

Wind Energy off LBI

Impacts on Endangered Whales

The LBI Coalition for Wind Without Impact

www.SaveLBI.org

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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?

- 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 noise from larger, gearbox turbines on Right Whales

- BOEM has dismissed operational noise as a problem for endangered mammals
 - But they used smaller less noisy turbines in making their determination
- Larger “gearbox” turbines to be installed off LBI
 - Atlantic Shores has selected the Vestas-236 turbines
 - Source noise levels for larger gearbox turbines predicted at 177 decibels (db) ^(W2)
 - 40 db higher & 10,000 times* more intense than noise from smaller turbines assessed by BOEM
- It takes 4 miles ^{(W2)(W3)} for noise levels to get below 120 db which is NOAA criterion for disrupting marine mammal behavior ^{(W4),(W5),(W6)}.
- Turbines will be placed ~ 1 mile apart, so 120 db will be exceeded everywhere in the current project area
- The Right Whale’s migratory path extends ~ 1 mile inside the 20 mile project boundary ^(W1)
 - A 4 mile buffer is needed for noise level reduction
- Therefore, Atlantic Shores must exclude turbines 5 miles from outer 20 mile project area boundary
 - To avoid exceeding the NOAA criterion

All of this, when combined with a comparable inner exclusion zone for Fin and Humpback whales - or just the 17 mile exclusion zone given to NY – makes the current lease area extremely unsuitable for wind turbines.

* Decibels are a logarithmic scale; +10 db = 10 times the sound intensity

Right Whales: See them yourself...



<https://youtube/byEIUwZZIWw>

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.



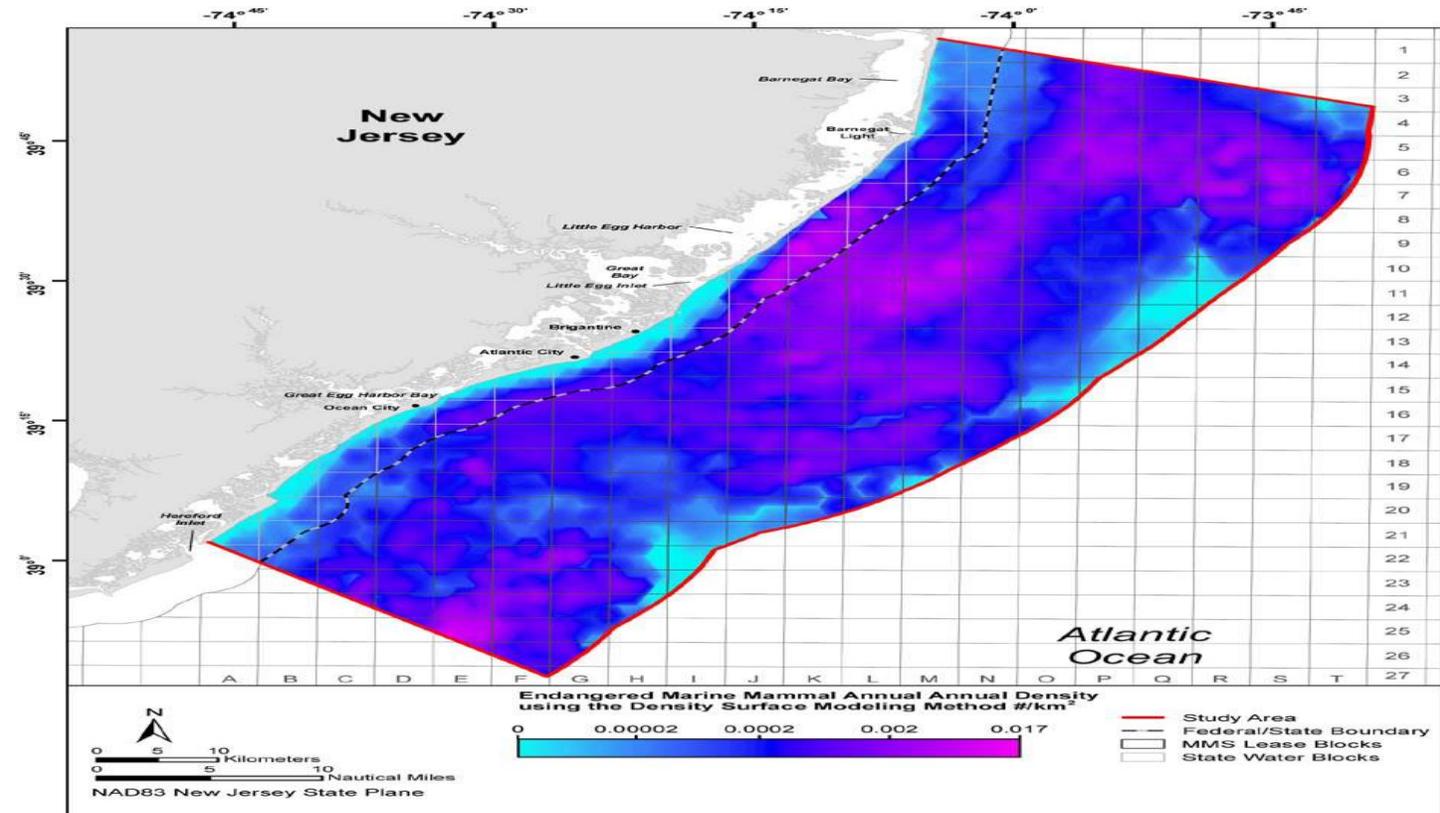
The Humpback Whale

- 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

W1. New Jersey Offshore Wind Strategic Plan, Environment and Natural Resource Technical Appendix, Figure 21, North Atlantic Right Whale.

<https://www.njcleanenergy.com/renewable-energy/programs/nj-offshore-wind/strategic-plan>

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>

W3. Thomsen et al., *The Effects of Offshore Wind Farm Noise on Marine Mammals and Fish*, July 06 2006.

https://seagrant.gso.uri.edu/oceansamp/pdf/presentation/present_gill_europe.pdf

W4. Madsen et al., Wind turbine underwater noise and marine mammals: implications of current knowledge and data needs, *Marine Ecology Progress Series*, Vol 309:279-295, 2006 <https://www.int-res.com/articles/meps2006/309/m309p279.pdf>

W5. Nowacek et al., North Atlantic right Whales ignore ships but respond to alerting stimuli, *The Royal Society*, may 20, 2003. <http://myweb.facstaff.wvu.edu/shulld/ESCI%20432/Nowacek2004.pdf>

W6. Van Der Hoop et al., Foraging Rates of ram-filtering North Atlantic right whales, *Functional ecology*, Volume 33, pages 1290-1306.

<https://core.ac.uk/download/pdf/323987541.pdf>

W7. NJDEP, *Ocean/Wind Power Ecological Baseline Studies*, Volume III, page 5-35, marine mammals, the right, fin and humpback whales

https://www.nj.gov/dep/dsr/ocean-wind/Ocean%20Wind%20Power%20Ecological%20Baseline%20Studies_Volume%20Three.pdf