



Save Long Beach Island, Inc.
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Offshore Wind Activities Do Kill Whales: Here's Some Evidence

By Bob Stern, Ph.D. Engineer and Co-Founder/President of Save LBI

Offshore wind proponents, the experts now on their payroll, and most media outlets continue to publish statements claiming there is “no evidence” that offshore wind activity kills whales.

Given the whale’s total reliance on natural noise for its survival, such assertions are dead wrong as they ignore the facts at hand.

The intensity and expanse of the underwater noise created by the survey ships use to map the seabed, the 19,954 strikes it takes to “pile drive” each multi-thousand-ton foundation into the seabed, and the persistent, long-term noise from the operation of hundreds of towering wind turbines are all immensely harmful to whales. The Atlantic Shores South and North projects alone would place 357 of the world’s largest turbines less than 9 miles off the coast of Long Beach Island and Brigantine, NJ.

First a little background.

How does noise impact whales? A whales’ hearing can be damaged by both the level (volume) of noise reaching it and the length of time the whale is subjected to that noise. Elevated levels of underwater noise are also known to disturb normal whale behavior, which can also lead to catastrophic consequences.

How bad is the noise created by offshore wind activities? Without getting too deep into the science of hydro acoustics, whale hearing is extremely sensitive and therefore easily disturbed, even at considerable distances from the noise source. To understand just how disruptive noise from offshore wind activities is, you have to look at how loud the noise is at the source level, how rapidly it loses strength (transmission loss) as it propagates through the water, and how loud that noise is when it reaches the whale.

Regarding the vessel surveys using high intensity noise devices to characterize the seabed, we know that the elevated noise levels from the survey devices are in the frequency range of a whale’s hearing and vocalizations, and will without question disturb their behavior, which can lead indirectly to serious harm and even death. Using the right noise device source level and dissipation rate, the noise from survey vessels as far as *1.6 miles away* causes disruptions in the whale’s behavior, and this impacts more animals as the ship moves around.

The noise produced by pile driving activities and, ultimately, the operation of hundreds of wind turbines is much louder and even more disruptive to whales. The noise from the massive hammers used to pile drive turbine foundations into the seabed is so loud that whales as far as *4 miles away* from the construction site are impacted.

But it gets worse. When those hundreds of turbines start spinning, the operational noise is so intense that it affects whales as far as *12 miles away* from the perimeter of the turbine field. (Visit SaveLBI.org for full technical details linking whale deaths to offshore wind projects.)

Now let's look at what proponents of offshore wind are claiming.

MYTH #1: Almost all whale deaths are due to vessel strikes and fishing gear entanglements.

FACT: The National Marine and Fisheries Service (NMFS) examines roughly half of the beached whales and finds that 40 percent of them die from entanglements and “blunt force trauma” attributed to ship strikes. *But that accounts for only 20 percent of the total whale deaths.*

For illustration purposes and to help put things in perspective with simple math, if the total number of whale deaths was 100 but you examined only half of the dead whales (50, or 50 percent) and found that 20 of those (40 percent) deaths were caused by vessel strikes and entanglements, that means 80 out of the 100 whale deaths (80 percent) are unexplained — that is, until you consider that the NMFS does not even look for hearing damage in its examinations. In other words, it is impossible to rule out hearing impairment as a precipitating factor even in those 20 whale deaths.

One thing is clear: *Something more than vessel strikes and fishing gear entanglements is causing most of the harm to whales off the Atlantic Coast.*

MYTH #2: Disturbances to whale behavior caused by offshore wind activities are not that bad — the whales will recover.

FACT: It's not so simple. Noise from offshore wind activities causes a great deal of stress in whales. It can impair or even block migration and cause whales to lose communication with one another (between a mother and calf, for example) *and* lose critical navigational capabilities, which can lead to stranding.

Noise can also cause whales to stop feeding, surface at moments that make them vulnerable to vessel strikes, and create other impacts we don't even know about. These are all outcomes that can lead to serious harm and fatality. The bottom line: These disturbances are certainly not innocuous, as many offshore wind proponents would have you believe.

MYTH #3: There is “no evidence” of a connection between the vessel surveys and whale deaths.

FACT: That depends on what you consider as evidence. While we have no testimony from the whale's family, there *is* clear evidence linking them together. The data on whale deaths and survey vessel presence clearly shows that the number of deaths increases with the number of survey vessels out there. It also shows that the places where the whales washed up coincides with survey vessel presence nearby. This is not a coincidence. It doesn't take a rocket scientist to put two and two together.

MYTH #4: Very few, if any, whales will suffer permanent hearing loss and die from the pile driving of the turbine foundations into the seabed.

