Written Testimony of
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Thank you Chairman Bentz, and Ranking Member Huffman for inviting me to testify at this hearing, and particularly on the draft bill sponsored by Representative Graves titled "To prohibit the implementation of certain documents until the Assistant Administrator for Fisheries of the National Marine Fisheries Service issues documents relating to the Rice's whale."

I have been working with marine mammals threatened with extinction for 43 years. I led the largest marine mammal genetics unit in the world during my 30 years with NOAA's Southwest Fisheries Science Center. I've been the International Union for the Conservation of Nature (IUCN) Red List Coordinator responsible for assessing the risk of extinction for the world's cetaceans (whales, dolphins and porpoises) for fifteen years, which gives me a unique overview on the threats facing these special animals.

The bill drafted by Representative Graves and considered here today would result in delaying conservation actions for the most endangered large whale in the world, Rice's whale, a whale that, as far as we know, is currently found entirely in U.S. waters. The best available science demonstrates that there are only about 50 individuals now alive in the Gulf of Mexico (Garrison et al. 2020), which is the lowest abundance for a species of large whale ever recorded.

My testimony today presents evidence on the following: 1) delaying actions for species with extremely small numbers is dangerous, 2) Rice's whale are a legitimate and critically endangered species, 3) the best available science is consistent with presence of this species in the western, central and eastern northern Gulf of Mexico, and 4) ship strikes, oils spills and seismic airgun noise, effects associated with offshore oil and gas development, are serious threats to the species.

My long experience with endangered marine mammals includes being witness to extinction. In 2006 I led one of two vessels surveying the Yangtze River to locate the last of the Yangtze River Dolphins. If we had been successful, our short-term goal

was to take those dolphins into protected lakes until threats could be removed from their natural river habitat. We failed to find any. The last dolphin of the 30-million-year-old species had perished when no one was looking. The collapse happened much faster than anticipated. Witnessing extinction is a soul-crushing experience.

Once the Yangtze River Dolphin became extinct, Mexico's vaquita porpoise had the dubious distinction of being the world's most endangered marine mammal. By 2006 I had already researched vaquitas for 15 years, and I and my fellow Mexican conservation scientists immediately published an article entitled, "Saving the vaquita: Immediate action, not more data" (Jaramillo-Legorreta et al. 2007). Actions to eliminate the only threat to this species, entanglement in gillnets, still have not happened. The sad story of this species is that it too declined very quickly, losing half of its abundance each year over about the last decade. Now only a few handfuls remain.

Journalists often ask me the depressing question "If vaquita go extinct, who's next?" The next most endangered marine mammal species in the world is Rice's whale, and, without protection, it is likely to be the next to go extinct.

Rice's whale, vaquitas and Yangtze River dolphins are all classically vulnerable species: their distribution is small; consequently, their numbers are relatively few, and most importantly their entire distribution is under threats against which they have no natural defenses. One is extinct, one perilously close to extinction and the other, Rice's whale, is at such low numbers that each individual is important for the species' survival. It is the only large whale that, as far as we know, is currently found only in our country's waters.

Rice's whales are listed as "Critically Endangered" on the IUCN Red List because the species is in critical condition. I often use medical analogies because everyone understands the idea of critical condition for someone admitted to the emergency room. Imagine a patient brought to the emergency room who is losing enough blood that their life could be lost quickly if blood flow is not stopped. The doctor would not delay dealing with the known need to stop the bleeding because they wanted to know about other potential health issues. Delay actually causes harm to the patient. Similarly, with dwindling species, actions must be prompt to give the species the best chance to avoid extinction. If you know of threats that have killed whales or significantly threaten their survival, those threats must be addressed as efficiently as possible.

When NOAA is petitioned to list a species under the Endangered Species Act (ESA) a team of scientists is assembled to review the best available science. I have served on many of those teams and was asked, in 2014, to serve on the team evaluating Rice's whale, which was then referred to as the Bryde's whale in the Gulf Mexico. At the time, the evidence to describe these animals as a new species was still being assembled. Nevertheless, it was clear that these whales met the definition of animals deserving the protection of the ESA.

I had not previously done work in the Gulf of Mexico. Records from whalers showed a baleen whale that was found along the shelf-break in the northern Gulf primarily south of Louisiana and in similar depths in the southern Gulf, in Mexican waters (Reeves et al. 2011). Between 2009 and 2015, most sightings were in waters off Mississippi and Florida with no sightings south of Louisiana.

Two maps were highly influential in shaping my picture of threats to these whales. In our Status Review (Rosel et al. 2016), Figure 9B shows oil and gas platforms as of September 2014. The overlap between the whalers' locations south of Louisiana and the oil and gas platforms was startling to me because whales were no longer being seen in their historical range in areas covered with oil and gas platforms. Figure 17 in our Review shows the density of all northern GOM vessel traffic in October 2009-2010, with the highest shipping traffic in yellow and red. This figure was equally startling, and worrying, because it revealed that heavy volumes of ship traffic went right through the shelf-break habitat historically favored by these whales. In fact, the volume was so heavy that it looked like blow torches shooting off the coasts of Louisiana and Texas and into whale habitat. The possibility for ships to strike these whales was obvious.

