ROSA RESPONSIBLE OFFSHORE SCIENCE ALLIANCE

ROSA Advisory Council Meeting

June 17, 2021

Agenda

1:00	Welcome
1:05	ROSA Updates
1:10	Regional Fisheries Research Approach or Framework
1:40	Panel #1: Standardization of Fishing Gear Surveys
2:40	BREAK
2:50	Panel #2: Incorporating Fishermen's Ecological Knowledge
3:50	Summary of Meeting Outcomes and Next Steps
4:00	Adjourn

ROSA

ROSA Updates

Welcome ROSA Research Director, Mike Pol!

- Long history of working partnerships with commercial fishermen of the Northeast
- 22+ years at Mass. Division of Marine Fisheries working on understanding and modifying commercial fishing gears
- Working on OSW and fisheries since 2017
- Contact info: mike@rosascience.org/508-927-2817

Other ROSA Updates

- **ROSA Offshore Wind Project Monitoring Framework and Guidelines** published at the end of March 2021.
  - Available at: www.rosascience.org/resources
- **DOE Proposal** submitted June 4
  - Topic Area 2: Environmental Research, Validation of Tools and Methods, and Multi-Year Evaluation of Impacts of Offshore Wind Energy Development on Ecology of Commercially Fished Species (up to 5 years & $3.5 million)
- **ROSA RFP:** Commercial and Recreational Fisheries Resource Data Production, Storage, and Accessibility- in progress
- **Baseline data survey**

Baseline Data Survey

- **November 23, 2020-** ROSA Advisory Council members identified baseline data as the priority focus area through pooling at Advisory Council meeting
- **March 5, 2021-** Breakout discussions at ROSA Advisory Council meeting explored specific activities that ROSA might undertake to address baseline needs that would be: 1) practical and tractable; 2) achievable within two to three years; 3) Implementable quickly; and, 4) useful to inform future efforts.
- Following the meeting, ROSA polled members of the Advisory Council, Research Advisors, and Board of Directors to identify key priorities and refine the outcomes of the breakout discussions.
- The following were identified as **priority activities**:
  - Data aggregation (score = 4.23 with 5 = extremely important)
  - Regional Scale Learning Objectives (score = 4.08; next topic of discussion)
  - Gear Standardization (score = 4.03; panel #1)
  - Fishermen's Ecological Knowledge (score = 3.92; panel #2)

Regional Fisheries Research Approach or Framework

Regional Fisheries Approach or Framework

- *Brief introduction:*
  - Lyndie Hice-Dunton, ROSA
- *Description of Need*:
  - Michael Sissenwine, NEFMC
  - Lisa Methratta, NMFS
  - Morgan Brunbauer, NYSERDA
- *Building from the Synthesis of the Science*:
  - Fiona Hogan, RODA
- *Building from relevant State of the Science work*:
  - Morgan Brunbauer, NYSERDA
- Discussion and Next Steps

Making a science program more than a collection of projects

By

Michael Sissenwine

New England Fishery Management Council Member

Former Director of Scientific Programs, National Marine Fisheries Service

Presentation at

ROSA Advisory Council Meeting

June 17, 2021

The Challenge
(from ROSA website)

With wind projects spanning multiple states and many organizations embarking on research, a coordinated approach is needed to ensure that credible research is developed and shared.

Is Credibility and Coordination Enough?

- Credibility should be a minimum standard, and coordination avoids redundancy, shares capabilities, and achieves efficiency.

- But, the real challenge to produce scientific information that is used!

- Producing useful scientific information to address complex problems usually requires a scientific program--more than a collection of projects.

Mission Oriented Research Program

A collection of scientific projects designed to provide information users want that is:

- Complete- All the pieces that are needed,
- Properly timed or sequenced,
- Balanced,
- flexible,
- Efficient.

As determined by model testing and peer review

Process for Designing A Mission Oriented Program

- Conceptual framework for how wind farms effect ecosystems,
- How these effects translate into impacts,
- Which impacts are most important (i.e., actionable),
- Measures and standards to judge the magnitude of the impacts,
- Elements of a realistic scientific program (i.e., is it likely to be successful?) to assess impacts relative to standards,
- Priority setting and budgeting (since there will not be enough resources to do it all,certainly not all at once),
- Data management including user-friendly information products to assist decision making, and
- Performance review.

A Program Plan Isn't Enough!

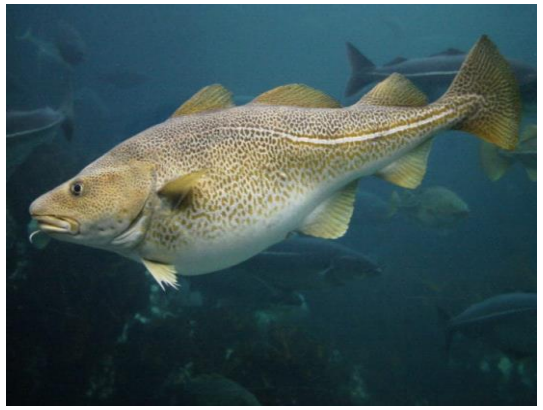
Need shared processes for funding decisions by States, Federal Agencies, Developers and other funders, such that funding is:

- Complete- All the pieces that are needed,
- Properly timed or sequenced,
- Balanced,
- flexible,
- Efficient.

