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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 224

[Docket No. 141216999-6999-02]

RIN 0648–XD669

Endangered and Threatened Wildlife and Plants: Notice of 12-Month Finding on a Petition to List the Gulf of Mexico Bryde’s Whale as Endangered Under the Endangered Species Act (ESA)

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule, request for comments.

SUMMARY: We, NMFS, announce a 12-month finding and listing determination on a petition to list the Gulf of Mexico Bryde’s whale (*Balaenoptera edeni*) as threatened or endangered under the Endangered Species Act (ESA). We have completed a Status Review report of the Gulf of Mexico Bryde’s whale in response to a petition submitted by the Natural Resources Defense Council. After reviewing the best scientific and commercial data available, including the Status Review report, and consulting with the Society for Marine Mammology’s Committee on Taxonomy, we have determined that the Gulf of Mexico Bryde’s whale is taxonomically a subspecies of the Bryde’s whale thus meeting the ESA’s definition of a species. Based on the Gulf of Mexico Bryde’s whale’s small population (likely fewer than 100 individuals), its life history characteristics, its extremely limited distribution, and its vulnerability to existing threats, we believe that the

species faces a high risk of extinction. Based on these considerations, described in more detail within this action, we conclude that the Gulf of Mexico Bryde's whale is in danger of extinction throughout all of its range and meets the definition of an endangered species. We are soliciting information that may be relevant to inform both our final listing determination and designation of critical habitat.

DATES: Information and comments on the subject action must be received by January 30, 2017. For the specific date of the public hearing, see Public Hearing section.

ADDRESSES: You may submit comments, information, or data on this document, identified by the code NOAA-NMFS-2014-0101 by any of the following methods:

- Electronic Submissions: Submit all electronic comments via the Federal eRulemaking Portal. Go to *www.regulations.gov#!/docketDetail;D=NOAA-NMFS-2014-0101*, click the "Comment Now!" icon, complete the required fields, and enter or attach your comments;
- Mail: NMFS, Southeast Regional Office, 263 13th Avenue South, St. Petersburg, FL 33701;
- Hand delivery: You may hand deliver written information to our office during normal business hours at the street address given above.

The Status Review of Bryde's Whales in the Gulf of Mexico (Rosel *et al.*, 2016) and reference list are available by submitting a request to the Species Conservation Branch Chief, Protected Resources Division, NMFS Southeast Regional Office, 263 13th Avenue South, St. Petersburg, FL 33701-5505, Attn: Bryde's Whale 12-month Finding. The Status Review report and references are also available electronically at:

http://sero.nmfs.noaa.gov/protected_resources/listing_petitions/index.html

FOR FURTHER INFORMATION CONTACT: Laura Engleby or Calusa Horn, NMFS, Southeast Regional Office (727) 824-5312 or Marta Nammack, NMFS, Office of Protected Resources (301) 427-8469.

SUPPLEMENTARY INFORMATION:

Background

On September 18, 2014, we received a petition from the Natural Resources Defense Council to list the Gulf of Mexico population of Bryde's whale (*Balaenoptera edeni*) as an endangered species. The petition asserted that the Bryde's whale in the Gulf of Mexico is endangered by at least three of the five ESA section 4(a)(1) factors: present or threatened destruction, modification, or curtailment of habitat or range; inadequacy of existing regulatory mechanisms; and other natural or manmade factors affecting its continued existence. The petitioner also requested that critical habitat be designated concurrent with listing under the ESA.

On April 6, 2015, we published a 90-day finding that the petition presented substantial scientific and commercial information indicating that the petitioned action may be warranted (80 FR 18343). At that time, we announced the initiation of a formal status review and requested scientific and commercial information from the public, government agencies, scientific community, industry, and any other interested parties on the delineation of, threats to, and the status of the Bryde's whale in the Gulf of Mexico including: 1) historical and current distribution, abundance, and population trends; 2) life history and biological information including adaptations to ecological settings, genetic analyses to assess paternal contribution and population connectivity, and movement patterns to determine population mixing; 3) management measures and regulatory

mechanisms designed to protect the species; 4) any current or planned activities that may adversely impact the species; and 5) ongoing or planned efforts to protect and restore the species and habitat. We received eight public comments in response to the 90-day finding, with the majority of comments in support of the petition. The public provided relevant scientific literature to be considered in the Status Review report as well as a recently developed density model and abundance estimate. Relevant information was incorporated in the Status Review report and in this proposed rule.

Listing Determinations under the ESA

We are responsible for determining whether the Bryde's whale in the Gulf of Mexico is threatened or endangered under the ESA (16 U.S.C. 1531 *et seq.*). Section 4(b)(1)(A) of the ESA requires us to make listing determinations based solely on the best scientific and commercial data available after conducting a review of the status of the species and after taking into account efforts being made by any state or foreign nation to protect the species. To be considered for listing under the ESA, a group of organisms must constitute a "species," which is defined in Section 3 of the ESA to include taxonomic species and "any subspecies of fish, or wildlife, or plants, and any distinct population segment (DPS) of any species of vertebrate fish or wildlife which interbreeds when mature." Under NMFS regulations, we must rely not only on standard taxonomic distinctions, but also on the biological expertise of the agency and the scientific community, to determine if the relevant taxonomic group is a "species" for purposes of the ESA (see 50 CFR 424.11). Under Section 4(a)(1) of the ESA, we must next determine whether any species is endangered or threatened due to any of the following five factors: (A) the present or threatened destruction, modification, or curtailment of its habitat or

range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence (sections 4(a)(1)(A) through (E)).

To determine whether the Bryde's whale population in the Gulf of Mexico warrants listing under the ESA, we first formed a Status Review Team (SRT) of seven biologists, including six NOAA Fisheries Science Center (Southeast, Southwest, and Northeast) and Southeast Regional Office personnel and one member from the Bureau of Safety and Environmental Enforcement-Gulf Of Mexico Region, to compile and review the best available scientific information on Bryde's whales in the Gulf of Mexico and assess their extinction risk. The Status Review report prepared by the SRT summarizes the taxonomy, distribution, abundance, life history, and biology of the species, identifies threats or stressors affecting the status of the species, and provides a description of existing regulatory mechanisms and conservation efforts (Rosel *et al.*, 2016). The Status Review report incorporates information received in response to our request for information (80 FR 18343; April 6, 2015) and comments from three independent peer reviewers. Information from the Status Review report about the biology of the Gulf of Mexico Bryde's whale is summarized below under "Biological Review." The Status Review report also includes a threats evaluation and an Extinction Risk Analysis (ERA), conducted by the SRT. The results of the threats evaluation are discussed below under "Threats Evaluation" and the results of the ERA are discussed below under "Extinction Risk Analysis."

Section 3 of the ESA defines an endangered species as “any species which is in danger of extinction throughout all or a significant portion of its range” and a threatened species as one “which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” Thus, we interpret an “endangered species” to be one that is presently in danger of extinction. A “threatened species,” on the other hand, is not currently at risk of extinction but is likely to become so in the foreseeable future. In other words, a key statutory difference between a threatened and endangered species is the timing of when a species may be in danger of extinction, either presently (endangered) or in the foreseeable future (threatened).

In determining whether the Gulf of Mexico population of Bryde’s whale meets the standard of endangered or threatened, we first determined that, based on the best scientific and commercial data available, the Gulf of Mexico Bryde’s whale is a genetically distinct subspecies of the globally distributed Bryde’s whale. We next considered the specific life history and ecology of the species, the nature of threats, the species’ response to those threats, and population numbers and trends. We considered both the data and information summarized in the Status Review report, as well as the results of the ERA. We considered impacts of each identified threat both individually and cumulatively. For purposes of our analysis, the mere identification of factors that could impact a species negatively is not sufficient to compel a finding that ESA listing is appropriate. In considering those factors that might constitute threats, we look beyond mere exposure of the species to the factor to determine whether the species responds, either to a single threat or multiple threats, in a way that causes actual impacts at the species level. In making this finding, we have considered and evaluated the best available

scientific and commercial information, including information received in response to our 90-day finding.

Biological Review

This section provides a summary of key biological information presented in the Status Review report (Rosel *et al.*, 2016), which provides the baseline context and foundation for our listing determination. The petition specifically requested that we consider the Gulf of Mexico population of Bryde's whale as a DPS and list that population as an endangered species. Therefore, the SRT first considered whether the Bryde's whale in the Gulf of Mexico constituted a DPS, a subspecies, a species, or part of the globally distributed Bryde's whale population. This section also includes our conclusions based on the biological information presented in the Status Review report.

Species Description

Bryde's whale (*B. edeni*) is a large baleen whale found in tropical and subtropical waters worldwide. Currently two subspecies of Bryde's whale are recognized: a smaller form, Eden's whale (*B. e. edeni*), found in the Indian and western Pacific oceans primarily in coastal waters, and a larger, more pelagic form, Bryde's whale (*B. e. brydei*), found worldwide. Like Bryde's whales found worldwide, the Bryde's whale in the Gulf of Mexico has a streamlined and sleek body shape, a somewhat pointed, flat rostrum with three prominent ridges (*i.e.*, a large center ridge, and smaller left and right lateral ridges), a large falcate dorsal fin, and a counter-shaded color that is fairly uniformly-dark dorsally and light to pinkish ventrally (Jefferson *et al.*, 2015). There is no apparent morphological difference between the Bryde's whale in the Gulf of Mexico and those worldwide. Baleen from these whales has not been thoroughly characterized, but the baleen plates from one

individual from the Gulf of Mexico were dark gray to black with white bristles (Rosel *et al.*, 2016). This is consistent with the description by Mead (1977), who indicated that the bristles of both Bryde's whale subspecies are coarser than those in the closely-related sei whale. Limited data (n=14) indicate the length of Bryde's whales in the Gulf of Mexico is intermediate with the currently recognized subspecies. The largest Bryde's whale observed in the Gulf of Mexico was a lactating female at 12.7 meters (m) in length and the next four largest animals were 11.2-11.6 m in length (Rosel and Wilcox 2014). Rice (1998) reported adult Eden's whales rarely exceed 11.5 m total length and adult Bryde's whales from the Atlantic, Pacific and the Indian Ocean reach 14.0-15.0 m in length.

Genetics

In a recent genetic analysis of mitochondrial DNA (mtDNA) samples taken from Bryde's whales in the Gulf of Mexico, Rosel and Wilcox (2014) found that the Gulf of Mexico population was genetically distinct from all other Bryde's whales worldwide. Maternally inherited mtDNA is an indicator of population-level differentiation, as it evolves relatively rapidly. Rosel and Wilcox (2014) identified 25-26 fixed nucleotide differences in the mtDNA control region between the Bryde's whale in the Gulf of Mexico and the two currently recognized subspecies (*i.e.*, Eden's whale and Bryde's whale) and the sei whale (*B. borealis*). They found that the level and pattern of mtDNA differentiation discovered indicates that Gulf of Mexico Bryde's whales are as genetically differentiated from other Bryde's whales worldwide, as those Bryde's whales are differentiated from their most closely-related species, the sei whale. In addition, genetic analysis of the mtDNA data and data from 42 nuclear microsatellite loci (repeating base pairs in the DNA) revealed that the genetic diversity within the Gulf of Mexico Bryde's

whale population is exceedingly low. Rosel and Wilcox (2014) concluded that this level of genetic divergence suggests a unique evolutionary trajectory for the Gulf of Mexico population of Bryde's whale, worthy of its own taxonomic standing.

The SRT considered this level of genetic divergence to be significant, indicating that the Bryde's whale in the Gulf of Mexico is a separate subspecies. To confirm its determination, the SRT asked the Society for Marine Mammalogy Committee on Taxonomy (Committee) for its expert scientific opinion on the level of taxonomic distinctiveness of the Bryde's whale in the Gulf of Mexico. The Committee maintains the official list of marine mammal species and subspecies for the Society for Marine Mammalogy. It updates the list as new descriptions of species, subspecies, or taxonomic actions appear in the technical literature, adhering to principle and procedures, opinions, and directions set forth by the International Commission on Zoological Nomenclature. The Committee also reviews, as requested, formal descriptions of new taxa and other taxonomic actions, and provides expert advice on taxonomic descriptions and other aspects of marine mammal taxonomy. In response to the request made by the SRT, all of the Committee members who responded (nine out of nine) voted it was "highly likely" that Bryde's whales in the Gulf of Mexico comprise at least an undescribed subspecies of what is currently recognized as *B. edeni*. This result constituted the opinion of the Committee, which makes decisions by majority vote (W. F. Perrin, Committee Chairman 2015). Based on the expert opinion from the Committee and the best available scientific information, the SRT concluded Bryde's whales in the Gulf of Mexico are taxonomically distinct from the other two Bryde's whale subspecies. The SRT identified the Bryde's

whale occurring in the Gulf of Mexico as a separate subspecies called “GOMx Bryde’s whale,” and conducted the Status Review accordingly.

