Darby Roberts Biodiversity Presentation

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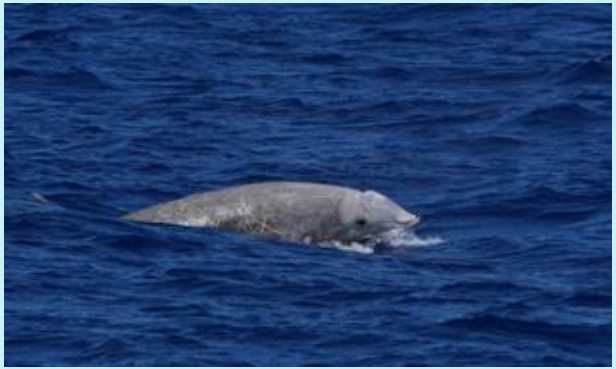
Audio By: Darby Roberts

Goose-Beaked Whales (Ziphius Cavirostris)

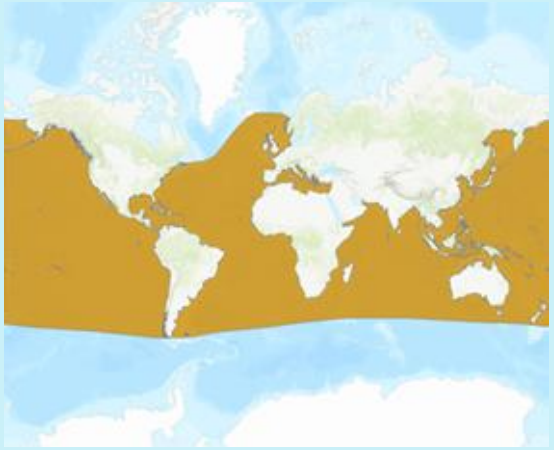
The Goose-Beaked Whale, or “Cuvier’s beaked whale” is a very common whale found in most oceans around the world. They can range anywhere from 15-23 feet in size, and can weigh anywhere from 4,000-6,800 pounds. They eat cephalopods mostly, but also eat fish and crustaceans from time to time. They live pretty long lives with a lifespan of up to 60 years. They are quite shy creatures. For the most part, they choose to stay in deeper waters and blend in with their environments. When they surface, they have a very inconspicuous blow that allows them to keep a low profile. The deepest recorded dive for these creatures was 9,816 feet, which is approximately 2 miles.

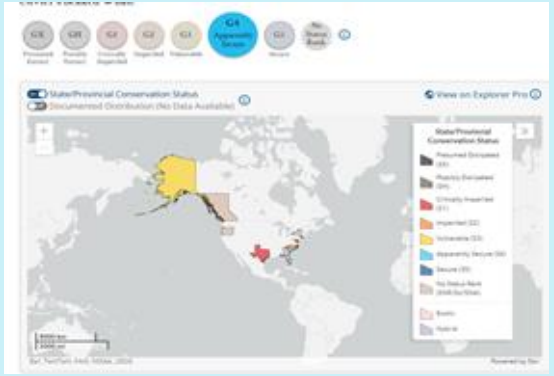


Fisheries, NOAA. “Cuvier’s Beaked Whale.” *NOAA*, 26 Feb. 2026, www.fisheries.noaa.gov/species/cuviers-beaked-whale

Threatened Species Level

The IUCN Red List lists the beaked whale as Least Concern. Although they are listed as such, many things still pose as a threat to these creatures. They often become entangled in fishing gear, and fall victim to different whaling operations. It is also possible that the Beaked Whale is sensitive to noise, which military sonar presents as an issue. They use sound to feed, and military sonar pollutes their ability to hunt. This can result in them being driven away from places that are crucial for their survival.





The IUCN Red List of Threatened Species,
www.iucnredlist.org/species/23211/50379111. Accessed 23 Mar. 2026.

Behavioral Responses of goose-beaked whales to simulated sonar

It has been established that beaked whales are particularly sensitive to noise and human disturbances. Loud noises in particular can cause beaked whales to abandon the environment they need in order to survive and ultimately cause their demise. There are a handful of documented cases that show that military sonar poses a threat to beaked whales for this reason. This sensitivity was first discovered by Tyack, and is part of the risk-disturbance hypothesis, which says that animals respond to different levels of human disturbance in the same way they respond to predation risk. Although the studies done prior were presented us with a lot of information, they were often limited by either small sample sizes, or lack of experimental controls. The current study being done is similar, but is being conducted in places where MFAS (military sonar) occurs at much lower levels than in the previously done study.

This experiment was conducted between May-September of 2017-2022 off of the coast in Cape Hatteras, NC. The team used tags that recorded diving, movement, and sound exposure on 53 different whales. 9 experimental and 4 control groups were assigned. Both low level, and high level sounds were emitted through the tags and the behavioral patterns were recorded. Baseline behavioral patterns were recorded prior to the experiment and acoustic levels were recorded to also establish a baseline. The animals were monitored during 3 30 minute intervals (pre-exposure, exposure, and post-exposure) and the data recorded was analyzed.

Southall, B. L., Schick, R. S., Cioffi, W. R., DeRuiter, S. L., Foley, H. J., & Harris, C. M. (n.d.). Retrieved from

Results

The results showed that goose-beaked whales had little to no reaction to low levels of sonar, behaving similarly to when no sound was present. However, when exposed to higher sound levels, the whales displayed clear behavioral changes, including diving deeper and for longer periods, increasing the time between dives, moving away from the sound source, and stopping echolocation. These responses sometimes lasted well beyond the exposure period. Overall, the findings indicate that while mild sonar has minimal impact, louder sonar can significantly disrupt normal whale behavior, especially activities related to feeding and movement.

Overall, goose-beaked whales are sensitive to higher levels of sonar. This results to significant changes in their behavior like diving, movement, and echolocation. While these reactions do aide them in avoiding danger, they can also disrupt their normal behavioral patterns and feeding. This could negatively affect their health over time. However, the whales never completely left their normal environment, which suggests they have some level of tolerance for these sonars. This study shows us the importance of managing human generated noise so we can reduce its impact on marine life.

Southall, B. L., Schick, R. S., Cioffi, W. R., DeRuiter, S. L., Foley, H. J., & Harris, C. M. (n.d.). Retrieved from

Citations

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Fisheries, N. (2026a). Cuvier's beaked whale. Retrieved from https://www.fisheries.noaa.gov/species/cuviers-beaked-whale

Southall, B. L., Schick, R. S., Cioffi, W. R., DeRuiter, S. L., Foley, H. J., & Harris, C. M. (n.d.). Retrieved from https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.70501

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