A Regional Framework for Research and Monitoring at Offshore Wind Farms: Challenges & Opportunities

Elizabeth T. Methratta
IBSS Corp. in support of
Northeast Fisheries Science Center

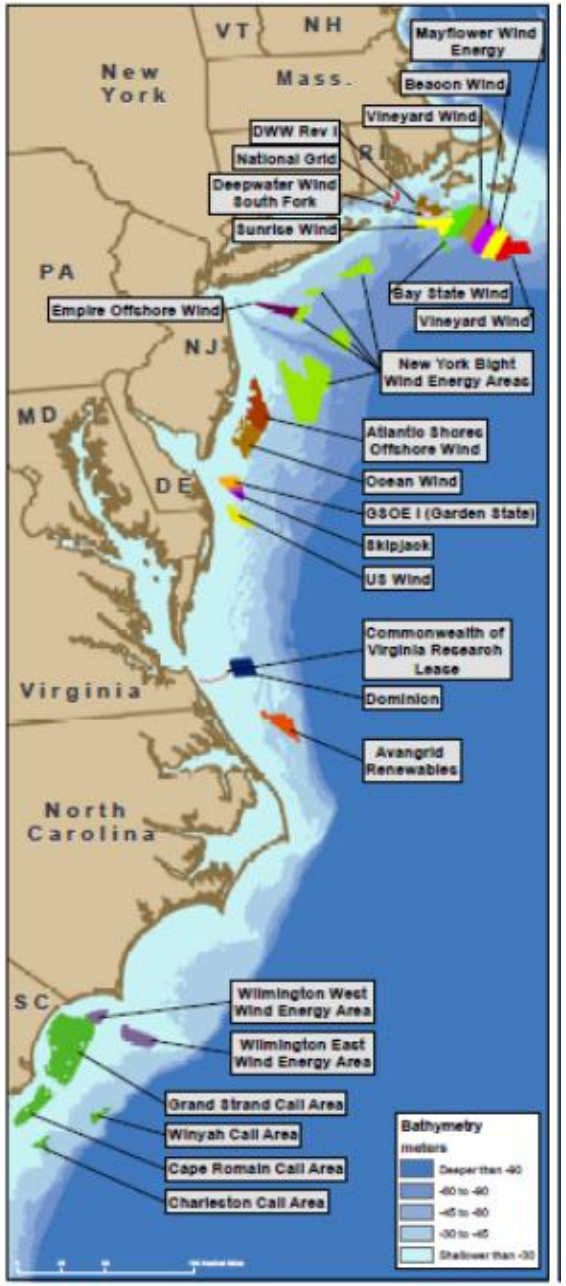
June 17, 2021
ROSA Advisory Council Meeting



Challenge #1: Many Wind Projects, Many Questions

- 17 active commercial leases & 1 active research lease in the U.S. Atlantic
- The “DRIP” scenario: “Data-Rich, Information-Poor” (Wilding et al., 2017)

Opportunity Afforded by a Regional Framework:
Consistency, comparability, and congruency in the data across wind projects



Contact Information

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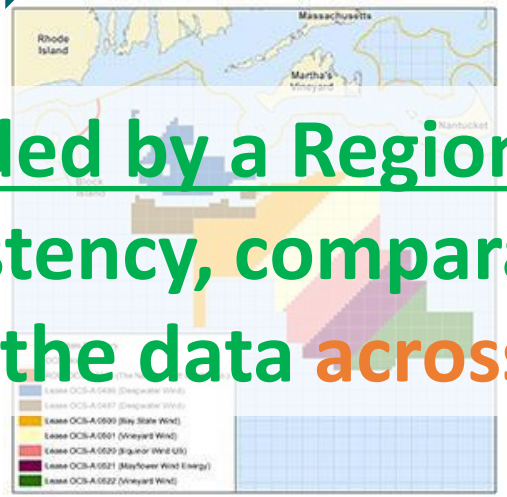
boem.gov/Renewable-Energy/

