

Professor Makes Stunning Discovery: ‘Absolutely, 100 percent, Offshore Wind Kills Whales’

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For the best part of half a century, a 41-foot humpback whale named Luna swam up and down the East Coast. [emphasis, links added]

Then on Jan. 30, 2023, [Luna washed up dead on Long Island](#), New York.

**He was the tenth whale to strand on beaches in New York and [New Jersey](#) in nine weeks.** Environmentalists, politicians, and ordinary citizens loudly wondered if the construction of offshore wind turbines was [killing them](#).

Apostolos Gerasoulis, a Rutgers professor emeritus of computer science who co-created the search engine that powers Ask.com, now says the answer is yes.

**‘Absolutely, 100 percent, [offshore wind kills whales](#),’ he says.**

Early in 2023, Gerasoulis began researching whale deaths. That summer he started building a software system to identify any relationship between the dead whales and offshore wind survey vessels, which use loud blasts of sonar to map the seabed for the installation of offshore wind turbines and high-voltage cables.

He named the system Luna.

**But the National Oceanic and Atmospheric Administration (NOAA), which is responsible for protecting marine animals and their habitats insists [there is no connection](#).**

‘To date, [no whale mortality](#) has been attributed to offshore wind activities,’ said Lauren Gaches, NOAA Fisheries public affairs director shortly after Luna’s body was found.

**Whale deaths had started increasing several years earlier.** NOAA declared ‘unusual mortality events’ for humpback whales in 2016, minke whales in 2017, and [North Atlantic right whales](#) also in 2017.

**The death count is now up to 534 for these species.**

Wind farm developers started sending out sonar vessels to [blast the ocean floor with high-intensity sound waves](#) to map it for offshore wind farms in 2016.

But NOAA still denies any connection.

‘At this point, there is no scientific evidence that noise resulting from offshore wind site characterization [surveys or pile driving](#) could potentially cause whale deaths,’ Katie Wagner, NOAA public affairs specialist, told DailyMail.com.

‘There are [no known links](#) between large whale deaths and ongoing offshore wind activities.’

However, according to Gerasoulis, **NOAA data reveal that humpback whale deaths in New York, New Jersey, and Rhode Island waters went from an average of two per year before 2016 to 10 in the years since.**

**Last year, 21 [humpback whales](#) died in the region.**

‘You have 20 dead whales. You used to have two, and now it’s 20,’ Gerasoulis said. ‘So I started looking at this from every perspective.’

He loaded NOAA data on whale deaths, the zigzag courses of survey ships, and even wave action into his computer system.

**Luna revealed patterns that Gerasoulis believes point to [offshore wind survey vessels](#) as the cause of the whale deaths.**

Gerasoulis is an expert in computational sciences, search engines, high-performance computing, and data analytics. ‘There are five people in the world who build search engines,’ Gerasoulis says. ‘I’m one of them.’

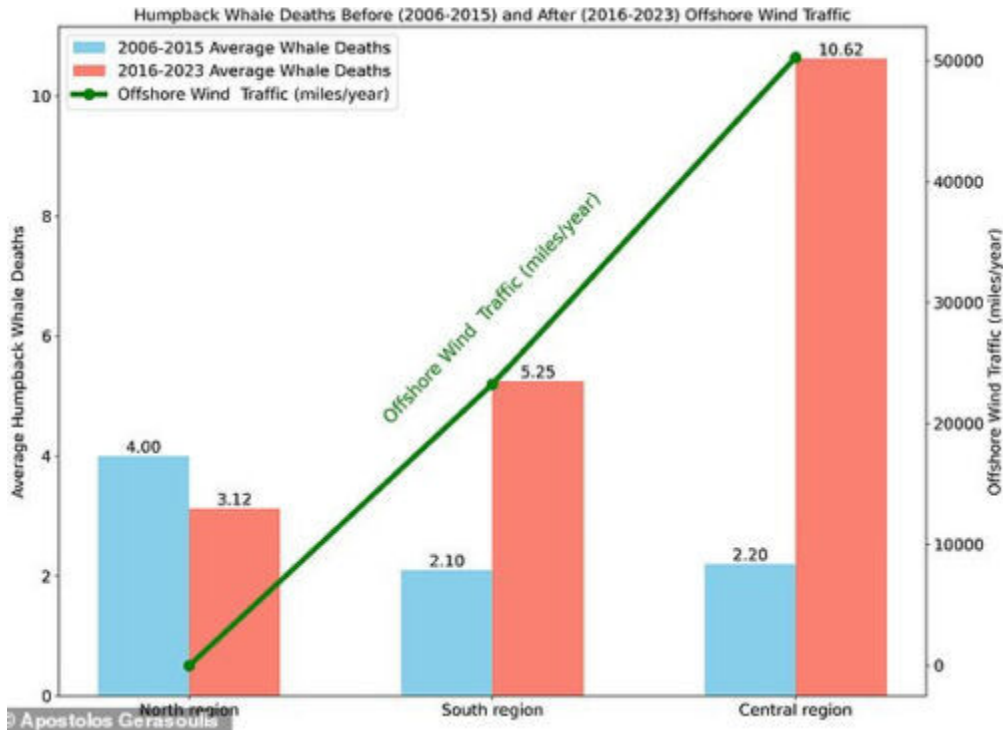
Last year he founded Save the East Coast to investigate the [impact of offshore wind on oceans, marine life, fishermen, and shore communities](#).