The Status Review contains tables of the team's rating of threats according to both severity and certainty given the best available scientific evidence. The greatest risk was oil spills and spill response, with unanimous agreement that this was a risk with high severity and nearly unanimous agreement that certainty about the threat was high. Other threats deemed to be nearly as severe were 'energy exploration and development', 'vessel collision', 'seismic surveys', 'stochastic and catastrophic events' and 'the small population size itself', which I'll talk more about in a moment.

The team's work was published in 2016 (Rosel et al. 2016), but the species was not listed until 2019. The Status Review and the ESA listing process prompted a five-year study by NOAA and its research partners, including Scripps Institution of

Oceanography and Florida International University, to obtain more evidence on the whale's habitat and distribution.

Before discussing that research, I'd like to discuss how the status review team dealt with the question of whether these whales were a species, a subspecies or a Distinct Population Segment. Describing new subspecies and species is an active field for whales, dolphins and porpoises. Most species are described using collections of adult male skulls. You could go to the Smithsonian and pull drawers out full of grizzly bear skulls or American bald eagle skulls, but you couldn't pull out a drawer of whale skulls. Nor would the public tolerate going out and collecting such skulls. Fortunately, we can now use genetics to understand how whales in different oceans differ from one another.

Genetics research on these whales began in the early 2000s and by 2004 data were sufficient to suspect that Rice's whales differed significantly from other baleen whales. By the time of the Deepwater Horizon, Rosel and Wilcox had assembled DNA samples from more than 40% of the entire known population of Rice's whales. They compared these samples to the DNA of whale species in the Atlantic Ocean and around the world (Rosel and Wilcox 2014). Results confirmed they were very, very different from the species that they look most similar to, a pantropical species called Bryde's whale. In fact, it is so different that it is just as closely related to the Sei whale, a larger whale outweighing Rice's whale by about 40%. The Status Review Team asked the Society of Marine Mammalogy's Taxonomy Committee, which maintains the official list of marine mammal species, "Are Bryde's whales in the Gulf of Mexico likely to belong to at least an undescribed subspecies of what is currently recognized as *Balaenoptera edeni*?" In this context, 'at least' means that the evidence available in 2014 could mean that these whales were either an undescribed subspecies or a full species. This independent group of experts in cetacean taxonomy unanimously answered, 'Yes'. Since then, Rosel et al. (2021) published the full description as a species using both genetic and morphological data. That Rice's whale is a species has now been fully accepted by the Society of Marine Mammalogy's Taxonomy Committee.

The five-year study that ran from 2016 to 2021 focused on determining the extent, and characteristics, of the whale's habitat. One reason Rice's whale is little known is because it is distributed in deeper offshore waters, feeding near the bottom during the day and spending most of its time near the surface to rest at night, when visibility is low. Rare marine mammals, like vaquitas and Rice's whales, are difficult to study both because they are rare and because visual surveys are costly and

consequently are done over short time-periods. Because marine mammals vocalize to find food and each other, acoustics are a very useful tool for detecting them, and recording devices can gather data in particular areas for months instead of the hours or days allowed by large-vessel surveys. Thus, for rare animals, acoustics offer the best method for recording distribution.

Acoustic studies, published in peer-reviewed scientific journals, have visually validated and characterized three calls made only by Rice's whales and no other whale species (Soldevilla et al. 2022a see also Rice et al. 2014). Five passive acoustic recorders were placed for a year along the shelf break from Texas to the middle of the known core habitat (Soldevilla et al. 2022b). The recorder south of Louisiana, the area with the most historical locations from whaling records, had no detections. However, the other recorders had detections, with the westernmost, which was south of Texas, recording Rice's whales multiple days in every season throughout the year. But the calls differ from those made in the eastern portion of the species' range. Such different calls are not consistent with vagrant whales from the east wandering into western waters. More data often improve management as knowledge gaps are filled. This is just such a case and while additional work may expand the known area of Rice's whale distribution, such data will not contradict the work that has been published by some of the marine mammal field's best acousticians.

Research has also shown the whales' primary prey is distributed throughout the northern Gulf (Kiszka et al. 2023). Rice's whale is a selective predator, focused on aggregations of certain high-energy content fish—primarily a schooling fish known as *Ariomma bondi*. Both historical catch records and near-bottom trawling data shows *A. bondi* favoring the same shelf-break habitat throughout the northern Gulf of Mexico where the whales have been shown to persistently occur.

There is no scientific reason to delay conservation actions because more data are needed to delineate Rice's whale distribution.

