E 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 217

[Docket No. 260414-0101]

RIN 0648-BO19

Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to Geophysical Surveys in the Gulf of America

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

ACTION: Final rule.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA), as amended, notification is hereby given that NMFS promulgates regulations to govern the incidental taking of marine mammals during geophysical survey activity conducted in the Gulf of America (GOA), over the course of 5 years. These regulations, which allow for the issuance of Letters of Authorization (LOA) to survey operators for the incidental take of marine mammals during the described activities and specified timeframe, 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, as well as requirements pertaining to the monitoring and reporting of such taking.

DATES: Effective from April 20, 2026, through April 19, 2031.

ADDRESSES: Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-*

industry-geophysical-survey-activity-gulf-america. In case of problems accessing these documents, please call the contact listed below.

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

SUPPLEMENTARY INFORMATION:

Purpose and Need for Regulatory Action

On January 19, 2021 (86 FR 5322), in response to a petition request from the Bureau of Ocean Energy Management (BOEM), NMFS issued a final rule implementing incidental take regulations (ITRs) under the MMPA, 16 U.S.C. 1361 *et seq*., governing the take of marine mammals incidental to the conduct of geophysical survey activities in the GOA.[1] The ITRs provide a framework for authorization of incidental take through LOAs upon request from individual applicants planning specific geophysical survey activities. The ITRs became effective on April 19, 2021, and are effective through April 19, 2026 (86 FR 5322, January 19, 2021).

NMFS subsequently discovered that the 2021 rule was based on erroneous take estimates. We conducted another rulemaking to reassess the statutorily required findings for issuance of the 2021 ITRs using correct take estimates and other newly available and pertinent information relevant to the analyses supporting some of the findings in the 2021 final rule and the taking allowable under the regulations. We issued a final rule affirming those findings in April 2024, effective through April 19, 2026 (89 FR 31488, April 24, 2024). The 2024 rule did not result in any changes to the existing ITRs.

On March 25, 2025, NMFS received an application from the EnerGeo Alliance (EnerGeo) requesting development of ITRs governing the taking of marine mammals incidental to geophysical survey activity conducted in the GOA over the course of 5 years

[1] Pursuant to Executive Order 14172, "Restoring Names That Honor American Greatness," and Department of the Interior Secretarial Order 3423, "The Gulf of America," the body of water formerly known as the Gulf of Mexico is now called the Gulf of America. Accordingly, NMFS amended the incidental take regulations to reflect the change. See 90 FR 38001 (August 7, 2025).

following the expiration of the existing ITRs. Following receipt of NMFS' comments on the draft application on April 15, 2025, EnerGeo submitted revised versions of the application on July 14, August 8, and August 12, 2025, the last of which was determined to be adequate and complete. NMFS determined at that time, based on the date of submission of the adequate and complete application, that it was unlikely a new rulemaking process could be completed prior to expiration of the existing ITRs on April 19, 2026.

On August 28, 2025, NMFS Office of Protected Resources (OPR) received a request from NMFS Office of Policy (Policy) for reimplementation of the current ITRs to avoid a lapse in ITRs offering incidental take coverage for GOA geophysical survey activities. The request notes that the pending April 2026 expiration of the current ITRs would affect regulatory certainty through loss of an efficient permitting framework, and that reimplementation of the existing ITRs on the basis of the same specified activity defined in the initial 2021 final rule and associated estimates of incidental take evaluated in the 2024 corrective rulemaking is consistent with the MMPA and appropriate pursuant to Executive Orders 14156, "Declaring a National Energy Emergency," and 14154, "Unleashing American Energy." On October 20, 2025, BOEM (the original petitioner for the current ITRs) submitted a request to be included in the process as a co-petitioner.

NMFS has received multiple requests from industry survey operators relating to specific survey activities that would extend beyond the expiration date of the current ITRs, establishing the ongoing need for the ITRs. The reimplementation of the regulations in effect continues the current established framework for authorization of incidental take through LOAs until superseded by new ITRs promulgated on the basis of the separate EnerGeo request.

Legal Authority for the Action

Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1371(a)(5)(A)) directs 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 for up to 5 years if, after notice and public comment, the agency makes certain findings and issues regulations that set forth permissible methods of taking pursuant to that activity and other means of effecting the "least practicable adverse impact" (LPAI) on the affected species or stocks and their habitat (see the discussion below in the **Proposed Mitigation** section), as well as monitoring and reporting requirements. Under NMFS' implementing regulations for section 101(a)(5)(A), NMFS issues LOAs to individuals (including entities) seeking authorization for take under the activity-specific incidental take regulations (50 CFR 216.106).

Severability

In the event a court were to invalidate some but not all aspects of NMFS' small numbers interpretation/application, NMFS intends that the remaining aspects of the rule and ITRs be severable to the extent possible. The extent to which this is possible may depend on which aspect is invalidated. The small numbers standard is a statutory requirement that could be satisfied on an LOA-by-LOA basis in accordance with the ruling of a court if for example the court upholds NMFS' LOA-by-LOA aspect of our interpretation but rules adversely on other aspects of our small numbers interpretation. Importantly, the negligible impact analysis for this 5-year rule is the biologically relevant inquiry, and that analysis is based on the total annual estimated taking for all activities the regulations will govern over the five-year period. Our ability to issue LOAs to allow the incidental take of marine mammals, subject to the mitigation, monitoring, and reporting requirements, is based on our findings in this final rule that the total taking over the five-year period of the rule will have a negligible impact on the affected species or stocks; that

the mitigation and related monitoring required in the ITRs will effect the least practicable adverse impact on those species or stocks; and our determination in this rule that any LOA we issue must not involve taking that exceeds one-third of the abundance for that species or stock.

Summary of Major Provisions within the Regulations

Following is a summary of the major provisions of this final rule regarding geophysical survey activities. The regulations contain requirements for mitigation, monitoring, and reporting, including:

- Standard detection-based mitigation measures, including use of visual and acoustic observation to detect marine mammals and shutdown of acoustic sources in certain circumstances;
- A time-area restriction designed to avoid effects to bottlenose dolphins in times and places of particular importance;
- Vessel strike avoidance measures; and
- Monitoring and reporting requirements.

These measures are unchanged from those included in the current ITRs. See 50 CFR 217.180 *et seq*.

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq*.) direct the Secretary of Commerce (as delegated to NMFS) 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 incidental take authorization 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. The MMPA states that the term "take" means to harass, hunt, capture, kill or attempt to harass, hunt, capture, or kill any marine mammal.

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 ITRs to govern the unintentional taking of marine mammals incidental to geophysical survey activities conducted in U.S. waters of the GOA over the course of the statutory maximum of 5 years (86 FR 5322, January 19, 2021). NMFS subsequently discovered that the 2021 rule was based on erroneous take estimates. We conducted another rulemaking to reassess the statutorily required findings for issuance of the 2021 ITRs using correct take estimates and other newly available and pertinent information relevant to the analyses supporting some of the findings in the 2021 final rule and the taking allowable under the regulations. We issued a final rule affirming those findings in April 2024 (89 FR 31488, April 24, 2024). The 2024 rule did not result in any changes to the existing ITRs, which provide a framework for

authorization of incidental take through LOAs upon request from individual applicants planning specific geophysical survey activities. The existing ITRs are in effect through April 19, 2026.

On March 25, 2025, NMFS received an application from EnerGeo requesting development of ITRs governing the taking of marine mammals incidental to geophysical survey activity conducted in the GOA over the course of 5 years following the date of issuance. Following receipt of NMFS' comments on the draft application on April 15, 2025, EnerGeo submitted revised versions of the application on July 14, August 8, and August 12, 2025. On September 24, 2025 (90 FR 45936), we published a notice of receipt of the request in the **Federal Register**, requesting comments and information related to the request.

On August 28, 2025, NMFS OPR received a request from NMFS Policy for reimplementation of the current ITRs. The request notes that the pending April 2026 expiration of the current ITRs would affect regulatory certainty with loss of an efficient permitting framework, and that reimplementation of the existing ITRs on the basis of the same specified activity and activity levels defined in the initial 2021 final rule and associated estimates of incidental take evaluated in the 2024 corrective rulemaking is consistent with the MMPA and appropriate pursuant to Executive Orders 14156, "Declaring a National Energy Emergency," and 14154, "Unleashing American Energy." On September 3, 2025 (90 FR 42569), we published a notice of receipt of the request in the **Federal Register**, requesting comments and information related to the request. All comments received are available online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-america*. Among the comments was a letter from EnerGeo and other industry trade associations expressing support for NMFS'

proposed issuance of reimplemented ITRs until superseded by new ITRs promulgated on the basis of the separate EnerGeo request. Please see the letters for full comments.

On October 20, 2025, BOEM (the original petitioner for the current ITRs) submitted a request to be included in the process as a co-petitioner, expressing support for the requested reimplementation of the existing ITRs. Both the NMFS Policy and BOEM requests are available online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-america*.

This final rule provides analysis of the same activities and activity levels considered for the 2021 final rule, which were unchanged in the 2024 final rule, and utilizes the same modeling methodology described in the 2024 final rule. We incorporate the best available information, including information that was newly evaluated in the 2024 final rule and any information that is newly available since issuance of the 2024 final rule. The 2024 final rule incorporated expanded modeling results relative to the 2021 final rule that estimate take utilizing the existing methodology but also consider the effects of using smaller airgun arrays (relative to the proxy source originally defined by BOEM) that are currently prevalent as evidenced by LOA applications received by NMFS to date (see *https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-america*).

There are no changes to the nature or level of the specified activities within or across years or to the geographic scope of the activity. There is no new information pertaining to the estimates of marine mammal take presented in the 2024 final rule and, therefore, no changes to those take numbers. Based on our assessment of the specified activity in light of the 2024 revised take estimates and other new information, we have determined that the proposed ITRs, which reimplements the current ITRs and includes the required mitigation and associated monitoring measures, satisfies the MMPA requirement to prescribe the means of effecting the LPAI on the affected species or

stocks and their habitat, and contains the requirements pertaining to monitoring and reporting.

Summary of the Action

This final rule provides analysis of the same activities and activity levels considered for the 2024 final rule and utilizes the same modeling methodology described in the 2024 final rule. There are no changes to the nature or level of the specified activities within or across years or to the geographic scope of the activity. Based on our assessment of the specified activity in light of the take estimates, which remain unchanged, we have determined that the total taking over the five-year period of the specified activity will have a negligible impact on the affected species or stocks of marine mammals.[2] Additionally, the regulations promulgated here satisfy the MMPA requirement to prescribe the means of effecting the least practicable adverse impact on the affected species or stocks and their habitat and contain monitoring and reporting requirements pertaining to the taking.

Description of the Specified Activity

Overview

The specified activity for this action as requested by the NMFS' Policy petition is unchanged from the specified activity considered for the 2021 and 2024 rules, consisting of geophysical surveys conducted for a variety of reasons. Actual total amounts of effort (including by survey type and location) are not known in advance of receiving LOA requests, but take in excess of what is analyzed in this rule would not be authorized. Applicants seeking authorization for take of marine mammals incidental to survey activities outside the geographic scope of the rule (*i.e.*, within the former Gulf of Mexico

[2] There are no relevant subsistence uses implicated by this action. Therefore the taking from the specified activity will not have an unmitigable adverse impact on the availability of the species for taking for relevant subsistence uses. See 16 U.S.C. 1371(a)(5)(A).

Energy Security Act (GOMESA) (Sec. 104, Pub. L. 109-432)[3] moratorium area) would need to pursue a separate MMPA incidental take authorization (see figure 1).

EnerGeo's 2025 ITR petition suggests that the existing level of effort estimates, by survey type and location, are a reasonable representation of the activities expected to occur under our final ITR reimplementation rule (which EnerGeo supports). EnerGeo's petition, available online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-america*, carries forward the same survey types and similar estimated annual levels of effort by survey type and location as specified by BOEM over a 10-year period (as adjusted in 2020 by BOEM to account for removal from consideration of the area then under a Congressional leasing moratorium under GOMESA). The most notable difference is EnerGeo's estimate that approximately 40 percent of forecast survey effort may be accomplished using alternative sources that have less environmental impact than airgun arrays (*e.g.*, tuned pulse or dual barbell sources; additional descriptions of these source types may be found in **Federal Register** notices of LOA issuance under the existing ITRs, *e.g.*, 86 FR 37309, July 15, 2021; 87 FR 55790, September 12, 2022; 88 FR 72739, October 23, 2023). NMFS will address these changes to survey effort in a future rulemaking on EnerGeo's petition. For the current rulemaking, we have determined the specified activity that is the subject of this final rule is a reasonable projection on which to proceed.

Geophysical surveys are conducted to obtain information on marine seabed and subsurface geology for a variety of reasons, including to obtain data for hydrocarbon and mineral exploration and production; aid in siting of oil and gas structures, facilities, and pipelines; identify possible seafloor or shallow depth geologic hazards; and locate potential archaeological resources and benthic habitats that should be avoided.

---

[3] The Congressional moratorium in GOMESA was in place until June 30, 2022. On September 8, 2020, the President withdrew, under section 12 of the Outer Continental Shelf Lands Act, the same area covered by the prior GOMESA moratorium from disposition by leasing for 10 years, beginning on July 1, 2022, and ending on June 30, 2032.

Deep penetration seismic surveys using airgun arrays as an acoustic source (sound sources are described in the *Detailed Description of Activities* section) are a primary method of obtaining geophysical data used to characterize subsurface structure. These surveys are designed to illuminate deeper subsurface structures and formations. A deep penetration survey uses an acoustic source suited to provide data on geological formations that may be thousands of meters (m) beneath the seafloor, as compared with a shallow penetration or high resolution geophysical (HRG) survey that may be intended to evaluate shallow subsurface formations or the seafloor itself (*e.g.*, for hazards).

Deep penetration surveys may be two-dimensional (2D) or three-dimensional (3D), and there are a variety of survey methodologies designed to provide the specific data of interest. 2D surveys are designed to acquire data over large areas (thousands of square miles) in order to screen for potential hydrocarbon prospectivity, and provide a cross-sectional image of the structure. In contrast, 3D surveys may use similar acoustic sources but are designed to cover smaller areas with greater resolution (*e.g.*, with closer survey line spacing), providing a volumetric image of underlying geological structures. Repeated 3D surveys are referred to as four-dimensional (4D), or time-lapse, surveys that assess the depletion of a reservoir.

Shallow penetration and high-resolution surveys are designed to highlight seabed and near-surface potential obstructions, archaeology, and geohazards that may have safety implications during rig installation or well and development facility siting. Shallow penetration surveys may use a small airgun array, single airgun, or similar sources, while high-resolution surveys (which are limited to imaging the seafloor itself) may use a variety of sources, such as sub-bottom profilers, single or multibeam echosounders, or side-scan sonars.

Dates and Duration

The specified activities may occur at any time during the 5-year period of validity of the regulations. Actual dates and duration of individual surveys are not known. Although the period of validity is for 5 years, the regulations would continue in effect only until superseded by new ITRs promulgated on the basis of the separate EnerGeo request.

Specified Geographical Region

Generally speaking, projected survey activity may occur within U.S. waters within the GOA, outside of the former GOMESA moratorium area. The specified geographical region (with modeling zones and depicting the area withdrawn from leasing consideration) is depicted in figure 1.

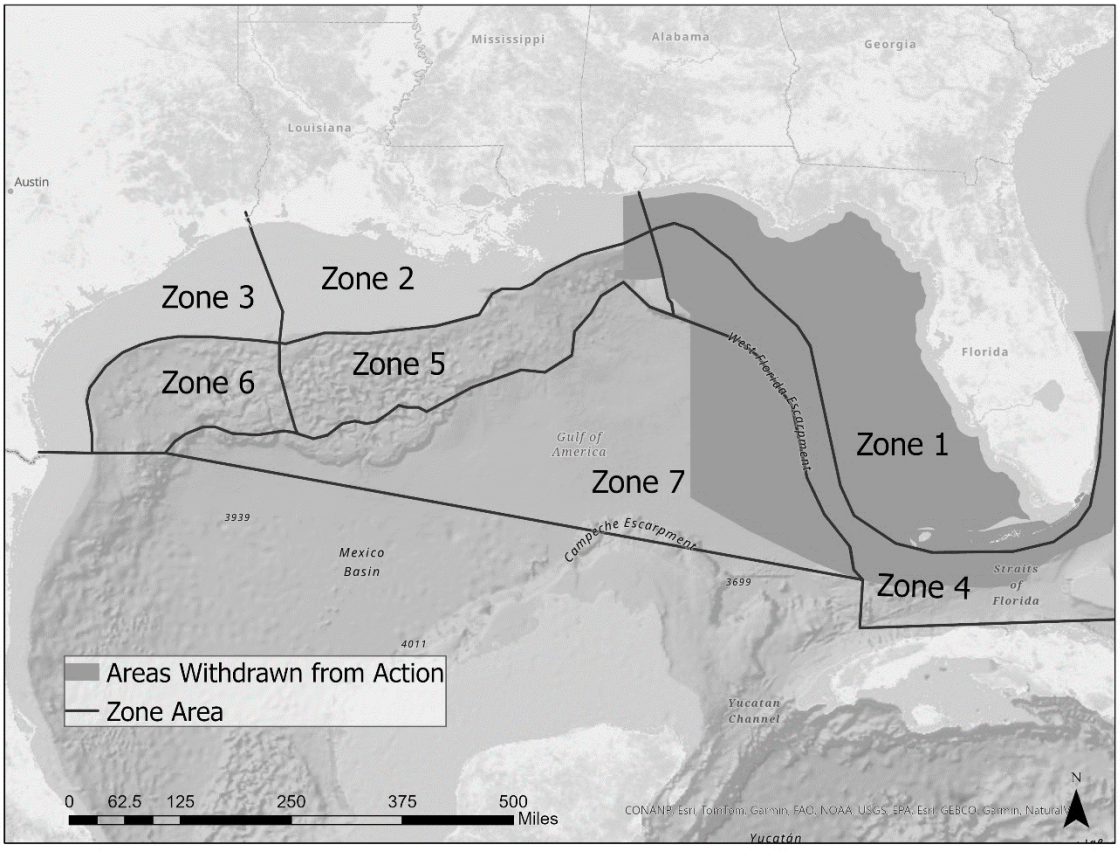

Figure 1 -- Specified Geographical Region

Representative Sound Sources

Because the specifics of acoustic sources to be used cannot be known in advance of receiving LOA requests from industry operators, it is necessary to define representative acoustic source parameters, as well as representative survey patterns. The supporting modeling for the 2021 ITRs considered two specific airgun array sizes/configurations (4,130 and 8,000 in^3 arrays) as well as a single, 90-in^3 airgun. For the 2024 rule, modeling of a third representative airgun array size (5,110-in^3) was also specifically considered. In its petition for the 2021 ITRs, BOEM determined realistic representative proxy sound sources and survey patterns. We note that EnerGeo's 2025 petition for new ITRs carries forward these assumed proxies regarding survey patterns, as well as the 5,110-in^3 array modeled for the 2024 rule, as representative of ongoing industry survey activities in the GOA.

Acoustic exposure modeling for the 8,000-in^3 airgun array and 90-in^3 single airgun, which provided support for the 2021 rule, was described in detail in "Acoustic Propagation and Marine Mammal Exposure Modeling of Geological and Geophysical Sources in the Gulf of Mexico" and "Addendum to Acoustic Propagation and Marine Mammal Exposure Modeling of Geological and Geophysical Sources in the Gulf of Mexico" (Zeddies *et al.*, 2015, 2017a). Additional information, including evaluation of the 4,130-in^3 airgun array, was provided in "Gulf of Mexico Acoustic Exposure Model Variable Analysis" (Zeddies *et al.*, 2017b).

Modeling of the more representative 5,110-in^3 airgun array for NMFS' 2024 rule (in view of LOA applications received to date under the current ITRs) was described in a 2022 memorandum (Weirathmueller *et al.*, 2022). These reports provide full detail regarding the modeled acoustic sources and survey types and are available online at: *www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-america*.

Representative sources for the modeling include the three different airgun arrays, the single airgun, and an acoustic source package including a sub-bottom profiler in combination with multibeam echosounder and side-scan sonar. Two major survey types were considered: large-area seismic (including 2D, 3D NAZ, 3D WAZ, and coil surveys) and small-area, high-resolution geotechnical (including single airgun surveys and HRG surveys using the aforementioned package of sources). The nominal airgun sources used for analysis of this final rule include a small single airgun (90-in^3 airgun) and a large airgun array (8,000-in^3). While the 5,110-in^3 airgun array is considered most representative of the airgun sources that are likely to be used during deep penetration surveys during the period of effectiveness of these ITRs, the 8,000-in^3 airgun array results in larger take numbers for most species for which acoustic exposures were modeled, and provides the basis for the analysis herein to allow the flexibility for applicants to use larger sources when survey objectives dictate. The modeling for the alternative 4,130- and 5,110-in^3 arrays provides more realistic estimates of take for use in survey-specific LOAs, depending on the actual acoustic sources planned for use (see **Letters of Authorization** section). We note that while high-resolution geophysical sources were included for consideration in the 2021 final rule to allow for take authorization if necessary, these types of sources would not typically be expected to cause the incidental take of marine mammals (Ruppel *et al.*, 2022).

New technologies and/or uses of existing technologies may come into practice during the period of validity of these regulations. As under the 2021 and 2024 final rules, NMFS will evaluate any such developments on a case-specific basis to determine whether expected impacts on marine mammals are consistent with those described or referenced in this document and, therefore, whether any anticipated take incidental to use of those new technologies or practices may appropriately be authorized under the existing regulatory framework. See **Letters of Authorization** for additional information.

Estimated Levels of Effort

Actual total amounts of effort by survey type and location cannot be known in advance of receiving LOA requests from survey operators. Therefore, BOEM's 2017 Programmatic Environmental Impact Statement (PEIS) provided projections of survey level of effort for the different survey types for a 10-year period (and BOEM refined those projections following removal of the GOMESA area from the scope of activity in 2020). As noted above, and as confirmed by both EnerGeo and BOEM, these estimated levels of effort are expected to remain representative of expected survey activity on an ongoing basis and, therefore, are carried forward unchanged. Table 1 provides those effort projections for the next 5-year period.

Table 1 -- Projected Levels of Effort in 24-hour Survey Days for 5 Years, by Zone and Survey Type

Year	Zone [1]	2D [2]	3D NAZ [2]	3D WAZ [2]	Coil [2]	VSP [2]	Total (Deep) [2]	Shallow hazards [3]	Boomer [3]	HRG [3]	Total (Shallow) [3]
1	1	0	0	0	0	0	0	0	0	0	0
	2	0	236	0	0	0	236	2	0	18	20
	3	0	30	0	0	0	30	0	0	4	4
	4	0	0	0	0	0	0	0	0	0	0
	5	54	373	184	79	2	692	0	0	25	25
	6	0	186	49	21	0	256	0	0	10	10
	7	46	346	166	71	1	630	0	0	23	23
	Total	100	1,171	399	171	3	1,844	2	0	80	82
2	1	0	0	0	0	0	0	0	0	0	0
	2	0	354	42	19	0	415	2	0	18	20
	3	0	0	0	0	0	0	0	0	4	4
	4	6	0	0	0	0	6	0	0	0	0
	5	0	373	184	79	2	638	0	0	25	25
	6	0	99	0	0	0	99	0	0	11	11
	7	20	336	162	69	1	588	0	0	23	23
	Total	26	1,162	388	167	3	1,746	2	0	81	83
3	1	0	0	0	0	0	0	0	0	0	0
	2	0	236	0	0	0	236	2	0	18	20
	3	0	0	0	0	0	0	0	0	4	4
	4	0	0	0	0	0	0	0	0	0	0
	5	0	328	154	66	2	550	0	0	26	26
	6	0	186	49	21	0	256	0	0	12	12
	7	0	306	139	60	1	506	0	0	24	24
	Total	0	1,056	342	147	3	1,548	2	0	84	86
4	1	0	0	0	0	0	0	0	0	0	0
	2	0	354	42	19	0	415	2	1	16	19
	3	0	30	0	0	0	30	0	0	3	3
	4	12	11	0	0	0	23	0	0	0	0

	5	27	237	92	40	2	398	0	0	26	26
	6	0	99	0	0	0	99	0	0	12	12
	7	63	255	94	40	1	453	0	0	24	24
	Total	102	986	228	99	3	1,418	2	1	81	84
5	1	0	0	0	0	0	0	0	0	0	0
	2	0	236	0	0	0	236	0	0	19	19
	3	0	0	0	0	0	0	0	0	3	3
	4	0	17	0	0	0	17	0	0	0	0
	5	0	283	184	79	2	548	2	1	24	27
	6	0	99	0	0	0	99	0	0	13	13
	7	0	313	162	69	2	546	2	1	23	26
	Total	0	948	346	148	4	1,446	4	2	82	88

[1] Zones follow the zones depicted in figure 1.
[2] Deep penetration survey types include 2D, which uses one source vessel with one source array; 3D NAZ, which uses two source vessels using one source array each; 3D WAZ and coil, each of which uses four source vessels using one source array each (but with differing survey design); and VSP, which uses one source vessel with one source array. "Deep" refers to survey type, not to water depth.
[3] Shallow penetration/HRG survey types include shallow hazards surveys, assumed to use a single 90-in^3 airgun or boomer, and high-resolution surveys using the sub-bottom profiler system concurrently with other sources. "Shallow" refers to survey type, not to water depth.

The preceding description of the specified activity is a summary. The interested reader should refer to the notice of proposed rulemaking (91 FR 9014, February 24, 2026) for additional detail regarding these activities.

Comments and Responses

NMFS published a notice of proposed rulemaking in the **Federal Register** on February 24, 2026 (91 FR 9014), beginning a 30-day comment period. In that notice, we requested public input on the proposed rule, including but not limited to NMFS' proposed or preliminary findings, determinations, or conclusions regarding the MMPA standards, and the information NMFS relies on in support of those findings, determinations, or conclusions; and NMFS' preliminary decision to not make changes to the 2021 final rule, and the information NMFS relies on in support of those preliminary decisions, and requested that interested persons submit relevant information, suggestions, and comments.

During the 30-day comment period, we received nine comment letters. Of this total, we received four letters from various organizations (described below) and five submissions from private citizens. Submissions from private citizens expressed a mix of generic support for or opposition to the proposed issuance of the regulations, as well as

generic support for protection of marine mammals. We do not address these comments further. A letter was submitted jointly by EnerGeo, the American Petroleum Institute, the Louisiana Mid-Continent Oil and Gas Association, the National Ocean Industries Association, and the Offshore Operators Committee (hereafter, the "Associations"). A separate letter was submitted jointly by the Natural Resources Defense Council (NRDC), Association of Zoos and Aquariums, Center for Biological Diversity, Earthjustice, Sierra Club, and Turtle Island Restoration Network (hereafter, "NRDC"). Turtle Island Restoration Network (TIRN) also submitted a letter independently, and an additional letter was submitted by Animal Counsel. TIRN's independent letter provided a generic statement in opposition to issuance of the rule, and we do not address it further.

The Associations express support for issuance of the reimplemented ITRs, stating that "the record should reflect that the request is also made on behalf of the regulated industry participants." The Associations emphasize that they preserve all previously expressed objections to the current ITRs, urge prompt issuance of new ITRs based on the EnerGeo petition, and request that requested LOAs be issued promptly under the reimplemented ITRs. NMFS does not further address the Associations' letter.

NMFS has reviewed all public comments received on the 2026 proposed rule. All relevant comments and our responses are described below. All comments received are available online at: *https://www.regulations.gov*. A direct link to these comments is provided at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-america*.

Comment 1: Animal Counsel indicated a belief that NMFS' proposal to issue the rule contradicts Congressional intent behind the MMPA and would be incompatible with the original intent of the MMPA. Animal Counsel additionally stated that the legislative history of the MMPA makes clear that the precautionary principle must be applied and bias must favor marine mammals.

Response 1: NMFS believes that this action is fully consistent with the original public meaning of the relevant provisions of the statute, and NMFS disagrees that this action contradicts any requirement of the MMPA or is contrary to Congressional intent as expressed through the enactment of the relevant provisions of the statute. Neither the MMPA nor NMFS' implementing regulations include references to, or requirements for, the precautionary approach, nor is there a clear, agreed-upon description of what the precautionary approach is or would entail in the context of the MMPA or any specific activity. Nevertheless, the MMPA by nature is inherently protective, including the requirement to mitigate to the lowest level practicable ("least" practicable adverse impacts, or "LPAI," on species or stocks and their habitat). This requires that NMFS assess measures in light of the LPAI standard. To ensure that we fulfill that requirement, NMFS considers all potential measures (*e.g.*, from recommendations or review of available data) that have the potential to reduce impacts on marine mammal species or stocks, their habitat, or subsistence uses of those stocks, regardless of whether those measures are characterized as "precautionary."

Comment 2: Animal Counsel requests that NMFS extend the comment period for the proposed rule to a minimum of 60 days and hold public hearings. The request is primarily founded on the contention that an announced March 2026 meeting of the Endangered Species Committee demands delay, with Animal Counsel stating that the meeting "is likely to drastically change the outlook for marine mammals in the Gulf." Elsewhere in its letter, Animal Counsel highlights the independence of the MMPA from the Endangered Species Act (ESA).

Response 2: We do not find Animal Counsel's rationale persuasive; NMFS finds the 30-day comment period for the proposed rule sufficient. Supporting material for this rule has been available for review during public comment periods for prior rulemakings

associated with oil and gas industry geophysical survey activity in the GOA (see 83 FR 29212, June 22, 2018; 88 FR 916, January 5, 2023). This rule covers the same activity and reimplements the measures that were considered in those rulemakings, which were the subject of extensive comment. As to the Endangered Species Committee meeting, we disagree that the Committee's March 31, 2026, action to exempt GOA oil and gas activities from the requirements of ESA section 7 is likely to drastically change the outlook for marine mammals in the GOA. Specifically, the oil and gas activities considered by the Committee included oil and gas exploration, development, and production activities in the Gulf *as well as* the avoidance or minimization measures that are described in the agency action analyzed in NMFS' 2025 biological opinion and in the U.S. Fish and Wildlife Service's 2018 and 2025 consultation decisions. The Committee's exemption order explicitly states that those avoidance and minimization measures shall continue to be implemented. *See* Dep't of the Interior, March 31, 2026, Endangered Species Committee Order, *https://www.doi.gov/endangered-species-committee*. Thus we do not agree that the Committee's order has drastically changed the outlook for marine mammals in the GOA such that we should extend the public comment period or hold public hearings on that basis.

Comment 3: NRDC claims that use of BOEM's programmatic estimates of ongoing geophysical survey activity is arbitrary. NRDC's claim is based on the age of BOEM's original projections, which were initially included in its 2017 PEIS issued under the National Environmental Policy Act (NEPA) before being revised as part of BOEM's 2020 revision of the geographic scope of the program addressed in NMFS' 2021 final rule, and on what NRDC describes as "recent developments that are likely to influence industry development of the Gulf," including prospective future schedules for offshore oil and gas lease sales.

Response 3: NMFS disagrees with NRDC's claim. The programmatic estimates of ongoing geophysical survey activity included in this rule remain a reasonable representation of ongoing and future activity over the 5-year duration of this rule. While the 10-year projections in the PEIS indeed extended through 2027, they were based on generic expectations regarding BOEM's program over the 10-year window of analysis provided at that time, not on specific understanding of conditions dictating oil and gas industry levels of effort. When revising its level of effort projections in 2020 in support of its 2016 petition for ITRs, BOEM affirmed that the projections should be considered an adequate representation of generic conditions informing the need for survey activity in the GOA. Subsequently, EnerGeo (an industry trade organization dedicated to the geophysical and exploration industry and best positioned to understand future industry demand for survey activity) affirmed the validity of these projections by adopting them as an ongoing representation of future survey activity in its 2025 petition for new ITRs. We also note that actual survey effort under the current ITRs from 2021 to 2025 has been less than the association projections, suggesting that the projections remain reasonable and accommodating of potential future fluctuations in demand.

NRDC's references to new developments relating to schedules for future lease sales are not relevant to our analysis of expected survey activity during the course of the next 5-year period. Future lease sales may influence survey activity beyond the next 5-year period but are unlikely to increase demand on the timeframe imagined by NRDC. NRDC also suggests that speculative future lease sales in areas outside of the geographic scope of this rule, *i.e.*, in the eastern GOA, would invalidate the level of effort projections considered here. However, should this demand in the eastern GOA arise, it would necessarily be subject to additional MMPA incidental take authorization requests, as the area is not covered under this rule.

Comment 4: NRDC expressed concerns regarding NMFS' use of the probabilistic response function described by Wood *et al*. (2012), in which 10 percent, 50 percent, and 90 percent of individuals exposed are assumed to produce a behavioral response (of a sufficient degree of severity to constitute Level B harassment) at exposures of 140, 160, and 180 dB root mean square (rms), respectively. (The function is shifted for the more behaviorally sensitive beaked whales such that 50 percent and 90 percent response probabilities are assumed to occur at 120 and 140 dB rms, respectively.) NRDC stated that the function is inconsistent with the best available science, asserting that behavioral disruptions occur at higher percentages at lower noise exposure levels than those suggested by Wood *et al*. (2012). NRDC's criticism of the function also focused on the use of horizontal displacement studies as the supposed basis of analysis for Wood *et al*. (2012), as well as on the function's nature as a series of step functions. In addition, NRDC expressed concerns that the use of frequency weighting in the Wood *et al*. (2012) approach is inappropriate. Overall, NRDC claims that reliance on this function results in underestimation of impacts and is arbitrary and capricious. Similarly, Animal Counsel urges NMFS to adopt different harassment thresholds.

Response 4: NMFS has historically been criticized for the use of the single-step 160-dB rms approach. Those criticisms are based on the idea that an approach reflecting a more complex multi-step probabilistic function would more effectively represent the known variation in responses at different levels due to differences in the receivers, the context of the exposure, and other factors, as well as the science indicating that animals may react in ways constituting Level B harassment when exposed to lower received levels. In developing the acoustic exposure analysis for the 2021 rule, we reviewed relevant past public comments as well as the best available science, determining that a more complex probabilistic function is indeed better reflective of available scientific information and that it was appropriate to take the fundamental step of recognizing the

potential for Level B harassment occurring at exposures to received levels below 160 dB rms (as well as the potential for *no* Level B harassment occurring at exposures above 160 dB rms). This approach also accounts for differential hearing sensitivity by incorporating frequency-weighting functions, as behavioral responses in cetaceans are best explained by the interaction between sound source type and functional hearing group (Gomez *et al*., 2016). NMFS has determined that the general approach used for this rule—a probabilistic risk function that allows for the likelihood of differential response probability at given received levels on the basis of multiple factors, including behavioral context and distance from the source, and that addresses particularly sensitive species—is appropriate in light of the best available scientific information.

However, because behavioral responses to sound depend on the context in which an animal receives the sound, including the animal's behavioral mode when it hears sounds, prior experience, additional biological factors, and other contextual factors, predicting when sound levels will be likely to disrupt behavioral patterns is extremely difficult. Even experts have not previously been able to suggest specific new criteria due to these difficulties (*e.g.*, Southall *et al*., 2007; Gomez *et al*., 2016). While we acknowledge our approach reduces a complex suite of interactions to make reasonable inferences, it is consistent with the best available science.

NRDC referenced "recent" research they claim is not consistent with the recommendations of Wood *et al*. (2012). We note that, of the nine studies cited by NRDC, five were published prior to the Wood *et al*. (2012) study, and were therefore available for those authors' consideration (and some were specifically referenced by those authors in discussion of their recommendations). Further, we disagree that the referenced findings are inconsistent with Wood *et al*. (2012). For example, a detectable change in motion or vocalization in response to noise exposure does not necessarily mean that a take by Level B harassment under the MMPA has occurred, given that the

definition focuses on "disruption of behavioral patterns." NRDC also suggests that some of these studies were not incorporated into Wood *et al*.'s recommendations, or our consideration of those and other potential approaches in context of the available science, and criticize what they view as an over-reliance on horizontal displacement studies as the supposed basis of analysis. While it is true that the majority of available behavioral data focus on avoidance responses, Wood *et al*. (2012) does not mention excluding behavioral studies involving vocal changes, and Southall *et al*. (2007) specifically incorporates numerous studies that do mention changes in vocalization associated with sound exposure. Thus, these datasets were not excluded and as discussed in our notice of proposed rulemaking, we adequately considered all studies addressed by NRDC.

Regarding baleen whales, we acknowledge that changes in vocalization have been observed in association with exposure to airgun surveys within migratory and non-migratory contexts (*e.g.*, Castellote *et al.*, 2012; Blackwell *et al.*, 2013; Cerchio *et al.*, 2014). The potential for such effects to occur over relatively large spatial scales is not surprising for species with large communication spaces (*e.g.*, Clark *et al.*, 2009), but we reiterate our disagreement with NRDC's apparent contention that every detected change to vocalizations rises to the level of a take. NRDC cites reports of changes in vocalization, typically for baleen whales, as evidence in support of lower thresholds, claiming these reactions result in biological consequences indicating that the reaction was indeed a take. However, NMFS is not aware of research that provides a well-supported link between the reported reactions at lower received levels and the putative consequences. In conflict with NRDC's interpretation of the literature are documented instances of marine mammal exposure to greater received levels that did not elicit any response (*e.g.*, Malme *et al*., 1983, 1984, 1985, 1988; McCauley *et al.*, 1998, 2000a, 2000b; Barkaszi *et al.*, 2012; Stone, 2015a; Gailey *et al*., 2016; Barkaszi and Kelly, 2018).

The received level associated with stoppage of calling for bowhead whales (*Balaena mysticetus*) observed by Blackwell *et al*. (2013, 2015)—a response that may arguably rise to the level of harassment—is consistent with the Wood *et al*. (2012) scheme, in which the potential for take upon exposure to received levels as low as 140 dB is accounted for. Similarly, the findings of Pirotta *et al*. (2014) for harbor porpoise (*Phocoena phocoena*) are consistent with the treatment of behaviorally sensitive species by Wood *et al*. (2012), in which the potential for take at even lower received levels is accounted for (though irrelevant here, as harbor porpoise are not found in the GOA). The response levels reported by McDonald *et al*. (1995) and Di Iorio and Clark (2009) for blue whales (*Balaenoptera musculus*) also comport with the Wood *et al*. (2012) function, if we assume that the observed responses equate to harassment (though it is not clear that they do). With regard to NRDC's citation of Clark and Gagnon (2006), a non-peer reviewed white paper, NRDC incorrectly calculated the area over which the effect was observed by an order of magnitude (the paper discusses an area of 100 x 100 nmi, which equates to 10,000 nmi^2 – not 100,000 nmi^2).

In regard to Cerchio *et al*. (2014), it is important to note that received levels provided in this study are those recorded at locations of their underwater recording devices. The authors indicated "we did not have the ability to locate the singers or the seismic survey vessel, estimate the source level of the pulses, the distance between the source and potentially impacted singers, or the received level of the pulses at the singers." The same situation, *i.e.*, actual received levels at the location of the animals are unknown, is true for Castellote *et al*. (2012) and Clark and Gagnon (2006), which provide average background sound levels with and without the presence of airgun surveys. Thus, not having the location of the animals at the time of exposure makes it difficult to draw conclusions based strictly on received level. NMFS has evaluated the papers and determined they are not informative about appropriate Level B harassment thresholds.

Regarding sperm whales, NMFS disagrees that assuming a 100 percent probability of take of sperm whales upon exposure to survey noise at 135 dB—as suggested by NRDC—is an accurate reflection of the results of the Miller *et al*. (2009) study. While we agree that the work of Miller *et al*. (2009) suggests that sperm whales in the GOA may be susceptible to disruption of foraging behavior upon exposure to relatively moderate sound levels, NRDC incorrectly interprets results of the study in claiming that sperm whale "foraging success" was found to "decline significantly." Instead, the authors report that buzz rates (a proxy for attempts to capture prey) were approximately 20 percent lower, meaning that the appropriate interpretation would be that foraging activity (versus foraging success) was reduced by 20 percent (Jochens *et al*., 2008). Of the eight whales tagged in that study, only one was observed to actually cease foraging.

Moreover, while we do believe that these study results support a conclusion that exposure to survey noise can impact foraging activity, others have interpreted them differently, *e.g.*, by focusing on the finding that exposed whales did not change behavioral state during exposure or show horizontal avoidance (a finding replicated in other studies, *e.g.*, Madsen *et al*., 2002a; Winsor *et al*., 2017). Importantly, the observed effect was not statistically significant and, as reported by the authors, constituted "subtle effects on their foraging behavior." Furthermore, the authors of the Wood *et al*. (2012) study explicitly described their consideration of Miller *et al*. (2009) in the development of their recommended criteria. Therefore, the Wood *et al*. (2012) recommendation is indeed consistent with the Miller *et al*. (2009) study. In referencing Bowles *et al*. (1994), NRDC fails to state that the observed cessation of vocalization was likely in response to a low-frequency tone (dissimilar to airgun signals), though a distant airgun survey was noted as producing signals that were detectable above existing background noise.

Regarding other odontocetes, NRDC's representation of the available scientific information is also inaccurate. Miller *et al*. (2005) specifically state that "[s]ighting rates at distances of 10-20 km from the airgun array were significantly lower than those in areas 20-30 km from the airgun array, where sighting rates were unexpectedly high" (*i.e.*, the study indicates sighting rates of beluga whales (*Delphinapterus leucas*) were lower, not "100% avoidance" as claimed by NRDC). Miller *et al*. (2005) reported seven aerial beluga whale sightings from 8 to 18 km from the survey vessel and two vessel-based beluga whale sightings at 1.5 and 2.5 km from the survey vessel. Furthermore, Southall *et al*. (2007) described the findings of the Miller *et al*. (2005) study as temporary avoidance behaviors at these lower received levels, while Gomez *et al*. (2016) (which NRDC agrees reflects the best available science) evaluated Miller *et al*. (2005) based on a received level of 150 dB. Thus, the Wood *et al*. (2012) approach does capture responses associated with this study.

Additionally, Wood *et al*. (2012) has the advantage of accounting for sensitive species such as beaked whales, meaning that a response of a beaked whale at 140 dB (as cited by NRDC) is covered within the Wood *et al*. (2012) recommended criteria (*e.g.*, Wood *et al*. assumes 90 percent of an exposed beaked whale population will respond at 140 dB).

It should be noted that the systematic review by Gomez *et al*. (2016), cited by NRDC and Animal Counsel in support of their positions, found that received level was not appropriate as the sole indicator of behavioral response. For example, this review shows that "low" effects were actually found to reach peak probability at a higher received level than "moderate" effects for baleen whales. The results of the Gomez *et al*. (2016) review are not inconsistent with Wood *et al*. (2012). With regard to NRDC's comment that the authors consider their results "non-conservative," Gomez *et al*. (2016) only indicates that they may have scored the severity of vocal responses higher if they

had more information on the ecological significance of these types of responses. There is no indication elsewhere in Gomez *et al*. (2016) that their overall results and analysis are "non-conservative." Commenters also reference the "more conservative approach" of Nowacek *et al.* (2015), suggesting that this approach is more appropriate. However, the more substantive reviews presented by Southall *et al.* (2007) and Gomez *et al.* (2016) were unable to present any firm recommendations, as noted above. We note that Animal Counsel recommends that NMFS update thresholds to "reflect the findings of Gomez *et al*. (2016) and Nowacek *et al*. (2015)," but provide no specific recommendations. We addressed Gomez *et al*. in further detail in this response, and note that NMFS has addressed the brief, scientifically unsupported recommendation of Nowacek *et al*. (2015) in detail in prior comment responses (*e.g.*, 86 FR 5322, January 19, 2021).

NRDC also criticizes the use of weighting functions in evaluating potential Level B harassment, and specifically criticizes use of the M-weighting scheme of Southall *et al*. (2007). Gomez *et al*. (2016) suggest that incorporation of frequency-weighting is necessary to account for differential hearing sensitivity, as behavioral responses in cetaceans are best explained by the interaction between sound source type and functional hearing group. That is, implementing weighting functions allows for consideration that different marine mammal groups do not hear varying frequencies of sound equally well. Thus, it is appropriate to account for sounds below a group's best hearing range having a lower likelihood of resulting in a behavioral response (let alone that animals are likely unable to effectively detect sounds at frequencies completely outside their hearing range).

The M-weighting functions are described in Southall *et al*. (2007) as "intentionally precautionary (wide)" (as opposed to the weighting functions used in NMFS' Technical Guidance to account for noise-induced hearing loss) and are used to account for the functional hearing ranges of different marine mammal hearing groups. This frequency weighting scheme (*i.e.*, M-weighting) was intentionally selected because

it is more conservative in accounting for hearing sensitivity (as is appropriate in evaluating potential Level B harassment) than are more recently developed filters designed to better assess potential noise-induced hearing loss.

NRDC asserts that because M-weighting assumes that high- and very high-frequency (HF and VHF) cetaceans are relatively insensitive to noise below 1 kHz, it is likely that the incorporation of M-weighting has a significant downwards effect on take estimates. This is incorrect. As demonstrated in NMFS' 2021 final rule, at 250 Hz and above, the M-weighting functions do not result in a significant reduction for HF or VHF cetaceans. Furthermore, the lower bound of the functional hearing range of these groups is 150 Hz for MF cetaceans and 200 Hz for HF cetaceans (*i.e.*, sounds below 100 Hz, where most energy in airgun noise is found and where M-weighting results in the greatest reductions, are outside functional hearing range). At 1 kHz, where these species are most likely to be able to detect and respond to airgun noise, there is very little assumed reduction in sensitivity.