The Luna software system that Gerasoulis built integrates NOAA data on whale, dolphin, and porpoise deaths with vessel traffic data from MarineCadastre.gov. He believes it is the first system of its kind.

**Luna generates maps of the U.S. East Coast and plots the locations of offshore wind farms; the deaths of whales, dolphins, and porpoises; and the routes taken by various survey ships.**

Luna can display any specific geographic area, time frame, marine mammal species, or ship, depending on the query.

For example, from 2017 through 2023, **a total of 286 whales, dolphins, and porpoises died along the New Jersey and New York shores.** Luna shows exactly where they were found.

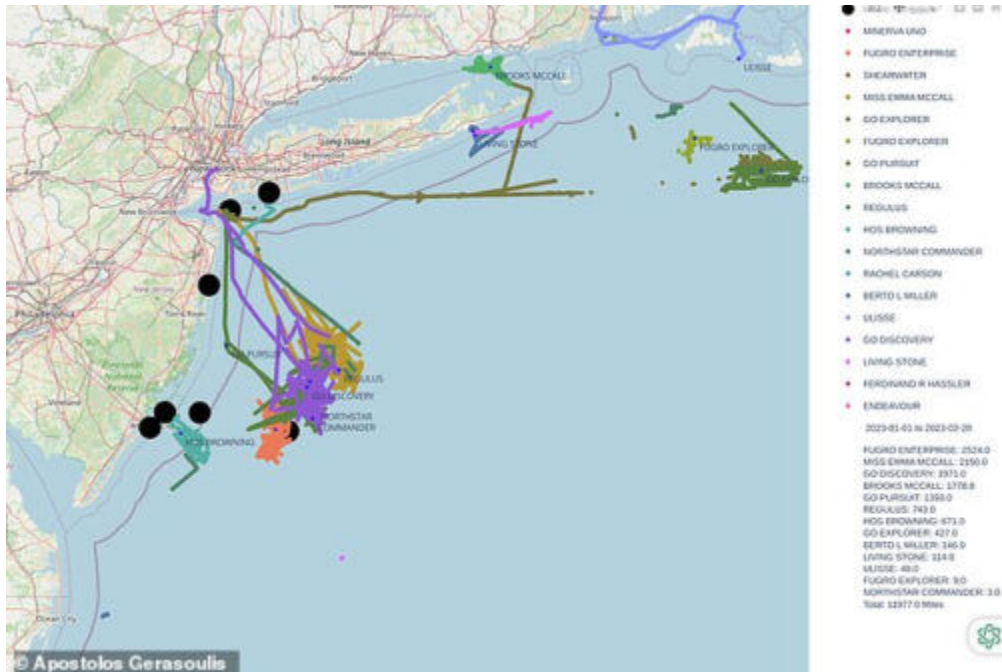


Gerasoulis

divided his data into two samples – the number of humpback whale deaths from 2006 to 2015 in the area, and the number of whale deaths after 2016 when offshore wind surveys were underway.

Luna visually displays the zigzag routes taken by offshore wind survey vessels. During January and February 2022, there was little survey boat in the area. Six vessels traveled a total of 4,213 miles. One humpback whale died.

