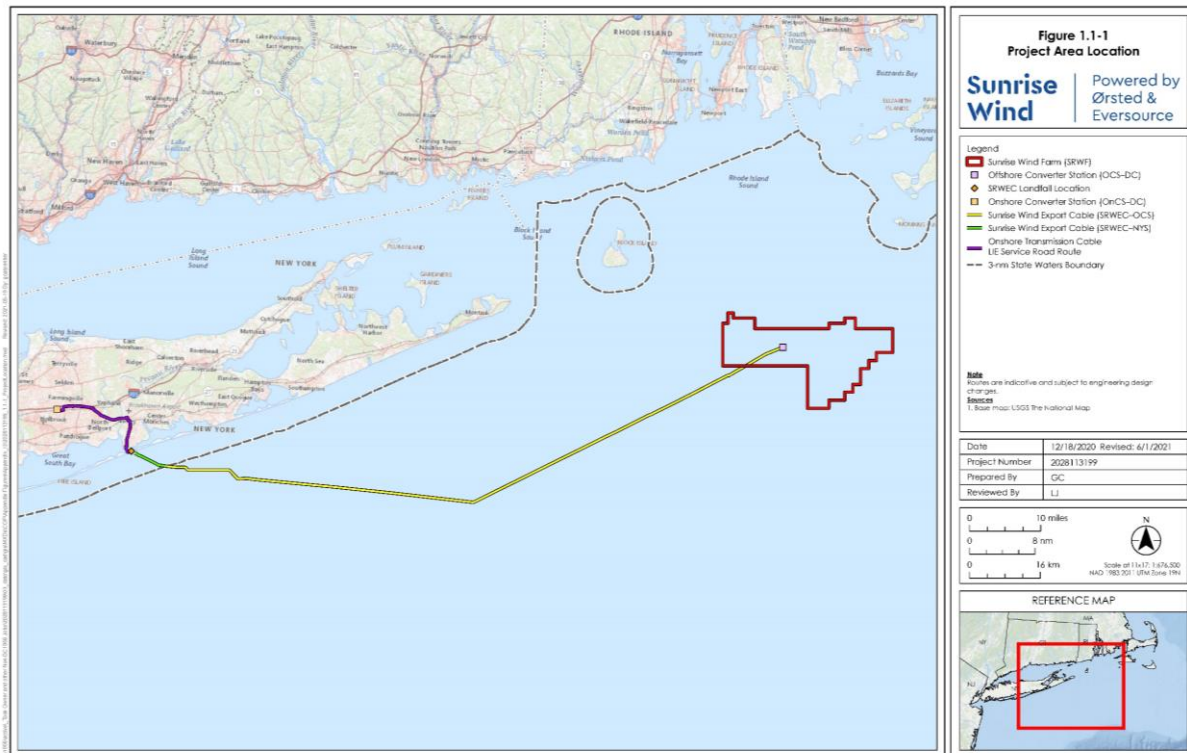
Figure 1.1-1 Map of the Project Area, including the SRWEC Route and SRWF

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[1]A portion of Lease Area OCS-A 0500 (Bay State Wind LLC) and the entirety of Lease Area OCS-A 0487 (formerly Deepwater Wind New England LLC) were assigned to Sunrise Wind LLC on September 3, 2020, and the two areas were merged, and a revised Lease OCS-A 0487 was issued on March 15, 2021. Thus, in this report, the term "Lease Area" refers to the new merged Lease Area.

The Project will be comprised of the following offshore and onshore infrastructure:

- Onshore:
    - Onshore Transmission Cable, transition joint bays (TJBs) and concrete and/or direct buried joint bays and associated components;
    - Onshore Interconnection Cable;
    - Fiber Optic Cable co-located with the Onshore Transmission and Onshore Interconnection Cables; and
    - One Onshore Converter Station with direct current (DC) electrical technology (OnCS–DC).

- Offshore:
    - Up to 94 WTGs at 102 potential positions;
    - Up to 95 foundations (for WTGs and an Offshore Converter Station [OCS–DC]);
    - Up to 180 mi (290 km) of Inter-Array Cables (IAC);
    - One Offshore Converter Station with DC electrical technology (OCS–DC); and
    - One DC SRWEC located within an up to 104.6-mi (168.4-km)-long corridor.

1.2 REGULATORY CONTEXT AND RESOURCE DEFINITION

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) requires all federally permitted commercial fishing vessels (with the exception of those vessels that only have a lobster permit) to submit vessel trip reports (VTRs) for every fishing trip (50 Code of Federal Regulations [CFR] 648.7). The VTR data provide a broad census of fishing activity that encompasses the majority of commercial fisheries active near the SRWF and SRWEC (see Section 2.1.1.1). VTRs include a single fishing location (reported in latitude and longitude coordinates) for where "the majority of fishing effort occurred" on each trip, as well as gear type and species targeted (NOAA Fisheries 2018).

The Atlantic Coastal Cooperative Statistics Program (ACCSP) holds records for fishing activity reported to occur in state waters by those fishermen who hold state permits, federal permits, or both state and federal permits. The fishing activity in state waters by those fishermen with both federal and state permits is reported to NOAA Fisheries and included in the federal VTR data. Data on fishing in state waters were filtered to include records for vessels that only fish in each states' waters. Many fishermen fish both in state and federal waters; however, those fishermen were not included in the state-waters-only data. For this reason, the state data should be considered in the broader context of fishing activity reported to the federal VTR database.

NOAA Fisheries also monitors the location and movement of commercial fishing vessels for certain fisheries via a vessel monitoring system (VMS). VMS data are maintained by the Northeast Regional Ocean Council (NROC) and the Mid-Atlantic Regional Council on the Ocean (MARCO) for fishing vessel activity of select fisheries (see Section 2.1.1.2) in the northeast and mid-Atlantic regions of the US, which encompasses the SRWF and SRWEC locations.

The lobster and Jonah crab fisheries do not have VTR or VMS requirements. VMS data for lobster and Jonah crab likely come from fishermen with lobster permits that also participate in other fisheries that require VTRs or VMS (RIDEM 2017). The American lobster fishery is active in the marine portions of the Project Area and is managed cooperatively by the states and NOAA Fisheries under the framework of the Atlantic States Marine Fisheries Commission. Jonah crab was once considered bycatch of the lobster fishery, but since 2011 (Truesdale et al. 2019) has increasingly been targeted as a commercial fishery. Landings in the fishery come

predominantly from Massachusetts (70%) and Rhode Island (24%) and the fishery has only recently (2015) been managed through an interstate Fishery Management Plan (FMP; ASMFC 2015).

1.3   CONTENTS OF THIS TECHNICAL REPORT

This technical report provides a detailed explanation of the data and analyses used to assess commercial and recreational fisheries resources in the SRWF and within a 104.6-mi (168.4-km)-long, 6.2-mi (10 km)-wide SRWEC fisheries study corridor (Figure 2.1-1). The information presented herein supports the summary-level data and analysis presented in Section 4.7.4 of the Project's Construction and Operations Plan (COP). Section 2.0 of this technical report describes the data sources and analyses used to characterize commercial and recreational fishing activity in the SRWF and SRWEC fisheries study corridor. Data analyzed in this technical report were requested from NOAA Fisheries and obtained from publicly available data sources. All data requested were subject to strict confidentiality requirements set forth by the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006. These requirements prevent the government from making any data public that can be linked to individual people or businesses. This is achieved by applying the "Rule of Three", where any data presented to the public must have been reported by at least three fishermen (refers to men or women who fish), vessels, dealers, etc. Any data that can only be attributed to two or fewer entities must be aggregated to a higher level. Section 2.2 of this report provides detailed summaries of the data requested from state and federal agencies, as well as supplementary maps for data sets referenced in Section 4.7.4 of the COP.

2.0 ANALYTICAL APPROACH

2.1 METHODOLOGY

2.1.1 Federal Data

2.1.1.1 Federal Vessel Trip Report (VTR) Data

The VTR data used for characterizing commercial fisheries in the SRWF and in the SRWEC fisheries study corridor as summarized in this report were requested from and processed by NOAA Fisheries following the methods described by Kirkpatrick et al. (2017). Also included was the application of the statistical model as described by DePiper (2014) that assesses the VTR self-reported fishing locations compared to observed haul locations. NOAA Fisheries also provided nonconfidential data on commercial fishing activity (2009 to 2018) in terms of revenue and landings, for fishing activity reported to occur within the SRWF and within the SRWEC fisheries study corridor (Figure 2.1-1). To add context, the data were provided alongside the overall VTR data available for commercial fishing activity in the Greater Atlantic Region, which extends from Maine to North Carolina. The SRWEC fisheries study corridor was not established for the cable route that occurs within the SRWF, therefore VTR data collected near the SRWEC within the SRWF are attributed to the SRWF in tables below. The SRWEC fisheries study corridor (5-km on each side of the cable centerline) was defined to provide a reasonable geographic extent for fisheries activity that may occur near the SRWEC, and may, therefore, be affected in some way by the installation and operations of the SRWEC. The SRWEC fisheries study corridor was created based on a preliminary SRWEC route and was defined to be wide enough to accommodate minor design or installation changes to the SRWEC centerline. VTR data requested for SRWF included a 1-km buffer to account for potential activities around the margins of the wind farm.
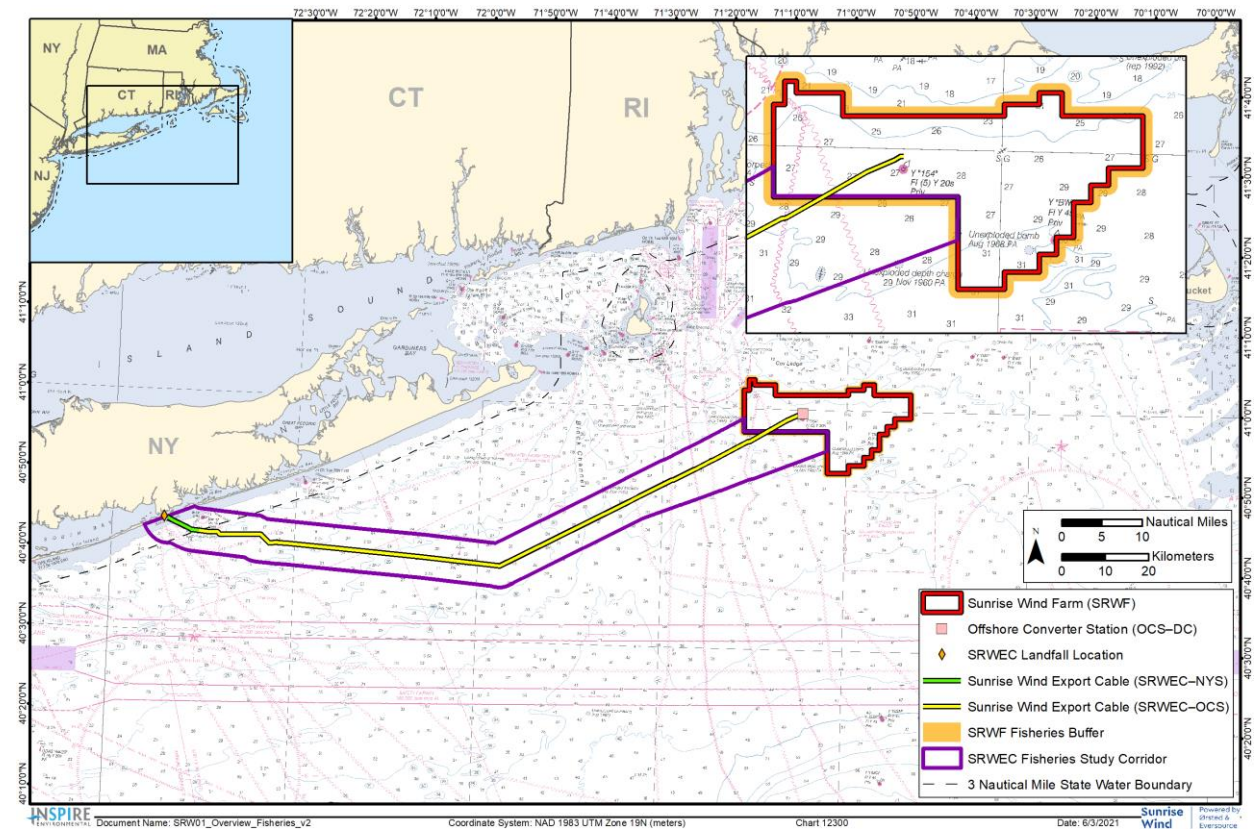
Figure 2.1-1   Map of the SRWF Fisheries Buffer and SRWEC Fisheries Study Corridor

The data provided by NOAA Fisheries represent fishing activity for federally permitted vessels that fish in either federal (defined as: 5.6 to 556 km [3.5 to 345 mi; 3 nm to 200 nm]) or state (within 3 nm) waters. Fishermen with federal permits (including those who also hold state permits) are required to submit VTRs to NOAA Fisheries. VTR data for fishermen who fish only in state waters were requested and obtained from the Atlantic Coastal Cooperative Statistics Program (ACCSP 2020a). To avoid duplicate records of fishing activity in state waters, fishermen who hold federal permits, but fished in state waters, were excluded from the ACCSP Fisheries VTR data set.

The VTR data provided by NOAA Fisheries provide a context for characterizing both revenue and biomass (pounds landed) from high-volume and high-value fisheries. A limitation of the data set is that it is most accurate when used to describe the general geographical location of the commercial fishing industry in aggregate and does not provide information on precise fishing locations.

2.1.1.2 Federal Vessel Monitoring System (VMS)

VMS data are collected through a satellite surveillance system that is the primary means used by NOAA Fisheries for monitoring the location of certain commercial fishing vessels working in federal waters. Vessels holding the following permits are required to have an operational VMS unit installed:

- Full-time or part-time limited access Atlantic sea scallop (*Placopecten magellanicus*), or limited access general category scallop permit;
- Occasional limited access scallop permit when fishing under the Scallop Area Access Program;
- Limited access monkfish (*Lophius americanus*), occasional scallop, or combination permit electing to provide VMS notifications;
- Limited access multispecies permit when fishing on a category A or B day at sea (DAS);
- Atlantic surfclam (*Spisula solidissima*) or ocean quahog (*Arctica islandica*) open access permit;
- Limited access monkfish vessel electing to fish in the Offshore Fishery Program;
- Limited access Atlantic herring (*Clupea harengus*) permit;
- Open access Atlantic herring Areas 2 and 3 permit;
- Limited access Atlantic mackerel (*Scomber scombrus*) permit; and
- Longfin squid (*Doryteuthis pealeii*) / butterfish (*Peprilus triacanthus*) moratorium permit.

The VMS location data are sent at least once an hour to the NOAA Fisheries Office of Law Enforcement via transponder units on the fishing vessels. The data transmitted include vessel identification, time, date, and the location at sea (NOAA Fisheries 2020c). This information makes it possible for NOAA Fisheries to calculate the approximate speed that the vessel is travelling between vessel transmissions. The data are then filtered by estimated vessel-speed, depending on the gear and fishery, to indicate areas where it is likely that fishing is occurring (and not vessel transit locations). The benefit of VMS data is the geographical specificity of the fishing locations; one limitation of the data is that the "speed rule" used to filter the fishing locations from the vessel's path of transit does not perfectly isolate fishing locations (Palmer and Wigley 2009). In addition, VMS data do not provide complete coverage for all FMPs, i.e., there is not 100% reporting for some FMPs for some years.

Spatial VMS data from the years 2011 through 2016 (where available) were overlaid with the SRWF and SRWEC fisheries study corridor to assess the relative intensity of fishing activity for multiple fisheries within and surrounding the marine portions of the Project Area. General fisheries categories with available data included in this analysis were:

- Large-mesh multispecies (groundfish);
- Monkfish;
- Pelagics (herring, mackerel, and squid);
- Atlantic herring;

- Atlantic surfclam/ocean quahog;
- Atlantic sea scallop; and
- Squid.

Squid are listed twice above because this fishery was designated a specific fisheries code by NOAA Fisheries in 2014. Metadata about the VMS data are available at the Mid-Atlantic Ocean Data Portal (http://portal.midatlanticocean.org/), the Northeast Ocean Data portal (www.northeastoceandata.org), and in a report by Fontenault (2018) detailing how VMS data were prepared for the NROC. The VMS maps were qualitatively assessed for intensity of fishing activity in the SRWF and along the SRWEC fisheries study corridor. As there is no catch or revenue information attached to VMS locations, the intensity of fishing location should be considered in conjunction with other available data and stakeholder input. The VMS data overlaid with the SRWF and SRWEC fisheries study corridor are illustrated in Section 2.2.2.

This technical report also includes a review of the results of a 2017 report published by the Rhode Island Department of Environmental Management (RIDEM) that linked together fishing location from VMS data, trip identification information from VTR data, and additional information from dealer landings data (RIDEM 2017). This analysis worked with multiple sources of data on federal fishing activity to attach revenue and landings data to VMS point locations from within each of the WEAs and created fishing-intensity maps based on those data sets for the southern New England region. The results of this analysis describe the fisheries active in the RI-MA WEA and take advantage of the VMS data spatial resolution for describing fishing locations. RIDEM also produced smoothed (i.e., outliers were removed) relative vessel density maps for the fisheries reporting with VMS between 2011 and 2016, which are similar to the maps produced from the data obtained from the Northeast Ocean Data Portal, and therefore, are not included here to avoid repetition.

2.1.2 VTR Data as Rasters

Observed fishing locations may occur far from the VTR reported coordinates, with departures that vary based on gear type and other trip characteristics (DePiper 2014). NOAA Fisheries, therefore, developed a fishing-intensity raster data set to improve the spatial representation of self-reported VTR fishing locations (Benjamin et al. 2018). This raster data set includes the VTR data, the statistical model estimated by DePiper (2014), and spatial data describing closures gathered from the Greater Atlantic Regional Fisheries Office's (GARFO) GIS portal, the Federal Register, and the Code of Federal Regulations (Benjamin et al. 2018). As described in Benjamin et al. (2018), the model developed by DePiper (2014) constructs the great circle distance between the VTR coordinates and all observed hauls on that trip. A duration model is then estimated to explain distance from the self-reported VTR to observed fishing locations as a function of VTR characteristics, finding that gear, trip length, and broad ocean area are the variables that best explain this distance. Confidence intervals are then generated that estimate the smallest distances in which to expect a percent of observed hauls around a VTR point.

This modeling approach can be applied to historical fishery data and aggregated as a metric of fishing effort by target fishery (e.g., herring) and time period (e.g., fishing year 2010). After constructing these raster data sets, maps of fishing effort for various variables (e.g., revenue) can be produced using a heat map visualization of fishing intensity (Benjamin et al. 2018).

2.1.3 State Vessel Trip Reports

The ACCSP holds records for fishing activity reported to occur in state waters by those fishermen who hold state permits, federal permits, or both state and federal permits. The fishing activity in state waters by those fishermen with both federal and state permits is reported to NOAA Fisheries, and was included in the activity summary of commercial fisheries (Section 2.1). The federal VTR data were used to summarize fishing within the SRWF and SRWEC fisheries study corridor, and include fishing by vessels with federal permits in those areas. Thus, to avoid reporting fishing activity in state waters twice, data on fishing in state waters were filtered

to include records for vessels that only fish in each states' waters. Many fishermen fish both in state and federal waters; however, those fishermen were not included in the state-waters-only data. For this reason, the data seem to indicate that certain species were not caught and landed from the statistical areas every year, or at all. Landings of those species were reflected in the federal VTR data summary. These caveats apply to all state VTR data described in this report. The state data should be considered in the broader context of fishing activity reported to the federal VTR database, and in conjunction with stakeholder input provided through the communication and engagement program that Sunrise Wind has developed for this purpose (Section 2.1.5).

State VTR data were assessed for New York, Connecticut, New Jersey, and Rhode Island. These states were included in the state VTR request because Sunrise Wind may use multiple ports in these states for construction, staging, and operations and maintenance (O&M) activities. Vessels leaving and returning to these ports to support Project activities will potentially be transiting through the jurisdictional waters of all these states and, therefore, their impacts are considered and included. An expanded port plan (see Section 3.3.10 of the COP) includes Maryland and Virginia. The state VTR data were obtained for fishing activity within and adjacent to the SRWF and SRWEC fisheries study corridor, where infrastructure will be located and long-term vessel activity will occur. Transit to and from remote ports will be limited to short-term use of these ports during the construction phase only, therefore Project-generated transit will not add significantly more traffic beyond existing levels. State VTR regions are depicted relative to the SRWF and SRWEC fisheries study corridor in Figure 2.1-2 and relevant federal statistical areas are depicted in Figure 2.1-3.
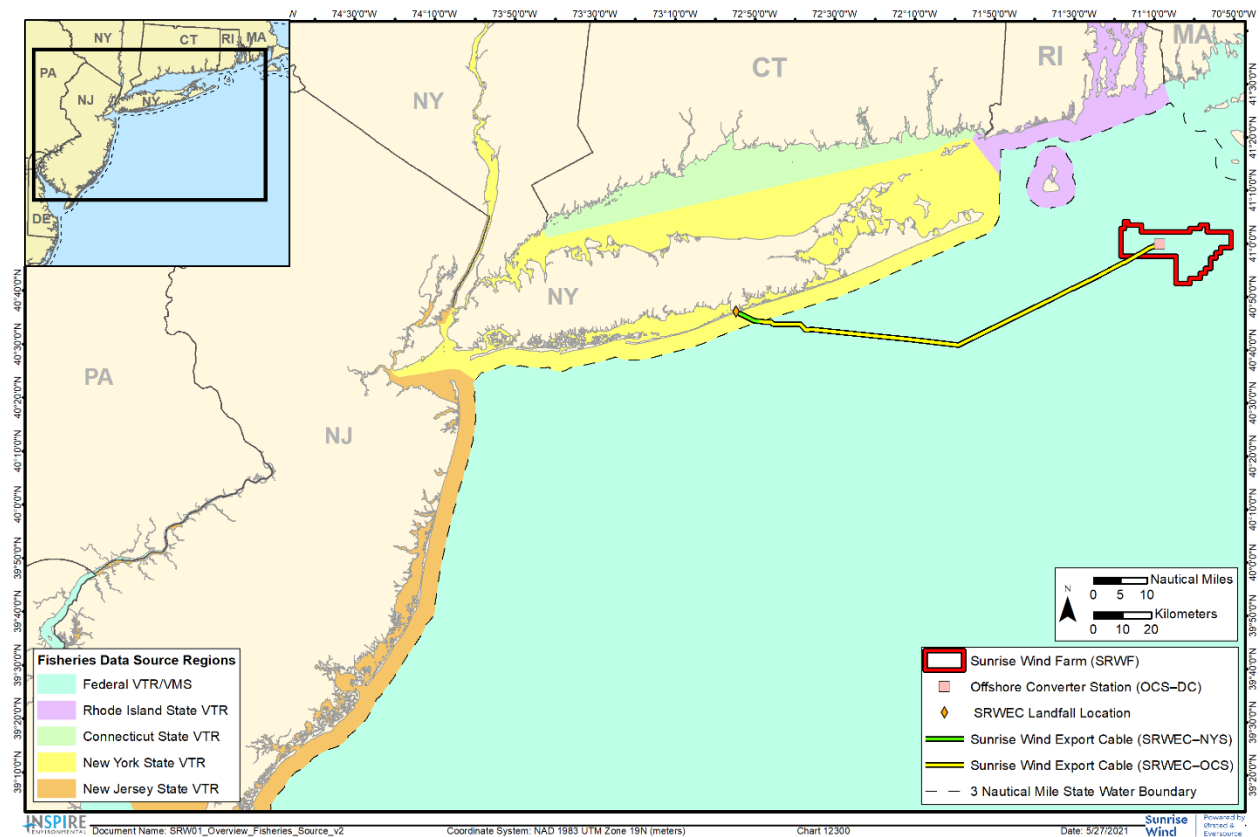
Figure 2.1-2   Map of the Project and State VTR Regions
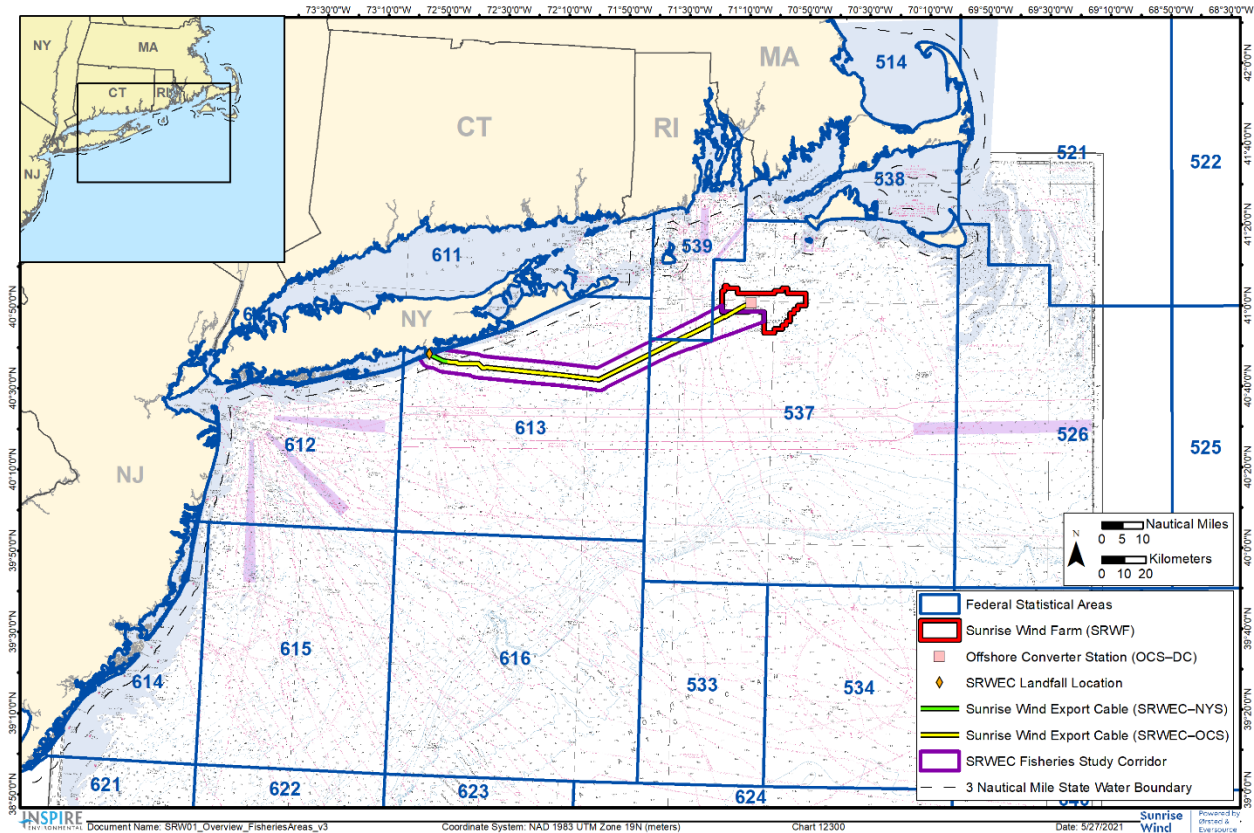
Figure 2.1-3   Map of the Project and Federal Statistical Fishing Areas

2.1.3.1   New York State Vessel Trip Reports

State-permitted vessels must report their catch, including the statistical area within which fishing actually occurred (Figure 2.1-3), to the New York State Department of Environmental Conservation (NYSDEC). New York State commercial fishing data analyzed for this report include statistical areas 537, 539, 611, and 613 (Figure 2.1-3). Data caveats are described in Section 2.1.3.1.

