

Responses from Dr. Barbara Taylor to questions regarding H.R. 6008

Questions from Rep. Jaren Huffman for Dr. Barbara Taylor, Red List Coordinator for the Cetacean Specialist Group, International Union for the Conservation of Nature

1. *Could you explain what the lack of Rice's whale calls at the GI recorder South of Louisiana could mean for the species distribution?*

A lack of Rice's whale calls at the GI recorder is not a significant factor in the determination of the distribution of the whale in the Gulf of Mexico. The more important factor is that thousands of recordings of call from Rice's whales were gathered at the western-most recorders.

First, the lack of calls at the GI recorder is not evidence that Rice's whales do not move between where whales were detected in the west, south of western Louisiana and Texas, and the De Soto Canyon habitat in the east. The acoustic data indicate that calls most common in the west are occasionally detected in the east on about 6% of the days, which is consistent with some movement between those areas. However, Soldevilla et al. (2022b) state that "given the current data, it remains unknown whether animals are moving between the northwestern and northeastern sites or whether these represent different groups of animals."

Second, the physical location of this particular recorder could be a factor in the lack of recorded calls. The GI recorder is set within a canyon indented from the general shelf break running along the northern Gulf. The distance a whale's call could be heard is unknown, both because of potential sound shadows from the canyon itself and because of relatively high shipping noise in the location of that hydrophone, which could mask the whale's low-frequency calls. Indeed, Soldevilla et al. (2022b) state that higher levels of ambient noise in the western Gulf is likely to significantly reduce the range over which calls are detectable. Because whales' calls are made to facilitate feeding or to communicate, they may call infrequently or not at all if they are transiting from one area of good habitat to another. So, an absence of detected calls at the GI location, while it is difficult to interpret, should not be construed to mean that the whales are not present there.

Finally, and importantly, the presence of calls off western Louisiana and Texas, as well as in the eastern Gulf, is clear evidence that Rice's whales are utilizing these areas. Nearly 2,000 calls were detected at the western-most recorder. Those results are conclusive proof that Rice's whales were present there in every season. In fact, such a high frequency in the number of calls in that western location is clear evidence that De Soto Canyon is not the sole habitat for Rice's whale. In short, the many calls accumulated on that western-most recorder establish that this whale occupies an area extending westward from that Canyon. The lack of recorded calls at the GI recorder does nothing to change that fact. That clear and direct evidence is further supported by studies of the whales' prey, which indicate that their primary prey species is found along the continental shelf break across the northern Gulf (Kiszka et al. 2023).

Questions from Rep. Dingell for Dr. Barbara Taylor, Red List Coordinator for the Cetacean Specialist Group, International Union for the Conservation of Nature

Q1: Dr. Taylor, the oil and gas industry has claimed that there's little scientific evidence to suggest the whale's habitat extends into the central and western Gulf of Mexico, where the industry mainly operates. And it has attacked peer-reviewed scientific studies that claim otherwise. As someone with decades of

experience in marine mammal biology, do you agree with the industry's characterization of the existing evidence?

The industry characterization of the evidence regarding the critically endangered Rice's whale is both unsupported and fundamentally wrong for many reasons. I completely disagree with the characterization offered by those speaking for the industry. That characterization ignores robust, peer-reviewed evidence showing that the whale occupies areas west of De Soto Canyon. Moreover, it provides a misleading picture of the status of Rice's whale that would lead to very dangerous delays in vital efforts to protect the whale from extinction.

1,276 days of acoustic data from the western and central areas of the northern Gulf of Mexico have been analyzed and published in peer-reviewed journals (Soldevilla et al. 2022a, 2022b) by scientists recognized in the marine mammal field as leading experts in whale acoustics. Peer-review is the accepted way to screen out scientific findings that are not sound. If scientists find fault with published findings it is incumbent upon them to publish the reason they find the science unsound in the peer-reviewed literature. To date, no scientist has found fault with the published findings.

These data (analyzed in the peer-reviewed paper by Soldevilla et al. 2022b) indicate persistent presence of Rice's whales in both the western and central Gulf, with higher presence in the westernmost recorder. For rare marine mammals, particularly those found far from easily accessed coastal waters, acoustic recordings offer the best method to characterize habitat usage because a large amount of data can be amassed in a relatively short period of time. Acoustic monitoring can occur 24-hours-per-day, regardless of weather, across weeks, months and seasons. In contrast, visual ship surveys are only within areas where the whales occur for a few days. Therefore, the information presented and analyzed in the Soldevilla paper is the best available science on the question whether Rice's whales are found west of DeSoto Canyon – and it demonstrates conclusively that the whales do inhabit that area.

The industry testimony with respect to Rice's whales not only largely ignores this key evidence, it also introduces unsupported excuses for delaying efforts to protect the whale population. Testimony by Alexandria Loureiro on behalf of the EnerGeo Alliance states that “there is no evidence that the population is declining, nor that animals are vulnerable to an acute anthropogenic threat.” As a scientist with over 30 years of experience in estimating trends in abundance for marine mammals, I can attest that requiring evidence of decline is inappropriate for a critically endangered species. In 2007, I was lead-author on a study calculating the statistical likelihood of detecting a precipitous decline in various marine mammal populations off the United States, given the frequency and precision of monitoring efforts (Taylor et al. 2006). Given the whale's very small abundance and the precision of current estimates, it would take no less than 45 years of annual surveys to determine with high confidence typically demanded in scientific studies that the species is declining at 2%-per-year (one anthropogenic death annually). And why, with 50 individuals remaining would such a delay be justified? Clearly, this kind of delay cannot be justified; these whales are running out of time.

