Wind Energy off LBI

Impacts on Endangered Whales

The LBI Coalition for Wind Without Impact

www.SaveLBI.org

September 2021
Endangered whales will be greatly disrupted in current lease area.
The current project area-Impacts on Endangered Whales

Endangered Whales:

- The migratory path of the critically endangered North Atlantic Right Whale intersects the outer part of current project area(W1)
- A higher density of endangered Fin and Humpback whales exists in the inner part of current project area(W7)
- Whale’s normal migratory, foraging, mating behavior is disrupted by operational noise levels above NOAA’s criteria of 120 decibels(db).
- Larger “gearbox” turbines will exceed that throughout the project area
- Inner and outer turbine exclusion zones are required for operational noise protection(W2)(w3)
- With both exclusion zones, the entire 10 to 20 mile project area is unsuitable for turbines

Birds:

- The “threatened” Piping Plover will have to cross the current project area(PP1) to get to its nesting sites in Holgate and Barnegat Light
- Potentially high fatalities(PP2)
Want to know more about the North Atlantic Right Whale?

*Published in ‘Cell.’ Study led by Senior Scientist at New England Aquarium

- Endangered North Atlantic Right Whales are struggling to survive.
- Current population: ~360
- Migratory path and feeding grounds lie within Atlantic Shores lease area, which directly impacts their survival.
- *Recent study indicates human induced stressors are stunting growth of Right Whales*
  - Scientists have observed 5–10-year-old whales about the size of 2-year-old whales
  - An 11-year-old whale observed was the same size as 1.5-year-old whales
- This is reducing their ability to reproduce, which may drive the species into extinction.
- If human-induced stressors, including noise, are not lowered -- or if they increase with gearbox turbines - - the Right Whales’ chances of survival will continue to decline & their extinction will likely accelerate
- Stressors include:
  - Undersea construction to install turbines
  - Once operational, wind turbines will generate substantial ongoing operational noise
  - This will impact not only Right Whales, but also many other marine mammals who are hyper-sensitive to noise and electromagnetic waves
Impact of turbine Noise from larger, gearbox turbines on Endangered Whales

• BOEM previously dismissed operational noise as a problem for endangered mammals
  • But they used smaller less noisy turbines in the Vineyard Wind 1 EIS with source levels of 137 decibels (dB)
• Larger 13.6 megawatt(mw) “gearbox” Vestas-236 turbines to be installed off LBI
  • Source noise levels for 10 mw gearbox turbines predicted at 177 db$(W2)$
  • 40 db higher & 10,000 times* more intense than noise from the smaller turbines.
  • For 13.6 mw turbines, source level predicted to be 180 dB, Reference W2, Figure 1.
• It takes 6 miles$(W2),(W3)$ for a 180 dB source noise level to get below the 120 dB NOAA criterion for disrupting marine mammal behavior $(W4),(W5),(W6)$.
• Turbines to be placed ~ 1 mile apart, so 120 dB will be exceeded everywhere in the project area
• The Right Whale’s migratory path starts at the 20 mile project boundary and extends 12 miles$(W1)$
  • A 6 mile buffer is needed for noise level reduction to avoid noise disruption during its migration
• Therefore, must exclude turbines beyond 14 miles (20-6) boundary to avoid exceeding the NOAA criterion
• Similarly, fin and humpback whales frequent the inner project area, 11.5 miles out $(w7)$ requiring that turbines be placed no closer than 17.5 miles(11.5+6) to avoid disrupting them.

With both the inner and outer exclusion zones, there is no room for wind turbines in the current lease area.

* Decibels are a logarithmic scale; +10 dB = 10 times the sound intensity
Right Whales: See them yourself...

https://youtube/bYEwZGIWw
The Fin Whale
- Second largest whale in the world after the Blue Whale.
- 19 to 25 meters (82 ft) in length.
- May live more than 75 or even 100 years.
- Their population is on the decline due to growing fishing and shipping traffic populations.
- Currently ~ 80,000 world-wide today.

The Humpback Whale
- Gets its name from the way it arches out of the water before diving.
- Grows up to 18 meters (60 ft) in length and weighs 30 to 50 tons.
- Vulnerable to entanglement.
- Population just now beginning to rebound.
- Must keep it that way.
Fin & Humpback whales exist in higher density 11.5 miles from LBI coast\(^{(W7)}\)

- Fin & Humpback whales exist 1.5 miles into current lease project area
- 4 mile buffer needed for noise reduction, similar to that for Right Whale

Therefore, we must also exclude turbines 5.5 miles from the inner lease area to avoid exceeding NOAA noise criterion for Fin and Humpback whales.
References: Endangered Whales


W2.Uwe Stober and Frank Thomsen, How could operational underwater sound from future offshore wind turbines impact marine life? The Journal of the Acoustical Society of America 149, 1791 (2021); https://doi.org/10.1121/10.0003760