2.1.3.2   Connecticut State Vessel Trip Reports

Federal VTR data describe most commercial fishing activity in both state and federal waters by vessels that have a federal permit, or both a state and federal fishing permit. However, those vessels that only have state commercial fishing permits are not included in the federal VTR data set. Landing permits allow a vessel to land catch in its home state even though fishing may have occurred outside of the home state's jurisdictional waters. State-permitted vessels must report their catch, including the statistical area within which fishing actually occurred (Figure 2.1-3), to the Connecticut Department of Energy and Environmental Protection (CT DEEP). Data on fishing in state waters by state-permitted vessels can be accessed by the public through data requests to the ACCSP.

State commercial fishing data for Connecticut were requested from statistical area 611 to characterize those fisheries that could be affected by the SRWF and SRWEC (Figure 2.1-3). Fishing activity was characterized in terms of landed pounds of target species, the landing port, and the gear category. The data were presented in the units of landed pounds of catch because the landing price was not readily available. The "average" of

pounds landed reflects the sum of pounds landed during the 2009 to 2019 period, divided by the number of years with data available (in this way, 0-value years were excluded).

2.1.3.3 New Jersey State Vessel Trip Reports

State-permitted vessels must report their catch, including the statistical area within which fishing actually occurred (Figure 2.1-3), to the New Jersey Department of Environmental Protection, Division of Fish & Wildlife. New Jersey State commercial fishing data analyzed for this report include statistical areas 612, 614, and 621 (Figure 2.1-3). Data caveats are described in Section 2.1.3.1.

2.1.3.4 Rhode Island State Vessel Trip Reports

State-permitted vessels must report their catch, including the statistical area within which fishing actually occurred (Figure 2.1-3), to the Rhode Island Department of Environmental Management (RIDEM). Rhode Island State commercial fishing data analyzed for this report include statistical areas 537, 538, 539, and 611 (Figure 2.1-3). Data caveats are described in Section 2.1.3.1.

2.1.4 Marine Recreational Information Program

The NOAA Fisheries Marine Recreational Information Program (MRIP) is a collection of regional surveys organized to produce recreational fisheries statistics. The data are collected through angler-intercept surveys after a fishing trip by boat returns to shore. This integrated series of surveys provides estimates of marine recreational catch, effort, and participation across states, fishing locations, and fishing modes. To describe the affected environment of recreational fisheries in the SRWF and SRWEC fisheries study corridor, this Technical Report used the NOAA Fisheries MRIP estimates for shoreside and private fishing modes occurring in inland, state territorial sea, and federal exclusive economic zone (EEZ) fishing locations. MRIP data used for this report were provided by NOAA Fisheries, and are available through queries at the Fisheries Statistics Division website (NOAA Fisheries 2020a).

One of the limitations of the MRIP data set is that it does not include a spatial component; the only location information available is the categorization of fishing location into state or federal waters. An additional limitation of this data set is that the survey program was designed to estimate fishing effort by recreational anglers at the state level. When the data are disaggregated to the county level or lower, the percent standard error increases and the information is less reliable (NOAA Fisheries 2020a). Given that we cannot assign estimated angler effort to any location in the ocean, it is difficult and unreliable to estimate recreational effort near the SRWF using the MRIP data alone. For this reason, the MRIP data must be considered in conjunction with stakeholder input provided by recreational for-hire boat captains in the Ocean SAMP data set (RICRMC 2010) and through the stakeholder communication and engagement program that Sunrise Wind has developed for this purpose (Section 2.1.5).

2.1.5 Sunrise Wind Stakeholder Communication and Engagement

Sunrise Wind has committed to engaging with stakeholders in the commercial and recreational fishing communities that are active in the SRWF and SRWEC fisheries study corridor. This stakeholder outreach program was formulated by Sunrise Wind to gather local knowledge from the region's fishermen and to establish open and reliable communication with the fishing industry. Sunrise Wind has established an experienced team of Fisheries Liaisons and Fisheries Representatives to facilitate a two-way process of communication through individual outreach via email, text message, or in person, and that also includes, but is not limited to, public presentations, listening sessions, Notices to Mariners, and updates to websites and social media. Sunrise Wind has also extended these outreach efforts to include state and federal fisheries agencies, working groups, and regulatory bodies by soliciting input through joint meetings and webinars. The outreach program will be conducted throughout all phases of the Project and is designed to evolve as needs change and

the Project progresses. Detailed information about the communication and outreach plan being implemented by Sunrise Wind is provided in the Fisheries Communication and Outreach Plan, see COP Appendix B.

2.1.6 Aquaculture

Locations of New York aquaculture sites were mapped based on data accessed from NYSDEC. Maps were created based on shapefiles provided by NYSDEC with information on site ID, location, and status last updated December 23, 2019.

2.2 BASELINE CONDITIONS

Species that are targeted for commercial and recreational fishing in Southern New England are managed through FMPs by the New England Fishery Management Council, the Mid-Atlantic Fishery Management Council (50 CFR 600.105), the Atlantic States Marine Fisheries Commission, or some combination of these (NOAA Fisheries 2017). Some FMPs include multiple species because they share habitat and are often fished or collected as marketable bycatch using the same gear type. Commercial fisheries that target certain species can be grouped into broad categories by the gear used. Mobile-gear is used while the vessel is in motion, and includes gear such as trawls and dredges. Fixed-gear is set and retrieved later, such as lobster pots and gill nets. Recreational fishing activity can be categorized by fishing mode (charter boat, party boat, private boat, or shore) and by fishing location (inland, state territorial sea, and federal EEZ) (NOAA Fisheries 2020a).

The SRWEC–OCS will traverse federal waters located within a study area previously examined for potential wind farm development effects on fish and fisheries (NYSERDA 2017; Scotti et al. 2017). These studies examined fishery dependent data sources, such as federal VTR and VMS data for the most recent years available at the time the studies were conducted. For this technical report, more recent data were obtained from these sources. Other data sources that were reviewed include fishery independent trawl data from the Northeast Fisheries Science Center (NEFSC) and the Northeast Areas Monitoring and Assessment Program (NEAMAP). These sources provide information on a diverse assemblage of fish and invertebrates in the area that can be used for stock assessments for those species targeted in commercial and recreational fisheries. The study area examined by NYSERDA (2017) and Scotti et al. (2017) contains fishing grounds for boats that land their catch in New York, Massachusetts New Jersey, and Rhode Island.

Vessels originating from New England and Mid-Atlantic states catch a diverse range of pelagic, demersal, and benthic species using various types of gear. Commercially and recreationally valuable saltwater species populations are highly dynamic, both spatially and temporally. Many species undertake seasonal migrations, which are often correlated with seasonal variations in water temperature and prey availability. Interannual fluctuations in population sizes can occur in response to climate change, fishing, and other ecological pressures (Friedland et al. 2018, McManus et al. 2018). Fish and macroinvertebrate populations supporting commercial and recreational fisheries along the Northeast Continental Shelf are diverse (Malek et al. 2014). Some fisheries are experiencing a regional decline and others an increase (Collie et al. 2008), whereas the location of some fisheries has shifted to the northeast in association with climate-related changes (Friedland et al. 2018).

Benthic communities have experienced increased water temperatures in the region in the past several decades, and average pH is expected to continue to decline as seawater becomes more saturated with carbon dioxide (Saba et al. 2016). Acidification of seawater is associated with decreased survival and health of organisms with calcareous shells (such as the Atlantic scallop, blue clam, and hard clam), but less is known about direct effects of acidification on cartilaginous and bony fishes. The ranges of dozens of groundfish species in New England waters have shifted northward and into deeper waters in response to increasing water temperatures (Pinsky et al. 2013; Nye et al. 2009) and more species are predicted to follow (Selden et al. 2018; Kleisner et al. 2017). Predicted range shifts include a northward extension for sea scallops and offshore

movement for American lobster (Tanaka et al. 2020). The black sea bass, identified as particularly sensitive to habitat alteration (Guida et al. 2017), has been increasing in abundance over the past several years, and is expected to continue its expansion in southern New England in response to increases in water temperatures (McBride et al. 2018). Several pelagic forage species have been increasing in the region, including butterfish, scup, squid (Collie et al. 2008) and Atlantic mackerel (McManus et al. 2018). Distributions of other species are reported to be shifting southward, including spiny dogfish, little skate, and silver hake (Walsh et al. 2015), or alternatively, shifting offshore (e.g., surfclams; Timbs et al. 2019). It has been suggested that the spiny dogfish may replace the Atlantic cod as a major predator in southern New England as the cod is driven north by warm waters that the spiny dogfish tolerates more readily (Selden et al. 2018). Further temperature increases in southern New England are expected to exceed the global ocean average by at least a factor of two and ocean circulation patterns are projected to change (Saba et al. 2016). Distributional shifts are occurring in both demersal and pelagic species, perhaps mediated by changes in spawning locations and dates (Walsh et al. 2015). Southern species, including some highly migratory species such as mahi mahi that prefer warmer waters, are expected to follow the warming trend and become more abundant in the area (Walsh et al. 2015; South Atlantic Fishery Management Council 2003). Climate change may also be affecting the migrations of anadromous fish in the region. The herrings, shad, and sturgeon were identified as having high biological sensitivity to adverse effects of climate change (Hare et al. 2016). In addition to physiological effects of temperature and pH, anadromous fishes face a physical risk caused by flooding in their spawning rivers.

The following sections present an assessment of the relative intensity of several commercial and recreational fisheries active in the SRWF and SRWEC fisheries study corridor, organized based on the data source.

2.2.1 Federal Vessel Trip Report (VTR) Data

VTR data were provided by NOAA Fisheries and the ACCSP for the SRWF (including a 1-km buffer) and for the SRWEC fisheries study corridor (5-km on each side of the cable centerline) and are summarized in the following section. The data are presented based on the subset (defined by the gear used), the targeted species, and the state in which the fisheries' landings occurred. Data for the species and state fishery subsets include estimates for the decade 2009-2018. Each fishery subset includes estimates for the respective time periods for the:

- annual average values of revenue and landings sourced from within the SRWF or the SRWEC fisheries study corridor.
- annual average revenue and landings for all fishing activity from Maine to North Carolina sourced from NOAA Fisheries' GARFO.
- percent of revenue and landings sourced from within the SRWF or the SRWEC fisheries study corridor out of total regional landings reported to GARFO.

Revenue units are reported in nominal United States dollars (USD); landings are reported in landed pounds.

2.2.1.1 Sunrise Wind Farm

In the SRWF, the top fisheries reported on VTRs by federally permitted vessels in terms of average annual revenue were caught using bottom trawl, gillnet, dredge and pot. In terms of average pounds landed from within the SRWF, the top gears were bottom trawl, gillnet, dredge, and mid-water trawl (Table 2.2-1). The greatest percentage of Greater Atlantic revenue sourced from within the SRWF was caught using bottom trawl (1.48 percent), followed by gillnet (1.26 percent), and mid-water trawl (0.16 percent).

Table 2.2-1   Summary of Federal VTR Fishing Data in SRWF Including 1-km Buffer, by Gear, for 2009 to 2018

Gear Type	Annual Average Revenue and Landings from within SRWF		Annual Average of Total Revenue and Landings from ME to NC		Percent of Total Species Values in SRWF	
	Revenue ($)	Landings (lb)	Revenue ($)	Landings (lb)	% of Revenue	% of Landings
Trawl-Bottom	692,726	955,748	46,873,675	32,325,747	1.48	2.96
Gillnets	615,420	734,490	48,830,995	64,380,863	1.26	1.14
Dredge	325,759	729,330	370,548,263	115,687,777	0.09	0.63
Pot	203,481	97,674	623,584,075	251,757,638	0.03	0.04
Trawl-Midwater	23,680	203,732	14,479,983	96,249,236	0.16	0.21
Hand	3,543	1,206	16,476,037	5,249,404	0.02	0.02
Longlines	918	301	36,141,740	20,608,637	<0.01	<0.01
Total	1,865,527	2,722,481	1,156,934,768	586,259,302	0.16	0.46

Source: NOAA Fisheries 2020b.
ACCSP 2020b.
Notes:
Values are sorted from largest to smallest revenue values for landings data.
Landings are reported in landed pounds.
Revenue is reported in nominal dollars.
"Total" revenue and landings values refer to all fishing activity as reported by VTRs for fisheries active in state and federal waters from Maine to North Carolina.

Federally permitted vessels target many species in the SRWF. The top species-groups reported on VTRs in terms of average annual revenue were monkfish, scallops, flounders, skate wings, lobster, squid, hakes, and scup. In terms of pounds landed, the top species-groups in the SRWF were skate wings, Atlantic herring, hakes, scup, flounders, and squid. Table 2.2-2 provides the full species summary. The species with the greatest proportion of Greater Atlantic total revenue that was sourced from within the SRWF were skate wings (8.37 percent), sea raven (6.8 percent), and cunner (5.16 percent).

Table 2.2-2   Summary of Federal VTR Fishing Data in SRWF Including 1-km Buffer, by Species, for 2009 to 2018

Species	Annual Average Revenue and Landings from within SRWF		Annual Average of Total Revenue and Landings from ME to NC		Percent of Total Species Values in SRWF	
	Revenue ($)	Landings (lb)	Revenue ($)	Landings (lb)	% of Revenue	% of Landings
Monkfish	409,960	277,068	20,227,155	19,974,755	2.03	1.39
Scallops/Bushel	267,163	25,896	482,923,974	49,154,784	0.06	0.05
Flounders	262,740	108,886	53,134,241	23,095,652	0.49	0.47
Skate Wings	229,704	656,718	2,745,248	10,558,473	8.37	6.22
Lobster, American	143,612	30,729	508,376,902	138,393,661	0.03	0.02
Squid / Loligo	120,534	100,964	28,808,682	24,553,538	0.42	0.41
Hakes	88,384	175,770	15,734,072	20,616,926	0.56	0.85
Scup	78,947	128,792	9,282,234	14,365,155	0.85	0.90
Quahogs/Bushel	57,763	85,207	11,515,763	15,885,026	0.50	0.54
Cod	50,622	20,666	14,976,920	8,631,140	0.34	0.24
Crab, Jonah	46,037	59,144	10,984,715	14,430,188	0.42	0.41
Herring, Atlantic	35,617	269,766	26,547,928	166,518,782	0.13	0.16
Butterfish	20,939	30,032	2,182,611	3,343,738	0.96	0.90
Dogfish, Spiny	15,940	88,845	3,621,344	18,797,259	0.44	0.47
Black Sea Bass	14,680	3,762	8,062,043	2,482,044	0.18	0.15
Whelk, Channeled/Bushel	5,600	752	7,209,932	1,241,043	0.08	0.06
Mackerel, Atlantic	5,015	26,616	3,889,784	16,598,279	0.13	0.16
Bluefish	4,086	6,184	2,795,762	4,626,369	0.15	0.13
Striped Bass	3,676	861	18,993,967	6,042,232	0.02	0.01
Squid / Illex	2,849	2,960	9,740,364	23,566,822	0.03	0.01

	Annual Average Revenue and Landings from within SRWF		Annual Average of Total Revenue and Landings from ME to NC		Percent of Total Species Values in SRWF	
Species	Revenue ($)	Landings (lb)	Revenue ($)	Landings (lb)	% of Revenue	% of Landings
Crab, Rock/Bushel	2,637	4,425	905,105	1,934,725	0.29	0.23
Tilefish, Golden	1,975	614	5,140,209	1,697,154	0.04	0.04
Cunner	1,054	257	20,411	6,394	5.16	4.02
Dogfish, Smooth	791	2,460	975,814	2,038,524	0.08	0.12
Tautog	729	232	939,764	277,524	0.08	0.08
Weakfish	494	254	911,459	480,366	0.05	0.05
Bonito	325	125	112,991	53,483	0.29	0.23
Whiting, King / Kingfish	305	345	901,080	808,024	0.03	0.04
Sea Raven	186	143	2,735	2,214	6.80	6.46
Croaker, Atlantic	156	394	7,545,945	9,430,649	<0.01	<0.01
Pollock	98	98	9,248,825	10,614,877	<0.01	<0.01
Halibut, Atlantic	75	10	814,873	131,652	0.01	0.01
Tuna, Little	73	108	132,156	233,922	0.06	0.05
Crab, Species Not Specified	27	55	104,592	234,054	0.03	0.02
Sea Robins	24	156	20,363	111,941	0.12	0.14
Triggerfish	21	16	305,237	156,878	0.01	0.01
Crab, Blue/Bushel	19	23	122,113,419	101,094,748	<0.01	<0.01
Eel, American	14	17	11,743,242	737,151	<0.01	<0.01
Whelk, Knobbed/Bushel	10	5	1,072,305	652,175	<0.01	<0.01
Skate Wings, Clearnose	8	22	151,764	63,015	0.01	0.03
Ocean Pout	6	6	467	565	1.28	1.06
Redfish / Ocean Perch	4	6	4,433,221	7,839,842	<0.01	<0.01
Shark, Thresher	4	6	55,444	116,584	0.01	0.01
Tilefish, Blueline	4	2	472,282	223,867	<0.01	<0.01
Mackerel, Spanish	2	1	1,192,721	816,870	<0.01	<0.01
Mullets	2	3	11,018	20,601	0.02	0.01
Scallops, Bay/Shells	2	0	3,715,767	230,219	<0.01	<0.01
Spot	2	7	3,139,995	2,828,429	<0.01	<0.01
Total	1,872,915	2,109,408	1,417,936,845	725,712,313	0.13	0.29

Source: NOAA Fisheries 2020b.
ACCSP 2020a.
Notes:
Values are sorted from largest to smallest revenue values for landings data.
Landings are reported in landed pounds.
Revenue is reported in nominal dollars.
"Total" revenue and landings values refer to all fishing activity as reported by VTRs for fisheries active in state and federal waters from Maine to North Carolina.

Vessels hailing from New York, Connecticut, Massachusetts, New Jersey, and Rhode Island conducted the most federally permitted fishing activities within the SRWF (Table 2.2-3). The greatest average annual revenue generated by federally permitted vessels in the SRWF were from landings in Rhode Island ($1,204,910), followed by Massachusetts ($1,195,615), and New York ($50,480). When evaluated as a function of the total revenue landed in a given state from all fishing activity during 2009 to 2018, the greatest percentage of Greater Atlantic revenue sourced from within the SRWF is by vessels hailing from Rhode Island (1.44 percent), followed by Massachusetts (0.22 percent) and Connecticut (0.17 percent; Table 2.2-3). Further analysis of detailed landings data as reported by individual port is unavailable for all listed states due to confidentiality rules.

Table 2.2-3 **Summary of Federal VTR Fishing Data in SRWF Including 1-km Buffer, by State, for 2009 to 2018**

State	Annual Average Revenue and Landings from within SRWF		Annual Average of Total Revenue and Landings from ME to NC		Percent of Total Species Values in SRWF	
	Revenue ($)	Landings (lb)	Revenue ($)	Landings (lb)	% of Revenue	% of Landings
Rhode Island	1,204,910	2,315,036	83,805,129	83,065,993	1.44	2.79
Massachusetts	1,195,615	8,029,481	547,853,119	272,472,579	0.22	2.95
New York	50,480	36,015	53,574,875	30,798,644	0.09	0.12
All Others	27,542	19,678	927,861,542	818,492,359	<0.01	<0.01
Connecticut	27,043	26,087	16,233,218	8,827,386	0.17	0.30
New Jersey	13,752	68,792	172,916,683	160,313,907	0.01	0.04
Total	2,519,342	10,495,089	1,802,244,566	1,373,970,868	0.14	0.76

Source: NOAA Fisheries 2020b. ACCSP 2020a.
Notes:
Values are sorted from largest to smallest revenue values for landings data.
Landings are reported in landed pounds.
Revenue is reported in nominal dollars.
"All Others" includes North Carolina, Virginia, Maryland, Delaware, New Hampshire, and Maine.
"Total" revenue and landings values refer to all fishing activity as reported by VTRs for fisheries active in state and federal waters from Maine to North Carolina.

2.2.1.2 Sunrise Wind Export Cable Fisheries Study Corridor

Among the fisheries that are active within the 104.6-mi (168.4-km) long, 6.2-mi (10-km) wide SRWEC fisheries study corridor (Figure 2.1-1), the top fisheries reported on VTRs by federally permitted vessels by revenue were caught using dredge, bottom trawl, gillnets, pots, and mid-water trawl (Table 2.2-4). In terms of pounds landed, the top gears in the SRWEC fisheries study corridor were the dredge, bottom trawl, mid-water trawl, and gillnets. The gear categories with the greatest proportion of Greater Atlantic total revenue that was sourced from within the SRWEC fisheries study corridor were bottom trawl (4.27 percent), gillnets (2.14 percent), and dredge (1.64 percent). Table 2.2-4 summarizes the gears used to fish in the SRWEC fisheries study corridor, which traverses Federal Statistical Fishing Areas 537, 539, and 613.

Table 2.2-4 **Summary of Federal VTR Fishing Data in SRWEC Fisheries Study Corridor, by Gear, for 2009 to 2018**

Gear Type	Annual Average Revenue and Landings from within SRWEC Fisheries Study Corridor		Annual Average of Total Revenue and Landings from ME to NC		Percent of Total Species Values in SRWEC Fisheries Study Corridor	
	Revenue ($)	Landings (lb)	Revenue ($)	Landings (lb)	% of Revenue	% of Landings
Dredge	6,078,125	11,729,188	370,548,263	115,687,777	1.64	10.14
Trawl-Bottom	2,000,054	1,924,041	46,873,675	32,325,747	4.27	5.95
Gillnets	1,045,768	909,037	48,830,995	64,380,863	2.14	1.41
Pot	227,393	161,283	623,584,075	251,757,638	0.04	0.06
Trawl-Midwater	129,609	1,123,851	14,479,983	96,249,236	0.90	1.17
Hand	12,363	6,222	16,476,037	5,249,404	0.08	0.12
Longlines	1,502	600	36,141,740	20,608,637	<0.01	<0.01
Total	9,494,814	15,854,222	1,156,934,768	586,259,302	0.82	2.70

Source: NOAA Fisheries 2020b. ACCSP 2020b.

Notes:
Values are sorted from largest to smallest revenue values for landings data.
Landings are reported in landed pounds.
Revenue is reported in nominal dollars.
"Total" revenue and landings values refer to all fishing activity as reported by VTRs for fisheries active in state and federal waters from Maine to North Carolina.

In the SRWEC fisheries study corridor, the top individual species reported on VTRs by federally permitted vessels in terms of revenue were scallops, monkfish, quahogs, squid, flounders, skate wings, and scup (Table 2.2-5). In terms of pounds landed, the top species in the SRWEC fisheries study corridor included quahogs, Atlantic herring, skate wings, squid, and scallops. The species with the greatest proportion of Greater Atlantic total revenue that was sourced from within the SRWEC fisheries study corridor were ocean pout (13.28 percent), blueback herring (10.99 percent), lightning whelk (9.04 percent), skate wings (8.28 percent), and quahogs (7.38 percent). Table 2.2-5 provides a full summary of the species caught in the SRWEC fisheries study corridor, which traverses Federal Statistical Fishing Areas 537, 539, and 613.

