





Project Background

- This project uses a trawl survey design, utilizing a commercial fishing vessel, to gather data on the migratory patterns of targeted commercial and recreational valuable fish within the areas of the SFEC in East Hampton over a multi-year period.
- Baseline data will be gathered for the targeted fish species, both within a defined area of the SFEC and within identified control area.



Project Background

- Trawl survey will continue during construction and burial of the export cable in established survey areas (SFEC and control), as well as post-construction within the survey areas (SFEC and control).
- Data will be analyzed to identify if activity in, and around the SFEC, affects fish migrations or community structure.
- Data analysis will help determine the effects, if any, of the SFEC on the identified fish species and communities in the areas sampled by the trawl survey.



Temperature

Door Spread (Slave)

Wing Spread (Slave)

Headline Height

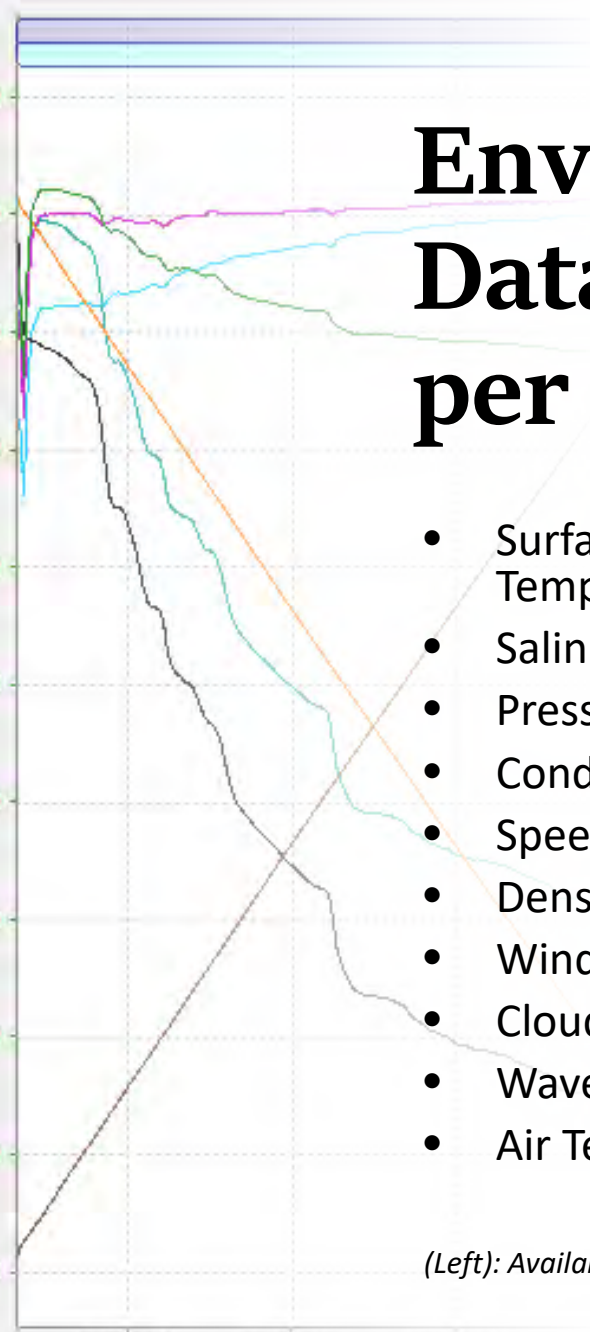
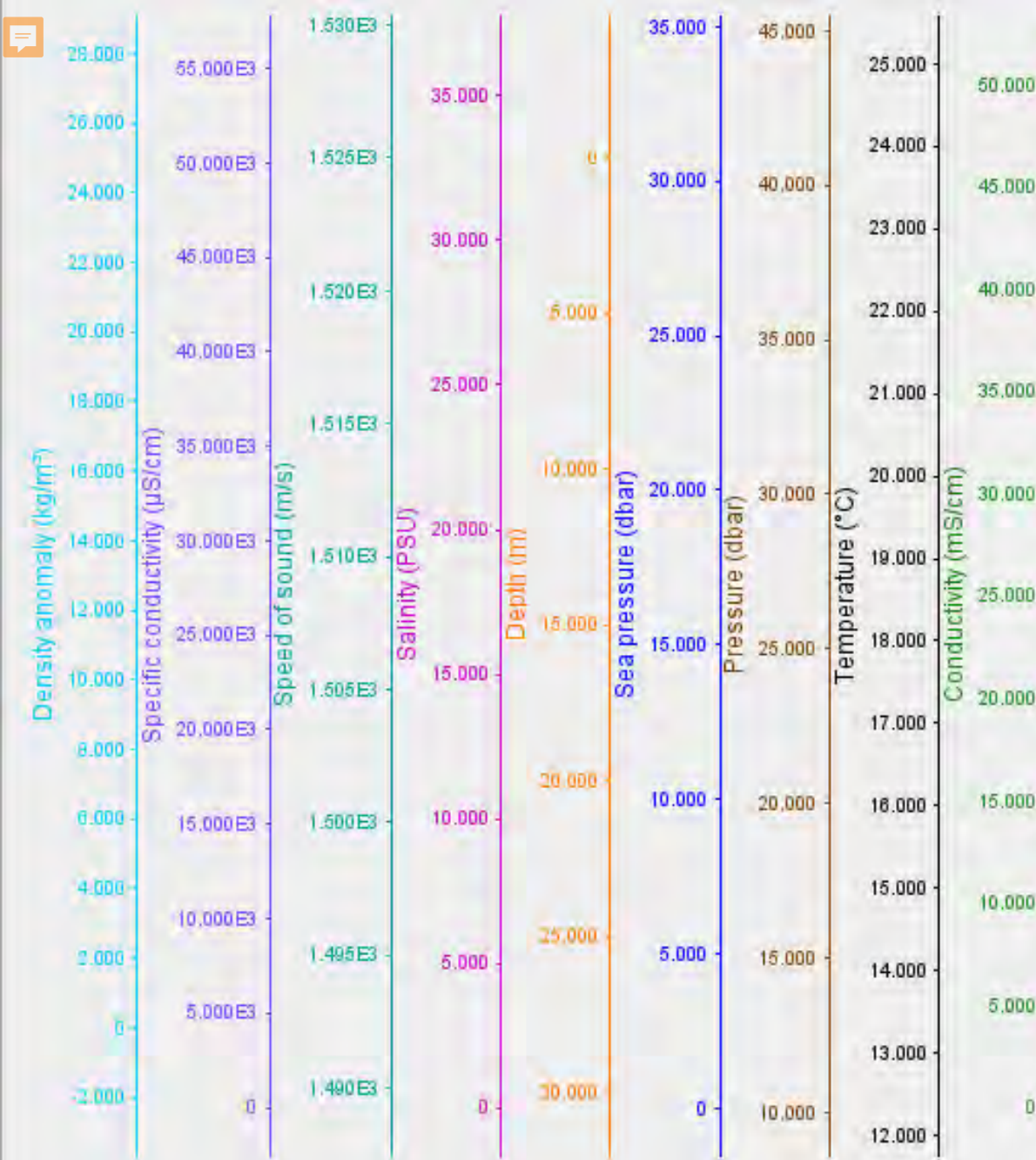


