Fisheries in a New Era of Offshore Wind Development

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Outline

• Rapid Expansion of Offshore Wind
• Interactions with NOAA Fisheries Scientific Mission
• Key Challenges & Opportunities
• Conclusions

https://www.nefsc.noaa.gov/rcb/photogallery/scenic-ocean.html
Rapid Expansion of Offshore Wind

• Co-existence of wind development, fisheries, and protected species

• This is a “rest of our careers” issue

• We need to work together to be successful
Regional Wind Team

Team composition:

- Northeast Fisheries Science Center
- Greater Atlantic Regional Fisheries Office
- NOAA-Headquarters
- Fisheries Management Councils & Commission

“Other duties as assigned”
Regional Wind Team

Wind Team Leads

Andy Lipsky - NEFSC
Sue Tuxbury - GARFO
Doug Christel - GARFO

Wind Team includes numerous NEFSC, GARFO, HQ, NEFMC, MAFMC, and ASMFC staff
Rapid Expansion of Offshore Wind

BOEM is Lead Federal Agency

• 15 leases in the Atlantic
• Upcoming lease sale in NY
• Planning Activities in NC & SC, and recently MA, NH & ME
• Planned Leasing Activities on West Coast and Hawaii

Not just a Northeast Issue
Rapid Expansion of Offshore Wind

- Planned projects extend to 2027 (20+ year operations)
- Does not include all current leases nor new leases
- Does not include areas where moored technology would be used
- “Rest of our careers”

20+ operation period 2047 and beyond
Rapid Expansion of Offshore Wind

NMFS Provides Advice to BOEM

- Concurrence under NEPA and EIS Review
- MMPA Incidental Take Authorization
- ESA Section 7 Consultation
- EFH Consultation
- National Wildlife Coordination Act

EO 13807 - “One Federal Decision” policy
2 year timeline
Department of Interior Order
1.5 year timeline
Rapid Expansion of Offshore Wind

Wind development interacts with all NOAA Fisheries Interests

• Fisheries
• Fishing Communities
• Marine Mammals
• Endangered Species
• Essential Fish Habitat
• Aquaculture
• Marine Ecosystems
Interactions w/ NOAA Fisheries Mission

Baseline Studies (BOEM & NMFS)

- Fishing revenue studies
- Habitat Characterization
- Marine Mammal Surveys (AMAPPs)
- Seabird Surveys
- Sound studies
- 50+ years of survey effort
Interactions w/ NOAA Fisheries Mission

Construction (soon) & Decommissioning (20+ yrs later)

- Seafloor Disturbance
- Sediment Suspension and Deposition
- Dredging & Cabling
- Noise & Vessel Traffic
- Lighting
- Displacement of Fishing Effort
Interactions w/ NOAA Fisheries Mission

Operations (for 20+ yrs)

- Seafloor & Water Column Disturbance
- Habitat Conversion
- Noise & Vessel Traffic
- Electromagnetic Fields
- Lighting & Vessel Safety

[Image: https://earthobservatory.nasa.gov/images/89063/offshore-wind-farms-make-wakes]
Interactions w/ NOAA Fisheries Mission

Construction, Operation, Deconstruction

- Cabling both inside & outside of lease areas
- Understanding of electromagnetic fields

Interactions w/ NOAA Fisheries Mission

Fisheries Interactions

• Exclusion of some fishing activity
• Creating new habitat (species & ecosystem-level affects)
• Biological effects of noise, electromagnetic fields, etc

Image collected under MMPA Research permit number 775-1875; Photo Credit: NOAA/NEFSC/Christin Khan


Interactions w/ NOAA Fisheries Mission

Marine Mammal Interactions

- Exclusion / attraction
- Behavior - feeding, socializing, nursing
- Stress (noise)
- Ecosystem changes (oceanography, prey, habitat)


Image collected under MMPA Research permit number 775-1875; Photo Credit: NOAA/NEFSC/Christin Khan
Interactions w/ NOAA Fisheries Mission

Cumulative Impacts

- Multiple projects constructed over next 7+ years
- Operations over next 27+ years
- What are cumulative ecosystem effects?
- How do we evaluate?
What are the effects of construction, operation, and decommissioning on fisheries, protected species, aquaculture, habitats, and ecosystems (including human communities)?