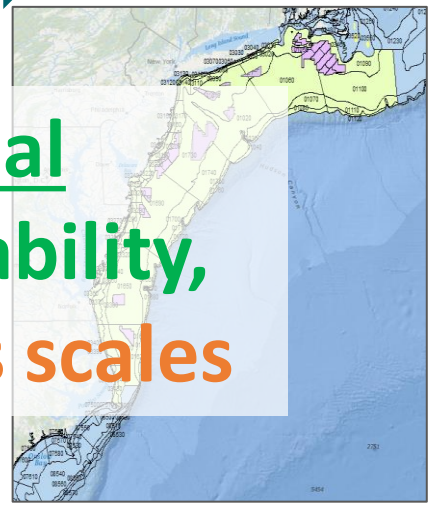
Map Date: 3/29/2021

Challenge #2: Multiple Spatial Scales

- Need to be able to integrate data collected across multiple spatial scales

Within-Project → Whole Project → Region → Ecosystem



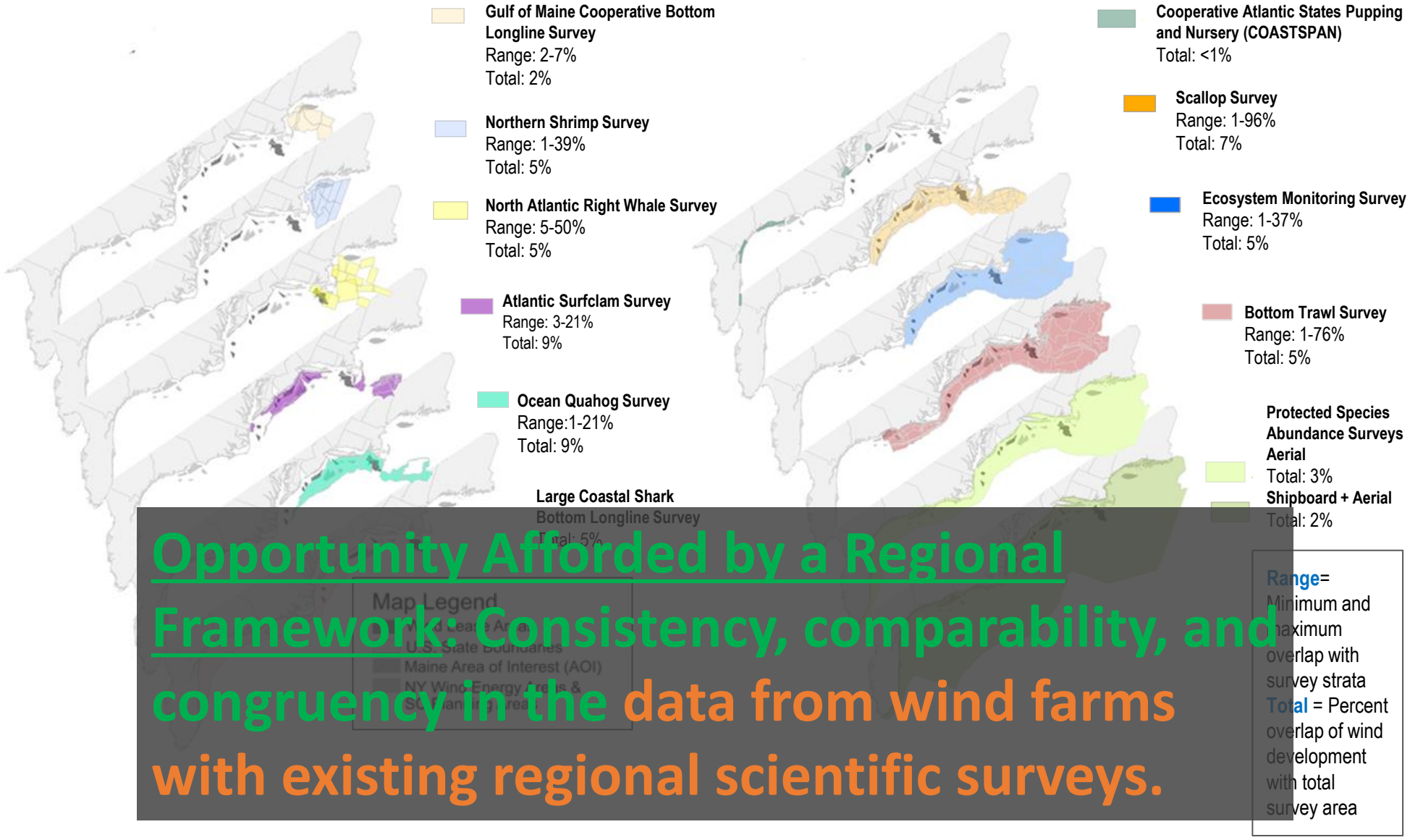


Opportunity Afforded by a Regional Framework: Consistency, comparability, and congruency in the data across scales

Most of our information is from here…

…but we need to integrate this with information from here

Challenge #3: Reduction in knowledge and certainty about ecosystem status & function



Opportunity Afforded by a Regional Framework. Consistency, comparability, and congruency in the data from wind farms with existing regional scientific surveys.

A Regional Framework Will Set the Stage to Address these 3 Challenges by Establishing Data Consistency, Comparability, and Congruency

- Clearly define the questions and where they are to be asked
- Use standardized sampling methodologies and modalities across wind farms within a region that are calibrated across projects
- Calibrate sampling methodology and modalities at wind farms with those of regional scientific surveys

Panel #1: Standardization of Fishing Gear Surveys

Standardization of Fishing Gear Surveys

- *Goal:* Support standardization of consistent and appropriate fishing gear to collect baseline and monitoring data

- *Brief introduction:*
  - Mike Pol, ROSA

- *Panel*:
  - Robert Ruhle, F/V Darana R.
  - Kevin Wark, Endeavor Fisheries
  - Anna Mercer, CRB/NEFSC/NOAA
  - Phil Politis, ESB/NEFSC/NOAA

- *On deck:*
  - Terry Alexander, F/V Jocka

- Discussion and Next Steps

BREAK

Back @3:10 ET

Panel #2: Making Full Use of Fishermen's Input, Data, and Ecological Knowledge

Panel #2: Making Full Use of Fishermen's Input, Data, and Ecological Knowledge

- *Goal:* Identify specific and implementable ways that fishermen's data and knowledge can contribute to and be integrated into various kinds of offshore wind research. How do we define, prioritize and integrate fishermen's ecological knowledge?
- *Moderator*
  - Patrick Field, CBI
- *Panelists*
  - Madeleine Hall-Arber, MIT Sea Grant (retired)
  - Jeff Kaelin, Lund's Fisheries
  - Jeff Kneebone, New England Aquarium
  - Eric Powell, University of Southern Mississippi
  - Sarah Schumann, Shining Sea Fisheries Consulting
- *Discussion and Next Steps*

ROSA

CONSIDERING ECOLOGICAL KNOWLEDGE

Madeleine Hall-Arber, Anthropologist
MIT Sea Grant Program (retired)

TEK, LEK, FEK: DIFFERENCES?

- TEK = Traditional Ecological Knowledge
  - Usually reserved for Indigenous/Tribal People's knowledge
- LEK = Local Ecological Knowledge
  - Community information based on frequent use/familiarity with specific geographic areas
- FEK = Fishermen's Ecological Knowledge
  - Information fishermen accumulate over time, especially through daily interaction, supplemented with knowledge passed on by previous generations and fellow fishermen

GATHERING & USING FEK

- NOAA Fisheries advice on collecting TEK applies to FEK
  - Identifying and avoiding risks of negative consequences ("Cause no harm")
    - Mutual benefit--Acceptable use of info
    - Respect, honesty, accountability, equity & empowerment
    - Ongoing two-way communication
    - Unintended consequences dealt with
  - Best collected by experienced social scientist
    - Dedicated research project, then on-going information gathering

WHY BOTHER?

