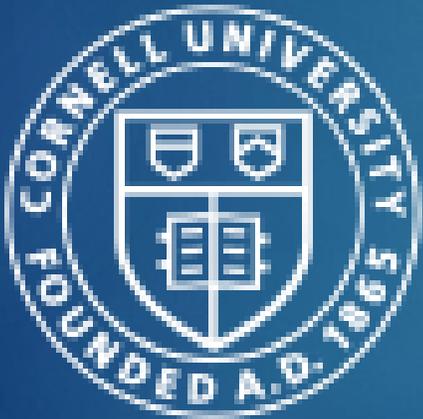


South Fork Wind Export Cable (SFEC) Trawl Survey

Scott Curatolo-Wagemann, Emerson Hasbrouck, Matthew Sclafani,
Robert Cerrato*

Cornell University Cooperative Extension
423 Griffing Ave., Suite 100
Riverhead, NY 11901-3071



*School of Marine and Atmospheric Sciences
Stony Brook University, Stony Brook, New York 11794



Stony Brook
University

South Fork Wind Farm- Export Cable

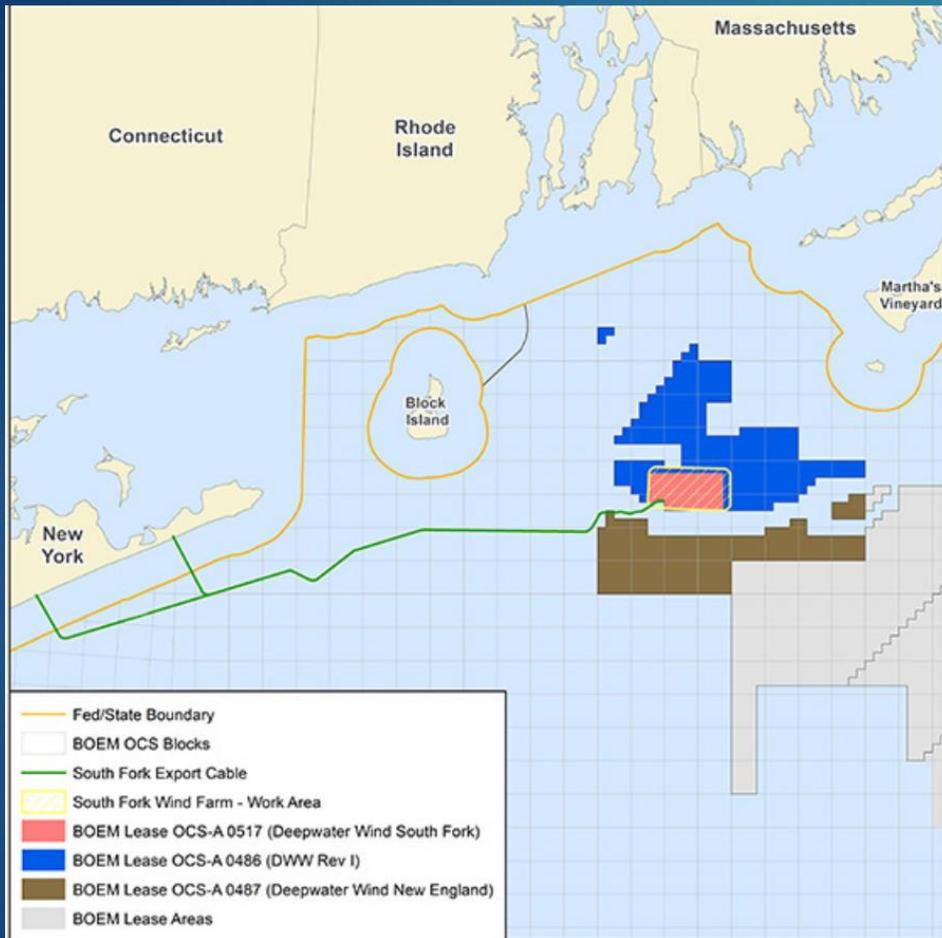


Photo: BOEM

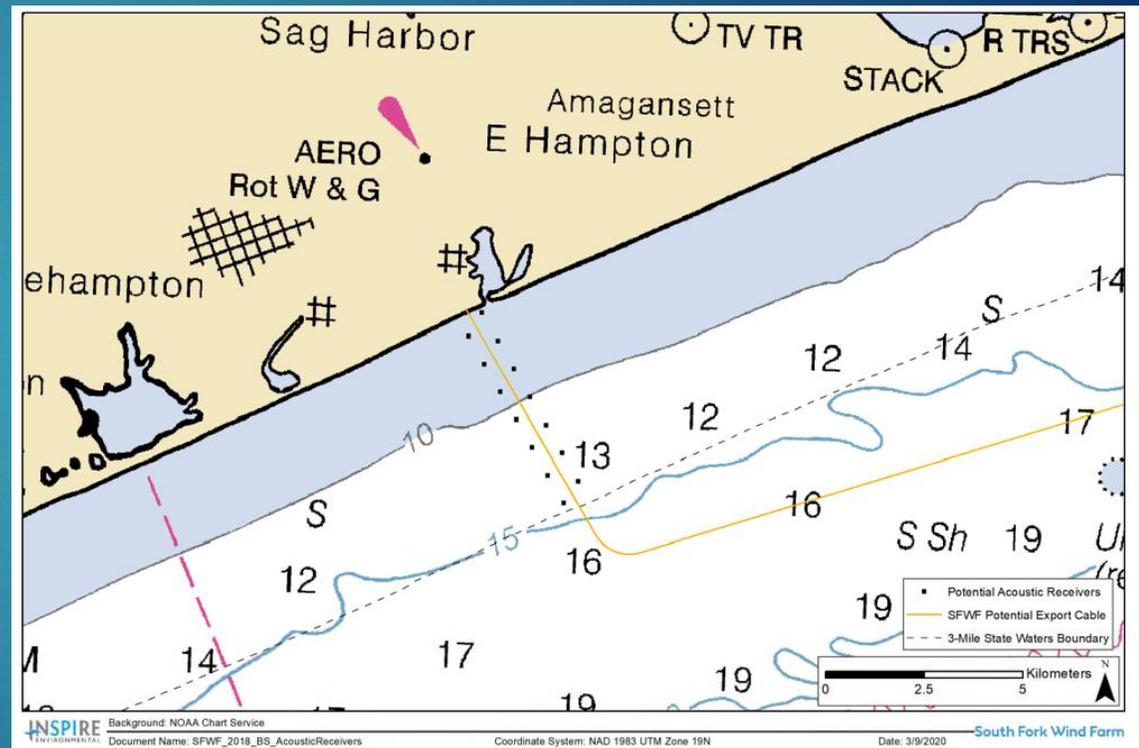


Photo: Orsted

Trawl Survey- CCE

Goals and Objectives:

- Use 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.
- Data will be analyzed to identify if activity in, and around the SFEC; affects fish migrations or community structure.
- Baseline data for the targeted fish species, both within a defined area of the SFEC and within identified control area will take place over a 2-year period (*i.e. pre-construction*).
- 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 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.



Photo: Marine Safety Consultants

Methods

- Develop and implement a trawl survey to meet the stated goals and objectives using a BACI (Before After Control Impact) design.
- The trawl survey (“survey”) will be modeled after the NEAMAP Near-Shore Survey.
- Use the same net design, bridles, ground cables and doors as detailed in the NEAMAP design.
 - The survey net is also identical to the NMFS Trawl Survey net except for a modified sweep.
- This survey design will provide additional data compatibility with both the NEAMAP and NMFS trawl surveys.
- Tows will be 20 minutes in length at 3 knots.
- We anticipate 5-survey days each season, with 30 to 40 tows per season, and equal number of tows within each area (15 -20 tows).