Finally, NRDC advocates for the use of a linear risk function as opposed to the multiple step function of Wood *et al*. (2012), stating that linear risk functions are scientifically accepted methodology that better acknowledge individuals may vary in responsiveness. Although NRDC does not specifically define what they mean by "linear risk function," NMFS assumes a linear risk function is a smooth, continuous function, as opposed to a function defined by multiple steps, as is the case of Wood *et al*. (2012). NRDC states that Wood *et al*. (2012) "has a significant negative bias on take estimates" where "all exposures from 140 dB to 159.9 dB are considered to produce the same risk." Wood *et al*. (2012) does acknowledge that responsiveness varies with received levels, while relying on broad steps, rather than a continuous function. These broad steps allow for easier implementation of a risk function and are more practical for most users, which is an important consideration, especially in the context of users that may not have the

ability or access to more sophisticated modeling (in contrast to the Navy). Therefore, if new linear risk functions become available, NMFS may still provide a more simplistic function broken down in broad steps, so that it can be applied by all users.

Overall, we reiterate the lack of scientific consensus regarding what criteria might be most appropriate for evaluating Level B harassment. Defining sound levels that disrupt behavioral patterns is difficult because responses depend on complex, difficult to predict contextual factors much more so than received level. Therefore, levels at which responses occur are not necessarily consistent and can be difficult to predict. However, although better methods of assessing likely behavioral response to acoustic stimuli than the relatively simple multi-step function used here may be forthcoming from the scientific community, NMFS has determined that the recommendations of Wood *et al*. (2012) adequately reflect the available science, and commenters offer no alternative recommendation.

Comment 5: NRDC raised concerns regarding NMFS' Acoustic Technical Guidance for evaluating the potential for marine mammal hearing loss, claiming that the Technical Guidance is not based on the best available science and leads to underestimation of potential auditory effects. NRDC also asserts that NMFS fails to account for alternative mechanisms of auditory injury, stating that permanent hearing loss (*i.e.*, Level A harassment) may occur through mechanisms other than PTS. NRDC states that NMFS must account for these mechanisms in its assessment of potential injury. Animal Counsel similarly expresses concern regarding the potential for accumulated auditory effects resulting from repeated temporary threshold shift exposures.

Response 5: We first acknowledge our use of the 2018 Revised Technical Guidance (NMFS, 2018) in evaluating the potential for auditory effects in the context of estimating take and refer the reader to the **Estimated Take** section below for discussion of NMFS' use of the 2018 guidance for take estimation. Moreover, NMFS did consider

the 2024 Technical Guidance. However, NRDC's critique relates to aspects of the Technical Guidance that predate the 2024 update and, indeed, NMFS considered similar comments from NRDC for issuance of the 2021 final rule.

Regarding the updated 2024 Technical Guidance, the 2024 updated acoustic thresholds (cumulative sound pressure level and peak sound pressure level) for cetaceans either are identical or are higher than those in the 2018 Revised Technical Guidance (*i.e.*, level of exposure has to be higher to result in PTS or AUD INJ compared to the 2018 thresholds). Additionally, the weighting functions were also updated, but this update only resulted in minor changes for LF cetaceans and no changes for the other two cetacean hearing groups, where the peak sound pressure level metric thresholds, which are unweighted, result in the largest isopleths. Furthermore, despite these changes, the Level A harassment isopleths for LF cetaceans are still expected to be within the shutdown zone and would not result in a change in the amount of Level A harassment take expected for this species or any other cetacean in the Gulf.

Each of NMFS' Technical Guidance documents (NMFS, 2016, 2018, 2024) is a compilation, interpretation, and synthesis of the scientific literature that provides the best available information regarding the effects of anthropogenic sound on marine mammals' hearing. In 2016, the initial iteration of the Technical Guidance was classified as a Highly Influential Scientific Assessment and, as such, underwent three independent peer reviews, at three different stages in its development, including a follow-up to one of the peer reviews, prior to its dissemination by NMFS. In addition, there were three separate public comment periods, during which time NMFS received and responded to similar comments on the guidance (81 FR 51694), and subsequent public and interagency review under Executive Order 13795. While new information may help to improve the guidance in the future, and NMFS will continue to review the available literature to determine when revisions are appropriate, the science underlying the Technical Guidance (2018 and

2024 update) reflects the best available science, and all information received through peer review and public comment. The concerns raised by NRDC have been addressed by NMFS in responses associated with publication of the guidance (see *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance*).

In light of these considerations, NRDC's argument that estimates based on the guidance "are based on methods and assumptions that have no scientific basis" is unpersuasive. NMFS considers the guidance to represent the best scientific information currently available and, given the incorporation of multiple peer reviews and public comment opportunities during its development, we did not solicit and are not responding in detail to comments concerning the contents of the Technical Guidance (NMFS, 2016, 2018, 2024), as such comments are outside the scope of this rulemaking.

NRDC also referenced information related to occupational noise standards established by the National Institute of Occupational Safety and Health (NIOSH). Human noise risk assessments (NIOSH, 1998) are not equivalent (or applicable) to thresholds provided in the guidance, because they are used to predict hearing loss based on a daily 8-h occupational noise exposure over 40 years (*i.e.*, current marine mammal TTS data are only available to predict exposure periods of 24-h or less and cannot be used to assess or predict risk associated with a lifetime of exposure) and are based on larger sample sizes of human listeners (*e.g.*, NIOSH 1972 and 1997 risk assessments were based on a sample size of 1,172 people). As pointed out in Wright (2015), NIOSH criteria provide a 95 percent confidence interval for their human noise standards but also allow for an excess risk of material hearing impairment, defined as an average threshold elevation for both ears that exceeds 25 dB, of eight percent (*i.e.*, human noise standards limits do allow for some risk; risk is not zero percent and specifically that eight percent of the population is

still capable of developing noise-induced hearing loss exceeding 25 dB when exposed to the 85 dB NIOSH level).

Finally, we note that a group of scientists published an update to their original, seminal publication concerning noise exposure criteria to predict the onset of auditory effects in marine mammals (Southall *et al*., 2007, 2019a), the topic of this comment. The newer peer-reviewed publication evaluates the recommendations of the original publication in light of subsequent scientific findings, including those findings that form the basis for the recommendations of NMFS (2018, 2024). While Southall *et al*. (2019a) provide recommendations for future research that could lead to revisions, the fundamental aspects of an evaluation of the onset of auditory effects for the marine mammals considered in these ITRs (*i.e.*, auditory weighting functions and noise exposure criteria) are identical to those presented by NMFS (2018, 2024) and incorporated into the modeling process developed for these ITRs.

Regarding NRDC's suggestion that NMFS fails to account for alternative mechanisms of auditory injury, NMFS is aware of the work by Kujawa and Liberman (2009), which is cited by NRDC. The authors report that in mice, despite completely reversible threshold shifts that leave cochlear sensory cells intact, there were synaptic level changes and delayed cochlear nerve degeneration. However, the large threshold shifts measured (*i.e.*, maximum 40 dB) that led to the synaptic changes shown in this study are within the range of the large shifts used by Southall *et al.* (2007, 2019a) and in NMFS' Technical Guidance to define PTS onset (*i.e.*, 40 dB). There are no data indicating that smaller levels of TTS would lead to similar changes or what may be the long-term implications of irreversible neural degeneration. The effects of sound exposure on the nervous system are complex, and this will be re-examined as more data become available. It is important to note that NMFS' Technical Guidance incorporated various conservative factors, such as a 6-dB threshold shift to represent TTS onset (*i.e.*, minimum

amount of threshold shift that can be differentiated in most experimental conditions); the incorporation of exposures only with measured levels of TTS (*i.e.*, did not incorporate exposures where TTS did not occur); and assumed no potential of recovery between intermittent exposures. NMFS disagrees that consideration of likely PTS is not sufficient to account for reasonably expected incidents of auditory injury.

NRDC also suggested that NMFS should "revise its take estimates" following the update to the definition of injury in the 2024 Technical Guidance to include indirectly induced injury in addition to PTS. However, this update in terminology is simply an acknowledgement that in addition to PTS, there could be the potential for auditory injury (which may or may not result in PTS). This updated terminology acknowledges data available for terrestrial mammals and that, since the mammalian cochlea is highly conserved, there is the potential for similar auditory injury in marine mammals. However, this terminology change does not numerically affect our acoustic criteria and, therefore, nothing would change in terms of estimated take (*i.e.*, the criteria remain based on a 40 dB threshold shift, reflecting the same threshold shifts associated with auditory injury seen in terrestrial mammal studies). Thus, numerically the 2018 and 2024 criteria account for the potential for auditory injury in the same way, but the updated guidance has changed the terminology to more directly reflect this.

Comment 6: NRDC commented that the aversion adjustment applied to estimates of Level A harassment proposed by NMFS for low- and very high-frequency cetaceans is not supported. NRDC cites NMFS' statements attributing the original modeling decision not to include a quantitative adjustment for aversion to lack of information regarding species-specific degree of aversion and level of onset as suggestive of lack of an "evidentiary basis" for making such an adjustment.

Response 6: NMFS disagrees with these comments and clarifies our position. Aversion is a known real-world phenomenon. It is well-known that animals will avoid

unpleasant stimuli, such as very high received levels of sound. A large and growing literature has demonstrated behavioral aversion in a number of contexts for many marine mammal species in increasingly controlled and well-documented contexts. While considerable species, individual, and context-dependencies exist in terms of received noise levels associated with behavioral aversion, clear patterns of behavioral aversion have been demonstrated empirically within odontocetes and mysticetes (*e.g.*, Miller *et al.*, 2012, 2014; DeRuiter *et al.*, 2013; Southall *et al.*, 2019b). This is particularly true for exposure scenarios in which animals occur relatively close to sources and at the high levels that would be required for even TTS (much less PTS) to occur. In some instances, in these and other studies, behavioral avoidance has been measured at received levels many orders of magnitude below those required for predicted PTS onset and even below the nominal, 50 percent behavioral response probability at 160 dB rms that NMFS has applied historically.

However, accounting for aversion quantitatively in an acoustic exposure modeling process is a significantly data-heavy endeavor and, despite the growing body of evidence there still not sufficient data regarding the specific degree of aversion and level of onset on a species-specific basis. That is, in order to account for aversion within the modeling process, one must program individual simulated animals (animats) representing different species to respond at a specific received level by changing their direction of travel by a specific degree and assuming a specific rate of speed. Through a test scenario evaluation (discussed in detail in the 2021 rulemaking and in associated modeling reports that support this rule), we determined that while this is possible to do, the specific values that must be used in programming the animat response could not be adequately derived. Instead, a nominal offset factor was applied to the modeled injurious exposures based on published model result evaluation to account for aversion.

Ellison *et al*. (2016) modeled scenarios using animal movement models to evaluate predicted PTS in which no aversion was assumed relative to scenarios where reasonable assumptions were made about aversion, in line with historical response probability assumptions and that existing scientific literature suggest are appropriate. Scenarios where no aversion probability was used overestimated the potential for high levels of exposure required for PTS by about five times. Accordingly, for the 2021 final rule, total modeled injurious exposures calculated without accounting for behavioral aversion (for low- and high-frequency species) were multiplied by 0.2. NMFS consulted scientific experts (referred to in the 2021 final rule as the "Expert Working Group," contracted by NMFS and BOEM to provide scientific expertise in developing a risk assessment framework), including the lead author of Ellison *et al*. (2016), in selecting the specific offset factor, and discussed that selection again in context of the public comments received on that rule. These experts agreed that the approach and specific offset factor was a reasonable approach to addressing the issue of aversion.

NRDC acknowledges that aversion is a meaningful real-world phenomenon that is significantly influential on actual occurrence of Level A harassment, stating that "it is certainly true that some marine mammals will flee the sound." Ignoring this phenomenon would result in unrealistically high estimates of auditory injury for marine mammals in the GOA. As described above, there is extensive information supporting the aversion concept in marine mammals, but limited quantitative data with which to develop precise, species-specific offset factors. Accordingly, utilizing the available data and expert input, NMFS applied its professional judgement in order to account for this meaningful phenomenon, and has determined it appropriate to retain this approach for the present rule.

Comment 7: Animal Counsel expressed concern that density estimates available for Rice's whale are based on visual survey data and do not include acoustic detections.

Response 7: We agree that ideally, passive acoustic data could be incorporated to the spatial density models to improve the model predictions. However, incorporation of visual and acoustic data to spatial density models remains cutting edge science, and such models have only rarely been produced. The long-term cetacean density modeling effort presented by Roberts *et al*. (2016) and subsequent, related publications provides an example of the difficulty of doing so. This U.S. Navy-funded effort has been responsible for continually improved iterations of spatial density models for cetaceans along the U.S. East Coast since 2015. However, to date, acoustic data have been incorporated only into models for beaked whales and sperm whales (two species that are most amenable to acoustic surveys and for which acoustic detections are most important to understanding occurrence), and only in the most recently updated model iterations. This required 7 years and a model version 7 for beaked whales and model version 8 for sperm whales (*https://seamap.env.duke.edu/models/Duke/EC/*). Acoustic data have been used to qualitatively verify density model predictions for certain mysticetes, but have not been incorporated to date into any East Coast mysticete density model. Efforts to evaluate the feasibility and utility of combining visual and acoustic survey data in the GOA have only recently been conducted as a pilot study (Frasier *et al*., 2021).

We note that the same areas in which the acoustic detections were made are predicted by the spatial density model as being suitable Rice's whale habitat and, in fact, density predictions within areas expected to provide suitable habitat for Rice's whale increased compared with the predictions provided by Roberts *et al*. (2016) (*e.g.*, Rice's whale density value in Zone 5, which includes areas of the central GOA where acoustic detections were made, increased by 71 percent; see Appendix A of Weirathmueller *et al*., 2022).

Comment 8: NRDC and Animal Counsel assert that NMFS has failed to account adequately for the effects of masking or stress on marine mammals.

Response 8: The potential impacts of masking were properly considered. We acknowledge that masking may impact marine mammals, particularly baleen whales such as the Rice's whale, and particularly when considered in the context of the full suite of regulated and unregulated anthropogenic sound contributions overlaying an animal's acoustic habitat. We acknowledge that masking can constitute a take, depending on the particular circumstances, but do not agree that masking effects from the incremental noise contributions of individual activities or sound sources always rise to the level of take. Further, not all takes are readily quantifiable. In this case, while masking is considered in the analysis, we do not believe it will result in take of marine mammals beyond those that have already been quantified as taken by behavioral harassment. Specifically, in the case of these proposed activities, in the event that some masking incidents rise to the level of a take, we would expect them to be accounted for in the quantified exposures above the harassment thresholds. Given the short duration of expected noise exposures, any take by masking in the case of these surveys would be most likely to be incurred by individuals either exposed briefly to notably higher levels or those that are generally in the wider vicinity of the source for comparatively longer times. Both of these situations would be captured in the enumeration of takes by Level B harassment, which accounts for takes that may occur upon exposure at relatively low levels of received sound (*e.g.*, 140 dB).

In addition, Animal Counsel suggests that NMFS should evaluate "the proposed activity's acoustic contribution against the natural, pre-industrial baseline rather than the existing anthropogenic soundscape;" however, no recommendation is provided as to how it believes this analysis should be accomplished absent data relating to the "natural, pre-industrial baseline." In addition, this recommendation runs afoul of the MMPA requirement for NMFS to evaluate the effects of the specified activity alone.

In addition to the comment that NMFS has underestimated takes that may result from masking, commenters disregard the consideration given to masking effects in NMFS' risk assessment framework (see **Negligible Impact Analysis and Determinations**). Broadly, the results of the analysis for any given species are based on the integration of two components: the severity of the impacts (which reflects the extent of the activities overlaid with the presence and distribution of the given species) and the vulnerability of that species based on multiple biological and environmental risk factors, including explicit consideration of masking. Expected consequences of masking account for 20 percent of a species' vulnerability rating, and is a substantial proportion of the vulnerability score.

NMFS recognizes that masking is not necessarily co-extensive with harassment and explicitly recognizes this in our discussion of effects, although we also note that the distances at which behavioral harassment is quantified for this rule are farther than those contemplated in the past, due to the behavioral harassment thresholds used (see the **Estimated Take** section and comment responses later in this section for further discussion of acoustic thresholds). As discussed in detail in NMFS' 2021 final rule, NMFS designed and supported the implementation of a chronic and cumulative effects analysis, which is incorporated in NMFS' discussion of the potential effects of the specified activity here for the specific purpose of addressing the effects of these activities on the listening space of all species and the communication space of Rice's whales specifically (see **Negligible Impact Analysis and Determinations**). This modeling effort explicitly considered the effects of masking over realistic spatial scales.

Similarly, we addressed the available literature regarding potential impacts of stress resulting from noise exposure in marine mammals. As described in that discussion, stress responses are complicated and may or may not have meaningful impacts on marine mammals. NRDC implies that NMFS must (1) enumerate takes resulting from stress

alone and (2) specifically address stress in its negligible impact analysis. The effects of stress are not straightforward, and there is no information available to inform an understanding of whether it is reasonably likely that an animal may experience a stress response upon noise exposure that would not be accounted for in NMFS' existing enumeration of takes via exposure to noise, which includes an accounting for exposures above received levels as low as 140 dB rms (and as low as 120 dB rms for beaked whales). NRDC provides nothing informative regarding how such an analysis might be carried out. With regard to NMFS' negligible impact analysis, we believe that the potential effects of stress are addressed and subsumed within NMFS' considerations of severity of effect and vulnerability of affected populations. Similarly, NRDC provides no justification as to why stress would appropriately be considered separately in this analysis, and no useful recommendation as to how to do so, if appropriate. We believe we have appropriately acknowledged the potential effects of stress, and that these potential effects are accounted for within our overall assessment of potential effects on marine mammals.

Comment 9: NRDC states that NMFS uses an "arbitrary" method to convert area-specific risk scores into a "basis for making Gulf-wide negligible impact determinations." NRDC takes issue with NMFS' use of the median of zone-specific risk ratings (for those zones including at least 0.05 percent of GOA-wide abundance for a particular species), suggesting that the application of this method inappropriately minimizes findings of "high" to "very high" risk for certain species in Zone 5, where there is a confluence of relatively high levels of survey activity and high proportions of GOA-wide abundance for some species, resulting in high take numbers. NRDC expressed concern that using the median does not allow for appropriate consideration of the importance of specific areas to a particular species, *i.e.*, that this approach "smooths" away granularity of the risk assessment.

Response 9: We disagree with NRDC's comments on this topic, and note that NRDC provided no alternative recommendation. On the contrary, NMFS' approach explicitly incorporates considerations of the importance of a particular area to a species, or the particular localized threats faced by a species, through the zone-specific vulnerability assessment that contributes to the overall risk rating. In addition, NMFS' approach is specifically designed to retain considerations of zone-specific impacts and vulnerability beyond simply the inclusion of the vulnerability scoring. For example, an alternative approach to generating a GOA-wide risk rating would be to employ a wholly different paradigm in which aggregate GOA-wide vulnerability and severity scores are assessed, versus taking a median value of zone-specific ratings. NMFS retained the median value approach precisely because we believe that evaluating risk for such a large and variable area (*i.e.*, the entire U.S. GOA) with species and activities that are each highly localized would provide only a very general and less informative answer regarding risk. The approach employed by NMFS highlights the fundamental importance of the spatiotemporal intersection of animals and activity as the fundamental driver in evaluating risk, while also allowing us to avoid exactly the effect of concern to NRDC (blurring of localized scoring) by avoiding the influence of areas where a particular species essentially does not occur on the overall risk rating for that species.

NRDC is incorrect that use of the median value is inappropriate or that it has "no biological basis." We note that mean (or average) values can be more heavily skewed by outliers with small sample size than median values. Thus, we chose the median as a better descriptor of central tendency, which is a more appropriate perspective for the risk analysis. (We also rounded up values of 0.5 (*e.g.*, median score of 3.5 would be rounded to a 4), a mathematically valid approach that builds in a reasonable degree of conservatism.)

One of the fundamental values of the analytical framework is that it is structured in a spatially explicit way that can be applied at multiple scales, based on the scope of the action and the information available, to inform an assessment of the risk associated with the activity (or suite of activities). This allows one to generate overall risk ratings while also evaluating risk on finer scales. In this case, severity ratings were generated on the basis of seven different GOA zones, allowing an understanding not only of the relative scenario-specific risk across the entire GOA, as is demanded for this analysis, but also to better understand the particular zones where risk may be relatively high (depending on actual future survey effort) and what part of the stock's range may be subject to relatively high risk.

NRDC cites the Expert Working Group (EWG) Report in support of its comment, stating it was "[telling]" that "report did not contrive a Gulf-wide risk assessment" and that "doing so would have belied the very different purpose underlying its design: a relative risk assessment across multiple species and geographies." Although the initial EWG report (Southall *et al*., 2017) made available for public review of the framework concept did not derive GOA-wide risk ratings, the EWG did so in a later draft report that NMFS adopted in producing the risk evaluation presented in its 2021 final rule.

Comment 10: NRDC asserts that NMFS has failed to appropriately account for stock structure and the importance of certain habitat in its negligible impact analysis, highlighting bottlenose dolphins and sperm whales.

Response 10: Regarding bottlenose dolphins, NRDC criticizes the use of generic risk ratings that homogenize risk for three shelf and coastal bottlenose dolphin stocks. NRDC's comment dramatically inflates this issue through reference to the total 36 stocks of bottlenose dolphin found in the GOA. In fact, 31 of these stocks are comprised of bay, sound, and estuarine populations that are not expected to be affected by the specified activity considered herein. We described and discounted the potential for impacts to these

stocks of bottlenose dolphin in the 2018 notice of proposed rulemaking (83 FR 29212, June 22, 2018). As described there, estuarine stocks of bottlenose dolphin primarily inhabit inshore waters of bays, sounds, and estuaries (BSE), and stocks are defined throughout waters adjacent to the specified geographical region. However, estuarine stock ranges are generally described as including coastal waters (*i.e.*, waters adjacent to shore, barrier islands, or presumed outer bay boundaries and outside of typical inshore ranges) to approximately 1-3 km. For example, bottlenose dolphins that were captured in Texas and outfitted with radio transmitters largely remained within the bays, with three individuals tracked to 1 km offshore (Lynn and Würsig, 2002). Radio-tracking of dolphins in the St. Joseph Bay, Florida area showed that most dolphins stayed within the bay and that, although some individuals ranged more than 40 km along the coastline from the study site, they never ventured outside of immediate nearshore waters (Balmer *et al.*, 2008). Dolphins captured in Barataria Bay, Louisiana were fitted with satellite-linked transmitters, showing that most dolphins remained within the bay, while those that entered nearshore coastal waters remained within 1.75 km (Wells *et al.*, 2017). Therefore, these stocks would not generally be expected to be impacted by the described geophysical surveys. If a deep penetration seismic survey were occurring in nearshore Federal waters (*i.e.*, at least 3 miles from shore but 9 miles from shore off Texas and Florida), it is possible that a dolphin belonging to a BSE stock could be affected. However, such surveys are expected to be rare in such shallow waters, and given the fact that BSE dolphins in sheltered inshore waters would largely not be impacted by noise generated offshore, we believe that impacts from the specified activities that could potentially be considered as a "take" (as defined by the MMPA) should be considered discountable. Further, the eastern coastal stock of bottlenose dolphin range is entirely outside the specified geographical region, and the segregation of density models into ocean and shelf/coastal domains means that stock-specific risk ratings may be attributed

to the oceanic stock of bottlenose dolphin. Therefore, the issue described by NRDC is limited to three stocks of bottlenose dolphin: the continental shelf and western and northern coastal stocks, for which homogenized risk ratings are provided for Zones 2 and 3.

Overall, species-level take and abundance estimates are used to support risk ratings for bottlenose dolphins in Zones 2 and 3 out of necessity. As acknowledged in our negligible impact analysis, the best available information (Garrison *et al*., 2023) was used to inform combined stock values for these zones and did not support further quantitative apportionment of estimated take or abundances to stocks. However, NRDC's criticism of the development of risk ratings for these stocks of bottlenose dolphins is unwarranted. The risk rating is comprised of the severity score, reflecting the homogenous take information available for the three stocks in Zones 2 and 3, and the vulnerability score, which is designed to incorporate stock-specific information regarding status and threats. The population portion of the vulnerability score comprises three components: status, *i.e.*, is the stock listed under the ESA and/or designated as depleted under the MMPA; trend, *i.e.*, does information over the available time series of abundance estimates indicate a trend; and size, *i.e.*, is the population defined as small (less than 2,500). None of the designated stocks of bottlenose dolphin in Federal waters of the GOA are listed under the ESA or designated as depleted under the MMPA, and none would be classed as small. Regarding trend, for each of the three stocks, two point estimates of abundance are available based on aerial data from surveys during 2011-2012 and 2017-2018 (Garrison *et al*., 2021). Each of these surveys had a similar design and was conducted using the same aircraft and observer configuration. For each of the three stocks, the 2017-2018 estimate is larger than the 2011-2012 estimate. While a formal trends analysis is not possible based on two point estimates, the information does suggest an increasing trend for these stocks for the purposes of the trend component of the population score. We

recognize that the effects of the Deepwater Horizon (DWH) oil spill included likely population reductions for all GOA marine mammal stocks; however, the best available information indicates that these reductions were likely modest for all bottlenose dolphin stocks other than the northern coastal stock, and no more recent population abundance estimates that might reflect any potential reduction are yet available. While the likely decline in population abundance for northern coastal bottlenose dolphins is subsumed within the population score assigned for bottlenose dolphins at the species level for Zones 2 and 3, vulnerability scoring is necessarily performed at the species level such that it may appropriately be integrated with the take-based severity scoring and used to generate an overall zone-specific risk rating. As mentioned above, the best available scientific information does not allow for stock-specific parsing of take for bottlenose dolphins in Zones 2 and 3. Moreover, the trend component of the population score is a relatively small contribution to the overall vulnerability scoring. The likely decline in population abundance for northern coastal bottlenose dolphins, although not reflected in the existing vulnerability scoring, is insignificant as a contribution to the overall vulnerability score for bottlenose dolphins as a species. As noted above, the effects of the DWH oil spill are separately accounted for in the vulnerability scoring and, in summary, the stock-specific status concerns described by NRDC are incorporated to the risk ratings (though we reiterate that NRDC's references to concern relating to the Barataria Bay stock of bottlenose dolphins is in error, as this stock will not be impacted by the specified activities). Importantly, and also not accounted for in the risk assessment framework, we include significant mitigation (time-area restriction) intended to alleviate impacts to northern coastal bottlenose dolphins during periods of greatest importance for their reproductive behavior.

NRDC contends that through use of homogenous relative risk ratings addressing the combination of bottlenose dolphin stocks residing in Zones 2 and 3, the actual

authorization of take of bottlenose dolphins through LOAs could result in greater than a negligible impact through disproportionate impact to the shelf and two coastal stocks of bottlenose dolphin that may be impacted by survey activity occurring in Zones 2 and 3. However, we reiterate that the issues of concern to NRDC are applicable only to the shelf and coastal bottlenose dolphin stocks and Zones 2 and 3, while the majority of projected bottlenose dolphin takes would be expected to accrue to oceanic stock dolphins, reflecting the greater amount of survey effort projected for Zones 4-7. Moreover, as discussed earlier, the risk ratings are only one component of NMFS' negligible impact analysis for each respective stock. Even for these stocks, the implementation of the rule is bound by the description of the specified activity that informs the analysis. That is, the specified activity is comprised of zone- and year-specific effort projections that inform the take estimates and, therefore, the analysis supporting issuance of the rule. Were actual effort to occur in a manner inconsistent with the specified activity, it would not be within the analysis contemplated by the rule. NRDC's comment addresses a hypothetical that cannot occur and still be within the bounds of the rule.

NRDC's additional suggestion, using sperm whales as a case study, that the "averaging of zones disregards the heightened relevance of certain areas to species ecology," has no merit. Leaving aside that we do not "average zones" – elsewhere in its letter, NRDC criticizes NMFS' use of median values to derive Gulf-wide risk ratings – as explained above, both the Gulf-wide and zone-specific relative risk ratings factor into NMFS' negligible impact analysis, as does consideration independent of the risk ratings of impacts to habitat.

Comment 11: Animal Counsel states that NMFS must provide species-specific impact analyses for each species within the blackfish, beaked whale, and *Kogia* guilds rather than relying solely on guild-level estimates.

Response 11: NMFS has performed the requisite species- and stock-level analyses. We acknowledge that stock-specific take estimates cannot be derived based on the available scientific information, which is resolved for the referenced groups only at the guild level. As described in the **Estimated Take** and **Negligible Impact Analysis and Determinations** sections, sightings of these species that provide the basis for both abundance estimates provided in NMFS' Stock Assessment Reports (SARs) and for the density models comprising the best scientific information available regarding marine mammal occurrence in the GOA typically cannot be resolved to the species level. These species are first rarely sighted due to their pelagic distribution and typical high availability bias due to deep-diving behavior and cryptic nature when at the surface, and are generally difficult to distinguish between species when visually observed in the field. Accordingly, abundance estimates in NMFS SARs are recorded for *Mesoplodon* spp. (and, separately, for the goose-beaked whale) and *Kogia* spp. For the broader beaked whale and blackfish guilds, available sightings data, including often unresolved sightings, must be combined in order to develop habitat-based density models, as were used to inform our acoustic exposure modeling effort. Therefore, density and take estimates in this rule are similarly lumped for the referenced guilds, and there is no additional information by which NMFS could appropriately apportion impacts other than equally/proportionally across the constituent species. Animal Counsel appears to misunderstand our description of these issues, suggesting that these issues are only superficial ("grouping based on superficial similarity in looks") and therefore unjustified compared with grouping that may be based on ecological similarity. In this case, these issues are indistinguishable: as described above, the reliance on undifferentiated sightings for members of these guilds is in fact due to similarities in ecological function as well as to visual similarity. However, of greater importance is that Animal Counsel appears to misunderstand our treatment of the constituent species of these guilds in the negligible

impact analysis. We reiterate and confirm here that, while we are unable to precisely apportion estimated take to the species level (reflecting the scientific information available to inform the take estimates), we import species-specific considerations to qualitative aspects of the negligible impact analysis and, in so doing, reach the requisite species- and stock-specific negligible impact determinations.

Comment 12: NRDC asserts that NMFS has erroneously used the relativistic assessment produced through the risk assessment framework as the basis for the negligible impact determination, incorrectly applying it as though it evaluated absolute risk.

Response 12: NMFS disagrees with the comment. The relative risk ratings produced through the framework did not replace our judgments regarding the absolute risk to stocks from the specified activity represented by the negligible impact determinations. The relative risk ratings, both Gulf-wide and zone-specific, are one factor in NMFS' stock specific negligible impact determinations. Despite thorough discussion of all relevant factors for each stock in the **Negligible Impact Analysis and Determinations** section, NRDC confuses our reference to the straightforward risk rating terms (*e.g.*, low, moderate, high) as being solely determinative of the negligible impact determinations.

The risk assessment analysis is an important component of the negligible impact analysis, but is not the sole basis for our determination. Similarly, implicit in NRDC's complaints regarding NMFS' method of evaluating Gulf-wide risk is the suggestion that NMFS did not also consider zone-specific risk in its negligible impact determinations. These claims are incorrect. We incorporate the Gulf-wide relative risk ratings to our negligible impact analysis, but also provide appropriate focus to the specific zones for each species or guild where relative risk was evaluated to be highest. While the risk assessment analysis comprehensively considered the spatial and temporal overlay of the

activities and the marine mammals in the GOA, as well as the number of takes predicted by the described modeling, there are details about the nature of any "take" anticipated to result from these activities that were not considered directly in the risk assessment analysis and which warrant explicit consideration in the negligible impact analysis. Accordingly, NMFS' analysis considers the results of the risk assessment analysis, the effects of the required mitigation, and the nature and context of the takes that are predicted to occur. NMFS' analysis also explicitly considers the effects of predicted Level A harassment, duration of Level B harassment events, and impacts to marine mammal habitat, which respectively were not integrated into or included in the risk ratings. These components of the full analysis, along with any germane species or stock-specific information, are integrated and summarized for each species or stock in the **Species and Stock-specific Negligible Impact Analysis Summaries** section of the negligible impact analysis.

In addition, while the risk assessment framework comprehensively considers the aggregate impacts to marine mammal populations from the activities addressed in this rule in the context of both the severity of the impacts and the vulnerability of the affected species, it does not fully consider the absence of survey activity in the eastern GOA. While this is to some degree reflected in the updated take estimates, and thereby incorporated into the risk ratings, the absence of survey activities within areas of greater biological importance for certain species benefits those species GOA-wide beyond what is simply reflected in the updated take numbers. The negligible impact analysis considers the beneficial effects of the absence of survey activity in the eastern GOA regarding both acute and chronic effects.

Also, we note that while the risk assessment framework produces relativistic risk ratings, its components consist of absolute concepts, some of which are also absolutely quantified (*e.g.*, whether the specified activity area contains greater than 30 percent of

total region-wide estimated population, between 30 and 15 percent, between 15 and 5 percent, or less than 5 percent). Further, NMFS provided substantive input into the scoring used in implementing the EWG framework for the GOA, to ensure that the categories associated with different scores, the scores themselves, and the weight of the scores within the overall risk rating all reflected meaningful biological, activity, or environmental distinctions that would appropriately inform the negligible impact analysis. Accordingly, and as intended, we used our understanding of the framework and best professional judgment to interpret the relativistic results of the risk assessment analysis appropriately into the larger negligible impact analysis, with the other factors discussed above, to make the necessary findings specific to the effects of the total taking on the affected species and stocks.

Comment 13: NRDC asserts that the rule allows for take in excess of the estimates used in its negligible impact determinations.

Response 13: NRDC's comment suggests a misunderstanding of the acoustic exposure modeling process. The comment assumes that because the modeling involved placement of one survey simulation area in each of the seven original modeling zones, real-world surveys taking place at other locations would take place under conditions (*e.g.*, acoustic propagation, marine mammal density) different than those modeled. That comment confuses the smaller survey boxes with the simulation areas within which sound exposure was modeled, stating that "none of the nominal surveys, save for the survey modeled for zone 4, appear to take place within the proposed critical habitat of Rice's whale" despite the fact that six out of the seven simulation areas overlap the 100-400 m isobaths that mark the proposed designation of Rice's whale critical habitat.

A fundamental component of the modeling approach was the thoroughness with which Gulf-wide conditions were represented in the modeling. Key modeling aspects with geospatial dependence include acoustic propagation conditions and marine mammal

density. For the former, propagation conditions were modeled at each of 10 locations representing a full range of static conditions (depths and bottom type) in both the central and western Gulf, with conditions at each of these 10 locations modeled in multiple seasons to understand the full range of dynamic conditions (sound speed profiles). The resulting sound fields were then used in animal movement modeling within the simulation areas to represent the full range of potential conditions that marine mammals may encounter throughout the Gulf and throughout the year. Similarly, average marine mammal density values for each zone were then used to scale the modeled exposure estimates according to real-world density values. While the use of zone-wide average density values does smooth spatial variability in likelihood of encountering particular species of marine mammal, the overall result, both within and across surveys, is a reasonable representation of the likelihood of exposing particular species to sound exceeding harassment criteria.

NMFS acknowledges that a real-world survey occurring in an area with marine mammal occurrence higher than the zonal average may encounter more marine mammals than expected, just as a survey occurring in an area with marine mammal occurrence lower than the zonal average may encounter fewer marine mammals than expected. Overall, during the course of rule implementation, there is no fundamental aspect of the modeling that would result in directionally more marine mammals being impacted than we assume here, regardless of location or season.

Comment 14: NRDC states that NMFS' analysis of the consequences of exposure in support of the negligible impact analysis "contradicts the factual record," asserting that NMFS wrongly assumed low severity for certain exposure durations and disregarded repeated exposures. Animal Counsel similarly suggests that NMFS ignores the consequences of exposure, referring to the "cumulative impacts of repeat harassment."

Response 14: While NMFS evaluated exposure durations, which are critical to understanding how the authorized takes are likely to impact individual marine mammals, the negligible impact analysis is not dependent on this or any other single factor, as described fully in the **Negligible Impact Analysis and Determinations** section. Exposure duration was not addressed in the risk assessment framework but was incorporated into the negligible impact analysis.

As we indicate in the **Negligible Impact Analysis and Determinations** discussion of this final rule, to put the predicted amount of take into meaningful context, it is useful to understand the duration of exposure at or above a given level of received sound (as well as the likely number of repeated exposures across days). While even a momentary exposure above the criteria for Level B harassment counts as an instance of take, that accounting does not make any distinction between fleeting exposures and encounters in which an animal may be exposed to that received level of sound for a longer period of time. This information is meaningful to an understanding of the likely severity of the exposure, which is relevant to the negligible impact evaluation. For example, for bottlenose dolphin exposed to noise from 3D WAZ surveys in Zone 6, the modeling report shows that approximately 72 takes (Level B harassment) would be expected to occur in a 24-hr period. However, each animat modeled has a record or time history of received levels of sound over the course of the modeled 24-hr period. The 50th percentile of the cumulative distribution function indicates that the time spent exposed to levels of sound above 160 dB rms SPL (*i.e.*, the 50 percent midpoint for Level B harassment) would be only 1.8 minutes—a minimal amount of exposure carrying little potential for significant disruption of behavioral activity.

The **Species and Stock-specific Negligible Impact Analysis Summaries** discussion considers the relative impact ratings in conjunction with required mitigation and other relevant contextual information—including exposure durations at the various

thresholds—to produce an assessment of impact to the stock or species, *i.e.*, the negligible impact determinations. For beaked whales, take is estimated on the basis of a risk function shifted down such that 90 percent of the animals exposed to received levels above 140 dB and 50 percent exposed to received levels above 120 dB are predicted to be harassed. We used this approach based on the documented behavioral sensitivity of beaked whales. However, as NRDC acknowledges, context is important when assessing behavioral responses to sound. The exposures above 120 dB here occur at significant distance from the source (*i.e.*, greater than 50 km). It is generally accepted that an animal's distance from the sound source plays an important role in the animal's behavioral response to a received sound level (*e.g.*, Gomez *et al*., 2016). NMFS believes that exposures to the relevant harassment thresholds at significant modeled distances from the actual sound source, although included in the take estimates based on the risk function, will not carry significant consequences for the potentially exposed animals. Rather, these exposures are likely to result in significantly less severe responses (if any). Examples provided by NRDC purporting to demonstrate greater severity of response than we have assumed include irrelevant examples—beaked whales are known to respond with greater severity to mid-frequency active military sonar than to other sources, as discussed in greater detail in the Potential Effects of the Specified Activities on Marine Mammals and Their Habitat section of the proposed rule—and examples of "responses" entailing changes to vocalization patterns over longer durations, but these responses do not necessarily rise to the level of a take, much less a take event of significant severity.

Regarding repeated exposures, despite the figures cited by NRDC concerning potential days of activity, it is unlikely that any given individual animal would in fact experience repeated take events of the magnitude suggested. Each of the GOA zones is an extremely large area (average zone size approximately 100,000 km^2), and the likely harassment "footprint" of any given survey would be relatively small. Modeled isopleth

distances to the 160-dB threshold are approximately 12 km for low-frequency cetaceans (*i.e.*, the Rice's whale), 7 km for high-frequency cetaceans (*i.e.*, sperm whales, beaked whales, dolphins), and 6 km for very high-frequency cetaceans (*i.e.*, *Kogia* spp.). Distances to the 140-dB isopleths are substantially larger, but we again emphasize that only 10 percent of the animals exposed at that level would be expected to incur harassment, while 50 percent of the animals exposed at the 160-dB level would be expected to incur harassment. It is clear that, in reality, there is a relatively low chance of any given individual marine mammal being repeatedly taken within relatively short timeframes, much less that such events would result in fitness consequences for those individuals. Additionally, NRDC suggests that NMFS fails to consider repeated takes at all, when in fact this likelihood is inherently addressed through the severity rating of the risk assessment.

Comment 15: NRDC claims that NMFS' negligible impact analysis is inappropriately reliant upon the prescribed mitigation and, further, that the mitigation will be ineffective. NRDC further expressed concern regarding the efficacy of the prescribed visual and acoustic monitoring methods, stating that species could go undetected. NRDC also repeats an erroneous claim from prior letters that acoustic shutdowns for sperm whales are not required under the ITRs.

Response 15: NMFS did not rely on the mitigation in the negligible impact analysis to the degree NRDC implies. As is stated in the analysis, consideration of the implementation of prescribed mitigation is one factor in the analysis but is not determinative in any case. In certain circumstances, mitigation is more important in reaching the negligible impact determination, *e.g.*, when mitigation helps to alleviate the likely significance of taking by avoiding or reducing impacts in important areas.

NRDC misunderstands the degree to which NMFS relies on shutdowns for sensitive or vulnerable species, including beaked whales, at extended distances. We agree

that these measures in and of themselves will have limited benefit for cryptic species such as beaked whales that are unlikely to be observed. However, we believe it makes sense to minimize the duration and intensity of exposure for these species when they are observed, and because shutdowns are practicable we include them in the suite of prescribed measures and discuss them where appropriate. For more readily detected species, such as the sperm whale, which is easily detected when at the surface and vocalizes frequently while underwater, the extended distance shutdowns (for both visual and acoustic detections) should appropriately be considered influential in our assessment of impacts to affected individuals and, therefore, ultimately on the stock. In summary, we consider these measures appropriately as mitigating factors when considering context as part of our negligible impact analysis.

While NMFS disagrees with some specific comments regarding efficacy, we generally agree with the overall point that there are limitations on what may reasonably be expected from either visual or acoustic monitoring. While visual and acoustic monitoring effectively complement each other, and acoustic monitoring is the more effective monitoring method (for certain species) during periods of impaired visibility, there is no expectation that these methods will detect all marine mammals present. In general, NRDC appears to misunderstand what NMFS claims with regard to what such monitoring may reasonably be expected to accomplish and/or the extent to which we rely on assumptions regarding the efficacy of monitoring in reaching the necessary findings. We acknowledge these limitations in prescribing these monitoring requirements, while stating why NMFS believes that visual and acoustic monitoring, and the related protocols we have prescribed, are an appropriate part of the suite of mitigation measures here that satisfy the MMPA's least practicable adverse impact standard. However, the negligible impact finding is not conditioned on the presumption of a specific degree of monitoring efficacy.

Regarding NRDC's claim that "NMFS hasn't included an acoustic shutdown requirement for sperm whales in its proposed regulation," we clarify that the requirement to shut down "upon detection of a sperm whale," which was described in detail in the notice of proposed rulemaking and is included in this final rule, includes detection by either visual or acoustic means.

Comment 16: NRDC asserts that NMFS "arbitrarily dismissed high number of injuries" for *Kogia* spp. Animal Counsel also expressed concern regarding *Kogia* spp., suggesting similarly that the estimated takes of these species were significantly greater than the total population.

Response 16: As basis for its claim that the assessed Level A harassment events are of such magnitude as to call into question NMFS' negligible impact determinations, NRDC states that the annual number of injuries "would amount to 2.4 times the size" of the *Kogia* spp. population and "exceed potential biological removal by some 6700 percent." (We note that although irrelevant, NRDC's calculations for both values are incorrect.) However, these values are based on the severely negatively biased abundance estimate of 336 provided in NMFS' SAR. Animal Counsel similarly compares the estimated takes of these species to the SAR abundance estimate of 336. As discussed in the notice of proposed rulemaking (and below), but omitted by NRDC, NMFS' SARs state that the abundance estimate provided for *Kogia* spp. is likely a severe underestimate because it was not corrected for the probability of detection on the trackline, and because *Kogia* spp. are often difficult to see, present little of themselves at the surface, do not fluke when they dive, and have long dive times. In addition, they exhibit avoidance behavior towards ships and changes in behavior towards approaching survey aircraft. As a result, as stated in the notice of proposed rulemaking, we appropriately refer to the model-generated estimated abundance of 1,385 as the most appropriate estimate of abundance available for *Kogia* spp.

NRDC's argument is based entirely on its premise that if the estimated instances of Level A harassment are so large in comparison with the affected population, it cannot be true that the population-level effects of the assessed Level A harassment events can be mild, *i.e.*, that a majority of the population would experience repeated hearing loss, leading to greater injury. Therefore, the invalid basis for the premise renders the comment irrelevant.

Comment 17: Animal Counsel suggests that NMFS' analysis related to Rice's whale is deficient, stating that NMFS must "conduct a separate, dedicated Rice's whale impact analysis incorporating post-2024 passive acoustic data, the multi-year NOAA trophic ecology study, and a population viability model." Animal Counsel separately suggests that NMFS' consideration of prey species impacts is deficient.

Response 17: NMFS fully considered the information Animal Counsel references. In our view, these investigations solidify NMFS' previous understanding of the importance of continental slope waters between approximately 100-400 m water depth as Rice's whale habitat. The previously used spatial density model for Rice's whale (Roberts *et al*., 2016) identified waters of approximately 100-400 m depth on the continental slope throughout the GOA as potential habitat, and the updated density model (which, as discussed previously, incorporates new data on Rice's whale habitat associations) predictions do not markedly differ (Garrison *et al*., 2023).

NMFS fully considered new information concerning acoustic detections of Rice's whales in areas along the shelf break in the central and western GOA, which demonstrates year-round Rice's whale occurrence in areas outside of the previously identified core habitat. Soldevilla *et al*. (2022) detected Rice's whale calls at sites in the central GOA south of Louisiana. A subsequent study placed acoustic recorders in shelf break waters in the same central GOA area and added a location in the western GOA offshore of Texas (Soldevilla *et al*., 2024). This information provides additional evidence

of the regular occurrence of Rice's whales outside the northeastern GOA, with Rice's whale calls recorded on 33 and 25 percent of days at the central and western GOA sites, respectively. As in the prior study, calls were recorded throughout the year. Continued study has demonstrated the persistence of Rice's whale presence in the western GOA (Debich *et al*., 2025a,b).