Our regulations state that, “In determining whether a particular taxon or population is a species for the purpose of the Act, the Secretary shall rely on standard taxonomic distinctions and biological expertise of the Department and scientific community concerning the relevant taxonomic group” (50 CFR 424.11(a)). Under this provision, we must consider the biological expertise of the SRT and the scientific community, and apply the best available science when it indicates that a taxonomic classification is outdated or incorrect. The GOMx Bryde’s whale has a high level of genetic divergence from the two recognized Bryde’s whale subspecies (Eden’s whale and Bryde’s whale) elsewhere in the world. Given this information, we relied on the biological expertise of the SRT and the Committee concerning the taxonomic status of the Bryde’s whale in the Gulf of Mexico. We agree with the SRT and the Committee’s determination that the Bryde’s whale in the Gulf of Mexico is taxonomically at least a subspecies of *B. edeni*. Based on the best available scientific and commercial information described above and in the Status Review report, we have determined that the Bryde’s whale in the Gulf of Mexico is a taxonomically distinct subspecies and, therefore, eligible for listing under the ESA. Accordingly, we did not further consider whether the Gulf of Mexico Bryde’s whale population is a DPS under the ESA.

Distribution

The Status Review report (Rosel *et al.*, 2016) found that the historical distribution of Bryde’s whale in the Gulf of Mexico included the northeastern, north-central and southern Gulf of Mexico. This was based on work by Reeves *et al.* (2011), which

reviewed whaling logbooks of “Yankee whalers” and plotted daily locations of ships during the period 1788 - 1877 as a proxy for whaling effort, with locations of species takes and sightings in the Gulf of Mexico. These sightings by the whalers were generally offshore in deeper (*e.g.*, >1000 m) waters, given their primary target of sperm whales (*Physeter microcephalus*). Reeves *et al.* (2011) concluded whales reported as “finback” by “Yankee whalers” in the Gulf of Mexico were most likely Bryde’s whales, because Bryde’s whales are the only baleen whales that occur in the Gulf of Mexico year-round. The SRT found that these data indicate that the historical distribution of Bryde’s whales in the Gulf of Mexico was much broader and also included the north-central and southern Gulf of Mexico.

Stranding records from the Southeast U.S. stranding network, the Smithsonian Institution, and the literature (Mead 1977, Schmidly 1981, Jefferson 1995) include 22 Bryde’s whales strandings in the Gulf of Mexico from 1954 - 2012, although three have uncertain species identification. Most strandings were recorded east of the Mississippi River through west central Florida, but two were recorded west of Louisiana. There are no documented Bryde’s whale strandings in Texas, although strandings of fin (*B. physalus*), sei (*B. borealis*), and minke (*B. acutorostrata*) whales have been documented.

We began conducting oceanic (ship) and continental shelf (ship and aerial) surveys for cetaceans in 1991 that continue today. The location of shipboard and aerial survey effort in the Gulf of Mexico and Atlantic Ocean was plotted by Roberts *et al.* (2016). Details of Bryde’s whale sightings from these surveys are summarized in Waring *et al.* (2015). During surveys in 1991, Bryde’s whales were sighted in the northeastern Gulf of Mexico along the continental shelf break, in an area known as the De Soto

Canyon. In subsequent surveys, Bryde's whales or whales identified as Bryde's/sei whales (*i.e.*, where it was not possible to distinguish between a Bryde's whale or a sei whale), were sighted in this same region of the northeastern Gulf of Mexico. When observers were able to clearly see the dorsal surface of the rostrum of at least one whale, three ridges were present, a diagnostic characteristic of Bryde's whales (Maze-Foley & Mullin 2006). As a result, our Gulf of Mexico surveys from 1991 - 2015 use sightings of Bryde's whale, Bryde's/sei whale, and baleen whale species collectively as the basis for estimates of Bryde's whales abundance and distribution. Sightings of Bryde's whales in the Gulf of Mexico have been consistently located in the De Soto Canyon area, along the continental shelf break between 100 m and 300 m depth. Bryde's whales have been sighted in all seasons within the De Soto Canyon area (Mullin and Hoggard 2000, Maze-Foley and Mullin 2006, Mullin 2007, DWH MMIQT 2015). Consequently, LaBrecque et al. (2015) designated this area, home to the small resident population of Bryde's whale in the northeastern Gulf of Mexico, as a Biologically Important Area (BIA). BIA's are reproductive areas, feeding areas, migratory corridors, and areas in which small and resident populations are concentrated. They do not have direct or immediate regulatory consequences. Rather, they are intended to provide the best available science to help inform regulatory and management decisions, in order to minimize impacts from anthropogenic activities on marine mammals (LaBrecque *et al.*, 2015).

Despite the lack of sightings of Bryde's whales in the Gulf of Mexico outside the BIA, questions remain about their current distribution in U.S. waters. NMFS surveys recorded three baleen whales sighted outside the BIA (*i.e.*, fin whale identified in 1992 off Texas and two sightings of Bryde's/sei whale in 1992 and 1994 along the shelf break

in the western Gulf of Mexico). In addition, five records of 'baleen whales' have been recorded from 2010 to 2014 west of the BIA, at the longitude of western Louisiana in depths similar to those in the BIA (Bureau of Safety and Environmental Enforcement, unpublished). The two sightings southwest of Louisiana included photographs showing they were clearly baleen whales. However, the information collected was not sufficient to identify to the species level. In 2015 a citizen sighted and photographed what most experts believe was a Bryde's whale in the western Gulf of Mexico south of the Louisiana-Texas border (Rosel *et al.*, 2016). Given these observations, the SRT determined that while it is possible that a small number of baleen whales occur in U.S. waters outside the BIA, these observations in the north-central and western Gulf of Mexico were difficult to interpret (Rosel *et al.*, 2016).

Few systematic surveys have been conducted in the southern Gulf of Mexico (*i.e.*, Mexico and Cuba). Six marine mammal surveys were conducted from 1997 to 1999 in the southern Gulf of Mexico and Yucatán Channel. These surveys focused specifically in the extreme southern Bay of Campeche, an area where Reeves *et al.* (2011) reported numerous sightings of baleen whales from the whaling logbooks. A more recent survey reported a single baleen whale in an area of nearly 4,000 square kilometers (km²) (Ortega-Ortiz 2002, LaBrecque *et al.* 2015). This whale was identified as a fin whale; however, subsequent discussion between the author and the SRT suggested it should have been recorded as an unidentified baleen whale (Rosel *et al.*, 2016). A compilation of all available records of marine mammal sightings, strandings, and captures in the southern Gulf of Mexico identified no Bryde's whales (Ortega-Ortiz 2002) as summarized in the Status Review report (Rosel *et al.*, 2016).

We agree with the SRT's findings that what is now recognized as the GOMx Bryde's whale has been consistently located over the past 25 years along a very narrow depth corridor in the northeastern Gulf of Mexico, recognized as the GOMx Bryde's whale BIA. Sightings outside this particular area are few, despite a large amount of dedicated marine mammal survey effort that included both continental shelf and oceanic waters of the Atlantic Ocean off the southeastern United States and the northern Gulf of Mexico. Historical whaling records indicate that the historical distribution of the GOMx Bryde's whale in the Gulf of Mexico was much broader than it is currently and included the north-central and southern Gulf of Mexico. We agree with the SRT that the BIA, located in the De Soto Canyon area of the northeastern Gulf of Mexico, encompasses the current areal distribution of GOMx Bryde's whale.

Abundance Estimates

All of the abundance estimates for Bryde's whale in the northern Gulf of Mexico are based on aerial- or ship-based line-transect surveys (Buckland *et al.*, 2005). Various surveys conducted from 1991 to 2012 are discussed in the Status Review report (Rosel *et al.*, 2016). As previously stated, nearly all GOMx Bryde's whale sightings occurred in the BIA during surveys that uniformly sampled the entire northern Gulf of Mexico. The Marine Mammal Protection Act abundance estimate used for management of the "Northern Gulf of Mexico Bryde's Whale Stock" is 33 whales (coefficient of variation = 1.07; Waring *et al.*, 2013). Recently, Duke University researchers estimated abundance to be 44 individuals (coefficient of variation = .27) based on the averages of 23 years of survey data (Roberts *et al.*, 2015a, Roberts *et al.*, 2016). No analysis has been conducted to evaluate abundance trends for GOMx Bryde's whale. Given the paucity of data that

influences the range in the abundance estimates, the SRT agreed by consensus that, given the best available science and allowing for the uncertainty of Bryde's whale occurrence in non-U.S. waters of the Gulf of Mexico, most likely less than 100 individuals exist. For the reasons stated above, we concur that likely less than 100 GOMx Bryde's whales exist.

Behavior

Little information exists on the behavior of GOMx Bryde's whale. Maze-Foley and Mullin (2006) found GOMx Bryde's whales to have a mean group size of 2 (range 1 – 5, n = 14), similar to group sizes of the Eden's and Bryde's whales (Wade and Gerrodette 1993). The GOMx Bryde's whale is known to be periodically "curious" around ships and has been documented approaching them in the Gulf of Mexico (Rosel *et al.*, 2016), as observed in Bryde's whales worldwide (Leatherwood *et al.* 1976, Cummings 1985). In September 2015, a female GOMx Bryde's whale was tagged with an acoustic and kinematic data-logging tag in the De Soto Canyon (Rosel *et al.*, 2016). Over the nearly 3-day tagging period, the whale spent 47 percent of its time within 15 m of the surface during the day and 88 percent of its time within 15 m of the surface during the night (NMFS, unpublished data).

Foraging ecology

Little information is available on foraging ecology available for GOMx Bryde's whales. Based on behavior observed during assessment surveys, these whales do not appear to forage at or near the surface (NMFS, unpublished). In general, Bryde's whales are thought to feed primarily in the water column on schooling fish such as anchovy, sardine, mackerel and herring, and small crustaceans (Kato 2002). These prey occur throughout the Gulf of Mexico and the BIA (Grace *et al.* 2010). Tracking data from the

single whale with an acoustic tag (described above) indicated diurnal diving to depths of up to 271 m, with foraging lunges apparent at the deepest depths. That whale was likely foraging at or just above the sea floor (NMFS, unpublished data) where diel-vertical-migrating schooling fish form tight aggregations.

Reproduction and Growth

Little information exists on reproduction and growth of GOMx Bryde's whale; however, similar to Eden's whales and Bryde's whales elsewhere in the world, the GOMx Bryde's whale is considered to have k-selected life history parameters (large body size, long life expectancy, slow growth rate, late maturity, with few offspring). Taylor *et al.* (2007) estimated that Bryde's whales worldwide may reproduce every two to three years and reach sexual maturity at age nine. Given the basic biology of baleen whales, it is likely that under normal conditions, the female GOMx Bryde's whales produce a calf every 2 to 3 years. The largest known GOMx Bryde's whale was a lactating female 12.6 m in length (Rosel and Wilcox 2014). Currently, skewed sex ratio does not appear to be an issue for this population, as recent biopsies have shown equal number of males and females (Rosel and Wilcox, 2014; Rosel *et al.*, 2016). No GOMx Bryde's whale calves have been reported during surveys. However, two stranded calves have been recorded in the Gulf of Mexico: a 4.7 m calf stranded in the Florida Panhandle in 2006 (SEUS Historical Stranding Database) and a 6.9 m juvenile stranded north of Tampa, Florida, in 1988 (Edds *et al.* 1993).

Acoustics

Baleen whale species produce a variety of highly stereotyped, low-frequency tonal and broadband calls for communication purposes (Richardson *et al.* 1995). These

calls are thought to function in a reproductive or territorial context, provide individual identification, and communicate the presence of danger or food (Richardson *et al.*, 1995). Bryde's whales worldwide produce a variety of calls that are distinctive among geographic regions that may be useful for delineating subspecies or populations (Oleson *et al.* 2003, Širović *et al.* 2014). In the Gulf of Mexico, Širović *et al.* (2014) reported Bryde's whale call types composed of downsweeps and downsweep sequences and localized these calls. Rice *et al.* (2014) detected these sequences, as well as two stereotyped tonal call types that originated from Bryde's whales in the Gulf of Mexico. One call type has been definitively identified to free-ranging GOMx Bryde's whales (Širović *et al.*, 2014), four additional call types have been proposed as likely candidates (Rice *et al.*, 2014a, Širović *et al.*, 2014), and two call types have been described from a captive juvenile during rehabilitation (Edds *et al.*, 1993). Based on these data, the calls by the Gulf of Mexico Bryde's whale are consistent with, but different from those previously reported for Bryde's whales worldwide (Rice *et al.*, 2014). These unique acoustic signatures support the genetic analyses identifying the GOMx Bryde's whale as an evolutionary distinct unit (Rosel and Wilcox 2014).

Threats Evaluation

The threats evaluation is the second step in making an ESA listing determination for the GOMx Bryde's whale, as described above in "Listing Determinations Under the ESA." The SRT identified a total of 27 specific threats, organized and described them according to the five ESA factors listed in section 4(a)(1), and then evaluated the severity of each threat with a level of certainty (see Appendix 3 in Rosel *et al.*, 2016). Because direct evidence from studies on GOMx Bryde's whales was lacking, the SRT agreed that

published scientific evidence from other similar marine mammals was relevant and necessary to estimate impacts to GOMx Bryde's whale and extinction risk.