Table 2.2-5   Summary of Federal VTR Fishing Data in SRWEC Fisheries Study Corridor, by Species, for 2009 to 2018

Species	Annual Average Revenue and Landings from within SRWEC Fisheries Study Corridor		Annual Average of Total Revenue and Landings		Percent of Total Species Values in SRWEC Fisheries Study Corridor	
	Revenue	Landings	Revenue	Landings	% of Revenue	% of Landings
Scallops/Bushel	5,366,174	545,650	482,923,974	49,154,784	1.11	1.11
Monkfish	885,498	549,267	20,227,155	19,974,755	4.38	2.75
Quahogs/Bushel	849,674	1,349,941	11,515,763	15,885,026	7.38	8.50
Squid / Loligo	676,904	598,372	28,808,682	24,553,538	2.35	2.44
Flounders	616,681	236,811	53,134,241	23,095,652	1.16	1.03
Skate Wings	227,213	652,002	2,745,248	10,558,473	8.28	6.18
Scup	194,697	275,921	9,282,234	14,365,155	2.10	1.92
Herring, Atlantic	152,910	1,232,545	26,547,928	166,518,782	0.58	0.74
Lobster, American	113,790	24,503	508,376,902	138,393,661	0.02	0.02
Crab, Jonah	84,948	117,578	10,984,715	14,430,188	0.77	0.81
Hakes	68,292	105,459	15,734,072	20,616,926	0.43	0.51
Black Sea Bass	54,638	14,757	8,062,043	2,482,044	0.68	0.59
Striped Bass	49,574	13,259	18,993,967	6,042,232	0.26	0.22
Cod	38,912	18,411	14,976,920	8,631,140	0.26	0.21
Mackerel, Atlantic	28,407	146,979	3,889,784	16,598,279	0.73	0.89
Bluefish	18,138	26,001	2,795,762	4,626,369	0.65	0.56
Butterfish	16,258	23,393	2,182,611	3,343,738	0.74	0.70
Clam, Surf/Bushel	9,464	13,402	28,970,372	39,277,659	0.03	0.03
Dogfish, Spiny	9,395	45,322	3,621,344	18,797,259	0.26	0.24
Dogfish, Smooth	7,897	14,025	975,814	2,038,524	0.81	0.69
Tilefish, Golden	7,127	2,362	5,140,209	1,697,154	0.14	0.14
Eel, American	5,919	288	11,743,242	737,151	0.05	0.04
Crab, Rock/Bushel	3,479	6,644	905,105	1,934,725	0.38	0.34
Weakfish	3,071	1,737	911,459	480,366	0.34	0.36
Whelk, Channeled/Bushel	2,060	507	7,209,932	1,241,043	0.03	0.04
Tautog	2,021	640	939,764	277,524	0.22	0.23
Whiting, King / Kingfish	1,676	1,838	901,080	808,024	0.19	0.23
Squid / Illex	948	1,277	9,740,364	23,566,822	0.01	0.01
Menhaden	945	9,595	36,050,402	410,062,789	<0.01	<0.01
Croaker, Atlantic	849	1,248	7,545,945	9,430,649	0.01	0.01
Bonito	824	417	112,991	53,483	0.73	0.78
Whelk, Waved	755	1,180	167,288	310,836	0.45	0.38
Cunner	462	171	20,411	6,394	2.26	2.67
Tuna, Little	372	574	132,156	233,922	0.28	0.25
Pollock	268	289	9,248,825	10,614,877	<0.01	<0.01
Triggerfish	263	172	305,237	156,878	0.09	0.11
Crab, Species Not Specified	260	552	104,592	234,054	0.25	0.24
Crab, Horseshoe	257	240	1,549,706	2,075,840	0.02	0.01

Species	Annual Average Revenue and Landings from within SRWEC Fisheries Study Corridor		Annual Average of Total Revenue and Landings		Percent of Total Species Values in SRWEC Fisheries Study Corridor	
	Revenue	Landings	Revenue	Landings	% of Revenue	% of Landings
Whelk, Knobbed/Bushel	182	133	1,072,305	652,175	0.02	0.02
Sea Robins	174	786	20,363	111,941	0.85	0.70
Spot	158	239	3,139,995	2,828,429	0.01	0.01
Crab, Blue/Bushel	128	136	122,113,419	101,094,748	<0.01	<0.01
Mackerel, Spanish	113	54	1,192,721	816,870	0.01	0.01
Shark, Thresher	110	85	55,444	116,584	0.20	0.07
Herring, Blue Back	93	400	846	3,212	10.99	12.45
Halibut, Atlantic	88	14	814,873	131,652	0.01	0.01
Sea Raven	84	80	2,735	2,214	3.07	3.61
Whelk, Lightning	68	32	752	358	9.04	8.94
Scallops, Bay/Shells	64	6	3,715,767	230,219	<0.01	<0.01
Skate Wings, Clearnose	63	194	151,764	63,015	0.04	0.31
Ocean Pout	62	76	467	565	13.28	13.45
Mullets	39	49	11,018	20,601	0.35	0.24
Tilefish, Blueline	34	19	472,282	223,867	0.01	0.01
Swordfish	27	6	4,856,707	1,630,752	<0.01	<0.01
Shad, American	25	41	241,660	217,897	0.01	0.02
Shad, Hickory	8	10	32,427	102,845	0.02	0.01
Dolphin Fish / Mahi-Mahi	4	1	951,846	347,011	<0.01	<0.01
Redfish / Ocean Perch	3	5	4,433,221	7,839,842	<0.01	<0.01
Tuna, Skipjack	2	2	5,109	5,748	0.04	0.03
Tilefish, Sand	2	1	659	846	0.30	0.12
Crevalle	1	1	5,236	7,147	0.02	0.01
Perch, White	1	1	932,971	1,180,489	<0.01	<0.01
Total	9,502,553	6,035,700	1,491,702,826	1,180,935,742	0.64	0.51

Source: NOAA Fisheries 2020b; ACCSP 2020a.
Notes:
Values are sorted from largest to smallest revenue values for landings data.
Landings are reported in landed pounds.
Revenue is reported in nominal dollars.
"Total" revenue and landings values refer to all fishing activity as reported by VTRs for fisheries active in state and federal waters from Maine to North Carolina.

The data indicate that the top states reported by federally permitted vessels for revenue sourced from within the SRWEC fisheries study corridor were Massachusetts ($6,258,440), New York ($1,827,185), and Rhode Island ($1,426,204). Top states for pounds landed from within the SRWEC fisheries study corridor were Massachusetts (26.4 million), New Jersey (2.7 million), Rhode Island (1.8 million), and New York (1.4 million). The greatest percentage of Greater Atlantic revenue sourced from within the SRWEC fisheries study corridor is by Connecticut (3.67 percent), followed by New York (3.41 percent), Rhode Island (1.70 percent), Massachusetts (1.14 percent), and New Jersey (0.41 percent; Table 2.2-6).

Table 2.2-6   Summary of Federal VTR Fishing Data in SRWEC Fisheries Study Corridor, by State, for 2009 to 2018

State	Annual Average Revenue and Landings from within SRWEC Fisheries Study Corridor		Annual Average of Total Revenue and Landings from ME to NC		Percent of Total Species Values in SRWEC Fisheries Study Corridor	
	Revenue ($)	Landings (lb)	Revenue ($)	Landings (lb)	% of Revenue	% of Landings
Massachusetts	6,258,440	26,350,839	547,853,119	272,472,579	1.14	9.67
New York	1,827,185	1,310,390	53,574,875	30,798,644	3.41	4.25
Rhode Island	1,426,204	1,831,279	83,805,129	83,065,993	1.70	2.20
New Jersey	711,336	2,656,196	172,916,683	160,313,907	0.41	1.66
Connecticut	596,378	349,434	16,233,218	8,827,386	3.67	3.96
All Others	228,405	108,253	927,861,542	818,492,359	0.02	0.01
Total	11,047,948	32,606,391	1,802,244,566	1,373,970,868	0.61	2.37

Source: NOAA
Fisheries 2020b.
ACCSP 2020a.
Notes:
Values are sorted from largest to smallest revenue values for landings data.
Landings are reported in landed pounds.
Revenue is reported in nominal dollars.
"All Others" includes North Carolina, Virginia, Maryland, Delaware, New Hampshire, and Maine.
"Total" revenue and landings values refer to all fishing activity as reported by VTRs for fisheries active in state and federal waters from Maine to North Carolina.

2.2.2   Federal Vessel Monitoring System (VMS)

Federal VMS data can be used to provide additional qualitative information on the fishing location for a particular gear type or target species, by filtering data by estimated vessel speed to eliminate those vessels in transit and not fishing. The methods used by NOAA Fisheries to rank vessel density into relatively "low" to "very high" fishing intensity categories are described in detail in the spatial metadata (NOAA Fisheries 2020c). In addition to discussing VMS intensity as presented on Figures 2.2-1 through 2.2-14, this section also incorporates information about some fisheries as described in RIDEM (2017), which were highlighted as the fisheries that had the most activity in the RI-MA WEA (i.e., fisheries in the Atlantic herring, sea scallop, squid/mackerel/butterfish, monkfish, and northeast multispecies FMPs).

The VMS data map of vessel intensity for the groundfish fleet (large-mesh multispecies or northeast multispecies) for the years 2011 to 2014 indicates there was a high density of fishing vessels in the northwestern portion of the SRWF, and medium-high, medium-low, and low density in other parts of the SRWF, as indicated in Figure 2.2-1. The density of fishing vessels along the SRWEC fisheries study corridor ranged from high to low. In 2015-2016, the vessel activity for the groundfish fishery was high in a smaller part of the northwest corner of the SRWF and low to medium-low along limited areas of the SRWEC fisheries study corridor (Figure 2.2-2). In addition, RIDEM (2017) indicated that there was low relative intensity of fishing activity near the SRWF and SRWEC fisheries study corridor (Figure 88 in RIDEM 2017). Over the years 2011 to 2016, the total non-confidential landings revenue for groundfish activity in the RI-MA WEA was over $1 million and annual revenue ranged from $53,035 to $201,613 (Section 10.1.4, Table 23 in RIDEM 2017). The total non-confidential landings revenue for groundfish activity in Lease Area OCS-A 0500 for the years 2011 to 2016 was $1.2 million and annual revenue ranged from $13,526 to $548,426 (Section 10.1.4, Table 24 in RIDEM 2017). The RI-MA WEA includes Lease Areas OCS-A 0486 and OCS-A 0487. Sixty percent (60%) of the SRWF is encompassed within historic Lease Areas OCS-A 0487 and 40% is within OCS-A 0500.

Figure 2.2-1   VMS Map of Vessel Intensity for Large-mesh Multispecies (Groundfish) Fishing, 2011 to 2014

Figure 2.2-2   VMS Map of Vessel Intensity for Large-mesh Multispecies (Groundfish) Fishing, 2015 to 2016

The map of vessel intensity for the Atlantic herring fleet for the years 2011-2014 indicates medium-high to low vessel intensity only in the southern-most portion of the SRWF and high to medium-low intensity along limited areas of the SRWEC fisheries study corridor (Figure 2.2-3). For the years 2015-2016, the map of vessel intensity indicates medium-high, medium-low, and low intensity on the southern portion of the SRWF. The SRWEC fisheries study corridor crosses an area of medium-high intensity southwest of the SRWF (Figure 2.2-4). There is no map available of smoothed federal fishing activity for Atlantic herring from RIDEM (2017).
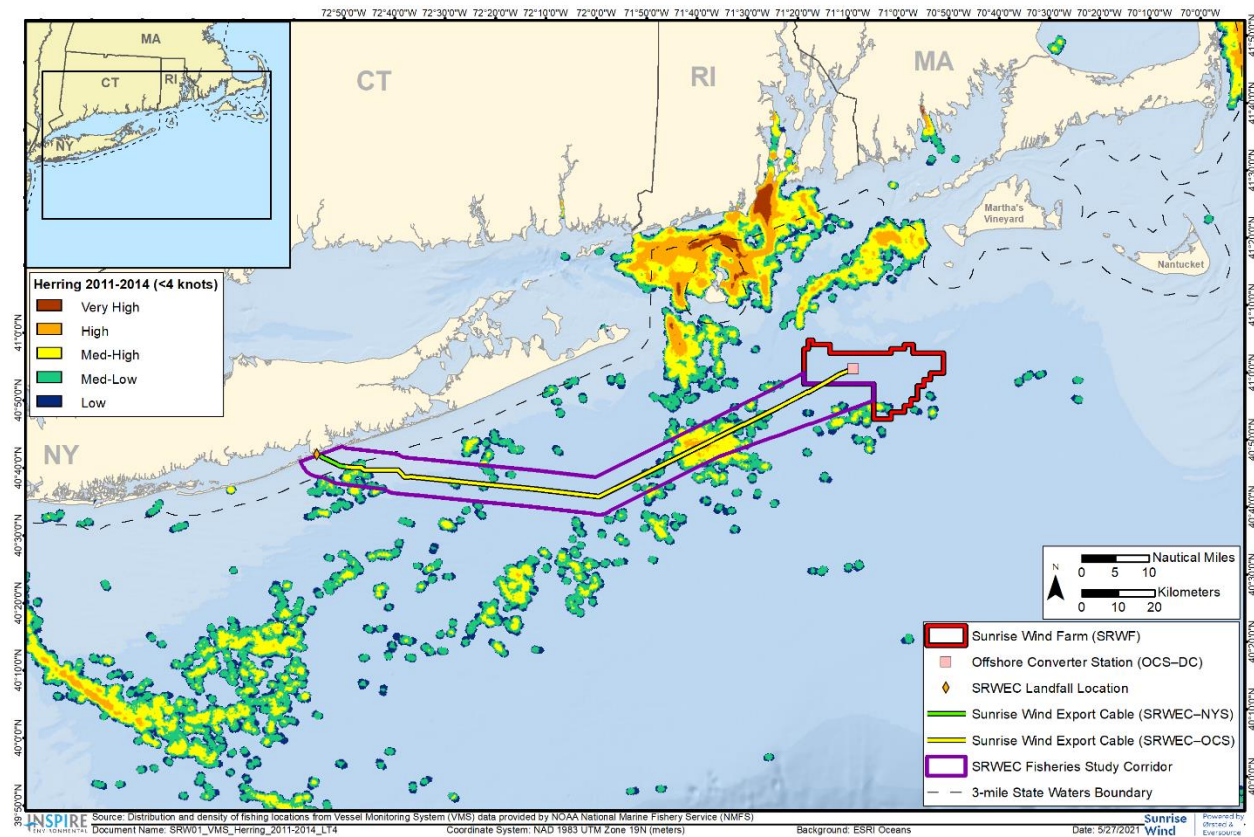
Figure 2.2-3   VMS Map of Vessel Intensity for Atlantic Herring Fishing, 2011 to 2014
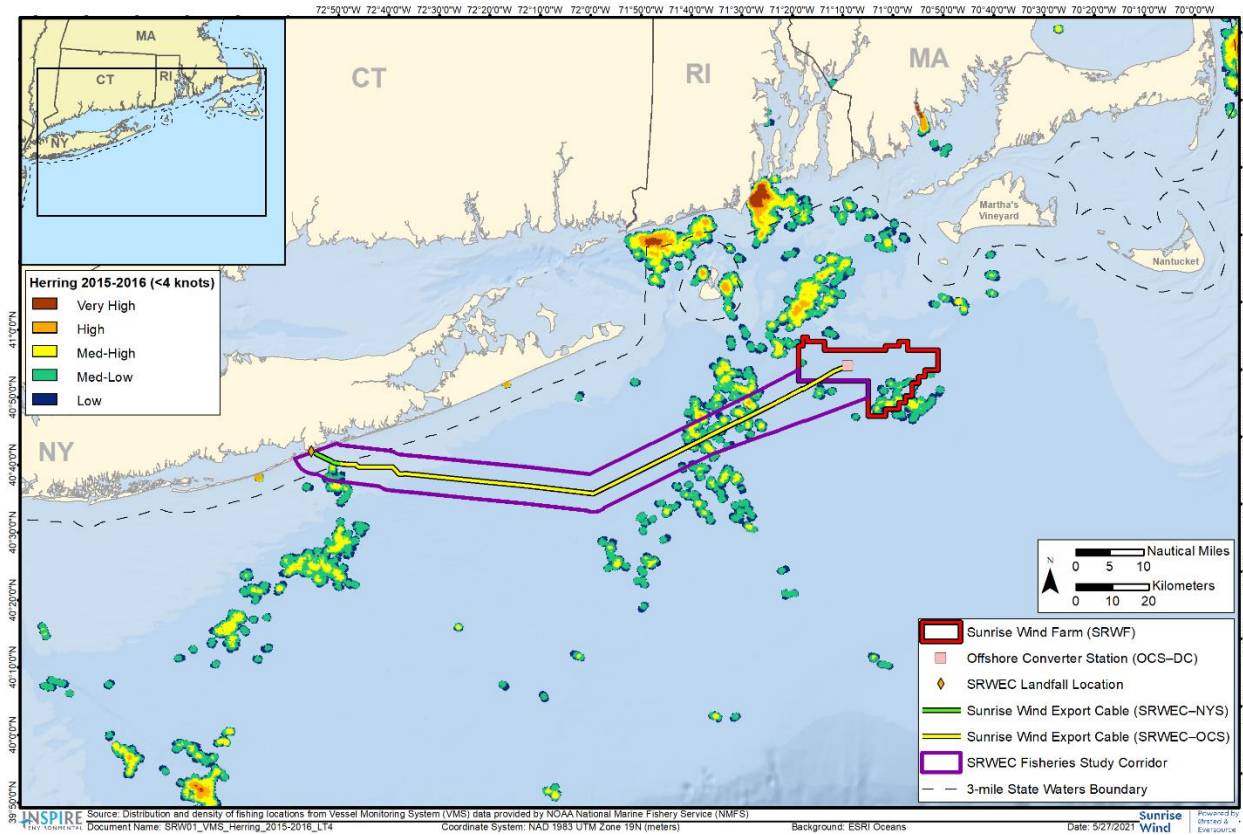
Figure 2.2-4   VMS Map of Vessel Intensity for Atlantic Herring Fishing, 2015 to 2016

The VMS data for vessels targeting pelagic species (herring/mackerel/squid) for 2014 include areas of medium-high, medium-low, and low intensity in the southern and central portions of the SRWF. Along the SRWEC fisheries study corridor, patchy areas of very high to low vessel intensity was encountered (Figure 2.2-5). During 2015 to 2016, vessel intensity targeting these species was concentrated in the northwestern portion of the SRWF, ranging from very high to low intensity levels (Figure 2.2-6). The SRWEC fisheries study corridor traverses an area of very-high intensity within New York state waters and areas of high, medium-high, medium-low, and low intensity in federal waters. These data are for several target species combined for a 2-year period, so it is not possible to separate which species is targeted in a specific location from this map. In addition, RIDEM (2017) indicated that there was low relative intensity of fishing activity for the SRWF and the SRWEC fisheries study corridor for the squid/mackerel/butterfish FMP (Figure 142 in RIDEM 2017) over the years 2011 to 2016. The total non-confidential landings revenue over the years 2011 to 2016 for fishing under the squid/mackerel/butterfish FMP in the RI-MA WEA was over $397,000 and annual revenue ranged from $4,744 to $238,832 (Section 10.1.4; Table 23 in RIDEM 2017). The total non-confidential landings revenue for squid/mackerel/butterfish activity in Lease Area OCS-A 0500 for the years 2011 to 2016 was approximately $1.8 million and annual revenue ranged from $7,636 to approximately $1.5 million (Section 10.1.4, Table 24 in RIDEM 2017). The RI-MA WEA includes Lease Areas OCS-A 0486 and OCS-A 0487. Sixty percent (60%) of the SRWF is encompassed within historic Lease Areas OCS-A 0487 and 40% is within OCS-A 0500.

Figure 2.2-5   VMS Map of Vessel Intensity for Pelagic Species (Herring/Mackerel/Squid) Fishing, 2014

Figure 2.2-6   VMS Map of Vessel Intensity for Pelagic Species (Herring/Mackerel/Squid) Fishing, 2015 to 2016

The map of vessel intensity for the monkfish fleet for the years 2011 to 2014 indicates very high to medium-high intensity activity within the majority of the SRWF and very high to low intensity along the eastern half of the SRWEC fisheries study corridor (Figure 2.2-7). The vessel intensity map for monkfish for 2015 to 2016 also indicates very high to low activity within the SRWF and along patchy areas of the SRWEC fisheries study corridor (Figure 2.2-8). Additionally, RIDEM (2017) indicated there was medium to low relative intensity of fishing activity in the SRWF, with low to very high intensities along the SRWEC fisheries study corridor (Figure 87 in RIDEM 2017). Over the years 2011 to 2016, the total non-confidential landings revenue for monkfish activity in the RI-MA WEA was more than $1.27 million and annual revenue ranged from $123,863 to $321,298 (Section 10.1.4; Table 23 in RIDEM 2017). The total non-confidential landings revenue for monkfish activity in Lease Area OCS-A 0500 for the years 2011 to 2016 was approximately $1 million and annual revenue ranged from $131,707 to $229,049 (Section 10.1.4, Table 24 in RIDEM 2017). RI-MA WEA includes Lease Area OCS-A 0486 and Lease Area OCS-A 0487. Sixty percent (60%) of the SRWF is encompassed within historic Lease Areas OCS-A 0487 and 40% is within OCS-A 0500.
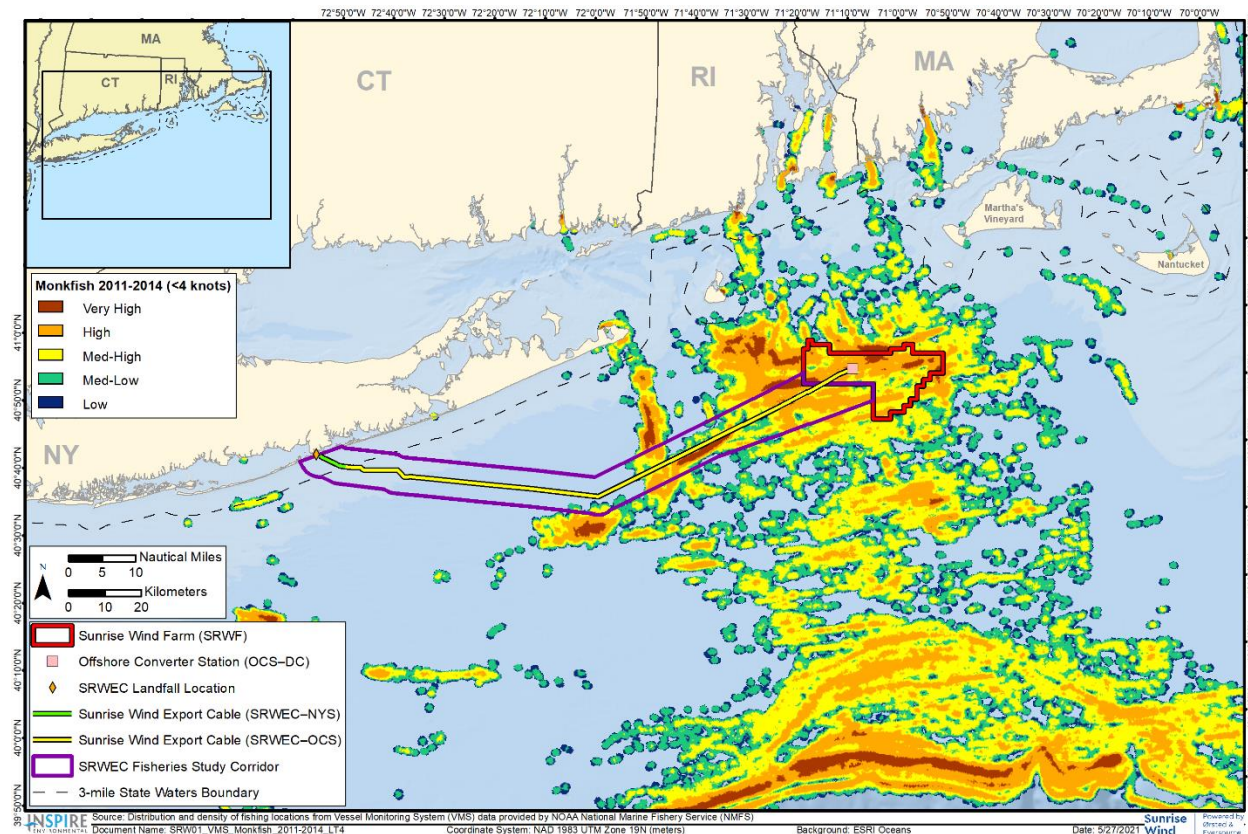
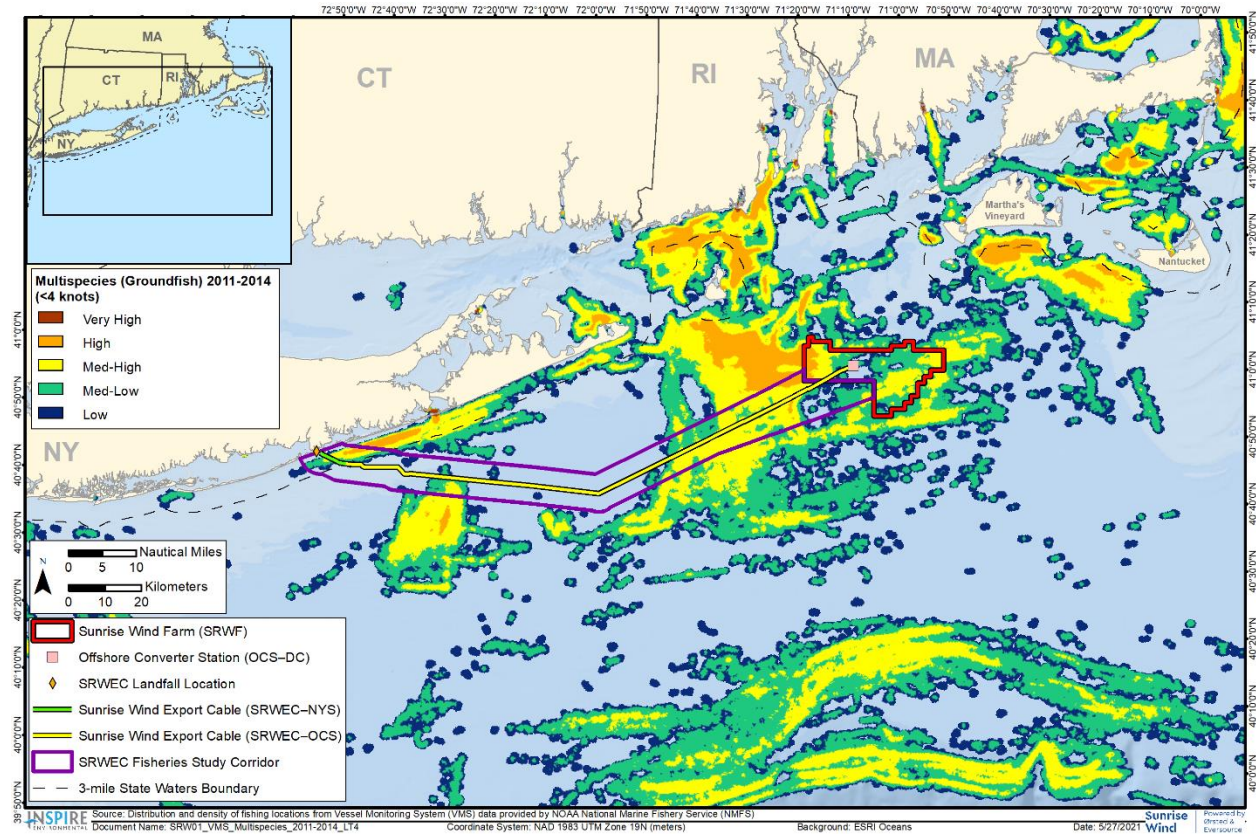**Figure 2.2-7   VMS Map of Vessel Intensity for Monkfish Fishing, 2011 to 2014**
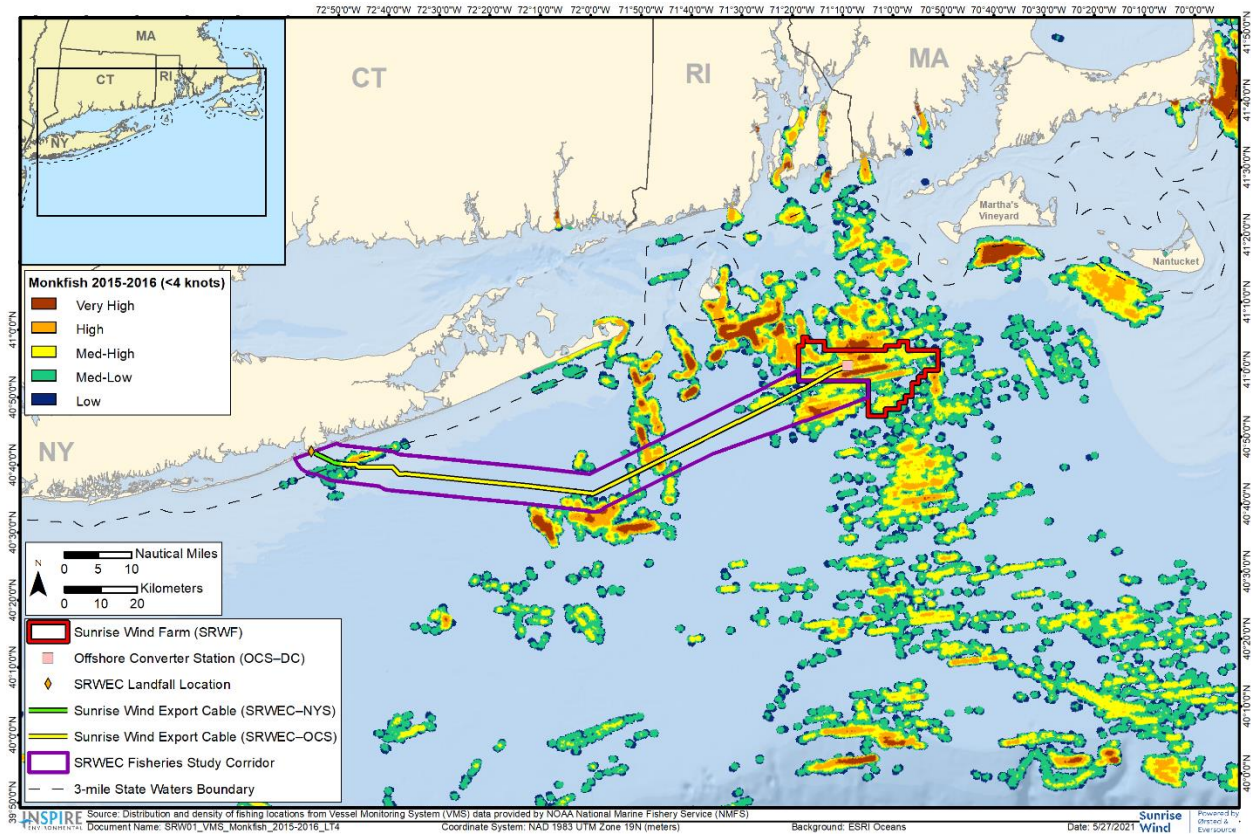
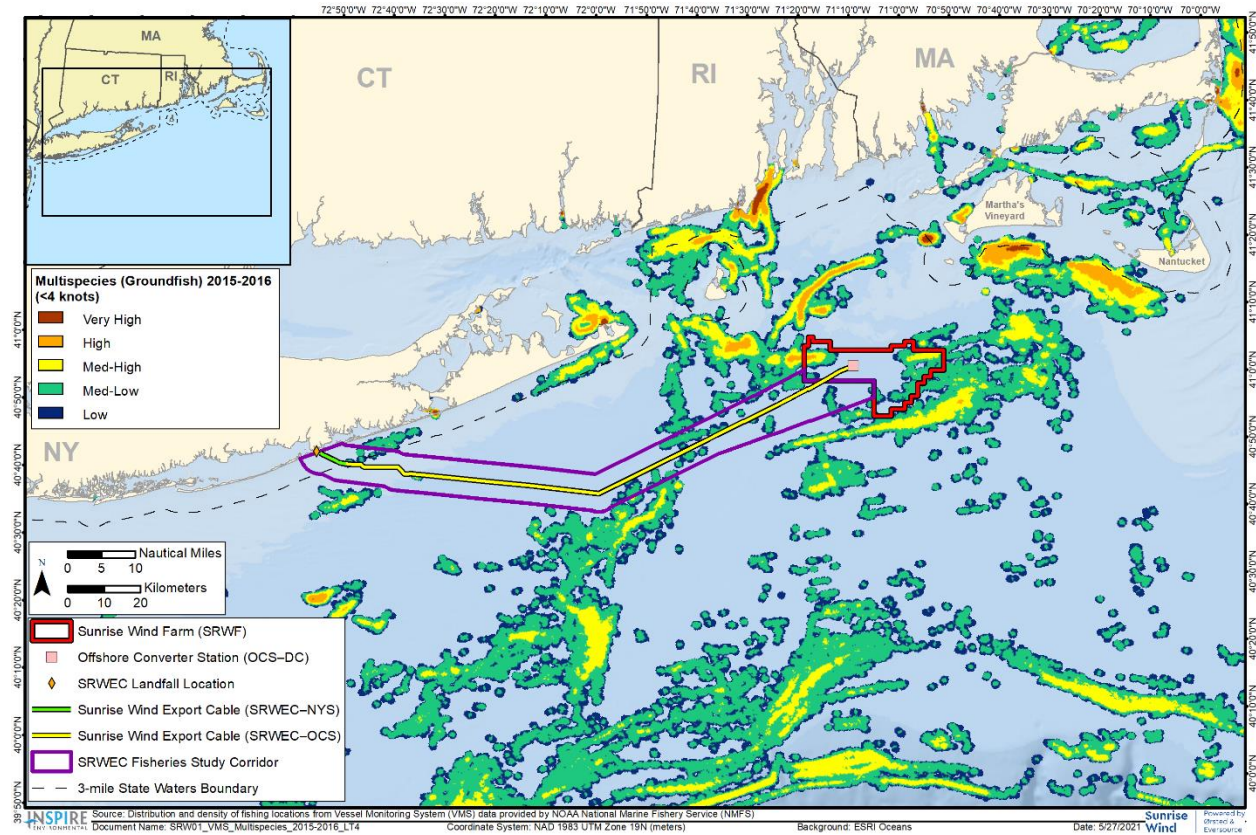**Figure 2.2-8   VMS Map of Vessel Intensity for Monkfish Fishing, 2015 to 2016**