In summary, available data related to marine mammal presence and habitat, including impacts to prey species, were considered in the negligible impact analysis. Animal Counsel does not provide adequate detail regarding either the manner in which it believes we did not adequately consider the cited factors, or provide sufficiently detailed recommendations regarding the impact analysis it suggests be conducted, including how it should be conducted differently than or incorporated differently to the impact analysis we present in the **Negligible Impact Analysis and Determinations** section.

Comment 18: Animal Counsel raises concerns regarding NMFS' negligible impact analysis through comparison of take estimates to NMFS' Potential Biological Removal values.

Response 18: PBR is defined in the MMPA (16 U.S.C. 1362(20)) as "the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population" and is a measure to be considered when evaluating the effects of mortality or serious injury on a marine mammal species or stock. Harassment is not equivalent to serious injury and does not "remove" an individual from a stock. Therefore, the PBR metric is not relevant to an evaluation of the effects of harassment on a stock in the manner suggested by the commenter.

Comment 19: Animal Counsel suggests that NMFS should discount consideration of practicability in determining the appropriate suite of mitigation requirements.

Response 19: Animal Counsel states that practicability should not hold equal weight with consideration of the effectiveness of a measure when evaluating measures towards achieving the MMPA standard of "least practicable adverse impact." Because mitigation requirements are inherently burdensome, Animal Counsel suggests that consideration of this factor is in conflict with the MMPA. However, this reading is in contradiction with the statutory requirement to prescribe the "means of effecting the least practicable adverse impact." Consideration of practicability is ingrained in the very standard that Animal Counsel urges NMFS to meet, and disregarding practicability would contradict the requirements of the MMPA.

Animal Counsel also suggests that consideration of practicability is at odds with the need to based decisions on the best scientific information available. However, relevant data are not limited to consideration of mitigation effectiveness, but also contribute to an understanding of the operational impacts of a measure, *i.e.*, practicability. In either case (consideration of mitigation effectiveness and practicability), NMFS must consider the available data and make judgments regarding these two primary factors.

In the evaluation of specific measures, the details of the specified activity will necessarily inform each of the two primary factors discussed above (expected reduction of impacts and practicability) and are carefully considered to determine the types of mitigation that are appropriate under the least practicable adverse impact standard. Analysis of how a potential mitigation measure may reduce adverse impacts on a marine mammal stock or species and practicability of implementation are not issues that can be meaningfully evaluated through a yes/no lens. The manner in which, and the degree to which, implementation of a measure is expected to reduce impacts, as well as its practicability, can vary widely. For example, a time-area restriction could be of very high value for reducing the potential for, or severity of, population-level impacts (*e.g.*, avoiding disturbance of feeding females in an area of established biological importance)

or it could be of lower value (*e.g.*, decreased disturbance in an area of high productivity but of less firmly established biological importance). Regarding practicability, a measure might involve restrictions in an area or time that impede the operator's ability to acquire necessary data (higher impact), or it could mean incremental delays that increase operational costs but still allow the activity to be conducted (lower impact). A responsible evaluation of "least practicable adverse impact" will consider the factors along these realistic scales. Expected effects of the activity and of the mitigation as well as status of the stock all weigh into these considerations. Accordingly, the greater the likelihood that a measure will contribute to reducing the probability or severity of adverse impacts to the species or stock or their habitat, the greater the weight that measure is given when considered in combination with practicability to determine the appropriateness of the mitigation measure, and vice versa.

We acknowledge that in some cases, certain mitigation may be necessary in order to make a "negligible impact" finding for an affected species or stock, which is a fundamental requirement of issuing an authorization—in these cases, consideration of practicability may be a lower priority for decision-making if impacts to marine mammal species or stocks would not be negligible in the measure's absence. However, this circumstance is not present in the analysis presented herein, and practicability must be given due consideration.

Comment 20: NRDC comments that, overall, NMFS has not prescribed mitigation measures sufficient to meet the MMPA's LPAI standard, and specifically that NMFS must prescribe an area closure for Rice's whale in order to meet this standard. Animal Counsel expresses similar concerns regarding NMFS' assessment of the available science regarding Rice's whale habitat and its LPAI analysis.

Response 20: NRDC provides no actionable recommendation beyond the assertion that NMFS must "provide an area closure" for Rice's whale. As discussed at

length in the **Mitigation** section of this final rule, we find that, while there is now robust evidence that Rice's whales utilize areas of the Gulf within roughly the 100-400 m depth isobaths outside of their northeastern GOA core habitat area, key questions remain about Rice's whale abundance, density, habitat use, demography, and stock structure in the central and western GOA. As was acknowledged by NMFS in its proposed rule to designate critical habitat for Rice's whale, aside from visual and acoustic detections indicating presence, this area hosts features that comprise characteristics of habitat that is essential to the species. However, it does not follow that the area must be closed to activity of a certain sector, in this case geophysical survey activity. And as described in the notice of proposed rulemaking and later in this rule, there is no available scientific information that would enable NMFS to identify any particular portion of this broad swath of suitable habitat throughout the GOA that is of particular importance, or to identify any time of year when this habitat may be of particular importance. Absent this information, NMFS is left to contemplate a complete, year-round closure to geophysical survey effort of the 100-400 m isobaths across the entire central to western GOA, based solely on data establishing that the habitat contains features making it suitable for Rice's whale use, and scant information establishing that Rice's whales are present in unknown numbers in this area. NRDC does not dispute that the available information does not enable identification of any area or time that could be subject to meaningful consideration as a closure, and it does not attempt to identify and recommend any such area. Instead, NRDC implies that the entire area should be closed by asserting that the MMPA "places no ceiling on the amount of habitat that may be subject to mitigation" and that the entire area should be closed as a result of its assertion that the MMPA demands "overprotection" rather than "underprotection," without acknowledging that the measures included in the rule may be the right amount of protection.

NRDC's argument in favor of some sort of area closure rests on a misunderstanding of the acoustic exposure modeling supporting the rule's take estimates. NRDC wrongly asserts that NMFS' modeling "placed its nominal surveys entirely or almost entirely outside the [Rice's] whale's habitat," leading to the misguided assertion that "the rule itself is insufficient to ensure that actual take remains within authorized numbers." As we address in greater detail above, the exposure modeling is representative of all habitat, including Rice's whale habitat, that may be traversed by projected survey effort, and the assertion that much greater impacts than have been modeled would result is unsupported.

As discussed in detail in the notice of proposed rulemaking, the rate of call detections throughout the year is considerably higher in the eastern GOA than at the central GOA sites where calls were most commonly detected, with at least 8.3 calls/hour among four eastern GOA sites over 110 deployment days (Rice *et al*., 2014) compared to 0.3 calls/hour over the 299-day deployment at the central GOA site where calls were detected most frequently during the Soldevilla *et al*. (2022) study. During that study, approximately 2,000 total calls were detected at the central site over 10 months, compared to more than 66,000 total detections at the eastern GOA deployment site over 11 months (approximately 30 times more calls detected at the eastern GOA site) (Soldevilla *et al*., 2022). Similarly, Soldevilla *et al*. (2024) reported detecting 0.2 calls/hour at the western GOA site off Texas (1,694 detections over 8,547 hours of recording). While continued monitoring off Texas demonstrates ongoing, regular presence of whales (Debich *et al*., 2025a,b), available information continues to suggest that density and abundance of Rice's whales is likely lower in the central and western GOA than in the species' core habitat area in the eastern GOA.

Regarding the suggestion that NMFS has not adequately considered habitat in its consideration of mitigation, we disagree. Habitat value is generally informed by marine

mammal presence and use, and the available data can support the consideration and discussion of impacts to (and mitigation for) both marine mammals and their habitat simultaneously. The discussion above clearly considers physical features that can drive habitat use (*e.g.*, depth), as well as detailed information related to relative presence in the eastern versus the central and western GOA, which is indicative of preferred habitat in the east. Because habitat value is generally informed by marine mammal presence and use, in some cases, there may be overlap in measures for the species or stock and for use of habitat. NRDC has not presented any information that would suggest habitat we did not consider for mitigation.

In summary, the newly available data related to marine mammal presence and habitat were considered under the LPAI standard, and we concluded additional mitigation for Rice's whale was not warranted under that standard. NRDC provides no persuasive argument to the contrary.

Comment 21: NRDC finds fault with NMFS' consideration of practicability concerning possible closure of potential Rice's whale habitat in the central and western GOA to future survey activity, suggesting that NMFS' reference to analysis presented in its Regulatory Impact Analysis (RIA) for the 2021 rule is not relevant. Animal Counsel similarly recommends that NMFS must implement restrictions on survey activity in Rice's whale habitat (waters 100-400 m depth throughout the Gulf). NRDC also suggests that NMFS must consider that the Outer Continental Shelf Lands Act (OCSLA) "requires a balancing between the development of offshore energy resources and the protection of marine resources."

Response 21: As was acknowledged in the proposed rule, the RIA did not directly evaluate a potential closure of potentially suitable habitat in the central and western GOA outside of the Rice's whale core distribution area. However, we disagree that the RIA is not relevant to our practicability analysis here. The RIA's assessment of potential

restrictions in the northeastern GOA provided a useful framework for considering practicability relating to a broad closure of potential Rice's whale habitat to future survey activity.

To bolster that discussion, we turned to the same sources of data referenced in the RIA in analysis of potential closure areas considered therein (see *https://www.data.boem.gov/Main/Default.aspx*). While areas of Rice's whale habitat (*i.e.*, water depths of 100-400 m on the continental shelf break) contain less oil and gas industry infrastructure than do shallower, more mature waters, and have been subject to less leasing activity than deeper waters with greater expected potential reserves, they nonetheless host significant industry activity. BOEM provides summary information by water depth bin, including water depths of 201-400 m. Omitting information regarding water depths of 100-200 m, the area overlaps 33 active leases, with 17 active platforms and over 1,200 approved applications to drill. In the past 20 years, over 500 wells have been drilled in water depths of 100-400 m. These data confirm that there is substantial oil and gas industry activity in this area and, therefore, the inability to collect new seismic data could affect oil and gas development given that oil companies typically use targeted seismic to refine their geologic analysis before drilling a well. In addition, year-round occurrence of Rice's whales in waters 100-400 m deep precludes the use of seasonal closures to minimize exposure of Rice's whales. Therefore, we analyzed the potential for a year-round closure, which exacerbates the potential for effects on oil and gas productivity in the GOA because operators have no ability to plan around the closure. While the area is not as important to regional oil and gas productivity as the prospective deepwater central GOA closure analyzed in the RIA (as we acknowledged in the proposed rule), the more area-specific data provided above continue to support NMFS' previous conclusions, which we affirm here: (1) We are unable to delineate specific areas of Rice's whale habitat in the central and western GOA where restrictions on survey

activity would be appropriate because there is currently uncertainty about Rice's whale density, abundance, habitat usage patterns and other factors in the central and western GOA; and (2) there is high likelihood that closures or other restrictions on survey activity in all waters of 100-400 m depth in the central and western GOA would have significant economic impacts. Finally, we note that despite NRDC's concerns, it does not recommend any particular closure that it believes NMFS should evaluate.

Regarding NRDC's suggestions concerning OCSLA – a statute administered by BOEM – NMFS' statutory obligations arise under the MMPA (with associated requirements under the ESA, NEPA, and Administrative Procedure Act (APA), among others). NMFS has no statutory obligation relative to OCSLA. Similarly, NMFS' obligations under the MMPA require that we prescribe the means of effecting the LPAI on the affected species or stock and their habitat, which we have done here.

Comment 22: NRDC states that NMFS "fails to consider mitigation measures" for Rice's whale, suggesting that NMFS consider: (1) allowing some survey activities in Rice's whale habitat (*i.e.*, the 100-400 m isobaths), such as surveys undertaken by leaseholders to develop their lease blocks, while prohibiting others; (2) extending geographically vessel strike avoidance measures "presently in effect for industry"; and (3) requiring use of "lowest practicable source levels within the whales' communication frequencies for activities taking place in the vicinity of the whales' habitat." Animal Counsel also states that NMFS must impose a mandatory 10-knot vessel speed restriction for all project vessels within Rice's whale habitat.

Response 22: NRDC does not provide supporting detail regarding its recommended mitigation requirements. As such, NMFS is unable to fully evaluate the suggested measures.

Regarding the suggestion to allow some surveys but prohibit others, section 101(a)(5)(A) of the MMPA requires NMFS to make a determination that the take

incidental to a "specified activity" will have a negligible impact on the affected species or stocks of marine mammals, and will not result in an unmitigable adverse impact on the availability of marine mammals for taking for subsistence uses. NMFS' implementing regulations require applicants to include in their request a detailed description of the specified activity or class of activities that can be expected to result in incidental taking of marine mammals. 50 CFR 216.104(a)(1). Thus, the "specified activity" for which incidental take coverage is being sought under section 101(a)(5)(A) is generally defined and described by the applicant. Here, BOEM, having joined the NMFS Policy request as co-petitioner, is an applicant for the ITRs in support of industry operators, and we are responding to the specified activity as requested, *i.e.*, carrying forward the specified activity underlying the 2021 rule (and making the necessary findings on that basis). BOEM's initial petition made no distinction between surveys that may be speculative or otherwise fall into a category of surveys that NRDC suggests should be prohibited, and those that are not.

Moreover, NRDC does not describe any useful metric for determining which surveys should be allowed, aside from reference to "surveys undertaken by leaseholders to develop their lease blocks." The suggestions are not sufficiently developed to allow for adequate consideration.

Regarding vessel strike avoidance measures, NRDC does not specify what measures it is referring to. However, the ITRs already contains a suite of vessel strike avoidance measures that apply wherever survey activity is occurring and, regarding Animal Counsel's recommendation, these measures include practicable measures expected to avoid the risk of vessel strike, including separation distance requirements from whales and recommendations to slow speeds in the presence of whales. Animal Counsel suggests that the rule is internally contradictory in its "reliance on 5-knot towing speeds;" however, we are not reliant on this fact in determining that strike is unlikely. We

acknowledge that support vessels and other vessels not towing gear may travel at speeds in excess of 5 knots. However, it remains that a contributing factor to our assessment of vessel strike risk is the fact that survey vessels are typically slow-moving.

Finally, NRDC does not describe any useful scheme by which "lowest practicable source levels within the whales' communication frequencies" might be defined. An expert panel, convened by BOEM to determine whether it would be feasible to develop standards to determine a lowest practicable source level, determined that it would not be reasonable or practicable to develop such metrics (see Appendix L in BOEM, 2017). The subject matter is outside NMFS' expertise, and we have no basis upon which to doubt the panel's published findings.

Comment 23: Animal Counsel presents certain mitigation recommendations, including that NMFS should (1) require dedicated, independent third-party marine mammal observers for all survey operations, not only those where they are currently mandated; (2) prohibit survey operations from continuing during any passive acoustic monitoring (PAM) malfunction beyond the minimum time necessary for troubleshooting; and, (3) increase exclusion and buffer zones to at least 500 meters for all survey types and eliminate the dolphin exception for shutdown requirements.

Response 23: NMFS has thoroughly evaluated all of Animal Counsel's recommendations in this and prior related rulemakings, and has previously addressed all of these issues. With regard to the suggestion that third-party marine mammal observers should be required for all survey operations, this is a requirement of the rule.

Regarding the allowance that survey operations may continue during brief periods of PAM malfunction, we retain this feature as reasonable consideration of both overall impacts of the suite of mitigation requirements as well as practicability. It would serve little purpose to require cessation of operations during such brief periods, as the overall survey duration would be significantly extended due to the frequent brief disruptions.

Each cessation of survey operations requires extended time to reposition the source vessels and engage in necessary pre-clearance and ramp-up periods, and the amount of sound energy in the water overall would be increased. Animal Counsel's recommendation is short-sighted. In addition, the comment references at length other issues associated with broader malfunction than is at issue here, including hypothetical safety issues associated with continued operation during malfunction of acoustic source equipment. This provision of mitigation is solely with respect to malfunction of the PAM listening devices.

Regarding its recommendation to increase exclusion and buffer zones, Animal Counsel offers no supporting rationale other than the unsupported premise that larger is better, claiming that NMFS' required zones are arbitrary "by NMFS' own admission." Nowhere in the record has NMFS stated or suggested that its required zones are arbitrary. NMFS provided a detailed rationale for both the size of the specified zones and for the associated dolphin exemption.

Comment 24: NRDC states that NMFS "fails to reconsider prescribing quieter alternatives to conventional seismic airguns, despite evidence of the availability of such alternatives," and claims that NMFS has not adequately analyzed the practicability of such a requirement. Animal Counsel states that NMFS must require similar measures.

Response 24: NMFS acknowledges that there are an increasing number of sources that may reasonably be considered as environmentally preferable to conventional airguns, including sources operating at lower frequencies and without the high peak pressure output associated with airguns. In fact, such sources have been used during certain surveys conducted under NMFS-issued LOAs. However, imposing requirements to use certain technologies, or prescribing the manner in which geophysical survey data must be acquired, would exceed NMFS' authority under the MMPA. Survey funders and operators define survey objectives and methodologies, including which acoustic sources

are used, on the basis of data needs that are beyond NMFS' technical expertise to judge. NRDC argues that specific mandates are not required, versus a generic "best available technology" requirement, but offers no recommended metrics. NMFS agrees that increased use of environmentally preferable sources is an appropriate goal, but it would be more appropriate to continue working with industry to incentivize use of such sources and techniques rather than require them.

Comment 25: NRDC states that NMFS must consider "measures to eliminate duplicative surveys."

Response 25: BOEM has historically been the subject matter expert regarding whether and which surveys are "duplicative." NRDC fails to explain how this is within NMFS' statutory authority or suggest ways to appropriately apportion the amount of effort that it believes should be allowed. NMFS cannot arbitrarily limit planned effort and has no legitimate means of changing the specified activity absent a conclusion that the activity would have more than a negligible impact. However, NMFS has made the necessary findings under the MMPA for issuance of this rule. Similarly, NRDC states that NMFS should "require BOEM to eliminate unnecessary duplication of survey effort" but does not explain how they believe that this suggestion is within NMFS' statutory authority. As the permitting agency, BOEM has the authority to require permit applicants to submit statements indicating that existing data are not available to meet the data needs identified for the applicant's survey (*i.e.*, non-duplicative survey statement), but such requirements are not within NMFS' purview. NMFS may not demand that BOEM discharge its authority under OCSLA in any particular manner. As stated previously, NMFS considers the specified activity described by an applicant in reviewing a request for an incidental take authorization. Nothing in the statute provides authority to direct consolidation or removal of activities based on some presumption of duplication that NMFS is not qualified to judge.

NMFS also notes that, although surveys may be perceived as "duplicative" simply because other surveys have also occurred in the same location, they are in fact designed specifically to produce proprietary data that satisfies the needs of survey funders. As noted by NRDC, BOEM convened an expert panel to study the issue of duplicative surveys (see Appendix L in BOEM, 2017) and developed standards for consideration of what surveys are duplicative. NRDC provides extensive discussion of their thoughts regarding the insufficiency of BOEM's duplicative survey standard and its implementation. These comments are more appropriately directed to BOEM.

Comment 26: Animal Counsel suggests that NMFS must incorporate enforceable adaptive management triggers into the regulatory text, including automatic review upon finalization of Rice's whale critical habitat, completion of a recovery plan, or updated stock assessments.

Response 26: As acknowledged by Animal Counsel, the ITRs include adaptive management provisions that would allow NMFS to modify the existing mitigation, monitoring, or reporting measures if doing so is practicable and creates a reasonable likelihood of more effectively accomplishing the goals of the mitigation and monitoring set forth in this final rule. Separate from the adaptive management provisions, the ITRs allow that NMFS may modify the requirements without regard for practicability if it determines that an emergency exists that poses a significant risk to the well-being of the affected species or stocks of marine mammals. Animal Counsel does not clarify how it believes its recommendation differs from these provisions, which were included in the proposed rule and in this final rule.

Comment 27: Animal Counsel suggests that NMFS cannot satisfy the MMPA's small numbers requirement, as the estimated take numbers exceed population estimates.

Response 27: We refer the commenter to the detailed description of NMFS' implementation of the small numbers requirement later in this rule, entailing the

appropriate evaluation of small numbers at the LOA stage (see **Small Numbers**). However, we also note Animal Counsel's reference to inappropriate population abundance estimates in support of its comment. NMFS provides detailed discussion, in this rule and in the notice of proposed rulemaking, regarding its approach to evaluation of the most appropriate abundance estimate for purposes of evaluating "small numbers." As an example, Animal Counsel cites to NMFS' SARs estimate for the Clymene dolphin of 513 (CV = 1.03). As explained later, the most appropriate abundance estimate for this species is the modeled abundance value of over 6,000. NMFS' series of SAR abundance estimates for this stock have fluctuated between 129 and 17,355 animals, *i.e.*, varying by a maximum factor of more than 100. For most species, such fluctuations across these "snapshot" abundance estimates (*i.e.*, that are based on only the most recent year of survey data) reflect interannual variations in dynamic oceanographic characteristics that influence whether animals will be seen when surveying in predetermined locations, rather than any true increase or decline in population abundance. In fact, NMFS' SARs typically caution that trends should not be inferred from multiple such estimates, that differences in temporal abundance estimates are difficult to interpret without an understanding of range-wide stock abundance, and that temporal shifts in abundance or distribution cannot be effectively detected by surveys that only cover portions of a stock's range (*i.e.*, U.S. waters). The corresponding density model for Clymene dolphins predicts a mean abundance of over 6,000 dolphins. Therefore, in this example, Animal Counsel would have us compare takes predicted by a model in which 6,000 dolphins are assumed to exist against an abundance estimate of 513 dolphins. Our goal in assessing predicted takes is to generate a meaningful comparison, which is accomplished through use of the model-predicted abundance.

Comment 28: NRDC asserts that NMFS' interpretation of the MMPA's small numbers requirement is contrary to law, stating its belief that NMFS must make a small

numbers determination in the rule, rather than for issuance of individual LOAs; that NMFS must evaluate the same amount of take in order to separately determine that the total take will both meet the small numbers standard and have a negligible impact; that NMFS must analyze whether the estimated amount of takes over the 5-year ITRs will exceed small numbers for each affected species; and that NMFS' approach impermissibly cuts the public out of the agency's findings.

Response 28: Based on NMFS' analysis of the language and structure of section 101(a)(5)(A) and the implementing regulations for that provision, NMFS disagrees that the small numbers finding must be based on the total of all take over the five-year (or less) period from all potential survey activity. The MMPA does not define small numbers or explain how to apply the term in either section 101(a)(5)(A) or the similar provision for incidental harassment authorizations (IHAs) in section 101(a)(5)(D),[4] including how to apply the term in a way that allows for consistency across those two provisions that are similar but allow for potentially different time and activity scales. (See **Small Numbers** below.) Especially when taken together with NMFS' implementing regulations, our approach is consistent with the structure of section 101(a)(5)(A), which provides:

> (i) Upon request therefor by citizens of the United States who engage in a specified activity (other than commercial fishing) within a specified geographical region, *the Secretary shall allow*, during periods of not more than five consecutive years each, *the incidental, but not intentional, taking* by citizens while engaging in that activity within that region *of small*

[4] Section 101(a)(5)(D) states in relevant part:

> (i) Upon request therefor by citizens of the United States who engage in a specified activity (other than commercial fishing) within a specific geographic region, the Secretary shall authorize, for periods of not more than 1 year, subject to such conditions as the Secretary may specify, the incidental, but not intentional, taking by harassment of small numbers of marine mammals of a species or population stock by such citizens while engaging in that activity within that region if the Secretary finds that such harassment during each period concerned—
> (I) will have a negligible impact on such species or stock, and
> (II) will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses . . . .

numbers of marine mammals of a species or population stock if the Secretary, after notice (in the **Federal Register** and in newspapers of general circulation, and through appropriate electronic media, in the coastal areas that may be affected by such activity) and opportunity for public comment—

(I) *finds that the total of such taking during each five-year (or less) period concerned will have a negligible impact* on such species or stock and will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses . . . .

(Emphasis added.)

Section 101(a)(5)(A)(i)(I) is explicit that the "negligible impact" determination for a specified activity must take into account the "total of such taking" (*i.e.*, all of the taking that the Secretary may conceivably allow (or authorize) under individual LOAs during the five year (or less) period considered for the rule). In contrast, the "small numbers" language in 101(a)(5)(A) is not subject to the same time period requirement of five years (or less in cases where the period being considered for a rule is less than five years).

In our view, the statutory language for small numbers and the negligible impact finding indicates that the negligible impact finding is made based on consideration of an aggregation of potential authorizations (LOAs) for taking small numbers of marine mammals, and allows for different temporal periods in applying the two different standards. The statute contemplates that the Secretary shall allow taking during the five year (or less) period, which, in our view, also implies that there could be multiple allowances or authorizations (*i.e.*, LOAs), so long as the maximum total taking from all of those authorizations combined is considered in the upfront assessment of whether the negligible impact standard is met for the total taking allowable under the regulations.

As we note in our **Small Numbers** section, the regulatory vehicle for authorizing (*i.e.*, allowing) the take of marine mammals is the LOA, a creature of NMFS' long-standing implementing regulations that is not in the statute. See 50 CFR 216.106. Those 1989 implementing regulations requiring an LOA to effectuate an authorization were in effect when Congress amended the MMPA in 1994 to add section 101(a)(5)(D) for issuance of one-year IHAs, and over the years when Congress amended section 101(a)(5)(A) for various reasons (including most recently in 2018, to extend the maximum authorization period to seven years for military readiness activities, Pub. L. 115-232 (John S. McCain National Defense Authorization Act for Fiscal Year 2019) (Aug. 13, 2018)).

Under NMFS' approach, the negligible impact analysis for the rulemaking is conducted for the time period covered by the rule (five years in this case, the maximum under the statute for a non-military readiness activity), but the small numbers analysis attaches to the instrument that actually "allows" or authorizes taking, *i.e.*, the LOA. The statute does not preclude NMFS from issuing an LOA that comports with the small numbers level set forth in the relevant rule for the specified activity. Consistent with the MMPA requirement, here the Secretary (through NMFS) has prescribed the necessary specified activity regulations after notice and comment. At that point, once the regulations are effective, NMFS thereafter may authorize incidental take through the issuance of LOAs, provided that they satisfy the requirements set forth in the rule and regulations, including the small numbers standard articulated in the rule.

NRDC cites *Conservation Council for Hawaii v. NMFS*, 97 F. Supp. 3d 1210 (D. Hawaii 2015), in stating that the MMPA "plainly requires that the agency evaluate both whether there will be small numbers of take and whether there will be a negligible impact" before issuing regulations, and that these determinations "must be based on the same amount of take." We disagree with the second proposition. In NMFS' view,

Conservation Council for Hawaii stands for the proposition that NMFS cannot authorize more take than it has analyzed under the negligible impact standard. 97 F. Supp. 3d at 1221. There the court found that there were substantial differences between the anticipated take numbers, which were the basis for the negligible impact finding, and the amount of take that NMFS was prepared to authorize incidental to U.S. Navy military readiness activities. That case did not involve the small numbers provision, which does not apply in the case of military readiness activities. 16 U.S.C. 1371(a)(5)(F)(i). The court in *Conservation Council for Hawaii* did not consider or make any pronouncements about whether the small numbers provision must be applied to the total annual taking under the rule or whether it could be applied at the LOA stage.

We disagree with NRDC's view that the word "such" in the phrase "total of such taking" for determining negligible impact means that the analysis for small numbers must also consider the total taking allowable under the regulations. The phrase "total of such taking" in clause (I) clearly refers to what must be considered in making a negligible impact determination, and does not qualify the small numbers requirement. In addition, the statute's reference to "citizens" in the plural contemplates that there could be more than one entity making a request for take under a regulation for a specified activity. Under the statute, the Secretary (through NMFS) shall allow the take of small numbers of marine mammals by citizens – which, as in this case, could entail more than one requester – provided that NMFS can make the negligible impact finding for the total of all the taking that may be authorized under the regulations.

NRDC repeatedly states that the negligible impact and small numbers provisions must have separate meaning. NMFS agrees that the two provisions have separate meanings, and this rule satisfies that requirement. Each LOA must meet the small numbers requirement as NMFS has interpreted it in this rule. In other words, it is not sufficient for the survey activity described in an LOA application to fall within the scope

of the activity analyzed for the rule and NMFS' negligible impact determination. The small numbers limitation set forth in this rule also must be satisfied. For example, NMFS may receive an application for an LOA where the take estimates exceed the small numbers standard identified in the rule. In that case, the request would be denied, *even if* the amount of taking was considered in the negligible impact evaluation. Thus the negligible impact and small numbers inquiries are separate and have different meanings.

To summarize, the MMPA is silent on how to apply "small numbers" in either section 101(a)(5)(A) or (D), including in a way that allows for consistency across those two very similar provisions. Moreover, NMFS' implementing regulations for section 101(a)(5)(A) make it clear that LOAs are the instrument for authorizing (or "allowing") take. Thus, the mere existence of regulations issued under section 101(a)(5)(A) for a specified activity is not sufficient to authorize take under that provision. An LOA is required.

As we have previously stated, the small numbers standard has limited biological relevance (*i.e.*, there is a lack of a biological underpinning for the concept), but NMFS' application of the small numbers standard at the LOA stage does not rely on that view for the approach taken here. NMFS' interpretation and approach are based on analysis of the governing section 101(a)(5)(A) and limited legislative history, and our long-standing approach to implementing section 101(a)(5)(A) through separate LOAs, as well as consideration of section 101(a)(5)(D). In the absence of further congressional guidance on the meaning of the term "small numbers" and how it must be applied, we have determined our interpretation and application of small numbers is the best reading of the statute, consistent with the U.S. Supreme Court's opinion in *Loper Bright Enters. v. Raimondo*, 603 U.S. 369.

Importantly, the final rule, which was subject to notice and comment, sets the small numbers standard for future LOAs issued under the rule. Moreover, contrary to

NRDC's assertions, NMFS has set the total taking allowable for all LOAs issued under the rule for this specified activity—*i.e.*, the taking that was analyzed for the negligible impact determination. If an LOA application for a survey provides take estimates that are within the small numbers threshold set in this rule, then the LOA for that survey will be deemed to satisfy the small numbers requirement.

As NRDC correctly points out, NMFS' implementing regulations require issuance of LOAs to be consistent with the "total taking allowable" under the activity-specific regulations. The regulations for the specified activity also reflect this. The rulemaking for these regulations evaluated the level of activity projected in BOEM's update for its original petition as well as the updated take estimates for the 2024 rule and other available information, and NMFS' negligible impact determination is based on consideration of that level (and the corresponding take estimates). Any LOA must be within the amount analyzed for the scope of the rule, and the total amount of take under all issued LOAs combined cannot exceed the amount analyzed and "allowable" under the rule for this activity.

NRDC also states that "NMFS must analyze whether the estimated amount of takes over the 5-year proposed ITRs will rise above small numbers for each affected marine mammal species," referencing NMFS' use of species-specific scalar ratios (see **Estimated Take**) and recommending that NMFS "should use the scaled numbers it derived to engage in a small numbers analysis." Although NRDC's recommendation is unclear, we disagree with NRDC's position regarding the need to conduct a small numbers analysis for the total allowable taking over the 5-year ITRs, as discussed elsewhere in this response. However, we do use the "scaled numbers" for purposes of the LOA-by-LOA small numbers analyses, as described in **Small Numbers**. In addition, NRDC recommends that NMFS should invite comment on the "details of the mathematical modelling used to produce these ratios." However, this aspect of the

rulemaking has been described in detail and available for public review and comment in NMFS' 2018 (83 FR 29212, June 22, 2018) and 2026 (91 FR 9014, February 24, 2026) rulemakings.

Finally, NRDC's statement that the public is impermissibly cut out of the agency's findings is incorrect. Both the proposed and this final rule set forth the maximum total taking and annual taking that would be allowable (via the issuance of LOAs) for the five-year period that the regulations will be effective. The proposed rule included a 30-day public comment period. We also believe that our rulemaking afforded a full and focused opportunity for public review of and comment on the full scope of survey activities and proposed mitigation, rather than through dozens of individual IHAs, each with separate public comment periods. Thus the public had a meaningful opportunity to comment.

Comment 29: NRDC states that the interpretation of "small numbers" presented by NMFS in the notice of proposed rulemaking is contrary to the plain meaning and purpose of the MMPA, in part because NMFS allegedly did not provide a reasoned basis for the take limit proposed (*i.e.*, one-third of the best available species or stock abundance estimate). NRDC makes three specific claims. First, NRDC states that one-third cannot be considered a "small number" within the plain meaning of the word. Second, NRDC states that Congress intended that takes be limited to "infrequent, unavoidable, or accidental" occurrences, but that NMFS has not explained why the taking of up to one-third would be infrequent or unavoidable. Third, NRDC contends that NMFS should define different small numbers thresholds on the basis of the conservation status of individual species.

Response 29: NMFS disagrees with these arguments. Although there is limited legislative history available to guide NMFS and an apparent lack of biological underpinning to the concept, we have worked to develop a reasoned approach to small

numbers. In the discussion of **Small Numbers** in this and our 2021 rule for this specified activity, NMFS explains the concept of "small numbers" in recognition that there could also be quantities of individuals taken that would correspond with "medium" and "large" numbers. As such, NMFS has established that one-third of the most appropriate population abundance number—as compared with the assumed number of individuals taken—is an appropriate limit with regard to "small numbers." This relative approach is consistent with the statement from the legislative history that "[small numbers] is not capable of being expressed in absolute numerical limits" (H.R. Rep. No. 97-228, at 19 (September 16, 1981)), and relevant case law (*Center for Biological Diversity v. Salazar*, 695 F.3d 893, 907 (9th Cir. 2012) (holding that the U.S. Fish and Wildlife Service reasonably interpreted "small numbers" by analyzing take in relative or proportional terms)).

NRDC claims that a number may be considered small only if it is "little or close to zero" or "limited in degree." This selectively picks a definition in support of the commenter's favored position. But the definition of "small" in Webster's New Collegiate Dictionary (1981) included "having little size, esp. as compared with other similar things." See also *www.merriam-webster.com/dictionary/small* (defining "small" as "having comparatively little size"). These definitions comport with the small numbers method developed by NMFS, which utilizes a proportionality approach. NRDC's comment also ignores the grammar in the relevant legislative history language when stating that NMFS has not explained why the taking of up to one-third would be "infrequent or unavoidable." The actual statement from the legislative history is that taking of marine mammals should be "infrequent, unavoidable, *or* accidental." H.R. Rep. No. 97-228, at 19 (September 16, 1981) (emphasis added). Like the term "small," infrequent is a relative term that has multiple meanings. In addition, this disjunctive

language in the series suggests that taking that is unavoidable or accidental may qualify as small numbers, even if not infrequent.

Finally, the argument to establish a small numbers threshold on the basis of stock-specific conservation status is unnecessarily duplicative of the required negligible impact finding, in which relevant biological and contextual factors are considered in conjunction with the amount of take.

Comment 30: NRDC states that NMFS' severability clause regarding small numbers is inoperable.

Response 30: Our small numbers interpretation and application contains several aspects. In the event a court were to invalidate some but not all aspects of NMFS' small numbers interpretation/application, NMFS intends that the remaining aspects of the rule and ITRs be severable to the extent possible. The extent to which this is possible may depend on which aspect is invalidated. The small numbers standard is a statutory requirement that could be satisfied on an LOA-by-LOA basis in accordance with the ruling of a court if, for example, the court upholds NMFS' LOA-by-LOA aspect of our interpretation but rules adversely on other aspects of our small numbers interpretation. Importantly, the negligible impact analysis for this five-year rule is the biologically relevant inquiry, and that analysis is based on the total annual estimated taking for all activities the regulations will govern over the 5-year period. Our ability to issue LOAs to allow the incidental take of marine mammals, subject to the mitigation, monitoring, and reporting requirements, is based on our findings in this final rule that the total taking over the 5-year period of the rule will have a negligible impact on the affected species or stocks; that the mitigation and related monitoring required in the ITRs will effect the least practicable adverse impact on those species or stocks; and our determination in this rule that any LOA we issue must not involve taking that exceeds one-third of the abundance for that species or stock.

Comment 31: NRDC asserts that the MMPA "does not authorize NMFS to reissue an incidental take regulation after five consecutive years have passed" and that NMFS is ignoring new information that has become available over the past 5 years. Commenters also suggest that, simply because of the nature of NMFS' action, *i.e.*, reimplementation of the rule, that its necessary determinations (which incorporate all relevant newly available information) are not "fresh."

Response 31: NRDC mischaracterizes the nature of this action, stating that NMFS is "attempting to extend the duration of its 2021 rule beyond 5 years by freezing its previous findings in amber." To the contrary, NMFS has followed all requirements under both MMPA section 101(a)(5)(A) and the APA by conducting a new notice and comment rulemaking; we do not seek to extend the duration of the 2021 rule beyond 5 years without performing the required analysis, making the necessary determinations, and engaging the public as required. While it is correct that NMFS is using the same estimated take numbers from our recent 2024 rule and reimplementing the previously prescribed mitigation, monitoring, and reporting requirements, all necessary analyses have been performed in light of new information. Commenters ignore the substantive changes to estimated take numbers considered for NMFS' 2024 final rule, which incorporated new information available since issuance of the 2021 final rule. No new information is available since 2024 that would impact NMFS' take estimates. Similarly, NMFS has not frozen its previous findings "in amber," but has revised its negligible impact analysis and least practicable adverse impact analysis to consider all relevant new information available since issuance of the 2021 rule. NMFS has appropriately conducted a new action, has performed new analysis incorporating new information, and has made the necessary findings to issue this final rule and ITRs.

Comment 32: NRDC asserts that NMFS cannot rely upon BOEM's 2017 PEIS to support issuance of a new rule, stating that a new NEPA analysis must be prepared for a

new action and that, at minimum, NMFS must supplement the analysis. NRDC also states that NMFS cannot rely on the PEIS because it "does not adequately address NMFS' own actions and responsibilities under the MMPA," given that BOEM's PEIS is "framed around a fundamentally different purpose and need" relating to its mandates under OCSLA that is "incongruent with NMFS obligations under the MMPA." Finally, NRDC states that BOEM's PEIS, as it relates to marine mammals, is deficient on its face due to the range of alternatives and mitigation considered, significance criteria, take and impact estimates, and cumulative impacts analysis. Animal Counsel similarly suggests that the 2017 PEIS must be supplemented.

Response 32: NRDC suggests that NMFS' adoption of BOEM's PEIS and issuance of a Record of Decision (ROD) is not sufficient analysis to address site-specific actions, claims that "neither NMFS nor BOEM ever envisioned that the 2017 PEIS would itself be sufficient to constitute a hard look at future actions not yet contemplated by the agencies," and, without evidence, states that the PEIS is not sufficient to satisfy NMFS' NEPA obligations for actions implementing its ongoing program of issuing requested incidental take authorizations. NMFS' ROD refutes these assertions in part. Of relevance, the ROD states that "unless [future] applications vary substantially from the analysis provided in the 2017 Final PEIS and final rule, this ROD forms the basis for NMFS' decision under NEPA, with no further site-specific analysis necessary." As described in detail herein, the current application and action is the same as that analyzed in the PEIS. The ROD further announces NMFS' decision "to issue . . . future ITAs on a case-by-case basis, if appropriate, consistent with the analyses in the 2017 Final PEIS and mitigation measures specified in the final ITR." Therefore, NMFS' expressed intentions regarding future reliance on BOEM's PEIS were clearly stated in its ROD.

Regarding the suggestion that NMFS can no longer rely on the 2017 PEIS absent supplementation, NMFS has carefully evaluated relevant new information and

circumstances over the intervening period and determined that supplementation is not required. This inquiry, in part, entails an evaluation as to whether new information not previously considered in the PEIS is now available. Given the new information available since the 2017 PEIS, we evaluate whether that information changes the impact analysis for marine mammals contained in the PEIS, and if the impact analyses are different, whether the new information and impact analyses change the impact conclusions provided in the PEIS. One component of new information available since issuance of the PEIS is NMFS' revised take estimates, produced through incorporation of new information in NMFS' 2024 final rule. These revised take estimates, incorporating the current best available scientific information, are uniformly and dramatically lower than those upon which the PEIS analysis is founded. As a result, the PEIS impact conclusions remain robust.

Commenters imply that the PEIS must be supplemented simply due to its age. However, they provide no detailed discussion as to how they believe that the information that is newly available would influence the relevant impact analysis. By design, the PEIS provided analysis of a substantial program of industry survey activity, including evaluation of estimated marine mammal takes substantially greater than those at issue here. Regarding Rice's whale, while the regulatory status of the species has changed in the intervening years, the information underlying that status change, which dates to NMFS' 2016 status review, adequately informed the PEIS's analysis such that it is robust to the evolution of scientific knowledge.

The proposed action at issue in the PEIS is BOEM's issuance of permits or authorizations for survey activities in the GOA. PEIS Chapter 1.1.1. The PEIS also recognizes that NMFS' proposed action is a decision on whether to approve requests for incidental take regulations and is not bound to a particular timeframe or specific request. NOAA was a cooperating agency on BOEM's PEIS, as NOAA has jurisdiction by law

and special expertise over marine resources impacted by the proposed action, including marine mammals and federally listed threatened and endangered species. The PEIS explicitly recognizes that the PEIS would be used in support of NMFS' decision on requests for incidental take regulations. See PEIS Appendix B.

It is accepted NEPA practice for NOAA to adopt a lead agency's NEPA analysis when, after independent review, NOAA determines the document to be sufficient. Specifically here, NOAA is satisfied that BOEM's PEIS adequately addresses the impacts of issuing MMPA incidental take authorizations and that NOAA's comments and concerns have been adequately addressed. There is no requirement that NMFS, as a cooperating agency, issue a separate purpose and need statement in order to ensure adequacy and sufficiency for adoption. Nevertheless, the statement of Purpose and Need in the PEIS explicitly acknowledges NMFS' own separate action of issuing an MMPA incidental take authorization, and the PEIS is replete with discussion of issues relating to the issuance of an MMPA authorization, including discussion of marine mammal impacts, mitigation, and take estimates. NMFS' early participation in the NEPA process and the agency's continuing role in shaping and informing analyses using its special expertise ensured that the analysis in the PEIS is sufficient for purposes of NMFS' own NEPA obligations related to its issuance of an incidental take authorization under the MMPA.

Regarding the alternatives, NMFS' early involvement in the development of the PEIS and role in evaluating the effects of incidental take under the MMPA ensured that the PEIS would include adequate analysis of a reasonable range of alternatives for NMFS. The PEIS includes a no action alternative specifically to address what could happen if NMFS did not issue an MMPA authorization. See PEIS, Chapter 2.9.1, pp. 2-20 to 2-22. Some of the alternatives explicitly reference marine mammals or mitigation designed for marine mammals in their title. More importantly, these alternatives fully

analyze a comprehensive variety of mitigation measures for marine mammals. This mitigation analysis supported NMFS' evaluation of our options in potentially issuing an MMPA authorization. This approach to evaluating a reasonable range of alternatives is consistent with NMFS' policy and practice for issuing MMPA incidental take authorizations. NOAA independently reviewed and evaluated the PEIS, including the purpose and need statement and range of alternatives, and determined that the PEIS fully satisfies NMFS' NEPA obligations related to its decision to issue the MMPA final rule requested by BOEM, as well as future incidental take authorizations.

Regarding NRDC's reiterating of comments it submitted during the PEIS development process, as a cooperating agency NMFS reviewed all responses to comments on the draft PEIS that were relevant to its management authorities and provided input where we deemed it appropriate. See Appendix M of the Final PEIS.

Description of Marine Mammals in the Area of the Specified Activities

Table 2 lists all species with expected potential for occurrence in the GOA and summarizes information related to the population or stock, including potential biological removal (PBR). PBR, defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population, is considered in concert with known sources of ongoing anthropogenic mortality (as described in NMFS' SARs). For status of species, we provide information regarding U.S. regulatory status under the MMPA and ESA.

In some cases, species are treated as guilds. In general ecological terms, a guild is a group of species that have similar requirements and play a similar role within a community. However, for purposes of stock assessment or density modeling, certain species may be treated together as a guild because they are difficult to distinguish visually and many observations are ambiguous. For example, NMFS' GOA SARs assess

stocks of *Mesoplodon* spp. and *Kogia* spp. as guilds. Following this approach, we consider beaked whales and *Kogia* spp. as guilds. In this rule, reference to "beaked whales" includes the goose-beaked whale[5] and Blainville's and Gervais' beaked whales, and reference to "*Kogia* spp." includes both the dwarf and pygmy sperm whale.

The use of guilds herein follows the best available density information (*i.e.*, Garrison *et al.*, 2023). The density models treat beaked whales and *Kogia* spp. as guilds and consolidate four species into an undifferentiated blackfish guild. These species include the melon-headed whale, false killer whale, pygmy killer whale, and killer whale. The model authors determined that, for this group of species, there were insufficient sightings of any individual species to generate a species-specific model (Garrison *et al.*, 2023). Therefore, reference to blackfish hereafter includes the melon-headed whale, false killer whale, pygmy killer whale, and killer whale.[6] Twenty-one species (with 24 managed stocks) have the potential to co-occur with the prospective survey activities. All managed stocks in this region are assessed in NMFS' U.S. Atlantic SARs. All values presented in table 2 are the most recent available. For more information, please see information presented in the SARs (available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports*).

