

Offshore Wind: Compatible With Essential Fish Habitat



Essential Fish Habitat Background

The Magnuson–Stevens Fishery Conservation and Management Act (MSA) governs marine fisheries management in U.S. federal waters.¹ “Fish” includes all marine life except mammals and birds. The Sustainable Fisheries Act of 1996 amended the MSA to “facilitate long-term protection of essential fish habitats [EFH]” including consultation with respect to federal actions that may adversely affect EFH.² EFH for a fishery is defined as habitats that are necessary to fish for breeding, spawning, growth to maturity, or feeding.³ The National Marine Fisheries Service (NMFS) provides recommendations to the lead agency, such as the Bureau of Ocean Energy Management, and the action agency will respond with “measures proposed...for avoiding, mitigating, or offsetting the impact of the activity on such habitat.”

Actions with Impacts that Require EFH Consultations

EFH is separate from Critical Habitat designated under the Endangered Species Act (which requires separate consultation). **EFH protects the habitat of fishery resources, versus the ESA, which protects a species that is endangered or threatened.** EFH encompasses almost the entirety of the water column and substrate in the marine environment where offshore wind would occur. EFH is generally defined very broadly and over multiple life stages of fish. For example, the common thresher shark EFH is defined for neonates, subadults, and adults and extends down the entire West coast from 18-4,200 feet depth off CA and to 5,700 feet off OR and WA “mainly” in “near surface” waters (left image). On the East coast, an example is bluefish (right image). Thresher shark and bluefish are not the only fisheries with large, almost range-wide, EFH designations; large EFH designations are common⁴ for many fisheries. As such, almost all waters and substrate are EFH where federal actions trigger consultations and, if adverse effects are anticipated, mitigation. BOEM, with NMFS as a cooperating agency, found that, **for Vineyard Wind, adverse impact to EFH would likely be negligible** based on the small fraction of habitat that would be affected, and the **beneficial impact would likely be moderate** because of presence of structures (habitat creation).⁵ Mitigation will be applied to offshore wind projects for EFH despite only minimal impacts. Habitat areas of particular concern are within EFH, and are fully addressed in EFH consultation.

Offshore Wind Developers Avoid Disturbing EFH by:

- Conducting BOEM-prescribed surveys examining the seafloor and habitat mapping
- EFH Assessments for each of the species within proposed lease area
- Outreach and consultation with Fisheries Commissions & Councils, State fishery management agencies, and NMFS experts on EFH impacts
- Environmental Assessment of the lease area
- Environmental Impact Statement of the Construction and Operations Plan



Image: NOAA EFH Habitat Mapper, Thresher Shark West Coast EFH in solid yellow. Yellow line marks Exclusive Economic Zone. Pink line marks international boundary.

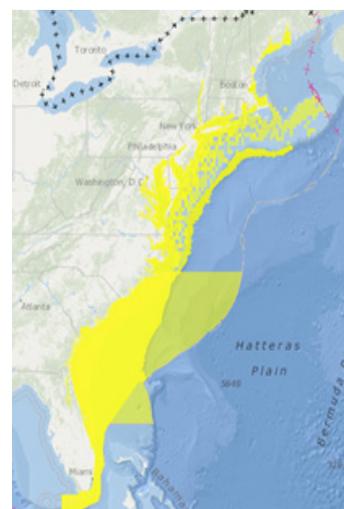
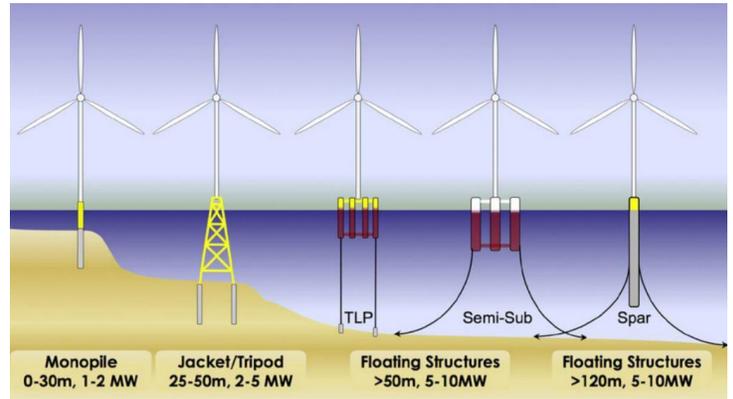
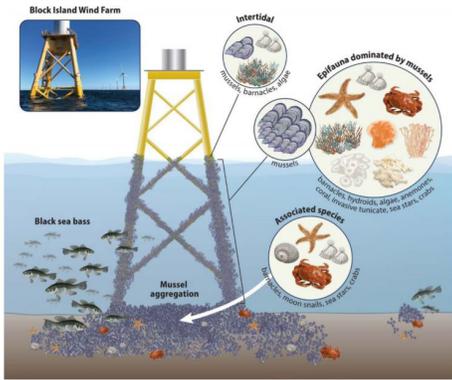


Image: NOAA EFH Habitat Mapper Greater Atlantic Bluefish EFH in solid yellow. Yellow line marks Exclusive Economic Zone. Black and pink lines mark international boundaries

Because EFH is almost everywhere and covers a multitude of fish and fish life stages, any updates to EFH consultation practices should be focused on “significant” adverse impacts and take into account beneficial impacts that offset adverse impacts as well as current mitigation and monitoring.

Offshore Wind Technologies

Offshore wind foundation designs depend on the depth and bottom type of the wind farm location. The physical area impacted by turbines differs between fixed-bottom and floating offshore wind design (right image)⁶ but, is a very small proportion of the available habitat, regardless of habitat type or foundation type.