- Critical to have information that is accurate but also trusted!
  - Reduces conflicts
  - Mutual decision-making leads to compliance with agreements
  - Reveals differences in perspectives
- FEK may forewarn of ecological change or even unknowns
- Challenge for the wind farms:
  - LEK, TEK, FEK adapts to change—useful in adaptive management of fisheries, for example, but more difficult when permanent structures are being designed

Fisheries Knowledge Trust - Herring & Mackerel Fleet Pilot Project

An industry-owned effort to bring fishermen's knowledge into the science and management process.
The trust provides a secure environment in which approved analysts can access proprietary data and insights from fishermen to develop products that improve our understanding of marine environments

Timeline:
March 2016 – Manderson & Pessutti modeling mackerel preferred habitat with FEK from Cape May trawlers
December 2019 – Manderson, Jacobs, Hogan, Hawkins meeting on developing FKT products related to wind
January 2020 – Lund's/Loper Bright (Enterprise & Retriever) data requests to NMFS: VMS/VTR/Observer & Study Fleet
June 2020 – FKT/RODA webinar – Overview for Herring Fleet – data request from other vessels/companies solicited
October 2020 – Project leads (Kaelin, O'Neill, Tooley) and Advisors (Boelke, Gartland, Mercer, Rhule) identified / FKT Herring-Mackerel Project Questionnaire distributed (results not yet available)
November 2020 – FKT/NEFSC/GARFO data requests, processing and data analysis codes being revised & coordinated
January / February 2021 – Project Report to be developed.
11 vessels, 7 companies with completed data requests: Challenger & Endeavor, Darana R, Dyrsten & Flicka, Osprey, Providian, Enterprise & Retriever

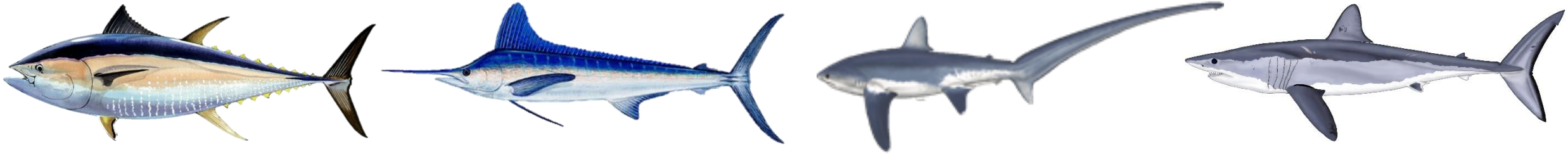
LUND'S FISHERIES
Wild caught product of USA

Jeff Kaelin – Director of Sustainability and Government Relations
ROSA Advisory Council, June 17, 2021

Quantifying Highly Migratory Species Recreational Fishing Effort

- HMS are the target of the largest recreational fishery that exists in offshore waters of southern New England
- Popular recreational fishing 'spots' fall within wind energy areas
- Limited data on recreational effort of HMS in the region (Large Pelagics Survey, MRIP)
- No previous attempts to synthesize available data to document HMS fishing effort in wind energy areas

- Part 1: Survey recreational anglers and charterboat captains to characterize recent effort (past 5 years)
  - Where they're fishing and how much they're fishing there in a typical year
  - What they're fishing for
  - How they're fishing
- Part 2: Mine and analyze existing fisheries-dependent data to examine…
  - Spatial and temporal extent of HMS fishing effort by species or species group
  - Better define where species exist throughout the wind energy area
- Synthesize all data to achieve a more comprehensive assessment of baseline recreational HMS effort



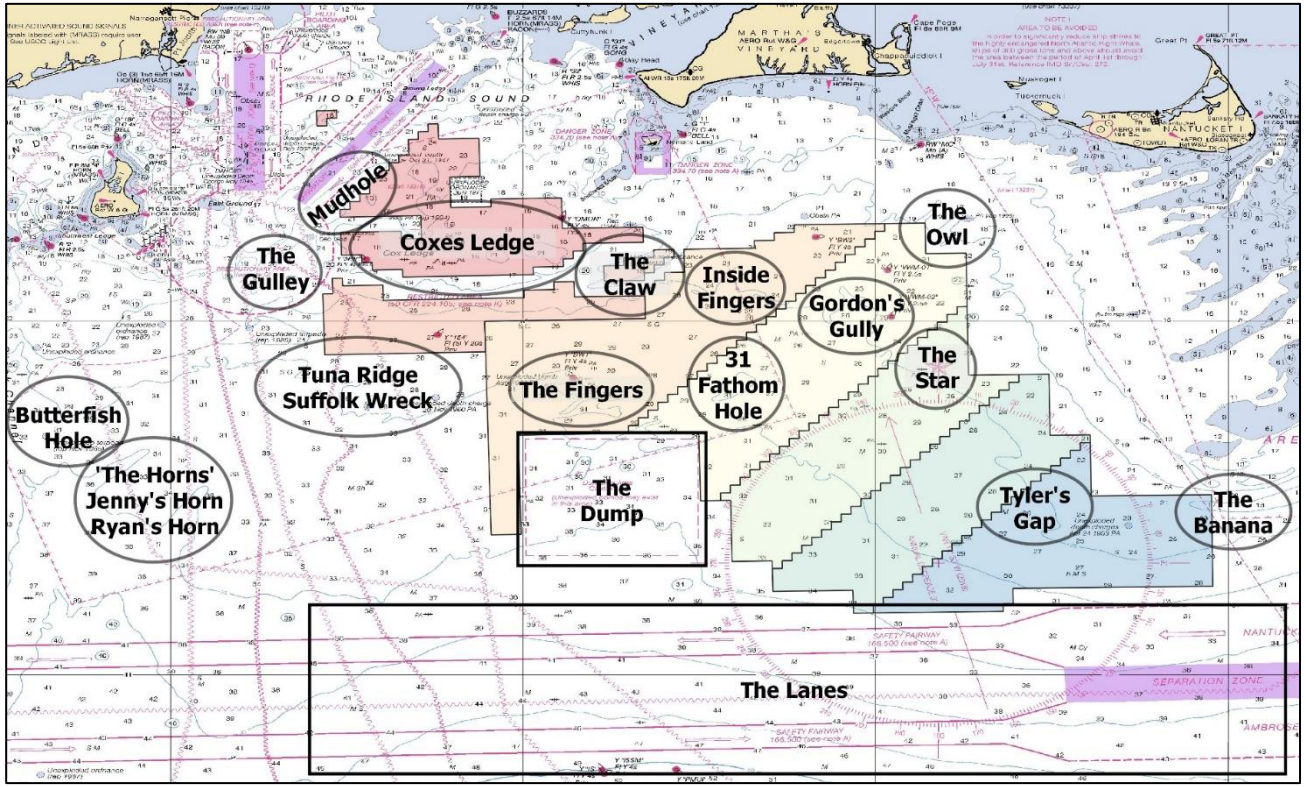
Part 1: Survey of Recreational Fishermen

Questions:

1) Where do you fish and how many days do you fish there in a typical year?
2) What species do you typically target?
3) What fishing methods do you use to target those species?
4) Are you a private angler or charterboat captain?

