



What sounds will be made?

There are many different sounds related to offshore construction activity, including the intentional transmission of sounds for characterizing the environment (such as geophysical sonars) and the inadvertent transmission of sounds (such as from vessel engines and pile driving). Some sounds, like vessel engine noise, will be present intermittently throughout the entire lifetime of a project, while other noises, like pile driving, will only occur during construction.



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?

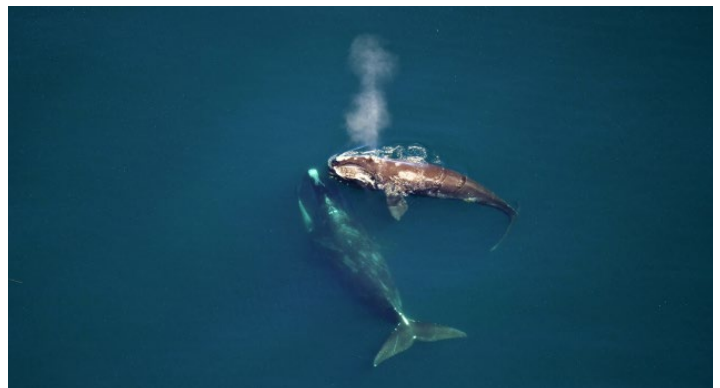
- Animal vocalizations
- Wave action, storms
- Commercial and recreational boats
- Scientific surveys
- Fishing and navigational sonars
- Pile driving from other projects under construction

What are potential impacts of pile-driving sound on marine life?

- Temporary hearing loss
- Permanent hearing loss
- Avoidance of the area
- Changes to feeding, breeding, and resting behavior
- Disrupted communication
- Stress

Environmental impact analyses are conducted to understand the effect that offshore development will have on marine resources and determine appropriate mitigations to reduce impacts. These analyses include:

- Technical information on sound sources
- Underwater sound propagation 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 Marine Fisheries Service guidance on assessing the effects of sound on marine mammals



The population of North Atlantic right whales is declining, and is therefore a species of particular interest along the east coast with any offshore development. Photo taken under NMFS permit number 19674.

What is BOEM doing to mitigate potential effects of sound on marine life?

Project-specific mitigation is required, and may include:

- Reducing sound levels e.g., deploying a bubble curtain
- Seasonal restrictions to avoid times of year when large numbers of animals of concern are present
- Protected species observers to monitor for species of concern in the project area during construction
- Deploying real-time passive acoustics to monitor for vocalizing marine mammals during construction