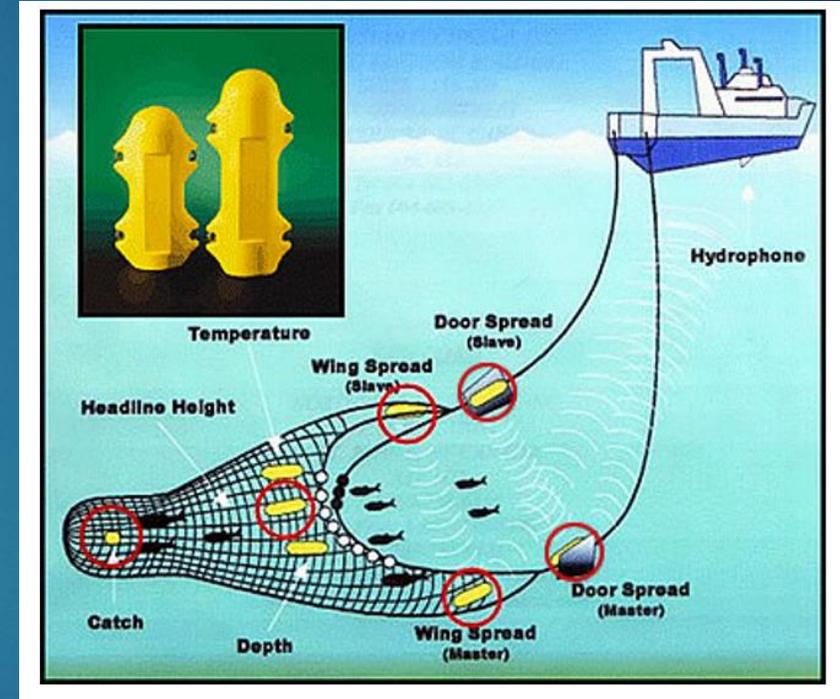
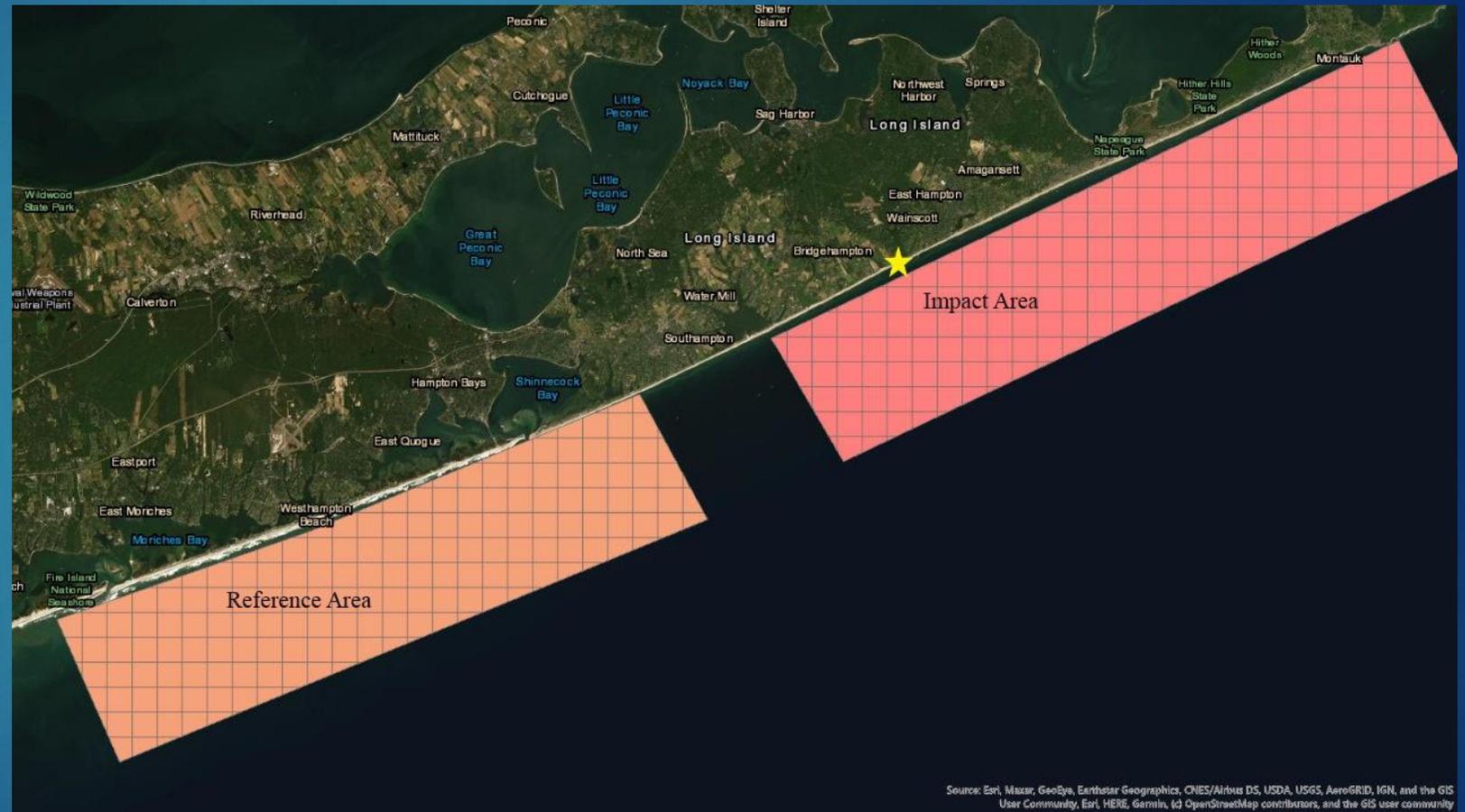