Offshore Wind Potential EFH Benefits

After construction is complete, wind turbines can create artificial reef-like habitats which attract fish and increase local biodiversity, as seen in the image to the left.⁷ The aggregation of local species varies depending on the area and ecosystem in which the wind turbine is located, and in some cases, could increase the abundance of commercially and recreationally important species in EFH. A study of Block Island Wind Farm off Rhode Island's coast found that structures were quickly colonized and that habitat complexity increased local diversity.⁸ In the United Kingdom, lobsters do not abandon offshore wind facilities, nor are catch rates different at sites adjacent to a wind facility.⁹ In some cases, wind turbines would slightly increase EFH for species that use hard-bottom substrates.¹⁰

Offshore Wind Beneficial Impacts to EFH

- Reef effect
- Increased hard bottom substrates
- Creation of refuge areas – spillover effects
- Renewable energy resource to reduce climate change

“...South Fork wind farm would not adversely affect the quality or quantity of EFH...”¹¹

EFH and Areas Impacted

The footprint of an offshore wind farm is miniscule compared to local EFH. Minor adverse impacts are unavoidable, but these impacts are mainly temporary and **impacted areas represent a very small fraction of habitat compared to the whole EFH**. Offshore wind is unlikely to adversely impact species with EFH or cause population level effects to fish.^{8, 10, 11, 12, 13}

Example of Small Scale of Potential Impacts

- Vineyard Wind lease block is 65,296 acres
- Vineyard Wind I project is on half of lease block with 64 turbines positioned on a 1 x 1 nautical mile array.
- Maximum area potentially temporarily disturbed by installation of turbines and cables:
 - 463 acres (0.7% of the lease area)
- Maximum area potentially negligibly affected by sediment and cable movements during operation:
 - 252 acres (0.38% of lease area)
- EFH Assessment Report: 94 pages of analyses
- Mitigation includes pre- and post-construction monitoring, sound reduction technology, avoiding important habitat

Mitigating climate change calls for *rapid development of offshore wind resources and, given the extensive consultation on EFH that is already implemented for offshore projects under the MSA, additional requirements would further increase time and cost to get projects up and running without providing additional benefits to EFH.*

References

- ¹ See *Laws and Policies*, NOAA FISHERIES (Mar. 5, 2021), <https://www.fisheries.noaa.gov/topic/laws-policies#magnuson-stevens-act>.
- ² See *Essential Fish Habitat*, BOEM (Feb. 26, 2021), <https://www.boem.gov/environment/environmental-assessment/essential-fish-habitat>.
- ³ See *Consultations for Essential Fisheries Habitat*, NOAA FISHERIES (Mar. 5, 2021), <https://www.fisheries.noaa.gov/national/habitat-conservation/consultations-essential-fish-habitat>.
- ⁴ See *EFH Mapper*, NOAA (Mar. 15, 2021), <https://www.habitat.noaa.gov/protection/efh/efhmapper/>.
- ⁵ Bureau of Ocean Energy Management (BOEM). 2021. Vineyard Wind 1 Offshore Energy Project Final Environmental Impact Statement. U.S. Department of the Interior. BOEM 2021-0012.
- ⁶ See *Developments of bottom-fixed offshore wind foundations in Europe*, WINDPOWER (Mar. 3, 2021), <https://www.windpowerengineering.com/developments-bottom-fixed-offshore-wind-foundations-europe/>.
- ⁷ van Hal, R., Griffioen, A. B., & van Keeken, O. A. 2017. "Changes in fish communities on a small spatial scale, an effect of increased habitat complexity by an offshore wind farm." *Marine environmental research*, 126, 26-36.
- ⁸ Hutchison, Z. L., M. Bartley, S. Degraer, P. English, A. Khan, J. Livermore, B. Rumes, and J.W. King. 2020. Offshore Wind Energy and Benthic Habitat Changes. *Oceanography*. 33(4):58-69.
- ⁹ Roach, M., M. Cohen, R. Forster, A.S. Reville, M. Johnson. 2018. The effects of temporary exclusion of activity due to wind farm construction on a lobster (*Homarus Gammarus*) fishery suggests a potential management approach. *ICES Journal of Marine Science*. 75(4):1416-1426.
- ¹⁰ Bureau of Ocean Energy Management (BOEM). 2020. Vineyard Wind 1 Offshore Energy Project Supplement to the Draft Environmental Impact Statement. U.S. Department of the Interior.
- ¹¹ Bureau of Ocean Energy Management (BOEM). 2021. South Fork Wind Farm and South Fork Export Cable Project Draft Environmental Impact Statement. BOEM 2020-057.
- ¹² Bureau of Ocean Energy Management (BOEM). 2014. Commercial Lease Of Submerged Lands For Renewable Energy Development On The Outer Continental Shelf. U.S. Department of the Interior.
- ¹³ Bureau of Ocean Energy Management (BOEM). 2019. Vineyard Wind Offshore Energy Project Essential Fish Habitat Assessment. U.S. Department of the Interior.

Images

See *Developments of bottom-fixed offshore wind foundations in Europe*, WINDPOWER (Mar. 3, 2021), <https://www.windpowerengineering.com/developments-bottom-fixed-offshore-wind-foundations-europe/>.

Hutchison, Z. L., M. Bartley, S. Degraer, P. English, A. Khan, J. Livermore, B. Rumes, and J.W. King. 2020. Offshore Wind Energy and Benthic Habitat Changes. *Oceanography*. 33(4):58-69.