NOAA FISHERIES

Science Planning for Offshore Wind Development in the Southeastern United States and U. S. Caribbean

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NOAA Fisheries & SEFSC Missions

NOAA Fisheries is responsible for the stewardship of the nation's ocean resources and their habitats. We provide vital services for the nation, all backed by sound science and an ecosystem-based approach to management:

- Productive and sustainable fisheries
- Safe sources of seafood
- Recovery and conservation of protected resources
- Healthy ecosystems

https://www.fisheries.noaa.gov/about-us

The Southeast Fisheries Science Center provides the scientific advice and data needed to effectively manage the living marine resources of the Southeast region and Atlantic high seas.

https://www.fisheries.noaa.gov/about/southeast-fisheries-science-center

SEFSC Offshore Wind (OSW) Technical Team

Provide scientific expertise to address concerns surrounding trust resources and user groups related to offshore wind planning and development in the U.S. South Atlantic, Gulf of Mexico and Caribbean regions. Trust resources and associated natural and anthropogenic considerations include:

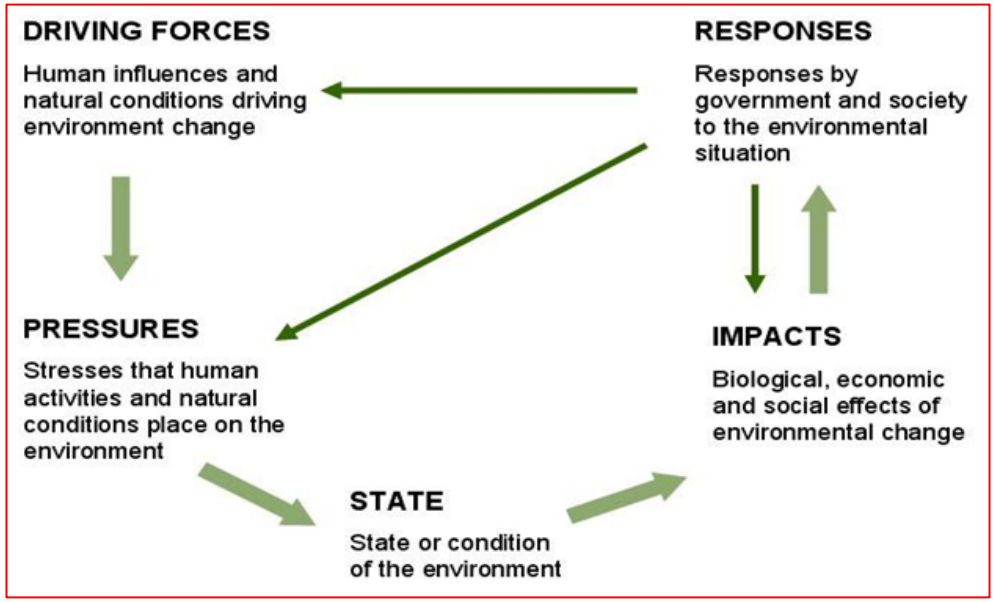
- **Managed Fisheries** (recreational and commercial)
- **Protected Species** (marine mammals, sea turtles, corals, ESA-listed species)
- **Ecosystems** (habitats, non-managed biota, oceanography)
- **Human Dimensions** (socioeconomics and social justice)

Consider impacts to the federal science enterprise, particularly surveys and fishery monitoring efforts key to sound assessment and management.

