



**NOAA
FISHERIES**



BOEM
Bureau of Ocean Energy
Management

Fisheries and Offshore Wind Energy: Synthesis of the Science

Report Synopsis

The Fisheries and Offshore Wind Energy: Synthesis of the Science project consists of two integrated components, **a virtual workshop** and **a published report**, which together have the overarching purpose of enhancing regional and national understanding of existing science and data gaps related to offshore wind interactions with fish and fisheries.

This joint effort brings together the National Oceanic and Atmospheric Administration (NOAA) Fisheries, the Bureau of Ocean Energy Management (BOEM), and the Responsible Offshore Development Alliance (RODA).

PROJECT GOAL:

Through a collaborative process co-designed by fishermen, wind developers, and our state, academic, and federal partners, this effort will advance the Responsible Offshore Science Alliance's (ROSA) regional science efforts, by describing the current state of science, existing research and monitoring programs, data gaps, and solicit input into priority research questions.

Report Goals

The SOS report will be approached with the following goals:

1. Synthesize the existing knowledge on ecosystem, socio-economic, and fisheries management/data collection effects, and methods/approaches for research and monitoring, in order to examine how fisheries and fisheries resources interact with offshore wind;
2. Identify gaps in knowledge and make specific recommendations for future research needs to enhance our understanding of these interactions; and,
3. Establish a shared body of knowledge for industry, regulators, and fisheries managers to draw from.

Each topic area should be addressed through the fisheries dimension, to the extent applicable. Authors/section leads should engage with the fishing industry, and other affected stakeholders during the front end of the drafting process.

The focus is on synthesizing existing knowledge and outlining the path forward. This effort is not merely advisory, but to aid diverse parties in co-producing knowledge, including potential future research needs and priorities.

Draft Report Outline

Section 1: Ecosystem Effects

- A. Benthic Habitat Modification
 - a. Bottom Sediment Modification - carbon flow
 - b. Impacted Connectivity
 - c. Impacted Habitat Suitability
- B. Physical Habitat Modification
 - a. Thermal habitat
 - b. Sound and vibration
 - c. EMF
 - d. Vessel traffic (strike risk/congestion)
- C. Oceanographic Processes
 - a. Horizontal flow and turbulence
 - b. Vertical mixing and stratification
 - i. Coastal upwelling
 - ii. Mid Atlantic Cold Pool
 - c. Scour and sedimentation
 - d. Ocean - Atmosphere interactions
 - i. Wind wake effects
 - ii. Marine wind
- D. Ecosystem Synthesis
 - a. Phytoplankton and zooplankton
 - b. Finfish (demersal, small pelagic, and large pelagic)
 - c. Shellfish & crustaceans
 - d. Community interactions

Section 2: Fisheries Socio-economics

- A. Fishing Operation Effects
 - a. Safety
 - b. Navigational and operational risk
 - c. Gear loss
 - d. Vessel traffic
 - e. Change in access to resource
 - f. Spatial competition
 - g. Ports/infrastructure
- B. Economic Effects:
 - a. Displacement/redistribution

- b. Changes in CPUE
- c. Product quality effects; Insurance
- d. Transit time
- e. Days-at-Sea effects
- f. Bycatch composition shifts
- g. Time to market
- h. Crew/fuel costs
- i. Cost of moorage
- j. Fishing community support business effects
- C. Social & Cultural Effects
 - a. Fishing communities
 - b. Coastal communities
 - c. Demographics
 - d. Attitudes & perceptions
 - e. Social relationships and networks
 - f. socio-cultural values
 - g. Industry support business socio-cultural effects
- D. Cumulative Impacts/Resilience & Adaptive Capacity
 - a. Ability to develop new fisheries
 - b. Stock rebuilding effects
 - c. Barriers to new entrants
 - d. Stakeholder Engagement/OSW-related engagement
 - e. Social License to Operate

Section 3: Fisheries Management & Data Collection

- A. Fishery Dependent Data Collections
 - a. Fisheries dependent data sources -
 - i. VTR
 - ii. Observers
 - iii. BioSamples
 - iv. Study Fleets
 - v. Fisheries Knowledge Trust
- B. Fishery Independent Data Collections
 - a. Federal & State surveys (existing and new/adaptive approaches and methods)
- C. Impacts to Management
 - a. Non-quota based restrictions
 - b. FMPs
 - c. Scientific Advice

Section 4: Methods and Approaches

- A. Cumulative Impact Assessment
- B. Integrated Ecosystem Assessment
- C. Monitoring Design and Methods

Section 5: Regional Science Planning