Online survey: August 23, 2019 to March 15, 2020

- Advertised through
  - NEAq Social Media
  - Online discussion forums
  - On the Water magazine
  - Fishermen's social media
  - Vineyard Wind website
  - Email correspondence



Survey Results: Baseline effort (2015 – 2019)

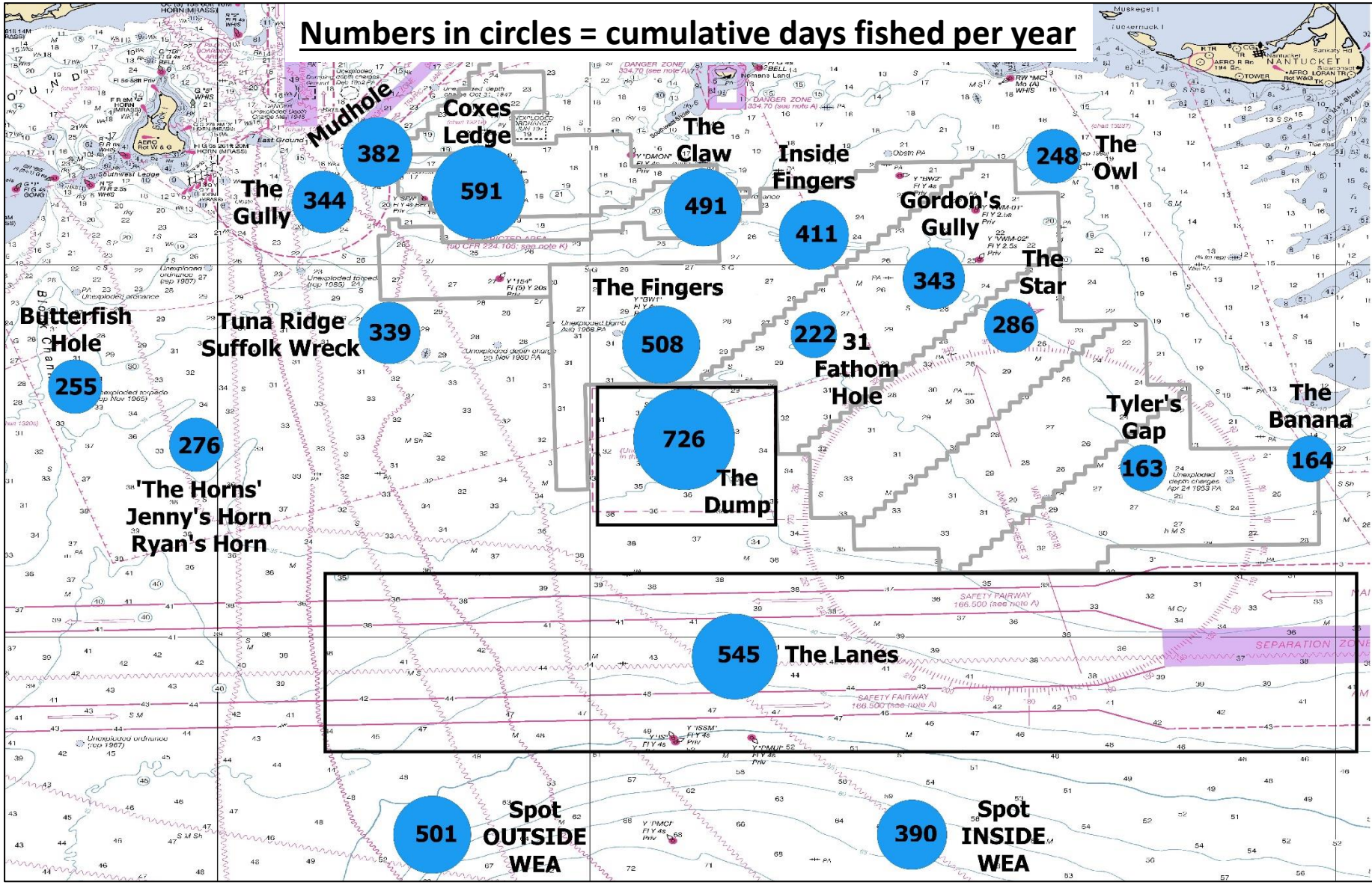
171 survey respondents
136 private anglers
34 charter/headboat captains