SEFSC OSW Planning Approach

Driver-**P**ressure-**S**tate-**I**mpact-**R**esponse (**DPSIR**) Framework

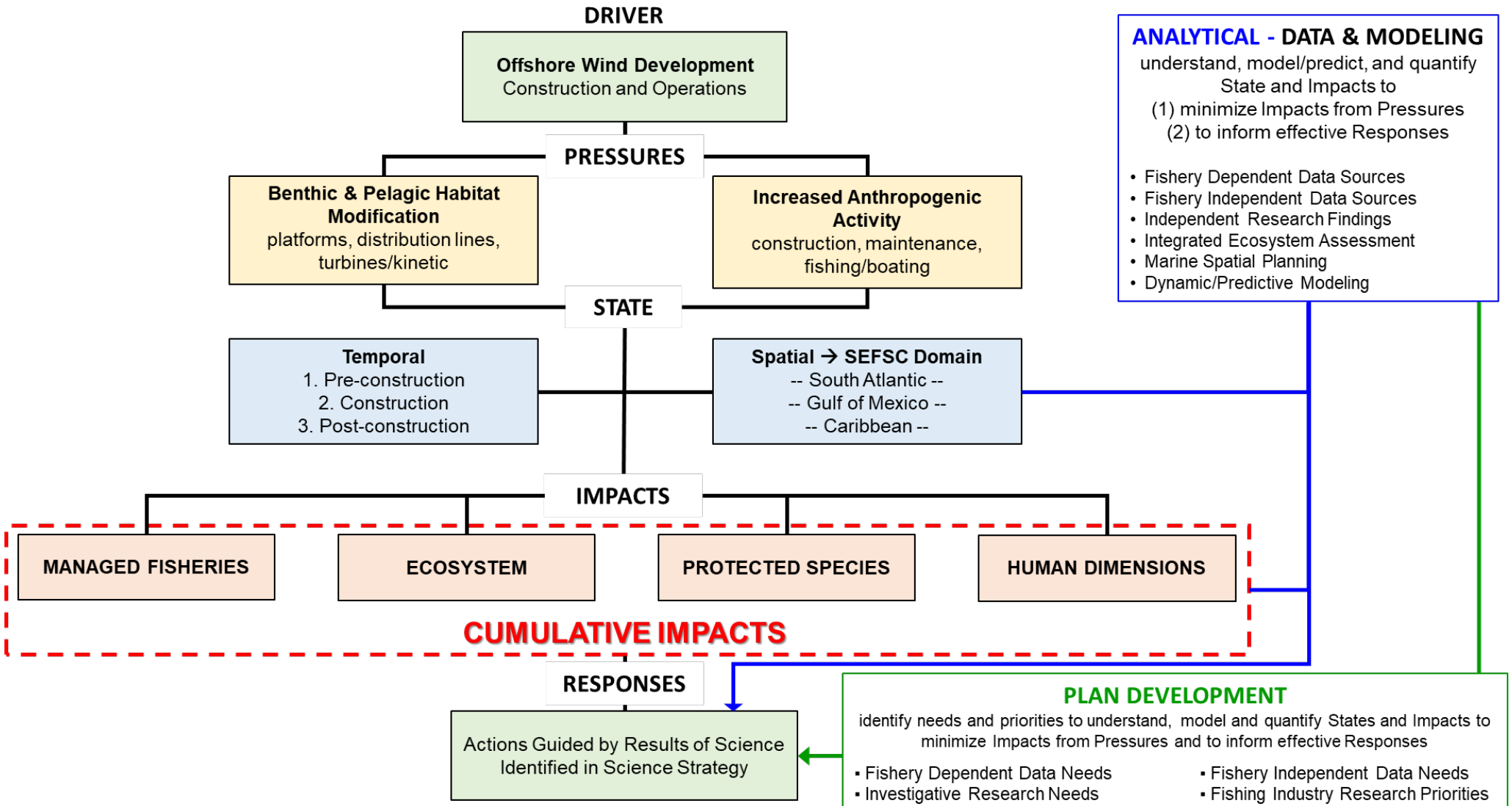
Applying DPSIR*, the overall objective is to understand, model/predict, and quantify (where possible) the impacts of offshore wind development: (1) to minimize impacts from pressures and (2) to inform effective responses.



* *Fisheries and Offshore Wind Interactions: Synthesis of Science*, NOAA Tech Memo NMFS-NE-291