Photo: VIMS

Trawl Survey- Survey Area

- CCE will conduct trawls within a defined area around the export cable (impact area), as well as within a nearby area which will serve as a control (reference) area. Each area is approximately 63 square nautical miles
- The chosen reference area will be located to the west of the impact area and will be non-adjacent, with a separation of 4 nautical miles. The closest cell within the reference area will be over 8 nautical miles from the proposed export cable landing
- Tow locations will be selected using a systematic random sampling design



Survey and Environmental Data Collection



Environmental data to be collected for each tow includes:

- Start and End Time
- Start and End GPS Location
- Start and End Water Depth
- Tow Speed
- Tow Direction
- Surface and Bottom Water Temperature
- Cloud Cover
- Wind Speed and Direction
- Wave Height
- Air Temperature
- Wire out
- Net and gear condition
- At each trawl location, a Conductivity Temperature Depth (CTD) probe will be deployed to gather conductivity, salinity, and temperature for a vertical profile of the water column



Catch Processing

- Catch from each tow will be worked up separately.
- Fish will be sorted by species. Length for each species will be measured on all individuals, or a random subsample depending on the size of the catch.
- Total weight of all additional species in each tow will 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.
- To the extent of the permit involved, the vessel will be permitted to land fish for sale as regulations allow.



Data Analysis: CCE & SUNY Stony Brook

Data analysis will determine the effects, if any, of the SFEC on the identified fish species and communities along the areas that are sampled from the trawl survey. Specifically, we test the following hypotheses:

H1: The spatial distributions of fish species will not be impacted by the construction and resulting EMFs of the SFEC connecting cable.

H2: The community structure of fish species will not be impacted by the construction and resulting EMF's of the SFEC connecting cable.

