



The Impact of Underwater Sound on Protected Species

What sounds will be made?

Pile driving is the loudest sound of concern from the project. Not all project-related sounds are expected to be harmful. Some sounds will only be present during certain stages over the life of an offshore wind facility.



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.

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

What information will inform the analysis?

- Technical information on sound sources
- Underwater sound models
- Animal movement models to assess realistic exposure
- The seasonal occurrence of protected species in the lease area
- Information on animal responses to sound
- National Oceanic and Atmospheric Administration guidance on assessing the effects of sound on marine mammals

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



The population of North Atlantic right whales has hown to be declining, and they may be a species of particular interest along the east coast. *Photo taken under NMFS permit number 19674.*

What are the possible impacts to marine mammals and sea turtles from pile driving?

Hearing Impacts

- Temporary hearing loss
- Permanent hearing loss

Behavioral Impacts

- Avoidance of the area
- Changes in feeding, resting, communication or migratory behavior
- Disrupted communication
- Increased stress