



Offshore Wind Development and Marine Mammals



Background

The global development of renewable energy represents a decisive shift toward clean energy sources, reducing our dependence on fossil fuel and helping reduce greenhouse gas emissions that contribute to climate change. The Biden Administration has established a [national goal](#) of deploying 30 gigawatts (GW) of offshore wind power by 2030. As we work to achieve that goal, care must be taken to minimize the impacts of wind energy development on marine mammals and other marine resources to ensure an environmentally responsible energy source into the future.

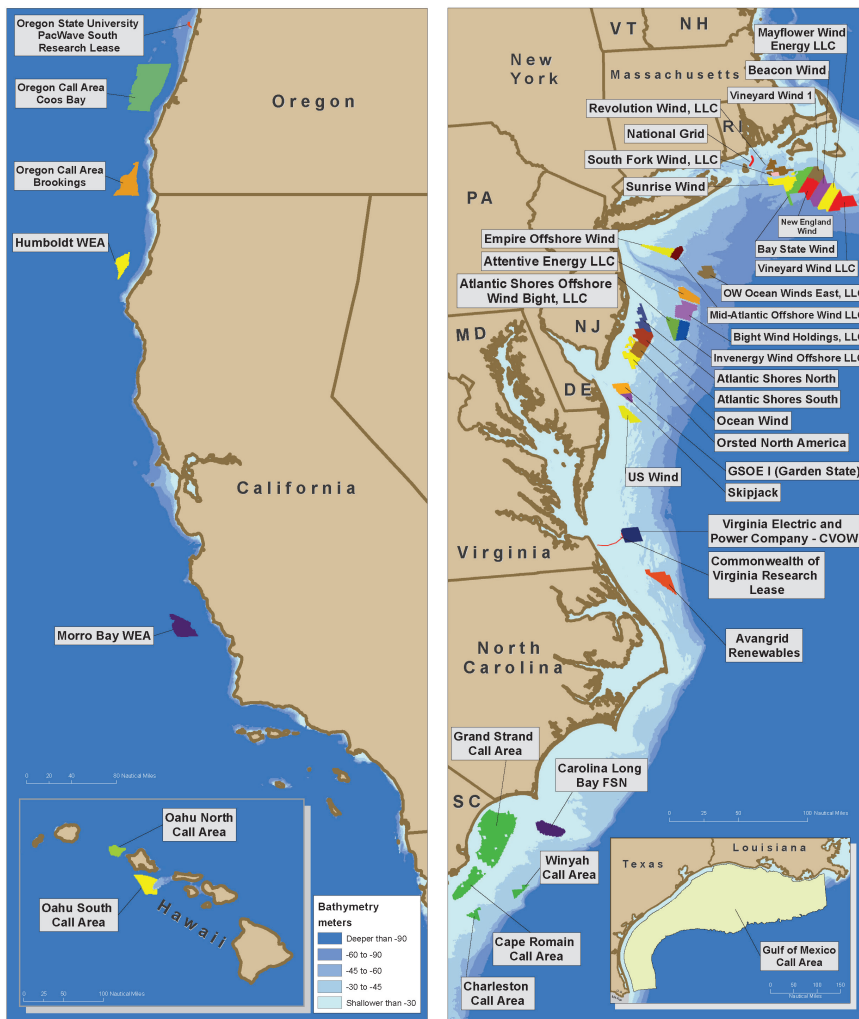


Figure 1. Wind energy areas are expanding throughout the Atlantic and Pacific (Credit: BOEM)

Offshore Wind Development

Offshore wind resources are more abundant, stronger, and more consistent than land-based wind resources. The first offshore wind farm in the U.S. was constructed in 2016 in state waters south of Block Island, Rhode Island, with 5 wind turbines (30-MW). In 2020, the first offshore wind farm in federal waters was installed with two turbines (12-MW) off the coast of Virginia. The [Bureau of Ocean Energy Management \(BOEM\)](#) has issued or is reviewing lease requests, site assessment plans, and construction and operations plans for wind energy projects along the East Coast, as well as in the Pacific Ocean off California, Oregon, and Hawaii (Figure 1).