The map of vessel intensity for vessels fishing for surfclam/ocean quahog for the years 2012 to 2014, shows high to low intensity vessel activity within the majority of the SRWF and high to low vessel intensity along portions of the SRWEC fisheries study corridor (Figure 2.2-9). The vessel intensity map for surfclam/ocean quahogs for 2015 to 2016 indicates very high activity along the SRWEC fisheries study corridor southwest of the SRWF, and high, medium-high, medium-low, and low vessel activity along other portions of the SRWEC fisheries study corridor. Within the SRWF, vessel activity was concentrated in western and central areas (Figure 2.2-10). RIDEM (2017) indicated that for surfclam/ocean quahog fishing with dredge gear (Figure 59 in RIDEM 2017), there was some scattered medium and medium-low smoothed relative intensity of fishing activity in the SRWF and along the SRWEC fisheries study corridor over the years 2011 to 2016. Landings revenue for surfclam/ocean quahog dredge activity in the RI-MA WEA and Lease Area OCS-A 0500 was classified as confidential for the years 2011 to 2016, and therefore not publicly available (Section 10.1.3; Table 16 in RIDEM 2017).
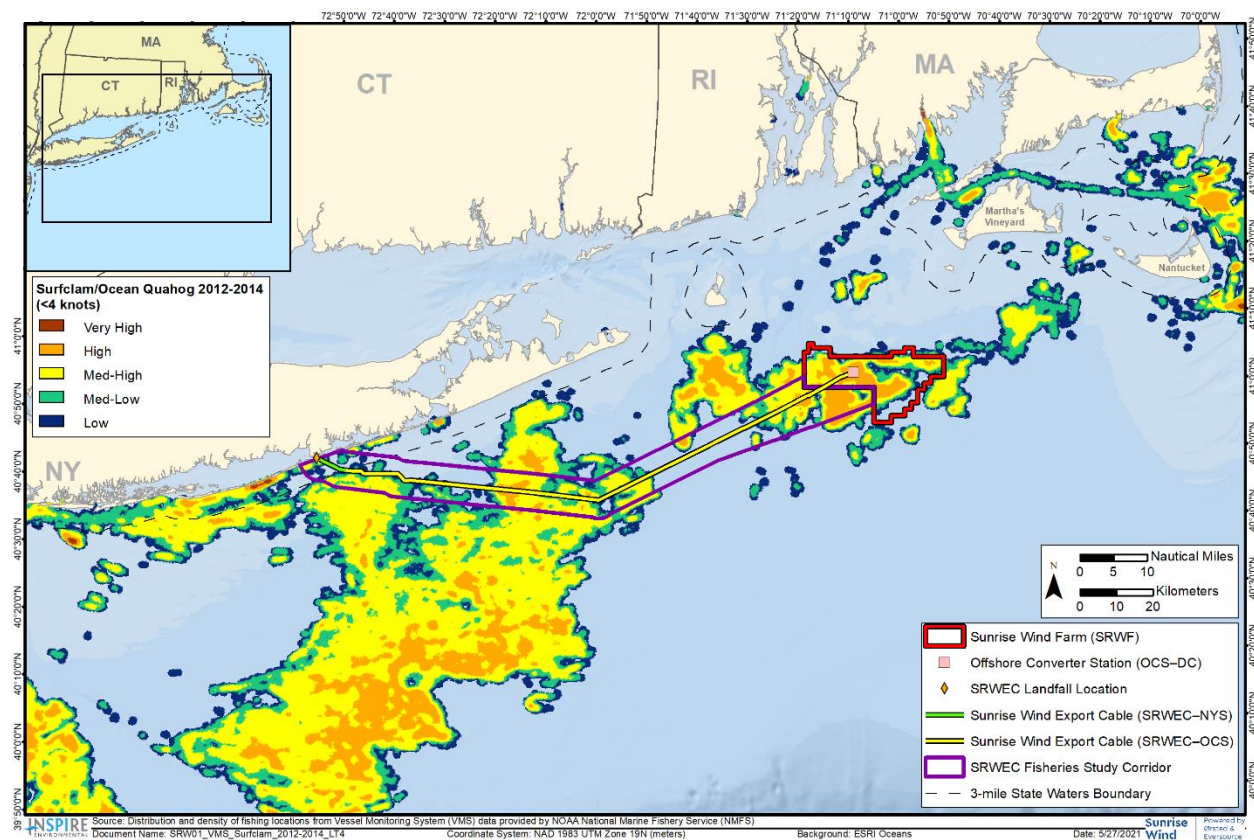
Figure 2.2-9   VMS Map of Vessel Intensity for Surfclam/Ocean Quahog Fishing, 2012 to 2014
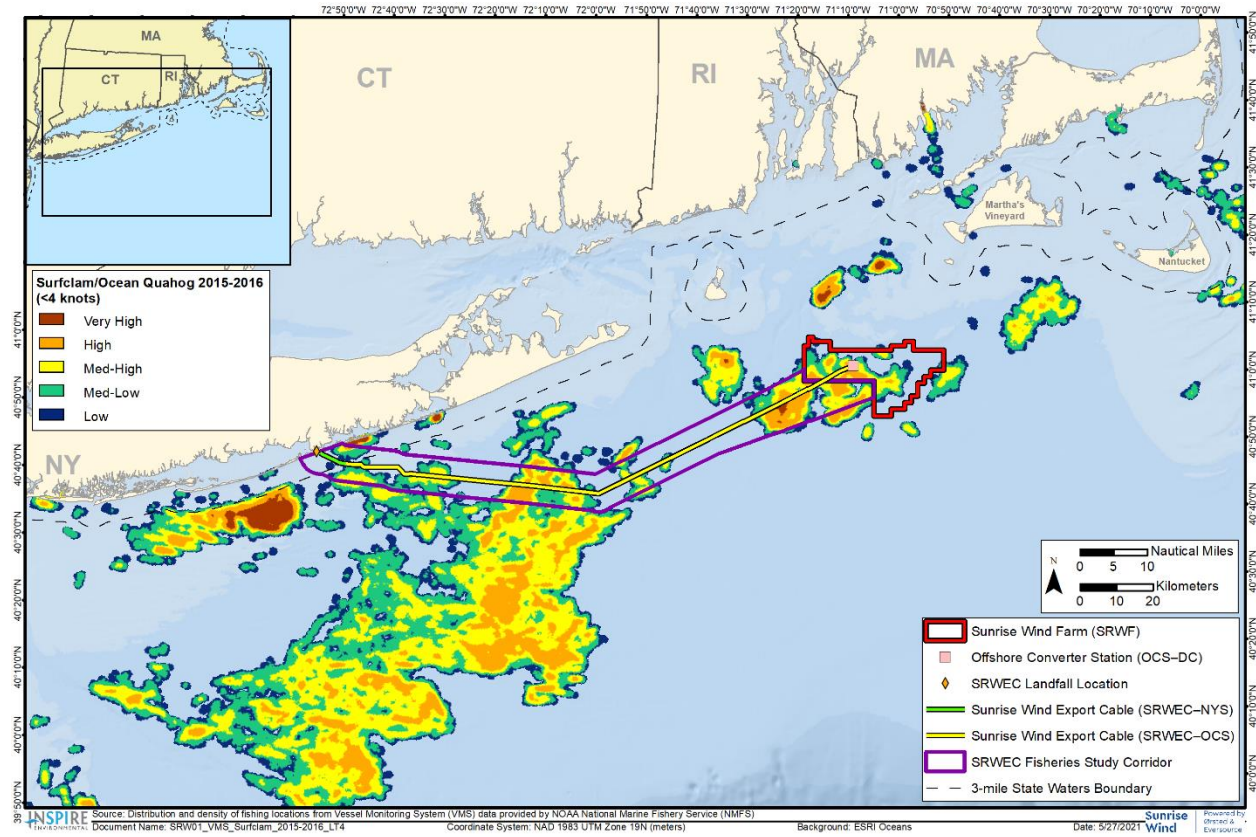
Figure 2.2-10   VMS Map of Vessel Intensity for Surfclam/Ocean Quahog Fishing, 2015 to 2016

The intensity map for vessels fishing for sea scallops for the years 2011 to 2014 indicates mostly a medium-low to low intensity for vessels targeting scallops within the northern central portion of SRWF (Figure 2.2-11). The SRWEC fisheries study corridor traverses areas of medium-high to low vessel activity near the SRWF and high to low levels of intensity along other portions of the SRWEC fisheries study corridor. The 2015 to 2016 intensity map for scallop fishery vessels indicates very high to low vessel activity in the central portion of the SRWF and high to low vessel intensity in the southwestern portion of the SRWF (Figure 2.2-12). Fishing activity for scallops ranged from high to low along the SRWEC fisheries study corridor. In addition, RIDEM (2017) indicated low relative intensity of fishing activity near the SRWF and low to medium intensity of fishing activity along the SRWEC fisheries study corridor (Figure 95 in RIDEM 2017). Over the years 2011 to 2016, the total non-confidential landings revenue for sea scallop FMP activity in the RI-MA WEA was more than $2.9 million and annual revenue ranged from $138,251 to approximately $1.1 million (Section 10.4.1; Table 23 in RIDEM 2017). The total non-confidential landings revenue for sea scallop activity in Lease Area OCS-A 0500 for the years 2011 to 2016 was approximately $1.8 million and annual revenue ranged from $24,795 to $604,396 (Section 10.1.4, Table 24 in RIDEM 2017). RI-MA WEA includes Lease Area OCS-A 0486 and Lease Area OCS-A 0487. Sixty percent (60%) of the SRWF is encompassed within historic Lease Areas OCS-A 0487 and 40% is within OCS-A 0500.
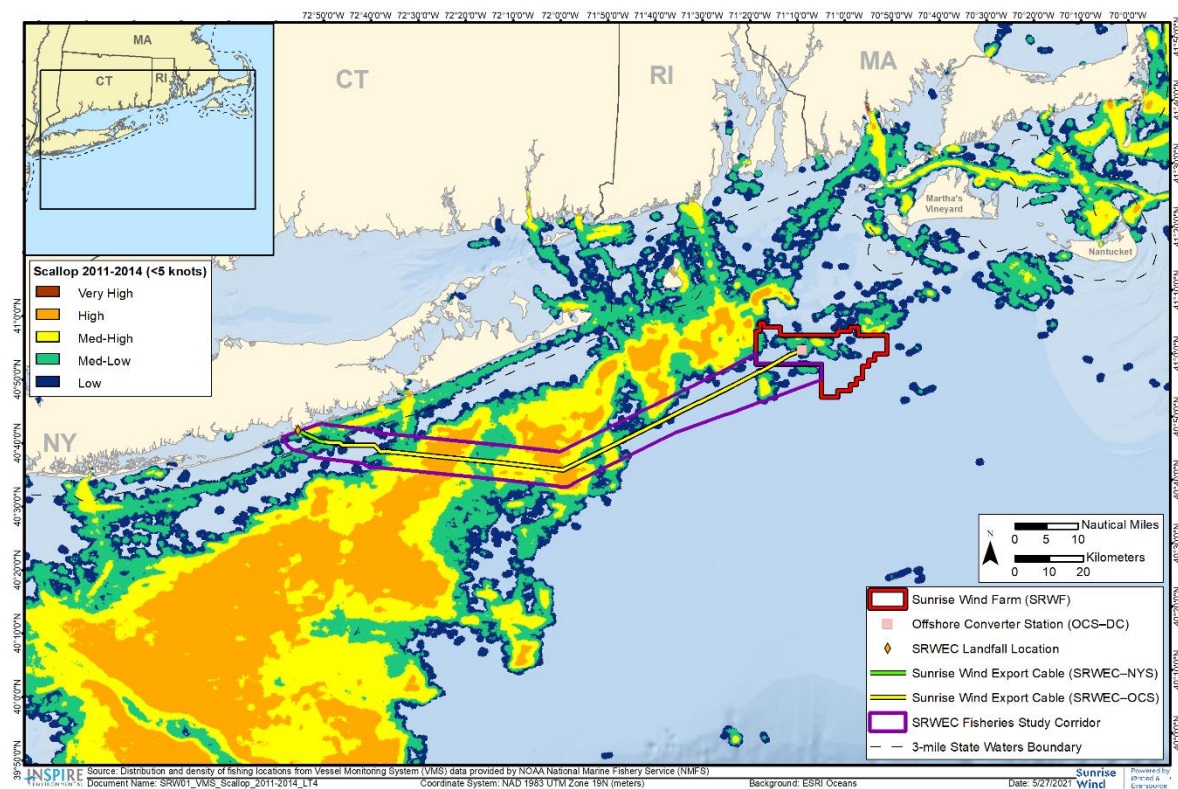
Figure 2.2-11   VMS Map of Vessel Intensity for Sea Scallop Fishing, 2011 to 2014
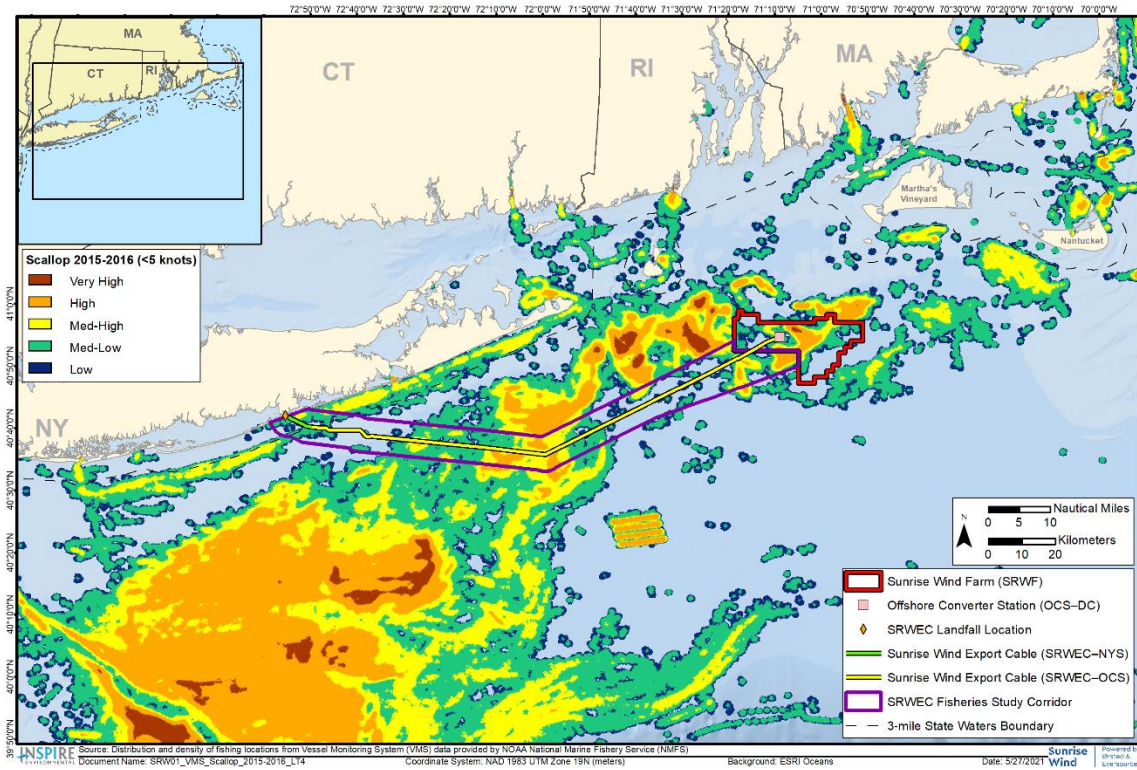
Figure 2.2-12   VMS Map of Vessel Intensity for Sea Scallop Fishing, 2015 to 2016