* Synthesis of Environmental Effects Research (SEER), https://tethys.pnnl.gov/

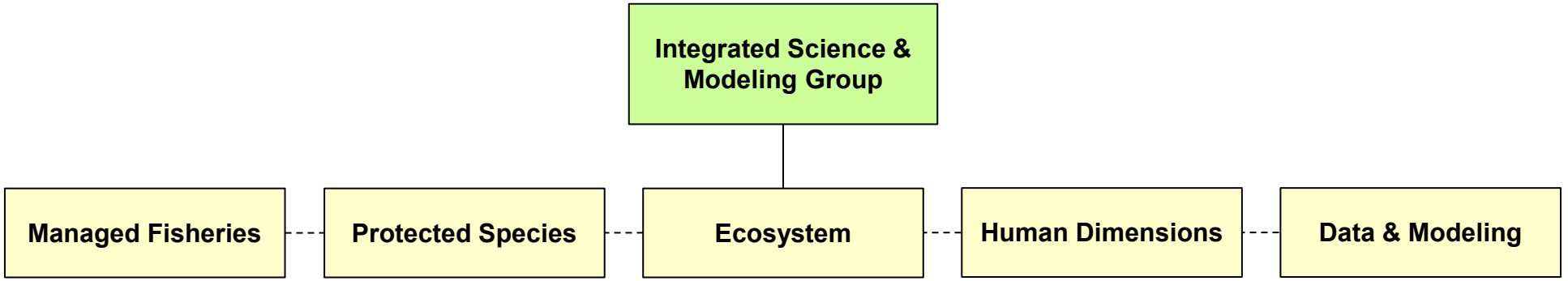
DPSIR Conceptualization of SEFSC OSW Considerations*



* based on drivers identified in NOAA Tech Memo NMFS-NE-291

Identifying Potential Impacts and Related Science Needs

Based on DPSIR Conceptual Framework



Subgroup	Potential Impact / Effect	Causative Factor(s)	States of Consideration	Research Need(s)	Science Products to Inform Actionable Decisions (for aligned Research Need)
Managed Fisheries	Shifts in habitat use by managed species	Addition of physical structures may alter habitat use	*TEMPORAL*: Pre-construction - baseline monitoring, marine spatial planning (MSP)	▸ Implementation of acoustic monitoring network in/around OSW lease areas, coupled with acoustic tagging of managed species	▸ Fine-scale habitat use data (MSP, modeling, baseline data)
		Prey aggregation at physical structures may alter ecosystem dynamics	*TEMPORAL*: Construction - baseline monitoring	▸ Targeted angler recruitment for cooperative tagging of managed species in OSW regional areas	▸ Fishery-dependent catch-and-release data + habitat use and movement data from recaptures (MSP, modeling, baseline data)
			TEMPORAL: Post-construction - monitoring	▸ Evaluate application of drones as a means to monitor occurrence and/or abundance over time	▸ Advanced technology demonstration study to assess gear/tech applications for monitoring
			SPATIAL: SEFSC Domain		

Products → SEFSC Strategy Documents

- Formal planning documents in final review, with rollout in near future
  - *Comprehensive Science Strategy for Offshore Wind – Southeast Region*
  - *Federal Survey Mitigation Strategy – Southeast Region* (fishery-independent)

Goal 1. Ensure NOAA Trust Resources are effectively considered in the regulatory process and that decisions of the lead federal agency (BOEM) incorporate protections (avoid, minimize, and mitigate) for NOAA Trust Resources

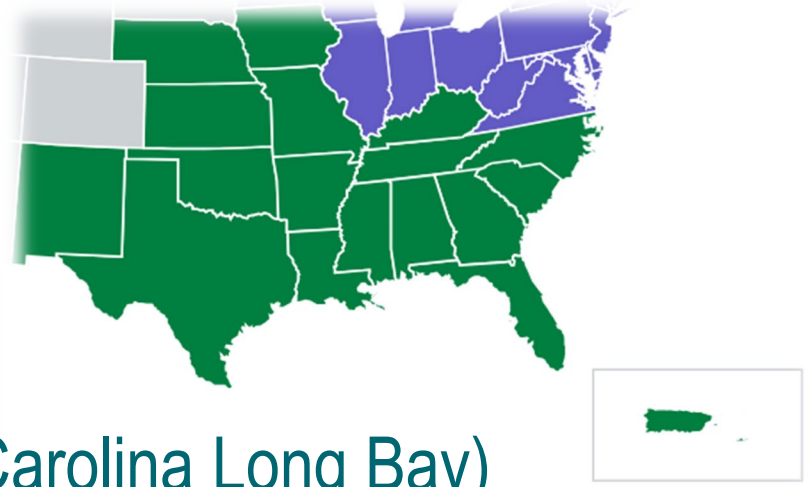
Goal 2. Maintain integrity of NMFS scientific surveys and related scientific advice