To promote consistency when ranking each threat, the SRT used definitions for 'severity of threat' and 'level of certainty' similar to other status reviews, including the Hawaiian insular false killer whales (Oleson et al. 2010) and the northeastern Pacific population of white shark (Dewar et al. 2013). The SRT categorically defined specific rankings for both severity and certainty for each specific threat (identified below) as "low," "moderate," or "high." The categorical definitions for the severity of each threat were identified by the SRT as 1 = "low," meaning that the threat is likely to only slightly impair the population; 2 = "moderate," meaning that the threat is likely to moderately degrade the population; or 3 = "high," meaning that the threat is likely to eliminate or seriously degrade the population. The SRT also scored the certainty of the threat severity based on the following categorical definitions: 1 = "low," meaning little published and/or unpublished data exist to support the conclusion that the threat did affect, is affecting, or is likely to affect the GOMx Bryde's whale with the severity ascribed; 2 = "moderate," meaning some published and/or unpublished data exist to support the conclusion that the threat did affect, is affecting, or is likely to affect the population with the severity ascribed; and 3 = "high," meaning there are definitive published and/or unpublished data to support the conclusion that this threat did affect, is affecting, or is likely to affect the GOMx Bryde's whale with the severity ascribed. Then, to determine the overall impact of an ESA factor, the SRT looked at the collective impact of threats considered for each ESA factor to provide an "overall threat ranking" for each ESA factor, defined as follows: 1 = "low," meaning the ESA factor included "a low number" of threats likely to

contribute to the decline of the GOMx Bryde's whale; 2 = "moderate," meaning the ESA Factor included an intermediate number of threats likely to contribute to the decline of the GOMx Bryde's whale, or contained some individual threats identified as moderately likely to contribute to the decline; and 3 = "high," meaning the ESA factor included a high number of threats that are moderately or very likely to contribute to the decline of the GOMx Bryde's whale, or contains some individual threats identified as very likely to contribute to the decline of the GOMx Bryde's whale.

The SRT then calculated the numerical mean of the team members' scores for each threat or category of threats. However, we do not believe that relying on the numerical mean of the SRT's scores is appropriate, because the specific rankings for the severity, certainty, and overall threat were categorically defined by the SRT and not numerically defined. Therefore, we assessed the majority vote of the team members' scores (*i.e.*, 1, 2, or 3, as described above) and assigned each threat a specific ranking defined by the SRT's categorical definitions (*i.e.*, low, moderate or high) based on the majority vote of the SRT. When there was no clear majority (*i.e.*, no rank received four votes), the categorical ranking we assigned was a combination of the two ranks receiving three votes each (*e.g.*, three votes for high and three votes for moderate we characterized as "moderate-high").

Each of the 27 threats identified by the SRT is summarized below, by ESA factor, with severity and certainty rankings based on the SRT's categorical scoring, as described above. We also summarize the overall threat ranking for each ESA factor, based on the SRT's scores, and provide NMFS' determination with regard to each factor. A detailed

table of the SRT's threats and rankings can be found in Appendix 3 of the Status Review report (Rosel *et al.*, 2016).

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

The SRT considered the following threats to the GOMx Bryde's whale under ESA Factor A: energy exploration and development, oil spills and spill response, harmful algal blooms, persistent organic pollutants, and heavy metals. Based on the SRT's numerical threat rankings, the overall threat ranking assigned to Factor A was "high."

Energy Exploration and Development

The SRT assigned the threat of energy exploration and development (drilling rigs, platforms, cables, pipelines) a score of "high" severity threat with "moderate" certainty, as it relates to destruction, modification, or curtailments of the range of the GOMx Bryde's whale. (Note: Other aspects or elements of energy exploration and development can act directly on the whales (*e.g.*, noise, vessel collision, marine debris). The SRT evaluated those threats under Factor E, other natural or human factors affecting a species continued existence. Accordingly, we discuss and evaluate those threats under Factor E below.)

The Gulf of Mexico is a major oil and gas producing area and has proven a steady and reliable source of crude oil and natural gas for more than 50 years. Approximately 2,300 platforms operate in Federal outer continental shelf (OCS) waters (Rosel *et al.*, 2016) and in 2001 approximately 27,569 miles (44,368 km) of pipeline lay on the Gulf of Mexico seafloor (Cranswick 2001). For planning and administrative purposes, the Bureau of Ocean Energy Management (BOEM) has divided the Gulf of Mexico into three

planning areas: Western, Central, and Eastern. The majority of active lease sales are located in the Western and Central Planning Areas. Habitat in the north-central and western Gulf of Mexico, which includes the GOMx Bryde's whale's historical range, has been significantly modified with the presence of thousands of oil and gas platforms. The Eastern Planning Area (EPA), which overlaps with the GOMx Bryde's whale BIA, currently has no production activity, with most of the area falling under a moratorium of lease sales until 2022. However, this moratorium expires in 2022, and GOMx Bryde's whale could then be exposed to increased threats associated with energy exploration and development activities (*e.g.*, marine debris, operational discharge, vessel collision, noise, seismic surveys, oil spills, etc.) as they are almost exclusively located within this geographic region. In addition to expressing concern regarding the current curtailment of the GOMx Bryde's whale range due to energy exploration and development in the north-central and western Gulf of Mexico, the SRT raised significant concern about the moratorium expiring and the potential expansion of impacts that opening these waters to development would have on the Bryde's whale BIA in the future, especially in light of the apparent limited use by Bryde's whales of the north-central and western Gulf of Mexico.

Oil Spills and Spill Response

Oil spills are a common occurrence in the Gulf of Mexico. In 2010, the Deepwater Horizon (DWH) oil spill was the largest spill affecting U.S. waters in U.S. history, spilling nearly 134 million gallons (507 million liters) of oil into the Gulf of Mexico. In addition, 46 smaller-scale spills associated with oil and gas related activities

(e.g., platforms, rigs, vessels, pipelines) occurred in the Gulf of Mexico between 2011 and 2013 (OCS EIS EA BOEM 2015-001).

Exposure to oil spills may cause marine mammals acute or chronic impacts with lethal or sub-lethal effects depending on the size and duration of the spill. For large baleen whales, like the GOMx Bryde's whale, oil can foul the baleen they use to filter-feed, decreasing their ability to eat, and resulting in the ingestion of oil (Geraci *et al.*, 1989). Impacts from exposure may also include: reproductive failure, lung and respiratory impairments, decreased body condition and overall health, and increased susceptibility to other diseases (Harvey and Dahlheim 1994). Oil and other chemicals on the body of marine mammals may result in irritation, burns to mucous membranes of eyes and mouth, and increased susceptibility to infection (DWH Trustees 2016). Dispersants used during oil spill response activities may also be toxic to marine mammals (Wise *et al.*, 2014a). After oil spills cease, marine mammals may experience continued effects through persistent exposure to oil and dispersants in the environment, reduction or contamination of prey, direct ingestion of contaminated prey, or displacement from preferred habitat (Schwacke *et al.*, 2014, BOEM and Gulf of Mexico OCS Region 2015, DWH Trustees 2016). The DWH oil spill is an example of the significant impacts a spill can have on the status of the GOMx Bryde's whale. Although the DWH platform was not located within the BIA, the oil footprint included 48 percent of GOMx Bryde's whale habitat and an estimated 17 percent of the species was killed, 22 percent of reproductive females experienced reproductive failure, and 18 percent of the population likely suffered adverse health effects due to the spill (DWH Trustees 2016). Based on the SRT's scoring,

the threat of exposure to oil spills and spill response is a “high” severity threat with a “high” level of certainty to the GOMx Bryde’s whale.

Harmful Algal Blooms

Harmful Algal Blooms (HAB) occur throughout the Gulf of Mexico, with most blooms occurring off the coast of Florida. One of the most common HAB species, *Karenia brevis* (also known as the red tide organism), is common along coastal zones, but can also develop offshore. *Karenia brevis* produces neurotoxins that affect the nervous system by blocking the entry of sodium ions to nerve and muscle cells (Geraci et al. 1989). The neurotoxins can accumulate in primary consumers through direct exposure to toxins in the water, ingestion, or inhalation. Once neurotoxins have entered the food web, bioaccumulation can occur in predators higher up on the food web, like GOMx Bryde’s whales.

HABs are also known to negatively affect marine mammal populations through acute and chronic detrimental health effects, including reproductive failure (reviewed in Fire *et al.*, 2009). Although no documented cases of GOMx Bryde’s whale deaths resulting from HABs exist, cases involving humpback whales (*Megaptera novaeangliae*; Geraci et al. 1989) and potentially fin (*B. physalus*) and minke whales (Gulland and Hall 2007) have been reported. Impacts from HABs have also been associated with large-scale mortality events for common bottlenose dolphins and manatees in the offshore and coastal waters of the northeastern Gulf of Mexico. Given the small population size of the GOMx Bryde’s whale, the SRT noted that a HAB-induced mortality of a single breeding female would significantly degrade the status of the population. Largely due to human activities, HABs are increasing in frequency, duration, and intensity throughout the world

(Van Dolah 2000). Based on the SRT's scoring, the threat of harmful algal blooms (HABs) is a "moderate" severity threat with a "low" level certainty.

Persistent Organic Pollutants and Heavy Metals

Concentrations of persistent organic pollutants (POP) are typically lower in baleen whales compared to toothed whales due to differences in feeding levels in the trophic system (Waugh *et al.*, 2014, Wise *et al.*, 2014b). In general, thresholds for adverse impacts to baleen whales resulting from POPs are unknown (Steiger and Calambokidis 2000).

Little is known about the effects of heavy metals on offshore marine mammal populations. Heavy metals can accumulate in whale tissue and cause toxicity (Sanpera *et al.*, 1996, Hernández *et al.*, 2000, Wise *et al.*, 2009). Similarly heavy metals accumulate in prey at the trophic levels where marine mammals feed. However, concentrations of heavy metals in tissue vary based on physiological and ecological factors such as geographic location, diet, age, sex, tissue, and metabolic rate (Das *et al.*, 2003). Although heavy metals are pervasive in the marine environment and documented in various marine mammal species, their impact on Bryde's whale health and survivorship is unknown. Based on the SRT's scoring, the threat of POPs and heavy metals are "low" severity threat, with a "moderate" level of certainty for POPs and a "low" level of certainty for heavy metals.

Summary of Factor A

We interpret the overall risk assigned by the SRT for ESA Factor A as "high," indicating that there are a high number of threats that are moderately or very likely to contribute to the decline of the GOMx Bryde's whale, or some individual threats

identified as very likely to contribute to the decline of the population. Specifically, the SRT found that energy exploration and development, and oil spills and spill response, were significant threats currently seriously degrading the GOMx Bryde's whale population. In addition, the SRT found that HABs, POPs, and heavy metals are not currently significantly contributing to the risk of extinction for the Gulf of Mexico Bryde's whale.

Based on the comprehensive status review and after considering the SRT's threats assessment, we conclude that energy exploration and development, and oil spills and spill response, are currently increasing the GOMx Bryde's whales risk of extinction.

Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The SRT considered two threats under ESA Factor B; historical whaling and scientific biopsy sampling. The overall rank assigned for Factor B, based on the SRT's scoring, is "low."

Historical Whaling

The SRT scored the impacts from historical whaling as a "low" severity threat with a "moderate-high" degree of certainty. Whaling that occurred in the 18th and 19th centuries in the Gulf of Mexico may have removed Bryde's whales. The primary target species were sperm whales, but other species were taken. Reeves *et al.* (2011) indicated that, during the 18th and 19th centuries, whalers hunting "finback whales" in the Gulf of Mexico were most likely taking Bryde's whales, based on the known distribution and recent records of baleen whale species in the Gulf of Mexico. However, the total number of whales killed during that time cannot be quantified. The SRT determined that it is

unlikely the current low abundance of GOMx Bryde's whales is related to historical whaling, as the population would have recovered to some extent, given the estimated population recovery rate (Wade 1998) and considering that whaling stopped over a century ago (Rosel *et al.*, 2016). Whaling is not a current threat in the Gulf of Mexico and is regulated by the International Whaling Commission (see Factor D). The SRT ranked the impacts from historical whaling as "low" severity threat with a "moderate-high" degree of certainty.

Scientific Biopsy Sampling

Scientific research that may have the potential to disturb and/or injure marine mammals such as the Bryde's whale requires a letter of authorization under the Marine Mammal Protection Act (MMPA). As of March 7, 2016 (the reference date used by the SRT), there was one active scientific permit authorizing non-lethal take of GOMx Bryde's whale and four scientific research permits authorizing non-lethal take of Bryde's whales worldwide, including the Gulf of Mexico. The permits authorize activities such as vessel or aerial surveys, photo-identification, behavioral observation, collection of sloughed skin, and passive acoustics. Four of the permits also authorize activities such as dart biopsies and/or tagging. Biopsy sampling, where a small piece of tissue is removed for analysis, is a common research activity used to support stock differentiation, evaluate genetic variation, and investigate health, reproduction and pollutant loads (Brown *et al.* 1994). Research on wound healing from biopsies has indicated little long-term impact (Brown *et al.*, 1994, Best *et al.*, 2005). In addition, research activities are closely monitored and evaluated in the United States in an attempt to minimize impacts (see

Factor D). The SRT scored the threat of scientific biopsy sampling as a “low” severity threat with a “high” level of certainty.

