

Underwater Sound and Protected Species

Importance of Sound

Why is underwater sound an issue of concern?

- animal communication
- finding mates
- navigation
- feeding (echolocation)
- avoiding predators/danger
- man-made impacts to the acoustic habitat
- public and scientific concern



A jack-up vessel installs an offshore wind turbine. The tower is on a jacket foundation secured to the seafloor by pile driving.



The population of North Atlantic right whales is highly endangered and is a species of particular interest in Massachusetts and Rhode Island. Photo taken under NMFS permit number 19674.



Studies in European waters show that harbor porpoises may leave an area and feed less when pile driving begins, but generally return within weeks after pile driving activities end.

Project Impacts

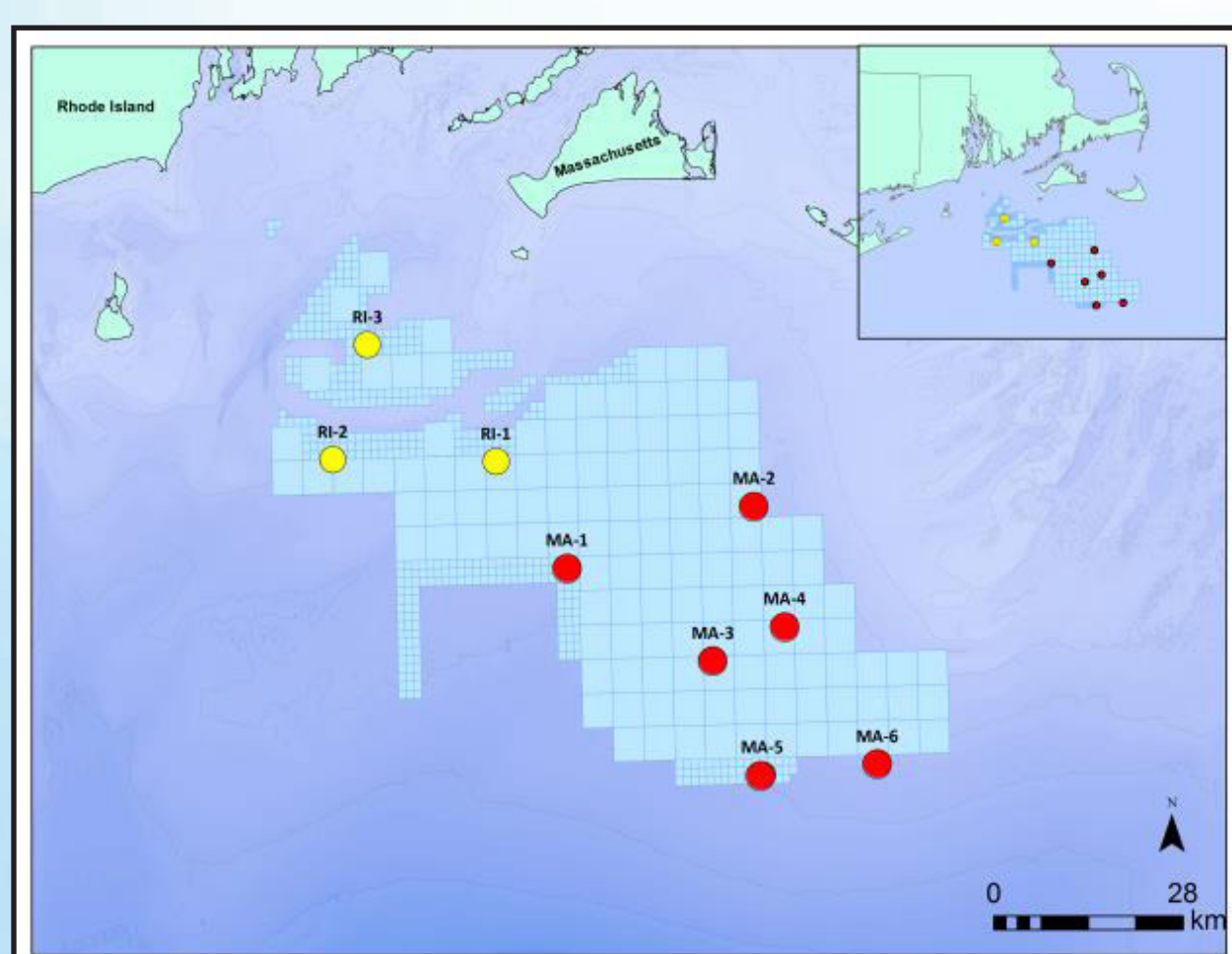
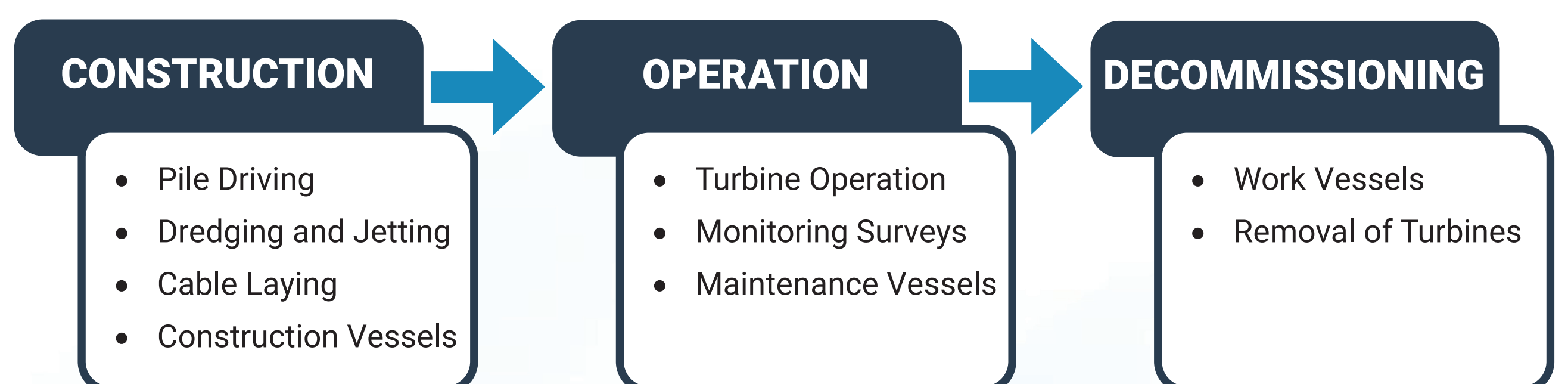
Sounds will vary in intensity depending upon the project stage. BOEM will assess potential impacts such as avoidance, displacement, temporary or permanent hearing loss, and injury across a broad range of species.

Ambient Noise

What natural and man-made sounds are in the project area?

- commercial and recreational boats
- scientific surveys
- fishing and navigational sonars
- animal vocalizations
- wave action, storms

Potential Sources of Sound at Different Project Stages



Map of the recording sites (red and yellow circles) in the Massachusetts and Rhode Island wind energy areas between November 2011 and March 2015. The ambient sound levels across all sites varied between 96 dB and 103 dB re 1 μ Pa in the hearing range of baleen whales during 50% of the recording time. These measurements were part of a cooperatively funded study by BOEM and MassCEC (<https://www.boem.gov/RI-MA-Whales-Turtles/>).

Impact Assessment

What information will inform the EIS?

- technical information on sound sources
- underwater sound modeling
- the seasonal occurrence of protected species in the lease area
- biological information on animal responses to sound
- NOAA guidance on assessing the effects of sound on marine mammals
- other non-project sounds and activities in the area
- any other relevant information