Survey Design & Methodology

Hyd

- Net built in accordance with NEAMAP Survey Design for easy integration with other trawl survey data
- 20 min tows
- Catch sorted by species, weighed and measured
- Wheelhouse Data Collected:
 - Start/End Times and Location
 - Start/End Water Depth
 - Tow Speed and Direction
 - Net/Gear Geometry
 - Tow Wire Out

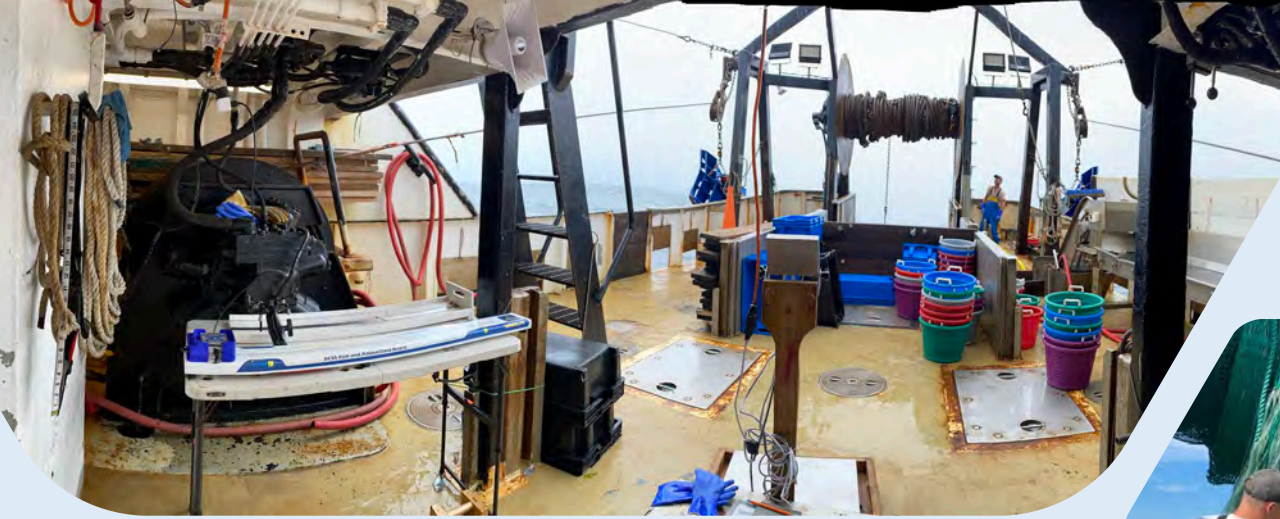
Catch



Environmental Data Collected per Tow

- Surface and Bottom Water Temperature
- Salinity
- Pressure
- Conductivity
- Speed of Sound
- Density Anomaly
- Wind Conditions
- Cloud Cover
- Wave Height
- Air Temperature