Summary of Factor B

The overall threat rank assigned for Factor B by the SRT was “low,” indicating there are a low number of threats that are likely to contribute to the decline of the GOMx Bryde’s whale. We conclude, based on our review of the information presented in the Status Review report and SRTs threats assessment, that the threats posed by whaling and scientific biopsy sampling are not increasing the risk of extinction for the Gulf of Mexico Bryde’s whale. Upon reviewing the information in the Status Review report and the SRT’s threats assessment, we concluded that whaling and scientific biopsy sampling are low potential threats to the GOMx Bryde’s whale and are not currently contributing to the risk of extinction.

Factor C. Disease, Parasites, and Predation

The SRT considered the following threats under ESA Factor C: disease and parasites, and predation. The overall rank assigned for Factor C based on the SRT’s scoring was “low.”

Disease and Parasites

There is little information on disease or parasitism of any Bryde’s whale in the literature. Reviews of conservation issues for baleen whales have tended to see disease as a relatively inconsequential threat (Claphan *et al.*, 1999). The SRT noted that cetacean morbillivirus, which causes epizootics resulting in serious population declines in dolphin species (Van Bressem *et al.*, 2014), has also been detected in fin whales in the eastern Atlantic Ocean (Jauniaux *et al.*, 2000) and in fin whales and minke whales in the

Mediterranean Sea (Mazzariol *et al.*, 2012; Di Guardo *et al.*, 1995). In the Gulf of Mexico the morbillivirus outbreaks that occurred in 1990, 1992, and 1994, caused marine mammal mortalities, with most the mortalities being common bottlenose dolphins (Rosel *et al.*, 2016). These outbreaks were thought to have originated in the Atlantic Ocean (Litz *et al.* 2014). An unusual mortality event involving hundreds of common bottlenose dolphins in the Atlantic Ocean from 2013 - 2015 was caused by morbillivirus (Rosel *et al.*, 2016). During this outbreak, a few individuals of multiple species of baleen whales in the Atlantic tested positive for the disease, indicating that it could potentially spread to Bryde's whales (Rosel *et al.*, 2016). However, there have been no confirmed morbillivirus-related deaths of Bryde's whales in the Gulf of Mexico (Rosel *et al.*, 2016).

The SRT identified only two cases of other diseases and parasites known to occur in Bryde's whale detected in Australia (Patterson 1984) and Brazil (Pinto *et al.*, 2004). Based on the SRT's scoring, the threat of disease and parasites is a "low" severity threat with "low" certainty.

Predation

Killer whales (*Orcinus orca*) are the only known predator to Bryde's whales and they occur in areas further offshore from the BIA (Silber & Newcomer 1990, Alava *et al.* 2013). There are no published records of killer whale predation of GOMx Bryde's whale (Rosel *et al.*, 2016). Killer whales have been observed harassing sperm whales and attacking pantropical spotted dolphins (*Stenella attenuate*) and a dwarf/pygmy sperm whale (*Kogia sp.*) (Pitman *et al.* 2001, Whitt *et al.* 2015, NMFS SEFSC, unpublished) in the Gulf of Mexico. While large sharks (*e.g.*, white sharks *Carcharodon carcharias*, and tiger sharks *Galeocerdo cuvier*) are known to scavenge on carcasses of Bryde's whales

elsewhere in the world (Dudley et al. 2000), the SRT found no published reports of large shark predation on healthy, living individuals (Rosel *et al.*, 2016). Based on this information, the SRT's scoring of this threat was "low" severity with "low" certainty.

Summary of Factor C

The overall threat rank assigned for Factor C, based on the SRT's scoring was "low," indicating that this category includes a low number of threats that are likely to contribute to the decline of the GOMx Bryde's whale. Based on the limited observance of disease, parasites, or predation, we concur that these are low potential threats to the GOMx Bryde's whale and are not currently contributing to their extinction risk.

Factor D. Inadequacy of Existing Regulatory Mechanisms

The relevance of existing regulatory mechanisms to extinction risk for an individual species depends on the vulnerability of that species to each of the threats identified under the other factors of ESA section 4, and the extent to which regulatory mechanisms could or do control the threats that are contributing to the species' extinction risk. If a species is not vulnerable to a particular threat, it is not necessary to evaluate the adequacy of existing regulatory mechanisms for addressing that threat. Conversely, if a species is vulnerable to a particular threat, we do evaluate the adequacy of existing measures, if any, in controlling or mitigating that threat. In the following paragraphs, we summarize existing regulatory mechanisms relevant to threats to GOMx Bryde's whale generally, and assess their adequacy for controlling those threats.

Marine Mammal Protection Act

In U.S. waters, Bryde's whales are protected by the MMPA (16 U.S.C. 1361 *et seq.*). The MMPA sets forth a national policy to prevent marine mammal species or

population stocks from diminishing to the point where they are no longer a significant functioning element of their ecosystem. The Secretaries of Commerce and the Interior have primary responsibility for implementing the MMPA. The Secretary of Commerce has jurisdiction over the orders Cetacean and Pinnipedia with the exception of walruses, and the Secretary of Interior has jurisdiction over all other marine mammals. Both agencies are responsible for promulgating regulations, issuing permits, conducting scientific research, and enforcing regulations, as necessary, to carry out the purposes of the MMPA. The MMPA includes a general moratorium on the ‘taking’ and importing of marine mammals, which is subject to a number of exceptions. Some of these exceptions include ‘take’ for scientific purposes, public display, and unintentional incidental take coincident with conducting lawful activities. Any U.S. citizen, agency, or company who engages in a specified activity other than commercial fishing (which is specifically and separately addressed under the MMPA) within a specified geographic region may submit an application to the Secretary to authorize the incidental, but not intentional, taking of small numbers of marine mammals within that region for a period of not more than five consecutive years (16 U.S.C. 1371(a)(5)(A)). U.S. citizens can also apply under the MMPA for authorization to incidentally take marine mammals by harassment for up to 1 year (16 U.S.C. 1371(a)(5)(D)). For both types of authorizations, it must be determined that the take is of small numbers, has no more than a negligible impact on those marine mammal species or stocks, and does not have an unmitigable adverse impact on the availability of the species or stock for subsistence use. The MMPA also provides mechanisms for directed “take” of marine mammals for the purposes of scientific research. Non-lethal research takes of Bryde’s whale for scientific research (*e.g.*, biopsy

sampling) are currently authorized on a global scale and typically do not specify a geographic area. Hence the potential for multiple biopsies of an individual Bryde's whale does exist. However, any risk to GOMx Bryde's whale from multiple sampling is low, and we do not expect any mortalities to result. In these situations, we take a proactive role and coordinate with researchers to minimize any potential negative effects to a small population.

The MMPA currently identifies the Northern Gulf of Mexico stock of Bryde's whales as a "strategic" stock, because the level of direct human-caused mortality and serious injury exceeds the potential biological removal (PBR) level determined for the species, which could have management implications. The MMPA also provides additional protections to stocks designated as "depleted" and requires that conservation plans be developed to conserve and restore the stock to its optimum sustainable population (OSP). In order for a stock to be considered "depleted" the Secretary, after consultation with the Marine Mammal Commission and the Committee of Scientific Advisors on Marine Mammals, must determine it is below its OSP or if the species or stock is listed under the ESA. In 2015, the Marine Mammal Stock Assessment Report determined that the status of the Northern Gulf of Mexico Population of Bryde's whales, relative to OSP was unknown, as there was insufficient information to determine population trends (SARS 2015). Due to this lack of information on OSP, the GOMx Bryde's whale is not designated as a "depleted" stock and there is no conservation plan. Based on the above, we conclude that, outside of the general protections provided to marine mammals by the MMPA, there are no specific regulatory mechanisms specific to the GOMx Bryde's whale under the MMPA.

Outer Continental Shelf Lands Act and the Oil Pollution Act

The SRT also identified existing regulatory mechanisms relating to oil and gas development and oil spills and spill response (see Factors A and E for a discussion of those threats). The Outer Continental Shelf Lands Act (OCSLA) establishes Federal jurisdiction over submerged lands on the OCS seaward of coastal state boundaries in order to explore and develop oil and gas resources. Implementation, regulation, and granting of leases for exploration and development on the OCS are delegated to the BOEM, and BOEM is responsible for managing development of the nation's offshore resources. The functions of BOEM include leasing, exploration and development, plan administration, environmental studies, National Environmental Policy Act (NEPA) analysis, resource evaluation, economic analysis, and the renewable energy program BSEE is responsible for enforcing safety and environmental regulations. OCSLA mandates that orderly development of OCS energy resources be balanced with protection of human, marine and coastal environments. It is the stated objective of the OCSLA "to prevent or minimize the likelihood of blowouts, loss of well control, fires, spillages... or other occurrences which may cause damage to the environment or to property, or endanger life or health" (43 U.S.C. § 1332(6)). OCSLA further requires the study of the environmental impacts of oil and gas leases on the continental shelf, including an assessment of effects on marine biota (43 U.S.C. 1346). OCSLA, as amended, requires the Secretary of the Interior, through BOEM and BSEE, to manage the exploration and development of OCS oil, gas, and marine minerals (*e.g.*, sand and gravel) and the siting of renewable energy facilities. The Energy Policy Act of 2005, Public Law (Pub. L.) 109-58, added Section 8(p)(1)(C) to the OCSLA, which grants the Secretary of Interior the

authority to issue leases, easements, or rights-of-way on the OCS for the purpose of renewable energy development (43 U.S.C. 1337(p)(1)(C)). This authority has been delegated to BOEM (30 CFR 585), who now regulates activities within Federal waters. Since 2006, there has been a moratorium on leasing new areas for oil and gas development and production in the Gulf of Mexico EPA that includes the waters offshore of Florida, including the BIA. The moratorium is set to expire in 2022 and, if it is not renewed, the GOMx Bryde's whale within the BIA could be exposed to increased energy exploration.

The Oil Pollution Act (OPA) of 1990 (33 U.S.C. 2701-2761) is the principal statute governing oil spills in the nation's waterways. OPA was passed following the March 1989 Exxon Valdez oil spill to address a lack of adequate resources, particularly Federal funds, to respond to oil spills (National Pollution Funds Center 2016). The OPA created requirements for preventing, responding to, and funding restoration for oil pollution incidents in navigable waters, adjoining shorelines, and Federal waters. The OPA authorizes Trustees (representatives of Federal, state, and local government entities, and Tribes with jurisdiction over the natural resources in question) to determine the type and amount of restoration needed to compensate the public for the environmental impacts of the spill. These assessments are typically described in damage assessment and restoration plans. The Final Programmatic Damage Assessment and Restoration Plan (PDARP) developed for the 2010 DWH oil spill found the GOMx Bryde's whale to be the most impacted oceanic and shelf marine mammal; 48 percent of the population was affected, resulting in an estimated 22 percent maximum decline in population size (DWH Trustees 2016). The DWH PDARP allocates fifty-five million dollars over the next 15

years for restoration of oceanic and shelf marine mammals, including Bryde's whales. The PDARP does not identify specific projects, but lays out a framework for planning future restoration projects, that may contribute to the restoration of GOMx Bryde's whale.

The ongoing impacts to the GOMx Bryde's whale from oil and gas development and oil spills in the Gulf of Mexico identified by the SRT indicate that existing regulatory mechanisms are not adequate to control these threats. While the current moratorium on leasing for new oil and gas development in the EPA appears to provide some protection to the GOMx Bryde's whale, the SRT found that development in the Gulf of Mexico continues to have broad impacts, through curtailment of range and anthropogenic noise from seismic surveys and vessels associated with oil and gas development. Additionally, the existing moratorium on new leases in the EPA expires in 2022 and, if not renewed, energy exploration would be allowed in the GOMx Bryde's whale BIA, resulting in potentially severe impacts to this small population. We acknowledge that activities under the DWH PDARP may be beneficial to GOMx Bryde's whales, but we also conclude that oil spills and spill response remain a serious current threat to the GOMx Bryde's whale population, as discussed above in Factor A.

