ROSA Responsible Offshore Science Alliance | FishFORWRD Fish and Fisheries OffshoRe Wind Research Database

This document provides the list of Summarized Research Needs (SRNs) identified through ROSA's Research Gaps Analysis. These SRNs reflect cross-sector priorities related to offshore wind and fisheries and were developed by synthesizing hundreds of detailed research needs. Ongoing and completed research and monitoring projects have been mapped to the SRNs they address through a peer-reviewed Research Gaps Analysis available on FishFORWRD. The community is encouraged to use these SRNs, and the corresponding Gaps Analysis results, to prioritize topic areas for funding, align and enhance existing research efforts, and guide the development of new projects. More information and the Research Gaps Analysis Final Report can be found here: https://www.rosascience.org/resources/fishforwrd/

Research Category	Summarized Research Need
Cumulative Impacts & Fisheries Management Implications *This category encompasses two related, but distinct research needs:* *(1) understanding the effects of multiple offshore wind projects accumulating across spatial and temporal scales. This includes consideration of how offshore wind effects interact with other natural and anthropogenic ongoing pressures such as climate change, existing fisheries management measures, and broader ocean-use constraints.* *and* *(2) translating understanding of offshore wind impacts into fisheries science and management decision making.*	Cumulative Impact Assessment Framework/Guidance
	Cumulative Impact Assessments
	Policy Alignment Across Ocean Sectors Relative to Offshore Wind Fisheries Science Objectives
	Priority Data Needs and Impacts for Stock Assessment
	Risk and Mitigation for Councils/Commissions

Data Management *Efforts to organize, store, manage, and/or create increased utility for offshore wind fisheries data for cumulative impacts assessments and fisheries management.*	Enhance Application of Fishery Dependent Data
	Centralized Database of Ongoing Research and Monitoring
	Enhance Data Governance
	Data Integration and Tool Building
Regional Resource Monitoring *The design and integration of monitoring systems that support long-term, regional-scale understanding of marine resources*	Design and Evaluate Strategies for Regional Scale Monitoring
	Data Integration Across Methods to Model Species Distribution and Movement
	Regional Acoustic Receiver Array
	Use of Monitoring to Evaluate Effectiveness of Mitigation Strategies
	Use of Historical Datasets to Generate Baselines
Species Distribution/Composition *Changes in target fish abundance, distribution, taxonomic composition, and or/behavior as a direct or indirect result of offshore wind energy development phases.*	Changes to Biological Indicators of Incidence, Local Abundance and Distribution, Habitat Suitability, and Community Structure
	Changes to Growth, Feeding, Reproduction, Recruitment, and Mortality
	Effects of Offshore Wind Development Phases on Spatial Behavior
Habitat Fragmentation/Modification *Physical and ecological changes to marine habitats associated with offshore wind infrastructure and activities, including changes to habitat size, composition, structure, connectivity, or function.*	Gradient of Change at Turbine/Farm Scale
	Artificial Reef Effect on Fish
	Decommissioning Effects
	Thermal Effects of Offshore Wind Infrastructure
	Local and Regional Changes to Ocean Hydrodynamics
	Larval Transport and Recruitment Effects
	Effects on Spawning Timing, Location, and Habitat Use
	Colonization of Non-Native and Invasive Species
	Changes in Trophic Interactions