(Left): Available Parameter Scale for Environmental Data



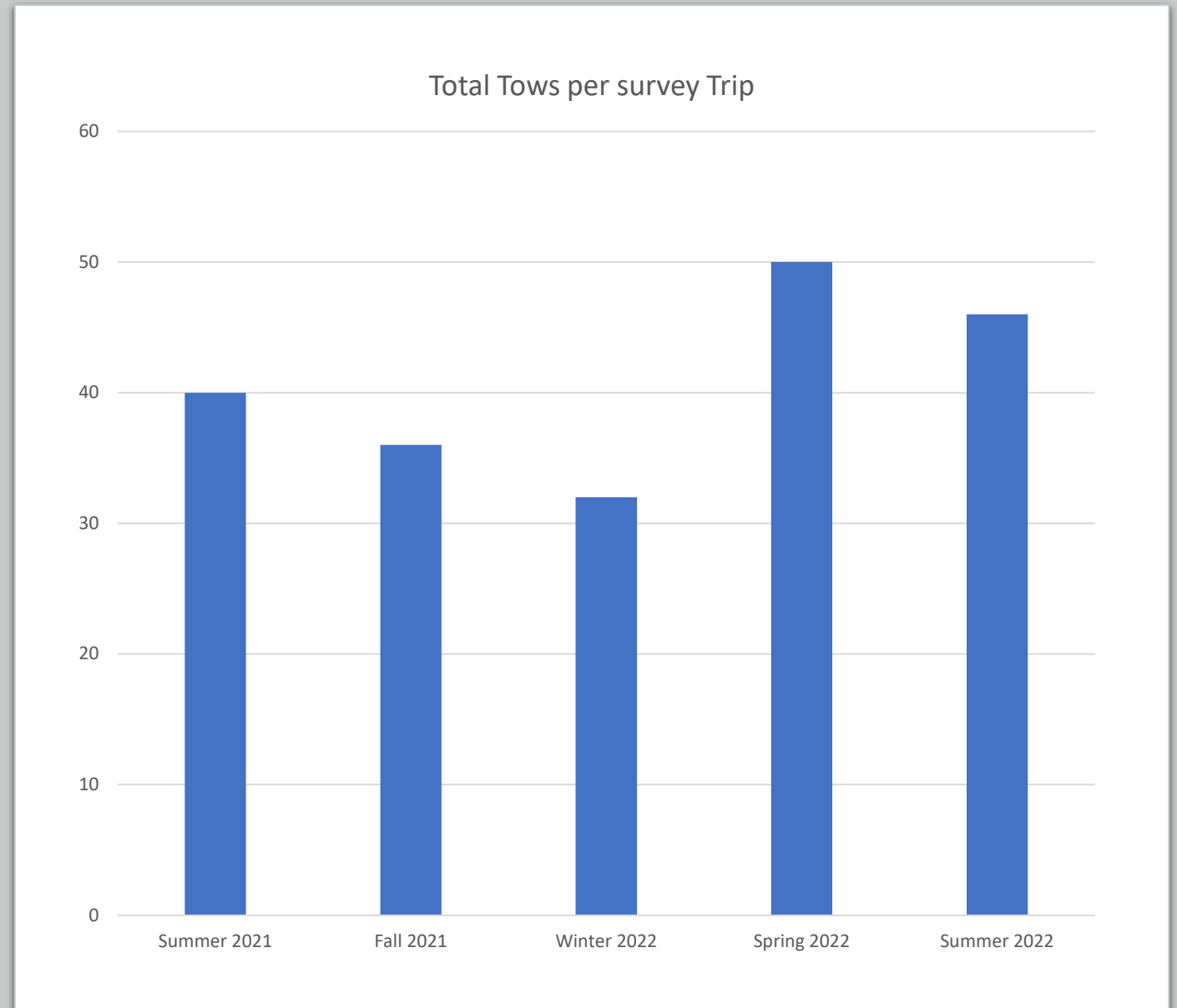
Commercial Fishing Partner F/V Bulldog

- The F/V Bulldog is an 80' western rigged steel stern trawler with a green hull and white deckhouse.
- During the survey, fishermen can contact the F/V Bulldog on VHF channels 13 or 16 to determine the updated daily schedule and communicate helpful information to the Captain and Cornell Scientists on board.