International Convention for the Regulation of Whaling

The International Whaling Commission (IWC) was set up under the International Convention for the Regulation of Whaling (ICRW), signed in 1946. The IWC established an international moratorium on commercial whaling for all large whale species in 1982, effective in 1986; this affected all member (signatory) nations (paragraph 10e, IWC

2009a). Since 1985, IWC catch limits for commercial whaling have been set at zero. However, under the IWC's regulations, commercial whaling has been permitted in both Norway and Iceland based on their objection to specific provisions. In addition, harvest of whales by Japan for scientific purposes has been permitted by the ICRW, including the Bryde's whale in the North Pacific. However, distribution of the GOMx Bryde's whale does not overlap with any permitted commercial whaling. The SRT concluded the current commercial whaling moratorium provides significant protection for the GOMx Bryde's whale, and we concur.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is aimed at protecting species at risk from unregulated international trade and regulates international trade in animals and plants by listing species in one of its three appendices. The level of monitoring and control to which an animal or plant species is subject depends on the appendix in which the species is listed. All Bryde's whales (*B. edeni*) are currently listed in Appendix I under CITES. Appendix I includes species that are threatened with extinction and may be affected by trade; trade of Appendix I species is only allowed in exceptional circumstances. Due to the IWC commercial whaling moratorium in place since 1985, commercial trade of Bryde's whale in the Gulf of Mexico has not been permitted. However, if the moratorium should be lifted in the future, the Bryde's whale's CITES Appendix I listing would restrict trade, so that trade would not contribute to the extinction risk of the species.

International Maritime Organization

The International Maritime Organization (IMO), a branch of the United Nations, is the international authority on shipping, pollution, and safety at sea and has adopted guidelines to reduce shipping noise and pollution from maritime vessels. Additionally, the IMO's Marine Environment Protection Committee occasionally identifies special areas and routing schemes for various ecological, economic, or scientific reasons. Some of these actions help benefit endangered right whales and humpback whales. However the SRT found no protected areas or routing schemes that would protect the GOMx Bryde's whale.

Mexico Energy Sector: Opening to Private Investment

The SRT expressed concern regarding potential oil and gas development in the southern Gulf of Mexico. Mexico recently instituted reforms related to its oil and gas sector that officially opened Mexico's oil, natural gas, and energy sectors to private investment. As a result, Mexico's state-owned petroleum company, Petroleos Mexicanos (Pemex) may now partner with international companies for the purposes of exploring the southern Gulf of Mexico's deep water and shale resources. The SRT found that more than 9 companies have shallow water lease permits either pending or approved, and 2D and 3D seismic data collection has begun. In 2013, the U.S. Congress approved the U.S. - Mexico Transboundary Hydrocarbons Agreement, which aims to facilitate joint development of oil and natural gas in part of the Gulf of Mexico. This agreement, coupled with recent reforms in Mexico, could lead to development within the Gulf of Mexico offshore Mexico oil and gas, including infrastructure for cross-border pipelines. The SRT found that recent developments indicate a high potential for oil and gas development in these waters. However, we believe that anticipating any future threats to

the GOMx Bryde's whale at this point in time is overly speculative, because the best available science indicates that the GOMx Bryde's whale distribution does not currently include the southern Gulf of Mexico.

Summary of Factor D

The SRT unanimously agreed that the inadequacy of existing regulatory mechanisms factor is a "high" threat to the GOMx Bryde's whale (Rosel *et al.*, 2016). Specifically the SRT found that, given the current status and limited distribution of the Bryde's whale population in the Gulf of Mexico, it is clear that existing regulations have been inadequate to protect them. The SRT expressed particular concern regarding current oil and gas development and impacts from oil spills in the Gulf of Mexico, as well as vessel strikes due to shipping traffic. We agree that currently there are no regulatory mechanisms in the Gulf of Mexico to address ship strikes on GOMx Bryde's whales, which the SRT identified as one of the primary threats faced by the species (see Factor E below). Additionally, the Status Review report suggests that oil and gas development in the Gulf of Mexico have been a contributing factor to limiting the GOMx Bryde's whale's current range to the De Soto Canyon. Thus, while we acknowledge that existing protective regulations are in place, we agree with the SRT's overall conclusion that the existing regulatory mechanisms have not prevented the current status of the GOMx Bryde's whale, for the reasons stated above.

Factor E. Other Natural or Manmade Factors Affecting its Continued Existence

The SRT categorized threats under ESA Factor E by three groups: a general category for "other natural or human factors;" anthropogenic noise; and small population concerns. Within the general sub-category for other natural or human factors, the SRT

included: vessel collision; military activities; fishing gear entanglements; trophic impacts due to commercial harvest of prey; climate change; plastics and marine debris; and aquaculture. Within the anthropogenic noise sub-category of Factor E, the SRT included: aircraft and vessel noise associated with oil and gas activities; drilling and production noise associated with oil and gas activities; seismic survey noise associated with oil and gas activities; noise associated with military training and exercises; noise associated with commercial fisheries and scientific acoustics; and noise associated with vessels and shipping traffic. Within the small population concerns sub-category of Factor E, the SRT included: Allee effects; demographic stochasticity; genetics; k-selected life-history parameters; and stochastic and catastrophic events. An explanation of these threats and the SRT's ranking for each of these sub-categories follows.

Other Natural or Human Factors

Vessel Collision - Vessel collisions are a significant source of mortality for a variety of coastal large whale species (Laist *et al.*, 2001). The northern Gulf of Mexico is an area of considerably high amount of ship traffic, which increases the risk of vessel-whale collisions (Rosel *et al.*, 2016). Several important commercial shipping lanes travel through the primary GOMx Bryde's whale habitat in the northeastern Gulf of Mexico, particularly vessel traffic from ports in Mobile, Pensacola, Panama City, and Tampa (see Figure 17; Rosel *et al.*, 2016). In 2009, a GOMx Bryde's whale was found floating dead in the Port of Tampa, Tampa Bay, Florida. The documented cause of death was blunt impact trauma due to ship strike (Waring *et al.*, 2016). The necropsy report found that the whale was a lactating female indicating that the whale was nursing a calf. It is likely that the calf died, as it was still dependent on the mother.

Bryde's whales are the third most commonly reported species struck by ships in the southern hemisphere (Van Waerebeek *et al.*, 2007). As previously described, tracking information from a single GOMx Bryde's whale indicated a consistent diel dive pattern over 3 days, with 88 percent of nighttime hours spent within 15 m of the surface. This suggested to the SRT that, if other individuals exhibit a similar diving pattern, they would be at greater risk of ship strike, because they spend most of the time at the surface at night when there is minimal visibility. Marine mammals that spend the majority of their nighttime hours near the surface and animals that spend more time at or near the surface are at greater risk than species that spend less time at the surface (Rosel *et al.*, 2016). Additionally, the threat of vessel collision may increase in the future given the expansion of the Panama Canal, which is anticipated to increase vessel traffic in the Gulf of Mexico (Institute for Water Resources 2012). Given the location of commercial shipping lanes, the difficulty of sighting a whale at the surface at night, and the low ability of large ships to change course quickly enough to avoid a whale, the SRT's scoring indicates that ship strikes pose a "high" severity threat to the GOMx Bryde's whale with "high" certainty.

Military Activities - Significant portions of the Gulf of Mexico are used for military activities. NMFS conducted a 2013 Biological Opinion to assess the impact of the Navy training exercises and coordinated via a Letter of Authorization under the MMPA to govern unintentional takes incidental to training and testing activities (Rosel *et al.*, 2016). Although Level B harassment (*i.e.*, activities that have the potential to disturb or harass) is authorized, the Navy determined that very few training or testing activities are likely to occur within the BIA (see Figures 18 and 19 in Rosel *et al.*, 2016). Moreover, the Navy agreed to expand their Planning Awareness Area to encompass the

Bryde's whale BIA and as a result they will avoid planning major training activities there, when feasible. In addition, Eglin Air Force Base (AFB) also conducts training exercises in the Gulf of Mexico. Eglin AFB also has an incidental harassment authorization for common bottlenose dolphin and Atlantic spotted dolphin, for their Maritime Weapon Systems Evaluation Program. However, their training activities take place in relatively shallow water (*i.e.*, 35 to 50 m depth). Eglin AFB does not anticipate that its activities would take GOMx Bryde's whales, because the GOMx Bryde's whales are rare in the areas involved (*e.g.*, shallow waters); therefore, Eglin AFB did not request a take authorization (Rosel *et al.*, 2016; 81 FR 7307, February 11, 2016). The SRT concluded that, although there are military activities in the Gulf of Mexico, including the northern Gulf of Mexico, most activities appeared to occur outside the BIA. In addition, they found that military activities are not constant, and due to the current scope of existing activities, the threat was considered less likely to have negative impacts on the population (Rosel *et al.*, 2016). However, the SRT believed that this threat would need to be re-evaluated if the intensity, timing, or location of military training exercises encroached closer to the BIA. Based on the SRT rankings, the threat of military activities (*i.e.*, explosive pressure waves, target training, and vessel activities) is a "moderate" threat with "low" certainty. The threat of noise from military activities is considered under the *Anthropogenic Noise* section, below.

Fishing Gear Entanglement - Marine mammals are known to become hooked, trapped, or entangled in fishing gear, leading to injury or mortality (Read 2008, Reeves *et al.*, 2013). While gear interactions are documented more frequently for toothed whales, they remain a threat to small populations of baleen whales like the GOMx Bryde's whale

(Reeves *et al.*, 2013). The SRT evaluated the special distribution and fishing effort for 12 fisheries that occur in the Gulf of Mexico. Based on their evaluation, the SRT concluded that five commercial fisheries (Table 7; Rosel *et al.*, 2016) overlap or possibly overlap with the Bryde's whale BIA and use gear types (*i.e.*, pelagic longlines, bottom longlines, and trawls) that pose entanglement threats to whales.

Pelagic longlines are a known entanglement threat to baleen whales, as the majority of mainline gear is in the water column and animals swimming in the area may interact with the gear (Andersen *et al.*, 2008). The Atlantic Ocean, Caribbean, Gulf of Mexico commercial pelagic longline fishery for large pelagic species is active within the GOMx Bryde's whale BIA. Approximately two thirds of the BIA has been closed to commercial pelagic longline fishing year-round since 2000, when the Highly Migratory Species Atlantic Tunas, Swordfish, and Sharks Fishery Management Plan was amended to close the De Soto Canyon Marine Protected Area (65 FR 47214, August 1, 2000). While longline fishing still occurs in the remaining one third of the BIA (Figure 20B; Rosel *et al.*, 2016), the fishery typically operates in waters greater than 300m, where sightings of Bryde's whales are infrequent. To date, no interactions between GOMx Bryde's whale and pelagic longline gear have been recorded.

Gulf reef fish and shark bottom longline gear consists of a monofilament mainline up to a mile in length anchored on the seafloor, with up to 1,000 baited hooks along the mainline and marked with buoys. Generally bottom longline gear poses less of a threat of entanglement threat to cetaceans compared to pelagic longline gear, except when cetaceans forage along the seafloor. Such foraging appears to be the case with the GOMx Bryde's whale, exposing them to risk of entanglement in mainlines. These fisheries

overlap spatially with the GOMx Bryde's whale BIA. While bottom longlining typically occurs in waters less than 100m, fishing for yellowedge grouper, golden tilefish, blueline tilefish, and sharks occurs in deeper waters between 100 and 300m within the BIA. The available information indicates the GOMx Bryde's whale forages on or near the seafloor bottom, such that, potential for interactions exists, although no interactions have been recorded (Rosel *et al.*, 2016).

Both the Gulf of Mexico shrimp trawl fishery and the butterfish trawl fishery occur within the GOMx Bryde's whale BIA (Rosel *et al.*, 2016). However, the shrimp trawl fishery has limited spatial overlap with the BIA and the areas that do overlap represent only a small portion of total fishing effort. The butterfish trawl fishery is small, with only two participants currently permitted, and limited available information. Based on the SRT's scoring, the threat of entanglement in commercial fishing gear is "moderate" in severity with "moderate" certainty.

Trophic Impacts Due to Commercial Harvest of Prey Items - While GOMx Bryde's whales' prey in the Gulf of Mexico are currently unknown (Rosel et al., 2016), they likely feed on anchovy, sardine, mackerel and herring, and small crustaceans, similar to Bryde's whales worldwide (Kato 2000). The two main Gulf of Mexico commercial fisheries for small schooling fish are the Gulf of Mexico menhaden purse-seine fishery and the Florida west coast sardine purse-seine fishery; the main invertebrate fishery is the Gulf of Mexico shrimp trawl fishery. The SRT concluded that direct competition between GOMx Bryde's whale and commercial fisheries did not appear to be likely, based on the current distribution of the GOMx Bryde's whale, the distribution of fishery effort, and presumed fish and invertebrate habitat (Rosel et al., 2016). The SRT also evaluated the

threat of total biomass removal by the menhaden purse-seine fishery and the shrimp trawl fishery in the Gulf of Mexico and the resulting impact on ecosystem functioning, species composition, and potential trophic pathway alterations, and concluded that the ecosystem and trophic effects of these removals are unknown. Based on the SRT's scoring, the threat from trophic impacts due to commercial harvest of prey is a "low" severity threat with "low" certainty.

