



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XD621]

Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to Geophysical Surveys Related to Oil and Gas Activities in the Gulf of Mexico

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

ACTION: Notice; issuance of letter of authorization.

SUMMARY: In accordance with the Marine Mammal Protection Act (MMPA), as amended, its implementing regulations, and NMFS' MMPA Regulations for Taking Marine Mammals Incidental to Geophysical Surveys Related to Oil and Gas Activities in the Gulf of Mexico, notification is hereby given that a Letter of Authorization (LOA) has been issued to bp Exploration and Production Inc. (bp) for the take of marine mammals incidental to geophysical survey activity in the Gulf of Mexico (GOM).

DATES: The LOA is effective from April 1, 2024 through December 31, 2024.

ADDRESSES: The LOA, LOA request, and supporting documentation are available online at: <https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-mexico>. In case of problems accessing these documents, please call the contact listed below (see **FOR FURTHER INFORMATION CONTACT**).

FOR FURTHER INFORMATION CONTACT: Jenna Harlacher, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined “negligible impact” in 50 CFR 216.103 as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

Except with respect to certain activities not pertinent here, the MMPA defines “harassment” as: any act of pursuit, torment, or annoyance which: (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

On January 19, 2021, we issued a final rule with regulations to govern the unintentional taking of marine mammals incidental to geophysical survey activities conducted by oil and gas industry operators, and those persons authorized to conduct activities on their behalf (collectively “industry operators”), in U.S. waters of the GOM over the course of 5 years (86 FR 5322, January 19, 2021). The rule was based on our

findings that the total taking from the specified activities over the 5-year period will have a negligible impact on the affected species or stock(s) of marine mammals and will not have an unmitigable adverse impact on the availability of those species or stocks for subsistence uses. The rule became effective on April 19, 2021.

Our regulations at 50 CFR 217.180 *et seq.* allow for the issuance of LOAs to industry operators for the incidental take of marine mammals during geophysical survey activities and prescribe the permissible methods of taking and other means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat (often referred to as mitigation), as well as requirements pertaining to the monitoring and reporting of such taking. Under 50 CFR 217.186(e), issuance of an LOA shall be based on a determination that the level of taking will be consistent with the findings made for the total taking allowable under these regulations and a determination that the amount of take authorized under the LOA is of no more than small numbers.

Summary of Request and Analysis

Bp plans to conduct a three-dimensional (3D) ocean bottom node (OBN) and distributed acoustic sensing (DAS) survey, a source test of the Gemini 8000 (Gemini source test), and a Seismic Apparition (SA) source test in the Thunder Horse protraction area. Approximate water depths of the survey area range from 1,450 to 2,350 meters (m). See section 1.1 of the LOA application for a map of the area.

Bp anticipates using two source vessels, each towing conventional airgun sources consisting of 32 elements, with a total volume of 5,110 cubic inches (in³) for the 3D OBN and DAS survey portion. Please see bp's application for additional detail.

The Gemini source was not included in the acoustic exposure modeling developed in support of the rule. However, our rule anticipated the possibility of new and unusual technologies (NUT) and determined they would be evaluated on a case-by case basis (86 FR 5322, 5442, January 19, 2021). This source was previously evaluated as a NUT in

2020 (prior to issuance of the 2021 final rule) pursuant to the requirements of NMFS' 2020 Biological Opinion on BOEM's Gulf of Mexico oil and gas program as well as the issuance of the rule. An associated report produced by Jasco Applied Sciences (Grooms *et al.*, 2019) provides information related to the acoustic output of the Gemini source, which informs our evaluation here.

The Gemini source operates on the same basic principles as a traditional airgun source in that it uses compressed air to create a bubble in the water column which then goes through a series of collapses and expansions creating primarily low-frequency sounds. However, the Gemini source consists of one physical element with two large chambers of 4,000 in³ each (total volume of 8,000 in³). This creates a larger bubble resulting in more of the energy being concentrated in low frequencies, with a fundamental frequency of 3.7 Hertz. In addition to concentrating energy at lower frequencies, the Gemini source is expected to produce lower overall sound levels than the conventional airgun proxy source. The number of airguns in an array is highly influential on overall sound energy output, because the output increases approximately linearly with the number of airgun elements. In this case, because the same air volume is used to operate two very large guns, rather than tens of smaller guns, the array produces lower sound levels than a conventional array of equivalent total volume.