Annual Overview

- **Summer 2021:** 9/15/21-9/19/21
- **Fall 2021:** 11/12/21-11/16/21
- **Winter 2022:** 3/9/22-3/13/22
- **Spring 2021:** 5/16/22-5/20/22
- **Summer 2021:** 7/15/22-7/19/22

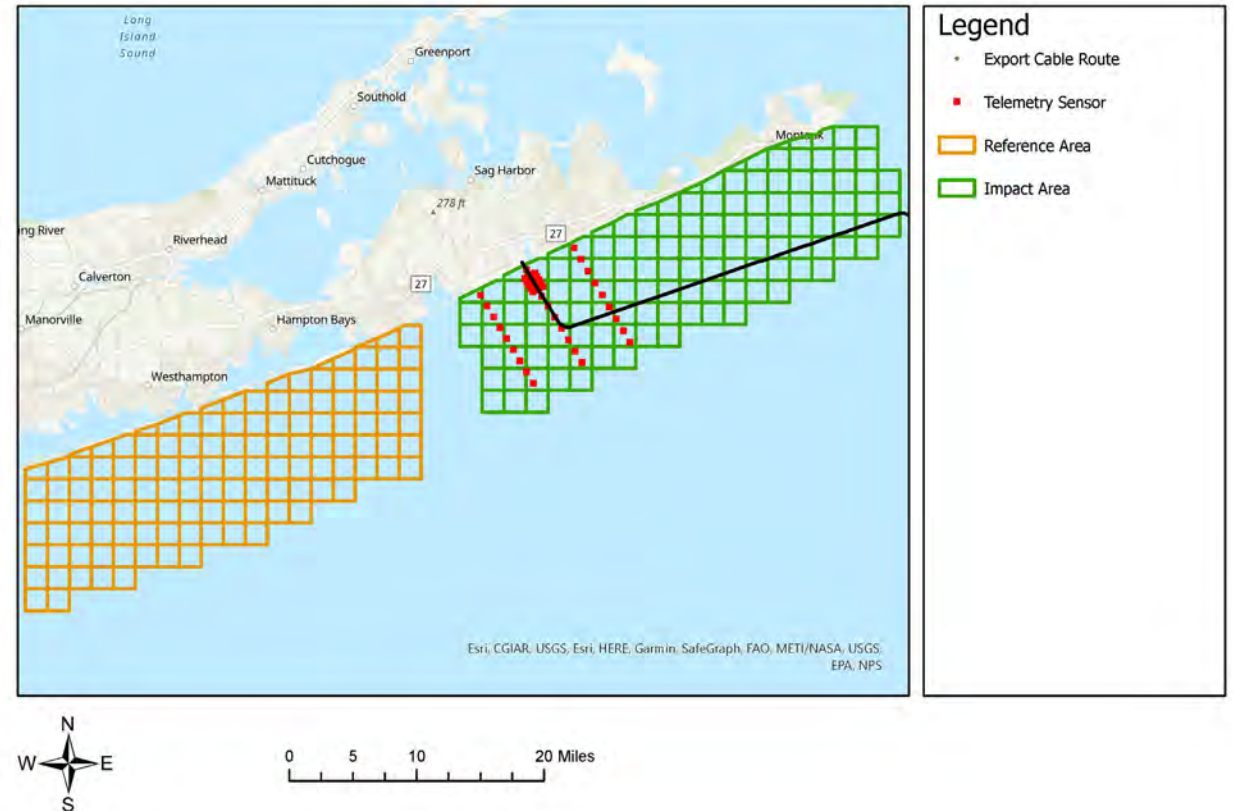


Sampling Methodology

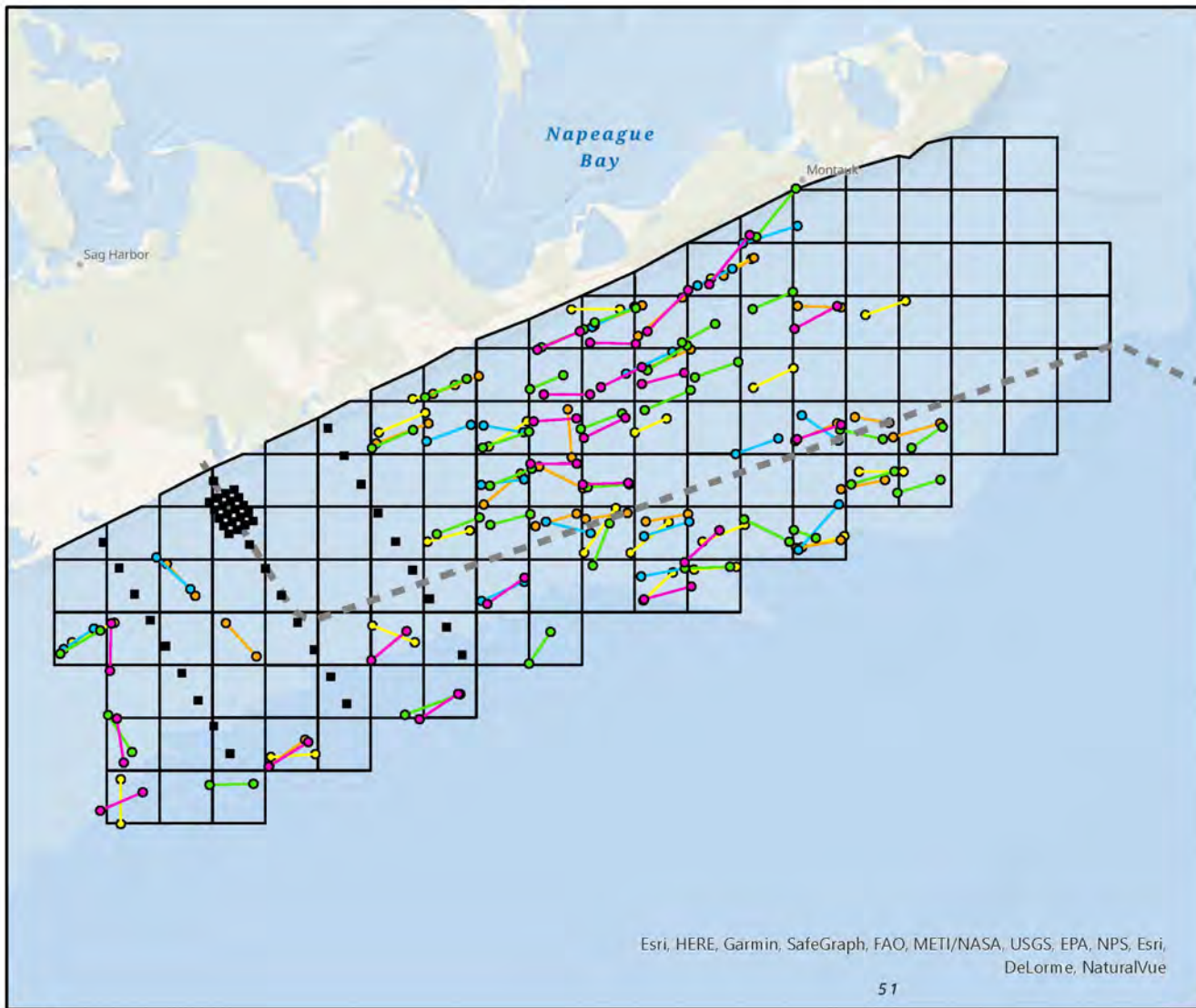
- Random Stratified Sampling
- 254 Stations
- Includes stations beyond the 3 nm state boundary to observe the migratory behavior of the fish once the export cable is installed and functional.
- Target of 30-40 Tows per Trip
- Depth Strata (Feet)
 - 20-40
 - 40-60
 - 60-80
 - 90+

Impact Area	Total Stations	Stations to sample
20-40	15	2
40-60	14	2
60-90	39	6
90+	62	10
Reference Area	Total Stations	Stations to sample
20-40	15	2
40-60	9	2
60-90	34	5
90+	66	11

SFW Trawl Survey Stations



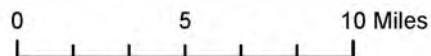
Impact Area Tow Tracks: Summer 2021-Summer 2022