Climate Change - The impacts of climate change on cetaceans are not easily quantified; however direct and indirect impacts are expected (Evans and Bjørge 2013). Potential impacts of climate change on marine mammals include range shifts, habitat degradation or loss, changes to the food web, susceptibility to disease and contaminants, and thermal intolerance (MacLeod 2009, Evans and Bjørge 2013). The restricted distribution of the GOMx Bryde's whale is a concern, as climate change may disproportionately affect species with specialized or restricted habitat requirements. As water temperatures rise, many marine species will have to shift their distributions northward or in a direction that maintains a near-constant environment (*e.g.*, temperature and prey availability) (Evans *et al.*, 2010). Within the Gulf of Mexico, GOMx Bryde's whales have little room to shift their distribution northward into cooler waters. Furthermore, the predicted changes in freshwater inflow and the associated effects on productivity may affect the health of the Gulf of Mexico. While recognizing the potential threat that climate change poses to the GOMx Bryde's whale, the SRT considered that there are more significant and immediate pressures on the GOMx Bryde's whale (Rosel *et al.*, 2016). The SRT assigned the threat of climate change as a "low" severity threat to GOMx Bryde's whale with "low" certainty.

Plastics and Marine Debris - Plastics comprise 60-80 percent of all marine debris (Baulch and Perry 2014), and derelict fishing gear is the second most common form of marine debris (National Oceanic Service 2015). The interactions of marine mammals with marine debris in the Gulf of Mexico are not frequently documented and the SRT did not find any documented cases specific to Bryde's whale (NOAA Fisheries Marine Mammal Health and Stranding Response Database). Less than one percent of marine mammal strandings in the Gulf of Mexico from 2000 – 2014 showed evidence of entanglement or ingestion of marine debris (NOAA Fisheries Marine Mammal Health and Stranding Response Database, March 21, 2016). While noting that the records of reported marine mammal strandings may not be comprehensive, the SRT's scoring ranked this threat as "low" severity with "low" certainty (Rosel *et al.*, 2016).

Aquaculture - There are currently no aquaculture facilities in the U.S. waters of the Gulf of Mexico. However, a final rule was published on January 13, 2016 (81 FR 1761) regulating offshore marine aquaculture in the Gulf of Mexico and establishing a regional permitting process. We note that this final rule is currently under challenge in a pending court proceeding, *Gulf Fishermen's Association, et al. v. NMFS*, 16-cv-01271 (E.D. La.). The associated Fishery Management Plan for Regulating Offshore Aquaculture in the Gulf of Mexico (FMP) specifies that each facility must satisfy a list of siting requirements and conditions and specifies that an application may be denied for potential risks to essential fish habitat, endangered and threatened species, marine mammals, wild fish and invertebrate stocks, public health, or safety (Gulf of Mexico Fishery Management Council and National Marine Fisheries Service 2009). Marine mammals are known to interact with aquaculture facilities through physical interaction

with nets, ropes, twine and anchor lines (Price and Marris 2013). Because each application, including the proposed location, will be considered on a case-by-case basis, taking into account potential impacts to marine mammals, and no aquaculture facilities are currently sited in the Gulf of Mexico, the SRT scoring indicates that the SRT found aquaculture to be a “low” severity threat with “low” certainty.

Anthropogenic Noise - A variety of anthropogenic noise sources, such as energy exploration and development and shipping have considerable energy at low frequencies (<100 Hz) (Sodal 1999; Nieu Kirk *et al.*, 2004; Hildebrand 2009; Nieu Kirk *et al.*, 2012) and are pervasive in the Gulf of Mexico (Rosel *et al.*, 2016). Baleen whales produce calls that span a similar low frequency range (20 Hz – 30 kHz), and therefore, presumably these species’ best hearing abilities fall within this range, and are most impacted by low-frequency sounds (Richardson *et al.*, 1995, Ketten 1997, Ketten *et al.*, 2013, Cranford and Krysl 2015). Marine mammals rely heavily on their hearing to detect and interpret communication and environmental cues to select mates, find food, maintain group structure and relationships, avoid predators, navigate, and perform other critical life functions (Rosel *et al.*, 2016). As noise levels rise in the marine environment, there are a variety of direct and indirect adverse physical and behavioral effects to marine mammals such as death, hearing loss or impairment, stress, behavioral changes, physiological effects, reduced foraging success, reduced reproductive success, masking of communication and environmental cues, and habitat displacement (Richardson *et al.* 1995, Southall *et al.* 2007, Francis and Barber 2013). The SRT evaluated anthropogenic noise and separately assessed, as detailed below, noise from aircraft and vessels associated with oil and gas activities, seismic surveys associated with oil and gas

activities, noise associated with military training and exercises, noise associated with commercial fisheries and scientific acoustics, and noise associated with vessels and shipping traffic.

Noise Generated from Aircraft and Vessels and Oil Drilling and Production Associated with Oil and Gas Activities - Aircraft and vessel operations (service vessels, etc.) support outer continental shelf oil and gas activities in the Gulf of Mexico. Routine aircraft overflights may interrupt and elicit a startle response from marine mammals nearby (Richardson *et al.*, 1995). However, if marine mammals are nearby, the disturbance caused by helicopters approaching or departing OCS oil and gas facilities will be short in duration and transient in nature. The SRT reasoned that aircraft and vessel operations may ensonify large areas, but due to the lack of oil and gas activities currently in the eastern Gulf of Mexico, the threat from service aircraft and vessel noise to GOMx Bryde's whale should be minimal.

Oil drilling and production activities produce low-frequency underwater sounds that are in the frequency range detectable by the GOMx Bryde's whale and, given the amount of drilling activity and platforms in the central and western Gulf of Mexico, noise levels are already high. While there are currently no wells being drilled in the eastern Gulf of Mexico, and no production platforms in place, the potential opening of the EPA that overlaps the GOMx Bryde's whale BIA for oil and gas exploration is of considerable concern (Rosel *et al.*, 2016). Based on the SRT's scoring, the threat of noise generated from aircraft and vessels associated with oil and gas activities and noise from drilling and oil production is a "moderate" threat, with a "moderate" level of certainty for noise

associated with aircraft and vessels, and the SRT assigned a “low” level of certainty for noise generated from drilling and oil production.

Seismic Survey Noise Associated with Oil and Gas Activities - The northern Gulf of Mexico is an area of high seismic survey activity; seismic surveys are typically conducted 24 hours a day, 365-days a year, using airguns that are a source of primarily low-frequency sound (Sodal 1999), and that overlap with ranges baleen whales use for communication and hearing (Rosel *et al.*, 2016). These low-frequency sounds can travel substantial distances and airgun sounds have been recorded many hundreds of miles away from the survey locations (Nieukirk *et al.* 2004). Seismic surveys have the potential to cause serious injury to animals within 100m - 1km of airguns with source levels of 230 dB re 1 μ Pa (peak) or higher (Southall *et al.* 2007). Behavioral changes following seismic surveys, specifically changes in vocal behavior and habitat avoidance, have been documented for baleen whales (Malme *et al.*, 1984, McCauley *et al.*, 1998, Gordon *et al.*, 2001, Blackwell *et al.*, 2015). While reactions of Bryde’s whales to seismic surveys have not been studied, the auditory abilities of all baleen whale species are considered to be broadly similar based upon vocalization frequencies and ear anatomy (Ketten 1998). There are currently few seismic surveys occurring in the eastern Gulf of Mexico, due in part to the moratorium on energy exploration in the EPA; however, the SRT noted that, given the ability of low-frequency sounds to travel substantial distances, sounds from nearby surveys may be impacting the GOMx Bryde’s whales in the BIA. The SRT scorned anthropogenic noise associated with seismic surveys as a “high” severity threat with “moderate” certainty.

Noise Associated with Military Training and Exercises – Military training and exercises use active sonar sources and explosives as part of their operations and each of these sources have the potential to impact marine mammals (Rosel *et al.*, 2016). However, as discussed above, most military activities that occur in the Gulf of Mexico take place outside of the GOMx Bryde’s whale BIA and the Navy expanded their Planning Awareness Area to encompass the BIA (see *Military Activities* above). The SRT found this threat to be less likely to have a negative impact on the GOMx Bryde’s whale compared to other threats associated with the anthropogenic noise considered in this sub-category. Therefore, the SRT assigned the threat of noise associated with military training and exercises as “low” in severity with a “moderate” level of certainty.

Noise Associated with Commercial Fisheries and Scientific Acoustics -

Commercial and scientific vessels employ active sonar for the detection, localization, and classification of underwater targets, including the seafloor, plankton, fish, and human divers (Hildebrand 2009). Source frequencies of many of these sonars are likely above the frequency range for Bryde’s whale hearing (Watkins 1986, Au *et al.* 2006, Tubelli *et al.* 2012). Recent technological advancements, such as Ocean Acoustic Waveguide Remote Sensing (OAWRS) system, use low-frequency acoustics that have the potential to impact baleen whale behavior (Risch *et al.*, 2012). However, the SRT concluded these low-frequency systems are not likely to be used in U.S. waters in the future (Rosel *et al.*, 2016). Because the acoustic frequencies associated with the sonar systems employed by commercial fisheries and scientific vessels are not within the range of GOMx Bryde’s whale hearing and are not likely to be used in the Gulf of Mexico, the SRT assigned the

threat of noise associated with commercial fisheries and scientific acoustics a ranking of “low” in severity with “low” certainty.

Noise Associated with Shipping Traffic and Vessels - Noise from shipping traffic is an unintended byproduct of shipping and depends on factors such as ship type, load, speed, ship hull and propeller design; noise levels increase with increasing speed and vessel size (Allen *et al.*, 2012, McKella *et al.* 2012b, Rudd *et al.*, 2015). Shipping noise is characterized by mainly low frequencies (Hermannsen *et al.*, 2014) and contributes significantly to low-frequency noise in the marine environment (National Research Council 2003, Hildebrand 2009). Approximately 50 percent of U.S. merchant vessel traffic (as measured by port calls or tonnage for merchant vessels over 1000 gross tons) occurs at U.S. Gulf of Mexico ports, indicating shipping activity is a significant source of noise in this region. Noise is likely to increase as shipping trends indicate that faster, larger ships will traverse the Gulf of Mexico following expansion of the Panama Canal (Rosel *et al.*, 2016).

Shipping noise in the northeast United States was predicted to reduce the communication space of humpback whales, right whales, and fin whales by 8 percent, 77 percent, and 20 percent, respectively, by masking their calls (Clark *et al.* 2009). Because Bryde’s whale call source levels are most similar to those of right whales, the SRT found they may be similarly impacted (Rosel *et al.*, 2016). Documented impacts of vessel and shipping noise on marine mammals, like the GOMx Bryde’s whale, include: habitat displacement; changes in diving and foraging behavior; changes in vocalization behavior; and altered stress hormone levels (Rosel *et al.*, 2016).

The SRT found that there is a high level of low frequency noise caused by shipping activity in the Gulf of Mexico, and that it is likely the GOMx Bryde's whale is experiencing significant biological impacts as a result. The impacts to the GOMx Bryde's whale are assumed to be similar to those observed in other low frequency hearing baleen whale species, and include increased stress hormone levels, changes in dive and foraging behavior and communication, and habitat displacement. The SRT assigned the threat of noise associated with shipping traffic and vessels a score of "moderate" severity threat with "moderate" certainty.

Small Population Concerns

The final sub-category considered by the SRT under ESA Factor E was small population concerns. The SRT considered Allee effects, demographic stochasticity, genetics, k-selected life-history parameters, and stochastic and catastrophic events under this sub-category.

Allee Effects - If a population is critically small in size, individuals may have difficulty finding a mate. The probability of finding a mate depends largely on density (*i.e.*, abundance per area) rather than absolute abundance alone (Rosel *et al.*, 2016). As previously discussed, noise from ships and industrial oil activities, including seismic exploration, could mask mating calls and contribute to reduced fecundity of the GOMx Bryde's whale (Rosel *et al.*, 2016). The small population size (*i.e.*, likely less than 100 individuals) may mean that Allee effects are occurring, making it difficult for individual whales to find one another for breeding, thereby reducing the population growth rate. The SRT's scored the impacts from Allee effects as a "moderate" threat in both severity and certainty.

