

## **Possible Environmental Impacts of the Plaquemines LNG Project to Marine Mammals in the Gulf of Mexico**

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Possible marine protected species impacts resulting from the Plaquemines LNG project involve the construction of an export terminal near Barataria Bay, Louisiana, and the increased transiting of LNG carrier export vessels to and from the facility. The drafting and approval of the EIS in 2016/2017, and execution of the DOE Record of Decision (ROD) on the project in 2019 (FE Docket No. 16-28-LNG), occurred before the Rice's whale was listed as an endangered species and its Biologically Important Area was identified (Rice et al. 2014, Rosel and Wilcox 2014, Soldevilla et al. 2017, Hayes et al. 2021, Rosel et al. 2021). Consequently, the EIS does not take into account any possible impacts to an endangered species with an extremely low population size that inhabits an area relatively close to the project site. Both anthropogenic noise and ship strikes have been identified as threats to Rice's whales, where anthropogenic noise represents a chronic stressor impacting social cohesion, communication and other aspects of life history, while ship strikes represent an acute threat of physical trauma, injury or mortality (Soldevilla et al. 2017, NMFS 2020, Hayes et al. 2021). Risks of both elevated noise exposure and ship strikes represent possible threats from the Plaquemines LNG project.

In the Plaquemines LNG EIS, Figure 2.1-3 shows the LNG Carrier Sea Routes for vessels leaving the LNG terminal in Louisiana. The sea route extending to the southeast gets within 65-100 km to the Rice's whale Biologically Important Area (Figure 1). While vessels may not physically pass through the area, noise from transiting ships would propagate across the Rice's whale core area. The NOAA Nautical charts used to generate Fig. 2.1-3 were last updated in 2013 (<https://charts.noaa.gov/OnLineViewer/411.shtml>), which preceded the identification of the Biologically Important Area for the Rice's whale (LaBrecque et al. 2015).