Goal 3. Understand and predict impacts of offshore wind development on the marine ecosystems and fishing communities of the U.S. South Atlantic, Caribbean and Gulf of Mexico regions

Goal 4. Promote an Integrated Regional Approach: Identify, avoid and minimize, mitigate and compensate for adverse impacts while enhancing positive impacts to existing and future ocean uses

++ Offshore Wind Science Webpage ++
In Development
Check back for "Offshore Wind in the Southeast"
https://www.fisheries.noaa.gov/about/southeast-fisheries-science-center

Science Planning – Regional Activities and Next Steps



- U.S. Caribbean Region
  - Marine Spatial Planning – NCCOS
  - Dynamic modeling
- U.S. South/Central Atlantic Region
  - Science support for regulatory process (Kitty Hawk, Carolina Long Bay)
- U.S. Gulf of Mexico Region
  - Science support for regulatory process (Gulf Wind I, pending Gulf Wind II & III)
- Survey Mitigation Strategy
  - Implement mitigation programs in regions of wind development (SA, GOM)
  - Develop strategy for fishery-dependent data considerations

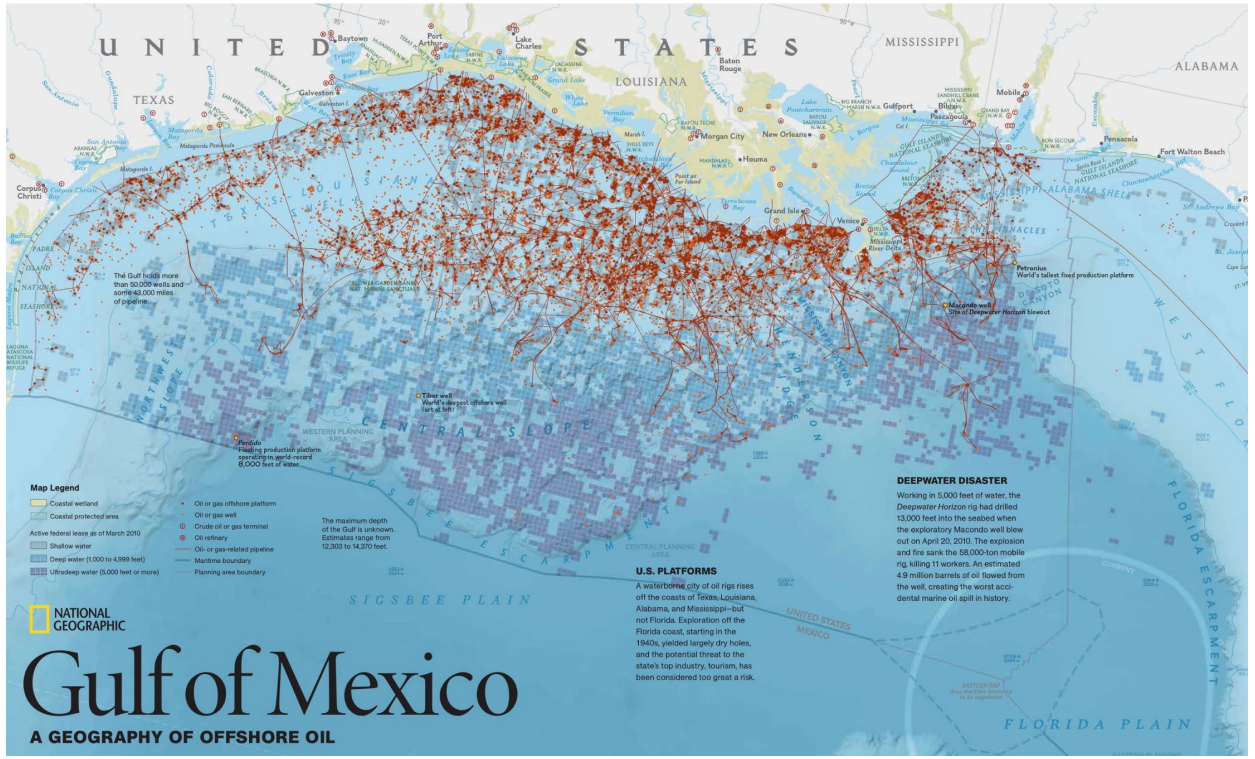
Science Planning – Next Steps (cont.)