The intensity map for vessels fishing for squid in the year 2014 indicates limited areas of medium-high, medium-low and low vessel intensity in the SRWF, and the SRWEC fisheries study corridor traverses limited patchy areas of high, medium-high, medium-low and low intensity (Figure 2.2-13). The 2015 to 2016 intensity map indicates very high, high, medium-high, and low intensity vessel activity within the SRWF, with higher intensity activity located in the northwestern portion of the SRWF (Figure 2.2-14). The SRWEC fisheries study corridor traverses areas of high, medium-high, medium-low, and low intensity vessel activity in federal waters and includes areas of very high intensity in New York state waters for 2015-2016 (Figure 2.2-14). As noted previously, RIDEM (2017) indicated that there was low relative intensity of fishing activity for the SRWF and SRWEC fisheries study corridor for the squid/mackerel/butterfish FMP (Figure 142 in RIDEM 2017) over the years 2011 to 2016. The total non-confidential landings revenue for fishing under the squid/mackerel/butterfish FMP in the RI-MA WEA was over $397,000 and annual revenue ranged from $4,744 to 238,832 (Section 10.1.4; Table 23 in RIDEM 2017). The total non-confidential landings revenue for squid/mackerel/butterfish activity in Lease Area OCS-A 0500 for the years 2011 to 2016 was approximately $1.8 million and annual revenue ranged from $7,636 to approximately $1.5 million (Section 10.1.4, Table 24 in RIDEM 2017). RI-MA WEA includes Lease Area OCS-A 0486 and Lease Area OCS-A 0487. Sixty percent (60%) of the SRWF is encompassed within historic Lease Areas OCS-A 0487 and 40% is within OCS-A 0500.
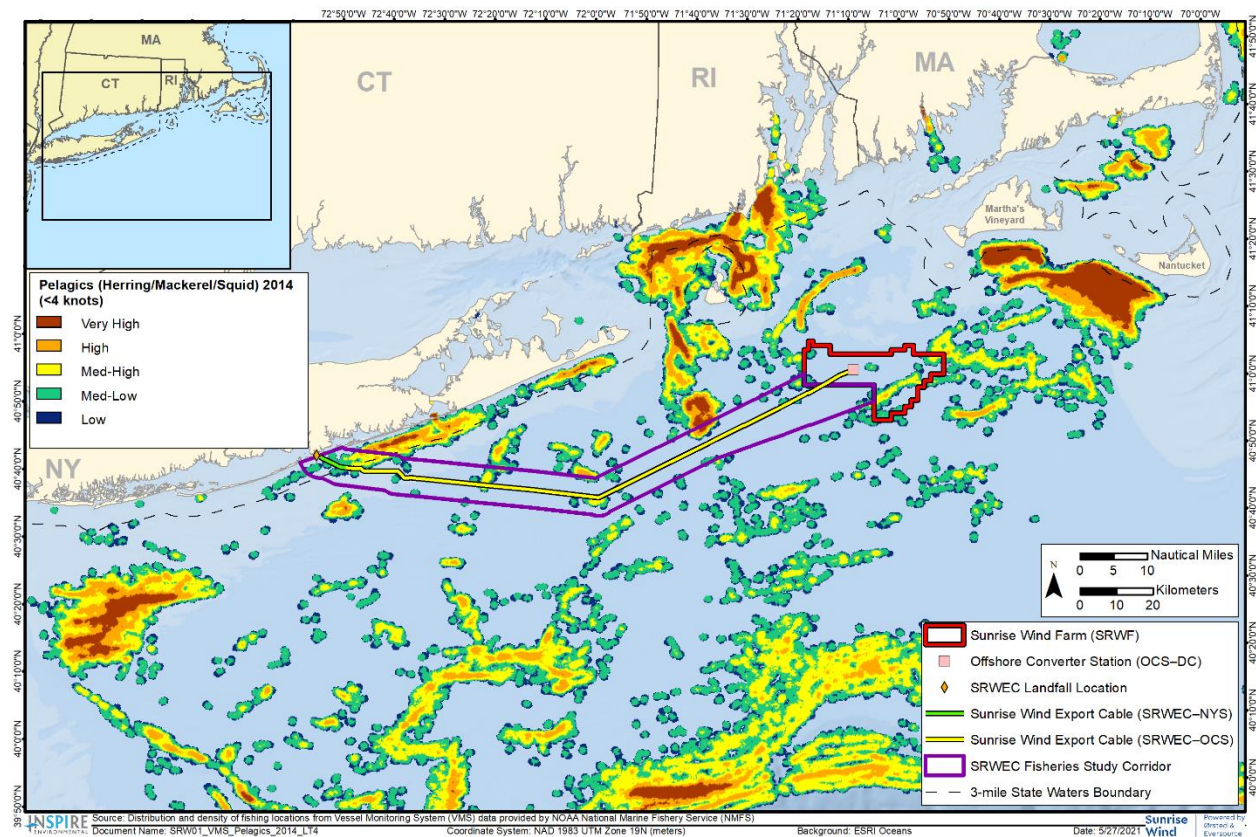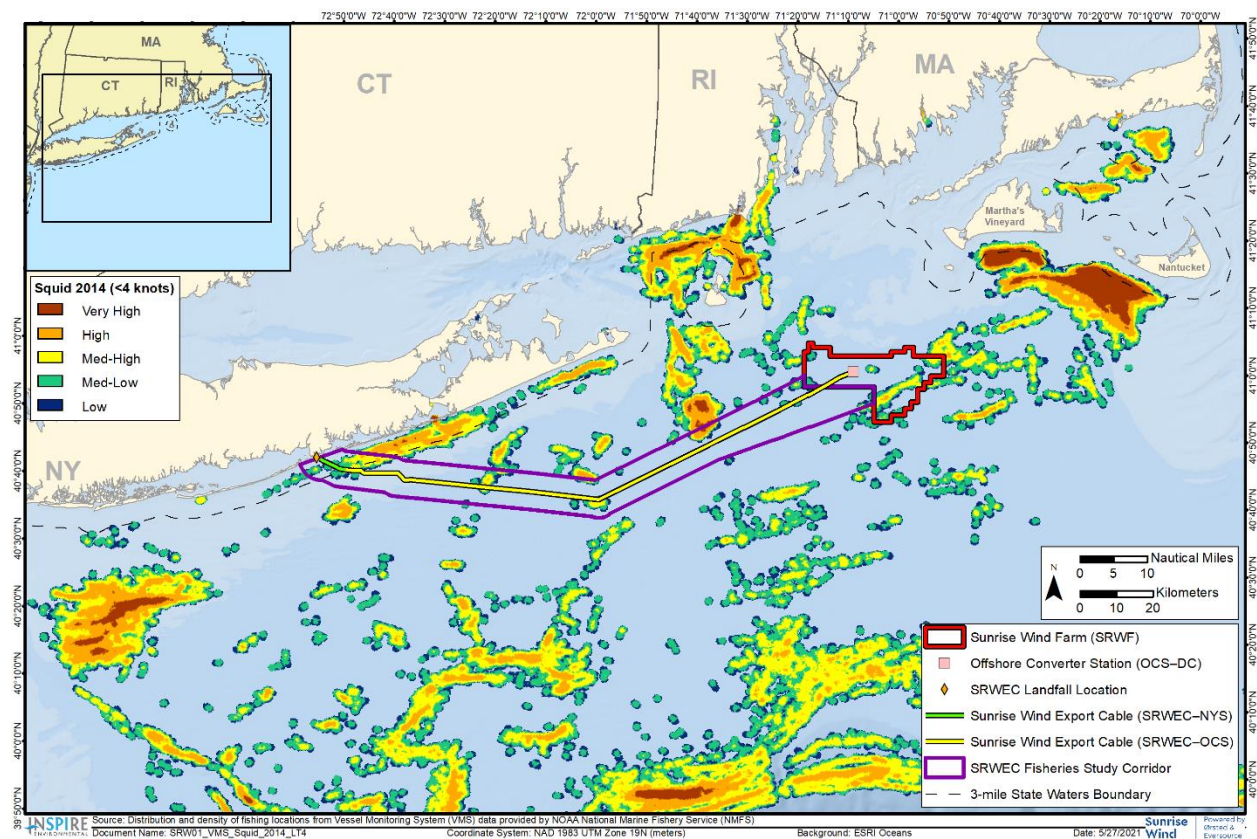

Figure 2.2-13   VMS Map of Vessel Intensity for Squid Fishing, 2014

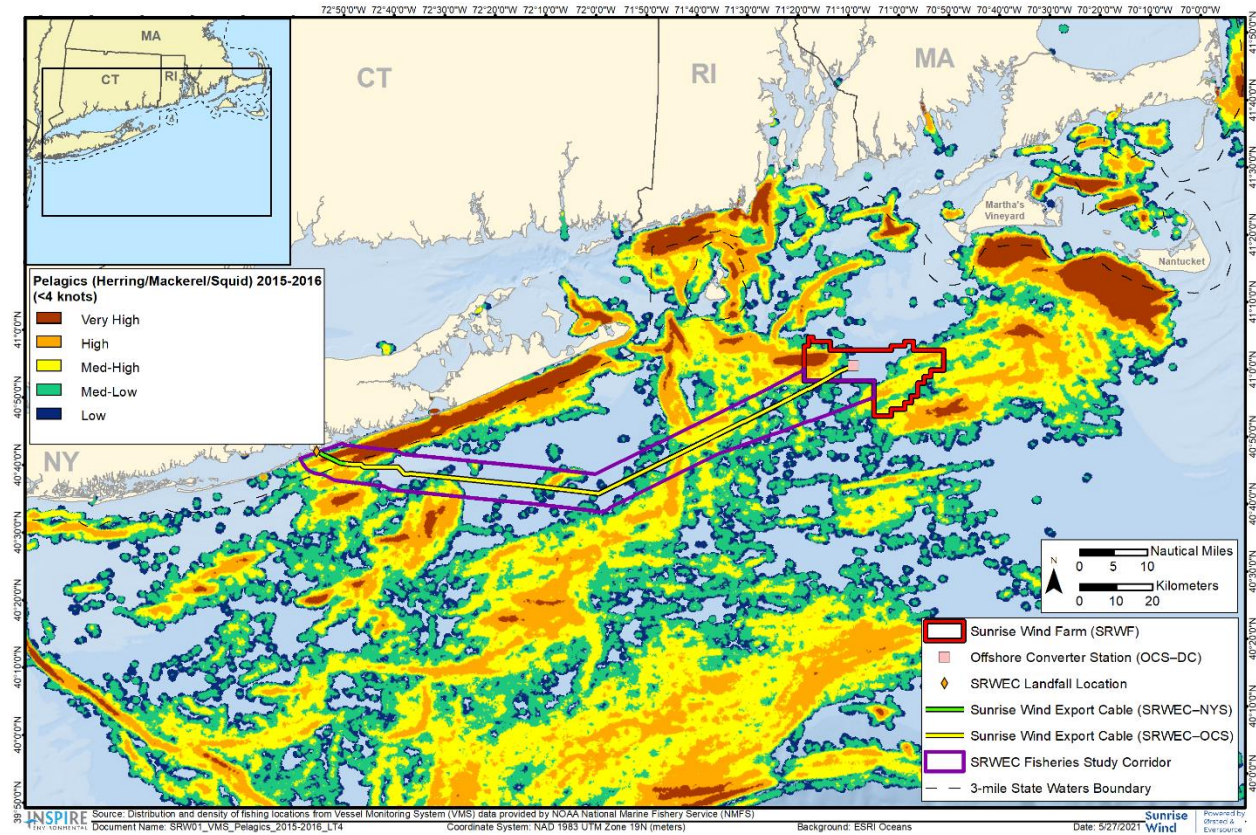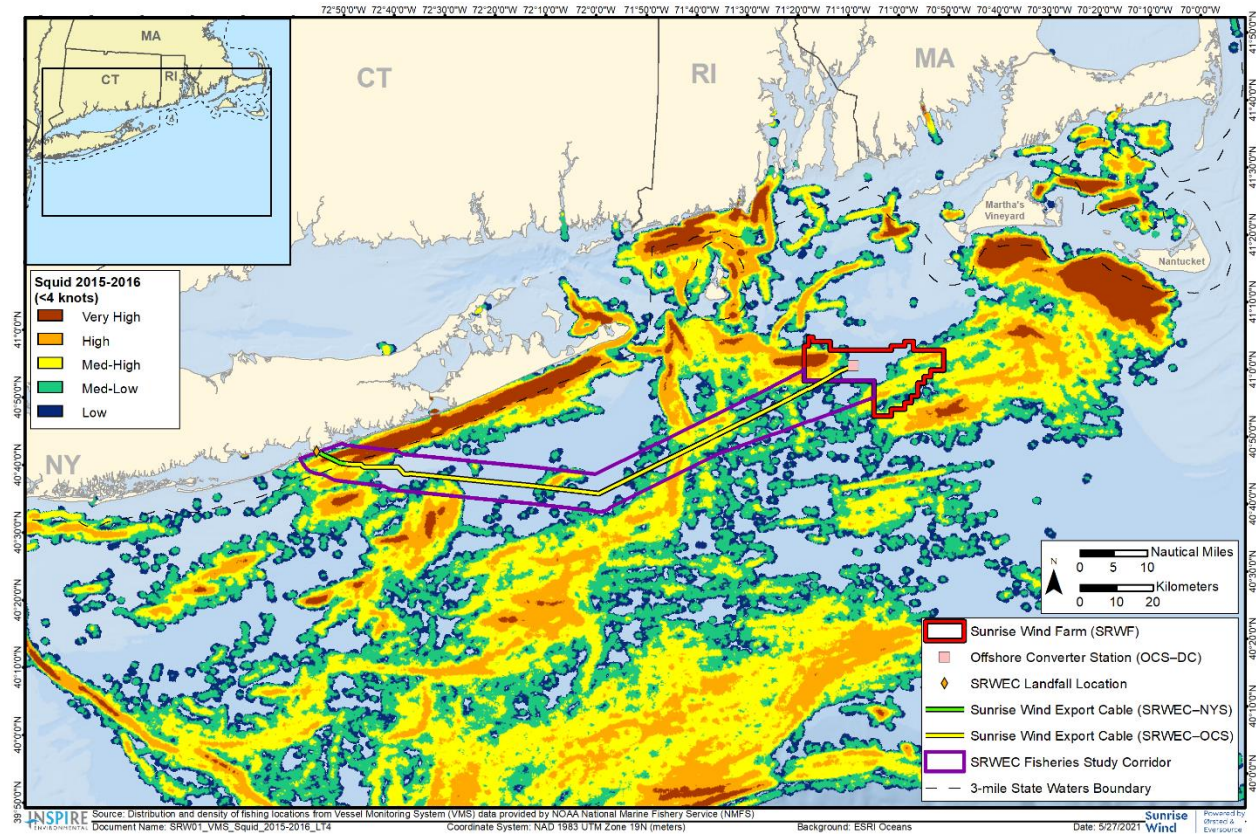**Figure 2.2-14 VMS Map of Vessel Intensity for Squid Fishing, 2015 to 2016**

2.2.3   VTR Data as Rasters

Fishing-intensity rasters aggregated by port group were summed to indicate the revenue-intensity of fishing activity in offshore areas being considered as locations for wind turbine facilities (Benjamin et al. 2018). Revenue intensity of fishing activity for 2013 to 2017 is presented on Figures 2.2-15 through 2.2-20 for the fisheries with revenue recorded in the RI-MA WEA (i.e., large-mesh multispecies or northeast multispecies, mackerel/squid/butterfish, monkfish, bottom trawl, clam dredge, and lobster pot).

The revenue-intensity raster map for groundfish (large-mesh multispecies or northeast multispecies) indicates an area of relatively high-revenue fishing activity in the north-central portion of SRWF, with relatively medium to low-revenue fishing activity to the northwest of the SRWEC–OCS where it exits the SRWF (Figure 2.2-15). Maximum groundfish (large-mesh multispecies or northeast multispecies) mean annual revenue per 0.25 km^2 was $4,809 (Figure 2.2-15).
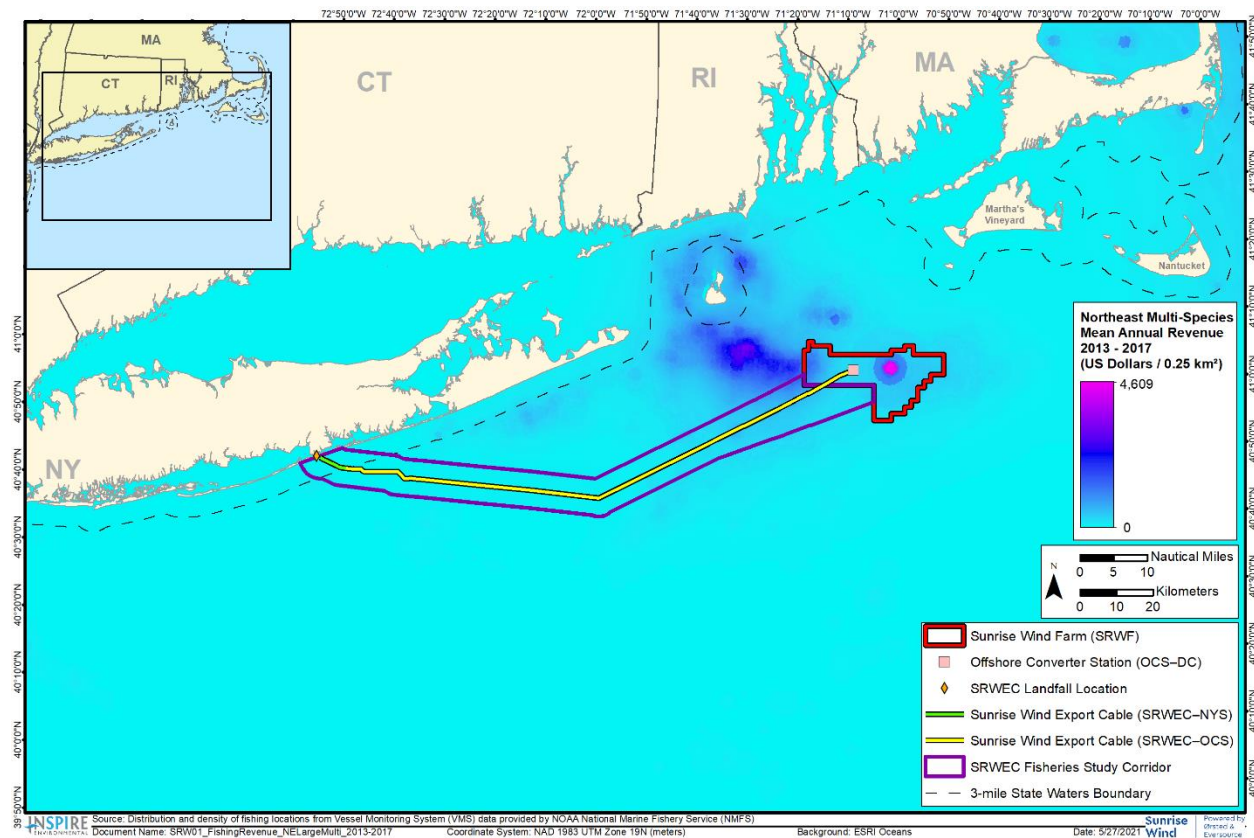
Figure 2.2-15   Revenue-intensity raster map for Large-mesh Multispecies Fishing, 2013 to 2017

The revenue-intensity raster map for mackerel/squid/butterfish indicates an area of relatively high-revenue fishing activity in the north-central portion of SRWF, with relatively medium to low-revenue fishing activity to the northeast of the SRWEC–NYS (Figure 2.2-16). Maximum mackerel/squid/butterfish mean annual revenue per 0.25 km^2 was $8,424 (Figure 2.2-16).
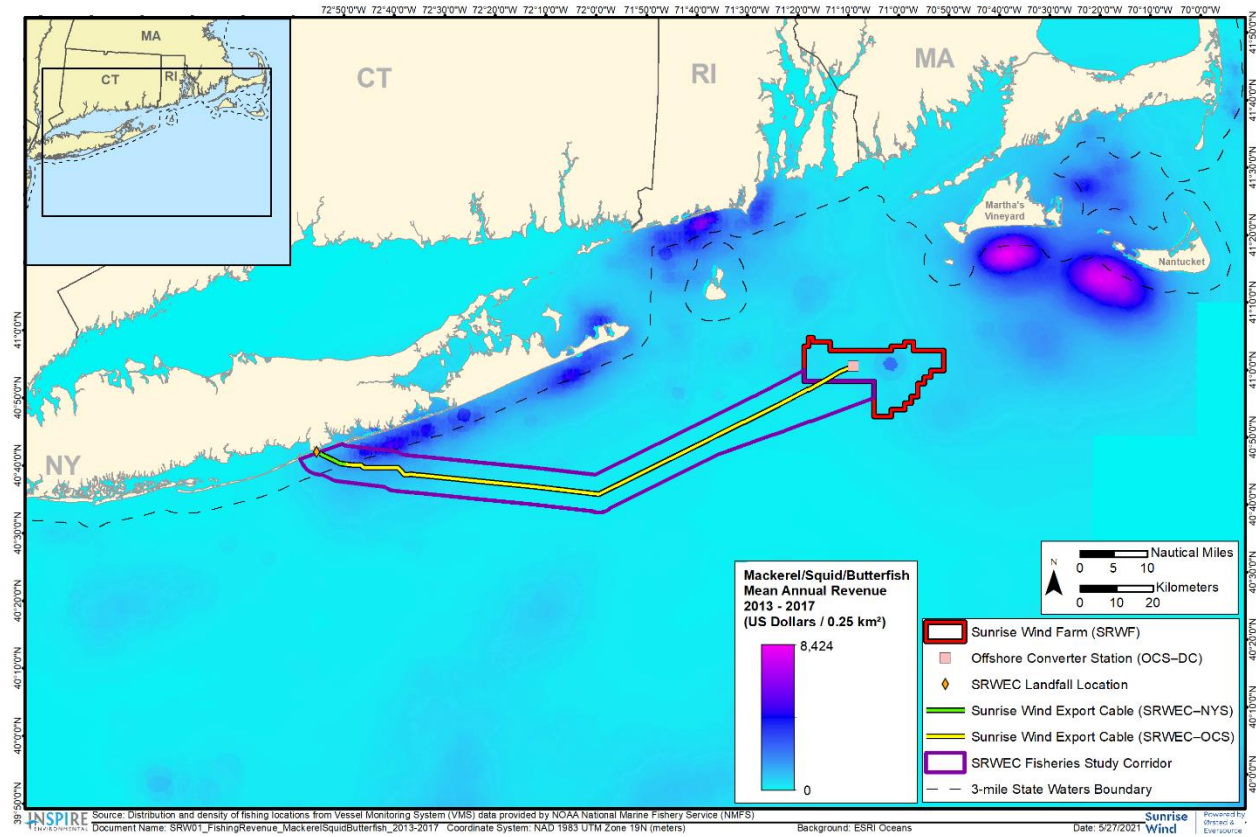
Figure 2.2-16   Revenue-intensity raster map for Mackerel/Squid/Butterfish Fishing, 2013 to 2017

The revenue-intensity raster map for monkfish indicates an area of relatively medium-revenue fishing activity in the north-central portion of SRWF, with relatively low-revenue fishing activity along the SRWEC–OCS (Figure 2.2-17). Maximum monkfish mean annual revenue per 0.25 km^2 was $35,936 (Figure 2.2-17).
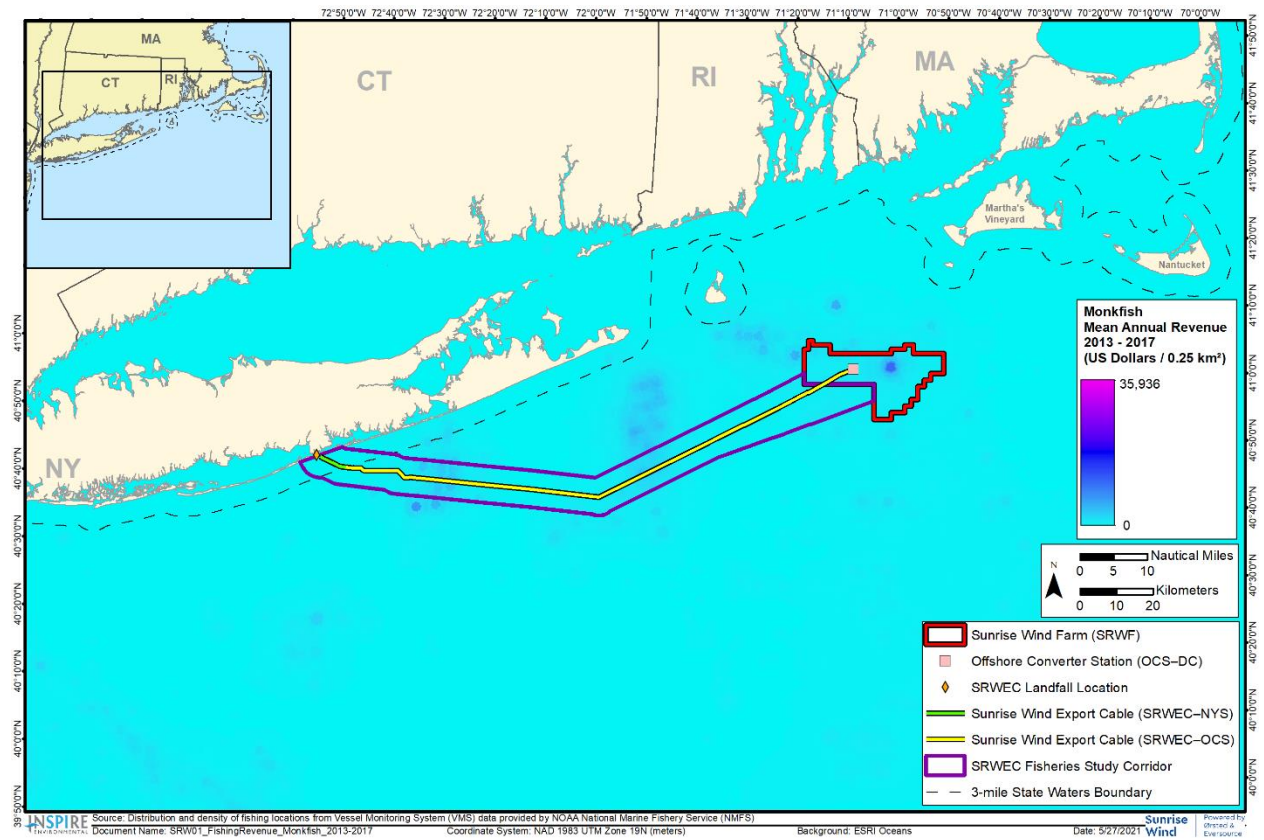
Figure 2.2-17   Revenue-intensity raster map for Monkfish Fishing, 2013 to 2017

The revenue-intensity raster map for bottom trawl fishing indicates an area of relatively high-revenue fishing activity in the north-central portion of SRWF, with relatively low-revenue fishing activity along the SRWEC–OCS and medium to low-revenue fishing activity to the northeast of the SRWEC–NYS (Figure 2.2-18). Maximum bottom trawl mean annual revenue per 0.25 km^2 was \$3,441 (Figure 2.2-18).
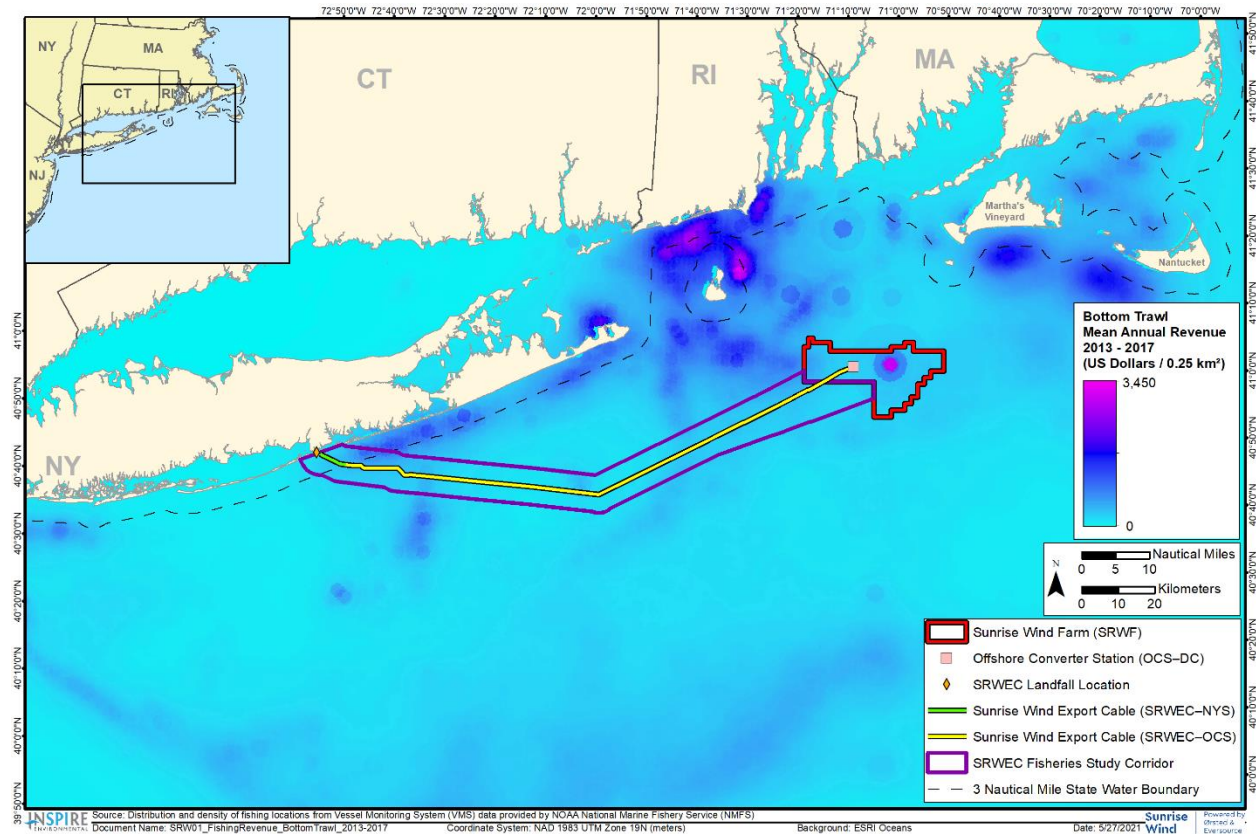
Figure 2.2-18   Revenue-intensity raster map for Bottom Trawl Fishing, 2013 to 2017