Table 2 -- Marine Mammals Potentially Present in the Specified Geographical Region

[5] Note that this species is referred to in NMFS' SARs as the "Cuvier's beaked whale."

[6] This rule provides a single take estimate for the melon-headed whale, false killer whale, pygmy killer whale, and killer whale grouped together as the "blackfish." This approach reflects the best available scientific information (Garrison *et al.*, 2023). These species are encountered only occasionally during any given vessel survey, and these relatively infrequent encounters make it difficult to fit species-specific detection and habitat models. For each of these models, the authors detail analyses and decisions relevant to model development, as well as notes of caution regarding use of the models given the associated uncertainty resulting from development of a model based on few sightings. The Garrison *et al.* (2023) models are based on survey data from 2003 to 2019. Notably, surveys conducted after 2009 were conducted in "passing" mode, where the ship did not deviate from the trackline to approach and verify species identifications for detected marine mammal groups, resulting in an increase in observed marine mammal groups that could not be identified to species. As a result of these factors, the model authors determined it appropriate to develop a single spatial model based on sightings of unidentified blackfish, in addition to the relatively few sightings where species identification could be confirmed.

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[1]	NMFS stock abundance (CV, N_{min}, most recent abundance survey)[2]	Predicted mean (CV)/ maximum abundance[3]	PBR	Annual M/SI[4]
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)							
Family Balaenopteridae (rorquals)							
Rice's whale	*Balaenoptera ricei*	GOA	E/D; Y	51 (0.50; 34; 2017-18)	173 (0.44)	0.1	0.5
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)							
Family Physeteridae							
Sperm whale	*Physeter macrocephalus*	GOA	E/D; Y	1,180 (0.22; 983; 2017-18)	2,451 (0.13)	2.0	9.6
Family Kogiidae							
Pygmy sperm whale	*Kogia breviceps*	GOA	-; N	336 (0.35; 253; 2017-18)[5, 6]	1,385 (0.25)	2.5	31
Dwarf sperm whale	*K. sima*	GOA	-; N				
Family Ziphiidae (beaked whales)							
Goose-beaked whale	*Ziphius cavirostris*	GOA	-; N	See Footnotes 6-7	1,038 (0.37)	0.1	5.2
Gervais' beaked whale	*Mesoplodon europaeus*	GOA	-; N			0.7	
Blainville's beaked whale	*M. densirostris*	GOA	-; N				
Family Delphinidae							
Rough-toothed dolphin	*Steno bredanensis*	GOA	-; N	3,509 (0.67; Unk.; 2009)	4,853 (0.19)	Undet.	39
Common bottlenose dolphin[6]	*Tursiops truncatus truncatus*	GOA Oceanic	-; N	7,462 (0.31; 5,769; 2017-18)	151,886 (0.13) (Shelf) 14,652 (0.29) (Oceanic)	58	32
		GOA Continental Shelf	-; N	63,280 (0.11; 57,917; 2017-18)		556	65
		GOA Coastal, Northern	-; N	11,543 (0.19; 9,881; 2017-18)		89	28
		GOA Coastal, Western	-; N	20,759 (0.13; 18,585; 2017-18)		167	36
Clymene dolphin	*Stenella clymene*	GOA	-; N	513 (1.03; 250; 2017-18)	6,136 (0.86)	2.5	8.4
Atlantic spotted dolphin	*S. frontalis*	GOA	-; N	21,506 (0.26; 17,339; 2017-18)	12,240 (0.34) (Shelf)	166	36

					2,100 (0.49) (Oceanic)		
Pantropical spotted dolphin	*S. attenuata attenuata*	GOA	-; N	37,195 (0.24; 30,377; 2017-18)	50,209 (0.81)	304	241
Spinner dolphin	*S. longirostris longirostris*	GOA	-; N	2,991 (0.54; 1,954; 2017-18)	2,199 (0.81)	20	113
Striped dolphin	*S. coeruleoalba*	GOA	-; N	1,817 (0.56; 1,172; 2017-18)	16,102 (0.47)	12	13
Fraser's dolphin	*Lagenodelphis hosei*	GOA	-; N	213 (1.03; 104; 2017-18)	1,665 (0.73)	1	Unk.
Risso's dolphin	*Grampus griseus*	GOA	-; N	1,974 (0.46; 1,368; 2017-18)	1,451 (0.43)	14	5.3
Melon-headed whale	*Peponocephala electra*	GOA	-; N	1,749 (0.68; 1,039; 2017-18)	9,535 (0.40)	10	9.5
Pygmy killer whale	*Feresa attenuata*	GOA	-; N	613 (1.15; 283; 2017-18)		2.8	1.6
False killer whale	*Pseudorca crassidens*	GOA	-; N	494 (0.79; 276; 2017-18)		2.8	2.2
Killer whale	*Orcinus orca*	GOA	-; N	267 (0.75; 152; 2017-18)		1.5	Unk.
Short-finned pilot whale	*Globicephala macrorhynchus*	GOA	-; N	1,321 (0.43; 934; 2017-18)	3,277 (0.27)	7.5	3.9

[1] ESA status: Endangered (E)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

[2] NMFS marine mammal stock assessment reports online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*. CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance.

[3] This information represents species- or guild-specific abundance predicted by habitat-based cetacean density models (Roberts *et al.*, 2016; Garrison *et al.*, 2023). These models provide the best available scientific information regarding predicted density patterns of cetaceans in the U.S. GOA, and we provide the corresponding abundance predictions as a point of reference. Abundance predictions for Fraser's dolphin and rough-toothed dolphin from Roberts *et al.* (2016); abundance predictions for other taxa represent the maximum predicted abundance from Garrison *et al.* (2023).

[4] These values, found in NMFS' SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.*, commercial fisheries, ship strike). These values are generally considered minimums because, among other reasons, not all fisheries that could interact with a particular stock are observed and/or observer coverage is very low, and, for some stocks (such as the Atlantic spotted dolphin and continental shelf stock of bottlenose dolphin), no estimate for injury due to the DWH oil spill has been included. See SARs for further discussion.

[5] NMFS' 2020 SARs state that the abundance estimate provided for *Kogia* spp. is likely a severe underestimate because it was not corrected for the probability of detection on the trackline, and because *Kogia* spp. are often difficult to see, present little of themselves at the surface, do not fluke when they dive, and have long dive times. In addition, they exhibit avoidance behavior towards ships and changes in behavior towards approaching survey aircraft. See Hayes *et al.* (2023).

[6] Abundance estimates are in some cases reported for a guild or group of species when those species are difficult to differentiate at sea. Similarly, habitat-based cetacean density models are based in part on available observational data which, in some cases, is limited to genus or guild in terms of taxonomic definition. NMFS' SARs present pooled

abundance estimates for *Kogia* spp. and *Mesoplodon* spp., while Garrison *et al.* (2023) produced density models to genus level for *Kogia* spp. and as a guild for beaked whales (*Ziphius cavirostris* and *Mesoplodon* spp.) and blackfish (pygmy killer whale, false killer whale, melon-headed whale, and killer whale). Finally, Garrison *et al.* (2023) produced density models for bottlenose dolphins that do not differentiate between stocks, but between oceanic and shelf dolphins.

[7] NMFS' 2020 SARs provide various abundance estimates for beaked whales: Goose-beaked whale, 18 (CV=0.75); Gervais' beaked whale, 20 (CV=0.98); unidentified Mesoplodont species, 98 (CV=0.46); and unidentified Ziphiids, 181 (CV=0.31). The SARs state that these estimates likely represent severe underestimates, as they were not corrected for the probability of detection on the trackline, and due to the long dive times of these species. See Hayes *et al.* (2023).

In table 2 above, we report two sets of abundance estimates: those from NMFS' SARs and those predicted by habitat-based cetacean density models. Please see footnote 3 of table 2 for more detail. NMFS' SAR estimates are typically generated from the most recent shipboard and/or aerial surveys conducted. GOA oceanography is dynamic, and the spatial scale of the GOA is small relative to the ability of most cetacean species to travel. U.S. waters only comprise about 40 percent of the entire GOA, and 65 percent of GOA oceanic waters are south of the U.S. Exclusive Economic Zone (EEZ). Studies based on abundance and distribution surveys restricted to U.S. waters are unable to detect temporal shifts in distribution beyond U.S. waters that might account for any changes in abundance within U.S. waters. NMFS' SAR estimates also in some cases do not incorporate correction for detection bias. Therefore, for cryptic or long-diving species (*e.g.*, beaked whales, *Kogia* spp., sperm whales), estimates should generally be considered underestimates (see footnotes 5 and 7 of table 2).

The model-based abundance estimates represent the output of predictive models derived from multi-year observations and associated environmental parameters and incorporate corrections for detection bias (the same models and data from which the density estimates are derived). Incorporating more data over multiple years of observation can yield different results in either direction, as the result is not as readily influenced by fine-scale shifts in species habitat preferences or by the absence of a species in the study area during a given year. NMFS' SAR abundance estimates show substantial year-to-year variability in some cases. Incorporation of correction for detection bias should systematically result in greater abundance predictions. For these

reasons, the model-based estimates are generally more realistic and, for the purposes of assessing estimated exposures relative to abundance—used in this case to understand the scale of the predicted takes compared to the population—NMFS generally believes that the model-based abundance predictions are the best available information and most appropriate because they were used to generate the exposure estimates and therefore provide the most relevant comparison.

As part of our evaluation of the environmental baseline, which is considered as part of the negligible impact analysis, we consider any known areas of importance as marine mammal habitat. We also consider other relevant information, such as unusual mortality events (UME) and the 2010 Deepwater Horizon oil spill.

Habitat – Important habitat areas may include areas of known importance for reproduction, feeding, or migration, or areas where small and resident populations are known to occur. They may have independent regulatory status such as designated critical habitat for ESA-listed species (as defined by section 3 of the ESA) or be identified through other means (*e.g.*, recognized Biologically Important Areas (BIA)).

No critical habitat has yet been designated for the Rice's whale, though a proposed rule to do so was published (88 FR 47453, July 24, 2023). The proposal references the same supporting information discussed herein in suggesting that GOA continental slope waters between 100 and 400 m water depth be designated as critical habitat. In addition, a BIA has been recognized since 2015 (LaBrecque *et al.*, 2015). A detailed description of available information relating to Rice's whale habitat was provided in the notice of proposed rulemaking (91 FR 9014, February 24, 2026). That information is not repeated here; please see that notice for further information.

In summary, available data indicates the presence of a core habitat area in the northeastern GOA (outside the geographic scope of this rule), and the presence of Rice's whales in western and central GOA waters. In particular, passive acoustic data provide

evidence that waters 100-400 m deep in the central and western GOA are Rice's whale habitat and are being used by Rice's whales in all seasons, although it remains unknown whether animals are moving between the northwestern and the northeastern GOA or whether these represent different groups of animals (Soldevilla *et al.*, 2022).

Additional recent data continues to show calling activity in the western GOA, with whales acoustically present between 20 and 50 percent of recording days across multiple sites off Texas (Debich *et al*., 2025a,b). Furthermore, updated photo-identification catalogs suggest potential movement of individuals in and out of the core area, though sightings outside this region remain rare (Aichinger Dias *et al*., 2025). While these data refine our understanding of the species' range, this information does not reveal information on range different from those previously analyzed.

The available information is consistent with the predictions of Rice's whale density modeling, on which basis NMFS has anticipated and evaluated the potential for and effects of takes of Rice's whale in western and central GOA waters. Little is known about the number of whales that may be present, the nature of these individuals' use of the habitat, or the timing, duration, or frequency of occurrence for individual whales. Conversely, the importance of northeastern GOA waters to Rice's whale recovery is clear (Rosel *et al.*, 2016). A comparison of acoustic and sightings data from the central/western and eastern GOA, even acknowledging the limitations of those data, suggests that occurrence of whales in the northeastern GOA core habitat is significantly greater and that the area provides the habitat of greatest importance to the species.

Deepwater Horizon Oil Spill – In 2010, the *Macondo* well blowout and explosion aboard the *Deepwater Horizon* drilling rig (also known as the Deepwater Horizon explosion, oil spill, and response; hereafter referred to as the DWH oil spill) caused oil, natural gas, and other substances to flow into the GOA for 87 days before the well was sealed. Total oil discharge was estimated at 3.19 million barrels (134 million gallons),

resulting in the largest marine oil spill in history (DWH NRDA Trustees, 2016). In addition, the response effort involved extensive application of dispersants at the seafloor and at the surface, and controlled burning of oil at the surface was also used extensively as a response technique. The oil, dispersant, and burn residue compounds continue to present ecological challenges in the region. NMFS discussed the impacts of the DWH oil spill on marine mammals in detail in its 2018 notice of proposed rulemaking (83 FR 29212; June 22, 2018), and we refer the reader to that document for additional detail. The 2018 proposed rule provided detailed discussion of the DWH oil spill. Comprehensive monitoring programs (2020–2025) led by NMFS' Southeast Fisheries Science Center and partners have provided updated further insights into post-DWH cetacean distribution and density (Frasier *et al*., 2024a,b). Recent analysis indicates that many species continue to exhibit densities significantly below pre-spill levels, suggesting a lack of recovery for affected populations. Estimates of annual mortality for many stocks over the period 2014-2018 include mortality attributed to the effects of the DWH oil spill (see table 2) (Hayes *et al.*, 2023), and these mortality estimates are considered as part of the environmental baseline. NMFS similarly treats the effects of the DWH oil spill as part of the baseline in considering the likely resilience of these populations to the effects of the activities considered in this final rule.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral

or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, *etc.*). Generalized hearing ranges were chosen based on the ~65 decibel (dB) threshold from composite audiograms, previous analyses in NMFS (2018), and/or data from Southall *et al.* (2007) and Southall *et al.* (2019).

Table 3 -- Marine Mammal Hearing Groups (NMFS, 2024)

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 36 kHz
High-frequency (HF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
Very High-frequency (VHF) cetaceans (true porpoises, *Kogia*, river dolphins, Cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*)	200 Hz to 165 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	40 Hz to 90 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 68 kHz
* Represents the generalized hearing range for the entire group as a composite (*i.e.*, all species within the group), where individual species' hearing ranges may not be as broad. Generalized hearing range chosen based on ~65 dB threshold from composite audiogram, previous analysis in NMFS 2018, and/or data from Southall *et al.* (2007); Southall *et al.* (2019). Additionally, animals are able to detect very loud sounds above and below that "generalized" hearing range.	

For more detail concerning these groups and associated frequency ranges, please see NMFS (2024) for a review of available information.

Potential Effects of the Specified Activities on Marine Mammals and Their Habitat

In NMFS' notice of proposed rulemaking (91 FR 9014, February 24, 2026), this section (Potential Effects) included a comprehensive summary and discussion of the ways that the specified activity may impact marine mammals and their habitat, including general background information on sound and specific discussion of potential effects to marine mammals from noise produced through use of the acoustic sources considered herein. We do not repeat that discussion here, instead referring the reader to the notice of proposed rulemaking.

The **Estimated Take** section that follows includes a quantitative analysis of the number of individuals that are expected to be taken by the specified activity. The **Negligible Impact Analysis and Determinations** section includes an analysis of how these activities will impact marine mammals and considers the analysis of Potential Effects presented in the notice of proposed rulemaking, the **Estimated Take** section, and the **Mitigation** section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and whether those impacts are reasonably expected to, or reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

Estimated Take

This section provides an estimate of the numbers and type of incidental takes that may be expected to occur under the specified activity, which informs NMFS' negligible impact determinations. Realized incidental takes would be determined by the actual levels of activity at specific times and places that occur under any issued LOAs and by the actual acoustic sources used. Take estimates are available for the three different airgun array configurations described previously. The highest modeled estimated take (annual and 5-year total) for each species is analyzed for the negligible impact analysis.

Except with respect to certain activities not pertinent here, section 3(18) of 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). Harassment is the only type of take expected to result from these activities. It is unlikely that lethal takes would occur even in the absence of the mitigation and monitoring measures, and no such takes are anticipated or will be authorized.

Anticipated takes would primarily be by Level B harassment, as use of the described acoustic sources, particularly airgun arrays, is likely to disrupt behavioral patterns of marine mammals upon exposure to sound at certain levels. There is also some potential for auditory injury (Level A harassment) to result for LF and VHF species due to the size of the predicted auditory injury zones for those species, though none is predicted to occur for Rice's whales (the only LF cetacean in the GOA). NMFS does not expect auditory injury to occur for HF species. Detailed discussion of this determination was provided in the Estimated take section of the notice of proposed rulemaking (91 FR 9014, February 24, 2026), and is not repeated here.

Below, we summarize how the take that may be authorized was estimated using acoustic thresholds, sound field modeling, and marine mammal density data. In addition to discussion provided below, please see associated companion documents available on NMFS' website, for additional detail (Zeddies *et al.*, 2015, 2017a; Weirathmueller *et al.*, 2022). A summary overview of the take estimation process, as well as full discussion related to the development of estimated take numbers, is provided below.

Acoustic Thresholds

NMFS uses acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals generally would be reasonably expected to exhibit disruption of behavioral patterns (Level B harassment) or to incur AUD INJ of some degree (Level A harassment).

Level B Harassment – NMFS carries forward the approach to evaluation of potential take by Level B harassment used for the 2021 and 2024 final rules. Based on the practical need to use a relatively simple threshold based on available information that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of Level B harassment (*e.g.*, the historical 160 dB rms threshold for intermittent sources, which include the

impulsive sources evaluated herein). In this case, NMFS identified a more complex probabilistic risk function for use in evaluating the potential effects of the specified activity. This function, first described in Wood *et al.* (2012), differs from the single-step 160 dB rms criterion primarily by acknowledging the potential for Level B harassment at exposures to received levels below 160 dB rms as well as the potential that animals exposed to received levels above 160 dB rms will not respond in ways constituting Level B harassment. The approach described by Wood *et al.* (2012) also accounts for differential hearing sensitivity by incorporating the Type I frequency-weighting functions described by Southall *et al*. (2007). The broader Type I filters are appropriately retained for use in evaluating potential behavioral disturbance in conjunction with the probabilistic response function. The criteria are described in table 4.

Table 4 -- Behavioral Exposure Criteria

Group	Probability of response to frequency-weighted rms SPL			
	120	140	160	180
Beaked whales	50%	90%	n/a	n/a
All other species	n/a	10%	50%	90%

Level A harassment – Modeling supporting the 2021 and 2024 final rules relied on NMFS' Revised Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0; NMFS, 2018) (table 5). Since issuance of those rules, NMFS completed Updated Technical Guidance (NMFS, 2024) (table 6). Both versions of the technical guidance identify dual criteria, using the cumulative sound exposure level metric and peak sound pressure level metric, to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). This final rule carries forward the modeling and resulting take estimates (as updated for the 2024 rule) based on the 2018 Technical Guidance (NMFS, 2018), based on our determination that those estimates of Level A harassment remain

sufficiently representative of any incidents of Level A harassment that may reasonably be expected to occur (described next).

Table 5 -- Dual Exposure Criteria for Auditory Injury for Impulsive Sound Sources (NMFS, 2018)

Hearing Group	Peak sound pressure level[1]	Cumulative sound exposure level[2]
Low-frequency cetaceans	219 dB	183 dB
Mid-frequency cetaceans	230 dB	185 dB
High-frequency cetaceans	202 dB	155 dB

[1]Referenced to 1 µPa; unweighted within generalized hearing range
[2]Referenced to 1 µPa^2-s; weighted according to appropriate auditory weighting function.

These thresholds are provided in tables 5 and 6. The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Revised Technical Guidance and NMFS' 2024 Updated Technical Guidance, both of which may be accessed at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance*. The specified activity considered herein includes the use of impulsive seismic sources (*i.e.*, airguns).

Table 6 -- Dual Exposure Criteria for Auditory Injury for Impulsive Sound Sources (NMFS, 2024)

Hearing Group[1]	Peak sound pressure level[2]	Cumulative sound exposure level[3]
Low-frequency cetaceans	222 dB	183 dB
High-frequency cetaceans	230 dB	193 dB
Very high-frequency cetaceans	202 dB	159 dB

[1] The Updated 2024 Technical Guidance renamed the former 2018 mid-frequency cetacean hearing group as high-frequency cetaceans and the former 2018 high-frequency cetacean hearing group as very high-frequency cetaceans.
[2] Referenced to 1 µPa; unweighted within generalized hearing range
[3] Referenced to 1 µPa^2-s; weighted according to appropriate auditory weighting function.

In summary, the peak pressure threshold for LF cetaceans increased by 3 dB, while the cumulative SEL threshold (upon which estimates of potential AUD INJ for LF

cetaceans is based in this case) is unchanged. As discussed below, no Level A harassment is likely to occur for HF cetaceans, though we note that the cumulative SEL threshold for the hearing group increased by 8 dB. The peak pressure threshold for VHF cetaceans (upon which estimates of potential AUD INJ are based in this case) is unchanged, while the cumulative SEL threshold increased by 4 dB (see tables 5 and 6). Regarding the underlying frequency sensitivities, the generalized hearing range for LF cetaceans remains essentially the same (currently estimated as 7 Hz-36 kHz versus 7 Hz-35 kHz in the 2018 Technical Guidance), while the current HF cetacean hearing range is unchanged from that estimated for the previously named mid-frequency hearing group. The current VHF cetacean hearing range was changed more significantly, from 275 Hz-160 kHz (for the previously named HF hearing group) to 200 Hz-165 kHz (see table 3). However, because the potential for Level A harassment is best predicted by exposures above the peak pressure threshold for VHF cetaceans, the change to estimated hearing range, and changes to the auditory weighting function, are not relevant, *i.e.*, frequency weighting is not a factor in evaluating exposures to peak pressure output from airgun arrays. As the peak pressure threshold for this hearing group is unchanged, no change would be expected to the previously estimated instances of Level A harassment.

Although the operable cumulative SEL threshold for LF cetaceans is unchanged, frequency weighting is relevant to evaluations of potential exposure above the threshold. Changes to the LF cetacean weighting function would be expected to result in slight increases to estimated isopleth distances associated with the AUD INJ threshold, though these would remain smaller than the shutdown distance for Rice's whales (see **Mitigation**). The existing take estimates, which NMFS used for these ITRs, predict that no Level A harassment will occur for Rice's whales. Given the very low likelihood of injurious exposure for Rice's whales, in context of the mitigation requirements, NMFS has determined that the minor changes to the acoustic thresholds as a result of the 2024

Technical Guidance for LF cetaceans do not affect the likelihood of Level A harassment and, therefore, there is no need to update related quantitative estimates. There are no changes to the existing estimates of potential Level A harassment for any species.

Acoustic Exposure Modeling

Zeddies *et al.* (2015, 2017a) provided estimates of the annual marine mammal acoustic exposures exceeding the aforementioned criteria caused by sounds from geophysical survey activity in the GOA for 10 years of notional activity levels, using 8,000-in^3 airguns and other sources, as well as full detail regarding the original acoustic exposure modeling conducted in support of BOEM's 2016 petition and NMFS' analysis in support of the 2021 final rule. Zeddies *et al*. (2017b) provided information regarding source and propagation modeling related to the 4,130-in^3 airgun array, and Weirathmueller *et al*. (2022) provide detail regarding the modeling performed for the 5,110-in^3 airgun array. For full details of the modeling effort, see the reports (available online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-mexico*) and review additional, detailed discussion provided in the notice of proposed rulemaking (91 FR 9014, February 24, 2026), which we do not repeat.

The modeling effort produced exposure estimates computed from modeled sound levels as received by animats in a specific modeling area. The GOA was divided into seven modeling zones with six survey types simulated within each zone to estimate the potential effects of each survey: shelf and slope waters were divided into eastern, central, and western zones, plus a single deep-water zone, to account for both the geospatial dependence of acoustic fields and the geographic variations of animal distributions. Survey types included deep penetration surveys using a large airgun array (2D, 3D NAZ, 3D WAZ, and coil survey types), shallow penetration surveys using a single airgun, and

high resolution surveys. We do not discuss HRG surveys further, as they are not considered likely to result in incidental take of marine mammals.

The results from each zone were summed to provide GOA-wide estimates of take for each marine mammal species for each survey type for each notional year. To get these annual aggregate exposure estimates, 24-hr average exposure estimates from each survey type were multiplied by the number of expected survey days from BOEM's effort projections. Because these projections are not season-specific, surveys were assumed to be equally likely to occur at any time of the year and at any location within a given zone.

Marine Mammal Density Information – The best available scientific information was considered in conducting marine mammal exposure estimates (the basis for estimating take). This information consists of habitat-based cetacean density models produced by NMFS' Southeast Fisheries Science Center (Garrison *et al.*, 2023). These models incorporate survey data from 2003 through 2019 including data from survey effort conducted during winter, allowing for increased temporal resolution of model predictions relative to previously available marine mammal density data. In addition, these are the first density models that incorporate survey data collected after the DWH oil spill. New models were produced for all taxa other than Fraser's dolphin and rough-toothed dolphin, as the model authors determined that there were too few detections of these species to support model development. Therefore, we rely on previously available models (Roberts *et al.*, 2016) for these two species.

For species occurring in oceanic waters, the density models are based upon data collected during vessel surveys conducted in 2003-2004, 2009, and 2017-2018 (and surveys conducted in 2019 for Rice's whale). Survey effort was generally conducted in a survey region bounded by the shelf break (approximately the 200-m isobath) to the north and the boundary of the U.S. EEZ to the south. Separate models were created for species occurring in shelf waters (Atlantic spotted dolphin and bottlenose dolphin) based on

seasonal aerial surveys conducted in 2011-2012 and 2017-2018. Based on water depth, the shelf models were used to predict acoustic exposures for these two species in zones 2 and 3 (with zone 1 no longer part of the specified geographical region), and the oceanic models were used to predict exposures in zones 4-7.

As discussed above, the density modeling effort treats beaked whales and *Kogia* spp. as guilds, as sightings of these species are typically difficult to resolve to the species level. In addition, the model authors determined there to be too few sightings and/or too few sightings resolved to species level for the melon-headed whale, false killer whale, pygmy killer whale, and killer whale to produce individual species models. Instead, a single blackfish model was developed to produce guild-level predictions for these species (Garrison *et al.*, 2023).

Take Estimates

Exposure estimates above Level A and Level B harassment criteria, originally developed by Zeddies *et al.* (2015, 2017a, 2017b) and updated by Weirathmueller *et al.* (2022) in association with the activity projections for the various annual effort scenarios, were generated based on the specific modeling scenarios (including source and survey geometry), *i.e.*, 2D survey (1 x source array), 3D NAZ survey (2 x source array), 3D WAZ survey (4 x source array), coil survey (4 x source array).

Level A Harassment – Here, we summarize acoustic exposure modeling results related to Level A harassment. Overall, there is a low likelihood of take by Level A harassment for any species, though the degree of this low likelihood is primarily influenced by the specific hearing group. For HF and VHF cetaceans, potential auditory injury would be expected to occur on the basis of instantaneous exposure to peak pressure output from an airgun array while for LF cetaceans, potential auditory injury would occur on the basis of the accumulation of energy output over time by an airgun array.

Importantly, the modeled exposure estimates do not account for either aversion or the beneficial impacts of the required mitigation measures.

Of even greater import for HF cetaceans is that the small calculated Level A harassment zone size in conjunction with the properties of sound fields produced by arrays in the near field versus far field leads to a logical conclusion that Level A harassment is so unlikely for species in this hearing group as to be discountable.

For HF cetaceans, the only potential injury zones will be based on the peak pressure metric, as such zones will be larger than those calculated on the basis of the cumulative SEL metric (which are essentially non-existent for HF and VHF cetaceans). The estimated zone size for the 230 dB peak threshold for HF cetaceans is only 18 m. In a theoretical modeling scenario, it is possible for animats to engage with such a small assumed zone around a notional point source and, subsequently, for these interactions to scale to predictions of real-world exposures given a sufficient number of predicted 24-hr survey days in confluence with sufficiently high predicted real-world animal densities. However, this is not a realistic outcome, as described in detail in the notice of proposed rulemaking (91 FR 9014, 9045, February 24, 2026).

As a result, for all HF cetaceans, following evaluation of the available scientific literature regarding the auditory sensitivity of HF cetaceans and the properties of airgun array sound fields, NMFS does not expect any reasonable potential for Level A harassment to occur. NMFS expects the potential for Level A harassment of HF cetaceans to be discountable, even before the likely moderating effects of aversion and mitigation are considered (*e.g.*, Nachtigall *et al.*, 2018), and NMFS does not believe that Level A harassment is a likely outcome for any HF cetacean. The modeling results provided by Weirathmueller *et al.* (2022) and relied upon herein account for this by assuming that any estimated exposures above Level A harassment thresholds for HF cetaceans resulted instead in Level B harassment (as reflected in table 7).

For LF and VHF species, NMFS carries forward its assumptions regarding the effects of aversion and the same approach and specific offset factor used in the 2021 final rule to adjust estimated instances of Level A harassment as a reasonable and likely conservative approach to addressing the issue of aversion. This adjustment was incorporated into the modeling results provided by Weirathmueller *et al.* (2022) and reflected in table 7. This approach and associated considerations are discussed in detail in the notice of proposed rulemaking (91 FR 9014, 9046, February 24, 2026).

For purposes of the negligible impact analyses, NMFS uses the maximum of the species-specific exposure modeling results from the three airgun array configurations/sizes. Specifically, for all species other than Rice's whale, these results are associated with the 8,000-in^3 array. For the Rice's whale, modeling associated with the 5,110-in^3 array produced larger exposure estimates (discussed below). These species-specific maximum estimates provide the upper bound of take that may be authorized under the rule, while actual take authorized through LOAs would be determined based on the appropriate source proxy (*i.e.*, either 90-in^3 single airgun or 4,130-, 5,110-, or 8,000-in^3 airgun array).

Estimated instances of take, *i.e.*, scenario-specific acoustic exposure estimates incorporating the adjustments to Level A harassment exposure estimates discussed here, are shown in table 7. This information regarding total number of takes (with Level A harassment takes based on assumptions relating to HF cetaceans in general as well as aversion), on an annual basis for 5 years, provides the bounds within which LOAs may be issued in association with this regulatory framework.

Typically, and especially in cases where PTS is predicted, NMFS anticipates that some number of individuals may incur temporary threshold shift (TTS). However, it is not necessary to separately quantify those takes, as it is unlikely that an individual marine mammal would be exposed at the levels and duration necessary to incur TTS without also

being exposed to the levels associated with potential disruption of behavioral patterns (*i.e.*, Level B harassment). As such, NMFS expects any potential TTS takes to be captured by the estimated Level B harassment takes associated with behavioral disturbance (discussed below).

Table 7 -- Scenario-specific Instances of Take (by Level A and Level B Harassment) and Mean Annual Take Levels[1]

Species	Year 1		Year 2		Year 3		Year 4		Year 5		Mean annual take	
	A	B	A	B	A	B	A	B	A	B	A	B
Rice's whale	0	27	0	26	0	23	0	25	0	30	0	26
Sperm whale	0	13,198	0	11,208	0	11,063	0	8,126	0	10,127	0	10,744
Kogia spp.[2]	192	7,272	172	6,301	165	6,104	118	4,581	164	5,776	162	6,007
Beaked whale[2]	0	29,415	0	26,955	0	23,551	0	17,307	0	23,060	0	24,058
Rough-toothed dolphin	0	38,535	0	33,878	0	32,241	0	25,290	0	29,373	0	31,863
Bottlenose dolphin	0	284,366	0	418,676	0	251,807	0	439,366	0	248,863	0	328,616
Clymene dolphin	0	29,919	0	23,248	0	25,893	0	17,378	0	21,209	0	23,529
Atlantic spotted dolphin	0	37,080	0	34,140	0	33,126	0	34,343	0	23,906	0	32,519
Pantropical spotted dolphin	0	293,390	0	259,831	0	243,888	0	189,147	0	236,651	0	244,581
Spinner dolphin	0	4,618	0	4,456	0	3,704	0	3,147	0	4,101	0	4,006
Striped dolphin	0	56,797	0	51,623	0	46,820	0	37,449	0	47,084	0	47,955
Fraser's dolphin	0	14,499	0	12,343	0	12,181	0	8,833	0	11,118	0	11,795
Risso's dolphin	0	8,146	0	6,939	0	6,787	0	4,834	0	6,176	0	6,576
Blackfish[2]	0	67,509	0	57,010	0	56,860	0	40,787	0	51,138	0	54,661
Short-finned pilot whale	0	14,330	0	9,694	0	12,836	0	7,232	0	8,734	0	10,565

[1] A and B refer to expected instances of take by Level A and Level B harassment, respectively, for Years 1-5. Expected takes by Level A harassment represent modeled exposures adjusted to account for aversion. For the Rice's whale, no takes by Level A harassment are predicted to occur. For *Kogia* spp., exposures above Level A harassment criteria were predicted by the peak SPL metric. For the Rice's whale, the cumulative SEL metric is used to evaluate the potential for Level A harassment.

[2] *Kogia* spp. includes dwarf and pygmy sperm whales. Beaked whales include the goose-beaked whale and Blainville's and Gervais' beaked whales. Blackfish includes melon-headed whale, false killer whale, pygmy killer whale, and killer whale.

Discussion of Estimated Take

Modeling for the smaller, 5,110-in^3 array illustrated that the larger array is not necessarily always more impactful. Free-field beam patterns are different for the arrays as are the tow depths. The 5,110-in^3 array was specified as being towed at 12 m depth (following typical usage observed by NMFS through review of LOA applications), while the other arrays are assumed to use an 8-m tow depth (assumptions regarding source specifications were made by BOEM as part of its original petition for rulemaking). The depth at which a source is placed influences the interference pattern caused by the direct and sea-surface reflected paths (the "Lloyd's mirror" effect). The destructive interference from the sea-surface reflection is generally greater for shallow tow depths compared to deeper tow depths. In addition, interactions between source depth, beam pattern geometry, source frequency content, the environment (*e.g.*, bathymetry and sound velocity profile), and different animat seeding depths and behaviors can give unexpected results. For example, while the larger array may have the longest range for a particular isopleth (sound contour), the overall sound field coverage area was found to have greater asymmetry as a result of the above-mentioned interactions.

While the larger array did produce greater predicted exposures for all species, with the exception of Rice's whales, the differences between predicted exposure estimates for the two larger arrays are not as great as may have been expected on the basis of total array volume alone. The 5,110- and 8,000-in^3 arrays are often similar in terms of predicted exposures, although the beam patterns are quite different. For arrays of airgun sources, the chamber volume or the total array volume is not the only meaningful variable. Although it is true that a source with a larger volume is generally louder, in practice this only applies largely to single sources or small arrays of sources and was not the case for the considered arrays. As discussed above, array configuration, tow depth, and bathymetry were significant factors. For example, the 8,000-in^3 array generally had a more directional beam pattern than the 4,130- or 5,110-in^3 arrays. The vertical structure

of the sound field combined with different species' dive depth and surface intervals was important as well.

Level B Harassment

NMFS has determined the values shown in table 7 are a reasonable estimate of the maximum potential instances of take that may occur in each year of the regulations based on projected effort (more specifically, each of these "takes" represents a day in which one individual is exposed above the Level B harassment criteria, even if only for minutes). However, these take numbers do not represent the number of individuals expected to be taken, as they do not consider the fact that certain individuals may be exposed above harassment thresholds on multiple days. Accordingly, NMFS developed a "scalar ratio" approach to inform two important parts of the analyses: understanding a closer approximation of the number of individuals of each species or stock that may be taken within a survey, and understanding the degree to which individuals of each species or stock may be more likely to be repeatedly taken across multiple days within a year.

In order to determine more realistic exposure probabilities for individuals across multiple days, modeled results were compared for a 30-day period versus the aggregation of 24-hr population reset intervals to determine a species-typical offset of modeled daily exposures. When conducting computationally-intensive modeling over the full assumed 30-day survey period (versus aggregating the smaller 24-hr periods for 30 days), results showed about 10-45 percent of the total number of takes calculated using a 24-hr reset of the population, with differences relating to species-typical movement and residency patterns. Given that many of the evaluated survey activities occur for 30-day or longer periods, particularly some of the larger surveys for which the majority of the modeled exposures occur, using such a scaling process is appropriate in order to evaluate the likely severity of the predicted exposures.

This approach was evaluated using six representative species/guilds: Rice's whale, sperm whale, beaked whales, bottlenose dolphin, *Kogia* spp., and short-finned pilot whale. For purposes of this analysis, bottlenose dolphin was used as a proxy for other small dolphin species, and short-finned pilot whale was used as a proxy for other large delphinids. Information regarding the number of modeled animals receiving exposure above criteria for average 24-hr sliding windows scaled to the full 30-day duration and percent change in comparison to the same number evaluated when modeling the full 30-day duration was used to derive the aforementioned 30-day scalar ratios which, when applied to the total instances of take given in table 7, captures repeated takes of individuals at a 30-day sampling level. Scalar ratios are as follows: Rice's whale, 0.189; sperm whale, 0.423; beaked whales, 0.101; bottlenose dolphin, 0.287; *Kogia* spp., 0.321; and short-finned pilot whale, 0.295. Application of the re-scaling method reduced the overall magnitude of modeled takes for all species by slightly more than double to up to ten-fold (table 8).

In summary, comparing the results of modeling simulations that more closely match longer survey durations (30 days) to the results of 24-hour take estimates scaled up to 30 days (as the instances of take in table 7 were calculated) provides the comparative ratios of the numbers of individuals taken/calculated (within a 30-day survey) to instances of take, in order to better understand the comparative distribution of exposures across individuals of different species. These products are used to inform a better understanding of the nature in which individuals are taken across the multiple days of a longer duration survey given the different behaviors that are represented in the animat modeling and may appropriately be used in combination with the calculated instances of take to predict the number of individuals taken for surveys of similar duration, in order to support evaluation of take estimates in requests for LOAs under the "small numbers" standard, which is based on the number of individuals taken. Application of the scaling

method reduced the overall magnitude of modeled takes for all species by a range of slightly more than double up to tenfold (table 8).

These adjusted take numbers, representing a closer approximation of the number of individuals taken (shown in table 8), provide a more realistic basis upon which to evaluate severity of the expected taking. Please see the **Negligible Impact Analysis and Determinations** section later in this document for additional detail. It is important to recognize that while these scaled numbers better reflect the number of individuals likely to be taken within a single 30-day survey than the number of instances in table 7, they will still overestimate the number of individuals taken across the aggregated GOA activities, because they do not correct for (*i.e.*, further reduce take to account for) individuals exposed to multiple surveys or fully correct for individuals exposed to surveys significantly longer than 30 days.

As noted in the beginning of this section and in the **Small Numbers** section, using modeled instances of take (table 7) and the method used here to scale those numbers allows one to more accurately predict the number of individuals that will be taken as a result of exposure to one survey and, therefore, these scaled predictions are more appropriate to consider in requests for LOAs to assess whether a resulting LOA would meet the small numbers standard. However, for the purposes of ensuring that the total taking authorized pursuant to all issued LOAs is within the scope of the analysis conducted to support the negligible impact finding in this rule, authorized instances of take (which are the building blocks of the analysis) also must be assessed. Specifically, reflecting table 7 and what has been analyzed, the total instances of take that may be authorized for any given species or stock over the course of the 5 years covered under these regulations must not, and are not expected to, exceed the sum of the 5 years of take indicated for the 5 years in that table. Additionally, in any given year, the instances of

take of any species must not, and are not expected to, exceed the highest annual take listed in table 7 for any of the 5 years for a given species.

Table 8 -- Expected Total Take Numbers, Scaled[1]

Species	Year 1	Year 2	Year 3	Year 4	Year 5
Rice's whale	5	5	4	5	6
Sperm whale	5,583	4,741	4,679	3,437	4,284
Kogia spp.	2,334	2,022	1,959	1,470	1,854
Beaked whale	2,971	2,722	2,379	1,748	2,329
Rough-toothed dolphin	11,060	9,723	9,253	7,258	8,430
Bottlenose dolphin	81,613	120,160	72,269	126,098	71,424
Clymene dolphin	8,587	6,672	7,431	4,987	6,087
Atlantic spotted dolphin	10,642	9,798	9,507	9,856	6,861
Pantropical spotted dolphin	84,203	74,571	69,996	54,285	67,919
Spinner dolphin	1,325	1,279	1,063	903	1,177
Striped dolphin	16,301	14,816	13,437	10,748	13,513
Fraser's dolphin	4,161	3,543	3,496	2,535	3,191
Risso's dolphin	2,403	2,047	2,002	1,426	1,822
Blackfish	19,915	16,818	16,774	12,032	15,086
Short-finned pilot whale	4,227	2,860	3,787	2,134	2,576

[1] Scalar ratios were applied to values in table 7 to derive scaled take numbers shown here.

Mitigation

Under section 101(a)(5)(A) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the LPAI on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for subsistence uses, often referred to in shorthand as "mitigation." NMFS does not have a regulatory definition for LPAI. However, NMFS' implementing regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the LPAI upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)). In the Mitigation section of the 2021 final rule, NMFS included a detailed description of our interpretation of the LPAI standard (including its relationship to the negligible impact standard) and how the LPAI

standard is implemented (86 FR 5322, 5407, January 19, 2021). We refer readers to the full LPAI discussion in the 2021 final rule for additional information.

NMFS' evaluation of potential mitigation measures includes consideration of two primary factors:

(1) The manner in which, and the degree to which, implementation of the potential measure(s) is expected to reduce adverse impacts to marine mammal species or stocks, their habitat, and their availability for subsistence uses (where relevant). This analysis considers such things as the nature of the potential adverse impact (such as likelihood, scope, and range), the likelihood that the measure will be effective if implemented, and the likelihood of successful implementation; and

(2) The practicability of the measures for applicant implementation. Practicability of implementation may consider such things as cost, impact on activities, personnel safety, and practicality of implementation.

Application of the LPAI Standard in this Action

In carrying out the MMPA's mandate for this action, NMFS applies the context-specific balance between the manner in which and the degree to which measures are expected to reduce impacts to the affected species or stocks and their habitat and practicability for survey operators. The effects of concern (*i.e.*, those with the potential to adversely impact species or stocks and their habitat) include auditory injury, severe behavioral reactions, disruptions of critical behaviors, and to a lesser degree, masking and impacts on acoustic habitat.

Mitigation prescribed in the 2021 rule and ITRs focused on measures with proven or reasonably presumed ability to avoid or reduce the intensity of acute exposures that have potential to result in these anticipated effects. To the extent of the information available to NMFS, in prescribing measures for the 2021 ITRs and in determining that the same measures meet the LPAI standard for this final rule, we considered

practicability concerns, as well as potential undesired consequences of the measures, *e.g.*, extended periods using the acoustic source due to the need to reshoot lines. NMFS recognizes that instantaneous protocols, such as shutdown requirements, are not capable of avoiding all acute effects, are not suitable for avoiding many cumulative or chronic effects, and do not provide targeted protection in areas of greatest importance for marine mammals. Therefore, in addition to a basic suite of seismic mitigation protocols, we also evaluated time-area restrictions that would avoid or reduce both acute and chronic impacts of surveys.

In order to satisfy the MMPA's LPAI standard, NMFS evaluated a suite of basic mitigation protocols that are required regardless of the status of a stock. Additional or enhanced protections are required for species whose stocks are in particularly poor health and/or are subject to some significant additional stressor that lessens that stock's ability to weather the effects of the specified activities without worsening its status.

For purposes of defining mitigation requirements, we differentiate here between requirements for two classes of airgun survey activity: deep penetration and shallow penetration, with surveys using arrays greater than 1,500 in^3 total airgun volume considered deep penetration. Shallow penetration surveys also include those using single airguns. A third general class of surveys is also considered, referred to here as HRG surveys and includes those surveys using the other electromechanical sources described previously. Below, mitigation requirements are described in detail.

Mitigation-related Monitoring

Monitoring by dedicated, trained marine mammal observers is required in all water depths and, for certain surveys, observers must be independent. Additionally, for some surveys, NMFS requires that some PSOs have prior experience in the role. Independent observers are employed by a third-party observer provider; vessel crew may not serve as PSOs when independent observers are required. Dedicated observers are

those who have no tasks other than to conduct observational effort, record observational data, and communicate with and instruct the survey operator (*i.e.*, vessel captain and crew) with regard to the presence of marine mammals and mitigation requirements. Trained PSOs have successfully completed an approved PSO training course (see **Monitoring and Reporting**), and experienced PSOs have additionally gained a minimum of 90 days at-sea experience working as a PSO during a deep penetration seismic survey, with no more than 18 months having elapsed since the conclusion of the relevant at-sea experience. Training and experience is specific to either visual or acoustic PSO duties (where required). An experienced visual PSO must have completed approved, relevant training and must have gained the requisite experience working as a visual PSO. An experienced acoustic PSO must have completed a PAM operator training course and must have gained the requisite experience working as an acoustic PSO. Hereafter, we also refer to acoustic PSOs as PAM operators, whereas when we use "PSO" without a qualifier, the term refers to either visual PSOs or PAM operators (acoustic PSOs).