Private anglers:
Average = 37 ± 36 trips per year

Charter:
Average = 65 ± 52 trips per year

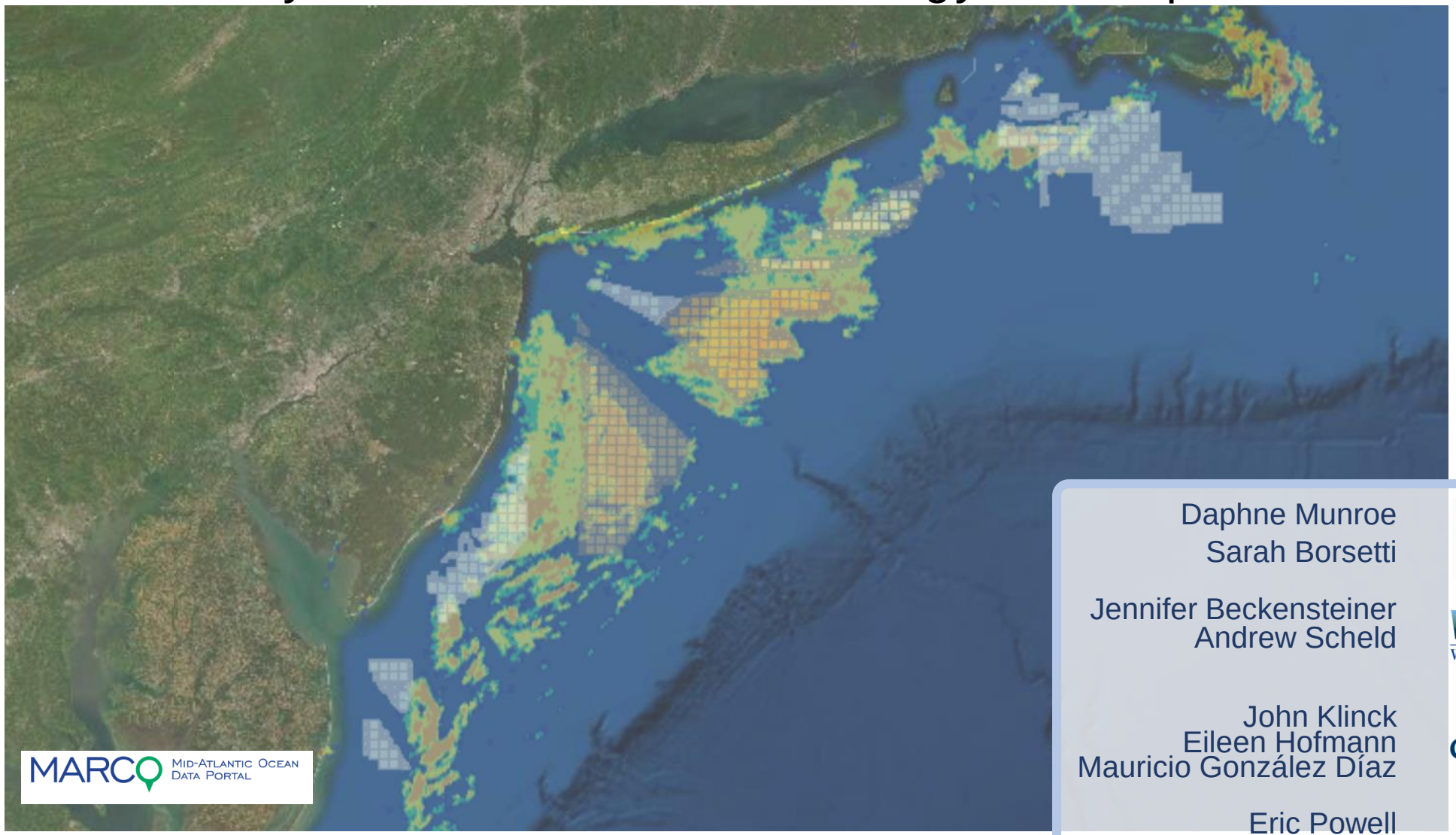
Most popular target species
Bluefin tuna, mahi mahi

Most popular fishing method
Trolling and drifting



Full results at:
https://www.vineyardwind.com/fisheries-surveys-all-2020/tag/HMS

Assessing economic impacts to the US commercial surfclam fishing industry from offshore wind energy development