Can these effects be mitigated?

How will components of the complex socio-ecological system adapt?

http://www.thecolledge.org/jennys-blog/the-scientific-method-the-question
Interactions w/ NOAA Fisheries Mission

Operations (20 years)

• Displacement of Fishing Effort
• Displacement of Survey Effort
  - shipbased & aerial (50+ year time series)
Interactions w/ NOAA Fisheries Mission

Displacement of Survey Effort

- Random-stratified design
- Ship and aircraft line transects
- Habitat effects of wind-farms

Bigelow-Albatross Calibration magnified x1, x5, x10, x50 ??

“~60% of Southern New England Survey Blocks for NARW Aerial Surveys will be impacted”

NOAA scientist: Offshore wind projects will likely affect viability of fishery surveys

By Chris Chase
April 19, 2019

Survey Issues

- Outside wind energy area
- Inside wind energy area
- Calibration / Detectability
- Statistical survey design
- Assessments

- Initiated Center WG - first order evaluation
- Will work with partners and stakeholders to address
Key Challenges & Opportunities

- Committing staff without dedicated funding (some temp funding)
- Wind team
- Regulatory review
- Unable to be responsive to science requests
- Doing best we can and will continue

Key Challenges & Opportunities

- Pace & scale of development
- Effectively engaging NOAA Fisheries stakeholders in the process
- Addressing science questions (e.g., fisheries, protected species, ocean ecosystems)
Key Challenges & Opportunities

- How will floating wind technology change map of wind development?
- What knowledge is transferrable for pile to floating developments? Scientific, regulatory, design, …

Maine Aqua Ventus floating wind farm gets green light

Published on June 24, 2019 by Dave Kovaleski
Joint MOU NOAA, BOEM, and RODA (Responsible Offshore Development Association)

“NOAA/NMFS, BOEM, and RODA (Parties) have a mutual interest in the responsible planning, siting, and development of offshore wind power ... in a way that considered impacts to the fishing industry, fisheries resources protected resources, and the marine habitats upon which fishery resources depend”
Key Challenges & Opportunities

Responsible Offshore Science Alliance
How do we work together?
fishing industry, wind developers, states, feds, universities, energy companies, others

Current State

Regional Framework
Key Challenges & Opportunities

• Block Island Experience

Federal regulators, fishermen agree to consult on offshore wind

By Kirk Moore on MARCH 26, 2019

The Rhode Island-based fishing vessel Virginia Maine near the Block Island Wind Farm. Deepwater Wind photo.

Key Challenges & Opportunities

- European Experience (20+ years)
Key Challenges & Opportunities

- New fishing methods and opportunities (hook-and-line; recreational)
- New management approaches
- Research and science opportunities (BACI/BAG designs, ocean observing)

http://www.anglersforoffshorewind.org/blog
Key Challenges & Opportunities

- Ecosystem Based Management / Ecosystem Based Fisheries Management
- Integrated Ecosystem Assessments
Conclusions

- “Rest of our careers”
- Co-existence
- Fisheries and fishing communities
- Protected species
- Aquaculture
- Habitats & ecosystems
- Renewable energy

How to include in our science / how to conduct our science?

https://www.sciencemag.org/careers/2017/09/research-your-career-options-well-graduation
Conclusions

- Opportunity to collaborate
- Opportunity to develop regional science frameworks
- Opportunity to implement coexistence through Ecosystem Based Management

https://www.nefsc.noaa.gov/ecosys/
More information

Offshore Wind in the Northeast Region

This webpage is collaboratively managed by the Mid-Atlantic and New England Fishery Management Councils

New England Fishery Management Council

http://www.mafmc.org/northeast-offshore-wind

Mid-Atlantic Fishery Management Council