NMFS does not formally administer any PSO training program or endorse specific providers but will approve PSOs that have successfully completed courses that meet the curriculum and trainer requirements specified herein (see **Monitoring and Reporting**). NMFS will provide PSO approvals in the context of the need to ensure that PSOs have the necessary training to carry out their duties competently while also approving applicant staffing plans quickly. In order for PSOs to be approved, NMFS must review and approve PSO resumes indicating successful completion of an acceptable training course. A PSO may be trained and/or experienced as both a visual PSO and PAM operator and may perform either duty, pursuant to scheduling requirements. Where multiple PSOs are required and/or PAM operators are required, PSO watch schedules shall be devised in consideration of the following restrictions: (1) a maximum of 2 consecutive hours on watch followed by a break of at least 1 hour between watches for

visual PSOs; (2) a maximum of 4 consecutive hours on watch followed by a break of at least 2 consecutive hours between watches for PAM operators; and (3) a maximum of 12 hours observation per 24-hour period. NMFS may grant an exception for the requirement that visual PSOs be limited to a maximum of 2 consecutive hours on watch followed by a break of at least 1 hour between watches if requested on the basis of practicability concerns by LOA applicants. If an exception is granted, visual PSOs would instead be limited to a maximum of 4 consecutive hours on watch followed by a break of at least 2 hours between watches. Further information regarding PSO requirements may be found in the **Monitoring and Reporting** section, later in this document.

Deep Penetration Surveys – During deep penetration survey operations (*e.g.*, any day on which use of the acoustic source is planned to occur; whenever the acoustic source is in the water, whether activated or not), a minimum of two independent PSOs must be on duty and conducting visual observations at all times during daylight hours (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset).

All source vessels must carry a minimum of one experienced visual PSO, who shall be designated as the lead PSO, coordinate duty schedules and roles,[7] and serve as the primary point of contact for the operator. The lead PSO shall determine the most appropriate observation posts that will not interfere with navigation or operation of the vessel while affording an optimal, elevated view of the sea surface. These should be the highest elevation available on each vessel, with the maximum viewable range from the bow to 90 degrees to port or starboard of the vessel. PSOs shall coordinate to ensure 360° visual coverage around the vessel, and shall conduct visual observations using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner. All source vessels must be equipped with pedestal-mounted “bigeye”

[7] The coordination of PSO duty schedules and roles may alternatively be performed by a third-party, shore-based Monitoring Coordinator.

binoculars that will be available for PSO use. Within these broad outlines, the lead PSO and PSO team will have discretion to determine the most appropriate vessel- and survey-specific system for implementing effective marine mammal observational effort. Any observations of marine mammals by crew members aboard any vessel associated with the survey, including receiver or chase vessels, should be relayed to the source vessel(s) and to the PSO team.

All source vessels must use a towed PAM system for potential detection of marine mammals at all times when operating the sound source in waters deeper than 100 m. The term "towed PAM system" refers to any combination of hardware and software that uses a towed array for operations. The system must be monitored at all times during use of the acoustic source, and acoustic monitoring must begin at least 30 minutes prior to ramp-up. PAM operators must be independent, and all source vessels shall carry a minimum of two experienced PAM operators. PAM operators shall communicate all detections to visual PSOs, when visual PSOs are on duty, including any determination by the PSO regarding species identification, distance and bearing, and the degree of confidence in the determination. Further detail regarding PAM system requirements may be found in the **Monitoring and Reporting** section, later in this document.

Visual monitoring must begin at least 30 minutes prior to ramp-up (described below) and must continue until 1 hour after use of the acoustic source ceases or until 30 minutes past sunset. If any marine mammal is observed at any distance from the vessel, a PSO would record the observation and monitor the animal's position (including latitude/longitude of the vessel and relative bearing and estimated distance to the animal) until the animal dives or moves out of visual range of the observer. A PSO would continue to observe the area to watch for the animal to resurface or for additional animals that may surface in the area. Visual PSOs shall communicate all observations to PAM operators, including any determination by the PSO regarding species identification,

distance, and bearing and the degree of confidence in the determination.

As noted previously, all source vessels must carry a minimum of one experienced visual PSO and two experienced PAM operators. The observer designated as lead PSO (including the full team of visual PSOs and PAM operators) must have experience as a visual PSO. The applicant may determine how many additional PSOs are required to adequately fulfill the requirements specified here. To summarize, these requirements are: (1) 24-hour acoustic monitoring during use of the acoustic source in waters deeper than 100 m; (2) visual monitoring during use of the acoustic source by two PSOs during all daylight hours; (3) maximum of 2 consecutive hours on watch followed by a minimum of 1 hour off watch for visual PSOs and a maximum of 4 consecutive hours on watch followed by a minimum of 2 consecutive hours off watch for PAM operators; and (4) maximum of 12 hours of observational effort per 24-hour period for any PSO, regardless of duties.

Shallow Penetration Surveys – During shallow penetration surveys, operators must follow the same requirements described above for deep penetration surveys, with one notable exception: The use of PAM is not required.

HRG Surveys – HRG survey protocols differ from the previously described protocols for deep and shallow penetration surveys, and we differentiate between deep-water (greater than 100 m) and shallow-water HRG surveys. Water depth in the GOA provides a reliable indicator of the marine mammal fauna that may be encountered and, therefore, the complexity of likely observations and concern related to potential effects on deep-diving and/or sensitive species.

Deep-water HRG surveys are required to employ a minimum of one independent visual PSO during all daylight operations, in the same manner as was described for deep and shallow penetration surveys. Shallow-water HRG surveys are required to employ a minimum of one visual PSO, which may be a crew member. PSOs employed during

shallow-water HRG surveys are only required during a pre-clearance period. PAM is not required for any HRG survey.

PAM Malfunction – Survey activity may continue for brief periods of time when the PAM system malfunctions or is damaged. Activity may continue for 30 minutes without PAM while the PAM operator diagnoses the issue. If the diagnosis indicates that the PAM system must be repaired to solve the problem, operations may continue for an additional 2 hours without acoustic monitoring under the following conditions:

- Daylight hours and sea state is less than or equal to Beaufort sea state (BSS) 4;
- No marine mammals (excluding delphinids; see below) detected solely by PAM in the exclusion zone (see below) in the previous 2 hours;
- NMFS is notified via email as soon as practicable with the time and location in which operations began without an active PAM system; and
- Operations with an active acoustic source, but without an operating PAM system, do not exceed a cumulative total of 4 hours in any 24-hour period.

Exclusion Zone and Buffer Zone

An exclusion zone is a defined area within which occurrence of a marine mammal triggers mitigation action intended to reduce the potential for certain outcomes such as auditory injury or more severe disruption of behavioral patterns. For deep penetration surveys, the PSOs shall establish and monitor a 500-m exclusion zone and additional 500-m buffer zone (total 1,000 m) during the pre-clearance period (see below) and a 500-m exclusion zone during the ramp-up and operational periods (see below for description of extended 1,500-m zone in special circumstances). PSOs should generally focus their observational effort within a 1.5-km zone, to the extent possible, with animals observed at greater distances recorded and mitigation action taken as necessary (see below). For shallow penetration surveys, the PSOs shall establish and monitor a 100-m exclusion

zone with additional 100-m buffer (total 200-m zone) during the pre-clearance period and a 100-m exclusion zone during the ramp-up (for small arrays only, versus single airguns) and operational periods (see below for description of extended 500-m zone in special circumstances). PSOs should generally focus their observational effort within a 500-m zone, to the extent possible, with animals observed at greater distances recorded and mitigation action taken as necessary (see below). These zones shall be based upon radial distance from any element of the airgun array (rather than being based on the center of the array or around the vessel itself). During use of the acoustic source, occurrence of marine mammals within the buffer zone (but outside the exclusion zone) should be communicated to the operator to prepare for the potential shutdown of the acoustic source. Use of the buffer zone in relation to ramp-up is discussed below under "Ramp-up." Further detail regarding the exclusion zone and shutdown requirements is given under "Exclusion Zone and Shutdown Requirements."

Ramp-up

Ramp-up of an acoustic source is intended to provide a gradual increase in sound levels, enabling animals to move away from the source if the signal is sufficiently aversive prior to its reaching full intensity. Ramp-up is required for all surveys using airgun arrays.

The ramp-up procedure involves a step-wise increase in the number of airguns firing and total array volume until all operational airguns are activated and the full volume is achieved. Ramp-up is required at all times as part of the activation of the acoustic source (including source tests; see "*Miscellaneous Protocols*" for more detail) and may occur at times of poor visibility, assuming appropriate acoustic monitoring with no detections in the 30 minutes prior to beginning ramp-up. Acoustic source activation may only occur at night where operational planning cannot reasonably avoid such circumstances. Ramp-up must occur at night following acoustic source deactivation due

to line turn or mechanical difficulty. The operator must notify a designated PSO of the planned start of ramp-up as agreed-upon with the lead PSO; the notification time should be at least 60 minutes prior to the planned ramp-up. A designated PSO must be notified again immediately prior to initiating ramp-up procedures and the operator must receive confirmation from the PSO to proceed.

Ramp-up begins by activating a single airgun (*i.e.*, array element) of the smallest volume in the array. Ramp-up continues in stages by doubling the number of active elements at the commencement of each stage, with each stage of approximately the same duration. Total duration should not be less than approximately 20 minutes but maximum duration is not prescribed and will vary depending on the total number of stages. There will generally be one stage in which doubling the number of elements is not possible because the total number is not even. This should be the last stage of the ramp-up sequence. The operator must provide information to the PSO documenting that appropriate procedures were followed. This approach is intended to ensure a perceptible increase in sound output per increment while employing increments that produce similar degrees of increase at each step.

For deep penetration surveys, PSOs must monitor a 1,000-m zone (or to the distance visible if less than 1,000 m) for a minimum of 30 minutes prior to ramp-up (*i.e.*, pre-clearance). For shallow penetration surveys, PSOs must monitor a 200-m zone (or to the distance visible if less than 200 m) for a minimum of 30 minutes prior to ramp-up or start-up (for single airgun or non-airgun surveys; note that extended distance shutdowns, discussed below, may be required if certain species or circumstances are detected within greater distances: 1.5 km for deep penetration surveys and 500 m for shallow penetration surveys). The pre-clearance period may occur during any vessel activity (*i.e.*, transit, line turn). Ramp-up must be planned to occur during periods of good visibility when possible; operators may not target the period just after visual PSOs have gone off duty. Following

deactivation of the source for reasons other than mitigation, the operator must communicate the near-term operational plan to the lead PSO with justification for any planned nighttime ramp-up. Ramp-up may not be initiated if any marine mammal is within the designated zone. If a marine mammal is observed within the zone during the pre-clearance period, ramp-up may not begin until the animal(s) has been observed exiting the zone or until an additional time period has elapsed with no further sightings (*i.e.*, 15 minutes for small delphinids and 30 minutes for all other species). PSOs will monitor the exclusion zone during ramp-up, and ramp-up must cease and the source shut down upon observation of marine mammals within or approaching the zone.

Exclusion Zone and Shutdown Requirements

Deep Penetration Surveys – The PSOs must establish a minimum exclusion zone with a 500-m radius as a perimeter around the outer extent of the airgun array (rather than being delineated around the center of the array or the vessel itself). If a marine mammal (other than the small delphinid species discussed below) appears within or enters this zone, the acoustic source must be shut down (*i.e.*, power to the acoustic source must be immediately turned off). If a marine mammal is detected acoustically, the acoustic source must be shut down, unless the PAM operator is confident that the animal detected is outside the exclusion zone or that the detected species is not subject to the shutdown requirement (see below).

The 500-m radial distance of the standard exclusion zone is expected to contain sound levels exceeding peak pressure injury criteria for all hearing groups other than, potentially, VHF cetaceans, while also providing a consistent, reasonably observable zone within which PSOs would typically be able to conduct effective observational effort. Although significantly greater distances may be observed from an elevated platform under good conditions, NMFS believes that 500 m is likely regularly attainable for PSOs using the naked eye during typical conditions. In addition, an exclusion zone is

expected to be helpful in avoiding more severe behavioral responses. Behavioral response to an acoustic stimulus is determined not only by received level but by context (*e.g.*, activity state) including, importantly, proximity to the source (*e.g.*, Southall *et al.*, 2007; Ellison *et al.*, 2012; DeRuiter *et al.*, 2013). In prescribing an exclusion zone, NMFS seeks not only to avoid most potential auditory injury but also to reduce the likely severity of the behavioral response at a given received level of sound.

In summary, NMFS' goal in prescribing a standard exclusion zone distance is to (1) encompass zones for most species within which auditory injury could occur on the basis of instantaneous exposure; (2) provide protection from the potential for more severe behavioral reactions (*e.g.*, panic, antipredator response) for marine mammals at relatively close range to the acoustic source; (3) enable more effective implementation of required mitigation by providing consistency and ease of implementation for PSOs, who need to monitor and implement the exclusion zone; and (4) define a distance within which detection probabilities are reasonably high for most species under typical conditions. NMFS' use of 500 m as the zone is not based directly on any quantitative understanding of the range at which auditory injury would be entirely precluded or any range specifically related to disruption of behavioral patterns. Rather, we believe it is a reasonable combination of factors. This zone has been proven as a feasible measure through past implementation by operators in the GOA. In summary, a practicable criterion such as this has the advantage of familiarity and simplicity while still providing in most cases a zone larger than relevant auditory injury zones, given realistic movement of source and receiver. Increased shutdowns, without a firm idea of the outcome the measure seeks to avoid, simply displace survey activity in time and increase the total duration of acoustic influence as well as total sound energy in the water (due to additional ramp-up and overlap where data acquisition was interrupted). The shutdown requirement described here would be required for most marine mammals, with certain differences.

Small delphinids are excepted from the shutdown requirement, as described in the following section. Certain species are subject to an extended distance shutdown zone, as described in the subsequent section entitled "Other Shutdown Requirements."

Dolphin Exception – The shutdown requirement described above is in place for all marine mammals, with the exception of small delphinids. As defined here, the small delphinid group is intended to encompass those members of the Family Delphinidae most likely to voluntarily approach the source vessel for purposes of interacting with the vessel and/or airgun array (*e.g.*, bow-riding). Here we refer to "large delphinids" and "small delphinids" as shorthand for generally deep-diving versus surface-dwelling/bow-riding groups, respectively, as the important distinction is their dive behavior rather than their size. This exception to the shutdown requirement applies solely to specific genera of dolphins—*Steno*, *Tursiops*, *Stenella*, and *Lagenodelphis* (see table 2)—and applies under all circumstances, regardless of what the perception of the animal(s) behavior or intent may be. Please see the notice of proposed rulemaking for additional detailed discussion of the rationale for the dolphin exception (91 FR 9014, February 24, 2026), which is not repeated here.

Other Surveys – Shutdown protocols for shallow penetration surveys are similar to those described for deep penetration surveys, except that the exclusion zone is defined as a 100-m radial distance around the perimeter of the acoustic source. The small delphinid exception described above for deep penetration surveys would apply. As described previously, no shutdowns would be required for HRG surveys.

Extended Shutdown Requirements for Special Circumstances – Shutdown of the acoustic source is also required in the event of certain other detections beyond the standard exclusion zones. As for normal shutdowns within the standard exclusion zone, shutdowns at extended distance should be made on the basis of confirmed detections (visual or acoustic) within the zone. For deep penetration surveys, NMFS determined an

appropriate distance on the basis of available information regarding detection functions for relevant species, but notes that, while based on quantitative data, the distance is an approximate limit that is merely intended to encompass the region within which we would expect a relatively high degree of success in sighting certain species while also improving PSO efficacy by removing the potential that a PSO might interpret these requirements as demanding a focus on areas further from the vessel. NMFS set the shutdown radius for special circumstances (described below) at 1.5 km for deep penetration surveys and 500 m for shallow penetration surveys.

Circumstances justifying shutdown at extended distance (*i.e.*, 1.5 km for deep penetration surveys and 500 m for shallow penetration surveys) include (please see the notice of proposed rulemaking for rationale for each of these circumstances):

- Upon detection of a Rice's whale.
- Upon detection of a sperm whale.
- Upon detection of a beaked whale or *Kogia* spp.

Shutdown Implementation Protocols – Any PSO on duty has the authority to delay the start of survey operations or to call for shutdown of the acoustic source. When shutdown is called for by a PSO, the acoustic source must be immediately deactivated and any dispute resolved only following deactivation. The survey operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that shutdown commands are conveyed swiftly while allowing PSOs to maintain watch. When both visual PSOs and PAM operators are on duty, all detections must be immediately communicated to the remainder of the on-duty team for potential verification of visual observations by the PAM operator or of acoustic detections by visual PSOs and initiation of dialogue as necessary. When there is certainty regarding the need for mitigation action on the basis of either visual or acoustic detection alone, the relevant PSO(s) must call for such action immediately.

Upon implementation of shutdown, the source may be reactivated after the animal(s) has been observed exiting the exclusion zone or following a 30-minute clearance period with no further detection of the animal(s).

If the acoustic source is shut down for reasons other than mitigation (*e.g.*, mechanical difficulty) for brief periods (*i.e.*, less than 30 minutes), it may be activated again without ramp-up if PSOs have maintained constant observation (including acoustic observation, where required) and no visual detections of any marine mammal have occurred within the relevant exclusion zone and no acoustic detections have occurred (when required). NMFS defines "brief periods" in keeping with other clearance watch periods and to avoid unnecessary complexity in protocols for PSOs. For any longer shutdown (*e.g.*, during line turns), pre-clearance watch and ramp-up are required. For any shutdown at night or in periods of poor visibility (*e.g.*, BSS 4 or greater), ramp-up is required but if the shutdown period was brief and constant observation maintained, pre-clearance watch is not required.

Miscellaneous Protocols

The acoustic source must be deactivated when not acquiring data or preparing to acquire data, except as necessary for testing. Unnecessary use of the acoustic source should be avoided. Firing of the acoustic source at any volume above the stated production volume would not be authorized. Notified operational capacity (not including redundant backup airguns) must not be exceeded during the survey, except where unavoidable for source testing and calibration purposes. All occasions where activated source volume exceeds notified operational capacity must be noticed to the PSO(s) on duty and fully documented for reporting. The lead PSO must be granted access to relevant instrumentation documenting acoustic source power and/or operational volume.

Testing of the acoustic source involving all elements requires normal mitigation protocols (*e.g.*, ramp-up). Testing limited to individual source elements or strings does not require ramp-up but does require pre-clearance.

Restriction Areas

NMFS requires the same coastal restriction included in the 2021 ITRs to provide enhanced protection for northern coastal bottlenose dolphins, and discusses the potential for a restriction area for Rice's whales below. For all other species, there are no known specific areas of particular importance to consider for time-area restrictions, and no new information to suggest that the standard operational mitigation requirements in the 2021 ITRs are not sufficient and should be changed to meet the LPAI standard.

Coastal Restriction – No airgun surveys may occur from 90º to 84º W long. (as truncated through removal of the GOMESA moratorium area) and shoreward of a line indicated by the 20-m isobath, during the months of January through May. Waters shoreward of the 20-m isobath, where coastal dolphin stocks occur, represent the areas of greatest abundance for bottlenose dolphins.

The restriction is intended specifically to avoid additional stressors to the northern coastal stock of bottlenose dolphins during the time period believed to be of greatest importance as a reproductive period. NOAA estimates that potentially 82 percent of northern coastal dolphins were exposed to DWH oil, resulting in an array of long-term health impacts (including reproductive failure) and possible population reductions of 50 percent for the stock (DWH MMIQT, 2015). The same analysis estimated that these population-level impacts could require 39 years to recovery, in the absence of other additional stressors. The stock has been the subject of multiple declared UMEs.

The January-May timeframe is intended to best encompass the most important reproductive period for bottlenose dolphins in these coastal waters, when additional stress is most likely to have serious impacts on pregnancy and/or survival of neonates. Expert

interpretation of the long-term data for neonate strandings is that February-April are the primary months that animals are born in the northern GOA, and that fewer but similar numbers are born in January and May. This refers to long-term averages and in any particular year the peak reproductive period can shift earlier or later.

Rice's Whale – For this final rule, NMFS evaluated the potential for a restriction on survey activity in areas between 100 and 400 m in depth throughout the geographic area covered by the rule for Rice's whales. We first provide a summary of baseline information relevant to our consideration of mitigation for Rice's whales. Rice's whales have a small population size, are restricted to the GOA, and were determined by the status review team to be "at or below the near-extinction population level" (Rosel *et al*., 2016). While various population abundance estimates are available (*e.g.*, Garrison *et al*., 2020, 2023; Hayes *et al.*, 2023; Roberts *et al.*, 2016; Dias and Garrison, 2016), all are highly uncertain because targeted surveys have not been conducted throughout the Rice's whale's range. The most recent statistically-derived abundance estimate, from 2017 and 2018 surveys in the northeastern GOA, is 51 individuals (20 – 130 95% Confidence Interval (CI)) (Garrison *et al.*, 2020). There may be fewer than 100 individuals throughout the GOA (Rosel *et al.*, 2016). In addition, the population exhibits very low levels of genetic diversity (Rosel and Wilcox, 2014; Rosel *et al.*, 2021). The small population size, restricted range, and low genetic diversity alone place these whales at significant risk of extinction (IWC, 2017). This risk has been exacerbated by the effects of the DWH oil spill, which was estimated to have exposed up to half the population to oil (DWH NRDA Trustees, 2016; DWH MMIQT, 2015). In addition, Rice's whales face a significant suite of anthropogenic threats, including noise produced by airgun surveys (Rosel *et al.*, 2016). Additionally, Rice's whale dive and foraging behavior places them at heightened risk of being struck by vessels and/or entangled in fishing gear (Soldevilla *et al.*, 2017).

Of relevance here, the geographic scope of the specified activity for this final rule excludes the eastern GOA through BOEM's earlier removal of the GOMESA area (see figure 1). This reduced scope effectively minimizes potential impacts to Rice's whales and their core habitat.

It is in the aforementioned context that we evaluated restriction of survey activity over a broad area of the central and/or western GOA within Rice's whale habitat in waters between the 100 and 400 m isobaths. There is no scientific information supporting a temporal component for any potential restriction nor any specific spatial definition for a central and/or western GOA restriction.

The amount of anticipated take of Rice's whales over the 5-year duration of the ITRs is relatively low and limited to Level B harassment. The anticipated magnitude of impacts from any of these anticipated takes is considered to be relatively low, as we concluded that none of these takes are expected to impact the fitness of any individuals. See **Negligible Impact Analysis and Determinations**. We also note the robust required shutdown measures that utilize highly effective visual and passive acoustic detection methods to avoid marine mammal injury as well as minimize TTS and more severe behavioral responses.

For this rulemaking, NMFS examined the potential for area-based restrictions in the context of the LPAI standard to determine whether a restriction is warranted to minimize the impacts from seismic survey activities on the affected marine mammal species or stocks. This analysis is consistent with the consideration of the LPAI criteria described above when determining appropriateness of mitigation measures. These potential measures were evaluated (see below) in the context of the seismic survey activities (including the geographic scope of the rule) and the other existing mitigation measures that would be implemented to minimize impacts on the affected marine mammal species or stocks from these activities.

To reiterate, the geographic scope of the rule does not cover Rice's whale core habitat in the northeastern GOA, which is the area that contains the highest known densities of Rice's whale and which has defined the movements of previously tagged Rice's whales. Thus, even though individual Rice's whales occurring outside of the core habitat area may experience harassment, the geographic scope of the rule likely precludes significant impacts to Rice's whales at the species level by avoiding takes of the majority of individuals and by avoiding impacts to the habitat that supports the highest densities of the species. This important context generally means that the takes that do occur for Rice's whales are expected to have lower potential to have negative energetic effects or deleterious effects on reproduction that could reduce the likelihood of survival or reproductive success. In addition, NMFS is again requiring mitigation measures that would minimize or alleviate the likelihood of injury (PTS), TTS, and more severe behavioral responses (the 1,500-m shutdown zone). Exposures to airgun noise would occur in open water areas where animals can more readily avoid the source, which moves slowly and in a linear fashion, and find alternate habitat relatively easily. Those mitigation requirements are expected to be effective in ensuring that impacts are limited to lower-level responses with limited potential to significantly alter behavior patterns in ways that would affect the fitness of individuals and by extension the affected species.

In evaluating mitigation for species or stocks and their habitat, we consider the expected benefits of the mitigation measures for the species or stocks and their habitats against the practicability of implementation. This consideration includes assessing the manner in which, and the degree to which, the implementation of the measure(s) is expected to reduce impacts to marine mammal species or stocks (including through consideration of expected reduced impacts on individuals), their habitat, and their availability for subsistence uses (where relevant). This analysis considers such things as the nature of the activity's adverse impact (likelihood, scope, range); the likelihood that

the measure will be effective if implemented; and the likelihood of successful implementation. Practicability of implementing the measure is also assessed and may involve consideration of such things as cost and impact on operations.

Taking into account the above considerations, we provide evaluation of potential survey restrictions in the central and western GOA. Please see discussion of information related to Rice's whale occurrence in the central and western GOA provided previously in the **Description of Marine Mammals in the Area of the Specified Activities** section, with more detailed discussion provided in the notice of proposed rulemaking (91 FR 9014, February 24, 2026). In summary, passive acoustic data provide evidence that waters 100-400 m deep in the central and western GOA are Rice's whale habitat and are used by Rice's whales in all seasons, though available data suggest that density and abundance of Rice's whales in the central and western GOA are lower than in the core habitat in the northeastern GOA. Little is known about the number of whales that may be present, the nature of these individuals' use of the habitat, or the timing, duration, or frequency of occurrence for individual whales; and predictions of Rice's whale density modeling have been used to estimate potential takes of Rice's whales in the area.

Restricting survey activity in central/western GOA waters from 100 to 400 m depth would avoid likely Level B harassment of any individuals that may occur in the area, but aside from the very large area within the 100-400 m isobaths throughout the GOA generally, there is no information supporting further delineation of any specific area in the central and/or western GOA within which a restriction on survey activity might be expected to provide targeted reductions in adverse impacts to Rice's whales or their habitat. Further, Level B harassment that may occur in the central/western GOA may be expected to have lower potential for meaningful consequences relative to Level B harassment events that occur in the northeastern GOA core habitat area, where important behavior may be more likely disrupted, and where greater numbers of Rice's whale are

expected to occur. The relatively low level of take predicted for Rice's whales in the geographic scope for the specified activity under this final rule, as well as the required mitigation measures (including expanded shutdowns for Rice's whales), which are expected with a high degree of confidence to minimize the duration and intensity of any instances of take that do occur, factor into NMFS' consideration of the potential benefits of any restriction on survey effort in central and western GOA waters 100-400 m depth.

Practicability – NMFS produced a draft RIA in support of the 2018 proposed rule, which evaluated potential costs associated with a range of area-based activity restrictions (available online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-mexico*). While the RIA did not directly evaluate the impacts of area-based restrictions for Rice's whales in the central and western GOA, it did consider the impacts of other potential area-based restrictions and in so doing provided a useful framework for considering practicability of area-based restrictions considered in this current rulemaking. The analysis suggested that the analyzed seasonal and year-round area closures would have the potential to generate reductions in leasing, exploration, and subsequent development activity. Although the 2018 draft RIA cautioned that its conclusions were subject to substantial uncertainty, it provided several factors that the likelihood of ultimate impacts to oil and gas production as a result of delays in data collection could be expected to depend upon: (1) oil and gas market conditions; (2) the relative importance of the closure area to oil and gas production; (3) the state of existing data covering the area; and (4) the duration of the closure. For this current rulemaking, NMFS cannot predict factor (1) and does not have complete information regarding factor (3) (though the 2018 draft RIA provides that new surveys are expected to be required to facilitate efficient exploration and development decisions). We can, however, more adequately predict the effects of factors (2) and (4) on the impact of any closure.

Habitat that supports all of the Rice's whale life-history states is generally considered to consist of the aforementioned strip of continental shelf waters within the 100-400 m isobaths throughout the U.S. GOA (Roberts *et al.*, 2016; Garrison *et al.*, 2023; NMFS, 2023). Salinity and surface water velocity are likely predictive of potential Rice's whale occurrence (Garrison *et al.*, 2023), but these more dynamic variables are less useful in delineating a potential area of importance than the static depth variable. Within this GOA-wide depth range, we focus on the area where Soldevilla *et al.* (2022; 2024) recorded Rice's whale calls as being of interest for a potential restriction. This area lies within the central GOA, where the vast majority of seismic survey effort during NMFS' experience implementing the 2021 rule has occurred. The 2018 proposed rule draft RIA considered the economic impacts of a prospective closure area in deeper waters of the central GOA. The evaluated area was designed to benefit sperm whales and beaked whales, which are found in deep water, and more activity is projected to occur in deep water than in the shelf-break waters where Rice's whale habitat occurs. As such, the 2018 draft RIA analysis likely overestimates the potential impacts of a central or western GOA closure within a portion of the shelf waters considered to be Rice's whale habitat. That said, the draft RIA analysis of deep-water closures in the central GOA suggests that a central GOA closure for Rice's whales could cause significant economic impacts. A key consideration in this finding relates to factor (4), as the analyzed closure for sperm whales and beaked whales was year-round. Similarly here, there is no information to support a temporal component to design of a potential Rice's whale restriction and, therefore, a restriction would appropriately be year-round. As operators have no ability to plan around a year-round restriction, this aspect exacerbates the potential for effects on oil and gas production in the GOA.

We also considered data available specifically for the area under consideration (Rice's whale habitat in the central and western GOA). While Rice's whale habitat (*i.e.*,

water depths of 100-400 m on the continental shelf break) contains less oil and gas industry infrastructure than do shallower, more developed waters, and have been subject to less leasing activity than deeper waters with greater expected potential reserves, central and western GOA waters 100-400 m nevertheless host significant industry activity. BOEM provides summary information by water depth bin, including water depths of 201-400 m (see *https://www.data.boem.gov/Main/Default.aspx*). The area covering those depths overlaps 33 active leases, with 17 active platforms and over 1,200 approved applications to drill. In the past 20 years, over 500 wells have been drilled in water depths of 100-400 m. These data confirm that there is substantial oil and gas industry activity in this area and, therefore, the inability to collect new seismic data could affect oil and gas development given that the oil and gas industry typically uses targeted seismic data to refine geologic analyses before drilling a well. Under the existing rule, NMFS has issued (at the time of writing) 8 LOAs in association with surveys that partially overlapped the central GOA 100-400 m depth band. These surveys support a conclusion that a year-round closure would likely substantially affect future GOA oil and gas activity.

In summary, the foregoing supports that (1) we are unable to delineate specific areas of Rice's whale habitat in the central and western GOA where restrictions on survey activity would be appropriate because there is currently uncertainty about Rice's whale density, abundance, habitat usage patterns and other factors in the central and western GOA; and (2) there is high likelihood that closures or other restrictions on survey activity in all waters of 100-400 m depth in the central and western GOA would have significant economic impacts. Therefore, while new information regarding Rice's whale presence in areas of the GOA outside of the northeastern core habitat suggests that a restriction on survey effort may be expected to reduce adverse impacts to individual whales, there is a lack of information supporting the importance of or appropriately specific timing or location of such a restriction and an unclear understanding of the

importance of particular areas to individual whales or the population as a whole. On the other hand, information regarding the potential for economic impacts resulting from a year-round restriction broadly in the 100-400 m area supports our conclusion that there are significant practicability concerns. As a result, NMFS has determined that no additional mitigation is warranted to effect the LPAI on the species.

Entanglement Avoidance

The use of OBN or similar equipment requiring the use of tethers or connecting lines poses an entanglement risk. These measures apply to operators conducting OBN surveys (or surveys using similar equipment), and include: (1) use negatively buoyant coated wire-core tether cable (*e.g.*, ¾" polyurethane-coated cable with ½" wire core); (2) retrieve all lines immediately following completion of the survey; and (3) attach acoustic pingers directly to the coated tether cable. Acoustic releases should not be used. No unnecessary release lines or lanyards may be used and nylon rope may not be used for any component of the system. Pingers must be attached directly to the nodal tether cable via shackle, with cables retrieved via grapnel. If a lanyard is required it must be as short as possible and made as stiff as possible, *e.g.*, by placing inside a hose sleeve.

Vessel Strike Avoidance

These measures apply to all vessels associated with any survey activity (*e.g.*, source vessels, streamer vessels, chase vessels, supply vessels). However, NMFS notes that these requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply. These measures include the following:

1. Vessel operators and crews must maintain a vigilant watch for all marine mammals and must slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any marine mammal. A visual observer aboard

the vessel must monitor a vessel strike avoidance zone around the vessel (distances stated below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must receive sufficient training to 1) distinguish protected species from other phenomena and 2) broadly to identify a marine mammal as a baleen whale, sperm whale, or other marine mammal;

2. Vessel speeds must be reduced to 10 kn or less when mother/calf pairs, pods, or large assemblages of any marine mammal are observed near a vessel;

3. All vessels must maintain a minimum separation distance of 500 m from baleen whales;

4. All vessels must maintain a minimum separation distance of 100 m from sperm whales;

5. All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50 m from all other marine mammals, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel); and

6. When marine mammals are sighted while a vessel is underway, the vessel shall take action as necessary to avoid violating the relevant separation distance (*e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area). If marine mammals are sighted within the relevant separation distance, the vessel must reduce speed and shift the engine to neutral, not engaging the engines until animals are clear of the area. This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

NMFS has carefully evaluated the suite of mitigation measures described here and considered a range of other measures in the context of ensuring that we prescribe the means of effecting the least practicable adverse impact on the affected marine mammal

species and stocks and their habitat. Based on our evaluation of these measures, we have determined that the required mitigation measures provide the means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an incidental take authorization for an activity, section 101(a)(5)(A) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of the authorized taking. NMFS' MMPA implementing regulations further describe the information that an applicant should provide when requesting an authorization (50 CFR 216.104 (a)(13)), including the means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and the level of taking or impacts on populations of marine mammals.

Section 101(a)(5)(A) allows that incidental taking may be authorized only if the total of such taking contemplated over the course of 5 years will have a negligible impact on affected species or stocks (a finding based on impacts to annual rates of recruitment and survival) and, further, section 101(a)(5)(B) requires that authorizations issued pursuant to 101(a)(5)(A) be withdrawn or suspended if the total taking is having, or may have, more than a negligible impact (or such information may inform decisions on requests for LOAs under the specific regulations). Therefore, the necessary requirements pertaining to monitoring and reporting must address the total annual impacts to marine mammal species or stocks. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species in action area (*e.g.*, presence,

abundance, distribution, density);

- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

NMFS has carefully reviewed the monitoring and reporting requirements prescribed through the current ITRs, and determined that these requirements remain appropriate. We therefore carry forward those requirements, described below, without change.

PSO Eligibility and Qualifications

All PSO resumes must be submitted to NMFS and PSOs must be approved by NMFS after a review of their qualifications. These qualifications include whether the individual has successfully completed the necessary training (see "Training," below) and, if relevant, whether the individual has the requisite experience (and is in good standing). PSOs should provide a current resume and information indicating successful completion of an acceptable PSO training course. In order for a PSO training course to be deemed

acceptable by NMFS, the agency must, at minimum, review a course information packet that includes the name and qualifications (*e.g.*, experience, training, or education) of the instructor(s), the course outline or syllabus, and course reference material. Absent a waiver (discussed below), PSOs must be trained biologists, with the following minimum qualifications:

- A bachelor's degree from an accredited college or university with a major in one of the natural sciences and a minimum of 30 semester hours or equivalent in the biological sciences and at least one undergraduate course in math or statistics; and
- Successful completion of relevant training (described below), including completion of all required coursework and passing (80 percent or greater) a written and/or oral examination developed for the training program.

In addition, it is recommended that PSOs meet the following requirements:

- Experience and ability to conduct field observations and collect data according to assigned protocols (may include academic experience) and experience with data entry on computers;
- Visual acuity in both eyes (vision correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance; use of binoculars may be necessary to correctly identify the target (required for visual PSOs only);
- Experience or training in the field identification of marine mammals, including the identification of behaviors (required for visual PSOs only);
- Sufficient training, orientation, or experience with the survey operation to ensure personal safety during observations;
- Writing skills sufficient to prepare a report of observations (*e.g.*, description, summary, interpretation, analysis) including but not limited to the number and species of marine mammals observed; marine mammal behavior; and descriptions of

activity conducted and implementation of mitigation; and

- Ability to communicate orally, by radio or in person, with survey personnel to provide real-time information on marine mammals detected in the area as necessary.

The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver must include written justification, and prospective PSOs granted waivers must satisfy training requirements described below. Alternate experience that may be considered includes, but is not limited to, the following:

- Secondary education and/or experience comparable to PSO duties;
- Previous work experience conducting academic, commercial, or government-sponsored marine mammal surveys; and
- Previous work experience as a PSO; the PSO should demonstrate good standing and consistently good performance of PSO duties.

Training – NMFS does not formally administer any PSO training program or endorse specific providers but will approve PSOs that have successfully completed courses that meet the curriculum and trainer requirements specified herein and, therefore, are deemed acceptable. To be deemed acceptable, training should adhere generally to the recommendations provided by "*National Standards for a Protected Species Observer and Data Management Program: A Model Using Geological and Geophysical Surveys*" (Baker *et al.*, 2013). Those recommendations include the following topics for training programs:

- Life at sea, duties, and authorities;
- Ethics, conflicts of interest, standards of conduct, and data confidentiality;
- Offshore survival and safety training;
- Overview of oil and gas activities (including geophysical data acquisition

operations, theory, and principles) and types of relevant sound source technology and equipment;

- Overview of the MMPA and ESA as they relate to protection of marine mammals;
- Mitigation, monitoring, and reporting requirements as they pertain to geophysical surveys;
- Marine mammal identification, biology and behavior;
- Background on underwater sound;
- Visual surveying protocols, distance calculations and determination, cues, and search methods for locating and tracking different marine mammal species (visual PSOs only);
- Optimized deployment and configuration of PAM equipment to ensure effective detections of cetaceans for mitigation purposes (PAM operators only);
- Detection and identification of vocalizing species or cetacean groups (PAM operators only);
- Measuring distance and bearing of vocalizing cetaceans while accounting for vessel movement (PAM operators only);
- Data recording and protocols, including standard forms and reports, determining range, distance, direction, and bearing of marine mammals and vessels; recording GPS location coordinates, weather conditions, Beaufort wind force and sea state, *etc.*;
- Proficiency with relevant software tools;
- Field communication/support with appropriate personnel, and using communication devices (*e.g.*, two-way radios, satellite phones, Internet, email, facsimile);
- Reporting of violations, noncompliance, and coercion; and
- Conflict resolution.

PAM operators should regularly refresh their detection skills through practice with simulation-modeling software and keep up to date with training on the latest software/hardware advances.

Visual Monitoring

The lead PSO is responsible for establishing and maintaining clear lines of communication with vessel crew. The vessel operator shall work with the lead PSO to accomplish this and shall ensure any necessary briefings are provided for vessel crew to understand mitigation requirements and protocols. While on duty, PSOs will continually scan the water surface in all directions around the acoustic source and vessel for presence of marine mammals, using a combination of the naked eye and high-quality binoculars, from optimum vantage points for unimpaired visual observations with minimum distractions. PSOs will collect observational data for all marine mammals observed, regardless of distance from the vessel, including species, group size, presence of calves, distance from vessel and direction of travel, and any observed behavior (including an assessment of behavioral responses to survey activity). Upon observation of marine mammal(s), a PSO will record the observation and monitor the animal's position (including latitude/longitude of the vessel and relative bearing and estimated distance to the animal) until the animal dives or moves out of visual range of the observer, and a PSO will continue to observe the area to watch for the animal to resurface or for additional animals that may surface in the area. PSOs will also record environmental conditions at the beginning and end of the observation period and at the time of any observations, as well as whenever conditions change significantly in the judgment of the PSO on duty.

For all deep penetration surveys, the vessel operator must provide bigeye binoculars of appropriate quality (*e.g.*, 25 x 150; 2.7 view angle; individual ocular focus; height control) solely for PSO use. These should be pedestal-mounted on the deck at the

most appropriate vantage point that provides for optimal sea surface observation, PSO safety, and safe operation of the vessel. Other required equipment, which should be made available to PSOs by the third-party observer provider, includes reticle binoculars of appropriate quality (*e.g.*, 7 x 50), GPS, digital camera with a telephoto lens (the camera or lens should also have an image stabilization system) that is at least 300 mm or equivalent on a full-frame single-lens reflex, compass, and any other tools necessary to adequately perform the tasks described above, including accurate determination of distance and bearing to observed marine mammals.

Acoustic Monitoring

Use of towed PAM is required for deep penetration surveys. Monitoring of a towed PAM system is required at all times for these surveys, from 30 minutes prior to ramp-up, throughout all use of the acoustic source, and for 60 minutes following cessation of survey activity. Towed PAM systems should consist of hardware (*e.g.*, hydrophone array, recorder, cables) and software (*e.g.*, data processing program and algorithm). Some type of automated detection software must be used. Acoustic signals are processed for output to the PAM operator with software designed to detect marine mammal vocalizations. Current PAM technology has some limitations (*e.g.*, limited directional capabilities and detection range, detection of signals due to vessel and flow noise, low accuracy in localization) and there are no formal guidelines currently in place regarding specifications for hardware, software, or operator training requirements.

NMFS' requirement to use PAM refers to the use of calibrated hydrophone arrays with full system redundancy to detect, identify, and estimate distance and bearing to vocalizing cetaceans, to the extent possible. With regard to calibration, the PAM system should have at least one calibrated hydrophone, sufficient for determining whether background noise levels on the towed PAM system are sufficiently low to meet performance expectations. Additionally, if multiple hydrophone types occur in a system

(*i.e.*, monitor different bandwidths), then one hydrophone from each such type shall be calibrated, and whenever sets of hydrophones (of the same type) are sufficiently spatially separated such that they would be expected to experience ambient noise environments that differ by 6 dB or more across any integrated species cluster bandwidth, then at least one hydrophone from each set should be calibrated. In terms of calibrating the rest of the system, the signal route to the data recorder and monitoring software shall be calibrated so that the binary amplitude data written to hard disk can be converted into units of acoustic pressure. The configuration of hardware should be coupled with appropriate software to aid monitoring and listening by a PAM operator skilled in bioacoustics analysis and computer system specifications capable of running appropriate software. GPS data acquisition is recommended for all PAM operations. If the PAM plan (see below) claims an ability to localize, every localization estimate obtained from a PAM system must be accompanied by some estimate of uncertainty and ambiguity.

In the absence of formal standards addressing any of these three facets of PAM technology, all applicants must provide a PAM plan including description of the hardware and software proposed for use prior to proceeding with any survey where PAM is required. Following the survey, a validation document must be submitted as part of required reporting (see below). The purpose of the PAM plan is to demonstrate that the PAM system being proposed for use is adequate for addressing the mitigation goals. The plan shall include methodology and documentation requirements for all stages of the project. PAM plans should, at minimum, adequately address and describe (1) the hardware and software planned for use, including a hardware performance diagram demonstrating that the sensitivity and dynamic range of the hardware is appropriate for the operation; (2) deployment methodology, including target depth/tow distance; (3) definitions of expected operational conditions, used to summarize background noise statistics; (4) proposed detection-classification-localization methodology, including

anticipated species clusters (using a cluster definition table), target minimum detection range for each cluster, and the proposed localization method for each cluster; (5) operation plans, including the background noise sampling schedule; (6) array design considerations for noise abatement; and (7) cluster-specific details regarding which real-time displays and automated detectors the operator would monitor. Where relevant, the plan should address the potential for PAM deployment on a receiver vessel or other associated vessel separate from the acoustic source.

Species clusters – The PAM plan shall list the species of concern during the upcoming operation. While some species may be listed individually for special attention, in many circumstances it is expected that for the purposes of a PAM operation multiple species can be grouped together in a "cluster" that shares similar acoustic and behavioral characteristics (*e.g.*, sperm whale, beaked whales). The plan must specify a target minimum detection (and possibly localization) range for each species cluster used in the document. Different ranges can be defined for different operational conditions. The PAM system may exceed this detection range, but shall always be capable of achieving this minimum detection range.

Hardware and software specifications – The PAM plan shall have a section dedicated to demonstrating that the PAM hardware is sensitive enough to detect signals from the species clusters of concern at the target minimum detection ranges specified. The plan should include a hardware specification table and hardware performance diagram. The diagram will show the sensitivity and bandwidth of the combined array hardware and recording system, as well as the received levels required for a given species cluster to be detectable at the target minimum detection range. The overall goal of the diagram is to visually demonstrate that the planned PAM array/recording system would have the capability of detecting various species clusters at required target ranges, provided that background noise levels are not an issue.

Operational conditions – The validation document should demonstrate whether the PAM system has been compromised by excessive background noise, whether that noise is electronic interference, flow, platform, or environmental noise. Therefore, the PAM plan shall define a set of "operational conditions" under which detection statistics (background noise profiles) will be categorized during the project. Operational conditions consist of three categories: platform activity and status, mitigation (activity) status, and environmental status.

Operating procedures – The PAM plan shall describe the level of effort that is reasonably expected to occur for the monitoring requirements. For every species cluster, the plan should detail which part of the PAM display would be used for detecting that cluster. For example, if a scrolling spectrogram display is being used for a species cluster, then the spectrogram's fast Fourier transform sample size, frequency bandwidth, and their refresh rate shall be specified. Similar details would be provided for other software tools, such as click detectors and other automated detectors and classifiers. The plan shall also provide a screenshot of the expected monitor display.

In coordination with vessel crew, the lead PAM operator will be responsible for deployment, retrieval, and testing and optimization of the hydrophone array. While on duty, the PAM operator must diligently listen to received signals and/or monitoring display screens in order to detect vocalizing cetaceans, except as required to attend to PAM equipment. The PAM operator must use appropriate sample analysis and filtering techniques and must report all cetacean detections. NMFS recommends that vessel self-noise assessments be undertaken during mobilization in order to optimize PAM array configuration according to the specific noise characteristics of the vessel and equipment involved, and to refine expectations for distance/bearing estimations for cetacean species during the survey. Copies of any vessel self-noise assessment reports must be included with the summary trip report.