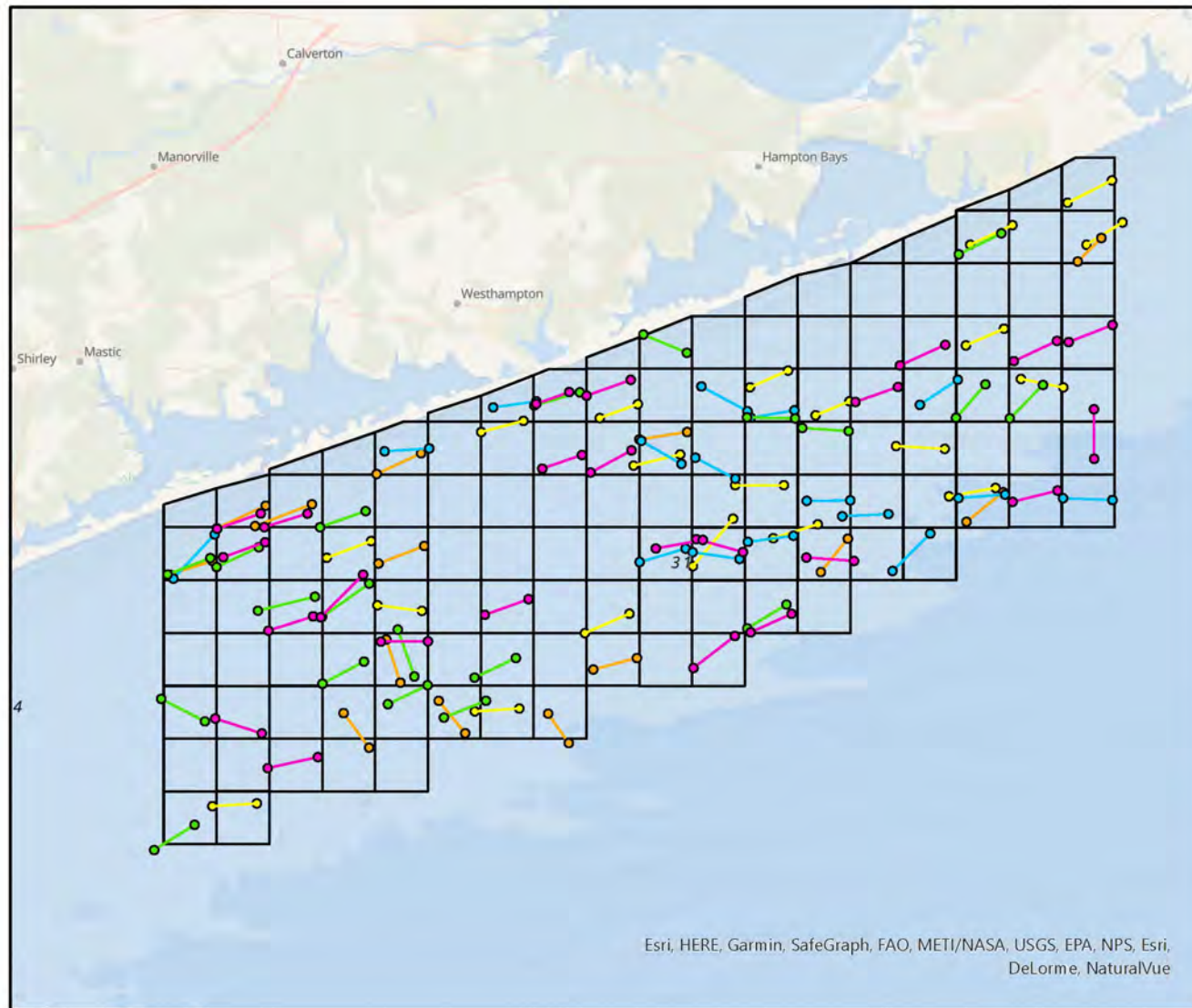
Legend

- Telemetry Sensors
■
- Export Cable Route
- - -
- Summer 2022
●
- Spring 2022
●
- Winter 2022
●
- Fall 2021
●
- Summer 2021
●
- Survey Stations
□

Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, Esri, DeLorme, NaturalVue

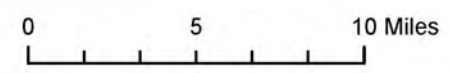


Reference Area Tow Tracks: Summer 2021-Summer 2022



Legend

- Summer 2022
- Spring 2022
- Winter 2022
- Fall 2021
- Summer 2021
- Survey Stations



Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, Esri, DeLorme, NaturalVue

Catch Processing



- Catch from each tow is worked up separately.
- Fish are sorted by species. Length for each species is measured on all individuals, or a random subsample depending on the size of the catch.
- Total weight of all additional species in each tow is also be obtained either by direct weighing or by catch estimations. The procedure for catch estimations, based on basket or tote counts, follows the NMFS At Sea Monitoring Program and the Observer Program Biological Sampling protocols, as outlined in the NEFSC 2010 sampling manuals.