Data and Statistical Analysis

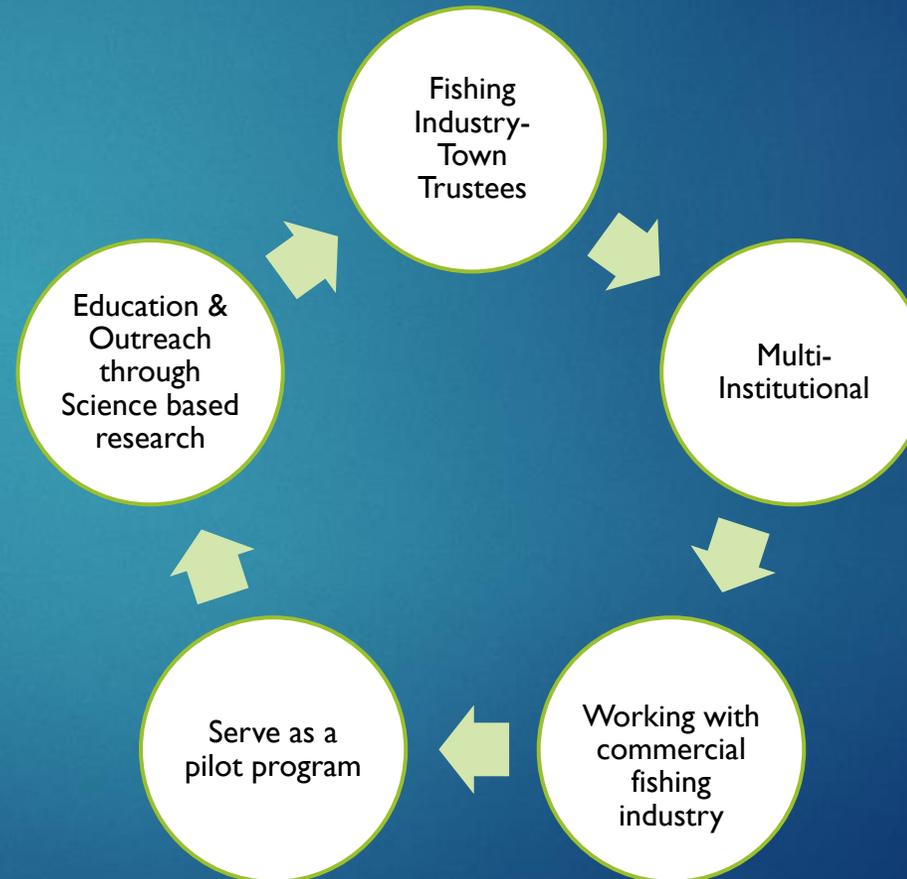
- Data will be manually QA/QC to check for errors prior to data analysis. In addition, data will be plotted, and descriptive statistics used to identify any potential outliers and erroneous data entries.

Multivariate Analysis of the Trawl Data

- We will carry out a multivariate analysis of the trawl data to investigate spatial-temporal patterns in the fish community to determine if there are any effects of the SFEC after it is installed and to relate these patterns to environmental variables.
- The catch data will be analyzed to compare control and impact areas in a BACI design framework.
- Two multivariate techniques will be utilized: community trajectory analysis and redundancy analysis (RDA).
- Comparing the community structure between the control and impact area over time will be used to evaluate community differences between the control and impact areas between years, to define geographic relationships and the spatial stability of the assemblage. RDA will be used to identify important environmental drivers associated with changes.

Education and Outreach

- ▶ CCE- Suffolk has successful collaboration with fishermen on cooperative research demonstration projects
- ▶ This will serve as a pilot training and educational program to train fisherman to participate in wind energy fisheries programs that will be available to them in the future (Wind Energy is a clear part of the Governor's plan for the Long Island Region)
- ▶ Education and outreach will be provided to the fishing industry about why fisheries surveys are important in wind energy areas, as well as on the details of the current survey and the related telemetry survey



Timeline

CCE-Trawl Survey Proposed Timeline