Data Collection

PSOs must use standardized electronic data forms. PSOs will record detailed information about any implementation of mitigation requirements, including the distance of animals to the acoustic source and description of specific actions that ensued, the behavior of the animal(s), any observed changes in behavior before and after implementation of mitigation, and if shutdown was implemented, the length of time before any subsequent ramp-up of the acoustic source to resume survey. If required mitigation was not implemented, PSOs should submit a description of the circumstances. NMFS requires that, at a minimum, the following information be reported:

- Vessel names (source vessel and other vessels associated with survey), vessel size and type, maximum speed capability of vessel, port of origin, and call signs;
- PSO names and affiliations;
- Dates of departures and returns to port with port name;
- Dates and participants of PSO briefings;
- Dates and times (Greenwich Mean Time) of survey effort and times corresponding with PSO effort;
- Vessel location (latitude/longitude) when survey effort begins and ends and vessel location at beginning and end of visual PSO duty shifts
- Vessel location at 30 second intervals (if software capability allows) or 5-minute intervals (if location must be manually recorded);
- Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any line change;
- Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort scale and any other relevant weather conditions including cloud cover, fog, sun glare, night, and overall visibility to the horizon;

- Vessel location when environmental conditions change significantly;
- Factors that may have contributed to impaired observations during each PSO shift change or as needed as environmental conditions change (*e.g.*, vessel traffic, equipment malfunctions);
- Survey activity information, such as acoustic source power output while in operation, number and volume of airguns operating in an array, tow depth of an acoustic source, and any other notes of significance (*i.e.*, pre-clearance, ramp-up, shutdown, testing, shooting, ramp-up completion, end of operations, streamers, *etc*.);
- If a marine mammal is sighted, the following information should be recorded:
    - Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
    - PSO who sighted the animal and PSO location (including height above water) at time of sighting;
    - Time of sighting;
    - Vessel location at time of sighting;
    - Water depth;
    - Direction of vessel's travel (compass direction);
    - Direction of animal's travel relative to the vessel;
    - Pace of the animal;
    - Estimated distance to the animal (and method of estimating distance) and its heading relative to vessel at initial sighting;
    - Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level, or unidentified) and PSO confidence in identification; also note the composition of the group if there is a mix of species;
    - Estimated number of animals (high/low/best);

- Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, *etc*.);
- Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
- Detailed behavior observations (*e.g.*, number of blows, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);
- Animal's closest point of approach (CPA) and/or closest distance from the acoustic source;
- Platform activity at time of sighting (*e.g.*, deploying, recovering, testing, shooting, data acquisition, other); and
- Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up); time and location of the action should also be recorded;

- If a marine mammal is detected while using the PAM system, the following information should be recorded:
  - An acoustic encounter identification number, and whether the detection was linked with a visual sighting;
  - Time when first and last heard;
  - Types and nature of sounds heard (*e.g.*, clicks, whistles, creaks, burst pulses, continuous, sporadic, strength of signal); and
  - Any additional information recorded such as water depth of the hydrophone array, bearing of the animal to the vessel (if determinable), species or taxonomic group (if determinable), spectrogram screenshot, and any other notable information.

LOA Reporting

PSO effort, survey details, and sightings data should be recorded continuously during surveys. Reports must include all information described above under "Data Collection," including amount and location of line-kms surveyed and all marine mammal observations with closest approach distance. Draft reports must be submitted to NMFS within 90 days of survey completion or following expiration of an issued LOA. In the event that an LOA is issued for a period exceeding 1 year, annual reports must be submitted during the period of validity. The draft report must be accompanied by a certification from lead PSOs as to the accuracy of the report. A final report must be submitted within 30 days following resolution of any comments on the draft report.

The report must describe the operations conducted and sightings of marine mammals near the operations; provide full documentation of methods, results, and interpretation pertaining to all monitoring; summarize the dates and locations of survey operations, and all marine mammal sightings (dates, times, locations, activities, associated survey activities); and provide information regarding locations where the acoustic source was used. The LOA-holder shall provide geo-referenced time-stamped vessel tracklines for all time periods in which airguns (full array or single) were operating. Tracklines should include points recording any change in airgun status (*e.g.*, when the airguns began operating, when they were turned off). GIS files shall be provided in ESRI shapefile format and include the UTC date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates should be referenced to the WGS84 geographic coordinate system. In addition to the report, all raw observational data shall be made available to NMFS.

This report must also include a validation document concerning the use of PAM (if PAM was required), which should include necessary noise validation diagrams (NVD) and demonstrate whether background noise levels on the PAM deployment limited

achievement of the planned detection goals. A separate diagram should be produced for every background noise percentile chosen for analysis. Background noise percentiles, rather than a simple average of the data, are required because the highly non-stationary characteristics of many background noise profiles cannot be described by a simple mean. For example, data collected during a seismic survey will have short periods of time containing high-intensity pulses and longer periods of time dominated by lower levels of reverberation. Taking a simple mean of these noise data would imply background noise levels substantially higher than what may actually have been present between seismic pulses. A validation report would typically contain between three to five diagrams, depending on the number of percentiles analyzed. At a minimum, the validation report should contain three diagrams that include the 50th percentile (median), 5th percentile, and 95th percentile. The 25^{th} percentile and 75^{th} percentile may also be included. In each percentile diagram, a separate background noise curve shall be drawn for each defined operational condition. In general, the NVD should be generated from the data stream that is used for detecting the presence of marine mammal signals. For example, if beamforming or some other form of array gain has been applied before invoking signal detection, then the NVD should be generated using the beamformed data, and not omnidirectional data. The complete set of NVDs, one for each percentile of interest, combined with a table that lists the fraction of time the activity was in each operational state, provides a means of reviewing the background noise-limitations encountered by the PAM system during various operational conditions. Actual marine mammal detections should be plotted on this diagram for a reasonableness check on the expected received levels. Overall, the validation document should reiterate all the goals and parameters stated in the planning document and verify that goals were/were not met, why, changes, etc. The validation document also should state whether the planning was suited to the needs of the survey and met the required mitigation standards.

The report must include a post-survey estimate of the instances of take of each species utilizing the line miles of survey actually conducted and the same methods used to initially predict the estimated take in the LOA application. Depending on the length and dates of the survey, LOA-holders may be required to segment take estimates into specific years to support the administration of the rule.

Comprehensive Reporting

Individual LOA-holders will be responsible for collecting and submitting monitoring data to NMFS, as described above. In addition, on an annual basis, LOA-holders will also collectively be responsible for compilation and analysis of those data for inclusion in subsequent annual synthesis reports. Individual LOA-holders may collaborate to produce this report or may elect to have their trade associations support the production of such a report. These reports would summarize the data presented in the individual LOA-holder reports, provide analysis of these synthesized results, discuss the implementation of required mitigation, and present any recommendations. This comprehensive annual report would be the basis of an annual adaptive management process (described below in **Adaptive Management**). The following topics will be described in comprehensive reporting:

- Summary of geophysical survey activity by survey type, geographic zone (*i.e.*, the seven zones described in the modeling report), month, and acoustic source status (*e.g.*, inactive, ramp-up, full-power, power-down);
- Summary of monitoring effort (on-effort hours and/or distance) by acoustic source status, location, and visibility conditions (for both visual and acoustic monitoring);
- Summary of mitigation measures implemented (*e.g.*, delayed ramp-ups, shutdowns, course alterations for vessel strike avoidance) by survey type and location;
- Sighting rates of marine mammals during periods with and without

acoustic source activities and other variables that could affect detectability of marine mammals, such as:

- Initial sighting distances of marine mammals relative to source status;
- Closest point of approach of marine mammals relative to source status;
- Observed behaviors and types of movements of marine mammals relative to source status;
- Distribution/presence of marine mammals around the survey vessel relative to source status; and
- Analysis of the effects of various factors influencing the detectability of marine mammals (*e.g.*, wind speed, sea state, swell height, presence of glare or fog).

- Estimates of total take across all activities for which take is authorized based on actual survey effort and original estimation method;
- Summary and conclusions from monitoring in previous year; and
- Recommendations for adaptive management.

Each annual comprehensive report should cover 1 full year of monitoring effort and must be submitted for review each year. Each report should analyze survey and monitoring effort described in reports submitted by individual LOA-holders during a given 1 year period, beginning from the date of effectiveness of these regulations. Each annual comprehensive report must be submitted for review 90 days following conclusion of the annual reporting period.

Reporting Injured or Dead Marine Mammals

Discovery of Injured or Dead Marine Mammal – In the event that personnel involved in the survey activities covered by the authorization discover an injured or dead

marine mammal, the LOA-holder shall report the incident to OPR, NMFS and to the regional stranding network as soon as feasible. The report must include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

Vessel Strike – In the event of a ship strike of a marine mammal by any vessel involved in the activities covered by the authorization, the LOA-holder shall report the incident to OPR, NMFS and to the regional stranding network as soon as feasible. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Species identification (if known) or description of the animal(s) involved;
- Vessel's speed during and leading up to the incident;
- Vessel's course/heading and what operations were being conducted (if applicable);
- Status of all sound sources in use;
- Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
- Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
- Estimated size and length of animal that was struck;

- Description of the behavior of the marine mammal immediately preceding and following the strike;
- If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
- Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
- To the extent practicable, photographs or video footage of the animal(s).

Actions to Minimize Additional Harm to Live-Stranded (or Milling) Marine Mammals

For deep penetration surveys, in the event of a live stranding (or near-shore atypical milling) event within 50 km of the survey operations, where the NMFS stranding network is engaged in herding or other interventions to return animals to the water, the Director of OPR, NMFS (or designee) will advise the LOA-holder of the need to implement shutdown procedures for all active acoustic sources operating within 50 km of the stranding. Shutdown procedures for live stranding or milling marine mammals include the following:

- If at any time, the marine mammals die or are euthanized, or if herding/intervention efforts are stopped, the Director of OPR, NMFS (or designee) will advise the LOA-holder that the shutdown around the animals' location is no longer needed.
- Otherwise, shutdown procedures will remain in effect until the Director of OPR, NMFS (or designee) determines and advises the LOA-holder that all live animals involved have left the area (either of their own volition or following an intervention).
- If further observations of the marine mammals indicate the potential for re-stranding, additional coordination with the LOA-holder will be required to determine what measures are necessary to minimize that likelihood (*e.g.*, extending the shutdown or moving operations farther away) and to implement those measures as appropriate.

Shutdown procedures are not related to the investigation of the cause of the stranding and their implementation is not intended to imply that the specified activity is the cause of the stranding. Rather, shutdown procedures are intended to protect marine mammals exhibiting indicators of distress by minimizing their exposure to possible additional stressors, regardless of the factors that contributed to the stranding.

Additional Information Requests – If NMFS determines that the circumstances of any marine mammal stranding found in the vicinity of the activity suggest investigation of the association with survey activities is warranted (example circumstances noted below), and an investigation into the stranding is being pursued, NMFS will submit a written request to the LOA-holder indicating that the following initial available information must be provided as soon as possible, but no later than 7 business days after the request for information.

- Status of all sound source use in the 48 hours preceding the estimated time of stranding and within 50 km of the discovery/notification of the stranding by NMFS; and
- If available, description of the behavior of any marine mammal(s) observed preceding (*i.e.*, within 48 hours and 50 km) and immediately after the discovery of the stranding.

Examples of circumstances that could trigger the additional information request include, but are not limited to, the following:

- Atypical nearshore milling events of live cetaceans;
- Mass strandings of cetaceans (two or more individuals, not including cow/calf pairs);
- Beaked whale strandings; or,
- Necropsies with findings of pathologies that are unusual for the species or area.

In the event that the investigation is still inconclusive, the investigation of the association of the survey activities is still warranted, and the investigation is still being pursued, NMFS may provide additional information requests, in writing, regarding the nature and location of survey operations prior to the time period above.

Negligible Impact Analysis and Determinations

NMFS' implementing regulations define negligible impact 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 (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base a negligible impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" by mortality, serious injury, and Level A or Level B harassment, we consider other factors, such as the type of take, the likely nature of any behavioral responses (*e.g.*, intensity, duration), the context of any such responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338, September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into these analyses via their impacts on the baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality).

For each potential activity-related stressor, NMFS considers the potential effects to marine mammals and the likely significance of those effects to the species or stock as a whole. Potential risk due to vessel collision in view of the related mitigation measures, as

well as potential risk due to entanglement and contaminant spills, were addressed in the **Mitigation** section and in the Potential Effects of the Specified Activity on Marine Mammals section of the notice of proposed rulemaking (91 FR 9014, February 24, 2026), respectively, and are not discussed further, as there are minimal risks expected from these potential stressors.

The "specified activity" for this rule continues to be a broad program of geophysical survey activity that could occur at any time of year in U.S. waters of the GOA, within the same specified geographical region as the 2021 final rule (*i.e.*, U.S. waters of the GOA, excluding the former GOMESA leasing moratorium area). We rely upon the acoustic exposure modeling developed to support the 2021 final rule and ITRs, as updated for the 2024 corrective rule, which provides marine mammal noise exposure estimates based on projections of future survey effort and best available modeling of sound propagation, animal distribution, and animal movement. This information provides a best estimate of potential acute noise exposure events that may result from the described suite of activities.

Overview of Negligible Impact Analysis – In recognition of the broad geographic and temporal scale of this activity, we again apply an analytical methodology through which an explicit, systematic risk assessment framework is used to evaluate potential effects of aggregated discrete acoustic exposure events (*i.e.*, geophysical survey activities) on marine mammals, which is in turn used in the negligible impact analysis. This risk assessment framework was described by Southall *et al.* (2017) (available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-oil-and-gas*) and applied in support of the 2021 rule.

The systematic risk assessment framework uses the modeling results to put into biologically-relevant context the level of potential risk of injury and/or behavioral impacts to marine mammals. The framework considers both the aggregation of acute

effects and the broad temporal and spatial scales over which chronic effects may occur. Generally, this approach is a relativistic risk assessment that provides an interpretation of the exposure estimates within the context of key biological and population parameters (*e.g.*, population size, life history factors, compensatory ability of the species, animal behavioral state, aversion), as well as other biological, environmental, and anthropogenic factors. This analysis was performed on a species-specific basis within each modeling zone (figure 1), and the end result provides an indication of the biological significance of the evaluated exposure numbers for each affected marine mammal stock (*i.e.*, yielding the severity of impact and vulnerability of stock/population information), and forecasts the likelihood of any such impact. This result is expressed as relative impact ratings of overall risk that couple (1) potential severity of effect on a stock, and (2) likely vulnerability of the population to the consequences of those effects, given biologically relevant information (*e.g.*, compensatory ability).

Spectral, temporal, and spatial overlaps between survey activities and animal distribution/hearing sensitivity are the primary factors that drive the type, magnitude, and severity of potential effects on marine mammals, and these considerations are integrated into both the severity and vulnerability assessments. The risk assessment framework utilizes a strategic approach to balance the weight of these considerations between the two assessments, specifying and clarifying where and how the interactions between potential disturbance and species within these dimensions are evaluated.

This risk assessment framework is one component of the negligible impact analysis. As we explain more below, overall risk ratings from the risk assessment are then considered in conjunction with the required mitigation and any additional relevant contextual information such as the nature of the takes to ultimately inform our negligible impact determinations. Elements of this approach are subjective and relative within the

context of this program of projected survey activity and, overall, the analysis necessarily requires the application of professional judgment.

Our negligible impact analyses begin with the risk assessment framework, which comprehensively considers the aggregate impacts to marine mammal populations from the specified activities in the context of both the severity of the impacts and the vulnerability of the affected species. However, it does not consider the effects of the mitigation required through the regulations in identifying risk ratings for the affected species. In addition, while the risk assessment framework comprehensively considers the spatial and temporal overlay of the activities and the marine mammals in the GOA, as well as the number of predicted takes, there are details about the nature of any "take" anticipated to result from these activities that were not considered directly in the framework analysis that warrant explicit consideration in the negligible impact determination.

Accordingly, following the description of the framework analysis presented below, NMFS highlights a few factors regarding the nature of the predicted "takes," then synthesizes the results of implementation of the framework, the additional factors regarding the nature of the predicted takes, and the anticipated effects of the mitigation to consider the negligible impact determination for each of the species considered here. The risk assessment analysis below is performed for 2 representative years, one representing a relatively high-effort scenario (Year 1 of the effective period of rule) and the other representing a moderate-effort scenario (Year 4 of the rule). Please see table 1 for details regarding level of effort projections.

Risk Assessment Framework: Severity of Effect

Severity ratings consider the scaled Level B harassment takes relative to zone-specific population abundance to evaluate the severity of effect. As described above in **Estimated Take**, a significant model assumption was that populations of animals were

reset for each 24-hour period. Exposure estimates for the 24-hour period were then aggregated across all assumed survey days as completely independent events, assuming populations turn over completely within each large zone on a daily basis. In order to evaluate modeled daily exposures and determine more realistic exposure probabilities for individuals across multiple days, we used information on species-typical movement behavior to determine a species-typical offset of modeled daily exposures, described under **Estimated Take**. Given that many of the evaluated survey activities occur for 30-day or longer periods, particularly some of the larger surveys for which the majority of the modeled exposures occur, this scaling process is appropriate to evaluate the likely severity of the predicted exposures (although, for surveys significantly longer than 30 days, the take numbers with this scaling applied would still be expected to overestimate the number of individuals, given the greater degree of repeat exposures that would be expected the longer the survey goes on). This scaling output was used in a severity assessment. This approach is also discussed in more detail in the Southall *et al.* (2017) report.

The scaled Level B harassment takes were then rated through a population-dependent binning system. For each species, scaled takes were divided by the zone-specific predicted abundance, and these proportions were used to evaluate the relative severity of modeled exposures based on the distribution of values across species to evaluate risk associated with behavioral disruption across species—a simple, logical means of evaluating relative risk across species and areas. Relative risk ratings using percent of area population size were defined as follows:

- Very high – Adjusted Level B harassment takes greater than 800 percent of zone-specific population;
- High – Adjusted Level B harassment takes 401-800 percent of zone-specific population;

- Moderate – Adjusted Level B harassment takes 201-400 percent of zone-specific population;
- Low – Adjusted Level B harassment takes 100-200 percent of zone-specific population; and
- Very low – Adjusted Level B harassment takes less than 100 percent of zone-specific population.

Results of the severity ratings are shown in table 9. Level A harassment (including PTS) is not expected to occur for any of the species evaluated here, with the exception of *Kogia* spp. Estimated takes by Level A harassment for *Kogia* spp. are discussed in further detail in the species-specific sections below.

Table 9 -- Severity Assessment Rating

Species	Zone 1[1]		Zone 2		Zone 3		Zone 4[1]		Zone 5		Zone 6		Zone 7	
	H	M	H	M	H	M	H	M	H	M	H	M	H	M
Rice's whale	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	n/a	n/a
Sperm whale	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	M	L	L	L
Kogia spp.	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	M	M	L	L	VL
Beaked whales	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	VH	VH	VL	VL	VL	VL
Rough-toothed dolphin	VL	VL	L	M	VL	VL	VL	VL	H	H	M	L	L	L
Bottlenose dolphin	VL	VL	L	M	VL	VL	VL	VL	M	M	L	VL	n/a	n/a
Clymene dolphin	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	M	L	L	VL
Atlantic spotted dolphin	VL	VL	M	H	VL	VL	VL	VL	H	M	M	L	n/a	n/a
Pantropical spotted dolphin	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	M	L	L	VL
Spinner dolphin	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	n/a	n/a	VL	VL
Striped dolphin	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	M	L	L	VL
Fraser's dolphin	VL	VL	VL	VL	VL	VL	VL	VL	H	H	M	L	L	L
Risso's dolphin	n/a	n/a	VL	VL	n/a	n/a	VL	VL	H	M	M	L	L	VL
Short-finned pilot whale	n/a	n/a	VL	VL	VL	VL	VL	VL	H	M	M	L	VL	VL
Blackfish	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	M	L	L	L

H = Year 1 (representative high effort scenario); M = Year 4 (representative moderate effort scenario)
n/a = less than 0.05 percent of GOA-wide population predicted in zone
VL = very low; L = low; M = moderate; H = high; VH = very high

[1] No activity would occur in Zone 1, and no activity is projected in Zone 4 under the high effort scenario. With no activity in a zone, severity is assumed to be very low.

Risk Assessment Framework: Vulnerability of Affected Population

Vulnerability rating seeks to evaluate the relative risk of a predicted effect given species-typical and population-specific parameters (*e.g.*, species-specific life history, population factors) and other relevant interacting factors (*e.g.*, human or other environmental stressors). The assessment includes consideration of four categories within two overarching risk factors (species-specific biological and environmental risk factors). These values were selected to capture key aspects of the importance of spatial (geographic), spectral (frequency content of noise in relation to species-typical hearing and sound communications), and temporal relationships between sound and receivers. Explicit numerical criteria for identifying scores were specified where possible, but in some cases qualitative judgments, based on a reasonable interpretation of given aspects of the specified activity and how it relates to the species in question and the environment within the specified area, were required. The vulnerability assessment includes factors related to population status, habitat use and compensatory ability, masking, and other stressors. These factors were detailed in Southall *et al.* (2017), and species-specific ratings were updated as appropriate in the 2024 final rule. There is no new information that would change the species-specific vulnerability assessment ratings since the 2024 final rule, which are shown in table 10. Note that the effects of the DWH oil spill are accounted for through a non-noise chronic anthropogenic risk factor, while the effects to acoustic habitat and on individual animal behavior via masking are accounted for through the masking and chronic anthropogenic noise risk factors. Note that, as there are certain species-specific elements of the vulnerability assessment, we evaluated each of the four species contained within the blackfish group. For purposes of evaluating relative risk, we assume that the greatest vulnerability (assessed for melon-headed whale) applies to each species in the blackfish group.

Table 10 -- Vulnerability Assessment Ratings

Species	Zone						
	1	2	3	4	5	6	7
Rice's whale	H	H	M	H	H	H	n/a
Sperm whale	n/a	n/a	n/a	M	H	M	M
Kogia spp.	n/a	n/a	n/a	L	L	L	L
Beaked whale	n/a	n/a	n/a	L	L	L	L
Rough-toothed dolphin	L	L	L	L	L	L	L
Bottlenose dolphin	L	L	L	VL	L	VL	n/a
Clymene dolphin	n/a	n/a	n/a	L	L	L	L
Atlantic spotted dolphin	M	M	L	L	L	L	n/a
Pantropical spotted dolphin	n/a	n/a	n/a	L	L	L	L
Spinner dolphin	n/a	n/a	n/a	L	L	n/a	L
Striped dolphin	n/a	n/a	n/a	L	L	L	L
Fraser's dolphin	L	L	VL	L	L	L	L
Risso's dolphin	n/a	L	n/a	M	M	M	L
Melon-headed whale	n/a	n/a	n/a	L	M	L	L
Pygmy killer whale	n/a	n/a	n/a	L	L	L	L
False killer whale	n/a	n/a	n/a	L	L	L	L
Killer whale	n/a	n/a	n/a	L	L	L	L
Short-finned pilot whale	n/a	M	L	M	M	M	L

n/a = less than 0.05% of GOA-wide population predicted in zone
VL = very low; L = low; M = moderate; H = high; VH = very high

Risk Assessment Framework: Risk Ratings

In the final step of the framework, severity and vulnerability ratings are integrated to provide relative impact ratings of overall risk, *i.e.*, relative risk ratings. Severity and vulnerability assessments each produce a numerical rating (1-5) corresponding with the qualitative rating (*i.e.*, very low, low, moderate, high, very high). A matrix is then used to integrate these two scores to provide an overall risk assessment rating for each species. The matrix is shown in table 2 of Southall *et al.* (2017).

Table 11 provides relative impact ratings for overall risk by zone and activity effort scenario (high and moderate), and table 12 provides GOA-wide relative impact ratings for overall risk for representative high and moderate effort scenarios.

Table 11 -- Overall Evaluated Risk by Zone and Activity Scenario

Species	Zone 1[1]		Zone 2		Zone 3		Zone 4[1]		Zone 5		Zone 6		Zone 7	
	H	M	H	M	H	M	H	M	H	M	H	M	H	M
Rice's whale	L	L	L	L	L	L	L	L	L	L	L	L	n/a	n/a
Sperm whale	n/a	n/a	n/a	n/a	n/a	n/a	L	L	VH	VH	M	L	L	L
Kogia spp.	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	M	M	L	L	VL
Beaked whale	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	VH	VH	VL	VL	VL	VL

Rough-toothed dolphin	VL	VL	L	M	VL	VL	VL	VL	H	H	M	L	L	L
Bottlenose dolphin	VL	VL	L	M	VL	VL	VL	VL	H	M	M	VL	n/a	n/a
Clymene dolphin	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	M	L	L	VL
Atlantic spotted dolphin	L	L	M	H	VL	VL	VL	VL	H	M	M	L	n/a	n/a
Pantropical spotted dolphin	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	M	L	L	VL
Spinner dolphin	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	n/a	n/a	VL	VL
Striped dolphin	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	M	L	L	L
Fraser's dolphin	VL	VL	VL	VL	VL	VL	VL	VL	H	H	M	L	L	L
Risso's dolphin	n/a	n/a	VL	VL	n/a	n/a	L	L	H	H	M	L	L	VL
Short-finned pilot whale	n/a	n/a	L	L	VL	VL	L	L	H	M	M	L	VL	VL
Blackfish	n/a	n/a	n/a	n/a	n/a	n/a	VL	VL	H	H	M	L	L	L

H = Year 1 (representative high effort scenario); M = Year 4 (representative moderate effort scenario)
n/a = less than 0.05 percent of GOA-wide population predicted in zone
VL = very low; L = low; M = moderate; H = high; VH = very high
[1] No activity would occur in Zone 1, and no activity is projected in Zone 4 under the high effort scenario. With no activity in a zone, severity is assumed to be very low.

Table 12 -- Overall Evaluated Risk by Projected Activity Scenario, GOA-wide

Species	High effort scenario (Year 1)	Moderate effort scenario (Year 4)
Rice's whale	Low	Low
Sperm whale	Low/Moderate[1]	Low
Kogia spp.	Low/Moderate[1]	Very Low/Low[1]
Beaked whales	Very Low	Very Low
Rough-toothed dolphin	Low	Low
Bottlenose dolphin (shelf/coastal)	Very low	Very low
Bottlenose dolphin (oceanic)	Very low	Very low
Clymene dolphin	Low/Moderate[1]	Very Low/Low[1]
Atlantic spotted dolphin	Low/Moderate[1]	Low
Pantropical spotted dolphin	Low/Moderate[1]	Very Low/Low[1]
Spinner dolphin	Very low	Very low
Striped dolphin	Low/Moderate[1]	Low

Fraser's dolphin	Very low	Very low
Risso's dolphin	Low	Low
Short-finned pilot whale	Low	Low
Blackfish	Low/Moderate	Low

[1]For these ratings, the median value across zones for the scenario fell between two ratings.

In order to characterize the relative risk for each species across their entire range in the GOA, we used the median of the seven zone-specific risk ratings for each activity scenario (high and moderate effort), not counting those in which less than 0.05 percent of the GOA-wide abundance occurred ("n/a" in table 11), to describe a GOA-wide risk rating for each of the representative activity scenarios (table 12).

Overall, the results of the risk assessment show that (as expected) risk is highly correlated with effort and density. Areas where little or no survey activity is predicted to occur or areas within which few or no animals of a particular species are believed to occur generally have very low or no potential risk of negatively affecting marine mammals, as seen across activity scenarios in Zones 1-4 (no activity will occur in Zone 1, which was entirely removed from scope of the rule, and less than 2 percent of Zone 4 remains within scope of the rule). Fewer species are expected to be present in Zones 1-3, where only bottlenose and Atlantic spotted dolphins occur in meaningful numbers. Areas with consistently high projected levels of effort (Zones 5-7) are generally predicted to have higher overall evaluated risk across all species. In Zone 7, animals are expected to be subject to less other chronic noise and non-noise stressors, which is reflected in the vulnerability scoring for that zone. Therefore, despite consistently high levels of projected effort, overall rankings for Zone 7 are lower than for Zones 5 and 6.

Zone 5 is the only zone with "very high" levels of risk due to behavioral disturbance, identified for two species of particular concern (beaked and sperm whales) due to assumed greater sensitivity to the effects of noise exposure. For sperm whales, this sensitivity is manifest through typically higher vulnerability scoring, whereas the

assumed sensitivity of beaked whales to noise exposure is expressed through the application of behavioral harassment criteria (table 4) and, therefore, relatively high estimated take numbers (note that, overall, relative risk for beaked whales is evaluated as "very low" based on "very low" relative risk ratings under both scenarios in all zones other than Zone 5). A "high" level of relative risk due to behavioral disturbance was identified in Zone 5 under both scenarios for most species (excepting Rice's whale (both scenarios) and *Kogia* spp., bottlenose dolphin, Atlantic spotted dolphin, and short-finned pilot whale (moderate effort scenario only)). Outside of Zone 5, there is no relative risk evaluated as greater than "moderate" for any species or scenario (excepting Atlantic spotted dolphin in Zone 2). Overall, the greatest relative risk across species is generally seen in Zone 5 (both scenarios) and in Zone 6 (under the high effort scenario).

When considered across both representative activity scenarios (table 12), no species is considered to have even relatively moderate risk, though several species are evaluated as having low to moderate relative risk under the high effort scenario. The rest of the species have no more than low to very low risk under either scenario. Beaked whales, shelf/coastal and oceanic bottlenose dolphin stocks, spinner dolphins, and Fraser's dolphins are assessed as having no greater than very low relative risk under any scenario.

Although the scores generated by the risk assessment framework and further aggregated across zones (as described above) are species- or guild-specific, additional stock-specific information is also considered in our analysis, where appropriate, as indicated in the **Description of Marine Mammals in the Area of the Specified Activity** and **Mitigation** sections, as well as in the Potential Effects of the Specified Activity on Marine Mammals and Their Habitat section of the proposed rule.

Duration of Level B Harassment Exposures

In order to more fully place the predicted amount of take into meaningful context, it is useful to understand the duration of exposure at or above a given level of received sound, as well as the likely number of repeated exposures across days. The accounting of Level B harassment take estimates in the risk assessment framework does not make any distinction between fleeting exposures and more severe encounters in which an animal may be exposed to that received level of sound for a longer period of time. Yet, this information is meaningful to an understanding of the likely severity of the exposure, which is relevant to the negligible impact evaluation and not directly incorporated into the risk assessment framework. Each animat modeled has a record or time history of received levels of sound over the course of the modeled 24-hour period. For example, for the four blackfish species exposed to noise from 3D WAZ surveys, the 50th percentile of the cumulative distribution function indicates that the time spent exposed to levels of sound above 160 dB rms SPL (*i.e.*, the 50 percent midpoint for Level B harassment) would range from only 1.4 to 3.3 minutes—a minimal amount of exposure carrying little potential for significant disruption of behavioral activity. We provide summary information for the species evaluated here regarding the total average time in a 24-hour period that an animal would spend with received levels above 160 dB (the threshold at which 50 percent of the exposed population is considered taken) and between 140 and 160 dB (where 10 percent of the exposed population is considered taken) in table 13.

Additionally, by comparing exposure estimates generated by multiplying 24-hour exposure estimates by the total number of survey days versus modeling for a full 30-day survey duration for six representative species, we were able to refine the exposure estimates to better reflect the number of individuals exposed above threshold within a single survey. Using this same comparison and scalar ratios described earlier, we are able to predict an average number of days that each of the representative species modeled in the test scenario will be exposed above the Level B harassment thresholds within a single

survey. As with the duration of exposures discussed above, the number of repeated exposures is important to an understanding of the severity of effects. For example, the ratio for dolphins indicates that the 30-day modeling showed that approximately 29 percent as many individual dolphins (compared to the results produced by multiplying average 24-hour exposure results by the 30-day survey duration) could be expected to be exposed above harassment thresholds. However, scaling up the 24-hour exposure estimates appropriately reflects the instances of exposure above threshold (which cannot be more than 1 in 24 hours), so the inverse of the scalar ratio suggests the average number of days in the 30-day modeling period that any given dolphin is exposed above threshold is approximately 3.5. It is important to remember that this is an average within a given survey, and that it is more likely some individuals would be exposed on fewer days and some on more. Table 13 reflects the average days exposed above threshold for the indicated species after the scalar ratios were applied.

Table 13 -- Time in Minutes (Per Day) Spent Above Thresholds (50th Percentile) and Average Number of Days Individuals Taken During 30-day Survey

Species	Survey type and time (min/day) above 160 dB rms (50% take)				Survey type and time (min/day) above 140 dB rms (10% take)				Average number of days "taken" during 30-day survey
	2D	3D NAZ	3D WAZ	Coil	2D	3D NAZ	3D WAZ	Coil	
Rice's whale	7.6	18.2	6.8	21.4	61.7	163.5	55.4	401.1	5.3
Sperm whale	5.2	10.3	4.0	20.7	12.0	31.8	10.7	25.2	2.4
Kogia spp.	3.2	7.9	2.8	15.3	7.6	19.0	6.7	13.9	3.1
Beaked whale	6.0	12.4	4.4	24.0	16.2	39.7	14.1	31.1	9.9
Rough-toothed dolphin	3.0	6.3	2.5	11.4	11.2	27.6	10.2	20.9	3.5
Bottlenose dolphin	4.5	11.7	4.0	16.8	22.0	54.6	19.7	53.2	3.5
Clymene dolphin	1.8	3.9	1.6	8.7	8.0	21.1	7.2	20.4	3.5
Atlantic spotted dolphin	7.0	16.0	6.5	25.7	23.4	58.1	20.9	49.3	3.5
Pantropical spotted dolphin	1.8	4.1	1.6	8.7	8.1	21.0	7.1	22.2	3.5
Spinner dolphin	3.2	8.5	2.7	16.4	12.4	31.0	10.8	22.8	3.5
Striped dolphin	1.8	4.0	1.6	8.5	8.0	21.0	7.2	21.3	3.5
Fraser's dolphin	2.8	6.4	2.4	13.8	9.4	24.2	8.4	24.0	3.5
Risso's dolphin	3.4	8.4	2.9	15.3	13.8	37.7	12.2	31.5	3.5
Melon-headed whale	2.6	5.9	2.2	13.1	9.3	24.2	8.3	24.0	3.4

Pygmy killer whale	1.8	3.6	1.4	7.1	7.3	18.5	6.6	17.3	3.4
False killer whale	2.4	4.9	1.9	9.3	8.8	22.0	8.0	17.8	3.4
Killer whale	2.7	6.1	3.3	12.0	16.8	46.1	14.9	73.6	3.4
Short-finned pilot whale	3.3	8.1	2.9	17.5	10.9	27.4	9.8	20.8	3.4

Loss of Hearing Sensitivity

In general, NMFS expects that noise-induced hearing loss as a result of airgun survey activity, whether temporary (temporary threshold shift, equivalent to Level B harassment) or permanent (PTS, equivalent to Level A harassment), is only possible for LF and VHF cetaceans. The best available scientific information indicates that LF cetacean species (*i.e.*, mysticete whales, including the Rice's whale) have heightened sensitivity to frequencies in the range output by airguns, as shown by their auditory weighting function, whereas VHF cetacean species (including *Kogia* spp.) have heightened sensitivity to noise in general (as shown by their lower threshold for the onset of PTS) (NMFS, 2024). However, no instances of Level A harassment are predicted to occur for Rice's whales, and none may be authorized in any LOAs issued under this rule.

Level A harassment is predicted to occur for *Kogia* spp. (as indicated in table 7). However, the degree of injury (hearing impairment) is expected to be mild. If permanent hearing impairment occurs, it is most likely that the affected animal would lose a few dB in its hearing sensitivity, which in most cases would not be expected to affect its ability to survive and reproduce. Hearing impairment that occurs for these individual animals would be limited to at or slightly above the dominant frequency of the noise sources. In particular, the predicted PTS resulting from airgun exposure is not likely to affect their echolocation performance or communication, as *Kogia* spp. likely produce acoustic signals at frequencies above 100 kHz (Merkens *et al.*, 2018), well above the frequency range of airgun noise. Further, modeled exceedance of Level A harassment criteria typically resulted from being near an individual source once, rather than accumulating energy from multiple sources. Overall, the modeling indicated that exceeding the SEL

threshold for PTS is a rare event, and having 4 vessels close to each other (350 m between tracks) did not cause appreciable accumulation of energy at the ranges relevant for injury exposures. Accumulation of energy from independent surveys is expected to be negligible. This is relevant for *Kogia* spp. because based on their expected sensitivity, we expect that aversion may play a stronger role in avoiding exposures above the peak pressure PTS threshold than we have accounted for.

Some subset of the individual marine mammals predicted to be taken by Level B harassment may incur some TTS. For Rice's whales, TTS may occur at frequencies important for communication. However, any TTS incurred would be expected to be of a relatively small degree and short duration. This is due to the low likelihood of sound source exposures of the intensity or duration necessary to cause more severe TTS, given the fact that both sound source and marine mammals are continuously moving, the anticipated effectiveness of shutdowns, and general avoidance by marine mammals of louder sources.

For these reasons, and in conjunction with the required mitigation, NMFS does not believe that Level A harassment (here, PTS) or Level B harassment in the form of TTS will play a meaningful role in the overall degree of impact experienced by marine mammal populations as a result of the projected survey activity. Further, the impacts of any TTS incurred are addressed through the broader analysis of Level B harassment.

Impacts to Habitat

Regarding impacts to prey species such as fish and invertebrates, NMFS' review of the available information leads to a conclusion that the most likely impact of survey activity on prey would be temporary avoidance of an area, with a rapid return to pre-survey distribution and behavior, and minimal impacts to recruitment or survival anticipated. Therefore, the specified activities are not likely to have more than short-term adverse effects on any prey habitat or populations of prey species. Further, any impacts to

prey species are not expected to result in significant or long-term consequences for individual marine mammals, or to contribute to adverse impacts on their populations.

Regarding potential impacts to acoustic habitat, NMFS provided a detailed analysis of potential cumulative and chronic effects to marine mammals (found in the Cumulative and Chronic Effects report, available online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-america*). See also 83 FR 29212, 29242 (June 22, 2018) for detailed discussion of this analysis. That analysis focused on potential effects to the acoustic habitat of sperm whales and Rice's whales via an assessment of listening and communication space. The analysis performed for sperm whales (which provides a useful proxy for other HF and VHF cetaceans evaluated here) shows that the survey activities do not significantly contribute to the soundscape in the frequency band relevant for their lower-frequency slow-clicks and that there will be no significant change in communication space for sperm whales. Similar conclusions may be assumed for other HF and VHF cetacean species.

Implications for acoustic masking and reduced communication space resulting from noise produced by airgun surveys in the GOA are expected to be particularly heightened for animals that actively produce low-frequency sounds or whose hearing is attuned to lower frequencies (*i.e.*, Rice's whales). The strength of the communication space approach used here is that it evaluates potential contractions in the availability of a signal of documented importance. In this case, losses of communication space for Rice's whales were estimated to be higher in western and central GOA canyons and shelf break areas. In contrast, relative maintenance of listening area and communication space was seen within the Rice's whale core habitat area in the northeastern GOA. The result was heavily influenced by the projected lack of survey activity in that region, which underscores the importance of maintaining the acoustic soundscape of this important

habitat for the Rice's whale. However, no survey activity will occur under this rule within the Rice's whale core habitat area or within the broader eastern GOA (see figure 1). In deepwater areas where larger amounts of survey activity were projected, significant loss of low-frequency listening area and communication space was predicted by the model, but this finding was discounted because Rice's whales are unlikely to occur in deeper waters of the central and western GOA.

Species-specific Negligible Impact Analysis Summaries

In this section, we consider the relative impact ratings from the risk assessment framework described above in conjunction with the required mitigation and other relevant contextual information in order to produce a final assessment of impact to the species or stocks, *i.e.*, the negligible impact determinations. The effects of the DWH oil spill are accounted for through the risk assessment framework vulnerability scoring (table 10).

Although Rice's whale core habitat in the northeastern GOA is not the subject of restrictions on survey activity, as the scope of the specified activity does not include the area (see figure 1), the beneficial effect for the species remains the same. The absence of survey activity in the eastern GOA benefits GOA marine mammals by reducing the portion of a stock likely exposed to survey noise and avoiding impacts to certain species in areas of importance for them. Habitat areas of importance in the eastern GOA were discussed in detail in the Proposed Mitigation section of the 2018 notice of proposed rulemaking.

Rice's Whale

The risk assessment analysis, which evaluated the relative significance of the aggregated impacts of the survey activities across seven GOA zones in the context of the vulnerability of each species, concluded that the GOA-wide risk ratings for Rice's whales are low, regardless of activity scenario. We note that, although the evaluated severity of

take for Rice's whales is very low in all zones where take could occur, vulnerability for the species is assessed as high in 5 of the 6 zones where the species occurs (vulnerability is assessed as moderate in Zone 3, where less than 1 percent of GOA-wide abundance is predicted to occur). When integrated through the risk framework described above, overall risk for the species is therefore assessed as low for both the high and moderate effort scenarios. In the context of relatively low predicted take numbers, the relative risk ratings for the species are driven by the assessed vulnerability.

We further consider the likely severity of any predicted behavioral disruption of Rice's whales in the context of the likely duration of exposure above Level B harassment thresholds. Specifically, the average modeled time per day spent at received levels above 160 dB rms (the threshold at which 50 percent of the exposed population is considered taken) ranges from 6.8 to 21.4 minutes for deep penetration survey types. The average time spent exposed to received levels between 140 and 160 dB rms (where 10 percent of the exposed population is considered taken) ranges from 55 to 164 minutes for 2D, 3D NAZ, and 3D WAZ surveys, and 401 minutes for coil surveys (which comprise approximately 10 percent of the total activity days).

Importantly, no survey activity will occur within the eastern GOA pursuant to this rule. Although there is evidence of Rice's whale occurrence in the central and western GOA from passive acoustic detections (Soldevilla *et al.*, 2022; 2024), the highest densities of Rice's whales remain confined to the northeastern GOA core habitat. Moreover, the number of individuals that occur in the central and western GOA and nature of their use of this area is poorly understood. Soldevilla *et al*. (2022) suggest that more than one individual was present on at least one occasion, as overlapping calls of different call subtypes were recorded in that instance, but also state that call detection rates suggest that either multiple individuals are typically calling or that individual whales are producing calls at higher rates in the central/western GOA. Soldevilla *et al.*

(2024) provide further evidence that Rice's whale habitat encompasses all 100-400 m depth waters encircling the entire GOA (including Mexican waters), but they also note that further research is needed to understand the density of whales in these areas, seasonal changes in whale density, and other aspects of habitat usage.

This new information does not affect the prior conclusion that the absence of survey activity in the eastern GOA benefits Rice's whales and their habitat by minimizing a range of potential effects of airgun noise, both acute and chronic, that could otherwise accrue to impact the reproduction or survival of individuals in this area, and that the absence of survey activity in the eastern GOA will minimize disturbance of the species in the place most important to them for critical behaviors such as foraging and socialization. The absence of survey activity in this area and significant reduction in associated exposures of Rice's whales to seismic airgun noise is expected to eliminate the likelihood of auditory injury of Rice's whales. Finally, the absence of survey activity in the eastern GOA will reduce chronic exposure of Rice's whales to higher levels of anthropogenic sound and the associated effects including masking, disruption of acoustic habitat, long-term changes in behavior such as vocalization, and stress.

As described in the preceding *Loss of Hearing Sensitivity* section, we have analyzed the likely impacts of potential temporary hearing impairment and do not expect that they would result in impacts on reproduction or survival of any individuals. The extended shutdown zone for Rice's whales (1,500 m)—to be implemented in the unlikely event that a Rice's whale is encountered at that distance—is expected to further minimize the severity of any hearing impairment incurred as well as reduce the likelihood of more severe behavioral responses.

No mortality of Rice's whales is anticipated or authorized. It is possible that Rice's whale individuals, if encountered, will be taken briefly by Level B harassment on one or more days during a year of activity by one type of survey or another and some

subset of those exposures above thresholds may be of comparatively long duration within a day. However, the amount of take is low (annual average of 26 incidents, with a maximum in any year of 30), and the significant and critical functional protection afforded through the absence of survey activity in the species' northeastern GOA core habitat and the extended shutdown requirement means that the impacts of the expected takes from these activities are not likely to impact the reproduction or survival of any individual Rice's whales, much less adversely affect the species through impacts on annual rates of recruitment or survival. Accordingly, we conclude the taking from the specified activity will have a negligible impact on Rice's whales as a species.

Sperm Whale

The risk assessment analysis, which evaluated the relative significance of the aggregated impacts of the survey activities across seven GOA zones in the context of the vulnerability of each species, concluded that the GOA-wide risk ratings for sperm whales were between moderate and low (equivalent to a 2.5 on a 5-point scale, with a 3 equating to "moderate") (for the high effort scenario) or low (for the moderate effort scenario). We further consider the likely severity of any predicted behavioral disruption of sperm whales in the context of the likely duration of exposure above Level B harassment thresholds. Specifically, the average modeled time per day spent at received levels above 160 dB rms (where 50 percent of the exposed population is considered taken) ranges from 4 to 10.3 minutes for 2D, 3D NAZ, and 3D WAZ surveys and up to 20.7 minutes for coil surveys (which comprise less than 10 percent of the total projected activity days) and the average time spent between 140 and 160 dB rms (where 10 percent of the exposed population is considered taken) is 12 to 31.8 minutes.