The modeled distances described in the aforementioned Jasco report show expected per-pulse sound pressure level threshold distances to the 160-dB level of 4.29 kilometers (km). When frequency-weighted, *i.e.*, considering the low frequency output of the source relative to the hearing sensitivities of different marine mammal hearing groups, the estimated distance is decreased to approximately 1 km for the low-frequency cetacean hearing group and to de minimis levels for mid- and high-frequency cetacean hearing groups, significantly less than comparable modeled distances for the proxy 72-element, 8,000 in³ array evaluated in the rule.

These factors lead to a conclusion that take by Level B harassment associated with use of the Gemini source would be less than would occur for a similar survey instead using the modeled airgun array as a sound source. Based on the foregoing, we have determined there will be no effects of a magnitude or intensity different from those evaluated in support of the rule. Moreover, use of modeling results relating to use of the 72 element, 8,000 in³ airgun array are expected to be significantly conservative as a proxy for use in evaluating potential impacts of use of the Gemini source.

The SA source test option is considered an operational variation rather than a source variation, and would utilize traditional airgun source equipment. The test involves “source densification,” in which a greater number of pulses are produced per square kilometer, compared to the OBN/DAS survey. Each source vessel would tow six airgun strings firing within a 120 ms time window, but not simultaneously. On average, the OBN/DAS seismic survey source will be operated such that 400 pulses are produced per square kilometer whereas for the SA test, approximately 900 pulses are produced per square kilometer. This would increase the number of pulses created per day compared to the OBN/DAS survey. Because the sources and/or subarrays are not firing simultaneously, per-pulse output would not be of concern relative to the modeled proxy source. Regarding total pulses, the modeled coil survey configuration selected for use here (see below) had the highest number of simulated pulses of all modeled survey configurations (Zeddies et al., 2015). The SA source test is anticipated to produce a total of 101,558 pulses for the full, 9-day duration of the test (approximately 11,000 pulses per day), and in comparison the coil survey included 120,000 pulses over a 7-day simulation (approximately 17,000 pulses per day). Note also that each pulse during the SA test would be from one subarray or string, each of which is approximately 1,700 in³ volume, as compared with the simulated pulses from the modeled Coil survey which are from the full 72-element, 8,000 in³ proxy. In addition, this portion of the survey would cover a

much smaller area of approximately 112 km² compared to the 1,751 – 3,305 km² survey area covered by the OBN/DAS survey. We have determined that the SA test is not expected to cause effects beyond those considered through the rule, and that use of modeling results from a traditional airgun array as a proxy for take that may occur incidental to the SA source test is applicable.

Consistent with the preamble to the final rule, the survey effort proposed by bp in its LOA request was used to develop LOA-specific take estimates based on the acoustic exposure modeling results described in the preamble (86 FR 5398, January 19, 2021). In order to generate the appropriate take numbers for authorization, the following information was considered: (1) survey type; (2) location (by modeling zone¹); (3) number of days; and (4) season.² The acoustic exposure modeling performed in support of the rule provides 24-hour exposure estimates for each species, specific to each modeled survey type in each zone and season.

No 3D OBN or DAS surveys were included in the modeled survey types, and use of existing proxies (*i.e.*, two-dimensional (2D), 3D narrow-azimuth (NAZ), 3D wide-azimuth (WAZ), Coil) is generally conservative for use in evaluation of 3D OBN and DAS survey effort, largely due to the greater area covered by the modeled proxies. Summary descriptions of these modeled survey geometries are available in the preamble to the proposed rule (83 FR 29220, June 22, 2018). Coil was selected as the best available proxy survey type in this case because the spatial coverage of the planned survey is most similar to the coil survey pattern.

The planned 3D OBN and DAS surveys will use the same seismic source and are thus conducted at the same time. This will involve two source vessels. The coil survey

¹ For purposes of acoustic exposure modeling, the GOM was divided into seven zones. Zone 1 is not included in the geographic scope of the rule.