The revenue-intensity raster map for clam dredge fishing indicates an area of relatively medium to low-revenue fishing activity within the SRWF and along the SRWEC–OCS. The highest-revenue fishing activity depicted for fishing by clam dredge was located south of the SRWEC–OCS (Figure 2.2-19). Maximum clam dredge mean annual revenue per 0.25 km^2 was \$2,472 (Figure 2.2-19).
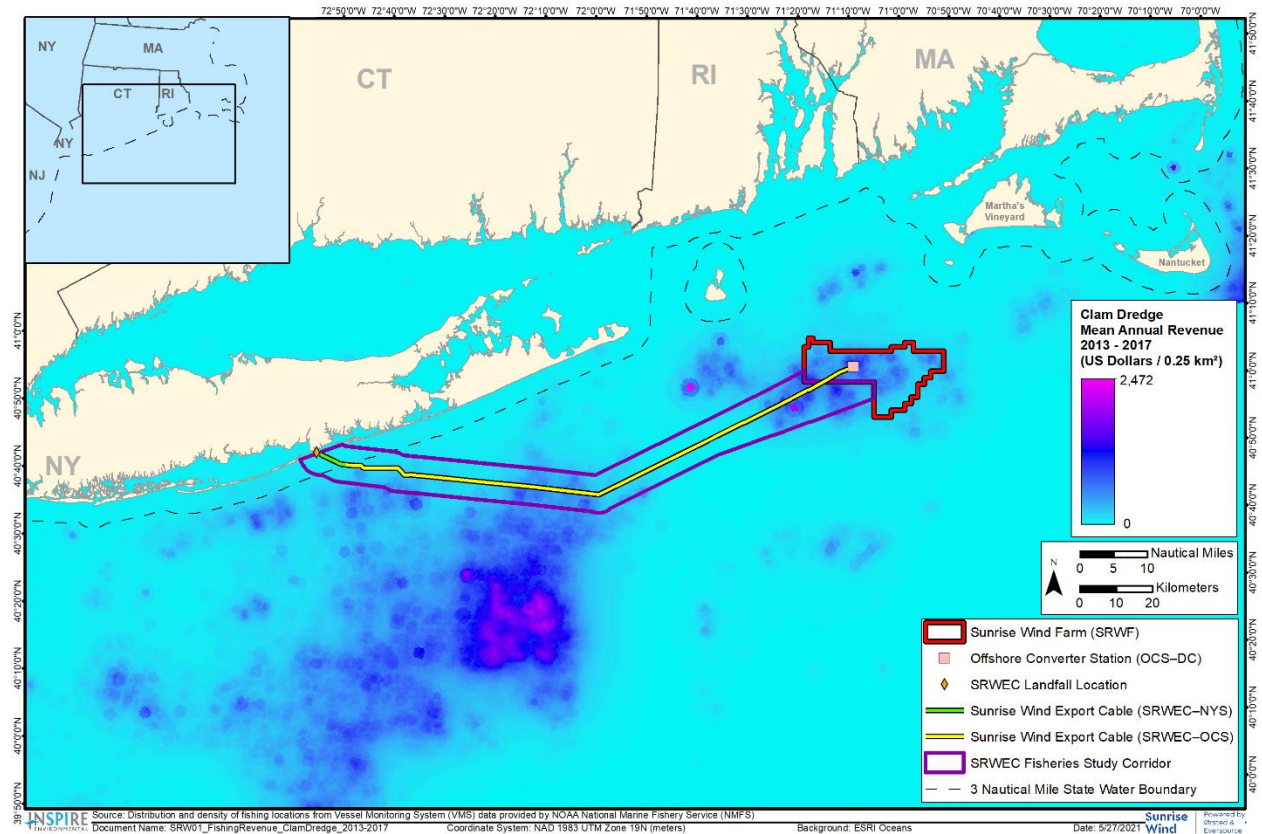
Figure 2.2-19   Revenue-intensity raster map for Clam Dredge Fishing, 2013 to 2017

The revenue-intensity raster map for lobster pot fishing indicates an area of relatively medium to low-revenue fishing activity in the north-central portion of SRWF, with relatively low-revenue fishing activity at one location along the SRWEC–OCS and no activity depicted along the SRWEC–NYS (Figure 2.2-20). Maximum lobster pot mean annual revenue per 0.25 km^2 was $1,147 (Figure 2.2-20).
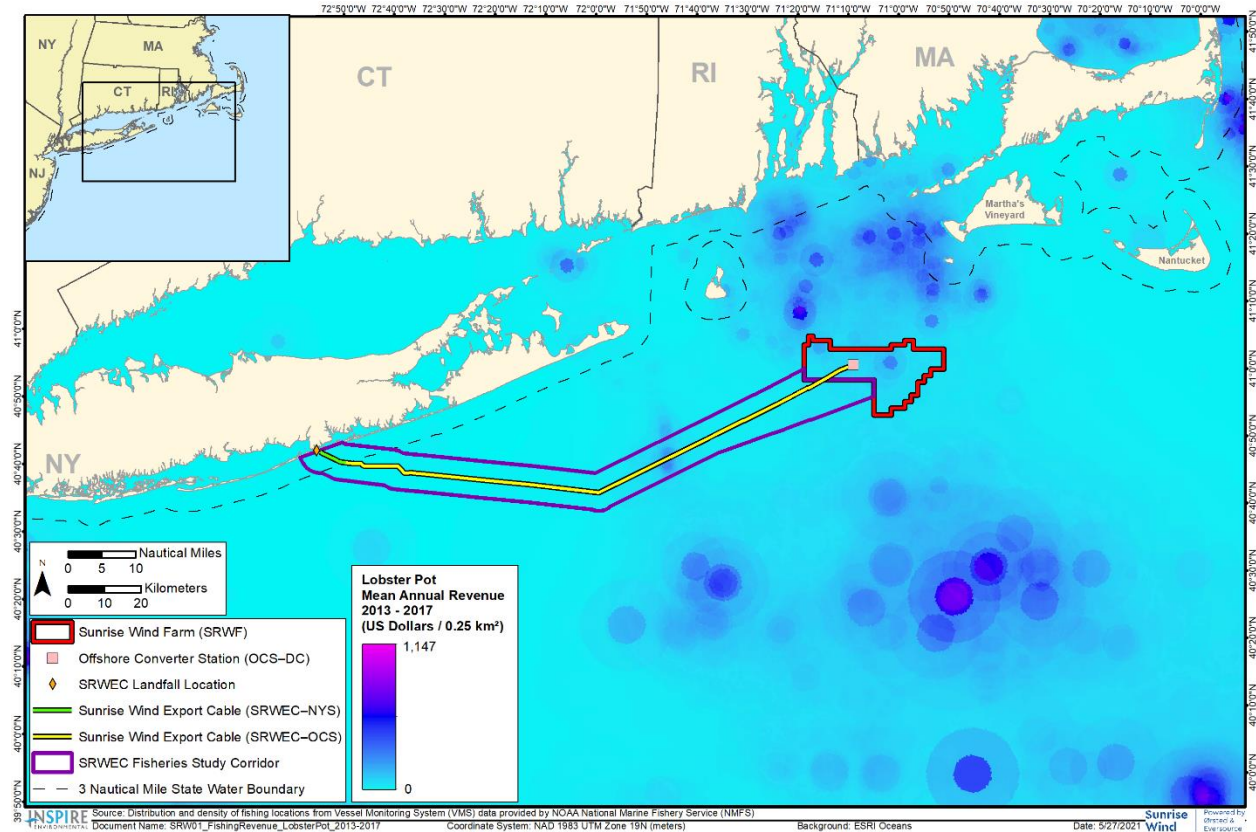
Figure 2.2-20   Revenue-intensity raster map for Lobster Pot Fishing, 2013 to 2017

2.2.4 Connecticut State Vessel Trip Reports

Commercial fisheries in Connecticut state waters may be categorized similarly to those in federal waters. The largest fishery by gear category in statistical area 611 for the years 2009 to 2019 used pots and traps, where an average of 150,738 pounds were landed per year, representing 100 percent of all landings caught by pots and traps in all Connecticut state waters. The next largest fishery by gear category in statistical area 611 used otter trawls, which averaged 105,307 pounds each year, representing 99.1 percent of the state's catch. The third largest fishery by gear type was lobster pots and traps, averaging 91,423 pounds per year and representing all of the lobster pot activity in Connecticut state waters. Table 2.2-7 provides an overview of the gears used in Connecticut state waters (ACCSP 2020a).

From 2009 to 2019, commercial fishermen permitted to fish in Connecticut state waters landed a diverse array of species, including conch, menhaden, scup, lobster, horseshoe crabs, summer flounder, American shad, bluefish, green crabs, and white perch. A complete summary of all species landed in the statistical area is provided in Table 2.2-8. Statistical area 611 was an important fishing area for conch and menhaden. The greatest average pounds landed for the years 2009 to 2019 include conch (134,619 pounds), menhaden (96,915 pounds), scup (81,780), lobster (81,449 pounds), horseshoe crabs (58,953 pounds), and summer flounder (50,186 pounds).

The top ports where fishermen landed their catch from fishing in Connecticut state waters were Stonington, Old Saybrook, Guilford, New London, and Clinton. Stonington was the port with the highest average annual landings (82,970 pounds) and the largest number of active fishing permits (62 permits; Table 2.2-9).

Table 2.2-7   Categories of Gear Used by Connecticut State-only Permitted Vessels during 2009-2019 in Statistical Area 611

	Average Pounds Landed per Year (2009-2019)	Total Pounds Landed (2009-2019)	Total Pounds Landed in Connecticut State Waters (2009-2019)	% Pounds Landed out of Total Connecticut State Waters, by Gear
	Statistical Area	Statistical Area		Statistical Area
Gear Type	**611**	**611**		**611**
By Hand, No Diving Gear	60,756	607,563	607,563	100.0
Dip Nets	2,924	29,241	29,241	100.0
Gill Nets	87,098	870,983	870,983	100.0
Hand Line	52	209	209	100.0
Haul Seines	2,227	22,272	22,272	100.0
Hook and Line	52,289	522,891	533,818	98.0
Otter Trawls	105,307	1,053,066	1,062,866	99.1
Otter Trawls, Bottom	7,559	15,117	15,041	100.0
Pots & Traps, Lobster	91,423	914,230	914,230	100.0
Pots & Traps, Other	12,606	126,064	126,064	100.0
Pots and Traps	150,738	1,507,383	1,507,472	100.0
Total	572,980	5,669,019	5,689,759	99.6

Source: ACCSP 2020c.

Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind.

Confidential information was redacted from the ACCSP data set.

Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.

Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

Table 2.2-8   Species Landed by Connecticut State-only Permitted Vessels during 2009-2019 in Statistical Area 611

Species	Average Pounds Landed per Year (2009-2019) Statistical Area 611	Total Pounds Landed (2009-2019) Statistical Area 611	Total Pounds Landed in Connecticut State Waters (2009-2019)	% Pounds Landed out of Total Connecticut State Waters, by Species Statistical Area 611
Conchs	134,619	1,480,805	1,480,805	100.0
Menhadens	96,915	1,066,070	1,066,092	100.0
Scup	81,780	899,583	901,946	99.7
Lobster, American	81,449	895,943	895,940	100.0
Crab, Horseshoe	58,953	648,479	648,479	100.0
Flounder, Summer	50,186	552,048	557,764	99.0
Shad, American	40,057	440,628	440,628	100.0
Bluefish	15,630	171,925	172,159	99.9
Crab, Green	11,776	129,535	129,535	100.0
Perch, White	10,347	113,819	113,819	100.0
Bass, Black Sea	9,525	104,780	106,232	98.6
Tautog	7,693	84,623	84,650	100.0
Skates, Rajidae (Family)	3,012	33,128	36,068	91.8
Bass, Striped	2,638	29,015	29,015	100.0
Whelk, Channeled	7,182	28,728	28,728	100.0
Eel, American	2,356	25,920	25,920	100.0
Windowpane	2,159	23,749	23,749	100.0
Shark, Dogfish, Smooth	2,083	22,915	22,951	99.8
Searobins	1,675	18,421	18,421	100.0
Flounder, Winter	1,654	18,191	18,191	100.0
Butterfish	892	9,813	9,813	100.0
Squid, Longfin Loligo	873	9,602	9,602	100.0
Crab, Blue	856	9,415	9,415	100.0
Catfish, Blue	1,202	6,010	6,010	100.0
Silverside, Atlantic	465	5,115	5,115	100.0
Hake, Red	518	3,624	3,629	99.9
Mackerel, Atlantic	10	40	3,439	1.2
Shad, Hickory	372	3,351	3,351	100.0
Shark, Dogfish, Spiny	24	263	3,002	8.8
Mummichog	298	2,982	2,982	100.0
Mullets	424	2,545	2,545	100.0
Weakfish	208	2,285	2,285	100.0
Crabs, Hermit, Pagurus (Genus)	444	2,219	2,219	100.0
Shad, Gizzard	218	1,310	1,310	100.0
Crab, Atlantic Rock	206	1,238	1,238	100.0
Hake, Silver	75	672	672	100.0
Triggerfishes	52	568	568	100.0

	Average Pounds Landed per Year (2009-2019)	Total Pounds Landed (2009-2019)	Total Pounds Landed in Connecticut State Waters (2009-2019)	% Pounds Landed out of Total Connecticut State Waters, by Species
	Statistical Area	Statistical Area		Statistical Area
Species	**611**	**611**		**611**
Shiner, Golden	138	415	415	100.0
Cod, Atlantic	27	213	272	78.3
Perch, Yellow	33	200	200	100.0
Sturgeon, Shortnose	18	184	184	100.0
Bonito, Atlantic	28	168	172	97.7
Sculpins	13	64	64	100.0
Sturgeons	32	63	63	100.0
Tuna, Little Tunny	12	47	47	100.0
Hake, White	19	37	37	100.0
Puffers, Tetraodontidae (Family)	8	24	24	100.0
Cunner	3	16	16	100.0
Total	634,451	6,865,258	6,884,251	99.7

Source: ACCSP 2020c.

Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind

Confidential information was redacted from the ACCSP data set.

Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.

Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

Table 2.2-9   Landing Ports Used by Connecticut State-only Permitted Vessels during 2009-2019 in Statistical Area 611

Landing Port	Average Pounds Landed per Year (2009-2019)	Total number of Active Fishing Permits	Total Pounds Landed (2009-2019)	Total Pounds Landed in Connecticut State Waters (2009-2019)	% of Total Catch from Connecticut State Waters, by Port
	Statistical Area	Statistical Area	Statistical Area		Statistical Area
	611	611	611		611
Branford	18,453	18	202,979	202,979	100.0
Bridgeport	14,207	18	156,275	156,275	100.0
Chester (Town of)	3,642	4	25,493	25,493	100.0
Clinton	60,592	24	666,516	666,516	100.0
Darien	10,158	3	71,106	71,106	100.0
East Lyme (Flanders)	1,605	3	8,027	8,027	100.0
Greenwich	2,450	9	26,949	26,949	100.0
Groton	50,708	24	557,792	557,792	100.0
Guilford	68,994	22	758,932	758,932	100.0
Haddam	660	6	4,623	4,623	100.0
Middletown	3,757	3	11,272	11,272	100.0
Milford	30,169	12	331,863	331,863	100.0
Mystic	1,277	10	14,042	14,042	100.0
New Haven	39,930	12	439,230	439,230	100.0
New London	65,363	23	718,991	728,726	98.7
Niantic (East Lyme (sta.))	21,016	32	231,176	232,906	99.3
Noank	8,472	11	93,192	93,192	100.0
Norwalk	14,536	8	159,897	159,897	100.0
Old Lyme	6,337	10	57,036	57,036	100.0
Old Saybrook (Town of)	81,978	55	901,757	902,186	100.0
Pawcatuck	217	4	1,085	1,169	92.8
Stamford	2,632	9	23,686	23,686	100.0
Stonington	82,970	62	912,669	922,293	99.0
Stratford	2,071	9	20,711	20,711	100.0
Waterford	13,430	15	147,735	147,896	99.9
West Haven	3,685	4	11,055	11,055	100.0
Westbrook (Town of)	15,594	16	171,532	171,532	100.0
Total	624,904	426	6,725,621	6,747,384	99.7

Source: ACCSP 2020c.
Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind
Confidential information was redacted from the ACCSP data set.
Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.
Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

2.2.5   New Jersey State Vessel Trip Reports

The largest fishery by gear category in New Jersey state waters for the years 2009 to 2019 used purse seine, yielding average annual landings of 6,140,463 pounds for statistical areas 612, 614, and 621 combined and accounting for 94.3 percent of the statewide landings for this gear type. Total annual landings from pots and traps averaged 5,782,889 pounds for statistical areas 612, 614, and 621 combined, accounting for 99.9 percent of landings from pots and traps within state waters. Landings using dredges averaged 1,240,356 pounds landed per year in all statistical areas combined, representing 91 percent of all fish caught by dredges in all New Jersey state waters. Table 2.2-10 provides an overview of the gears used in New Jersey state waters (ACCSP 2020a).

From 2009 to 2019, commercial fishermen permitted to fish in New Jersey state waters landed a diverse array of species, including blue crab, menhaden, American eel, whelk, killifish, white perch and American shad. A complete summary of all species landed in these statistical areas is provided in Table 2.2-11. The majority of species landed came from statistical areas 614 and 621. Blue crab landings averaged over 6.2 million pounds per year for all statistical areas combined and accounted for 100 percent of statewide blue crab landings. Menhaden averaged over 6.2 million pounds annually and accounted for nearly 100 percent of menhaden landings statewide.

The top ports where fishermen landed their catch from fishing in all New Jersey state waters were Cape May, Atlantic City, Cumberland (County), Point Pleasant, and Cape May (County). Cape May was the port with the highest average annual landings (3,689,288 pounds) and the largest number of active fishing permits (19 permits; Table 2.2-12).

Table 2.2-10 Categories of Gear Used by New Jersey State-only Permitted Vessels during 2009-2019 in Statistical Areas 612, 614, and 621

Gear Type	Average Pounds Landed per Year (2009-2019) Statistical Areas			Total Pounds Landed (2009-2019) Statistical Areas			Total Pounds Landed in New Jersey State Waters (2009-2019)	% Pounds Landed out of Total New Jersey State Waters, by Gear Statistical Areas		
	612	614	621	612	614	621		612	614	621
Dip Nets	41,326	8,852	1,245	206,630	53,109	3,736	301,701	68.5	17.6	1.2
Dredge	375,840	309,607	554,909	3,758,398	3,096,070	5,549,089	13,624,676	27.6	22.7	40.7
Fyke Nets		6,271	581		37,625	3,488	43,806		85.9	8.0
Gill Nets	6,971	38,676	207,282	27,885	232,055	1,243,694	1,516,070	1.8	15.3	82.0
Hand Line	6,072			18,217			20,107	90.6		
Pots and Traps	86,157	1,231,764	4,464,968	861,573	12,317,642	44,649,676	57,890,830	1.5	21.3	77.1
Purse Seine	750,882		5,389,581	3,003,529		32,337,485	37,481,588	8.0		86.3
Total	1,267,249	1,595,169	10,618,566	7,876,232	15,736,501	83,787,168	110,878,779	7.1	14.2	75.6

Source: ACCSP 2020c.

Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind.

Confidential information was redacted from the ACCSP data set.

Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.

Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

Table 2.2-11   Species Landed by New Jersey State-only Permitted Vessels during 2009-2019 in Statistical Areas 612, 614, and 621

Species	Average Pounds Landed per Year (2009-2019) Statistical Areas			Total Pounds Landed (2009-2019) Statistical Areas			Total Pounds Landed in New Jersey State Waters (2009-2019)	% Pounds Landed out of Total New Jersey State Waters, by Species Statistical Areas		
	612	614	621	612	614	621		612	614	621
Crab, Blue	402,642	1,435,466	4,434,138	4,429,058	15,790,129	48,775,522	69,014,888	6.4	22.9	70.7
Menhadens	536,662	330,904	5,776,632	3,756,631	2,316,330	40,436,426	46,627,953	8.1	5.0	86.7
Eel, American	937	8,894	68,860	10,310	97,834	757,458	900,245	1.1	10.9	84.1
Whelk, Knobbed		1,190	66,561		13,088	732,175	755,532		1.7	96.9
Whelk, Channeled	2,288	16,912	19,216	11,439	186,037	211,380	411,455	2.8	45.2	51.4
Whelks	5,052	18,071	65,543	10,103	72,285	196,629	284,483	3.6	25.4	69.1
Killifishes		15,021	4,613		150,209	46,126	203,135		73.9	22.7
Perch, White		7,016	6,463		42,098	38,779	83,626		50.3	46.4
Shad, American			8,117			40,586	44,639			90.9
Flounder, Summer	4,730	445		28,381	1,334		30,185	94.0	4.4	
Mullets		4,940			14,819		29,178		50.8	
Silverside, Atlantic		5,825			23,301		25,140		92.7	
Bluefish			11			45	9,707			0.5
Toadfishes, Batrachoididae (Family)			2,368			9,473	9,473			100.0
Tautog	2,197	322	902	4,393	322	3,609	8,324	52.8	3.9	43.4
Bass, Striped			1,377			5,507	5,579			98.7
Flounder, Winter		748			2,994		3,389		88.3	
Spot		497	128		1,491	514	2,005		74.4	25.6
Catfish, Blue		657			657		1,160		56.6	
Catfishes		346			691		756		91.4	
Weakfish			115			461	725			63.6
Mummichog		31			337		615		54.8	
Crabs, Spider		185			370		370		100.0	
Total	954,507	1,847,470	10,455,046	8,250,316	18,714,326	91,254,689	118,452,561	7.0	15.8	77.0

Source: ACCSP 2020c.
Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind.
Confidential information was redacted from the ACCSP data set.
Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.
Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

Table 2.2-12   Landing Ports Used by New Jersey State-only Permitted Vessels during 2009-2019 in Statistical Areas 612, 614, and 621

Landing Port	Average Pounds Landed per Year (2009-2019) Statistical Areas			Total number of Active Fishing Permits Statistical Areas			Total Pounds Landed (2009-2019) Statistical Areas			Total Pounds Landed in New Jersey State Waters (2009-2019)	% of Total Catch from New Jersey State Waters, by Port Statistical Areas		
	612	614	621	612	614	621	612	614	621		612	614	621
Absecon		3,759			3			7,517		7,517		100.0	
Atlantic (County)		203,672			74			1,833,052		1,895,982		96.7	
Atlantic City	70,944	98,449	1,329,717	0	3	0	212,832	689,142	3,989,152	4,948,406	4.3	13.9	80.6
Belford	44,158			3			220,788			220,788	100.0		
Cape May		411,862	3,277,426		7	12		2,059,309	32,774,256	34,995,482		5.9	93.7
Cape May (County)		114,009	230,105		48	47		1,026,078	2,301,054	3,353,737		30.6	68.6
Cumberland (County)		19,457	1,407,714		13	136		77,830	12,669,428	12,747,258		0.6	99.4
Gloucester (County)			20,106			3			80,424	80,424			100.0
Monmouth (County)	183,350	9,728		57	5		1,283,448	38,913		1,343,636	95.5	2.9	
Ocean (County)	23,992	230,182		6	61		71,976	2,301,823		2,373,798	3.0	97.0	
Point Pleasant	429,792			2			1,719,169			3,384,939	50.8		
Salem (County)			219,054			41			1,971,486	1,973,036			99.9
Sea Isle City		16,970	6,447		7	3		152,728	32,234	184,962		82.6	17.4
Unknown	592,703	1,391,224	5,199,112	76	242	247	4,741,624	11,119,612	41,592,895	57,667,181	8.2	19.3	72.1
Total	1,344,938	2,499,312	11,689,681	144	463	489	8,249,837	19,306,003	95,410,929	125,177,146	6.6	15.4	76.2

Source: ACCSP 2020c.
Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind.
Confidential information was redacted from the ACCSP data set.
Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.
Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

2.2.6   New York State Vessel Trip Reports

The largest fishery by gear category in New York state waters for the years 2009 to 2019 used pots and traps yielding average annual landings of 890,393 pounds for statistical areas 611, 612, and 613 combined, accounting for 92.6 percent of the statewide landings for this gear type. The second largest fishery by gear type used gill nets, followed by dredge, and other fixed nets. Table 2.2-13 provides an overview of the gears used in New York state waters (ACCSP 2020a).

Commercial fishermen permitted to fish in New York state waters landed many species from 2009 to 2019. Species with the highest average annual landings by weight for statistical areas 611, 612, and 613 combined included Atlantic surfclam (1,132,898 pounds), menhaden (682,384 pounds), and striped bass (571,352 pounds). A complete summary of all species landed in each statistical area is provided in Table 2.2-14. For several species, landings from the three statistical areas account for over 90 percent of statewide landings; these species include menhaden, striped bass, scup, horseshoe crab, bluefish, American lobster, summer flounder, longfin squid, whelks, tautog, black sea bass, butterfish, green crab, conchs, skates and others.

For the state of New York, the category "unknown" for a port designation claimed the highest landings and total number of active fishing permits, accounting for 56.4 percent of total statewide landings. Among known ports, Oceanside (604,023 pounds) had the next highest average annual landings followed by Shinnecock Indian Reservation (479,221 pounds), Mattituck (312,170 pounds), Freeport (268,263), East Hampton (262,353 pounds) and Montauk (237,791 pounds). The top ports based on the number of active fishing permits were Unknown (1,328), Montauk (317 permits), Shinnecock Indian Reservation (161 permits), Moriches (129 permits), and Hampton Bays (106 permits; Table 2.2-15).