As I have stated, our Status Review of the species identified and assessed potential threats to the whale and concluded that some threats were serious or of high severity. Vessel collisions, a threat for many large whales that use habitat in high shipping areas, represent one such threat. Evidence from tags show that the whales spend 85 to 88 percent of the time at night, when they are largely resting, and about 70 percent of the time overall, close to the surface, leaving them highly vulnerable to vessel strikes (Soldevilla et al. 2017, Kok et al. 2023). In 2009, a lactating female

Rice's whale was killed by ship strike, and photo-identification efforts have documented one other Rice's whale with severe disfigurement to the tail stock, likely the result of a vessel strike (Rosel et al. 2021). The northern Gulf of Mexico experiences considerable vessel traffic, particularly in the north-central and western regions where oil and gas exploration and development are concentrated (Rosel et al. 2016). NMFS' 2020 analysis, set forth in its Biological Opinion on oil and gas activities, found that the industry accounted for about 34% of strike risk from all vessels and about 23.5% of strike risk from vessels traveling at speeds greater than 10 knots. An analysis updating NMFS' calculations with the new density estimates for Rice's whale (Litz et al. 2022) found the industry's contribution to be about 39.5% from all vessels and 32% from vessels traveling at speeds greater than 10 knots (Best et al. unpublished).

I was one of four NOAA scientists given the agency's Gold Medal for designing the management scheme for the number of animals that could incidentally be killed by human activities each year and still meet management objectives. This management was part of the Marine Mammal Protection Act's (MMPA) 1994 amendments. The current allowable kill for Rice's whale is 0.07 whales per year, or 1 whale every 14 years. There has been 1 documented death due to ship-strike in the last 14 years. However, it has been estimated that only a small percentage of dead whales are found, so it is likely that ship-strikes alone are more than would be allowed under the MMPA as human-caused mortality. Williams et al. (2011) estimated that only 3.4% of dead sperm whales in the Gulf of Mexico are found as carcasses. This number should be similar to the similarly large and offshore Rice's whale.

In addition to industrial activities posing ship-strike threats to Rice's whales in the central and western Gulf, industrial operations input noise into the whale's habitat. Noise was also characterized by the five acoustic recorders previously mentioned and was found to be higher in the central and western Gulf locations, where Rice's whale are currently found at lower densities, than in the quieter eastern core habitat (Soldevilla et al. 2022b). Sound is a fundamental sense used by whales to survive. Whales find their food and each other acoustically. Chronic noise is a serious detriment to Rice's whales' ability to thrive and recover.

A large proportion of the remaining Rice's whales were estimated to have been affected by the Deepwater Horizon oil spill and clean up[1] (Deepwater Horizon

[1]; Deepwater Horizon Marine Mammal Injury Quantification Team (DWH MMIQT), Models and analysis for the quantification of injury to Gulf of Mexico cetaceans from the Deepwater Horizon oil spill (2015).

Damage Assessment Trustees 2016). Many smaller oil spills have occurred since, and spills remain a threat. To save Rice's whale from extinction, defining critical habitat and maintaining areas where spill threats are minimized is critical. Delaying consideration of Rice's whales' safety by delaying 'implementation of certain documents' specified in this bill increases the risk of extinction for the species.

The proposed bill, in requiring additional studies and assessments, goes far beyond the accepted process of scientific peer review, and would significantly delay any new measures to address these threats. As mentioned previously, gathering evidence on extremely rare species is a time-consuming process. Time the species may not have.

For vaquita porpoises I am often asked whether they are doomed to extinction because the low numbers will inevitably result in inbreeding depression and drive the species extinct. The Status Review rated genetic risks as severe because Rice's whales, like vaquitas, have low genetic diversity. One reason scientists worry about the genetic risks for small populations is inbreeding depression, which is reduced birth rates or increased death rates resulting from close relatives mating and exposing double doses of bad genes. We recently published a paper showing vaquitas to be less vulnerable to such problems because of their natural rarity than naturally abundant species because they had at least 200,000 years to purge their bad genes (Robinson et al. 2022). It is possible that Rice's whale will have a similar pattern. But even if they don't, there are many species that have recovered from very low numbers. For example, Northern elephant seals were thought to have fallen to as few as 30 individuals from many years of hunting. A small island population off Mexico has grown and recolonized the historical range and now numbers well over 150,000 individuals. Despite the slaughter of millions of large whales, there is no similar recovery event to tell us about their genetic resilience, since no species has declined to only 50 individuals, as is the case for Rice's whale. But other baleen whale species, such as Southern right whales and humpback whales, have bounded back from population numbers decimated by hunting. Fortunately, like vaquitas, Rice's whales continue to reproduce.

The Endangered Species Act (ESA) notes that wildlife "are of esthetic, ecological, educational, historical, recreational and scientific value to the Nation and its people". The extirpation of many species of large whales inspired both the ESA and the MMPA. It is both a privilege and a burden to host the only large whale species found, as far as is known, within the waters of a single nation. It is a privilege because the Gulf of Mexico must be a very special place to have its very own large

whale species. It is a burden because such a species is naturally vulnerable and requires special protections. Now that the species numbers only around 50 individuals, those protections must be prompt and adequate to avoid the fate of the Yangtze river dolphin and the likely fate of vaquitas. Neither China nor Mexico have the strong environmental legislation and rule of law that the U.S. has been a world leader in implementing.

Thank you for this opportunity to testify.

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