² For purposes of acoustic exposure modeling, seasons include winter (December-March) and summer (April-November).

pattern was assumed to cover approximately 144 kilometers squared (km²) per day (compared with approximately 795 km², 199 km², and 845 km² per day for the 2D, 3D NAZ, and 3D WAZ survey patterns, respectively). Among the different parameters of the modeled survey patterns (*e.g.*, area covered, line spacing, number of sources, shot interval, total simulated pulses), NMFS considers area covered per day to be most influential on daily modeled exposures exceeding Level B harassment criteria. Although bp is not proposing to perform a survey using the coil geometry, its planned 3D OBN and DAS survey is expected to cover approximately 55.1 km² per day, meaning that the coil proxy is most representative of the effort planned by bp in terms of predicted Level B harassment exposures. In addition, all available acoustic exposure modeling results assume use of a 72-element, 8,000 in³ array. Thus, as discussed above, estimated take numbers for this LOA are considered conservative due to differences between the acoustic source planned for use (32 element, 5,110 in³ airgun array, Gemini test, and SA test) and the proxy array modeled for the rule.

The survey will include 69 days of sound source operation (60 days of traditional airgun array surveys and 9 days of testing). The survey plan includes 34 days within Zone 5 and 35 days within Zone 7. The seasonal distribution of survey days is not known in advance. Therefore, the take estimates for each species are based on the season that produces the greater value.

For some species, take estimates based solely on the modeling yielded results that are not realistically likely to occur when considered in light of other relevant information available during the rulemaking process regarding marine mammal occurrence in the GOM. The approach used in the acoustic exposure modeling, in which seven modeling zones were defined over the U.S. GOM, necessarily averages fine-scale information about marine mammal distribution over the large area of each modeling zone. This can result in unrealistic projections regarding the likelihood of encountering particularly rare

species and/or species not expected to occur outside particular habitats. Thus, although the modeling conducted for the rule is a natural starting point for estimating take, our rule acknowledged that other information could be considered (*e.g.*, 86 FR 5322, January 19, 2021), discussing the need to provide flexibility and make efficient use of previous public and agency review of other information and identifying that additional public review is not necessary unless the model or inputs used differ substantively from those that were previously reviewed by NMFS and the public. For this survey, NMFS has other relevant information reviewed during the rulemaking that indicates use of the acoustic exposure modeling to generate a take estimate for Rice's whales and killer whales produces results inconsistent with what is known regarding their occurrence in the GOM. Accordingly, we have adjusted the calculated take estimates for those species as described below.

NMFS' final rule described a "core habitat area" for Rice's whales (formerly known as GOM Bryde's whales)³ located in the northeastern GOM in waters between 100 and 400 m depth along the continental shelf break (Rosel *et al.*, 2016). However, whaling records suggest that Rice's whales historically had a broader distribution within similar habitat parameters throughout the GOM (Reeves *et al.*, 2011; Rosel and Wilcox, 2014). In addition, habitat-based density modeling has identified similar habitat (*i.e.*, approximately 100 to 400 m water depths along the continental shelf break) as being potential Rice's whale habitat (Roberts *et al.*, 2016; Garrison *et al.*, 2023), and Rice's whales have been detected within this depth band throughout the GOM (Soldevilla *et al.*, 2022, 2024). See discussion provided at, *e.g.*, 83 FR 29228, June 22, 2018; 83 FR 29280, June 22, 2018; 86 FR 5418, January 19, 2021.

Although Rice's whales may occur outside of the core habitat area, we expect that any such occurrence would be limited to the narrow band of suitable habitat described

³ The final rule refers to the GOM Bryde's whale (*Balaenoptera edeni*). These whales were subsequently described as a new species, Rice's whale (*Balaenoptera ricei*) (Rosel *et al.*, 2021).

above (*i.e.*, 100 to 400 m) and that, based on the few available records, these occurrences would be rare. Bp's planned activities will occur in water depths of approximately 1,450 to 2,350 m in the central GOM. Thus, NMFS does not expect there to be the reasonable potential for take of Rice's whale in association with this survey and, accordingly, does not authorize take of Rice's whale through this LOA.