Ms. Loureiro also expresses some skepticism over the threat presented to Rice's whales from ship strikes. But there is sufficient evidence to strongly infer that ship-strikes are an acute anthropogenic threat to these whales. It is clear from tagging data (Soldevilla et al. 2017, Kok et al. 2023) that the whales spend most of their lives in waters shallow enough to be hit by ships; and ship traffic within their habitat is high enough to result in deaths that the population cannot sustain. Indeed, one whale death has been attributed to vessel strike, and another whale has severe deformation of the dorsal fin strongly indicative of vessel strike—a record that almost certainly underestimates the actual number of strikes, since the

majority of mortalities of cetacean species go undetected and unreported. If Ms. Loureiro finds specific fault with the models used by NOAA and others to estimate ship-strike mortality, then such faults should be noted and discussed.

Loureiro also presents misleading testimony by stating that “Rice’s whale detections are quite rare” and then proceeding to present Rice’s whale sightings, but not Rice’s whale acoustic detections. This is an effort to distract members of the subcommittee by diverting their attention away from a key piece of evidence: the nearly 2,000 acoustic Rice’s whale calls detected on the westernmost recorder cannot be categorized as ‘rare’. She further claims that relying on a single study (Soldevilla et al. 2022b) is unscientific, without providing any explanation as to why a peer-reviewed scientific paper including 1,602 days of data should not be relied upon as the best available scientific data. Instead, she states, without supporting justification, that protecting the central and western areas between 100 and 400m depths would ‘provide no tangible benefit to the species’. At the same time, she strongly supports requiring a study (which the Graves bill does not fund) conducted by the National Academies of Science Engineering and Medicine (who lack expertise in marine mammalogy) to determine the occurrence of Rice’s whales, without specifying why the published and ongoing studies are in any way inadequate.

Q2: Dr. Taylor, it was incredibly powerful to hear you mention your direct experience with extinction and endangered animals. If you could do something for the Rice’s whale tomorrow, what would it be? And what does Congress need to do to prevent the extinction of this species?

The greatest immediate threat to Rice’s whales given the best available science is ship-strike. A great deal of research has shown that reducing the speed of ships reduces the probability of lethal ship strikes of baleen whales. Rice’s whales have been documented to utilize shelf-break waters from 100-400m, so the most efficient means to reduce Rice’s whale deaths is to slow ships transiting through those waters.

Prompt actions are needed to prevent extinction. From the whale’s point of view, little has changed to reduce threats since the species suffered an estimated population decline of 22% in the *Deepwater Horizon* Oil Spill. In fact, in the intervening years since that spill there have been more documented human-caused mortalities. Small populations are vulnerable to what conservation biologists call ‘the extinction vortex’ where risks feed back upon each other, causing the species to decline faster and faster. For example, because of high levels of ambient noise in their habitat, whales may not be able to find each other to mate, leading to lower birth rates which leads to fewer whales in the breeding pool which can lead to inbreeding depression and so forth. The most important action in an emergency room with a bleeding patient is to stop the bleeding. Similarly, the most important action for a critically endangered species is to stop the threat that is known to cause deaths, in this case reducing deaths by ship-strike.

There are other actions that could be taken, particularly as research continues to add evidence about the lives of these last whales. Acquiring data rapidly takes adequate funding. Congress can definitely help save this special large whale species living in our waters by funding more research to better understand its needs and threats and improve future conservation actions. However, research should not be used as an excuse to delay actions. Delay increases threats to the species by allowing the worst thing that could be done for Rice’s whale, and that is doing nothing.

References

Kiszka, JJ, Caputa, M, Vollenweider, J, Heithaus, MR, Dias, LA, Garrison, LP (2023) Critically endangered Rice's whales (*Balaenoptera ricei*) selectively feed on high-quality prey in the Gulf of Mexico. *Scientific Reports* 13:6710

Kok, ACM, Hildebrand MJ, MacArdle M, Martinez A, Garrison LP, Soldevilla MS, Hildebrand, JA (2023) Kinematics and energetics of foraging behavior in Rice's whales of the Gulf of Mexico. *Scientific Reports* 13:8996

Soldevilla MS, Hildebrand JA, Frasier KE, Aichinger Dias L and others (2017) Spatial distribution and dive behavior of Gulf of Mexico Bryde's whales: potential risk of vessel strikes and fisheries interactions. *Endangered Species Research* 32: 533–550

Soldevilla MS, Ternus K, Cook A, Hildebrand JA, Frasier KE, Martinez A, Garrison LP (2022a) Acoustic localization, validation, and characterization of Rice's whale calls. *Journal of the Acoustical Society of America* 151:4264–4278

Soldevilla MS, Debich AJ, Garrison LP, Hildebrand JA, Wiggins SM, (2022b) Rice's whales in the northwestern Gulf of Mexico: call variation and occurrence beyond the known core habitat. *Endangered Species Research* 48:155-174

Taylor, BL, Martinez, M, Gerrodette, T, Barlow J (2006) Lessons from monitoring trends in abundance of marine mammals. *Marine Mammal Science* 23:157-175.