Demographic Stochasticity - Demographic stochasticity refers to the variability of annual population change arising from random birth and death events at the individual level. Populations that are small in number are more vulnerable to adverse effects from demographic stochasticity. Demographic stochasticity is also more problematic for slowly reproducing species, such as GOMx Bryde's whales, which under normal conditions are likely to produce a calf every two to three years, similar to Bryde's whales worldwide and Eden's whale. Mean population growth rates can be reduced by variances in inter-annual growth rates, and this variance steadily increases as the population size decreases (Goodman 1987). The SRT also noted that, while skewed sex ratios do not currently appear to be a problem for GOMx Bryde's whales, their low calving rate and small population size create a higher probability of developing skewed sex ratios through chance alone. The SRT's scored the threat from impacts from demographic stochasticity as "high" in both severity and certainty

Genetics - Genetic stochasticity results from three separate factors: inbreeding depression, loss of potentially adaptive genetic diversity and mutation accumulation (Frankham 2005, Reed 2005). The SRT concluded that the very small population size and documented low level of genetic diversity (Rosel and Wilcox 2014) indicates that the GOMx Bryde's whale is likely already experiencing inbreeding (mating with related individuals) that could lead to a loss of potentially adaptive genetic diversity and accumulation of deleterious mutations (Frankham 2005, Reed 2005). Applying the estimate from Taylor *et al.*, (2007) of 0.51 for the proportion of a Bryde's whale population that is mature, and assuming a stable age distribution, the SRT concluded there would be at most 50 mature individuals for the GOMx Bryde's whale population,

putting the whales at immediate recognized risk for genetic factors. Even with a 50-50 sex ratio, the SRT concluded that current abundance estimates are so low that current Bryde's whale population levels would meet any genetic risk threshold for decreased population growth due to inbreeding depression and potential loss of adaptive genetic diversity (Rosel *et al.*, 2016). The SRT scored the threat of genetic stochasticity as "high" in both severity and certainty.

K-Selected Life History Parameters - In general all whales are considered as k-selected species due to their life history characteristics of large-size, late-maturity, and iteroparous reproduction that is energetically expensive, resulting in few offspring. K-selected life history characteristics in and of themselves are not a problem for baleen whales, but a small population size coupled with a low productivity rate further hinders population growth and increases the time frame for recovery when, as with the GOMx Bryde's whale, the population size is small and overly vulnerable to threats (Rosel *et al.*, 2016). The SRT assigned the threat from k-selective life history parameters a score of "high" in severity and certainty.

Stochastic and Catastrophic Events - The small number of GOMx Bryde's whales and their restricted range (*i.e.*, De Soto Canyon area of the northeastern Gulf of Mexico) exacerbates the species' vulnerability to stochastic and catastrophic events. Further, the GOMx Bryde's whales are in close proximity to oil extraction developments, extreme weather events, and HABs. For example, an analysis of the impacts of Deepwater Horizon oil spill on cetacean stocks in the Gulf of Mexico estimated that 17 percent of the GOMx Bryde's whale population was killed (DWH Trustees 2016). The SRT scored

the threat from stochastic and catastrophic events on the GOMx Bryde's whale as "high" in severity with "high" certainty.

Summary of Factor E

The overall threat rank for ESA Factor E by the SRT was influenced by the suite of threats assessed by the SRT. Based on the SRT's scoring, vessel collision, followed by fishing gear entanglements, presents the most serious individual threats of those considered in the generic "other natural and human factors," category. The threat of vessel collision is a significant source of mortality for a variety of coastal whale species and several important commercial shipping lanes travel through the GOMx Bryde's whale BIA (Rosel *et al.*, 2016). Fishing gear entanglement from the pelagic longline and bottom longline fisheries is a threat due to the spatial overlap between these fisheries and the Bryde's whale BIA, and the potential for interactions given the whale's foraging behavior (Rosel *et al.*, 2016). The SRT's overall threat ranking for the generic "other natural or human factors category" was moderate-high. The SRT's overall threat ranking for the sub-category of "anthropogenic noise" was "high", which was driven strongly by the impacts of seismic noise, shipping noise, and oil and gas activities. The greatest threat identified by the SRT under ESA Factor E was "small population concerns, which the SRT's scoring unanimously assigned a "high" overall threat rank.

In summary, the SRT found the level of anthropogenic noise in the Gulf of Mexico, the cumulative threat posed by energy exploration, development and production, and the risk of vessel collisions, in combination with the small population size, are threats that are likely to eliminate or seriously degrade the population. The overall rank the SRT assigned for Factor E was "high" (*i.e.*, two high overall ranks and one moderate-high

overall rank), indicating that there are a high number of threats that are moderately or very likely to contribute to the decline of the GOMx Bryde's whale. Considering the assessment completed by the SRT, we determine that the threats considered under Factor E are currently increasing the risk of extinction for the GOMx Bryde's whale.

NMFS' Conclusions from Threats Evaluation

The most serious threats to the GOMx Bryde's whale are: energy exploration and development, oil spills and oil spill response, vessel collision, anthropogenic noise, and the effects of small population size. We consider these threats, under ESA section 4(a)(1) factors A and E, as overall "high" threats. We agree with the SRT's assessment that these threats are currently affecting the status of the GOMx Bryde's whale, and find that they are putting it at a heightened risk of extinction. We also agree with the SRT's characterization of factors B and C, overutilization for commercial, recreational, scientific, or educational purposes and disease, parasites, or predation, and their low overall ranking. We find that these are not factors that are likely contributing to the extinction risk for the GOMx Bryde's whale. Finally, we agree with the SRT's overall conclusion for Factor D, that existing regulatory measures have not adequately prevented the GOMx Bryde's whale from reaching its current status, given the presence of current threats to the GOMx Bryde's whale identified under Factors A and E.

Demographic Risk Analysis

The SRT also evaluated four demographic factors to assess the degree of extinction risk: abundance, spatial distribution, growth/productivity, and genetic diversity. These demographic criteria have been used in previous NMFS status reviews to summarize and assess a population's extinction risk due to demographic processes. The

SRT used the following definitions to rank these factors: 1 = “No or low risk: it is unlikely that this factor contributes significantly to risk of extinction, either by itself or in combination with other factors;” 2 = “Low risk: it is unlikely that this factor contributes significantly to risk of extinction by itself, but some concern that it may contribute, in combination with other factors;” 3 = “Moderate risk: it is likely that this factor in combination with others contributes significantly to risk of extinction;” 4 = “High risk: it is likely that this factor, by itself, contributes significantly to risk of extinction”; and 5 = “Very high risk: it is highly likely that this factor, by itself, contributes significantly to risk of extinction.” As described in detail below, the SRT concluded that each of these four demographic factors are likely to contribute significantly to the risk of extinction for the GOMx Bryde’s whale.

The SRT determined that both abundance and spatial distribution were “very high risk” factors, meaning that it is highly likely that each factor, by itself, contributes significantly to the risk of extinction. The SRT concluded the best available science indicated: (1) the number of GOMx Bryde’s whales is likely less than 100 mature individuals, and (2) their current distribution restricted to a small region along the continental shelf break (100-300 m) in the De Soto Canyon makes them vulnerable to catastrophe. The SRT concluded that the GOMx Bryde’s whale constitutes a dangerously small population, at or below the near-extinction population level, and the species’ restricted range makes it vulnerable to a single catastrophic event (Rosel *et al.*, 2016).

The SRT ranked both growth/productivity and genetic diversity as “high” risk factors, meaning that it is likely that each factor, by itself, contributes significantly to the risk of extinction. The SRT noted that the life-history characteristics of the GOMx

Bryde's whale (*i.e.*, late-maturing, long gestation, single offspring) result in a slower recovery ability from their small population size and leads to a longer time during which a risk factor like a catastrophe could occur (Rosel *et al.*, 2016). Allee effects were also identified by the SRT as increasing extinction risk because the small number of individuals reduces population growth rate through mate limitation (Rosel *et al.*, 2016). Similarly, the low level of genetic diversity, documented in both mtDNA and nuclear DNA by Rosel and Wilcox (2014), combined with the small population size, means that individuals are likely breeding with related individuals and inbreeding depression may be occurring, resulting in a loss of genetic diversity (Rosel *et al.*, 2016).

Extinction Risk Analysis

The SRT considered the information provided in the Status Review report and demographic risk factors to conduct an Extinction Risk Analysis (ERA). The SRT summarized its ERA for the GOMx Bryde's whale, placing it in the context of our agency guidelines on how to synthesize extinction risk (NMFS 2015). Those agency guidelines define the high extinction risk category as:

“A species or DPS with a high risk of extinction is at or near a level of abundance, productivity, spatial structure, and/or diversity that places its continued persistence in question. The demographics of a species or DPS at such a high level of risk may be highly uncertain and strongly influenced by stochastic or dependant processes. Similarly, a species or DPS may be at high risk of extinction if it faces clear and present threats (e.g., confinement to a small geographic area; imminent destruction, modification, or curtailment of its

habitat; or disease epidemic) that are likely to create present and substantial demographic risks.”

Applying this standard, the SRT unanimously agreed that the GOMx Bryde’s whale has a high risk of extinction.

The SRT provided the following summary of the concerns leading to its overall extinction risk assessment:

“The GOMx Bryde’s whale population is very small and is restricted to a small habitat area in the De Soto Canyon region of the northeastern [Gulf of Mexico]. Their level of genetic divergence from other Bryde’s whales worldwide indicates they are reproductively isolated and on a unique evolutionary trajectory. The Society for Marine Mammalogy’s Committee on Taxonomy concluded they represent at least an unnamed subspecies of Bryde’s whales. Although the historic population size is unknown, whaling data indicate their distribution in the [Gulf of Mexico] was once much broader. The Team concluded, therefore, based on the best available scientific data, that there has been a range contraction such that their primary range is restricted to the northeastern [Gulf of Mexico] although there are limited data from outside U.S. waters. The north-central and western [Gulf of Mexico] contains some of the most industrialized marine waters in the U.S. due to expansive energy exploration and production, and also experiences significant commercial shipping traffic and commercial fishing activity. The area in the northeastern [Gulf of Mexico], where all verified sightings of Bryde’s whales have been recorded during cetacean surveys, has experienced the least amount of energy exploration, due in part to a

moratorium put in place in 2006. However, this moratorium expires in 2022 and the eastern [Gulf of Mexico] could be exposed to increased energy activities. Commercial fishing and vessel traffic also could affect the whales in the eastern [Gulf of Mexico].

The Team concluded that the small population size alone put the GOMx Bryde's whale at high risk of extinction. The small size of this population makes it vulnerable to inbreeding depression, demographic stochasticity, and stochastic and catastrophic events. The combination of small size plus risk factors that may have affected the population in the past and may affect it in the future, further increase the extinction risk. These factors include, in particular, impacts due to energy exploration (e.g., habitat modification, noise from seismic surveys, and shipping) and energy production (e.g., oil spills), and vessel collisions. The Team's concern for this group of whales is further increased by uncertainty regarding the cause(s) of its small population size, its limited distribution, current and future threats, and the long-term viability of the population (Rosel et al., 2016)."

We consider the SRT's approach to assessing the extinction risk for GOMx Bryde's whale appropriate, consistent with our agency guidance, and based on the best scientific and commercial information available. Based on the key conclusions from the Status Review report, including the ERA (Rosel et al., 2016), we find that the GOMx Bryde's whale is a species, as defined by the ESA, which is in danger of extinction throughout all of its range, as a result of ESA Factors A (the present or threatened destruction, modification or curtailment of a species' habitat or range), D (inadequacy of

existing regulatory mechanisms), and E (other natural or manmade factors affecting its continued existence). Accordingly, we find that the species meets the definition of an endangered species.

Protective Efforts

Section 4(b)(1)(A) of the ESA requires the Secretary, when making a listing determination for a species, to take into consideration those efforts, if any, being made by any State or foreign nation to protect the species. To evaluate the efficacy of domestic efforts that have not yet been implemented or that have been implemented, but have not yet demonstrated to be effective, the Services developed a joint “Policy for Evaluation of Conservation Efforts When Making Listing Decisions” (PECE) (68 FR 15100; March 28, 2003). The PECE is designed to ensure consistent and adequate evaluation on whether domestic conservation efforts that have been recently adopted or implemented, but not yet proven to be successful, will result in recovering the species to the point at which listing is not warranted or contribute to forming the basis for listing a species as threatened rather than endangered. The PECE is expected to facilitate the development of conservation efforts by states and other entities that sufficiently improve a species’ status so as to make listing the species as threatened or endangered unnecessary.

The PECE establishes two overarching criteria to use in evaluating efforts identified in conservations plans, conservation agreements, management plans or similar documents: (1) the certainty that the conservation efforts will be implemented; and (2) the certainty that the efforts will be effective. We have considered the actions identified by the SRT (*i.e.*, potential future DWH PDARP restoration activities and Gulf of Mexico Marine Assessment Program for Protected Species (GoMMAPPS) as conservation efforts

and we have concluded that they do not meet the PECE policy criteria (see analysis below).

The Status Review report (Rosel *et al.*, 2016) summarized two known conservation efforts, both of which are planned and have yet to be implemented, which we further assess here: the DWH PDARP and the GoMMAPPS. The restoration plan in the PDARP is a framework for planning future restoration projects. For marine mammals, the PDARP focuses on restoration activities that support population resilience, reduce further harm or impacts, and complement existing management priorities, with the goal of compensating for the population injuries suffered by each marine mammal stock. GOMx Bryde's whales were the most impacted offshore cetacean by the DWH oil spill, suffering an estimated 22 percent maximum decline in population size (DWH Trustees 2016). Although specific projects are not yet identified to implement Bryde's whale restoration, we anticipate that they should benefit the population, but, considering the species' life history, population recovery to pre-spill levels will take decades. More importantly, the population estimates considered by the SRT were pre-spill and were still found to represent a high extinction risk. Therefore, the conservation benefits that may be expected through implementation of the PDARP would not be expected to reduce the extinction risk for Bryde's whale to a degree where this population qualifies only as threatened or where that listing is not warranted.