FACT: The computer models used by the National Marine Fisheries Service to predict this outcome are extraordinarily optimistic. *The models always show that no North Atlantic right whale will lose its hearing and die, regardless of the wind project, its location, the number and size of the turbine foundations to be driven into the seabed, the density of animals present, and what they are doing or where they are going.*

The agencies don't divulge the inner workings of their models, but when you dig into their numbers, you find some very interesting assumptions. For one, they have recently switched their tune and are now using a new “density” model saying the endangered right whale isn't coming close to the New Jersey shore, despite the fact that it has been migrating close to the Atlantic Shores project area off the coast of Long Beach Island for many years, that its food source is still close to shore, and that the University Laboratory collecting the density data says its preliminary and not to use the new model.

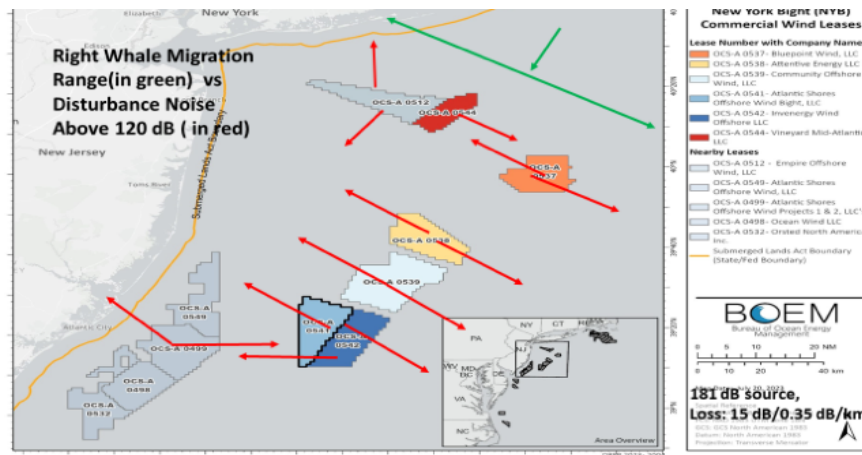
Finally, even though the endangered right whale is classified as a “low frequency cetacean” and has been known to transmit low-frequency sounds hundreds of miles, we are now told they don't hear that well at low frequencies anymore — frequencies that just happen to be in the same range of the low-noise frequencies generated during pile driving. Actually, a relatively straightforward calculation using the

optimistic noise levels and the time it takes for the relatively slow moving right whale to pass by shows that if it comes within 3.7 miles of the pile driver, it will suffer permanent hearing loss.

MYTH #5: Noise generated by the operation of wind turbines is low and does not extend that far past turbine structures, so it won't be a problem for whales.

FACT: That was the case with smaller turbines, but the noise level for the new, significantly larger turbines increases exponentially with their increased power and is further intensified when hundreds of turbines are operating in close proximity to one another. Each of the 357 turbines Atlantic Shores Offshore Wind plans to use in its Atlantic Shores South and Atlantic Shores North projects stand 1,048 feet tall, which is three times the height of the Statue of Liberty, making them the largest wind turbines in the world.

This inconvenient fact is now a major problem that federal agencies avoid because they know it casts serious doubt on their project site selection, which is often in the whale's migration path as shown in the NJ/NY region map below. The whale has shown preferred routes that it takes to migrate, but the green line shows the outer range of that migration. The red lines show where a migrating whale will be disturbed by noise from the projects in this region. So we leave it to you to figure out how whales will get past all those red lines as they travel along the coast of New Jersey.



MYTH #6: Episodes of whale stranding around the world that are associated with the use of noise-generating "air guns" have no bearing on what's going on off the coast of New Jersey.

FACT: The "experts" who make this claim rightly point out that the air guns are louder than the "sparker units" used here, but fail to mention that air guns direct noise *mostly downward*. Sparker units, on the other hand, propagate noise in *all directions*, spreading it outward between the seabed and the sea surface where most of the animals are, and there the noise levels between the two devices are comparable. To say that worldwide whale strandings associated with vessel surveys are not relevant here is simply untrue.

MYTH #7: Offshore wind projects will not significantly harm marine mammals.

FACT: Totally False.

About the Author: Bob Stern is a Ph.D. engineer with experience in environmental law who previously managed the U.S. Department of Energy's office overseeing environment protection related to energy programs and projects.



About Save LBI: Save Long Beach Island (Save LBI) is an organization of citizens and businesses on and off the Island working together to protect the ocean and Long Beach Island and neighboring communities from the destructive impact of this offshore wind project, and perhaps others. As a not-for-profit, non-partisan entity, we do not endorse any political candidates but vigorously



pursue policies and actions that protect the Island and surrounding communities. Save LBI is pursuing lawsuits under the Endangered Species Act and the Marine Mammal Protection Act to protect these animals. Visit [SaveLBI.org](https://www.saveLBI.org) or scan the QR code to learn more, and please consider making a donation.