Killer whales are the most rarely encountered species in the GOM, typically in deep waters of the central GOM (Roberts *et al.*, 2015; Maze-Foley and Mullin, 2006). As discussed in the final rule, the density models produced by Roberts *et al.* (2016) represent the output of models derived from multi-year observations and associated environmental parameters that incorporate corrections for detection bias. However, in the case of killer whales, the model is informed by few data, as indicated by the coefficient of variation associated with the abundance predicted by the model (0.41, the second-highest of any GOM species model; Roberts *et al.*, 2016). The model's authors noted the expected non-uniform distribution of this rarely-encountered species (as discussed above) and expressed that, due to the limited data available to inform the model, it "should be viewed cautiously" (Roberts *et al.*, 2015).

NOAA surveys in the GOM from 1992 to 2009 reported only 16 sightings of killer whales, with an additional 3 encounters during more recent survey effort from 2017 to 2018 (Waring *et al.*, 2013; <https://www.boem.gov/gommapps>). Two other species were also observed on fewer than 20 occasions during the 1992 to 2009 NOAA surveys (Fraser's dolphin and false killer whale)⁴. However, observational data collected by protected species observers (PSO) on industry geophysical survey vessels from 2002 to 2015 distinguish the killer whale in terms of rarity. During this period, killer whales were encountered on only 10 occasions, whereas the next most rarely encountered species

⁴ However, note that these species have been observed over a greater range of water depths in the GOM than have killer whales.

(Fraser's dolphin) was recorded on 69 occasions (Barkaszi and Kelly, 2019). The false killer whale and pygmy killer whale were the next most rarely encountered species, with 110 records each. The killer whale was the species with the lowest detection frequency during each period over which PSO data were synthesized (2002 to 2008 and 2009 to 2015). This information qualitatively informed our rulemaking process, as discussed at 86 FR 5322 and 86 FR 5334 (January 19, 2021), and similarly informs our analysis here.

The rarity of encounter during seismic surveys is not likely to be the product of high bias on the probability of detection. Unlike certain cryptic species with high detection bias, such as *Kogia spp.* or beaked whales, or deep-diving species with high availability bias, such as beaked whales or sperm whales, killer whales are typically available for detection when present and are easily observed. Roberts *et al.* (2015) stated that availability is not a major factor affecting detectability of killer whales from shipboard surveys, as they are not a particularly long-diving species. Baird *et al.* (2005) reported that mean dive durations for 41 fish-eating killer whales for dives greater than or equal to 1 minute in duration was 2.3 to 2.4 minutes, and Hooker *et al.* (2012) reported that killer whales spent 78 percent of their time at depths between 0 and 10 m. Similarly, Kvadsheim *et al.* (2012) reported data from a study of 4 killer whales, noting that the whales performed 20 times as many dives 1 to 30 m in depth than to deeper waters, with an average depth during those most common dives of approximately 3 m.

In summary, killer whales are the most rarely encountered species in the GOM and typically occur only in particularly deep water. This survey would take place in deep waters that would overlap with depths in which killer whales typically occur. While this information is reflected through the density model informing the acoustic exposure modeling results, there is relatively high uncertainty associated with the model for this species, and the acoustic exposure modeling applies mean distribution data over areas where the species is in fact less likely to occur. In addition, as noted above in relation to

the general take estimation methodology, the assumed proxy source (72-element, 8,000-in³ array) results in a significant overestimate of the actual potential for take to occur. NMFS' determination in reflection of the information discussed above, which informed the final rule, is that use of the generic acoustic exposure modeling results for killer whales will generally result in estimated take numbers that are inconsistent with the assumptions made in the rule regarding expected killer whale take (86 FR 5322, January 19, 2021; 86 FR 5403, January 19, 2021).

In past authorizations, NMFS has often addressed situations involving the low likelihood of encountering a rare species such as killer whales in the GOM through authorization of take of a single group of average size (*i.e.*, representing a single potential encounter). See 83 FR 63268, December 7, 2018; 86 FR 29090, May 28, 2021; 85 FR 55645, September 9, 2020. For the reasons expressed above, NMFS determined that a single encounter of killer whales is more likely than the model-generated estimates and has authorized take associated with a single group encounter (*i.e.*, up to 7 animals).

Based on the results of our analysis, NMFS has determined that the level of taking authorized through the LOA is consistent with the findings made for the total taking allowable under the regulations for the affected species or stocks of marine mammals. See table 1 in this notice and table 9 of the rule (86 FR 5322, January 19, 2021).