We also considered the proposed results from GoMMAPPS and its potential to protect and restore the population of GOMx Bryde's whale. The purpose of this program is to improve information about abundance, distribution, habitat use, and behavior of living marine resources (*e.g.*, marine mammals, sea turtles, sea birds) in the Gulf of

Mexico, as well as to mitigate and monitor potential impacts of human activities. GoMMAPPS promotes collaborations via data sharing with other research efforts in the Gulf of Mexico, including potentially with Mexico. Given the scope of the program, studies are likely to increase scientific understanding of the GOMx Bryde's whale and its habitat, support management decisions, and monitor potential impacts of human activities. GoMMAPPS is likely to provide significantly improved information on the status of protected species in the Gulf of Mexico, possibly including GOMx Bryde's whales, and we anticipate that this information can be used to protect Bryde's whales more effectively in the future. However, these conservation benefits will require secondary actions that are not currently known. Therefore, we conclude that the conservation benefits from GOMAPPS to Bryde's whales are too diffuse and uncertain to be considered effective measures under our PECE policy. After taking into account these conservation efforts and the current status of GOMx Bryde's whale, our evaluation of the section 4(a)(1) factors is that the conservation efforts identified cannot be considered effective measures in reducing the current extinction risk.

Proposed Listing Determination

Section 4(b)(1) of the ESA requires that we make listing determinations based solely on the best scientific and commercial data available after conducting a review of the status of the species and taking into account those efforts, if any, being made by any state or foreign nation, or political subdivisions thereof, to protect and conserve the species. We have reviewed the best available scientific and commercial information contained in the Status Review report, the Threats Evaluation, Demographic Evaluation, and the ERA (Rosel *et al.*, 2016). We found that the GOMx Bryde's whale is a species,

as defined by the ESA, which is in danger of extinction throughout all of its range as a result of ESA section 4(a)(1) Factors A, D, and E. After considering efforts being made to protect the species, we could not conclude that existing or proposed conservation efforts would alter its extinction risk. Accordingly, we propose to list the GOMx Bryde's whale as an endangered species.

Effects of Listing

Conservation measures provided for species listed as endangered or threatened under the ESA include recovery plans (16 U.S.C. 1533(f)), critical habitat designations (16 U.S.C. 1533(a)(3)(A)), Federal agency consultation requirements (16 U.S.C. 1536), and protective regulations (16 U.S.C. 1533(d)). Recognition of the species' status through listing promotes conservation actions by Federal and state agencies, private groups, and individuals, as well as the international community. Both a recovery program and designation of critical habitat could result from this final listing. Given its narrow range in the De Soto Canyon region of the northeastern Gulf of Mexico, and existing threats, a regional cooperative effort to protect and restore the population is necessary. Federal, state, and the private sectors will need to cooperate to conserve listed GOMx Bryde's whales and the ecosystem upon which they depend.

Marine Mammal Protection Act

The MMPA provides protections to all marine mammals, such as Bryde's whales, whether they are listed under the ESA or not. In addition, the MMPA provides heightened protections to marine mammals designated as "depleted." Section 3(1) of the MMPA defines "depleted" as "any case in which": (1) The Secretary "determines that a species or population stock is below its optimum sustainable population"; (2) a state to

which authority has been delegated makes the same determination; or (3) a species or stock “is listed as an endangered species or a threatened species under the [ESA]” (16 U.S.C. 1362(1)). Section 115(a)(1) of the MMPA establishes that “[i]n any action by the Secretary to determine if a species or stock should be designated as depleted, or should no longer be designated as depleted,” such determination must be made by rule, after public notice and an opportunity for comment (16 U.S.C. 1383b(a)(1)). It is our position that a marine mammal species or stock automatically gains “depleted” status under the MMPA when it is listed under the ESA.

Identifying ESA Section 7 Consultation Requirements

Section 7(a)(2) of the ESA and joint NMFS/U.S. Fish and Wildlife Service regulations require Federal agencies to consult with us on any actions they authorize, fund, or carry out if those actions may affect the listed species or designated critical habitat. Based on currently available information, we can conclude that examples of Federal actions that may affect GOMx Bryde’s whale include, but are not limited to: authorizations for energy exploration (*e.g.*, habitat modification, noise from seismic surveys, and shipping), energy production (*e.g.*, oil drilling and production), actions that directly or indirectly introduce vessel traffic that could result in collisions, and military activities and fisheries regulations that may impact the species.

Take Prohibitions

Because we are proposing to list this species as endangered, all of the take prohibitions of section 9(a)(1) of the ESA would apply. These include prohibitions against the import, export, use in foreign commerce, or “take” of the species. “Take” is defined under the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap,

capture, or collect, or attempt to engage in any such conduct.’’ These prohibitions apply to all persons subject to the jurisdiction of the United States, including in the United States or on the high seas.

Critical Habitat

Critical habitat is defined in section 3 of the ESA (16 U.S.C. 1532(5)) as: (1) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features (a) essential to the conservation of the species and (b) that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed upon a determination that such areas are essential for the conservation of the species. ‘‘Conservation’’ means the use of all methods and procedures needed to bring the species to the point at which listing under the ESA is no longer necessary. Critical habitat may also include areas unoccupied by GOMx Bryde’s whale if those areas are essential to the conservation of the species.

Section 4(a)(3)(A) of the ESA (16 U.S.C. 1533(a)(3)(A)) requires that, to the maximum extent prudent and determinable, critical habitat be designated concurrently with the listing of a species. Pursuant to 50 CFR 424.12(a), designation of critical habitat is not determinable when one or both of the following situations exist: (i) Data sufficient to perform required analyses are lacking; or (ii) The biological needs of the species are not sufficiently well known to identify any area that meets the definition of ‘‘critical habitat.’’ Although we have gathered information through the Status Review report and public comment periods on the habitat occupied by this species, we currently do not have enough information to determine what physical and biological feature(s) within that

habitat facilitate the species' life history strategy and are thus essential to the conservation of GOMx Bryde's whale, and may require special management considerations or protection. To the maximum extent prudent and determinable, we will publish a proposed designation of critical habitat for GOMx Bryde's whale in a separate rule. Designations of critical habitat must be based on the best scientific data available and must take into consideration the economic, national security, and other relevant impacts of specifying any particular area as critical habitat. Once critical habitat is designated, section 7 of the ESA requires Federal agencies to ensure that they do not fund, authorize, or carry out any actions that are likely to destroy or adversely modify that habitat. This requirement is in addition to the section 7 requirement that Federal agencies ensure that their actions do not jeopardize the continued existence of listed species.

Policies on Peer Review

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review establishing minimum peer review standards, a transparent process for public disclosure of peer review planning, and opportunities for public participation. The OMB Bulletin, implemented under the Information Quality Act (Pub. L. 106-554) is intended to enhance the quality and credibility of the Federal government's scientific information, and applies to influential or highly influential scientific information disseminated on or after June 16, 2005. To satisfy our requirements under the OMB Bulletin, we received peer reviews from three independent peer reviewers on the Status Review report (Rosel *et al.*, 2016). All peer reviewer comments were addressed prior to dissemination of the final Status Review

report and publication of this final rule. We conclude that these experts' reviews satisfy the requirements for "adequate [prior] peer review" contained in the Bulletin (sec. II.2.).

Public Comments Solicited

We intend that any final action resulting from this proposal will be as accurate as possible and informed by the best available scientific and commercial information.

Therefore, we request comments or information from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule. In particular we seeks comments containing: (1) information, including genetic analyses, regarding the classification of the GOMx Bryde's whale as a subspecies; (2) life history information including abundance, distribution, diving, and foraging patterns; (3) information concerning threats to the species; (4) efforts being made to protect the species throughout its current range; and (5) other pertinent information regarding the species.

We are also soliciting information on physical or biological features and areas that may support designation of critical habitat for the GOMx Bryde's whale. Information provided should identify the physical and biological features essential to the conservation of the species and areas that contain these features. Areas outside the occupied geographical area should also be identified if such areas themselves are essential to the conservation of the species. Essential features may include, but are not limited to, features specific to the species' range, habitat, and life history characteristics within the following general categories of habitat features: (1) space for individual growth and normal behaviour; (2) food, or other nutritional or physiological requirements; (3) protection from predation; (4) sites for reproduction and development of offspring; and

(5) habitats that are protected from natural or human disturbance or are representative of the historical, geographical, and ecological distributions of the species (50 CFR 424.12(b)). ESA implementing regulations at 50 CFR 424.12(h) specify that critical habitat shall not be designated within foreign countries or in other areas outside of U.S. jurisdiction. Therefore, we request information only on potential areas of critical habitat within U.S. jurisdiction. For features and areas potentially qualifying as critical habitat, we also request information describing: (1) activities or other threats to the essential features or activities that could be affected by designating them as critical habitat, and (2) the positive and negative economic, national security and other relevant impacts, including benefits to the recovery of the species, likely to result if these areas are designated as critical habitat.

Public Hearing

During the public hearing, a brief opening presentation on the proposed rule will be provided before accepting public testimony. Written comments may be submitted at the hearing or via the Federal e-Rulemaking Portal (see ADDRESSES) until the scheduled close of the comment period on (January 30, 2017). In the event that attendance at the public hearing is large, the time allotted for oral statements may be limited. There are no limits on the length of written comments submitted to us. Oral and written statements receive equal consideration.

Public Hearing Schedule

The date and location for the public hearing is as follows: St. Petersburg, Florida: January 19, 2017, from 6:00 p.m. to 8:00 p.m. at NOAA Fisheries, Southeast

Regional Office, Dolphin Conference room, 236 13th Avenue, South, St. Petersburg, Florida, 33701.

Special Accommodations

This hearing is physically accessible to people with disabilities. Requests for sign language interpretation or other accommodations should be directed to Calusa Horn (see ADDRESSES) as soon as possible, but no later than 7 business days prior to the hearing date.

References

A complete list of the references used in this proposed rule is available upon request, and also available at:

http://sero.nmfs.noaa.gov/protected_resources/listing_petitions/species_esa_consideration/index.html.

Classifications

National Environmental Policy Act

The 1982 amendments to the ESA, in section 4(b)(1)(A), restrict the information that may be considered when assessing species for listing. Based on this limitation of criteria for a listing decision and the opinion in *Pacific Legal Foundation v. Andrus*, 675 F. 2d 825 (6th Cir. 1981), NMFS has concluded that ESA listing actions are not subject to the environmental assessment requirements of the NEPA (See NOAA Administrative Order 216-6A).

Executive Order 12866, Regulatory Flexibility Act and Paperwork Reduction Act

As noted in the Conference Report on the 1982 amendments to the ESA, economic impacts cannot be considered when assessing the status of a species. Therefore,

the economic analysis requirements of the Regulatory Flexibility Act are not applicable to the listing process. In addition, this final rule is exempt from review under Executive Order 12866. This final rule does not contain a collection-of-information requirement for the purposes of the Paperwork Reduction Act.

Executive Order 13132, Federalism

In keeping with the intent of the Administration and Congress to provide continuing and meaningful dialogue on issues of mutual state and Federal interest, the proposed rule will be provided to the relevant agencies in each state in which the subject species occurs, and these agencies are invited to comment.

List of Subjects in 50 CFR Part 224

Administrative practice and procedure, Endangered and threatened species, Exports, Imports, Reporting and record keeping requirements, Transportation.

Dated: December 2, 2016.

Samuel D. Rauch, III,

Deputy Assistant Administrator for Regulatory Programs,

National Marine Fisheries Service.

For the reasons set out in the preamble, we propose to amend 50 CFR part 224 as follows:

PART 224—ENDANGERED MARINE AND ANADROMOUS SPECIES

1. The authority citation for part 224 continues to read as follows:

Authority: 16 U.S.C. 1531-1543 and 16 U.S.C. 1361 *et seq.*

2. In § 224.101, in the table in paragraph (h), add an entry for “Whale, Bryde’s (Gulf of Mexico subspecies)” under MARINE MAMMALS in alphabetical order by common name to read as follows:

§ 224.101 Enumeration of endangered marine and anadromous species.

(h) ***

Species ¹			Citation(s) for listing determination(s)	Critical habitat	ESA rules
Common name	Scientific name	Description of listed entity			
*	*	*	*	*	*
Marine mammals					
*****	*	*	*	*	*
Whale, Bryde’s (Gulf of Mexico subspecies)	<i>Balaenoptera edeni</i> (unnamed subspecies)	Bryde’s whales that breed and feed in the Gulf of Mexico	[FEDERAL REGISTER citation and date when published as a final rule]	NA	NA
*****	*	*	*	*	*

¹ Species includes taxonomic species, subspecies, distinct population segments (DPSs) (for a policy statement, see 61 FR 4722, February 7, 1996), and evolutionarily significant units (ESUs) (for a policy statement, see 56 FR 58612, November 20, 1991).

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