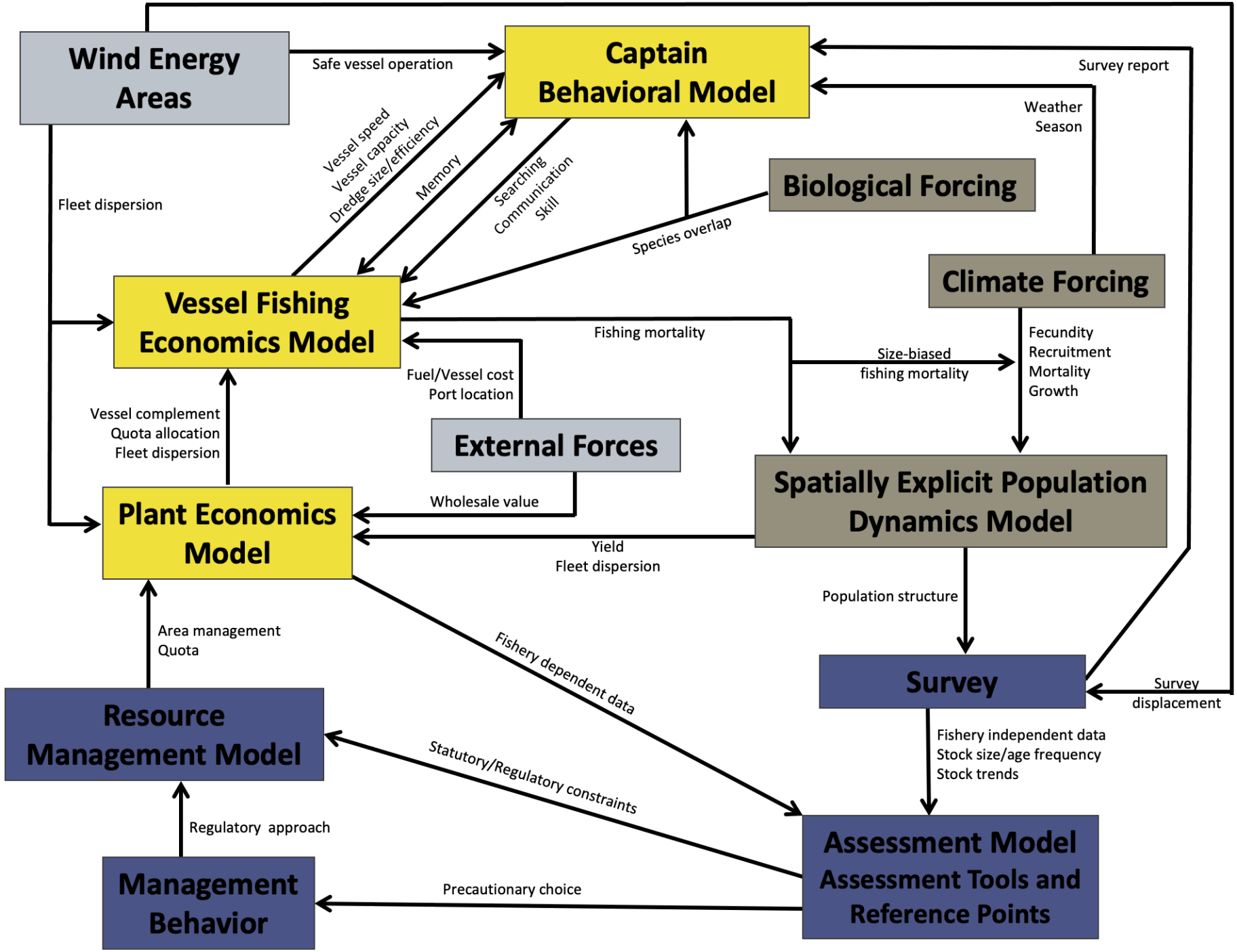
Daphne Munroe
Sarah Borsetti

Jennifer Beckensteiner
Andrew Scheld

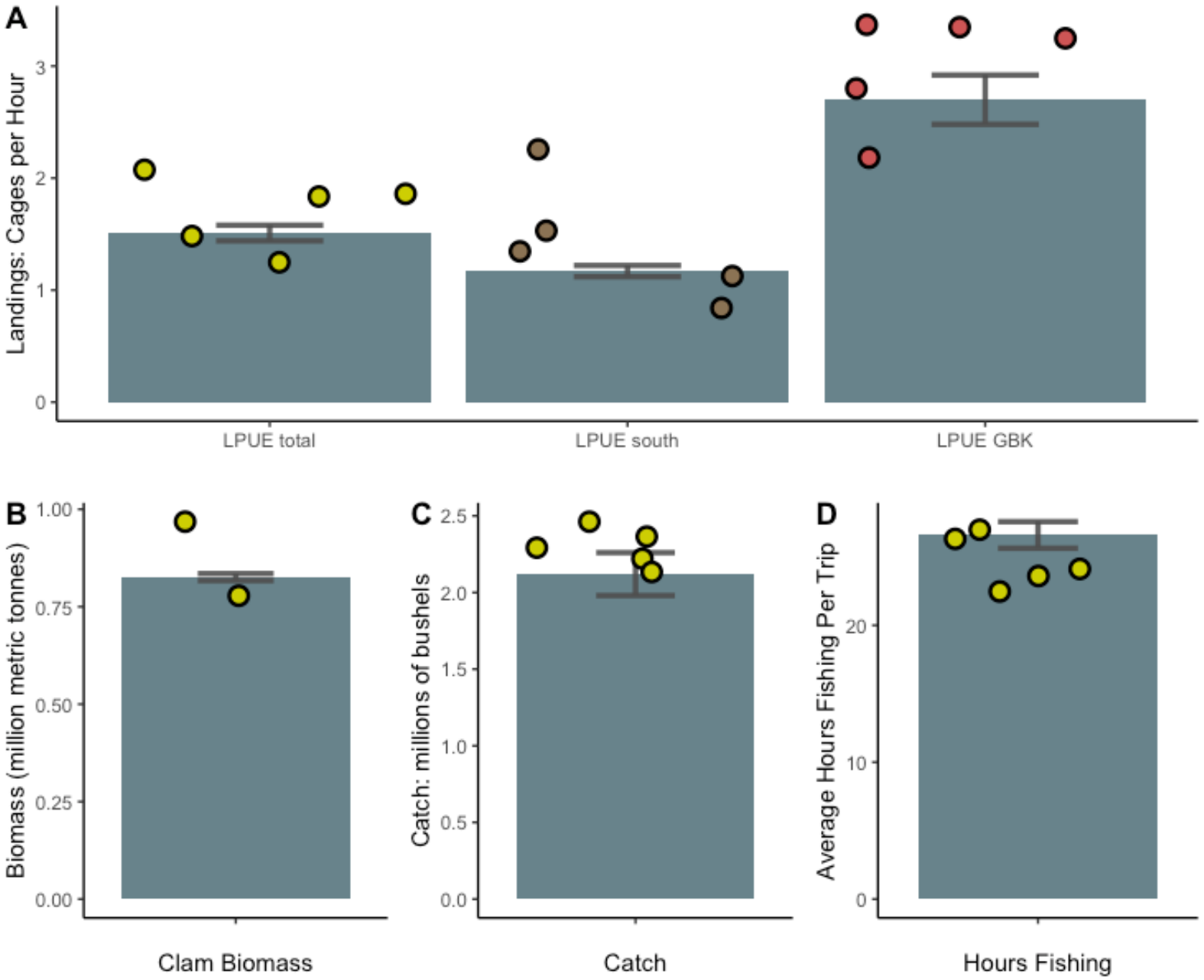
John Klinck
Eileen Hofmann
Mauricio González Díaz

Eric Powell
Laura Solinger

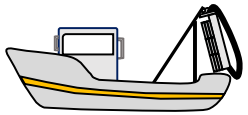
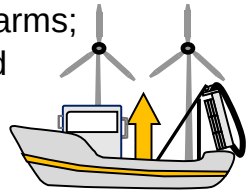
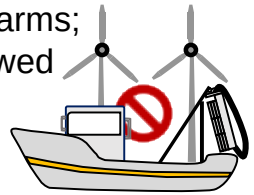
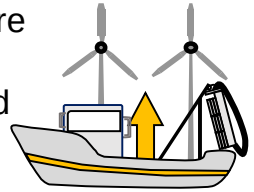
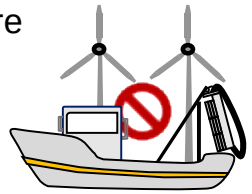
Rutgers School of Environmental and Biological Sciences
VIMS William & Mary Virginia Institute of Marine Science
Old Dominion University
The University of Southern Mississippi