- Implement research and monitoring, building on lessons learned from NEFSC wind science and oil & gas development in GOM → *Opportunity for transformative research and monitoring programs*

NOAA Technical Memorandum NMFS-NE-291

Fisheries and Offshore Wind Interactions: Synthesis of Science

US DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts
March 2023



https://images.nationalgeographic.org/image/upload/v1638891999/EducationHub/photos/geography-of-offshore-oil.jpg

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REVIEWS

Potential impacts of oil production platforms and their function as fish aggregating devices on the biology of highly migratory fish species

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Abstract This review documents the current state of knowledge and gaps therein, as determined through a survey of published research on relevant topics, regarding the potential impacts of offshore oil production platforms (OPP) on the biology of highly migratory fish species (HMS) which include tunas, swordfish, billfishes, and oceanic sharks. There is a limited amount of published research directly related to HMS and OPPs. This may be due to the relatively recent offshore expansion of the industry and of studies. Most studies have focused on structure-associated species such as rockfishes and snappers. Within the U.S. exclusive economic zone, the most probable areas of interaction between HMS and OPPs occur in the Gulf of Mexico. This report focuses primarily upon this region, while noting that HMS roam the majority of the world's oceans and may interact with petroleum infrastructure in many other locations. With such large stock boundaries it is unlikely that HMS interactions with OPPs will have a significant impact at the stock level, however, there could be impacts at local or regional levels.

Keywords Oil rig · Oil platform · Highly migratory species · FAD · Fish aggregating device

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Introduction

The recent expansion of tuna targeted fisheries in association with man-made fish aggregating devices (FADs) throughout the world's oceans is concerning because the associated catch is primarily composed of small and immature fish, which may reduce yield-per-recruit and contribute to a reduction in stock size (Fonteneau et al. 2000; Dagorn et al. 2012). Petroleum exploration and installation of oil production platforms (OPPs) has rapidly expanded into deeper waters where highly migratory fish species (HMS) occur during most phases of their life history. These OPPs serve as Fish Aggregating Devices (FADs) for HMS species, creating encounter opportunities often exploited by fishermen. Better understanding is needed of the potential impacts that OPPs and their associated vessels and devices may have on various

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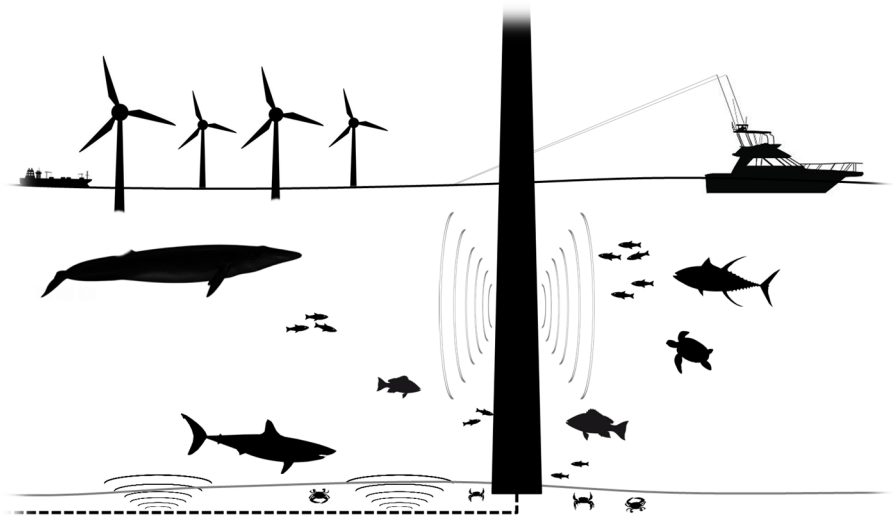
    Willem Klajbor
- Offshore Wind Technical Team
- Colleagues at NCCOS, SERO and BOEM



QUESTIONS?

Strategy documents will be posted online, as tech memos, once finalized.

Check back for “Offshore Wind in the Southeast” at:
https://www.fisheries.noaa.gov/about/southeast-fisheries-science-center