Summary of Catch

- 87 Unique Species
- 95,047 lbs. caught and documented



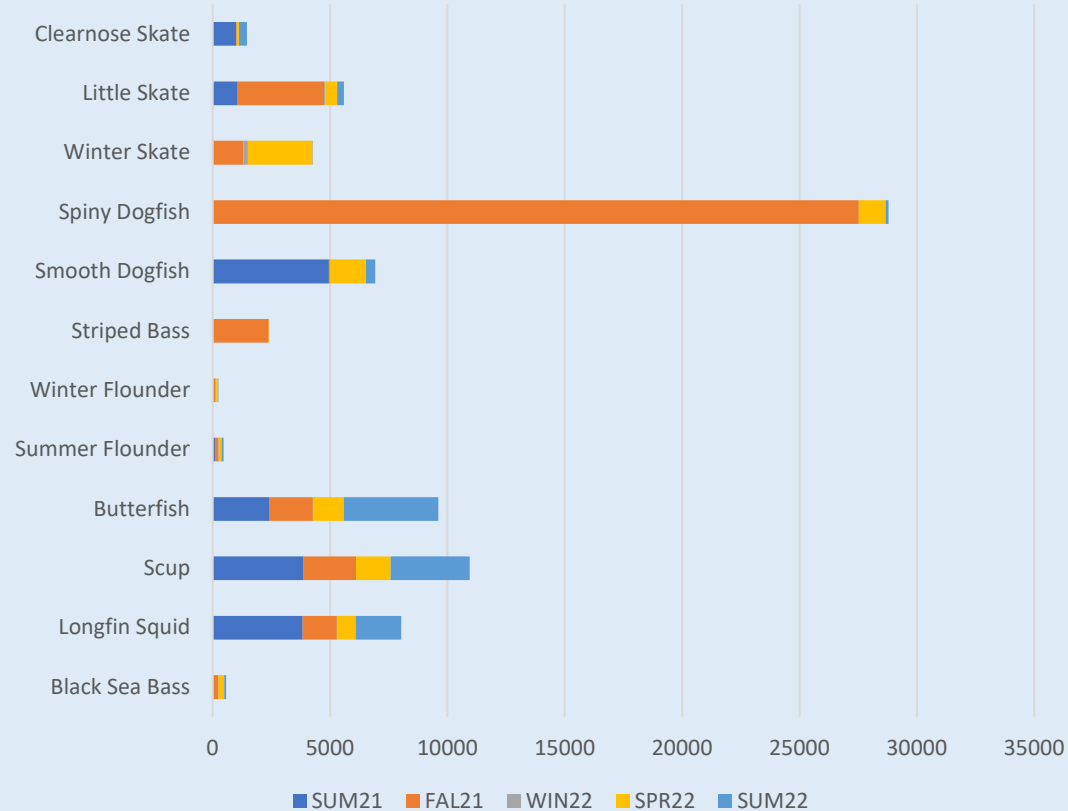
Abridged Species Overview

Total Catch – All Trips Combined (lbs.)

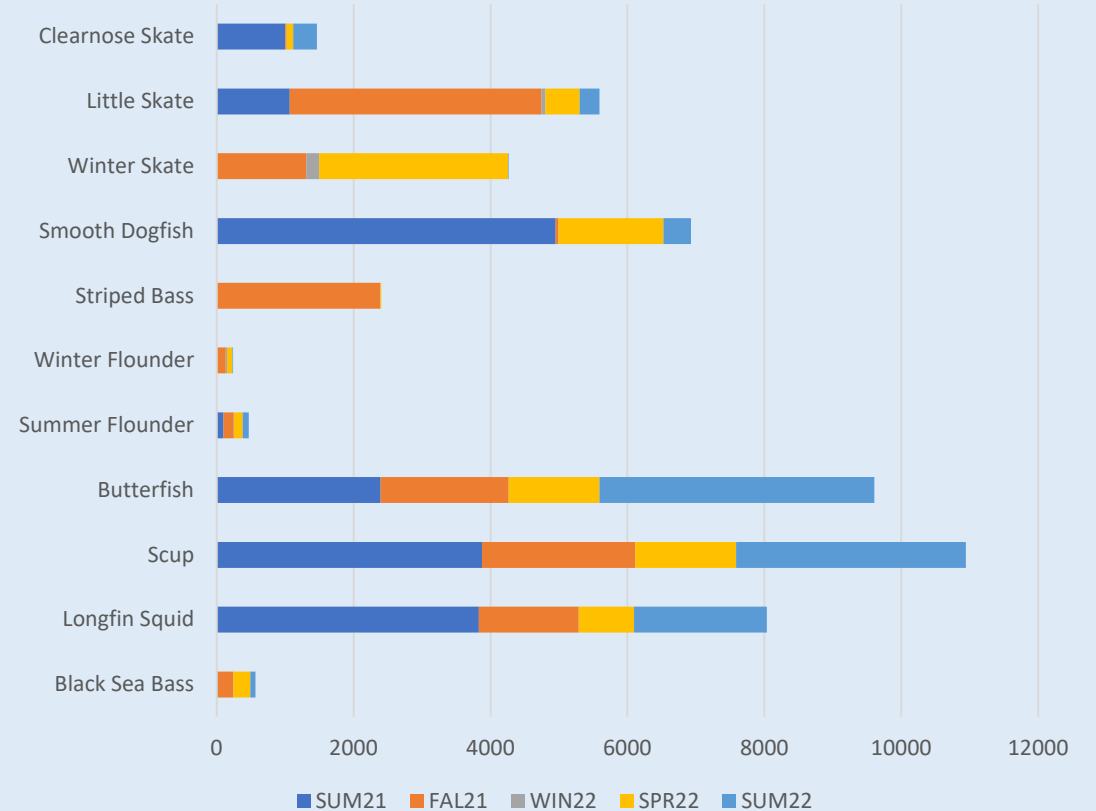
- Longfin Squid: 7,495
- Scup: 10,942
- Butterfish: 9,607
- Black Sea Bass: 567
- Striped Bass: 2,401
- Summer Flounder(Fluke):467
- Winter Flounder:239
- Winter Skate:4,268
- Little Skate:5,589
- Clearnose Skate: 1,462
- Spiny Dogfish: 28,793
- Smooth Dogfish:6,925

Species of Interest: Catch Distribution

Catch Distribution (Lbs.)