Table 2.2-13   Categories of Gear Used by New York State-only Permitted Vessels during 2009-2019 in Statistical 611, 612 and 613

Gear Type	Average Pounds Landed per Year (2009-2019) Statistical Areas			Total Pounds Landed (2009-2019) Statistical Areas			Total Pounds Landed in New York State Waters (2009-2019)	% Pounds Landed out of Total New York State Waters, by Gear Statistical Areas		
	611	612	613	611	612	613		611	612	613
Beam Trawls	6,787			13,574			27,149	50.0		
By Hand, Diving Gear	876	785	1,618	5,257	5,493	14,565	50,631	10.4	10.8	28.8
By Hand, No Diving Gear	92,293	180,262	70,911	922,925	1,802,624	709,114	3,492,529	26.4	51.6	20.3
Dip Nets	87,330	129,974	902	785,966	1,299,738	8,115	2,094,418	37.5	62.1	0.4
Dredge	10,712	259,240	358,147	107,121	2,073,918	3,223,324	5,489,942	2.0	37.8	58.7
Fyke Nets	879	2,835	6,281	3,515	14,176	56,532	148,445	2.4	9.5	38.1
Gill Nets	119,850	91,198	422,030	1,198,502	911,975	4,220,301	6,808,594	17.6	13.4	62.0
Hand Line	325	266	701	2,276	2,127	2,802	14,434	15.8	14.7	19.4
Hook and Line	241,226	85,205	71,580	2,412,257	852,048	715,803	3,981,848	60.6	21.4	18.0
Not Coded		168,974	321,497		1,351,794	2,250,477	35,377,057		3.8	6.4
Other Fixed Nets	496,586		51,744	4,469,275		413,955	4,906,178	91.1		8.4
Other Gears	27,100	13,806	8,632	81,300	41,418	17,264	143,452	56.7	28.9	12.0
Other Seines	148,657	22,662	29,287	1,337,916	203,959	263,581	1,805,980	74.1	11.3	14.6
Other Trawls	12,873	2,184	27,159	90,109	6,552	81,478	178,277	50.5	3.7	45.7
Otter Trawls	116,127	5,312	33,500	1,161,266	15,937	201,001	1,393,011	83.4	1.1	14.4
Otter Trawls, Bottom	303,080	4,317	178,455	3,030,797	43,168	1,606,093	4,680,057	64.8	0.9	34.3
Pots & Traps, Lobster	64,291	1,603		642,909	11,224		655,590	98.1	1.7	
Pots and Traps	353,061	436,167	101,165	3,530,615	4,361,672	1,011,647	9,607,954	36.7	45.4	10.5
Pound Nets	149,644		17,843	1,496,444		142,743	1,639,788	91.3		8.7
Rakes		3,982	8,176		35,835	32,702	171,270		20.9	19.1
Total	2,231,697	1,408,772	1,709,628	21,292,025	13,033,656	14,971,496	82,666,604	25.8	15.8	18.1

Source: ACCSP 2020c.
Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind.
Confidential information was redacted from the ACCSP data set.
Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.
Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

Table 2.2-14   Species Landed by New York State-only Permitted Vessels during 2009-2019 in Statistical Areas 611, 612. and 613

Species	Average Pounds Landed per Year (2009-2019)			Total Pounds Landed (2009-2019)			Total Pounds Landed in New York State Waters (2009-2019)	% Pounds Landed out of Total New York State Waters, by Species		
	Statistical Areas			Statistical Areas				Statistical Areas		
	611	612	613	611	612	613		611	612	613
Clam, Surf, Atlantic	6,282	426,740	699,876	12,563	2,560,438	4,899,134	23,024,721	0.1	11.1	21.3
Clam, Quahog, Northern			61,875			556,879	12,017,603			4.6
Menhadens	404,906	172,771	104,707	4,049,061	1,900,481	1,151,779	7,101,921	57.0	26.8	16.2
Bass, Striped	205,430	53,489	312,433	2,259,733	588,378	3,436,764	6,285,503	36.0	9.4	54.7
Scup	441,670	4,801	27,117	4,858,369	52,810	298,284	5,210,427	93.2	1.0	5.7
Crab, Blue	7,784	355,090	22,470	85,628	3,905,993	247,168	4,727,543	1.8	82.6	5.2
Crab, Horseshoe	110,597	187,684	96,529	1,216,571	2,064,523	1,061,814	4,450,252	27.3	46.4	23.9
Bluefish	267,280	19,097	87,923	2,940,079	210,064	967,158	4,117,315	71.4	5.1	23.5
Clam, Razor, Atlantic	989	235	16,106	4,946	1,174	128,852	3,530,524	0.1	<0.1	3.6
Lobster, American	185,999	14,112	34,636	2,045,992	98,782	242,449	2,539,913	80.6	3.9	9.5
Flounder, Summer	128,909	19,119	24,345	1,417,996	210,313	267,793	1,896,102	74.8	11.1	14.1
Whelks	117,881	8,714	2,895	1,296,687	95,853	28,949	1,421,489	91.2	6.7	2.0
Squid, Longfin Loligo	20,615	443	108,465	226,765	2,660	1,084,645	1,314,070	17.3	0.2	82.5
Whelk, Channeled	78,783	24,474	24,213	866,614	220,262	217,915	1,304,791	66.4	16.9	16.7
Tautog	54,737	25,065	2,051	602,110	275,716	22,562	900,530	66.9	30.6	2.5
Bass, Black Sea	58,778	4,693	12,244	646,558	51,623	134,680	833,258	77.6	6.2	16.2
Butterfish	60,114	1,098	4,649	661,253	10,980	51,142	723,375	91.4	1.5	7.1
Crab, Jonah	2,379	64,107	22,498	16,652	256,426	224,977	621,906	2.7	41.2	36.2
Menhaden, Atlantic		8,350			58,451		533,887		10.9	
Crab, Green	4,010	38,772	6,541	32,076	426,497	58,872	520,989	6.2	81.9	11.3
Skates, Rajidae (Family)	4,225	64	33,765	46,471	193	337,648	384,312	12.1	0.1	87.9
Scallop, Bay	30,760	10	4,436	338,355	20	44,362	382,737	88.4	<0.1	11.6
Shark, Dogfish, Smooth	24,614	1,165	6,051	270,750	10,483	66,561	347,794	77.8	3.0	19.1
Crab, Atlantic Rock	6,192	20,678	1,601	61,922	227,456	8,006	299,974	20.6	75.8	2.7
Skates, Raja (Genus)	5,228		23,522	57,505		235,215	292,728	19.6		80.4
Silversides, Atherinidae (Family)	6,818	18,391	6,996	47,729	165,520	69,961	283,210	16.9	58.4	24.7
Eel, American	3,789	12,092	5,078	41,680	133,014	55,857	256,128	16.3	51.9	21.8
Herring, Atlantic	12,498	436	5,154	137,473	3,492	36,076	177,041	77.7	2.0	20.4
Crabs, Spider	8,224	9,224	3,471	57,567	64,570	20,824	176,461	32.6	36.6	11.8
Weakfish	8,038	1,294	6,549	88,419	14,238	72,041	174,698	50.6	8.1	41.2
Goosefish	833		9,441	8,331		103,851	112,286	7.4		92.5
Searobins, North American	10,484	246	2,722	83,871	1,721	21,774	107,366	78.1	1.6	20.3
Windowpane	6,736		2,386	74,094		26,242	101,200	73.2		25.9
Whelk, Knobbed	6,915	1,499	2,934	76,069	7,497	17,602	101,168	75.2	7.4	17.4
Conchs	45,968		320	91,935		320	92,255	99.7		0.3
Herrings, River		8,089			88,974		89,152		99.8	

Species	Average Pounds Landed per Year (2009-2019)			Total Pounds Landed (2009-2019)			Total Pounds Landed in New York State Waters (2009-2019)	% Pounds Landed out of Total New York State Waters, by Species		
	Statistical Areas			Statistical Areas				Statistical Areas		
	611	612	613	611	612	613		611	612	613
Crabs, Hermit, Pagurus (Genus)	8,995	4,602	1,980	35,981	13,807	5,941	59,821	60.1	23.1	9.9
Searobins	5,482	172	187	54,817	687	1,123	56,627	96.8	1.2	2.0
Spot	3,934	199	769	39,337	997	8,460	48,794	80.6	2.0	17.3
Perch, White	4,328	7	438	43,285	30	4,813	48,127	89.9	0.1	10.0
Whelk, Waved	372			2,602			46,552	5.6		
Flounder, Winter	1,690	299	2,262	18,585	2,993	24,886	46,464	40.0	6.4	53.6
Puffer, Northern	1,122	6,033	443	10,102	30,167	4,869	45,137	22.4	66.8	10.8
Mussel, Sea	1,809	1,375	2,671	14,470	2,750	21,366	38,586	37.5	7.1	55.4
Shark, Dogfish, Spiny	187	2,046	1,711	1,312	12,276	18,817	32,405	4.0	37.9	58.1
Silverside, Atlantic	860	3,740	1,745	6,883	7,480	12,215	26,578	25.9	28.1	46.0
Hake, Red	612	727	977	6,732	7,267	10,749	24,747	27.2	29.4	43.4
Shad, Hickory	637		1,145	5,735		12,600	18,336	31.3		68.7
Mackerel, Atlantic	911	456	847	8,197	1,369	6,779	16,345	50.2	8.4	41.5
Kingfish, Northern	624	127	1,048	6,240	634	9,431	16,305	38.3	3.9	57.8
Clams, Pitar		150	2,453		150	14,718	14,868		1.0	99.0
Flounder, American Plaice	1,064		405	11,709		2,832	14,541	80.5		19.5
Tuna, Little Tunny	507	137	877	5,071	548	8,770	14,389	35.2	3.8	60.9
Bonito, Atlantic	380	42	930	4,181	126	9,297	13,605	30.7	0.9	68.3
Hake, Silver	139		737	1,247		7,374	10,998	11.3		67.0
Tuna, Albacore	491	129	1,190	4,415	387	5,950	10,752	41.1	3.6	55.3
Shad, American	105	1,909	474	840	5,726	3,791	10,357	8.1	55.3	36.6
Haddock			5,164			10,328	10,332			100.0
Mackerel, Spanish	511	137	319	5,616	1,099	3,510	10,226	54.9	10.7	34.3
Crab, Lady	607	2,693		1,821	8,078		10,073	18.1	80.2	
Cod, Atlantic	191	174	520	1,718	1,566	5,719	9,133	18.8	17.1	62.6
Jack, Crevalle	832		70	8,319		560	8,879	93.7		6.3
Clam, Ark, Blood	185		1,118	185		4,471	8,440	2.2		53.0
Herring, Blueback	163	691		813	4,838		8,156	10.0	59.3	
Shark, Thresher		600	216		4,796	1,514	6,703		71.6	22.6
Triggerfishes	194	90	198	2,133	994	1,981	5,125	41.6	19.4	38.7
Toadfish, Oyster	335	30		3,353	118		3,471	96.6	3.4	
Alewife		345			2,416		2,496		96.8	
Tuna, Skipjack	243			2,433			2,448	99.4		
Shad, Gizzard	171	15		1,706	30		1,998	85.4	1.5	
Flounder, Fourspot	118		318	705		953	1,668	42.3		57.1
Drum, Black	122		40	1,218		279	1,497	81.4		18.6
Rays	200			600			1,400	42.9		

Species	Average Pounds Landed per Year (2009-2019)			Total Pounds Landed (2009-2019)			Total Pounds Landed in New York State Waters (2009-2019)	% Pounds Landed out of Total New York State Waters, by Species		
	Statistical Areas			Statistical Areas				Statistical Areas		
	611	612	613	611	612	613		611	612	613
Tuna, Yellowfin			182			547	1,284			42.6
Squid, Shortfin Illex	173			1,214			1,278	95.0		
Shrimps, Mantis	113			1,127			1,127	100.0		
Perches, True	6	4		18	11		1,024	1.8	1.1	
Cunner	91		18	818		124	956	85.6		13.0
Cobia	95	12	34	760	36	134	930	81.7	3.9	14.4
Amberjacks	97			869			870	99.9		
Mackerel, King	114		8	797		34	836	95.4		4.0
Flounder, Yellowtail			208			831	831			100.0
Croaker, Atlantic	26		27	230		165	704	32.7		23.4
Searobin, Northern	63		251	125		501	651	19.2		77.0
Mackerel, Atlantic Chub	96		55	288		218	594	48.5		36.8
Garfishes	50		5	446		18	464	96.1		3.9
Hake, White	40			281			419	67.1		
Puffers, Tetraodontidae (Family)			21			62	402			15.3
Pollock	13			52			351	14.8		
Eel, Conger	13	124		94	248		342	27.4	72.6	
Herrings	53		111	106		221	327	32.4		67.6
Kingfishes	2		103	6		205	286	2.1		71.7
Snappers, Lutjanidae (Family)	62			249			250	99.6		
Mussel, Slippershell							150			
Sculpins	44			131			131	100.0		
Runner, Blue	25			101			101	100.0		
Raven, Sea	19			97			97	100.0		
Drums	45			89			89	100.0		
Pompano, Florida	15			76			76	100.0		
Needlefish, Atlantic			10			71	72			98.6
Mullets	6		8	31		25	61	50.8		41.0
Ladyfish	9			43			48	89.6		
Spadefish, Atlantic	5			21			23	91.3		
Toadfishes, Batrachoididae (Family)	6			18			18	100.0		
Total	2,377,861	1,529,108	1,818,287	25,042,265	13,820,223	16,425,403	87,175,796	28.7	15.9	18.8

Source: ACCSP 2020c.
Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind.
Confidential information was redacted from the ACCSP data set.
Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.

Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

Table 2.2-15   Landing Ports Used by New York State-only Permitted Vessels during 2009-2019 in Statistical Areas 611, 612. and 613

Landing Port	Average Pounds Landed per Year (2009-2019) Statistical Areas			Total number of Active Fishing Permits Statistical Areas			Total Pounds Landed (2009-2019) Statistical Areas			Total Pounds Landed in New York State Waters (2009-2019)	% of Total Catch from New York State Waters, by Port Statistical Areas		
	611	612	613	611	612	613	611	612	613		611	612	613
Amagansett	95,374		12,696	37		26	1,049,119		139,654	1,189,065	88.2		11.7
Babylon		64,014	4,090		33	5		704,158	20,450	726,350		96.9	2.8
Bay Shore		138,874			14			555,494		577,342		96.2	
Bellport		39,596			6			118,787		138,892		85.5	
Blue Point		8,552			3			25,655		26,368		97.3	
Broad Channel		1,902			5			5,706		5,706		100.0	
Bronx (Borough of New York)	17,214			3			68,855			69,424	99.2		
Bronx (County)	10,338			6			72,363			72,363	100.0		
Brooklyn (Borough of New York)	169	67,937		5	43		675	747,306		750,647	0.1	99.6	
Catskill		326			11			1,302		1,302		100.0	
Center Moriches	258	6,525	10,267	3	10	18	517	65,254	102,666	174,958	0.3	37.3	58.7
Centerport	241			4			962			962	100.0		
City Island	11,366			7			125,024			126,844	98.6		
Cold Spring Harbor	731			3			4,384			4,384	100.0		
Columbia (County)		369			14			1,477		1,522		97.0	
Coxsackie		332			6			995		995		100.0	
Croton-on-Hudson (Croton-Harmon)		981			23			3,926		3,926		100.0	
Dutchess (County)		682			12			2,728		2,728		100.0	
East Hampton	253,073		9,280	51		28	2,783,799		102,082	2,886,012	96.5		3.5
East Moriches	390	9,735	31,821	3	13	29	1,171	87,612	350,030	441,573	0.3	19.8	79.3
Esopus		57			3			170		170		100.0	
Freeport	512	201,838	65,913	4	88	6	3,583	2,220,223	593,217	2,823,736	0.1	78.6	21.0
Gerritsen		6,650			4			19,949		19,949		100.0	
Glen Cove	5,205			10			57,258			60,708	94.3		
Great Kills		6,134			4			12,268		12,268		100.0	
Greene (County)		565			15			1,131		1,532		73.8	
Greenport	197,515			51			2,172,667			2,175,177	99.9		
Hampton Bays	16,545	1,607	111,293	19	9	78	181,995	12,860	1,224,220	1,436,027	12.7	0.9	85.3
Haverstraw		490			4			1,471		1,471		100.0	
Huntington	12,062			13			120,622			120,672	100.0		
Island Park		16,373	287		29	3		180,104	2,012	182,475		98.7	1.1
Islip		64,538	6,523		40	6		709,915	26,091	738,367		96.1	3.5
Kingston		174			8			522		522		100.0	
Long Beach		409			3			818		818		100.0	

Landing Port	Average Pounds Landed per Year (2009-2019) Statistical Areas			Total number of Active Fishing Permits Statistical Areas			Total Pounds Landed (2009-2019) Statistical Areas			Total Pounds Landed in New York State Waters (2009-2019)	% of Total Catch from New York State Waters, by Port Statistical Areas		
	611	612	613	611	612	613	611	612	613		611	612	613
Mastic		130	719		4	4		391	2,157	2,573		15.2	83.8
Mattituck	287,794	5,831	18,545	58	4	10	3,165,739	34,985	203,997	3,404,721	93.0	1.0	6.0
Montauk	177,414	1,806	58,571	171	11	135	1,951,556	14,450	644,284	2,614,339	74.6	0.6	24.6
Montrose		130			7			389		389		100.0	
Moriches	2,838	23,765	81,651	18	31	80	22,703	261,416	898,165	1,194,518	1.9	21.9	75.2
Mount Sinai	132,024	741	1,227	45	5	7	1,452,265	4,448	11,044	1,469,893	98.8	0.3	0.8
Nassau (County)		44,412	11,863		14	2		488,528	71,181	695,798		70.2	10.2
New Suffolk	5,466		806	14		6	54,663		4,837	59,500	91.9		8.1
New York		254			5			1,272		1,682		75.6	
New York (State)		399			4			1,196		7,304		16.4	
Newburgh		567			6			1,700		1,700		100.0	
Northport	51,225			20			563,471			564,470	99.8		
Oakdale		1,667			4			6,670		6,885		96.9	
Oceanside		87,181	516,842		24	8		958,991	2,584,211	3,543,736		27.1	72.9
Orange(County)		122			4			244		16,151		1.5	
Orient	22,976		473	41		3	252,736		1,419	254,711	99.2		0.6
Ossining		94			3			282		282		100.0	
Oyster Bay	4,623			9			50,857			51,133	99.5		
Patchogue	4,216	67,169	9,948	5	25	9	16,865	738,858	89,530	845,661	2.0	87.4	10.6
Piermont		4,231			4			8,462		8,462		100.0	
Point Lookout		12,950			21			142,445		150,802		94.5	
Port Jefferson	5,892			18			64,817			64,890	99.9		
Port Washington	21,266			8			191,392			191,902	99.7		
Queens (County)	20,310	86,015		11	26		223,411	946,165		1,170,176	19.1	80.9	
Richmond (County)		36,791			12			331,123		383,659		86.3	
Riverhead	128,784		66,217	21		7	1,416,623		662,170	2,105,794	67.3		31.4
Rockaway Park		1,551			7			6,204		6,204		100.0	
Rockaway Point		48			3			145		145		100.0	
Rockland (County)		2,865			13			25,787		25,899		99.6	
Sag Harbor	36,292			13			399,215			410,168	97.3		
Saugerties		163			5			488		511		95.5	
Seaford		51,531			20			566,845		568,209		99.8	
Setauket	1,594			3			9,567			9,567	100.0		
Shelter Island	120,112		849	15		3	960,899		1,698	962,597	99.8		0.2
Shinnecock Indian Reservation	95,556	2,857	380,808	31	16	114	1,051,114	31,422	4,188,890	5,317,282	19.8	0.6	78.8
Smithtown	926			5			8,338			9,109	91.5		

Landing Port	Average Pounds Landed per Year (2009-2019) Statistical Areas			Total number of Active Fishing Permits Statistical Areas			Total Pounds Landed (2009-2019) Statistical Areas			Total Pounds Landed in New York State Waters (2009-2019)	% of Total Catch from New York State Waters, by Port Statistical Areas		
	611	612	613	611	612	613	611	612	613		611	612	613
South Jamesport	3,828			8			26,799			26,799	100.0		
Southampton	14,823		23,127	10		7	59,293		69,381	130,931	45.3		53.0
Southold	22,665	15,996	4,252	37	3	6	249,318	31,992	21,258	302,567	82.4	10.6	7.0
Springs	28,321			5			84,964			87,107	97.5		
Stony Brook	9,394			19			103,330			104,363	99.0		
Stuyvesant		92			4			277		277		100.0	
Suffolk (County)	34,793	46,260	5,947	7	3	11	382,721	92,521	35,684	510,926	74.9	18.1	7.0
Ulster (County)		913			29			4,567		4,567		100.0	
Ulster Park		39			4			117		117		100.0	
Unknown	1,539,605	506,120	587,436	477	438	413	16,935,651	4,555,083	4,699,484	46,429,685	36.5	9.8	10.1
Wainscott	59,556			7			655,118			659,390	99.4		
Westchester (County)		3,718			33			33,458		216,943		15.4	
Westhampton			3,346			3			10,037	11,521			87.1
Total	3,453,289	1,645,068	2,024,797	1,295	1,192	1,027	36,996,420	14,770,750	16,759,849	89,381,266	41.4	16.5	18.8

Source: ACCSP 2020c.

Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind.

Confidential information was redacted from the ACCSP data set.

Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.

Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

2.2.7 Rhode Island State Vessel Trip Reports

The largest fishery by landings in Rhode Island state waters for the years 2009 to 2019 used pots and traps (804,200 pounds) and was concentrated in statistical area 539. Other top gear type categories by landings (for statistical areas 539 and 611 combined) included other fixed nets (540,644 pounds), hook and line (401,041 pounds) and otter trawls (326,616 pounds). Landings for all gear types fished within statistical areas 539 and 611 accounted for over 95% of the statewide landings for that gear type. Table 2.2-16 provides an overview of the gears used in Rhode Island state waters (ACCSP 2020a).

From 2009 to 2019, commercial fishermen permitted to fish in Rhode Island state waters landed many different species, including in order of highest landings by weight (for statistical areas 539 and 611 combined), scup (801,477 pounds), channeled whelk, (366,456), summer flounder (252,825 pounds), menhaden (230,248 pounds), and striped bass (133,491 pounds). A complete summary of all species landed in these statistical areas is provided in Table 2.2-17. The majority of species landings came from area 539, and the landings from the two statistical areas accounted for over 90 percent of the statewide landings for most species.

The top ports where fishermen landed their catch from fishing in all Rhode Island state waters were Point Judith, Little Compton, Newport, Bristol, and Warwick (RR name Apponaug). Point Judith was the port with the highest average annual landings (672,077 pounds) and the largest number of active fishing permits (490 permits; Table 2.2-18).

Table 2.2-16   Categories of Gear Used by Rhode Island State-only Permitted Vessels during 2009-2019 in Statistical Areas 539 and 611

Gear Type	Average Pounds Landed per Year (2009-2019)		Total Pounds Landed (2009-2019)		Total Pounds Landed in Rhode Island State Waters (2009-2019)	% Pounds Landed out of Total Rhode Island State Waters, by Gear	
	Statistical Areas		Statistical Areas			Statistical Areas	
	539	611	539	611		539	611
By Hand, Diving Gear	5,598		44,782		46,232	96.9	
By Hand, No Diving Gear	49,054		392,431		392,885	99.9	
Dip Nets	7,866		62,925		62,925	100.0	
Dredge	130		520		520	100.0	
Gill Nets	203,191		1,625,527		1,626,533	99.9	
Hand Line	2,242		17,939		17,939	100.0	
Hook and Line	388,003	13,038	3,880,031	117,338	3,997,410	97.1	2.9
Long Lines	1,880		13,158		13,177	99.9	
Other Fixed Nets	540,644		4,325,156		4,325,156	100.0	
Other Trawls	32,644		195,866		195,866	100.0	
Otter Trawls	326,616		2,612,925		2,612,925	100.0	
Pots & Traps, Lobster	58,474	2,761	526,265	22,090	548,355	96.0	4.0
Pots & Traps, Other	14,951		134,559		134,595	100.0	
Pots and Traps	768,784	35,416	6,919,055	318,744	7,237,799	95.6	4.4
Rakes	4,627		32,389		32,389	100.0	
Spears	3,217		25,735		25,967	99.1	
Total	2,407,920	51,215	20,809,263	458,172	21,270,672	97.8	2.2

Source: ACCSP 2020c.

Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind.

Confidential information was redacted from the ACCSP data set.

Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.

Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

Table 2.2-17   Species Landed by Rhode Island State-only Permitted Vessels during 2009-2019 in Statistical Areas 539 and 611

Species	Average Pounds Landed per Year (2009-2019)		Total Pounds Landed (2009-2019)		Total Pounds Landed in Rhode Island State Waters (2009-2019)	% Pounds Landed out of Total Rhode Island State Waters, by Species	
	Statistical Areas		Statistical Areas			Statistical Areas	
	539	611	539	611		539	611
Scup	766,109	35,368	8,427,204	353,683	8,780,887	96.0	4.0
Whelk, Channeled	362,232	4,224	3,622,316	16,895	3,639,210	99.5	0.5
Flounder, Summer	246,526	6,299	2,465,263	62,986	2,528,248	97.5	2.5
Menhadens	230,248		2,072,232		2,287,503	90.6	
Bass, Striped	131,152	2,339	1,311,516	21,053	1,332,568	98.4	1.6
Skates, Rajidae (Family)	122,116		1,099,041		1,099,048	100.0	
Bass, Black Sea	103,067	2,657	927,600	26,570	954,170	97.2	2.8
Crab, Horseshoe	44,806		403,254		898,096	44.9	
Searobins	51,753	6	465,779	23	465,815	100.0	0.0
Bluefish	48,739	218	438,652	1,523	440,181	99.7	0.3
Lobster, American	36,549	2,623	365,485	23,607	389,092	93.9	6.1
Tautog	32,254	508	290,286	4,573	294,859	98.4	1.6
Butterfish	32,149		289,338		289,356	100.0	
Squid, Longfin Loligo	31,117		280,052		280,060	100.0	
Conchs	38,079		228,475		228,475	100.0	
Crab, Atlantic Rock	21,825		218,251		218,287	100.0	
Whelk, Knobbed	25,522		204,176		204,176	100.0	
Crab, Green	15,082		135,734		135,734	100.0	
Skate, Little	16,447		131,575		131,575	100.0	
Tuna, Little Tunny	12,690		101,523		101,523	100.0	
Herring, Atlantic	11,052		88,418		88,418	100.0	
Eel, Conger	7,096		63,863		63,867	100.0	
Crab, Jonah	7,037		63,330		63,330	100.0	
Bonito, Atlantic	6,564		59,072		59,072	100.0	
Flounder, Winter	6,441		57,971		57,971	100.0	
Shark, Dogfish, Smooth	4,696		42,264		42,276	100.0	
Shark, Dogfish, Spiny	4,656		41,908		41,908	100.0	
Shrimps, Mantis	8,225		41,124		41,124	100.0	
Cod, Atlantic	4,376		39,386		39,444	99.9	
Eel, American	3,941		35,472		35,806	99.1	
Hake, Silver	2,893		26,040		26,040	100.0	
Shad, Hickory	5,496		21,983		21,983	100.0	
Triggerfish, Gray	2,376		21,382		21,389	100.0	
Clam, Quahog, Northern	3,315		19,890		19,890	100.0	
Clam, Quahog, Ocean	4,284		17,134		17,134	100.0	
Goosefish	1,875		16,874		16,874	100.0	
Skate, Winter	1,735		15,619		15,619	100.0	

Species	Average Pounds Landed per Year (2009-2019)		Total Pounds Landed (2009-2019)		Total Pounds Landed in Rhode Island State Waters (2009-2019)	% Pounds Landed out of Total Rhode Island State Waters, by Species	
	Statistical Areas		Statistical Areas			Statistical Areas	
Species	539	611	539	611		539	611
Mackerel, Atlantic	1,623		14,608		14,608	100.0	
Hake, Red	1,570		14,132		14,132	100.0	
Triggerfishes	1,520		13,680		13,680	100.0	
Tuna, Yellowfin	1,193		10,733		11,430	93.9	
Searobin, Striped	1,831		10,988		10,988	100.0	
Weakfish	695		6,256		6,256	100.0	
Crabs, Spider	1,393		5,573		5,573	100.0	
Crustaceans	2,163		4,325		4,325	100.0	
Tuna, Bigeye	550		3,852		4,202	91.7	
Cunner	409	6	3,678	18	3,696	99.5	0.5
Hake, White	514		3,084		3,084	100.0	
Searobin, Northern	498		2,989		2,989	100.0	
Crabs, Brachyura	710		2,841		2,841	100.0	
Spot	699		2,794		2,794	100.0	
Clam, Soft	464		2,785		2,785	100.0	
Mollusks	1,378		2,756		2,755	100.0	
Squid, Shortfin Illex	296		2,370		2,370	100.0	
Mackerel, Spanish	715		2,145		2,145	100.0	
Cobia	201		1,813		1,813	100.0	
Windowpane	190		1,706		1,706	100.0	
Kingfish, Northern	179		1,611		1,611	100.0	
Skate, Big	221		1,549		1,549	100.0	
Searobin, Armored	461		1,383		1,383	100.0	
Raven, Sea	150		1,348		1,348	100.0	
Dolphinfish	178		1,066		1,066	100.0	
Crab, Blue	156		937		937	100.0	
Tuna, Bluefin	144		866		866	100.0	
Tuna, Albacore	139		836		835	100.1	
Oyster, Eastern	274		547		547	100.0	
Shark, Sandbar	180		541		541	100.0	
Amberjacks	85		338		338	100.0	
Shad, American	37		223		223	100.0	
Flounder, Yellowtail	23		163		163	100.0	
Kingfishes	28		138		138	100.0	
Hakes, Red and White	25		126		126	100.0	
Flounder, Southern	55		111		111	100.0	
Flounder, American Plaice	43		85		85	100.0	
Haddock	16		49		49	100.0	
Pollock	12		46		46	100.0	

	Average Pounds Landed per Year (2009-2019)		Total Pounds Landed (2009-2019)		Total Pounds Landed in Rhode Island State Waters (2009-2019)	% Pounds Landed out of Total Rhode Island State Waters, by Species	
	Statistical Areas		Statistical Areas			Statistical Areas	
Species	539	611	539	611		539	611
Drum, Black	23		45		45	100.0	
Skate, Smooth	10		29		29	100.0	
Runner, Blue	5		16		16	100.0	
Total	2,475,574	54,247	24,274,641	510,929	25,497,231	95.2	2.0

Source: ACCSP 2020c.

Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind.

Confidential information was redacted from the ACCSP data set.

Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.

Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

Total Pounds Landed in State Waters includes data from state permitted trips to statistical area 000 (unknown distance).

Table 2.2-18   Landing Ports Used by Rhode Island State-only Permitted Vessels during 2009-2019 in Statistical Areas 539 and 611

Landing Port	Average Pounds Landed per Year (2009-2019) Statistical Areas 539	611	Total number of Active Fishing Permits Statistical Areas 539	611	Total Pounds Landed (2009-2019) Statistical Areas 539	611	Total Pounds Landed in Rhode Island State Waters (2009-2019)	% of Total Catch from Rhode Island State Waters, by Port Statistical Areas 539	611
Barrington	5,224		14		47,016		47,016	100.0	
Bristol	204,746		67		1,842,717		1,842,757	100.0	
Bristol (County)	2,675		7		10,700		10,700	100.0	
Charlestown	26,603	727	41	3	239,425	6,546	245,971	97.3	2.7
Davisville	284		8		1,701		1,701	100.0	
East Greenwich	7,456		39		67,104		67,104	100.0	
Jamestown	22,980		35		206,818		206,818	100.0	
Kent (County)	418		3		1,674		1,674	100.0	
Little Compton	572,794		56		5,155,147		5,155,147	100.0	
Middletown	2,179		3		13,072		13,072	100.0	
Narragansett (census name Narragansett Pier)	353		7		1,413		1,413	100.0	
New Shoreham	2,092		9		18,825		18,825	100.0	
Newport	394,138		82		3,941,381		4,116,610	95.7	
Newport (County) (in PMSA 2480,6480)	9,995		4		59,969		59,969	100.0	
North Kingstown (local name Wickford)	136,646		102		1,229,813		1,230,174	100.0	
Point Judith	665,061	7,016	483	7	6,650,611	42,098	6,692,709	99.4	0.6
Portsmouth	90,530		40		814,774		814,774	100.0	
Providence	25,994		16		259,940		259,940	100.0	
Providence (County)(in PMSA 6060,6480)	2,110		10		14,769		14,769	100.0	
South Kingstown (Town of)	18,987		73		170,883		170,913	100.0	
Tiverton	111,517		53		1,003,651		1,003,651	100.0	
Unknown	33,978	1,884	66	4	339,782	5,652	839,842	40.5	0.7
Wakefield	3,911		24		35,202		35,202	100.0	
Warren	27,563		39		248,067		248,067	100.0	
Warwick (RR name Apponaug)	151,036		104		1,359,323		1,359,341	100.0	
Westerly (census name Westerly Center)	55,667	55,359	80	29	501,000	498,229	999,228	50.1	49.9
Total	2,574,937	64,986	1465	43	24,234,777	552,524	25,457,387	95.2	2.2

Source: ACCSP 2020c.
Notes: Values reflect pounds landed, caught in statistical areas relevant to Sunrise Wind.
Confidential information was redacted from the ACCSP data set.
Blank cells indicate those years when the fishing area had no reported landings or redacted confidential landings.
Average pounds landed were calculated as an arithmetic mean, using the sum of pounds landed and the count of distinct years, ignoring zero years.

2.2.8 Marine Recreational Information Program (MRIP)

The MRIP integrates a coast-wide angler intercept survey throughout the year to estimate recreational fishing effort. The following section presents data provided by NOAA Fisheries through a custom data request and data accessed from the MRIP online data portal (NOAA Fisheries 2020a). The effort and catch data from New York, Connecticut, Massachusetts, New Jersey, and Rhode Island comprise all of the states of origin identified for recreational anglers, accessed from a custom request and the online MRIP data portal. MRIP data indicates that recreational fishing effort increased in frequency seasonally from March through August, reaching its peak intensity by shore fishing (e.g. surfcasting) and in both federal and state waters by private or for-hire/charter vessel in July and August (Figure 2.2-21).
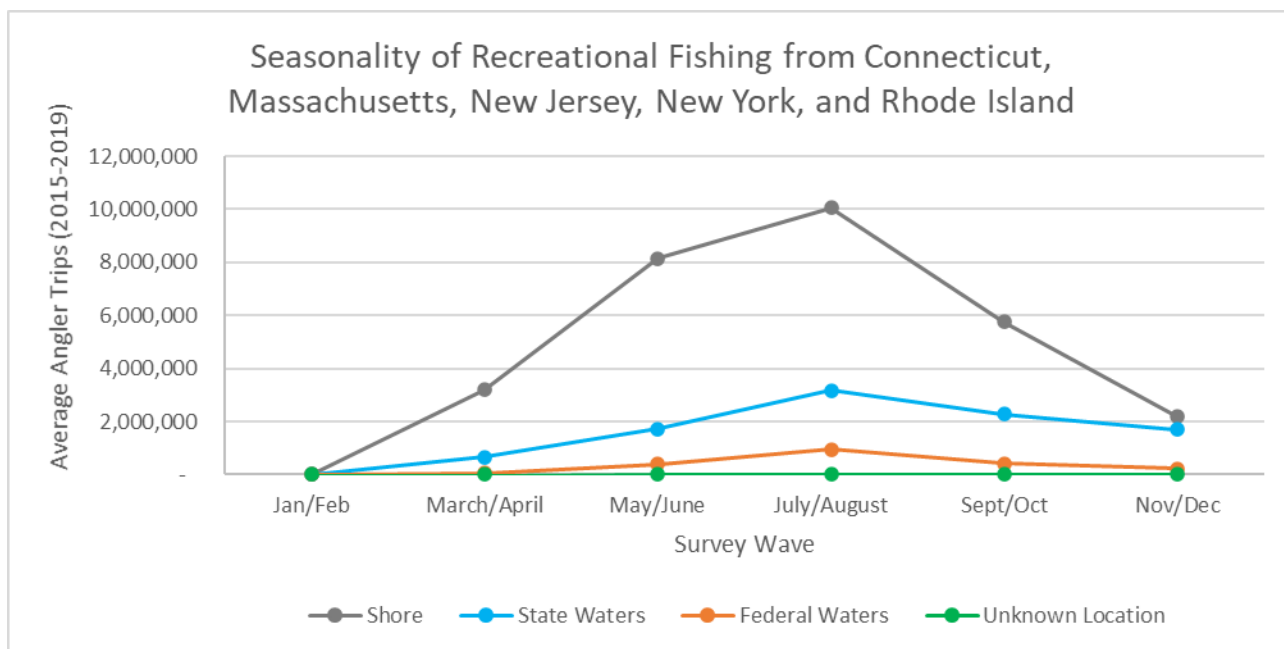

Figure 2.2-21   Average of Estimated Fishing Effort by Recreational Anglers for the Years 2015 to 2019 in Connecticut, Massachusetts, New Jersey, New York, and Rhode Island

Source: NOAA Fisheries 2020a.
Notes: Angler-trip survey data includes trips where fishing location is not recorded, noted as "unknown location" in the figure. State waters includes water from shore to 3 nautical miles (5.6 kilometers, 3.5 miles); federal waters include waters greater than 3 nautical miles (5.6 kilometers, 3.5 miles) from shore.

MRIP data were used to estimate relative angler effort for those states with coastlines relatively close to the SRWF. Angler effort was categorized by mode (for-hire or charter, private, shore) and by location (federal waters, state waters, and shoreside). There was no spatial information associated with MRIP data; thus, there was no way to determine where fishing trips took place in state or federal waters. These values, therefore, were meant to provide a qualitative overview of angler effort and seasonal changes in activity.

The MRIP survey methods were designed to estimate recreational fishing effort aggregated at the state and regional level. For this reason, the standard error for estimates disaggregated to smaller units than the state level (i.e., county) was very high and indicates weak estimates for fishing activity.

Based on estimates of recreational angler effort disaggregated to the state level, New York state had the greatest average estimated number of angler trips each year (about 14.1 million) for the years 2015 to 2019,

most of which fished in New York state waters (Table 2.2-19). Of the recreational trips out of New York state that visited New York state waters, 41 percent used private fishing vessels, and 57 percent were shoreside fishing trips (Table 2.2-20).

Of the nearly 13 million recreational fishing trips leaving from New Jersey for the years 2015-2019, most trips were within New Jersey state waters (Table 2.2-19). For recreational trips out of New Jersey that were within state waters, 32 percent used private fishing vessels and 67 percent were shoreside trips (Table 2.2-20). Similarly, out of approximately 7.2 million recreational fishing trips leaving from Massachusetts during this period (Table 2.2-19), most trips were to fish in Massachusetts state waters. Of the trips to Massachusetts state waters leaving from Massachusetts, 37 percent were on a private fishing vessel, and 61 percent were shoreside fishing trips (Table 2.2-20).

Out of approximately 3.8 million recreational fishing trips leaving from Connecticut during this period, the vast majority of anglers fished in Connecticut state waters (Table 2.2-19). Of the trips to Connecticut state waters leaving from Connecticut, 38 percent were on a private fishing vessel, and 61 percent were shoreside fishing trips (Table 2.2-20).

For the nearly 2.9 million recreational fishing trips leaving from Rhode Island, most of the trips were to fish in Rhode Island state waters (Table 2.2-19), with 34 percent of these trips on a private fishing vessel and 64 percent as shoreside fishing trips. For New York, Connecticut, Massachusetts, New Jersey, and Rhode Island, the majority of trips to federal waters were on private vessels, as opposed to charter vessels.

Table 2.2-19 Average Annual Fishing Effort for Recreational Fishing by Mode (Charter Vessel, Private, and Shore Fishing) and by Fishing Area based on MRIP Data (2015-2019)

State	Fishing Area	Average Fishing Effort (Value/5 years)			
		Charter	Private	Shore	Total
Connecticut					
	Federal	4,307	34,124	-	38,431
	State	41,873	1,395,680	2,281,495	3,719,049
	Unknown	-	-	-	-
Connecticut Totals		46,180	1,429,804	2,281,495	3,757,480
Massachusetts					
	Federal	39,770	384,080	-	423,849
	State	113,835	2,529,311	4,135,856	6,779,001
	Unknown	125	-	-	125
Massachusetts Totals		153,729	2,913,390	4,135,856	7,202,975
New Jersey					
	Federal	145,332	680,342	-	825,674
	State	152,245	3,862,726	8,121,341	12,136,312
	Unknown	4	-	-	4
New Jersey Totals		297,581	4,543,068	8,121,341	12,961,990
New York					
	Federal	67,266	595,626	-	662,893
	State	264,077	5,486,725	7,722,780	13,473,583
	Unknown	16	-	-	16
New York Totals		331,360	6,082,352	7,722,780	14,136,492
Rhode Island					
	Federal	9,435	91,179	-	100,615
	State	33,587	948,614	1,771,321	2,753,522
	Unknown	327	-	-	327
Rhode Island Totals		43,349	1,039,794	1,771,321	2,854,464

Source: NOAA Fisheries 2020a.
Notes: Unknown location indicates missing data in trip report.
Trips to federal waters cannot take place onshore; therefore, the table cells are marked with "-" because there is no number of trips available.

Charter boats include party boat and charter boat trips.
Federal waters include waters greater than 3 nm from shore, state waters include trips that take place inland (onshore and inshore bodies of saltwater or brackish water) and in waters less than 3 nm from shore.

Table 2.2-20   Percent of Average Annual Fishing Effort by Mode and Fishing Area, Out of State Totals based on MRIP Data (2015-2019)

State	Fishing Area	% of Total State Angler Trips (based on average values)		
		Charter	Private	Shore
Connecticut				
	Federal	11	89	0
	State	1	38	61
	Unknown	0	0	0
Connecticut Totals		1	38	61
Massachusetts				
	Federal	9	91	0
	State	2	37	61
	Unknown	100	0	0
Massachusetts Totals		2	40	57
New Jersey				
	Federal	18	82	0
	State	1	32	67
	Unknown	100	0	0
New Jersey Totals		2	35	63
New York				
	Federal	10	90	0
	State	2	41	57
	Unknown	100	0	0
New York Totals		2	43	55
Rhode Island				
	Federal	9	91	0
	State	1	34	64
	Unknown	100	0	0
Rhode Island Totals		2	36	62

Source: NOAA Fisheries 2020a.
Notes: Unknown location indicates missing data in trip report.
Trips to federal waters cannot take place onshore; therefore, shore trips comprise 0% of all trips to federal waters.
Charter boats include party boat and charter boat trips.
Federal waters include waters greater than 3 nm from shore, state waters include trips that take place inland (onshore and inshore bodies of saltwater or brackish water) and in waters less than 3 nm from shore.

2.2.9   Aquaculture

Aquaculture lease sites occur in Great South Bay along the southern Long Island shoreline, 17 km west of the landfall for the SRWEC. A smaller aquaculture site is located in Moriches Bay, 7 km to the east of the SRWEC landfall. Oysters are cultivated at both of these sites, whereas clams and seaweed also are cultivated in Great South Bay. Distances from the intracoastal waterway horizontal directional drill (ICW HDD) to the western and eastern aquaculture sites are approximately 14.5 and 9 km, respectively (Figure 2.2-22).
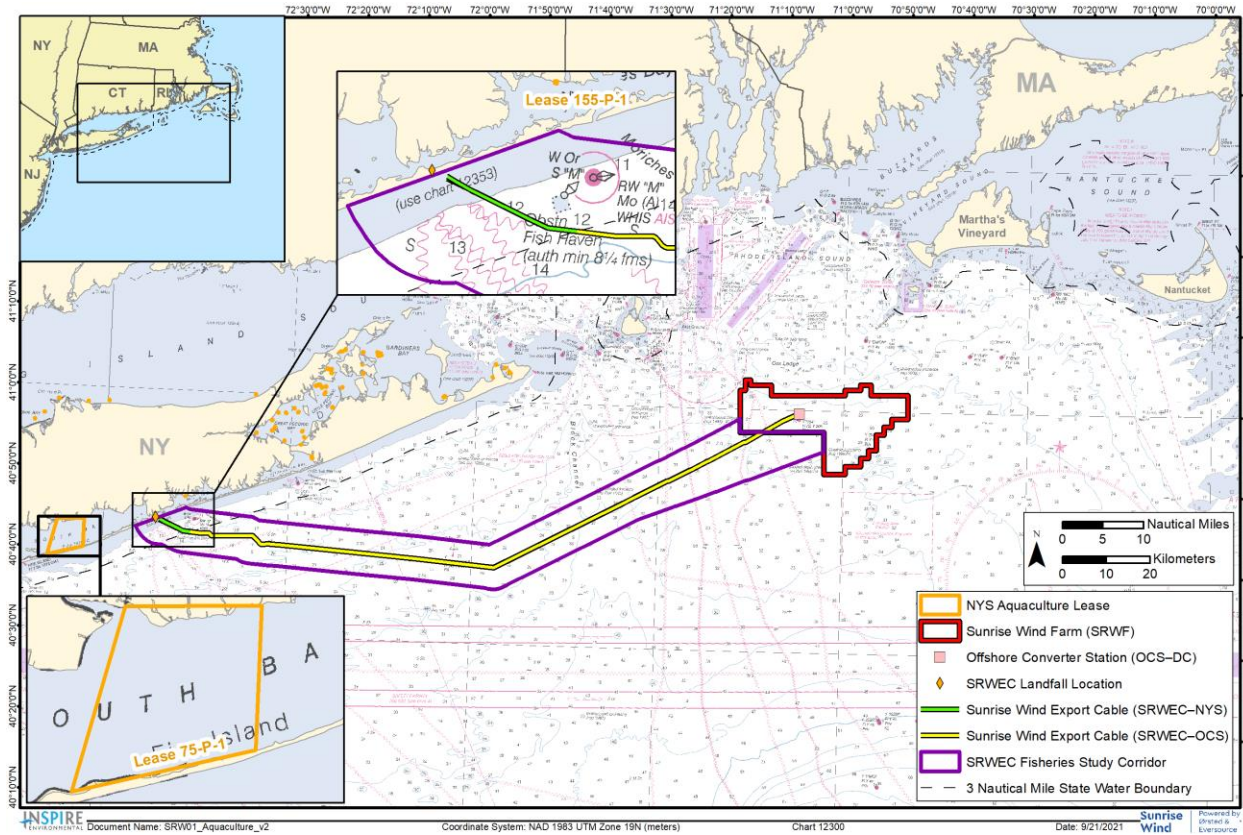
Figure 2.2-22   Map of the SRWF and SRWEC Fisheries Study Corridor, and NYS Aquaculture Lease Sites

2.3   SUMMARY

Multiple data sources were used to assess commercial and recreational fisheries activity in the SRWF and SRWEC fisheries study corridor. Federal (VTR and VMS), state VTR, MRIP, and aquaculture data sources allowed an evaluation of the relative intensity of these fisheries, along with their economic value in the area. Fisheries activities are summarized separately below for the SRWF and SRWEC and by data source. For the VMS data, the highest fishing intensity category reported for any year analyzed is used in this summary and only the intensity level is summarized, not spatial coverage.

Federal VTR - SRWF

- The top fisheries in terms of revenue used bottom trawl, gillnet, dredge, and pot.
- In terms of pounds landed, the top gears by revenue were the bottom trawl, gillnets, dredge, and mid-water trawl.
- The top species-groups in terms of revenue were monkfish, scallops, flounders, skate wings, lobster, squid, hakes, and scup.
- The top species-groups in terms of pounds landed were skate wings, Atlantic herring, hakes, scup, flounders, and squid.
- In order of descending percent of total state landings from the SRWF, Massachusetts (2.95%), Rhode Island (2.79%), Connecticut (0.30%), New York (0.12%), and New Jersey (0.04%) had vessels with fishing activity in the SRWF.

Federal VTR - SRWEC

- The top fisheries in terms of revenue used dredge, bottom trawl, gillnet, pot, and mid-water trawl.
- In terms of pounds landed, the top gears by revenue were the dredge, bottom trawl, mid-water trawl, and gillnet.
- The top species-groups in terms of revenue were scallops, monkfish, quahogs, squid, flounders, skate wings, and scup.
- The top species-groups in terms of pounds landed were quahogs, Atlantic herring, skate wings, squid, and scallops.
- In order of descending percent of total state landings from the SRWEC, Massachusetts (9.67%), New York (4.25%), Connecticut (3.96%), Rhode Island (2.20%), and New Jersey (1.66%) had vessels with fishing activity in the SRWF fisheries study corridor.

Federal VMS - SRWF

- The fisheries that had the most activity in the SRWF were groundfish (large-mesh multispecies or northeast multispecies), Atlantic herring, pelagic species (herring/mackerel/squid), monkfish, surfclam/ocean quahog, sea scallop, and squid.
- Very high or high-density fishing activity was reported for groundfish, pelagic species (herring/mackerel/squid), monkfish, surfclam/ocean quahog and sea scallop.

Federal VMS - SRWEC

- The fisheries that had the most activity along the SRWEC fisheries study corridor were groundfish, Atlantic herring, pelagic species (herring/mackerel/squid), monkfish, surfclam/ocean quahog sea scallops, and squid.
- Very high or high-density fishing activity occurred within the SRWEC fisheries study corridor for groundfish, Atlantic herring, pelagic species (herring/mackerel/squid), monkfish, surfclam/ocean quahog, sea scallop, and squid.

VTR Data as Rasters - SRWF

- Relatively high-revenue fishing activity occurred in the SRWF for bottom-trawl fishing, highly migratory species, monkfish, large-mesh multispecies, and small-mesh multispecies fisheries.
- Relatively moderate to low-revenue fishing activity occurred in the SRWF for lobster pot fishing, clam dredge, and mackerel/squid/butterfish.

VTR Data as Rasters - SRWEC

- Relatively high-revenue fishing activity along the SRWEC fisheries study corridor occurred for the clam dredge, mackerel/squid/butterfish, and monkfish fisheries.
- Relatively moderate- to low-revenue fishing activity occurred along the SRWEC fisheries study corridor for the bottom-trawl, lobster pot, and large-mesh multispecies fisheries.
- Minimal revenue generating fishing activity within the SRWEC fisheries study corridor was recorded for the highly migratory species and small-mesh multispecies fisheries.

State VTRs

Connecticut

- The top gear types by pounds landed were pots and traps, otter trawls, and lobster pots and traps.
- The top species by average annual pounds landed were conch, menhaden, scup, lobster, horseshoe crabs, and summer flounder.
- The top ports by pounds landed were Stonington, Old Saybrook, Guilford, New London, and Clinton.

New Jersey

- The top gear types by pounds landed were purse seines, pots and traps, and dredges.
- The top species by average annual pounds landed were blue crab, menhaden, American eel, whelk, killifish, white perch and American shad.
- The top ports landed by state-only, permitted vessels were Cape May, Atlantic City, Cumberland (County), Point Pleasant, and Cape May (County).

New York

- The top gear types by pounds landed were pots and traps, gill nets, dredges and other fixed nets.
- The top species by average annual pounds landed were Atlantic surfclam, menhaden, and striped bass.
- The top ports by pounds landed were Oceanside, Shinnecock Indian Reservation, Mattituck, Freeport, East Hampton, and Montauk.

Rhode Island

- The top gear types by pounds landed were pots and traps, other fixed nets, hook and line, and otter trawls.
- The top species by average annual pounds landed were scup, channeled whelk, summer flounder, menhaden, and striped bass.
- The top ports by pounds landed were Point Judith, Little Compton, Newport, Bristol, and Warwick (RR name Apponaug).

MRIP

- Recreational fishing effort seasonally increased in frequency from March through August, reaching its peak intensity by shore fishing (e.g. surfcasting) and in both federal and state waters by private and for-hire/charter vessels in July and August.
- For all states surveyed (New York, Connecticut, Massachusetts, New Jersey, Rhode Island), most recreational fishing occurred within the respective state waters.

Aquaculture

- New York State Aquaculture lease sites occur in Great South Bay along the southern Long Island shoreline 17 km west of the landfall for the SRWEC. A smaller aquaculture site is located in Moriches Bay 7 km to the east of the SRWEC landfall. Distances from the ICW HDD to the western and eastern aquaculture sites are approximately 14.5 and 9 km, respectively.

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