**January and February 2023, however, showed a tremendous increase in survey vessel traffic in the waters off New Jersey and New York – 13 vessels traveled a total of 11,977 miles. Seven humpback whales died, including Luna.**

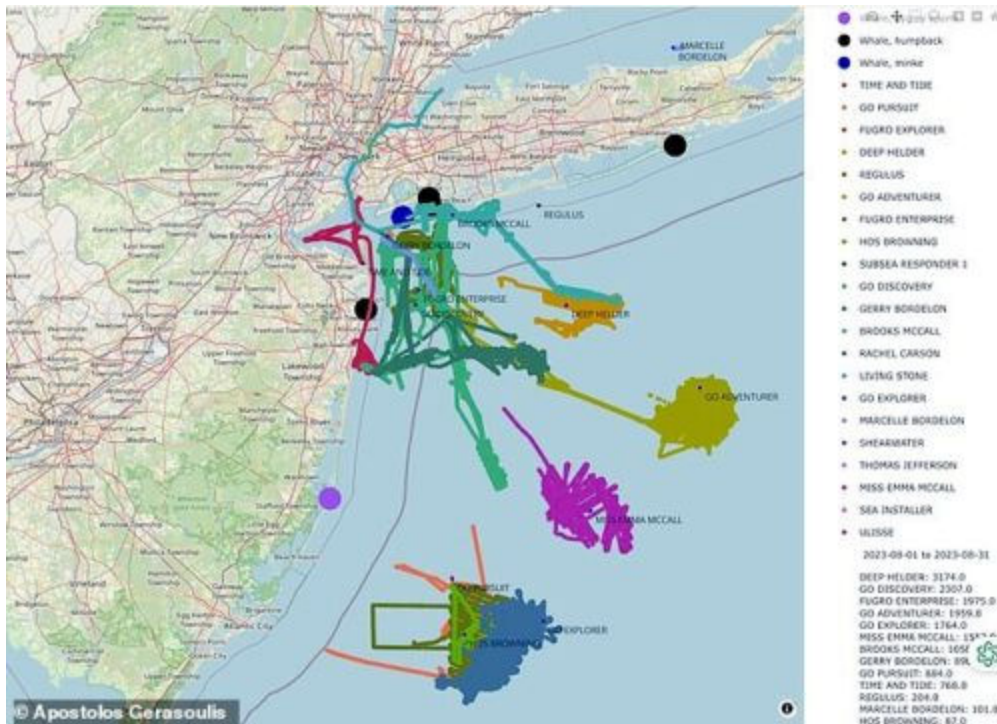


During

January and February of 2023, 13 offshore wind survey vessels conducted sonar testing off the coasts of New Jersey and New York. Seven humpback whales, including Luna, died, represented by black dots. One of them was Luna, who washed up on Lido Beach, Long Island.

In August 2022, survey boat traffic was minimal off the New Jersey coast. Two survey vessels worked near Asbury Park and two more worked off Atlantic City. They traveled a total of 5,469 miles. There was plenty of open water around the two survey areas and no humpback whales died.

August 2023, however, was a different story. Sixteen different offshore wind survey vessels moved slowly back and forth off the coast. **They covered a total of 16,812 miles, triple the amount of the previous August. Six whales died that month.**



In August 2023, 16 different survey vessels worked off the coast of New Jersey and New York. Six whales died: Four humpback (black dots), one minke (dark purple dot), one pygmy sperm (lavender dot).

In the summer of 2022, Trisha DeVoe, a conservation biologist on the Miss Belmar whale-watching boat, first spotted a two- to three-year-old male humpback whale. He became No. 0260 in the New York-New Jersey humpback whale catalog run by Gotham Whales.

‘He was just a typical, healthy young humpback whale,’ DeVoe says. ‘We observed him several times during that whale-watching season over the summer.’

**But the last time Miss Belmar passengers saw No. 0260, in October 2022, half of his tail fluke was missing. It looked like it had been chopped off by a boat propeller.**

‘We honestly didn’t know if he would survive such an injury,’ DeVoe says. ‘We didn’t know if he would be able to continue to swim and forage and behave like a whale with just half a tail fluke.’

Humpback whales stay in New Jersey waters for an average of 38 days, DeVoe says. In the fall they swim to the Caribbean to breed and give birth. She didn’t know if the young whale would make it.

The following July, DeVoe was thrilled to see 0260 back at the Jersey Shore.

‘Not only did he survive, he was thriving,’ DeVoe says. ‘He made that long migration down to the breeding grounds, and he came all the way back up, thousands of miles, so he was able to swim. He was so resilient.’

On July 24, 2023, DeVoe photographed the whale breaching off the Jersey shore.



He subjected the samples to two sophisticated statistical tests. Both indicated that **the difference in whale deaths before and after offshore wind surveys started was statistically significant and not random.**

‘If you are statistically significant, it means something seriously is happening,’ Gerasoulis says. ‘You better find the root of this.’