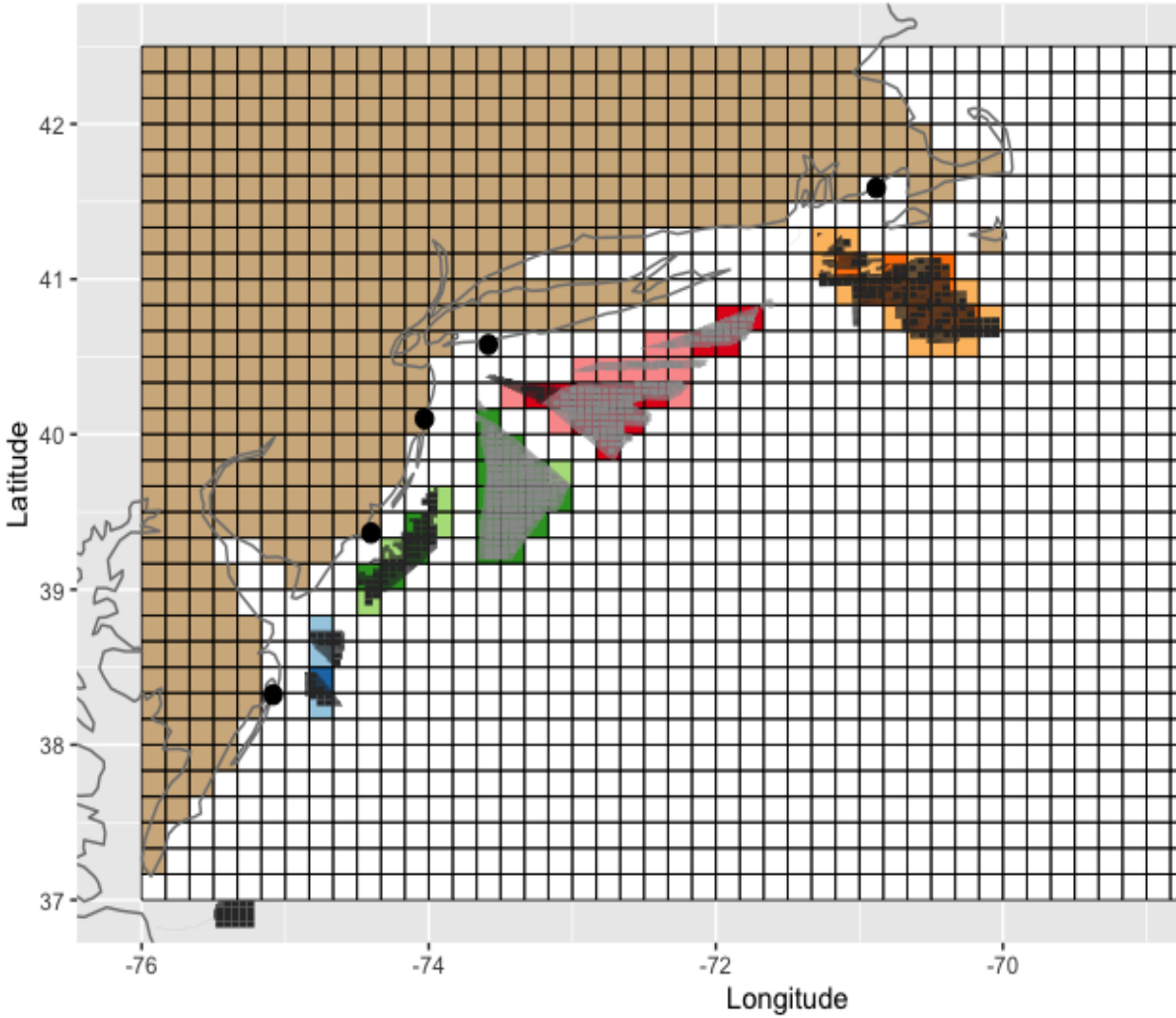

Wind Energy Areas
Safe vessel operation
Captain Behavioral Model
Survey report
Weather
Season
Vessel speed
Vessel capacity
Dredge size/efficiency
Memory
Searching
Communication
Skill
Biological Forcing
Fleet dispersion
Species overlap
Climate Forcing
Vessel Fishing Economics Model
Fishing mortality
Size-biased fishing mortality
Fecundity
Recruitment
Mortality
Growth
Fuel/Vessel cost
Port location
Vessel complement
Quota allocation
Fleet dispersion
External Forces
Spatially Explicit Population Dynamics Model
Plant Economics Model
Wholesale value
Yield
Fleet dispersion
Population structure
Area management
Quota
Fishery dependent data
Survey
Survey displacement
Resource Management Model
Statutory/Regulatory constraints
Fishery independent data
Stock size/age frequency
Stock trends
Regulatory approach
Assessment Model
Assessment Tools and Reference Points
Management Behavior
Precautionary choice

Model Validated with NMFS Survey Data



Model Description

Wind energy scenario	*Description*
W00	Status quo; no wind farms 
W1T	Current wind farms; Transit allowed  CURRENT LEASES
W1N	Current wind farms; No transit allowed  CURRENT LEASES
W2T	Current & future wind farms; Transit allowed  CURRENT LEASES; FUTURE LEASES
W2N	Current & future wind farms; No transit allowed  CURRENT LEASES; FUTURE LEASES



FEK: A Missing Piece of the Offshore Wind Puzzle

Sarah Schumann, Shining Seas Fisheries Consulting

Summary & Next Steps

- **Possible Future Agenda Items:**
  - ROSA's role in understanding and communicating effects of EMF
  - Socioeconomics
  - Further discussion on gear standardization
  - Further discussion of fishermen's ecological knowledge
  - Improving understanding of requirements for fishing vessels serving as vessels for developer surveys (cooperative research)
  - Other topics

- **~~I~~ 9 month check in via a Survey**
  - First Advisory Council meeting was in September 2020; feedback on:

    -Communications

    -Overall role of ROSA

    -Meeting frequency

    -Meeting content and outcomes