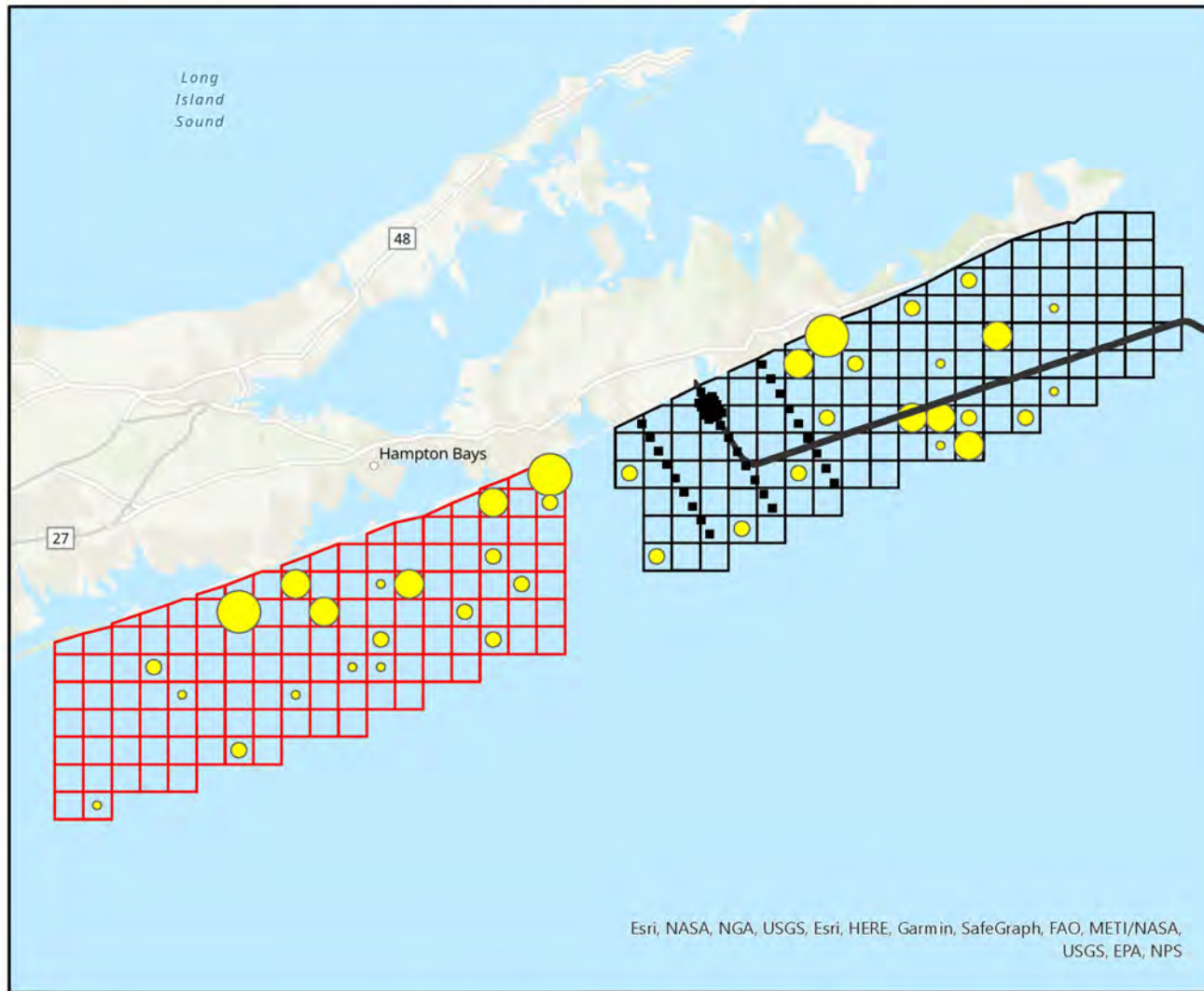
Catch Distribution w/o Spiny Dogfish (Lbs.)



Reference v. Impact



Summer Trawl Survey 2021: Total Catch Weight by Station



Legend

- Telemetry Sensor
- Export Cable Route

Total Catch

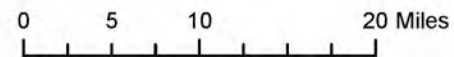
Biomass

- 1-250 lbs
- 251-500 lbs
- 500-1,250 lbs
- >1,250 lbs

□ Reference Area

□ Impact Area

Esri, NASA, NGA, USGS, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS



Summer Trawl Survey 2022: Total Catch Weight by Station