On its web page about the humpback whale’s unusual mortality event, NOAA says that necropsy examinations were conducted on approximately half of the dead whales.

Forty percent showed evidence of fishing gear entanglement or ship strikes, although **it wasn’t always clear if the ship strike occurred before or after the whale was dead.**

So Gerasoulis analyzed cargo ship traffic and whale deaths.

He found that in 2020-2021 container ship traffic was up 18 percent, and whale deaths were down 92 percent. But in 2022-2023 container ship traffic was down 18 percent, and whale deaths were up 162%

**‘The data contradict the assumption that container ship traffic is the primary cause of increased whale deaths, indicating other factors are at play,’** Gerasoulis insists.

Humpback whales migrate from the Caribbean to the Gulf of Maine and back every year, about 1,700 miles each way.

But offshore wind survey vessels have not been operating at the same level all along the route, enabling Gerasoulis to analyze data from three distinct regions of the Atlantic Ocean.

The northern region, including Maine, New Hampshire, and Massachusetts above Rhode Island, had no offshore wind survey vessel traffic. Before 2016, an average of four humpback whales died per year, and after 2016, the average was 3.125.

**‘What is significant about this result is that if ship strikes were the cause of the increase in whale deaths, this increase would have been reflected in the data,’** Gerasoulis says. **‘However, it is not.’**

The southern region, including Delaware, Maryland, and Virginia, had no or minimal survey traffic before 2016 and an average of two humpback whales died per year. **After 2016, the average survey vessel traffic was 23,264 miles per year and the number of dead humpback whales increased to an average of 5.25 per year.**

The central region, including New York, New Jersey, and Rhode Island, had minimal survey traffic before 2016.

**After [2016], survey vessel traffic was an average of 50,300 miles per year, double the amount of the southern region. The number of humpback whale deaths also doubled, to 10.625 per year.**

‘When comparing the south and central regions after offshore wind surveying started, **the averages show an almost linear increase in humpback whale deaths – doubling the traffic results in doubling the whale deaths.**

*It is the cumulative impact of multiple offshore wind boats surveying in a small region where the whales are feeding that is affecting the whales...*

These regions had identical death rates before 2016. This is the strongest correlation between whale deaths and offshore wind survey traffic.

**‘The numbers never lie,’** Gerasoulis says. **‘There is a cause. We have shown that the cause for the death of the whales is offshore wind. Period.’**

Offshore wind survey vessels use equipment such as multibeam echo-sounders, side-scan sonar, and sub-bottom profilers, or ‘sparkers,’ to reveal geological features of the seabed.

**The sparkers send acoustical pulses into the ocean floor that are reflected to receivers on the boats.**

The [underwater noise](#) is loud. On May 8, 2023, Robert Rand, a veteran acoustical consultant conducted a study of the sonar noise generated by the Miss Emma McCall survey vessel off the coast of New Jersey.

The following January, he testified at a Congressional hearing about his findings.

**Rand found that the sound was 224 decibels at the source. As sound waves travel away from the source, volume diminishes. But a half nautical mile away, Rand measured peak sound levels at 151.6 decibels.**

The National Marine Fisheries Service, part of NOAA, says that **whales and other marine mammals can temporarily lose hearing at 152 decibels** of continuous sound and can **permanently lose hearing at 173 decibels**.

‘There’s a saying that a deaf whale is a dead whale,’ says Trisha DeVoe, the conservation biologist.

**‘Because if the whale can’t hear, it can’t see to navigate.** The depths of the ocean are very dark, and they rely on their hearing to know what’s around them.’

The [loud sonar blasts](#) could also disorient the whales, she says.

‘If all of a sudden there’s this incredibly loud, disturbing noise that could even be painful to them, they’re going to run away,’ DeVoe explains.

**‘So we think that it could be deafening them or causing them to flee, and then maybe putting them in harm’s way.’**

DeVoe says whales are resilient animals, and NOAA should [find out what is happening to them](#).

‘We see many whales with scars from propeller strikes or previous entanglements, yet they continue to live and thrive. **If the whales are dying from ship strikes, what is suddenly causing them to be [unable to avoid large ships](#)?’ she asks.**

Gerasoulis says NOAA must study the impact of multiple [wind projects on marine mammals](#).

‘It is the cumulative impact of multiple offshore wind boats surveying in a small region where the whales are feeding that is affecting the whales,’ he says.

‘NOAA needs to investigate.’