Odontocetes echolocate to find prey, and while there are many different strategies for hunting, one common pattern, especially for deeper-diving species, is to conduct multiple repeated deep dives within a feeding bout, and multiple bouts within a day, to

find and catch prey. While exposures of the short durations noted above could potentially interrupt a dive or cause an individual to relocate to feed, such a short-duration interruption would typically be unlikely to have significant impacts on an individual's energy budget and, further, for these species and this open-ocean area, there are no specific known reasons (*i.e.*, these species range GOA-wide beyond the continental slope and there are no known BIAs) to expect that there would not be adequate alternate feeding areas relatively nearby, especially considering the anticipated absence of survey activity in the eastern GOA. Importantly, the absence of survey activity in the eastern GOA will reduce disturbance of sperm whales in places of importance to them for critical behaviors such as foraging and socialization and, overall, help to reduce impacts to the species as a whole.

Additionally, we note that the extended distance shutdown zone for sperm whales (1,500 m) is expected to further reduce the likelihood of, and minimize the severity of, more severe behavioral responses. Similarly, application of this extended distance shutdown requirement when calves are present will minimize the potential for and degree of disturbance during this sensitive life stage.

No mortality or Level A harassment of sperm whales is anticipated or authorized. While it is likely that the majority of the individual sperm whales will be impacted briefly on one or more days during a year of activity by one type of survey or another, based on the nature of the individual exposures and takes, as well as the aggregated scale of the impacts across the GOA, and in consideration of the mitigation discussed here, the impacts of the expected takes from these activities are not likely to impact the reproduction or survival of any individuals, much less adversely affect the GOA stock of sperm whales through impacts on annual rates of recruitment or survival. Accordingly, we conclude the taking from the specified activity will have a negligible impact on the GOA stock of sperm whales.

Beaked Whales

In consideration of the similarities in the nature and scale of impacts, we consider the GOA stocks of the goose-beaked whale and Gervais' and Blainville's beaked whales together in this section. The risk assessment analysis, which evaluated the relative significance of the aggregated impacts of the survey activities across seven GOA zones in the context of the vulnerability of each species, concluded that the GOA-wide risk ratings for beaked whales were very low for both effort scenarios. We further consider the likely severity of any predicted behavioral disruption of beaked whales in the context of the likely duration of exposure above Level B harassment thresholds. Beaked whales are considered more behaviorally sensitive to sound than most other species, and therefore we utilize different thresholds to predict behavioral disturbance. This means that beaked whales are evaluated as "taken" upon exposure to received sound levels as low as 120 dB (where 50 percent of the exposed beaked whale population is considered taken). These received levels are typically reached at extreme distance from the acoustic source (*i.e.*, greater than 50 km from the source). Behavioral responses to noise are significantly correlated with distance from the source (*e.g.*, Gomez *et al.*, 2016); thus potential responses to these relatively low received levels at such great distances, while evaluated here as take under the MMPA, are unlikely to result in any response of such a severity as to carry any cost to the animal (additionally, in certain circumstances, noise from the surveys at these distances may be indistinguishable from other low-frequency background noise). Therefore, as for other species, we consider only the average modeled time per day spent at received levels above 140 dB rms (where 90 percent of the exposed beaked whale populations are considered taken) and 160 dB rms (where, potentially, all exposed beaked whales are taken). Specifically, the average modeled time per day spent at received levels above 160 dB rms ranges from 6 to 12.4 minutes for 2D, 3D NAZ, and 3D WAZ surveys and up to 24 minutes for coil surveys (which comprise less than 10

percent of the total projected activity days), and the average time spent between 140 and 160 dB rms is 14.1 to 16.2 minutes for 3D WAZ and 2D surveys, 31.1 minutes for coil surveys, and 39.7 minutes for 3D NAZ surveys.

Odontocetes echolocate to find prey, and while there are many different strategies for hunting, one common pattern, especially for deeper-diving species, is to conduct multiple repeated deep dives within a feeding bout, and multiple bouts within a day, to find and catch prey. While some of the exposures of the durations noted above could interrupt a dive or cause an individual to relocate to feed because of the lower thresholds combined with the way exposures are distributed across received levels, a higher proportion of the total takes (as compared to other taxa) are at the lower end of the received levels at which take would be expected to occur and at great distance from the acoustic source, where responses (if any) should be assumed to be minor. All else being equal, exposures to lower received levels and, separately, at greater distances might be expected to result in less severe responses, even given longer durations (*e.g.*, DeRuiter *et al.*, 2013). Considered individually or infrequently, these sorts of feeding interruptions would be unlikely to have significant impacts on an individual's energy budget and, further, for these species and this open-ocean area, there are no specific known reasons (*i.e.*, these species range GOA-wide beyond the continental slope and there are no known BIAs) to expect that there would not be adequate alternate feeding areas relatively nearby, especially considering the anticipated absence of survey activity in the eastern GOA. Importantly, the absence of survey activity in the eastern GOA will reduce disturbance of beaked whales in places of importance to them for critical behaviors such as foraging and socialization and, overall, help to reduce impacts to the species as a whole.

Additionally, we note that the extended distance shutdown zone for beaked whales (1,500 m) is expected to further reduce the likelihood of, and minimize the severity of, more severe behavioral responses.

Of note, due to their pelagic distribution, typical high availability bias due to deep-diving behavior and cryptic nature when at the surface, beaked whales are rarely sighted during at-sea surveys and difficult to distinguish between species when visually observed in the field. Accordingly, abundance estimates in NMFS SARs are recorded for *Mesoplodon* spp. (and, separately, for the goose-beaked whale). Available sightings data, including often unresolved sightings of beaked whales, must be combined in order to develop habitat-based density models for beaked whales, as were used to inform our acoustic exposure modeling effort. Therefore, density and take estimates in this rule are similarly lumped for the three species of beaked whales, and there is no additional information by which NMFS could appropriately apportion impacts other than equally/proportionally across the three species.

No mortality or Level A harassment of any of these three species of beaked whales is anticipated or authorized. While it is likely that the majority of the individuals of these three species will be impacted briefly on one or more days during a year of activity by one type of survey or another, based on the nature of the individual exposures and takes, as well as the aggregated scale of the impacts across the GOA, and in consideration of the mitigation discussed here, the impacts of the expected takes from these activities are not likely to impact the reproduction or survival of any individuals, much less adversely affect the GOA stocks of goose-beaked whale or Gervais' or Blainville's beaked whales through impacts on annual rates of recruitment or survival. Accordingly, we conclude the taking from the specified activity will have a negligible impact on GOA stocks of beaked whales.

Kogia spp.

The risk assessment analysis, which evaluated the relative significance of the aggregated impacts of the survey activities across seven GOA zones in the context of the vulnerability of each species, concluded that the GOA-wide risk ratings for *Kogia* spp. were between low and moderate (for the high effort scenario) and between very low and low (for the moderate effort scenario). We further consider the likely severity of any predicted behavioral disruption of *Kogia* spp. in the context of the likely duration of exposure above Level B harassment thresholds. Specifically, the average modeled time per day spent at received levels above 160 dB rms (where 50 percent of the exposed population is considered taken) ranges from 2.8 to 7.9 minutes for 2D, 3D NAZ, and 3D WAZ surveys and up to 15.3 minutes for coil surveys (which comprise less than 10 percent of the total projected activity days), and the average time spent between 140 and 160 dB rms (where 10 percent of the exposed population is considered taken) is 6.7 to 19 minutes.

Odontocetes echolocate to find prey, and while there are many different strategies for hunting, one common pattern, especially for deeper diving species, is to conduct multiple repeated deep dives within a feeding bout, and multiple bouts within a day, to find and catch prey. While exposures of the short durations noted above could potentially interrupt a dive or cause an individual to relocate to feed, such a short-duration interruption would be unlikely to have significant impacts on an individual's energy budget and, further, for these species and this open-ocean area, there are no specific known reasons (*i.e.*, these species range GOA-wide beyond the continental slope and there are no known biologically important areas) to expect that there would not be adequate alternate feeding areas relatively nearby, especially considering the anticipated absence of survey activity in the eastern GOA. Importantly, the absence of survey activity in the eastern GOA will reduce disturbance of *Kogia* spp. in places of importance

to them for critical behaviors such as foraging and socialization and, overall, help to reduce impacts to the species as a whole.

NMFS has analyzed the likely impacts of potential hearing impairment, including the estimated upper bounds of auditory injury (Level A harassment) that could be authorized under the rule and do not expect that they would result in impacts on reproduction or survival of any individuals. As described in the previous section, the degree of injury for individuals would be expected to be mild, and the predicted PTS resulting from airgun exposure is not likely to affect echolocation performance or communication for *Kogia* spp. Additionally, the extended distance shutdown zone for *Kogia* spp. (1,500 m) is expected to further minimize the severity of any hearing impairment incurred and also to further reduce the likelihood of, and minimize the severity of, more severe behavioral responses.

Of note, due to their pelagic distribution, small size, and cryptic behavior, pygmy sperm whales and dwarf sperm whales are rarely sighted during at-sea surveys and difficult to distinguish when visually observed in the field. Accordingly, abundance estimates in NMFS SARs are recorded for *Kogia* spp. only, density and take estimates in this rule are similarly lumped for the two species, and there is no additional information by which NMFS could appropriately apportion impacts other than equally/proportionally across the two species.

No mortality of *Kogia* spp. is anticipated or authorized. While it is likely that the majority of the individuals of these two species will be impacted briefly on one or more days during a year of activity by one type of survey or another, based on the nature of the individual exposures and takes, as well as the aggregated scale of the impacts across the GOA, and in consideration of the mitigation discussed here, the impacts of the expected takes from these activities are not likely to impact the reproduction or survival of any individuals, much less adversely affect the GOA stocks of dwarf or pygmy sperm whales

through impacts on annual rates of recruitment or survival. Accordingly, we conclude the taking from the specified activity will have a negligible impact on GOA stocks of dwarf or pygmy sperm whales.

Bottlenose Dolphins

The risk assessment analysis, which evaluated the relative significance of the aggregated impacts of the survey activities across seven GOA zones in the context of the vulnerability of each species, concluded that the GOA-wide risk ratings for both oceanic bottlenose dolphins and coastal/shelf bottlenose dolphins are very low for both scenarios. We further considered the likely severity of any predicted behavioral disruption of bottlenose dolphins in the context of the likely duration of exposure above Level B harassment thresholds. Specifically, the average modeled time per day spent at received levels above 160 dB rms (where 50 percent of the exposed population is considered taken) ranges from 4 to 11.7 minutes for 2D, 3D NAZ, and 3D WAZ surveys and up to 16.8 minutes for coil surveys (which comprise less than 10 percent of the total projected activity days) and the average time spent between 140 and 160 dB rms is 19.7 to 54.6 minutes. While exposures of the short durations noted above could potentially interrupt a dive or cause an individual to relocate to feed, such a short-duration interruption would be unlikely to have significant impacts on an individual's energy budget and, further, for this species, there are no specific known reasons (*i.e.*, the species ranges GOA-wide and there are no known BIAs for the stocks affected by this activity) to expect that there would not be adequate alternate feeding areas relatively nearby, especially considering the anticipated absence of survey activity in the eastern GOA. It is likely that the noise exposure considered herein would result in minimal significant disruption of foraging behavior and, therefore, the corresponding energetic effects would similarly be minimal.

As described earlier in this preamble, the northern coastal stock of bottlenose dolphin was particularly severely impacted by the DWH oil spill, and was additionally

affected by a recent UME. Importantly, as described in **Mitigation**, NMFS is again requiring a seasonal time-area restriction on airgun survey activity within the coastal waters where this stock is likely to be found. The closure area is expected to protect coastal bottlenose dolphins and their habitat through the alleviation or minimization of a range of potential effects of airgun noise, both acute and chronic, that could otherwise accrue to impact the reproduction or survival of individuals in this area. The timing of the restriction provides protection during the times of year thought to be most important for bottlenose dolphin calving and nursing of young. Although some sound from airguns may still propagate into the area from surveys that may occur outside of the area, exposure of bottlenose dolphins to sound levels that would result in Level B harassment will be alleviated or reduced for animals within the closure area. Any exposure to noise that may increase stress levels and exacerbate health problems in bottlenose dolphins still recovering from the effects of the DWH spill will be minimized during this important reproductive period. This mitigation results in a reduction in the scale of aggregate effects (which, among other things, suggests the comparative number of days across which individual bottlenose dolphins might be taken within a year) and associated risk assessment.

Of note, bottlenose dolphins cannot be identified to stock when visually observed in the field. Abundance estimates in NMFS' SARs are based strictly on the location where animals are observed, and available sightings data must be combined in order to develop habitat-based density models for bottlenose dolphins, as were used to inform our acoustic exposure modeling effort. Density estimates used in this rule are provided for bottlenose dolphins GOA-wide for shelf/coastal bottlenose dolphins and, separately, for oceanic dolphins (estimated take numbers provided in tables 7 and 8 are aggregated for the species GOA-wide). Based on NMFS' stock delineations, we assume that dolphins occurring within Zones 4-7 would be from the oceanic stock, while dolphins occurring

within Zones 2-3 would be from the shelf stock and/or coastal stocks (the eastern coastal stock is assumed to occur only in Zone 1 and is therefore excluded from this analysis). Therefore, for the oceanic stock, we are able to draw stock-specific conclusions in this analysis. For coastal/shelf stocks, there is no additional information by which NMFS could appropriately apportion impacts other than equally/proportionally across the stocks, with the exception of predicting reduced impacts to the northern coastal stock as described above.

No mortality or Level A harassment of bottlenose dolphins is anticipated or authorized. While it is likely that the majority of individual dolphins may be impacted briefly on one or more days during a year of activity by one type of survey or another, based on the nature of the individual exposures and takes, as well as the aggregated scale of the impacts across the GOA, and in consideration of the mitigation discussed here, the impacts of the expected takes from these activities are not likely to impact the reproduction or survival of any individuals, much less adversely affect any GOA stocks of bottlenose dolphins through impacts on annual rates of recruitment or survival. Accordingly, we conclude the taking from the specified activity will have a negligible impact on GOA stocks of bottlenose dolphin, including the oceanic, continental shelf, and western and northern coastal stocks.

Other Stocks

In consideration of the similarities in the nature and scale of impacts, we consider the GOA stocks of the following species together in this section: rough-toothed dolphin, Clymene dolphin, Atlantic spotted dolphin, pantropical spotted dolphin, striped dolphin, spinner dolphin, Fraser's dolphin, Risso's dolphin, melon-headed whale, pygmy killer whale, false killer whale, killer whale, and short-finned pilot whale.

The risk assessment analysis, which evaluated the relative significance of the aggregated impacts of the survey activities across seven GOA zones in the context of the

vulnerability of each species, concluded that the GOA-wide risk ratings for high and moderate effort scenarios ranged from very low to between low and moderate for these species.

We further considered the likely severity of any predicted behavioral disruption of the individuals of these species in the context of the likely duration of exposure above Level B harassment thresholds. Specifically, the average modeled time per day spent at received levels above 160 dB rms (where 50 percent of the exposed population is considered taken) ranges from 1.4 to 11.7 minutes for 2D, 3D NAZ, and 3D WAZ surveys and up to 25.7 minutes for coil surveys (which comprise less than 10 percent of the total projected activity days). The average time per day spent between 140 and 160 dB rms for individuals that are taken is from 8 to 58.1 minutes, with the one exception of killer whales exposed to noise from coil surveys, which average 73.6 minutes (though we note that the overall risk rating for the blackfish group, including killer whales, is low).

Odontocetes echolocate to find prey, and there are many different strategies for hunting. One common pattern for deeper-diving species is to conduct multiple repeated deep dives within a feeding bout, and multiple bouts within a day, to find and catch prey. While exposures of the shorter durations noted above could potentially interrupt a dive or cause an individual to relocate to feed, such a short-duration interruption would be unlikely to have significant impacts on an individual's energy budget and, further, for these species and this open-ocean area, there are no specific known reasons (*i.e.*, these species range GOA-wide beyond the continental slope (or, for Atlantic spotted dolphin, in coastal and shelf waters) and there are no known biologically important areas) to expect that there would not be adequate alternate feeding areas relatively nearby, especially considering the anticipated absence of survey activity in the eastern GOA. For those species that are more shallow feeding species, it is likely that the noise exposure

considered herein would result in minimal significant disruption of foraging behavior and, therefore, the corresponding energetic effects would similarly be minimal.

Of note, the Atlantic spotted dolphin is expected to benefit (via lessening of both number and severity of takes) from the coastal waters time-area restriction developed to benefit bottlenose dolphins, and several additional species can be expected to benefit from the absence of survey activity in important eastern GOA habitat.

No mortality or Level A harassment of these species is anticipated or authorized. It is likely that the majority of the individuals of these species will be impacted briefly on one or more days during a year of activity by one type of survey or another. Based on the nature of the individual exposures and takes, as well as the very low to low aggregated scale of the impacts across the GOA and considering the mitigation discussed here, the impacts of the expected takes from these activities are not likely to impact the reproduction or survival of any individuals, much less adversely affect the GOA stocks of any of these 13 species through impacts on annual rates of recruitment or survival. Accordingly, we conclude the taking from the specified activity will have a negligible impact on GOA stocks of these 13 species.

Determination

Based on the analysis contained herein of the likely effects of the specified activities on marine mammals and their habitat, and taking into consideration the implementation of the mitigation and related monitoring measures, NMFS finds that the total marine mammal take from the specified activities for the 5-year period of the regulations will have a negligible impact on all affected marine mammal species and stocks.

Small Numbers

The sections below provide an explanation of how NMFS interprets and applies the small numbers standard. Our analysis of our small numbers interpretation and

application in the 2021 final rule was conducted under the agency deference standard then in effect under *Chevron, USA, Inc. v. NRDC, Inc.*, 467 U.S. 837 (1984). In 2024, the U.S. Supreme Court overturned *Chevron* and with it the requirement to afford deference to reasonable agency interpretations of ambiguous statutory provisions, holding that courts must exercise their independent judgment in deciding whether an agency has acted within its statutory authority and determine the best reading of the statute. *Loper Bright Enters. v. Raimondo*, 603 U.S. 369, 400, 412–13 (2024). The Court acknowledged that careful attention to the judgment of the Executive Branch may help inform that inquiry. In view of the *Loper Bright* standard, we have re-examined our interpretation and application of small numbers.

What are small numbers?

The term "small numbers" appears in section 101(a)(5)(A) of the MMPA as follows:

> (i) Upon request therefor by citizens of the United States who engage in a specified activity (other than commercial fishing) within a specified geographical region, the Secretary shall allow, during periods of not more than 5 consecutive years each, the incidental, but not intentional, taking by citizens while engaging in that activity within that region of small numbers of marine mammals of a species or population stock if the Secretary, after notice (in the **Federal Register** and in newspapers of general circulation, and through appropriate electronic media, in the coastal areas that may be affected by such activity) and opportunity for public comment—
>
> (I) finds that the total of such taking during each five-year (or less) period concerned will have a negligible impact on such species or stock and will

not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses . . . and

(II) prescribes regulations setting forth—

(aa) permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for subsistence uses; and

(bb) requirements pertaining to the monitoring and reporting of such taking.

(Emphasis added.)

In addition to section 101(a)(5)(A), the MMPA as amended in 1994 includes a similar provision in section 101(a)(5)(D), which provides for the issuance of incidental take authorizations for small numbers of marine mammals without the need for regulations, effective for up to 1 year, where the taking is limited to harassment:

(i) Upon request therefor by citizens of the United States who engage in a specified activity (other than commercial fishing) within a specific geographic region, the Secretary shall authorize, for periods of not more than 1 year, subject to such conditions as the Secretary may specify, the incidental, but not intentional, taking by harassment of <u>small numbers</u> of marine mammals of a species or population stock by such citizens while engaging in that activity within that region if the Secretary finds that such harassment during each period concerned—

(I) will have a negligible impact on such species or stock, and

(II) will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses[.]

(Emphasis added.)

The MMPA does not define "small numbers." NMFS' and the U.S. Fish and Wildlife Service's 1989 implementing regulations defined small numbers as a portion of a marine mammal species or stock whose taking would have a negligible impact on that species or stock. This definition was invalidated in *Natural Resources Defense Council v. Evans*, 279 F.Supp.2d 1129 (N.D. Cal. 2003), based on the court's determination that the regulatory definition of small numbers was improperly conflated with the regulatory definition of "negligible impact," which rendered the small numbers standard superfluous. As the court observed, "the plain language indicates that small numbers is a separate requirement from negligible impact." Since that time, NMFS has not applied the definition found in its regulations. Rather, consistent with Congress' pronouncement that small numbers is not a concept that can be expressed in absolute terms (House Committee on Merchant Marine and Fisheries Report No. 97-228 (September 16, 1981)), NMFS makes its small numbers findings based on an analysis of whether the number of individuals authorized to be taken annually from a specified activity is small relative to the stock or population size. We note the definition of "small" in Webster's New Collegiate Dictionary (1981) included "having little size, esp. as compared with other similar things." See also *www.merriam-webster.com/dictionary/small* (defining "small" as "having comparatively little size"). These definitions comport with the small numbers interpretation developed by NMFS, which utilizes a proportional or relative approach. The Ninth Circuit has upheld a similar approach. See *Center for Biological Diversity v. Salazar*, 695 F.3d 893 (9th Cir. 2012). We believe this interpretation of small numbers is the best reading of the MMPA, consistent with *Loper Bright.*

While NMFS has utilized the proportional approach to "small numbers" since shortly after *Evans* was decided, until our 2018 proposed rule we had not indicated how

NMFs would draw the upper limit of small numbers and implement the concept in practice.

To maintain an interpretation of small numbers as a proportion of a species or stock that does not conflate with negligible impact, NMFS developed a simple approach that is transparent and operationally feasible. Our approach establishes equal bins corresponding to small, medium, and large proportions of the population abundance. NMFS then compares the number of individuals estimated and authorized to be taken against the best available abundance estimate for that species or stock.

It can be challenging to predict the numbers of individual marine mammals that will be taken by an activity. Many models calculate instances of take but are unable to account for repeated exposures of individual marine mammals, though the instances of take necessarily represent the upper bound of the number of individuals. In some of those cases, such as for this rule (see **Estimated Take**), we are able to generate a more refined estimate of the numbers of individuals predicted to be taken utilizing a combination of quantitative tools and qualitative information. When an acceptable estimate of the individual marine mammals taken is available,[8] the small numbers determination is based directly upon whether these estimates exceed one-third of the stock abundance. In other words, consistent with past practice, when the estimated number of individual animals taken (which may or may not be assumed as equal to the total number of takes, depending on the available information) is up to, but not greater than, one-third of the most appropriate species or stock abundance, NMFS will determine that the numbers of marine mammals taken of a species or stock are small.

Another circumstance in which NMFS considers it appropriate to make a small numbers finding is in the case of a species or stock that may potentially be taken but is

[8] We note that although NMFS' implementing regulations require applications for incidental take to include an estimate of the marine mammals to be taken, there is nothing in section 101(a)(5)(A) (or (D)) that requires NMFS to quantify or estimate numbers of marine mammals to be taken for purposes of evaluating whether the number is small. See *Center for Biological Diversity v. Salazar*, 695 F.3d 893 (9th Cir. 2012).

either rarely encountered or only expected to be taken on rare occasions. In that circumstance, one or two assumed encounters with a group of animals (meaning a group that is traveling together or aggregated, and thus exposed to a stressor at the same approximate time) should reasonably be considered small numbers, regardless of consideration of the proportion of the stock, as infrequent or rare encounters resulting in take of one or two groups should be considered small relative to the range and distribution of any stock.

In summary, when quantitative take estimates of individual marine mammals are available or inferable through consideration of additional factors, and the number of animals taken is one-third or less of the best available abundance estimate for the species or stock, NMFS considers it to be of small numbers. NMFS may also appropriately find that one or two predicted group encounters will result in small numbers of take relative to the range and distribution of a species, regardless of the estimated proportion of the abundance.

Is the small numbers standard evaluated based on total take under incidental take regulations or within the context of an individual letter of authorization?

Neither the MMPA nor NMFS' implementing regulations address whether the small numbers determination should be based upon the total annual taking for (1) all activities occurring under a specific incidental take regulation or (2) individual LOAs issued thereunder. The MMPA does not define small numbers or explain how to apply the term in either paragraph (A) or (D) of section 101(a)(5), including how to apply the term in a way that allows for consistency between those two very similar provisions in the statute. Whether to apply the small numbers finding to each individual LOA under regulations that cover multiple concurrent LOA holders was a matter of first impression for NMFS when it conducted rulemaking for the 2021 final rule.

Specifically, section 101(a)(5)(A)(i)(I) explicitly states that the negligible impact

determination for a specified activity must take into account the total taking over the 5-year period, but the small numbers language is not tied explicitly to the same language. Rather, the small numbers provision appears in section 101(a)(5)(A)(i) as a limitation on what the Secretary may allow. The regulatory vehicle for authorizing (*i.e.*, "allowing") the take of marine mammals is the LOA. In light of the ambiguities in the structure of the statute regarding application of the small numbers standard and our long-standing implementing regulations for administering section 101(a)(5)(A), including the issuance of LOAs to allow incidental take under an incidental take regulation (*see, e.g.*, 50 CFR 216.106), we have determined that, under the best reading of the statute, the small numbers finding applies to the annual take authorized per individual LOA, and not to the total annual taking for all activities potentially occurring under the incidental take regulations.

While not determinative, this per-LOA approach harmonizes section 101(a)(5)(A) with the per-IHA application of small numbers in section 101(a)(5)(D) of the MMPA[9]. The per-LOA approach also affords regulatory flexibility to utilize section 101(a)(5)(A) when there are benefits to doing so for the resource (marine mammals), the public, prospective applicants, and administrative efficiency:

- From a resource protection standpoint, it is better to conduct a comprehensive negligible impact analysis that considers all of the activities covered under the rule (versus considering them independently pursuant to individual IHAs) and ensures that the total combined taking from those activities will have a negligible impact on the affected marine mammal species or stocks and no unmitigable adverse impact on subsistence uses. Furthermore, mitigation and monitoring are more effective when considered across all activity and years covered under regulations.

[9] As the court observed in *Native Village of Chickaloon v. NMFS*, 947 F. Supp. 2d 1031, 1049 n.123 (D. Alaska 2013) "the same statutory standards apply" to incidental take authorization under both provisions.

- From an agency resource standpoint, it ultimately will save significant time and effort to cover multi-year activities under a rule instead of multiple incidental harassment authorizations (IHAs). While regulations require more analysis up front, additional public comment and internal review, and additional time to promulgate compared to a single IHA, they are effective for up to 5 years (for non-military readiness activities) and can cover multiple actors within a year. The process of issuing individual LOAs under incidental take regulations utilizes the analysis, public comment, and review that was conducted for the regulations, and takes significantly less time than it takes to issue independent IHAs.
- From an applicant standpoint, incidental take regulations offer more regulatory certainty than IHAs (5 years versus 1 year) and significant cost savings, both in time and environmental compliance analysis and documentation. This is especially true for situations like here, where multiple applicants will be applying for individual LOAs under regulations. In the case of this rule, the certainty afforded by the promulgation of a regulatory framework (*e.g.*, by using previously established take estimates, mitigation and monitoring requirements, and procedures for requesting and obtaining an LOA) is a significant benefit for prospective applicants.

NMFS' evaluation of past IHAs suggests that bundling together the activities covered by two or three IHAs that might be ideal subjects for a combined incidental take regulation (*e.g.*, for ongoing maintenance construction activities, or seismic surveys in the Arctic by different entities) may exceed the taking of small numbers of a species if NMFS were to apply the small numbers standard across all taking contemplated by the regulation in a year. In other words, if the small numbers standard is applied to the total annual taking under a rule, NMFS may not be able to make the necessary small numbers finding, which would preclude the use of section 101(a)(5)(A) for multiple activities, thereby eliminating the opportunity to derive the resource and streamlining benefits

outlined above. Also, application of the small numbers standard across the total annual taking covered by an incidental take regulation, inasmuch as prospective applicants can see that the total annual take may exceed one-third of species or stock abundance, would create an incentive for applicants to pursue individual IHAs (again, precluding the ability to gain the benefits outlined above).

Our conclusion that a "small numbers" finding is based on the estimated annual take in individual LOAs issued under a rule does not affect the negligible impact analysis for a rule, which is the biologically relevant inquiry and based on the total annual estimated taking for all activities the regulations will govern over the five-year period. Making the small numbers finding based on the estimated annual take in individual LOAs allows NMFS to take advantage of the associated administrative and environmental benefits of utilizing section 101(a)(5)(A) that would be precluded in many cases if small numbers were required to be applied to the total annual taking under the regulations. NMFS finds this method of making a small numbers determination to be the best reading of the relevant MMPA provisions.

Although this LOA-based application of small numbers may be argued as being less protective of marine mammals, NMFS disagrees. As noted previously, the small numbers standard has less biological significance as compared to the substantive and contextually-specific analysis necessary to support the negligible impact determination. The negligible impact determination is still controlling, and the maximum total annual taking that may be authorized across all LOAs under an incidental take regulation still could not exceed the overall amount analyzed for the negligible impact determination. Thus, under this option, the negligible impact analysis for the rulemaking still would have to be conducted for the time period explicitly specified in the statute (*i.e.*, up to 5 years), but the small numbers analysis would attach to the instrument itself that authorizes the taking, *i.e.*, the LOA.

How will small numbers be evaluated under this GOA rule?

In this rule, up-to-date species information is available, and sophisticated models have been used to estimate take in a manner that will allow for quantitative comparison of the take of individuals versus the best available abundance estimates for the species or stocks. Specifically, while the modeling effort utilized in the rule enumerates the estimated instances of takes that will occur across days as the result of the operation of certain survey types in certain areas, the modeling report also includes the evaluation of a test scenario that allows for a reasonable modification of those generalized take estimates to better estimate the number of individuals that will be taken within one survey. LOA applicants using modeling results from the rule to inform their applications will be able to reasonably estimate the number of marine mammal individuals taken by their activities. LOA applications that do not use the modeling provided in the rule to estimate take for their activities will need to be reviewed, and applicants will be required to ensure that their estimates adequately inform the small numbers finding. If applicants use the modeling provided by this rule to estimate take, additional review will not be deemed necessary (unless other conditions necessitating review exist, as described in the **Letters of Authorization** section). If applicants do not use the modeling provided by the rule, however, NMFS may publish a notice in the **Federal Register** soliciting public comment, if the model or inputs differ substantively from those that have been reviewed by NMFS and the public previously. The estimated take of marine mammals for each species will then be compared against the best available scientific information on species or stock abundance estimate as determined by NMFS and estimates that do not exceed one-third of that estimate will be considered small numbers.

Adaptive Management

The regulations governing the take of marine mammals incidental to geophysical survey activities contain an adaptive management component. The comprehensive

reporting requirements are designed to provide NMFS with monitoring data from the previous year to allow consideration of whether any changes are appropriate. The use of adaptive management allows NMFS to consider new information from different sources to determine (with input from the LOA-holders regarding practicability) on a regular (*e.g.*, annual or biennial) basis if mitigation or monitoring measures should be modified (including additions or deletions). Mitigation measures could be modified if new data suggest that such modifications would have a reasonable likelihood of more effectively accomplishing the goals of the mitigation and monitoring set forth herein. The adaptive management process and associated reporting requirements would serve as the basis for evaluating performance and compliance.

Under this rule, NMFS plans to continue to implement an annual adaptive management process. The foundation of the adaptive management process is the annual comprehensive reports produced by LOA-holders (or their representatives), as well as the results of any relevant research activities, including research supported voluntarily by the oil and gas industry and research supported by the Federal government. Data collection and reporting by individual LOA-holders occurs on an ongoing basis, per the terms of issued LOAs. In a given annual cycle, the comprehensive annual report will summarize and synthesize LOA-specific reports, with report development (supported through collaboration of individual LOA-holders or by their representatives) occurring for 90 days following the end of a given 1-year period. Review and revision of the report will occur within 90 days following receipt of the annual report. Any agreed-upon modifications will occur through the process for modifications and/or adaptive management described in the regulatory text following this preamble.

All reporting requirements have been complied with under the current ITRs to date. Annual reports compiled by industry trade associations in order to comply with the comprehensive reporting requirements, as well as the LOA-specific reports upon which

they are based, are available online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-america*.

Monitoring Contribution through Other Research

NMFS' MMPA implementing regulations require that applicants for incidental take authorizations describe the suggested means of coordinating research opportunities, plans, and activities relating to reducing incidental taking and evaluating its effects (50 CFR 216.104 (a)(14)). Such coordination can serve as an effective supplement to the monitoring and reporting required pursuant to issued LOAs and/or incidental take regulations. NMFS expects that relevant research efforts will inform the annual adaptive management process described above, and that levels and types of research efforts will change from year to year in response to identified needs and evolutions in knowledge, emerging trends in the economy and available funding, and available scientific and technological resources. NMFS refers the reader to the Joint Industry Program (JIP) website (*https://www.soundandmarinelife.org*), which hosts a database of available products funded partially or fully through the JIP, and to BOEM's Environmental Studies Program (ESP), which develops, funds, and manages scientific research to inform policy decisions regarding outer continental shelf resource development (*https://www.boem.gov/studies*).

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by these actions. Therefore, NMFS has determined that the total taking of affected species or stocks will not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act (ESA)

Section 7 of the ESA generally requires Federal agencies to insure that their actions are not likely to jeopardize the continued existence of endangered or threatened

species or adversely modify or destroy their designated critical habitat. Federal agencies must consult with NMFS for actions that may affect such species under NMFS' jurisdiction or critical habitat designated for such species. At the conclusion of consultation, the consulting agency provides an opinion stating whether the Federal agency's action is likely to jeopardize the continued existence of ESA-listed species or destroy or adversely modify designated critical habitat.

NMFS issued a biological opinion (BiOp) in May 2025 for federally regulated oil and gas program activities in the GOA, including NMFS' issuance of the 2021 ITRs and subsequent LOAs (as well as all BOEM and Bureau of Safety and Environmental Enforcement (BSEE) approvals of activities associated with the Outer Continental Shelf (OCS) oil and gas program in the GOA), which superseded and replaced all prior BiOps on that action. On January 23, 2026, the U.S. District Court for the Western District of Louisiana found certain aspects of the 2025 BiOp to be unlawful and remanded it for NMFS to fix the identified errors. However, the court did not vacate the 2025 BiOp and the identified deficiencies were not related to NMFS' MMPA action here. On March 31, 2026, the Endangered Species Committee granted an exemption for all federally regulated oil and gas activities in the GOA pursuant to section 7(h) of the ESA. See *https://www.doi.gov/endangered-species-committee*. Section 7(h) enables the Committee to consider and grant an exemption from the requirements for ESA consultation. In this instance, the Secretary of War requested an exemption for reasons of national security under section 7(j) of the ESA. The March 31, 2026, exemption order encompasses the full suite of agency actions that BOEM and BSEE identified when initiating and pursuing ESA consultation with NMFS and the Fish and Wildlife Service, including NMFS' issuance of the existing ITRs and subsequent LOAs (as well as all BOEM and BSEE approvals of activities associated with the OCS oil and gas program in the GOA). Thus, consultation is not required for this rule. Even if consultation were required, this final rule

does not contain changes to the take numbers or to the prescribed mitigation and related monitoring requirements considered in the May 2025 BiOp, and reinitiation of consultation would not be required.

National Environmental Policy Act

In 2017, BOEM produced a final PEIS to evaluate the direct, indirect, and cumulative impacts of geological and geophysical survey activities in the GOA, pursuant to requirements of NEPA. The PEIS is available online at: *https://www.boem.gov/Gulf-of-Mexico-Geological-and-Geophysical-Activities-Programmatic-EIS/*. NOAA, through NMFS, participated in preparation of the PEIS as a cooperating agency due to its legal jurisdiction and special expertise in conservation and management of marine mammals, including its authority to authorize incidental take of marine mammals under the MMPA.

In 2020, NMFS prepared a ROD: (1) to adopt BOEM's Final PEIS to support NMFS' analysis associated with issuance of incidental take authorizations pursuant to section 101(a)(5)(A) or (D) of the MMPA and the regulations governing the taking and importing of marine mammals (50 CFR Part 216); and (2) to announce and explain the basis for NMFS' decision to review and potentially issue incidental take authorizations under the MMPA on a case-by-case basis, if appropriate.

The 2017 NOAA NEPA Companion Manual required supplements to Environmental Impact Statements if (1) the agency made substantial changes in the proposed action that are relevant to environmental concerns or (2) there were significant new circumstances or information relevant to environmental issues and bearing on the proposed action or its impacts. For the 2024 final rule, NMFS considered these criteria and the criteria relied upon for the 2020 ROD to determine whether any new circumstances or information were "significant," thereby requiring supplementation of the 2017 PEIS. NMFS reevaluated its findings related to the MMPA negligible impact standard and the LPAI standard governing its regulations in light of the corrected take

estimates and other relevant new information. Based on that evaluation, NMFS reaffirmed its negligible impact determinations and determined that the existing regulations prescribed the means of effecting the LPAI on the affected species or stocks and their habitat, and therefore made no changes to the regulations. NMFS considered updated take estimates that corrected the take estimate errors and incorporated other new information, *e.g.*, modeling of a more representative airgun array and updated marine mammal density information. NMFS also consulted scientific publications from 2021 through 2024, data that were collected by the agency and other entities after the PEIS was completed, field reports, reports produced under the BOEM-funded Gulf of Mexico Marine Assessment Program for Protected Species (GoMMAPPS) project, and other sources (*e.g.*, updated NMFS SARs). In addition, NMFS considered new circumstances and information related to updated information on Rice's whales in the action area (population abundance, mortality and sources of mortality, distribution and occurrence) and any new data, analysis, or information on the effects of geophysical survey activity on marine mammals and relating to the effectiveness and practicability of measures to reduce the risk associated with impacts of such survey activity. Based on the review applying the 2017 supplementation standard and the 2020 ROD criteria, NMFS determined for its 2024 final rule that supplementation of the 2017 PEIS was not warranted.

In 2025, NOAA revised its NEPA procedures. As required by the 2025 procedures, environmental documents must be supplemented when (1) the agency makes substantial changes to the proposed activity or decision that are relevant to environmental concerns; or (2) the agency decides, in its discretion, that there are substantial new circumstances or information about the significance of the adverse effects that bear on the proposed activity or decision or its effects. Under this standard, NMFS has again considered whether there are any substantial new circumstances or information that bear

on this action or its impacts. For NMFS' consideration of new circumstances and information, NMFS has consulted any new scientific information available since issuance of the 2024 final rule. Again, NMFS has not made any changes to the action relevant to environmental concerns, and has made no changes to the regulations. Based on the current review, NMFS has again determined that supplementation of the 2017 PEIS is not warranted.

Letters of Authorization

Under the incidental take regulations in effect for this specified activity, industry operators may apply for LOAs (50 CFR 217.186). LOAs may be issued for any time period that does not exceed the effective period of the regulations, provided that NMFS is able to make the relevant determinations (50 CFR 217.183). Because the specified activity does not provide actual specifics of the timing, location, and survey design for activities that would be the subject of issued LOAs, such requests must include, at minimum, the information described at 50 CFR 216.104(a)(1) and (2), and an affirmation of intent to adhere to the mitigation, monitoring, and reporting requirements described in the regulations. The level of effort proposed by an operator will be used to develop an LOA-specific take estimate based on the results of Weirathmueller *et al.* (2022). These results will be based on the appropriate source proxy (*i.e.*, either 90-in^3 single airgun or 4,130-, 5,110-, or 8,000-in^3 airgun array).

If applicants do not use the modeling provided by the rule, NMFS may publish a notice in the **Federal Register** soliciting public comment, if the model or inputs differ substantively from those that have been reviewed by NMFS and the public previously. Additional public review is not needed unless the model or inputs differ substantively from those that have been reviewed by NMFS and the public previously.

Technologies continue to evolve to meet the technical, environmental, and economic challenges of oil and gas development. The use of technologies other than

those described herein will be evaluated on a case-by-case basis and may require public review. Some seemingly new technologies proposed for use by operators are often extended applications of existing technologies and interface with the environment in essentially the same way as well-known or conventional technologies. NMFS will evaluate such technologies accordingly and as described in the notice of issuance for the 2021 final rule. Please see that document for further detail.

Waiver of Delay in Effective Date

The Assistant Administrator for Fisheries has determined that there is a sufficient basis under the Administrative Procedure Act (APA) to waive the 30-day delay in the effective date of the regulations contained in the final rule. Section 553 of the APA provides that the required publication or service of a substantive rule shall be made not less than 30 days before its effective date with certain exceptions, including (1) for a substantive rule that relieves a restriction or (2) when the agency finds and provides good cause for foregoing delayed effectiveness. See 5 U.S.C. 553(d)(1), (d)(3). Here, consistent with the APA, 5 U.S.C. 553(d)(1), the issuance of regulations under section 101(a)(5)(A) of the MMPA is a substantive rule that relieves the statutory prohibition on the taking of marine mammals, specifically, the incidental taking of marine mammals associated with the specified activities. Upon expiration of the current regulations and until these regulations are effective, survey operators are prohibited from taking marine mammals incidental to their specified activities.

The Assistant Administrator has also determined that there is good cause under the APA (5 U.S.C. 553(d)(3)) to waive the 30-day delay in the effective date of this final rule. No individual or entity, other than survey operators applying for LOAs to avail themselves of the take authorization afforded by this rule and regulations, are affected by the provisions of these regulations, and survey operators do not require 30 days to prepare for implementation of the regulations. Survey operators have been conducting

survey operations identical to those described in this final rule and implementing associated mitigation requirements identical to those described in this final rule, for 5 years. The regulated industry, through its trade association representative, has informed NMFS that it requests that this final rule take effect as soon as possible to minimize the time without the availability of regulations under which LOAs may be issued and avoid any potential disruption of planned survey activities. For these reasons, NMFS finds good cause to waive the 30-day delay in the effective date.

Classification

Executive Order 12866

The Office of Management and Budget (OMB) has determined that this final rule is significant for purposes of Executive Order 12866.

Pursuant to the procedures established to implement Executive Order 12866, OMB determined that the 2021 Final Rule (the rule), "Regulations Governing Taking Marine Mammals Incidental to Geophysical Survey Activities in the Gulf of America," was economically significant under Executive Order 12866 section 3(f)(1). Accordingly, NMFS prepared a regulatory impact analysis (RIA) that evaluated and, to the extent feasible, quantified the likely costs and benefits of the rule. The RIA evaluated the impacts of the 2021 rule relative to two baselines, including a baseline that corresponded with BOEM's management of geophysical survey activities in the GOA prior to a 2013 litigation settlement agreement (pre-settlement baseline) and a baseline that reflected the settlement agreement-related mitigation measures for survey activities in the GOA that were in place at the time the analysis was conducted (*i.e.*, post-settlement agreement). As the terms of the litigation settlement agreement are no longer in effect, NMFS considers evaluation of the costs of the rule relative to this baseline inapplicable. However, in December 2024, BOEM completed a Biological Assessment (BA), "Focused Biological Assessment to Support Endangered Species Act Reinitiated Consultation of the Gulf of

Mexico Oil and Gas Program," that specifies certain Conditions of Approval (COA) for geophysical survey activities that are largely redundant with mitigation requirements of the 2021 rule. NMFS considers it appropriate to assess the impacts of this rule relative to both the pre-settlement baseline and a baseline that incorporates COA specified in BOEM's 2024 BA, thereby providing a range of plausible impacts of the rule.

Relative to the pre-settlement regulatory baseline, the RIA projected that annualized direct compliance costs of the rule would range from approximately $31 million to $90 million (2019$), applying a 7 percent discount rate.[10]

Key drivers of direct costs of the rule relative to this baseline include the number and type of surveys conducted in the GOA and the duration of shutdowns. Due to uncertainty about the future level of survey activity and duration of shutdowns, the RIA provides low-end and high-end forecasts for these factors, by survey type, for the years 2021-2025. An additional key driver of costs is the frequency of marine mammal encounters resulting in shutdowns. A review of PSO reports for surveys completed since implementation of the rule revealed the following:

- The actual number of surveys conducted since 2021 is lower than the low-end forecast in the RIA. Low-end forecasts exceed actual survey counts for all types except one, and no surveys of the type with the highest projected costs have been conducted. This signals that cost projections in the RIA may be overstated relative to the pre-settlement baseline.

- The actual average duration of shutdowns has been lower than the low-end forecast for the types of surveys that have been conducted. This signals that cost projections in the RIA may be overstated relative to the pre-settlement baseline.

[10] Annualized direct compliance costs ranging from $31 million to $90 million reflect analysis assuming a pre-settlement regulatory baseline. The RIA estimated net cost savings of regulatory compliance ranging from $21 million to $212 million (2019$, 7 percent discount rate) relative to a Settlement Agreement Baseline.

- The frequency of encounters with marine mammals resulting in shutdowns has been slightly higher than forecasted in the RIA. This signals that cost projections in the RIA may be understated relative to the pre-settlement baseline.