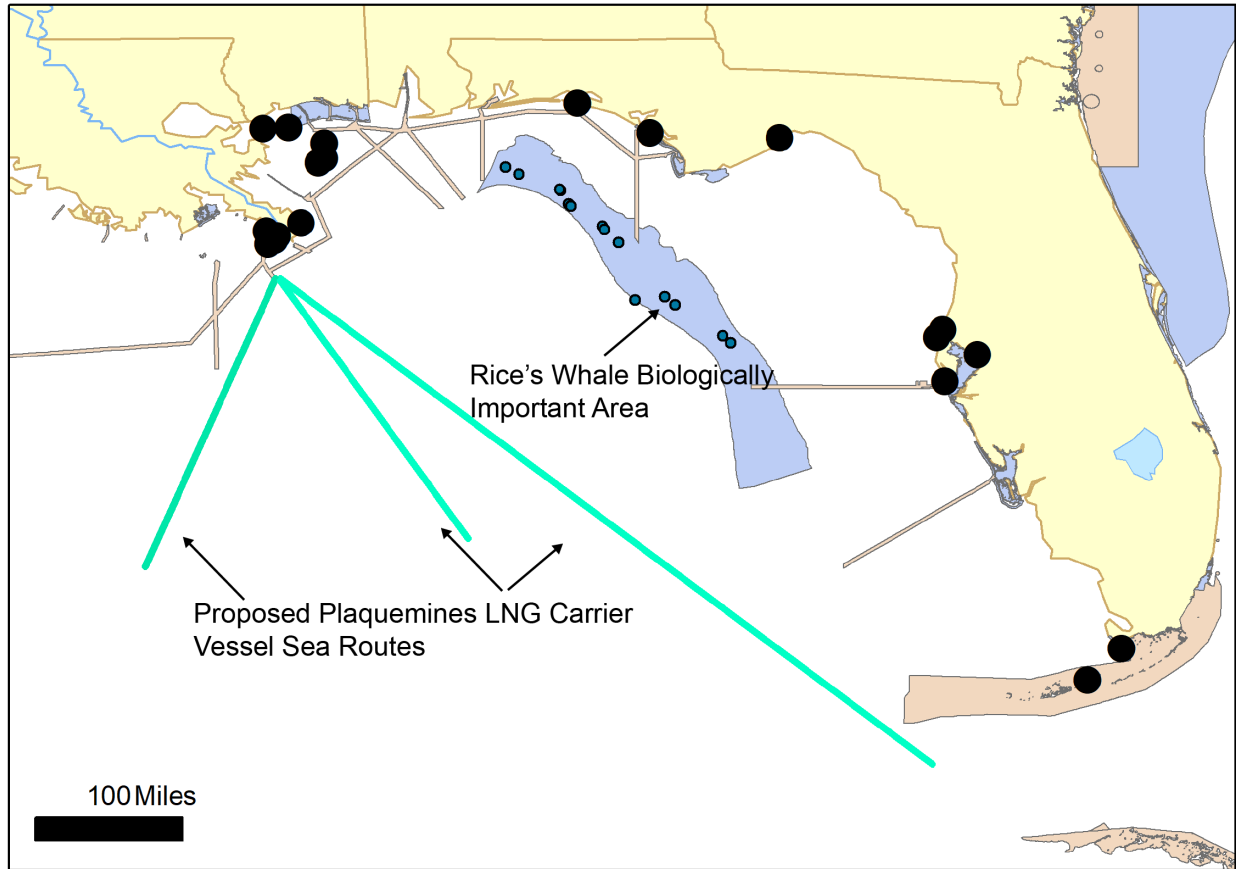


Figure 1. Map of Plaquemines LNG project site in Louisiana showing the carrier vessel transit routes (light blue) extending south. East of the sea routes is the Rice's whale Biologically Important Area (blue polygon) which has the largest number of detections of Rice's whales in the Gulf of Mexico. Sightings of live Rice's whales are indicated by blue circles (data from OBIS SEAMAP), and stranded Rice's whales (confirmed or potential) are indicated by black circles (data from Rosel et al. 2021).

In the list of Federal and State protected species occurring in the vicinity of the project, Rice's whales are not included in Table 4.7-1, either under the current recognized species status or under their previous classification of Bryde's whales, and consequently, possible impacts to Rice's whales either from construction of the terminal or operation of LNG vessels is not considered or mentioned in Section 4.7.1.

In their identification of Rice's whale stranding events, Rosel et al. (2021) identify five stranding events of Rice's whales/Bryde's whales or "Bryde's-like whales" near the Plaquemines LNG

terminal site (Figure 1), suggesting that Rice's whales may venture closer to shore and outside of their core area putting them at risk of both elevated noise exposure and ship strikes (Soldevilla et al. 2017).

Noise extents exceeding the established marine mammal disturbance thresholds (120 dB re 1  $\mu$ Pa) from unmitigated pile driving range from 0.218-2.181 km (Table 4.7-3). However, in Section 4.11.2 addressing the noise environment, there is no consideration of underwater noise.

Mitigation measures for whale species during offshore LNG carrier transits, do not sufficiently mitigate against ship strikes at night nor increases in noise in the Rice's whale core habitat. The listed impact mitigation measures include (see EIS at 4-96): 1) Maintaining watch for protected species, 2) Maintaining buffer zone if species are sighted, 3) Reducing engine speed, and 4) Reporting collisions or any sightings of injured/dead protected species. It is not specified what the exact cetacean detection measures would be. Presumably, detection would rely on visual observations from Marine Mammal Observers (MMOs)/Protected Species Observers (PSOs), but boat-based visual detections have a spatially limited detection range and are only effective during daylight or favorable weather conditions when there is adequate visibility. Visual observations are not effective at night or during poor-visibility conditions (e.g., fog, rain). Additionally, the spatial extent of noise radiating from vessels exceeds the spatial detection distance for visual observations, so MMOs/PSOs would not be able to observe all whales exposed to elevated noise levels from transiting LNG carrier vessels. The mitigation measures associated with operational noise impacts (Section 4.11.2.4) focus exclusively on airborne noise, and do not discuss relevant underwater noise mitigation such as reduced vessel speeds or ship-quieting technologies. A combination of monitoring and mitigation measures (e.g., aerial surveys, passive acoustic monitoring) could help identify the probability of whale encounters along shipping transit routes, and real-time passive acoustic technology (Spaulding et al. 2010, Tyrrell et al. 2012, Baumgartner et al. 2019) could be used to detect whale species near the sea transit routes; such measures have effectively been implemented for LNG projects in Massachusetts where possible adverse effects to protected whale species are of immense management concern (Tyrrell et al. 2012).

Outside of the proximate concerns to Rice's whales, Barataria Bay is also a Biologically Important Area for bottlenose dolphins in the Barataria Bay Estuarine System Ecosystem Stock (LaBrecque et al. 2015), with an estimated population size of 2014-2603 individuals as of their last assessment in 2017 (Hayes et al. 2018). There was an estimated 51% decrease in the population size of this stock following the Deepwater Horizon Oil Spill (Hayes et al. 2018). Because mortality of this population from anthropogenic sources exceeds the maximum Potential Biological Removal, while this population is not listed under the Endangered Species Act, it is considered a Strategic Stock, warranting closer monitoring (Hayes et al. 2018). Additionally, the EIS and ROD do not consider the Deepwater Horizon Oil Spill as a pre-existing impact to this bottlenose dolphin population for which activities associated with Plaquemines LNG activities could further exacerbate impacts.

Because the Plaquemines LNG EIS does not consider or address any concerns or possible impacts to Rice's whales, and Rice's whales were listed as endangered under the Endangered Species Act after the project as permitted, under the auspices of both the U.S. Marine Mammal Protection Act and the U.S. Endangered Species Act, protected species consultation should be reinitiated to appropriately evaluate possible impacts to Rice's whales in the context of Plaquemines LNG activities.

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