Small Numbers Determination

Under the GOM rule, NMFS may not authorize incidental take of marine mammals in an LOA if it will exceed "small numbers." In short, when an acceptable estimate of the individual marine mammals taken is available, if the estimated number of individual animals taken is up to, but not greater than, one-third of the best available abundance estimate, NMFS will determine that the numbers of marine mammals taken of a species or stock are small. For more information please see NMFS' discussion of the

MMPA’s small numbers requirement provided in the final rule (86 FR 5438, January 19, 2021).

The take numbers for authorization are determined as described above in the Summary of Request and Analysis section. Subsequently, the total incidents of harassment for each species are multiplied by scalar ratios to produce a derived product that better reflects the number of individuals likely to be taken within a survey (as compared to the total number of instances of take), accounting for the likelihood that some individual marine mammals may be taken on more than 1 day (see 86 FR 5404, January 19, 2021). The output of this scaling, where appropriate, is incorporated into adjusted total take estimates that are the basis for NMFS' small numbers determinations, as depicted in table 1.

This product is used by NMFS in making the necessary small numbers determinations through comparison with the best available abundance estimates (see discussion at 86 FR 5322, January 19, 2021; 86 FR 5391, January 19, 2021). For this comparison, NMFS’ approach is to use the maximum theoretical population, determined through review of current stock assessment reports (SAR; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-species-stock>) and model-predicted abundance information (<https://seamap.env.duke.edu/models/Duke/GOM/>). For the latter, for taxa where a density surface model could be produced, we use the maximum mean seasonal (*i.e.*, 3-month) abundance prediction for purposes of comparison as a precautionary smoothing of month-to-month fluctuations and in consideration of a corresponding lack of data in the literature regarding seasonal distribution of marine mammals in the GOM. Information supporting the small numbers determinations is provided in Table 1.

Table 1 -- Take Analysis

Species	Authorized take	Scaled take ¹	Abundance ²	Percent abundance
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Rice's whale	0	n/a	51	0
Sperm whale	974	412	2,207	18.7
<i>Kogia spp.</i>	398 ³	120	4,373	3.3
Beaked whales	5,002	505	3,768	13.4
Rough-toothed dolphin	880	252	4,853	5.2
Bottlenose dolphin	2,939	843	176,108	0.5
Clymene dolphin	2,429	697	11,895	5.9
Atlantic spotted dolphin	1,171	336	74,785	0.4
Pantropical spotted dolphin	14,734	4,229	102,361	4.1
Spinner dolphin	2,278	654	25,114	2.6
Striped dolphin	1,038	298	5,229	5.7
Fraser's dolphin	308	88	1,665	5.3
Risso's dolphin	623	184	3,764	4.9
Melon-headed whale	1,588	468	7,003	6.7
Pygmy killer whale	485	143	2,126	6.7
False killer whale	673	198	3,204	6.2
Killer whale	7	n/a	267	2.6
Short-finned pilot whale	366	108	1,981	5.5

¹Scalar ratios were applied to "Authorized Take" values as described at 86 FR 5322 and 86 FR 5404 (January 19, 2021) to derive scaled take numbers shown here.

²Best abundance estimate. For most taxa, the best abundance estimate for purposes of comparison with take estimates is considered here to be the model-predicted abundance (Roberts *et al.*, 2016). For those taxa where a density surface model predicting abundance by month was produced, the maximum mean seasonal abundance was used. For those taxa where abundance is not predicted by month, only mean annual abundance is available. For Rice's whale and the killer whale, the larger estimated SAR abundance estimate is used.

³Includes 24 takes by Level A harassment and 374 takes by Level B harassment. Scalar ratio is applied to takes by Level B harassment only; small numbers determination made on basis of scaled Level B harassment take plus authorized Level A harassment take.

Based on the analysis contained herein of bp's proposed survey activity described in its LOA application and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the affected species or stock sizes (*i.e.*, less than one-third of the best available abundance estimate) and therefore the taking is of no more than small numbers.

Authorization

NMFS has determined that the level of taking for this LOA request is consistent with the findings made for the total taking allowable under the incidental take regulations and that the amount of take authorized under the LOA is of no more than small numbers. Accordingly, we have issued an LOA to bp authorizing the take of marine mammals incidental to its geophysical survey activity, as described above.

Dated: March 11, 2024.

Kimberly Damon-Randall,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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