Habitat Fragmentation/Modification (cont.) *Physical and ecological changes to marine habitats associated with offshore wind infrastructure and activities, including changes to habitat size, composition, structure, connectivity, or function.*	Changes to Light Conditions
	Effect of Artificial Substrate on Benthic and Epibenthic Community
	Turbine Spacing and Connectivity of Fish Communities
	Nature-Inclusive Design
	Baseline Benthic and Water Column Habitat
	Cable Installation Impacts
	Cable Protection Impacts
	Change in Water and Sediment Quality
	Effects of Boulder Relocation on Habitat
EMF *The effects of electromagnetic fields (EMF) on fisheries species and ecosystems, including interference with bioelectric and geomagnetic sensing marine organisms. EMF is generated by cables that carry electricity from and between energy sources, such as wind turbines to power stations.*	Characterization of EMF Exposures for OSW
	Characterization of EMF Effects for Fisheries Species
	Population, Community and Ecosystem-level EMF Impacts to Fisheries
	Ecological Risk Assessment Approaches, Methods and Models
Sound/Vibration Impacts *The effects of underwater sound and vibration (includes both sound pressure and particle motion) on fisheries species and ecosystems, including potential behavioral, physiological, and ecological responses. Sound and vibration are generated during offshore wind site characterization, construction, and operation and can be sensed by organisms using hearing, the lateral line in fishes, and/or depth regulating organs.*	Characterization of Sound Pressure, Motion and Seabed Vibration
	Effects of Offshore Wind Sound on Behavior and Physiology of Fish and Shellfish
	Alteration of Natural Soundscape
	Strategies for Mitigation from Sound and Vibration Impacts
	Population, Community and Ecosystem-level Impacts from Sound Pressure, Particle Motion and Seabed Vibration

Fisheries Engagement & Capacity Building *Methodology for bidirectional exchange of information between the commercial and/or recreational fishing communities, agency representatives, and offshore wind developers. Capacity building refers to the process of obtaining or improving the knowledge or skills needed to participate effectively in the offshore wind development process and/or understand science and management around fisheries and offshore wind.*	Strategies, Resources, and Mechanisms for Building Capacity Across Sectors
	Qualitative Analysis Informing Effective Fishery Stakeholder Engagement
	Local Ecological Knowledge Methodology Development and Integration
	Social Networking and Knowledge Sharing
Fishing Access *Changes to commercial and recreational fishing access and operation within and around offshore wind farms, including gear development to maintain access, safety considerations, displacement and/or changes in location and timing of commercial and recreational fishing efforts, and the topic of Fisheries Enhancement as a mitigation tool.*	Spatial and Temporal Change in Commercial and Recreational Fishing Behavior
	Spatial Operation Needs Within and Around Wind Farms
	Gear Modification, Fisheries Enhancement, and Other Fisheries Development to Allow Co-Use
	Fishing Interaction with Cable Protection Measures
	Impacts of Boulder Relocation on Fishing
	Navigation and Safety
Socioeconomic & Sociocultural Impact *Changes to the economic value of commercial and recreational fishing industries, effects to shoreside infrastructure, and social and cultural changes in fishing communities due to offshore wind development.*	Secondary and Tertiary Effects to Supply Chains and Supporting Businesses
	Marine Spatial Planning and Use Tradeoffs
	Approaches to, Data Inputs for, and Assessment of Compensatory Mitigation Programs
	Costs and Benefits Associated with Recreational Fishing
	Impacts on Commercial Fishermen's Occupational Structure, Labor Markets, and Workforce
	Methods for Evaluating Socioeconomic/Sociocultural Impact

Socioeconomic & Sociocultural Impact (cont.) *Changes to the economic value of commercial and recreational fishing industries, effects to shoreside infrastructure, and social and cultural changes in fishing communities due to offshore wind development.*	Impacts on Seafood Value, Marketability, and Quality
	Changes to Vessel Insurance Costs and Availability
	Offshore Wind Interaction with Fisheries Infrastructure in Ports
	Effects on Cultural Identity, Individual Well-Being, Place Attachment, and the Social Fabric of Fishing Communities.
	Fishing Community Environmental Justice Concerns
Survey Adaptation *Alteration or creation of new survey methodology to allow for fisheries data collection within/around offshore wind farms.*	Alternate and Advanced Technologies and Survey Techniques
	Impacts on Fisheries-Independent Surveys
	Development of Interim Provisional Survey Indices
	Project-Level Monitoring Data to Fill Regional Scientific Survey Data Needs
	New Fishery Observer Protocols to Address Questions