Direct compliance costs of the rule relative to a baseline incorporating non-discretionary COA specified in BOEM's 2024 BA are considerably lower than costs relative to the pre-settlement baseline due to significant overlap between mitigation requirements of the rule and COA contained in the BA. For example, both the rule and BA require constant use of PAM for deep penetration airgun surveys in water depths greater than 100 meters, as well as the shutdown of such surveys upon PAM detection of baleen whales, sperm whales, beaked whales, and Kogia species. Both the rule and BA also require the shutdown of seismic airgun surveys when large dolphins are identified within a 500-meter exclusion zone for deep penetration surveys and a 100-meter exclusion zone for shallow penetration surveys. The 2021 RIA projected that these two measures together account for between 76 and 77 percent of total direct annualized compliance costs of the rule. In addition, both the rule and BA require the shutdown of deep penetration seismic airgun surveys due to PSO sightings of baleen whales, beaked whales, and Kogia species outside of the 500-meter exclusion zone and within a 1,500-meter extended distance shutdown zone. Unlike the rule, the BA does not specify that this requirement applies to sightings of sperm whales, unless a sperm whale is traveling with a calf or in a group of six or more. Given the considerable overlap between the rule and BA in application of this shutdown requirement, it is reasonable to assume that at least a portion of the costs of this measure relative to the pre-settlement baseline are baseline costs of the rule relative to the baseline incorporating COA of the BA. The 2021 RIA projected that costs attributable to this mitigation measure account for between 20 and 24 percent of total direct annualized costs of the rule.

Based on these findings, we have determined that the RIA estimates provide a reasonable approximation of direct compliance costs of the rule relative to the pre-settlement baseline, and that direct compliance costs of the rule are considerably lower relative to a baseline that incorporates COA specified in BOEM's 2024 BA.

Other Costs and Benefits of the Rule

In addition to the quantified direct costs of the rule, the RIA identifies seasonal closures of specific areas to survey activities as a potential source of indirect costs. BOEM does not include seasonal closures as COA in its 2024 BA. Indirect costs could be incurred by the oil and gas industry to the extent that the seasonal closures delay or reduce the ability of industry to collect data necessary to identify and recover oil and gas resources, thereby reducing the overall level of oil and gas production in the GOA. The RIA states that such delays or reductions in production could also impact dependent social welfare associated with changes in the timing and volume of surveys and oil and gas production activities.

The RIA also identifies potential direct and indirect benefits of the rule. First, oil and gas industry survey operators' reliance since 2021 on the MMPA compliance framework afforded by the rule suggests that these companies rely upon NMFS' incidental take authorizations to proceed with the actions analyzed herein. While a MMPA incidental take authorization is not a pre-condition for conducting these actions (as the survey operators are ultimately responsible for this decision), issuance of LOAs provides survey operators with two key benefits: (1) a legal exemption from the MMPA's general prohibition on the take of marine mammals (assuming survey operators comply with the terms and conditions of authorizations); and (2) regulatory certainty because survey operators will be fully cognizant of NMFS' expectations in regard to the steps needed to be taken to address risks to marine mammals and how to minimize legal exposure under the statute. Survey operators will also incur costs to comply with certain

mitigation and monitoring requirements, as required by the MMPA and described in detail in the preceding. Despite the additional costs of such measures, the costs related to MMPA compliance during survey operations are small compared with expenditures on other aspects of oil and gas industry operations, and direct compliance costs of the regulatory requirements are unlikely to result in material impacts to those operations.

In addition, cost savings are generated by the reduced administrative effort required to obtain an LOA under the framework established by a rule compared to what would be required to obtain an incidental harassment authorization absent the rule. Data are not available at this time to quantify these cost savings. Data are not available to determine the extent to which the rule has generated conservation benefits, and, even with these data, available literature does not allow for the monetization of such benefits.

To the extent that this rule would allow a number of surveys to move forward, or move forward sooner, there may be effects on tourism, ecosystem services, and non-use valuations. NMFS describes each of these values below. To the extent that the proposed rule would allow additional take, each of these values may be decreased.

Tourism

Marine mammal populations generate economic activity in the GOA and, more broadly, in the U.S. For example, the U.S. leads the world in whale watcher participation, with an estimated 4.9 million trips taken in 2008, or 38 percent of global whale watching trips.

According to a 2009 report, the number of whale watchers in the GOA states increased to over 550,000 in 2008, nearly an order of magnitude increase over a 10-year time period (Table 14). Direct revenues from sales of whale watching tickets was $14.1 million that year, and the overall regional spending related to whale watching was nearly $45 million. An estimated 625 full-time equivalent jobs were directly involved in marine mammal recreation across all GOA states in 2008.

Table 14 -- Whale Watching Statistics in GOA States			
Year	Number of Whale Watchers	Direct Expenditure[1] (Millions 2016$)	Total Expenditure[2] (Millions 2016$)
1998	61,000	Not reported	Not reported
2008	550,653	$14.10	$44.70

[1]Direct expenditure is defined here as expenditure on tickets and items directly related to the whale watching trip itself. It excludes costs such as accommodation, transport, and food not included in the trip ticket price.
[2]Total expenditure includes both direct and indirect expenditures.
Source: O'Connor *et al*., 2009. Whale Watching Worldwide: Tourism numbers, expenditures and expanding economic benefits, a special report from the International Fund for Animal Welfare, Yarmouth, MA, USA, prepared by Economists at Large.

Florida is the leading state for cetacean-based tourism in the country. Bottlenose dolphin viewing constitutes the majority of Florida's marine mammal-related tourism with average ticket prices of approximately $43 for boat-based trips and $95 for swim-with tours. Elsewhere in the GOA, in Alabama and Texas, average ticket prices are $11 to $22. Commercial whale watching activity is minimal in Mississippi and Louisiana.

Ecosystem Services

Large whales provide ecosystem services, which are benefits that society receives from the environment. The services whales provide include contributing to sense of place, education, research, and they play an important role in the ecosystem. Large whales are considered ecosystem engineers, given their potential for trophic influence on their ecosystems. Their presence can reduce the risk of trophic cascades, which have previously affected smaller species when whale populations suffered historic declines. For example, as large consumers, whales heavily impact food-web interactions and can promote primary productivity.

Non-use Benefits

The protection and restoration of populations of endangered whales may also generate non-use benefits. Economic research has demonstrated that society places economic value on environmental assets, whether or not those assets are ever directly exploited. For example, society places real (and potentially measurable) economic value

on simply knowing that large whale populations are flourishing in their natural environment (often referred to as "existence value") and will be preserved for the enjoyment of future generations. Using survey research methods, economists have developed several studies of non-use values associated with protection of whales or other marine mammals (table 15).

Table 15 -- Studies of Non-use Value Associated with Marine Mammals

Author	Title	Findings
Lew, D. K. (2023)	Aggregating social benefits of endangered species protection: the case of the Cook Inlet beluga whale	This study surveyed responses from 1,747 Alaska households. It estimated that the mean household WTP values for Cook Inlet beluga whale recovery ranged from $221 to $409. The preferred model estimate was $395.
Schwarzmann *et al*. (2021)	Whale Watching in Channel Islands National Marine Sanctuary: A Stated Preference Study of Passengers' Willingness to Pay for Marine Life Improvements	Respondents' WTP values for large baleen whales ranged from $181 to $121 per household, depending on the amount of marine life improvements.
Lew (2015)	Willingness to Pay for Threatened and Endangered Marine Species: A Review of the Literature and Prospects for Policy Use	Comprehensive literature review on the methods and case studies on WTP for threatened and endangered marine species.
Wallmo and Lew (2012)	Public Willingness to Pay for Recovering and Downlisting Threatened and Endangered Marine Species	Per-household mean WTP annually over 10 years for increase in North Atlantic right whale populations estimated to be $71.62 (for recovery) and $38.79 (for down-listing to threatened status) (2010 dollars).
Giraud *et al*. (2002)	Economic Benefit of the Protection of the Steller Sea Lion	Estimated WTP for an expanded Steller sea lion protection program. The average WTP for the entire nation amounted to roughly $61 per person.
Loomis and Larson (1994)	Total Economic Values of Increasing Gray Whale Populations: Results from a Contingent Valuation Survey of Visitors and Households	Mean WTP of U.S. households for an increase in gray whale populations estimated to be $16.18 for a 50 percent increase and $18.14 for a 100 percent increase.
Samples and Hollyer (1990)	Contingent Valuation of Wildlife Resources in the Presence of Substitutes and Complements	Respondents' average WTP (lump sum payment) to protect humpback whales in Hawaii ranged from $125 to $142 (1986 dollars).
Samples *et al*. (1986)	Information Disclosure and Endangered Species Valuation	Estimated individual WTP for protection of humpback whales of $39.62 per year.
Day (1985), cited in Rumage (1990)	The Economic Value of Whalewatching at Stellwagen Bank. The Resources and Uses of Stellwagen Bank	Non-use value of the presence of whales in the Massachusetts Bays system estimated to be $24 million.
Hageman (1985)	Valuing Marine Mammal Populations: Benefit Valuations in a Multi-Species Ecosystem	Per-household WTP for gray and blue whales, bottlenose dolphins, California sea otters, and northern elephant seals estimated to be $23.95, $17.73, $20.75, and $18.29 per year, respectively (1984 dollars).

Executive Order 14192

This final rule is an Executive Order 14192 deregulatory action. Though there are no monetized cost savings for the rule, the rule is expected to reduce burden on industry.

Regulatory Flexibility Act (RFA)

NMFS prepared a regulatory impact analysis (RIA), including a final regulatory flexibility analysis (FRFA), in support of the 2021 final rule. The FRFA described the economic effects of the 2021 final rule on small entities. In summary, the FRFA found the following: First, in the majority of cases (88 percent), survey permit applicants are large businesses. Second, when the permit applicants are small businesses, the majority of the time (63 percent) they are oil and gas extractors (NAICS 2111). Third, together, these permits (for large businesses and small businesses with high annual revenues for which rule costs are a small fraction) account for 96 percent of the survey permits. Fourth, while small entities in other industries occasionally apply for permits (four percent historically), these businesses are quite small, with average annual revenues in the millions or even less. Given their size, it is unlikely that these permit applicants bear survey costs; otherwise it would be reflected in their annual revenues (*i.e.*, their revenues on average would reflect that they recover their costs). Accordingly, NMFS expects it is most likely that survey costs are passed on to oil and gas extraction companies that commission the surveys or purchase the data. And fifth, overall, up to five small businesses (NAICS 2111) per year may experience increased costs of between 0.1 and 0.7 percent of average annual revenues. See 86 FR 5322, 5443 (January 19, 2021). A copy of the full FRFA is available as Appendix B to the RIA. No changes are made here that would affect the findings of the FRFA, and there are no new data that would meaningfully change the FRFA.

As a result, pursuant to section 605(b) of the Regulatory Flexibility Act (RFA) (5

U.S.C. 601 *et seq.*), the Chief Counsel for Regulation of the Department of Commerce has certified to the Chief Counsel for Advocacy of the Small Business Administration at the proposed rule stage that this rule would not have a significant economic impact on a substantial number of small entities. Because of this certification, no new regulatory flexibility analysis is required and none has been prepared. No comments were received that would change this determination.

Paperwork Reduction Act (PRA)

This rule contains collection-of-information requirements subject to the provisions of the PRA. These requirements have been approved by the Office of Management and Budget (OMB) under control number 0648-0151 (Applications and Reporting Requirements for the Incidental Take of Marine Mammals by Specified Activities under the Marine Mammal Protection Act) and include the applications for regulations, subsequent LOAs, and reports. The current information collection approved by OMB under control number 0648-0151 includes burden estimates for incidental take authorizations issued under the MMPA. The current numbers approved under 0648-0151 are as follows: 576 respondents, 576 responses, 70,236 burden hours, and $2,892,557 in labor and miscellaneous costs. This current rulemaking is expected to result in the following burden estimates; 137 respondents, 391 responses, and 30,926 burden hours, $1,422,281 in labor and miscellaneous costs. The burden hours in this rule fall within the existing burden estimates associated with this control number.

Notwithstanding any other provision of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the PRA unless that collection of information displays a currently valid OMB control number.

List of Subjects in 50 CFR Part 217

Exports, Fish, Imports, Indians, Labeling, Marine mammals, Penalties, Reporting

and recordkeeping requirements, Seafood, Transportation.

Dated: April 14, 2026.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs,

National Marine Fisheries Service.

For the reasons set forth in the preamble, NMFS amends 50 CFR part 217 as follows:

PART 217—REGULATIONS GOVERNING THE TAKE OF MARINE MAMMALS INCIDENTAL TO SPECIFIED ACTIVITIES

1. The authority citation for part 217 continues to read as follows:

   Authority: 16 U.S.C. 1361 *et seq*.

2. Revise subpart S to read as follows:

Subpart S—Taking Marine Mammals Incidental to Geophysical Survey Activities in the Gulf of America

Sec.

Subpart S – Taking Marine Mammals Incidental to Geophysical Survey Activities in the Gulf of America

§ 217.180 Specified activity and specified geographical region.

(a) Regulations in this subpart apply only to oil and gas industry operators (Letter of Authorization (LOA)-holders), and those persons authorized to conduct activities on their behalf, for the taking of marine mammals that occurs in the area outlined in paragraph (b) of this section and that occurs incidental to geophysical survey activities.

(b) The taking of marine mammals by oil and gas industry operators may be authorized in an LOA only if it occurs within U.S. waters in the Gulf of America, outside the area previously subject to a Congressional leasing moratorium under the Gulf of Mexico Energy Security Act (GOMESA) (Pub. L. 109-432, section 104).

§ 217.181 Effective dates.

Regulations in this subpart are effective from April 20, 2026, through April 19, 2031.

§ 217.182 Permissible methods of taking.

Under LOAs issued pursuant to §§ 216.106 of this chapter and 217.186, LOA-holders may incidentally, but not intentionally, take marine mammals within the area described in § 217.180(b) by Level A and Level B harassment associated with geophysical survey activities, provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the appropriate LOA.

§ 217.183 Prohibitions.

Notwithstanding takings contemplated in §§ 217.180 and 217.182, and authorized by an LOA issued under §§ 216.106 of this chapter and 217.186, no person in connection with the activities described in § 217.180 may:

(a) Violate, or fail to comply with, the terms, conditions, and requirements of this subpart or an LOA issued under §§ 216.106 of this chapter and 217.186;

(b) Take any marine mammal not specified in such LOAs;

(c) Take any marine mammal specified in such LOAs in any manner other than as specified; or

(d) Take a marine mammal specified in such LOAs if NMFS determines such taking results in more than a negligible impact on the species or stocks of such marine mammal.

§ 217.184 Mitigation requirements.

When conducting the activities identified in § 217.180, the mitigation measures contained in any LOA issued under §§ 216.106 of this chapter and 217.186 must be implemented. These mitigation measures shall include but are not limited to:

(a) *General conditions*. (1) A copy of any issued LOA must be in the possession

of the LOA-holder, vessel operator, other relevant personnel, the lead protected species observer (PSO), and any other relevant designees operating under the authority of the LOA.

(2) The LOA-holder must instruct relevant vessel personnel with regard to the authority of the protected species monitoring team (PSO team), and must ensure that relevant vessel personnel and PSO team participate in a joint onboard briefing, led by the vessel operator and lead PSO, prior to beginning work to ensure that responsibilities, communication procedures, protected species monitoring protocols, operational procedures, and LOA requirements are clearly understood. This briefing must be repeated when relevant new personnel join the survey operations before work involving those personnel commences.

(3) The acoustic source must be deactivated when not acquiring data or preparing to acquire data, except as necessary for testing. Unnecessary use of the acoustic source must be avoided. For surveys using airgun arrays as the acoustic source, notified operational capacity (*i.e.*, total array volume) (not including redundant backup airguns) must not be exceeded during the survey, except where unavoidable for source testing and calibration purposes. All occasions where activated source volume exceeds notified operational capacity must be communicated to the PSO(s) on duty and fully documented. The lead PSO must be granted access to relevant instrumentation documenting acoustic source power and/or operational volume.

(4) PSOs must be used as specified in this paragraph (a)(4).

(i) LOA-holders must use independent, dedicated, qualified PSOs, meaning that the PSOs must be employed by a third-party observer provider, must have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew with regard to the presence of protected species and mitigation requirements (including brief alerts regarding maritime hazards), and must be qualified

pursuant to § 217.185(a) (except as specified in paragraphs (d)(2)(iii) and (iv) of this section). Acoustic PSOs are required to complete specialized training for operating passive acoustic monitoring (PAM) systems and are encouraged to have familiarity with the vessel on which they will be working. PSOs may act as both acoustic and visual observers (but not simultaneously), so long as they demonstrate that their training and experience are sufficient to perform each task.

(ii) The LOA-holder must submit PSO resumes for NMFS review and approval prior to commencement of the survey (except as specified in paragraph (d)(2)(iii) of this section). Resumes should include dates of training and any prior NMFS approval, as well as dates and description of last experience, and must be accompanied by information documenting successful completion of an acceptable training course. NMFS is allowed 1 week to approve PSOs from the time that the necessary information is received by NMFS, after which PSOs meeting the minimum requirements will automatically be considered approved.

(iii) At least one visual PSO and two acoustic PSOs (when required) aboard each acoustic source vessel must have a minimum of 90 days at-sea experience working in those roles, respectively, with no more than 18 months elapsed since the conclusion of the at-sea experience (except as specified in paragraph (d)(2)(iii) of this section). One visual PSO with such experience must be designated as the lead for the entire PSO team. The lead must coordinate duty schedules and roles for the PSO team and serve as the primary point of contact for the vessel operator (note that the responsibility of coordinating duty schedules and roles may instead be assigned to a shore-based, third-party monitoring coordinator). To the maximum extent practicable, the lead PSO must devise the duty schedule such that experienced PSOs are on duty with those PSOs with appropriate training but who have not yet gained relevant experience.

(b) *Deep penetration surveys*. (1) Deep penetration surveys are defined as surveys

using airgun arrays with total volume greater than 1,500 in^3.

(2) Visual monitoring must be conducted as specified in this paragraph (b)(2).

(i) During survey operations (*i.e.*, any day on which use of the acoustic source is planned to occur, and whenever the acoustic source is in the water, whether activated or not), a minimum of two PSOs must be on duty and conducting visual observations at all times during daylight hours (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset).

(ii) Visual monitoring must begin not less than 30 minutes prior to ramp-up and must continue until 1 hour after use of the acoustic source ceases or until 30 minutes past sunset.

(iii) Visual PSOs must coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts, and must conduct visual observations using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.

(iv) Visual PSOs must immediately communicate all observations of marine mammals to the on-duty acoustic PSO, including any determination by the PSO regarding species identification, distance, and bearing and the degree of confidence in the determination.

(v) Any observations of marine mammals by crew members aboard any vessel associated with the survey must be relayed to the PSO team.

(vi) During good conditions (*e.g.*, daylight hours; Beaufort sea state (BSS) 3 or less), visual PSOs must conduct observations when the acoustic source is not operating for comparison of sighting rates and behavior with and without use of the acoustic source and between acquisition periods, to the maximum extent practicable.

(vii) Visual PSOs may be on watch for a maximum of 2 consecutive hours followed by a break of at least 1 hour between watches and may conduct a maximum of

12 hours of observation per 24-hour period. NMFS may grant an exception for LOA applications that demonstrate such a "2 hours on/1 hour off" duty cycle is not practicable, in which case visual PSOs will be subject to a maximum of 4 consecutive hours on watch followed by a break of at least 2 hours between watches. Combined observational duties (visual and acoustic but not at the same time) must not exceed 12 hours per 24-hour period for any individual PSO.

(3) Acoustic monitoring must be conducted as specified in this paragraph (b)(3).

(i) All source vessels must use a towed PAM system at all times when operating in waters deeper than 100 m, which must be monitored by a minimum of one acoustic PSO beginning at least 30 minutes prior to ramp-up, at all times during use of the acoustic source, and until 1 hour after use of the acoustic source ceases. "PAM system" refers to calibrated hydrophone arrays with full system redundancy to detect, identify, and estimate distance and bearing to vocalizing cetaceans, coupled with appropriate software to aid monitoring and listening by a PAM operator skilled in bioacoustics analysis and computer system specifications capable of running appropriate software. The PAM system must have at least one calibrated hydrophone (per each deployed hydrophone type and/or set) sufficient for determining whether background noise levels on the towed PAM system are sufficiently low to meet performance expectations. Applicants must provide a PAM plan including description of the hardware and software proposed for use prior to proceeding with any survey where PAM is required.

(ii) Acoustic PSOs must immediately communicate all detections of marine mammals to visual PSOs (when visual PSOs are on duty), including any determination by the PSO regarding species identification, distance, and bearing, and the degree of confidence in the determination.

(iii) Acoustic PSOs may be on watch for a maximum of 4 consecutive hours followed by a break of at least 2 hours between watches, and may conduct a maximum of

12 hours of observation per 24-hour period. Combined observational duties (visual and acoustic but not at the same time) must not exceed 12 hours per 24-hour period for any individual PSO.

(iv) Survey activity may continue for 30 minutes when the PAM system malfunctions or is damaged, while the PAM operator diagnoses the issue. If the diagnosis indicates that the PAM system must be repaired to solve the problem, operations may continue for an additional 2 hours without acoustic monitoring during daylight hours only under the following conditions:

(A) Sea state is less than or equal to BSS 4;

(B) No marine mammals (excluding delphinids) detected solely by PAM in the applicable exclusion zone in the previous 2 hours;

(C) NMFS is notified via email as soon as practicable with the time and location in which operations began occurring without an active PAM system; and

(D) Operations with an active acoustic source, but without an operating PAM system, do not exceed a cumulative total of 4 hours in any 24-hour period.

(4) PSOs must establish and monitor applicable exclusion and buffer zones. These zones must be based upon the radial distance from the edges of the airgun array (rather than being based on the center of the array or around the vessel itself). During use of the acoustic source (*i.e.*, anytime the acoustic source is active, including ramp-up), occurrence of marine mammals within the relevant buffer zone (but outside the exclusion zone) should be communicated to the operator to prepare for the potential shutdown of the acoustic source.

(i) Two exclusion zones are defined, depending on the species and context. A standard exclusion zone encompassing the area at and below the sea surface out to a radius of 500 meters from the edges of the airgun array (0-500 m) is defined. For special circumstances (defined in paragraph (b)(9)(v) of this section), the exclusion zone

encompasses an extended distance of 1,500 meters (0-1,500 m).

(ii) During pre-start clearance monitoring (*i.e.*, before ramp-up begins), the buffer zone acts as an extension of the exclusion zone in that observations of marine mammals within the buffer zone would also preclude airgun operations from beginning (*i.e.*, ramp-up). For all marine mammals (except where superseded by the extended 1,500-m exclusion zone), the buffer zone encompasses the area at and below the sea surface from the edge of the 0-500 meter exclusion zone out to a radius of 1,000 meters from the edges of the airgun array (500-1,000 m). The buffer zone is not applicable when the exclusion zone is greater than 500 meters, *i.e.*, the observational focal zone is not increased beyond 1,500 meters.

(5) A ramp-up procedure, involving a step-wise increase in the number of airguns firing and total active array volume until all operational airguns are activated and the full volume is achieved, is required at all times as part of the activation of the acoustic source. A 30-minute pre-start clearance observation period must occur prior to the start of ramp-up. The LOA-holder must adhere to the following pre-start clearance and ramp-up requirements:

(i) The operator must notify a designated PSO of the planned start of ramp-up as agreed upon with the lead PSO; the notification time should not be less than 60 minutes prior to the planned ramp-up.

(ii) Ramp-ups must be scheduled so as to minimize the time spent with source activated prior to reaching the designated run-in.

(iii) A designated PSO must be notified again immediately prior to initiating ramp-up procedures and the operator must receive confirmation from the PSO to proceed.

(iv) Ramp-up must not be initiated if any marine mammal is within the applicable exclusion or buffer zone. If a marine mammal is observed within the exclusion zone or the buffer zone during the 30-minute pre-start clearance period, ramp-up must not begin

until the animal(s) has been observed exiting the zones or until an additional time period has elapsed with no further sightings (15 minutes for small delphinids and 30 minutes for all other species).

(v) Ramp-up must begin by activating a single airgun of the smallest volume in the array and shall continue in stages by doubling the number of active elements at the commencement of each stage, with each stage of approximately the same duration. Total duration must not be less than 20 minutes. The operator must provide information to the PSO documenting that appropriate procedures were followed.

(vi) Ramp-up must cease and the source shut down upon observation of marine mammals within the applicable exclusion zone. Once ramp-up has begun, observations of marine mammals within the buffer zone do not require shutdown.

(vii) Ramp-up may occur at times of poor visibility, including nighttime, if appropriate acoustic monitoring has occurred with no detections of a marine mammal other than delphinids in the 30 minutes prior to beginning ramp-up. Acoustic source activation may only occur at night where operational planning cannot reasonably avoid such circumstances.

(viii) If the acoustic source is shut down for brief periods (*i.e.*, less than 30 minutes) for reasons other than implementation of prescribed mitigation (*e.g.*, mechanical difficulty), it may be activated again without ramp-up if PSOs have maintained constant visual and/or acoustic observation and no visual or acoustic detections of any marine mammal have occurred within the applicable exclusion zone. For any longer shutdown, pre-start clearance observation and ramp-up are required. For any shutdown at night or in periods of poor visibility (*e.g.*, BSS 4 or greater), ramp-up is required, but if the shutdown period was brief and constant observation maintained, pre-start clearance watch is not required.

(ix) Testing of the acoustic source involving all elements requires ramp-up.

Testing limited to individual source elements or strings does not require ramp-up but does require the pre-start clearance observation period.

(6) Shutdowns must be implemented as specified in this paragraph (b)(6).

(i) Any PSO on duty has the authority to delay the start of survey operations or to call for shutdown of the acoustic source pursuant to the requirements of this subpart.

(ii) The operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that shutdown commands are conveyed swiftly while allowing PSOs to maintain watch.

(iii) When both visual and acoustic PSOs are on duty, all detections must be immediately communicated to the remainder of the on-duty PSO team for potential verification of visual observations by the acoustic PSO or of acoustic detections by visual PSOs.

(iv) When the airgun array is active (*i.e.*, anytime one or more airguns is active, including during ramp-up), and:

(A) A marine mammal appears within or enters the applicable exclusion zone; and/or

(B) A marine mammal (excluding delphinids) is detected acoustically and localized within the applicable exclusion zone, the acoustic source must be shut down. When shutdown is called for by a PSO, the acoustic source must be immediately deactivated and any dispute resolved only following deactivation.

(v) The extended 1,500-m exclusion zone must be applied upon detection (visual or acoustic) of a baleen whale, sperm whale, beaked whale, or *Kogia* spp. within the zone.

(vi) Shutdown requirements are waived for dolphins of the following genera: *Tursiops*, *Stenella*, *Steno*, and *Lagenodelphis*. If a delphinid is visually detected within the exclusion zone, no shutdown is required unless the PSO confirms the individual to be

of a genus other than those listed above, in which case a shutdown is required. Acoustic detection of delphinids does not require shutdown.

(vii) If there is uncertainty regarding identification or localization, PSOs may use best professional judgment in making the decision to call for a shutdown.

(viii) Upon implementation of shutdown, the source may be reactivated after the marine mammal(s) has been observed exiting the applicable exclusion zone or following a 30-minute clearance period with no further detection of the marine mammal(s).

(c) *Shallow penetration surveys*. (1) Shallow penetration surveys are defined as surveys using airgun arrays with total volume equal to or less than 1,500 in^3, single airguns, boomers, or equivalent sources.

(2) LOA-holders conducting shallow penetration surveys must follow the requirements defined for deep penetration surveys in paragraph (b) of this section, with the following exceptions:

(i) Acoustic monitoring is not required for shallow penetration surveys.

(ii) Ramp-up for small airgun arrays must follow the procedure described above for large airgun arrays, but may occur over an abbreviated period of time. Ramp-up is not required for surveys using only a single airgun. For non-airgun sources, power should be increased as feasible to effect a ramp-up.

(iii) Two exclusion zones are defined, depending on the species and context. A standard exclusion zone encompassing the area at and below the sea surface out to a radius of 100 meters from the edges of the airgun array (if used) or from the acoustic source (0-100 m) is defined. For special circumstances (defined in paragraph (b)(6)(v) of this section), the exclusion zone encompasses an extended distance of 500 meters (0-500 m).

(iv) The buffer zone encompasses the area at and below the sea surface from the edge of the 0-100 meter exclusion zone out to a radius of 200 meters from the edges of

the airgun array (if used) or from the acoustic source (100-200 meters). The buffer zone is not applicable when the exclusion zone is greater than 100 meters.

(d) *High-resolution geophysical (HRG) surveys*. (1) HRG surveys are defined as surveys using an electromechanical source that operates at frequencies less than 180 kHz, other than those defined at in paragraph (c)(1) of this section (*e.g.*, side-scan sonar, multibeam echosounder, or chirp sub-bottom profiler).

(2) LOA-holders conducting HRG surveys must follow the requirements defined for shallow penetration surveys defined in paragraph (c) of this section, with the following exceptions:

(i) No shutdowns are required for HRG surveys. Pre-start clearance watch is required as defined in paragraph (c) of this section, *i.e.*, for a period of 30 minutes and over a 200-m radius from the acoustic source.

(ii) During survey operations (*e.g.*, any day on which use of the acoustic source is planned to occur, and whenever the acoustic source is in the water, whether activated or not), a minimum of one trained and experienced independent PSO must be on duty and conducting visual observations at all times during daylight hours (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset) when operating in waters deeper than 100 m.

(iii) When operating in waters shallower than 100 m, LOA-holders must employ one trained visual PSO, who may be a crew member, only for purposes of conducting pre-start clearance monitoring. If PSOs are crew members, *i.e.*, are not independent PSOs, the PSOs are not subject to NMFS' approval. In these circumstances, LOA requests must describe the training that will be provided to crew members filling the role of PSO.

(iv) PSOs are not required during survey operations in which the active acoustic source(s) are deployed on an autonomous underwater vehicle.

(e) *Time-area closure.* From January 1 through May 31, no use of airguns may occur shoreward of the 20-m isobath and between 90-84º W.

(f) *Entanglement avoidance.* To avoid the risk of entanglement, LOA-holders conducting surveys using ocean-bottom nodes or similar gear must:

(1) Use negatively buoyant coated wire-core tether cable;

(2) Retrieve all lines immediately following completion of the survey; and

(3) Attach acoustic pingers directly to the coated tether cable; acoustic releases should not be used.

(g) *Vessel strike avoidance.* LOA-holders must adhere to the following requirements:

(1) Vessel operators and crews must maintain a vigilant watch for all marine mammals and must slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any marine mammal. A visual observer aboard the vessel must monitor a vessel strike avoidance zone around the vessel, which shall be defined according to the parameters stated in this subsection. Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to distinguish marine mammals from other phenomena and broadly to identify a marine mammal as a baleen whale, sperm whale, or other marine mammal;

(2) Vessel speeds must be reduced to 10 kn or less when mother/calf pairs, pods, or large assemblages of marine mammals are observed near a vessel;

(3) All vessels must maintain a minimum separation distance of 500 m from baleen whales;

(4) All vessels must maintain a minimum separation distance of 100 m from sperm whales;

(5) All vessels must, to the maximum extent practicable, attempt to maintain a

minimum separation distance of 50 m from all other marine mammals, with an exception made for those animals that approach the vessel; and

(6) When marine mammals are sighted while a vessel is underway, the vessel must take action as necessary to avoid violating the relevant separation distance, *e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area. If marine mammals are sighted within the relevant separation distance, the vessel must reduce speed and shift the engine to neutral, not engaging the engines until animals are clear of the area. This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

(7) These requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.

§ 217.185 Requirements for monitoring and reporting.

(a) *PSO qualifications*. (1) PSOs must successfully complete relevant, acceptable training, including completion of all required coursework and passing (80 percent or greater) a written and/or oral examination developed for the training program.

(2) PSOs must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30 semester hours or equivalent in the biological sciences, and at least one undergraduate course in math or statistics. The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver must be submitted to NMFS and shall include written justification. Requests will be granted or denied (with justification) by NMFS within 1 week of receipt of submitted information. Alternate experience that may be considered includes, but is not limited to:

(i) Secondary education and/or experience comparable to PSO duties;

(ii) Previous work experience conducting academic, commercial, or government-

sponsored marine mammal surveys; or

(iii) Previous work experience as a PSO; the PSO should demonstrate good standing and consistently good performance of PSO duties.

(b) *Equipment*. LOA-holders are required to:

(1) Provide PSOs with bigeye binoculars (*e.g.*, 25 x 150; 2.7 view angle; individual ocular focus; height control) of appropriate quality solely for PSO use. These must be pedestal-mounted on the deck at the most appropriate vantage point that provides for optimal sea surface observation, PSO safety, and safe operation of the vessel.

(2) For each vessel required to use a PAM system, provide a PAM system that has been verified and tested by an experienced acoustic PSO who will be using it during the trip for which monitoring is required;

(3) Work with the selected third-party observer provider to ensure PSOs have all equipment (including backup equipment) needed to adequately perform necessary tasks, including accurate determination of distance and bearing to observed marine mammals. (Equipment specified in A. through G. below may be provided by an individual PSO, the third-party observer provider, or the LOA-holder, but the LOA-holder is responsible for ensuring PSOs have the proper equipment required to perform the duties specified herein.) Such equipment, at a minimum, must include:

(i) Reticle binoculars (*e.g.*, 7 x 50) of appropriate quality (at least one per PSO, plus backups);

(ii) Global Positioning Unit (GPS) (plus backup);

(iii) Digital camera with a telephoto lens (the camera or lens should also have an image stabilization system) that is at least 300 mm or equivalent on a full-frame single lens reflex (SLR) (plus backup);

(iv) Compass (plus backup);

(v) Radios for communication among vessel crew and PSOs (at least one per PSO, plus backups); and

(vi) Any other tools necessary to adequately perform necessary PSO tasks.

(c) *Data collection*. PSOs must use standardized electronic data forms. PSOs must record detailed information about any implementation of mitigation requirements, including the distance of marine mammals to the acoustic source and description of specific actions that ensued, the behavior of the animal(s), any observed changes in behavior before and after implementation of mitigation, and if shutdown was implemented, the length of time before any subsequent ramp-up or activation of the acoustic source. If required mitigation was not implemented, PSOs must record a description of the circumstances. At a minimum, the following information should be recorded:

(1) Vessel names (source vessel and other vessels associated with survey), vessel size and type, maximum speed capability of vessel, port of origin, and call signs;

(2) PSO names and affiliations;

(3) Dates of departures and returns to port with port name;

(4) Dates of and participants in PSO briefings;

(5) Dates and times (Greenwich Mean Time) of survey effort and times corresponding with PSO effort;

(6) Vessel location (latitude/longitude) when survey effort began and ended and vessel location at beginning and end of visual PSO duty shifts;

(7) Vessel location at 30-second intervals (if software capability allows) or 5-minute intervals (if location must be manually recorded);

(8) Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any line change;

(9) Environmental conditions while on visual survey (at beginning and end of

PSO shift and whenever conditions changed significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon;

(10) Vessel location when environmental conditions change significantly;

(11) Factors that may have contributed to impaired observations during each PSO shift change or as needed as environmental conditions change (*e.g.*, vessel traffic, equipment malfunctions);

(12) Survey activity information, such as acoustic source power output while in operation, number and volume of airguns operating in an array, tow depth of an acoustic source, and any other notes of significance (*i.e.*, pre-start clearance, ramp-up, shutdown, testing, shooting, ramp-up completion, end of operations, streamers, etc.); and

(13) Upon visual observation of a marine mammal, the following information:

(i) Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);

(ii) PSO who sighted the animal and PSO location (including height above water) at time of sighting;

(iii) Time of sighting;

(iv) Vessel coordinates at time of sighting;

(v) Water depth;

(vi) Direction of vessel's travel (compass direction);

(vii) Speed of the vessel(s) from which the observation was made;

(viii) Direction of animal's travel relative to the vessel;

(ix) Pace of the animal;

(x) Estimated distance to the animal (and method of estimating distance) and its heading relative to vessel at initial sighting;

(xi) Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic

level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;

(xii) Estimated number of animals (high/low/best);

(xiii) Estimated number of animals by cohort (adults, juveniles, group composition, *etc*.);

(xiv) Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);

(xv) Detailed behavior observations (*e.g.*, number of blows/breaths, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior), including an assessment of behavioral responses to survey activity;

(xvi) Animal's closest point of approach (CPA) and/or closest distance from any element of the acoustic source;

(xvii) Platform activity at time of sighting (*e.g.*, deploying, recovering, testing, shooting, data acquisition, other); and

(xviii) Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up) and time and location of the action.

(14) Upon acoustic detection of a marine mammal using a PAM system, the following information:

(i) An acoustic encounter identification number, and whether the detection was linked with a visual sighting;

(ii) Date and time when first and last heard;

(iii) Types and nature of sounds heard (*e.g.*, clicks, whistles, creaks, burst pulses, continuous, sporadic, strength of signal); and

(iv) Any additional information recorded such as water depth of the hydrophone

array, bearing of the animal to the vessel (if determinable), species or taxonomic group (if determinable), spectrogram screenshot, and any other notable information.

(d) *Reporting*. (1) Annual reporting must be submitted as specified in this paragraph (d)(1).

(i) LOA-holders must submit a summary report to NMFS on all activities and monitoring results within 90 days of the completion of the survey or expiration of the LOA, whichever comes sooner, and must include all information described above under defined in paragraph (c) of this section. If an issued LOA is valid for greater than 1 year, the summary report must be submitted on an annual basis.

(ii) The report must describe activities conducted and sightings of marine mammals, must provide full documentation of methods, results, and interpretation pertaining to all monitoring, and must summarize the dates and locations of survey operations and all marine mammal sightings (dates, times, locations, activities, associated survey activities, and information regarding locations where the acoustic source was used). In addition to the report, all raw observational data must be made available to NMFS.

(iii) For operations requiring the use of PAM, the report must include a validation document concerning the use of PAM, which should include necessary noise validation diagrams and demonstrate whether background noise levels on the PAM deployment limited achievement of the planned detection goals. Copies of any vessel self-noise assessment reports must be included with the report.

(iv) The LOA-holder must provide geo-referenced time-stamped vessel tracklines for all time periods in which airguns (full array or single) were operating. Tracklines must include points recording any change in airgun status (*e.g.*, when the airguns began operating, when they were turned off). GIS files must be provided in ESRI shapefile format and include the UTC date and time, latitude in decimal degrees, and longitude in

decimal degrees. All coordinates must be referenced to the WGS84 geographic coordinate system.

(v) The draft report must be accompanied by a certification from the lead PSO as to the accuracy of the report, and the lead PSO may submit directly to NMFS a statement concerning implementation and effectiveness of the required mitigation and monitoring.

(vi) A final report must be submitted within 30 days following resolution of any comments on the draft report.

(2) Comprehensive reporting must be submitted as specified in this paragraph (d)(2). LOA-holders must contribute to the compilation and analysis of data for inclusion in an annual synthesis report addressing all data collected and reported through annual reporting in each calendar year. The synthesis period shall include all annual reports deemed to be final by NMFS in a given 1 year reporting period. The report must be submitted to NMFS within 90 days following the end of a given 1 year reporting period.

(e) *Reporting of injured or dead marine mammals*. (1) In the event that personnel involved in the survey activities discover an injured or dead marine mammal, the LOA-holder must report the incident to the Office of Protected Resources (OPR), NMFS and to the Southeast Regional Stranding Network as soon as feasible. The report must include the following information:

(i) Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);

(ii) Species identification (if known) or description of the animal(s) involved;

(iii) Condition of the animal(s) (including carcass condition if the animal is dead);

(iv) Observed behaviors of the animal(s), if alive;

(v) If available, photographs or video footage of the animal(s); and

(vi) General circumstances under which the animal was discovered.

(2) In the event of a ship strike of a marine mammal by any vessel involved in the

survey activities, the LOA-holder must report the incident to OPR, NMFS and to the Southeast Regional Stranding Network as soon as feasible. The report must include the following information:

(i) Time, date, and location (latitude/longitude) of the incident;

(ii) Species identification (if known) or description of the animal(s) involved;

(iii) Vessel's speed during and leading up to the incident;

(iv) Vessel's course/heading and what operations were being conducted (if applicable);

(v) Status of all sound sources in use;

(vi) Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;

(vii) Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;

(viii) Estimated size and length of animal that was struck;

(ix) Description of the behavior of the marine mammal immediately preceding and following the strike;

(x) If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;

(xi) Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and

(xii) To the extent practicable, photographs or video footage of the animal(s).

(3) For deep penetration surveys, in the event of a live stranding (or near-shore atypical milling) event within 50 km of the survey operations, where the NMFS stranding network is engaged in herding or other interventions to return animals to the water, the Director of OPR, NMFS (or designee) will advise the LOA-holder of the need to implement shutdown procedures for all active acoustic sources operating within 50 km of

the stranding. Shutdown procedures for live stranding or milling marine mammals include the following:

(i) If at any time, the marine mammal(s) die or are euthanized, or if herding/intervention efforts are stopped, the Director of OPR, NMFS (or designee) will advise the LOA-holder that the shutdown around the animals' location is no longer needed.

(ii) Otherwise, shutdown procedures will remain in effect until the Director of OPR, NMFS (or designee) determines and advises the LOA-holder that all live animals involved have left the area (either of their own volition or following an intervention).

(iii) If further observations of the marine mammals indicate the potential for re-stranding, additional coordination with the LOA-holder will be required to determine what measures are necessary to minimize that likelihood (*e.g.*, extending the shutdown or moving operations farther away) and to implement those measures as appropriate.

(4) If NMFS determines that the circumstances of any marine mammal stranding found in the vicinity of the activity suggest investigation of the association with survey activities is warranted, and an investigation into the stranding is being pursued, NMFS will submit a written request to the LOA-holder indicating that the following initial available information must be provided as soon as possible, but no later than 7 business days after the request for information. In the event that the investigation is still inconclusive, the investigation of the association of the survey activities is still warranted, and the investigation is still being pursued, NMFS may provide additional information requests, in writing, regarding the nature and location of survey operations prior to the time period above.

(i) Status of all sound source use in the 48 hours preceding the estimated time of stranding and within 50 km of the discovery/notification of the stranding by NMFS; and

(ii) If available, description of the behavior of any marine mammal(s) observed

preceding (*i.e.*, within 48 hours and 50 km) and immediately after the discovery of the stranding.

§ 217.186 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to this subpart , prospective LOA-holders must apply for and obtain an LOA.

(b) An LOA, unless suspended or revoked, may be effective for a period not to exceed the expiration date of this subpart.

(c) In the event of projected changes to the activity or to mitigation and monitoring measures required by an LOA, the LOA-holder must apply for and obtain a modification of the LOA as described in § 217.187.

(d) The LOA shall set forth:

(1) Permissible methods of incidental taking;

(2) Means of effecting the least practicable adverse impact (*i.e.*, mitigation) on the species or stock and its habitat; and

(3) Requirements for monitoring and reporting.

(e) Issuance of the 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 this subpart and a determination that the amount of take authorized under the LOA is of no more than small numbers.

(f) For LOA issuance, where either:

(1) the conclusions put forth in an application (*e.g.*, take estimates) are based on analytical methods that differ substantively from those used in the development of the rule, or

(2) the proposed activity or anticipated impacts vary substantively in scope or nature from those analyzed for the rule, NMFS may publish a notice of proposed LOA in the **Federal Register**, including the associated analysis of the differences, and solicit

public comment before making a decision regarding issuance of the LOA.

(g) Notice of issuance or denial of an LOA shall be published in the **Federal Register** within 30 days of a determination.

§ 217.187 Renewals and modifications of Letters of Authorization.

(a) An LOA issued under §§ 216.106 of this chapter and 217.186 for the activity identified in § 217.180 shall be modified upon request by the applicant, provided that:

(1) The proposed specified activity and mitigation, monitoring, and reporting measures, as well as the anticipated impacts, are the same as those described and analyzed for this subpart (excluding changes made pursuant to the adaptive management provision in paragraph (c)(1) of this section); and

(2) NMFS determines that the mitigation, monitoring, and reporting measures required by the previous LOA under this subpart were implemented.

(b) For LOA modification requests by the applicant that include changes to the activity or the mitigation, monitoring, or reporting (excluding changes made pursuant to the adaptive management provision in paragraph (c)(1) of this section) that result in more than a minor change in the total estimated number of takes (or distribution by species or years), NMFS may publish a notice of proposed LOA in the **Federal Register**, including the associated analysis of the change, and solicit public comment before issuing the LOA.

(c) An LOA issued under § 216.106 of this chapter and § 217.186 for the activity identified in § 217.180 may be modified by NMFS under the following circumstances:

(1) NMFS may modify (including adding or removing measures) the existing mitigation, monitoring, or reporting measures (after consulting with the LOA-holder regarding the practicability of the modifications) if doing so is practicable and creates a reasonable likelihood of more effectively accomplishing the goals of the mitigation and monitoring set forth in the preamble for this subpart;

(i) Possible sources of data that could contribute to the decision to modify the

mitigation, monitoring, or reporting measures in an LOA:

(A) Results from monitoring from previous years;

(B) Results from other marine mammal and/or sound research or studies; and

(C) Any information that reveals marine mammals may have been taken in a manner, extent or number not authorized by this subpart or subsequent LOAs.

(ii) If, through adaptive management, the modifications to the mitigation, monitoring, or reporting measures are substantial, NMFS will publish a notice of proposed LOA in the **Federal Register** and solicit public comment.

(2) If NMFS determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in an LOA issued pursuant to §§ 216.106 of this chapter and 217.186, an LOA may be modified without prior notice or opportunity for public comment. Notice would be published in the **Federal Register** within 30 days of the action.

§ 217.188 Severability.

(a) The reference in § 217.186(e) relating to a small numbers determination for the issuance of LOAs is intended to be severable from the remaining provisions of this subpart.

(b) [Reserved]

§ 217.189 [Reserved]

[FR Doc. 2026-07536 Filed: 4/16/2026 8:45 am; Publication Date: 4/17/2026]