Marine mammals rely on sound to:

- Communicate
- Attract mates
- Locate prey
- Detect predators
- Sense the environment

Potential Impacts of Wind Energy Development on Marine Mammals

There is uncertainty regarding the potential impacts of offshore wind development, operation, and decommissioning on marine mammals in U.S. waters. More information is needed to help us better understand the potential **short-term** and **long-term** impacts of this industry on protected, threatened, and endangered species, as well as the cumulative effects of these activities on marine mammals in the context of stressors already present in the marine environment.

Displacement: Increased sound and vessel traffic and new structures in wind energy areas could cause animals to avoid preferred habitat.

Changes in Distribution: Continued displacement of marine mammals away from wind energy areas could result in long-term changes to species' distributions.

Vessel Strike Risk: Vessel traffic in wind energy areas or displacement from preferred habitat could put marine mammals at a higher risk of vessel strike.

Prey Availability: Habitat alterations could affect prey species distribution, density, patch structure, and availability to marine mammals.

Behavioral/Physiological Changes: Marine mammal call rates and intensities, foraging ecology, respiration and movement patterns, and rates of physiological stress could be impacted.

Ecosystem Alteration: The installation of new offshore structures could affect local marine ecosystems. It also could enhance foraging opportunities for some marine mammal species, such as seals.

Mitigation Measures

Significant efforts are being made to reduce or prevent impacts of sound on marine mammals during site characterization surveys and construction activities (see Figure 2 for examples). Developers also are required by BOEM to collect baseline information on the abundance, distribution, and behavior of marine mammals prior to construction. The collection of baseline information helps ensure that harmful effects can be detected and mitigated as necessary. For more information about offshore wind development and the Commission's efforts on this issue, visit our [website](#).

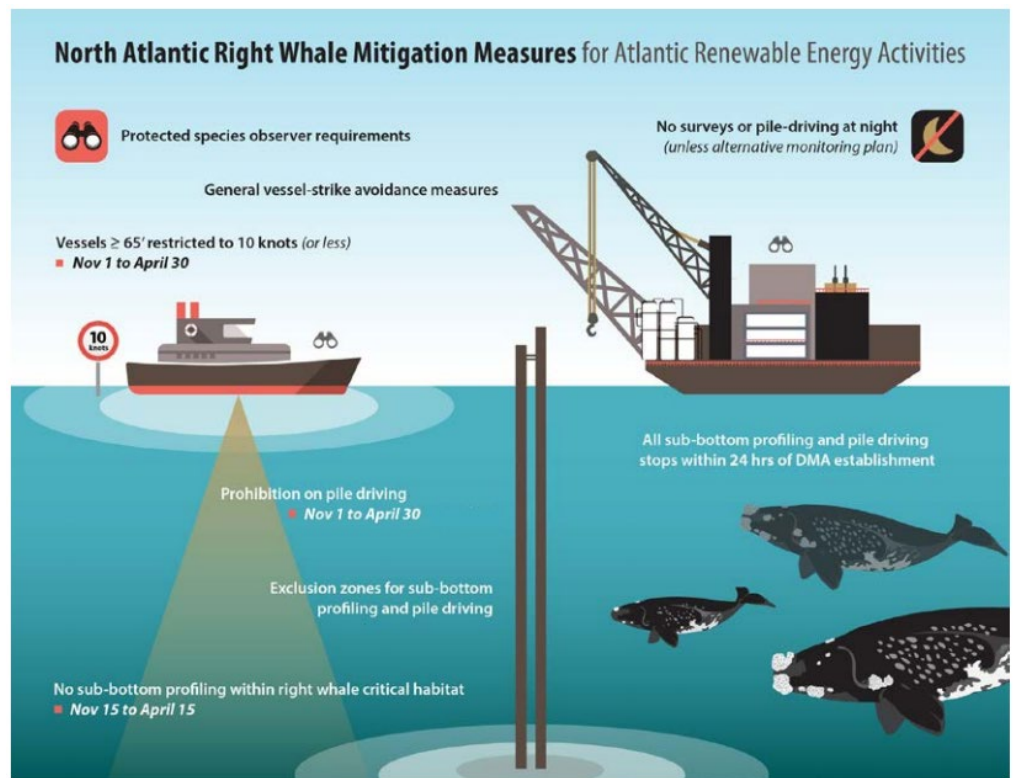


Figure 2. Mitigation measures typically required by BOEM for wind energy site characterization surveys and construction activities; certain projects may have additional measures as needed. A [dynamic management area](#) (DMA) is a voluntary slow-speed zone that is temporarily created when three or more right whales are detected. (Credit: BOEM)