

RECORD OF DECISION

Gulf of Mexico Outer Continental Shelf Proposed Geological and Geophysical Activities Western, Central, and Eastern Planning Areas Final Programmatic Environmental Impact Statement

1. INTRODUCTION

The Bureau of Ocean Energy Management's (BOEM) proposed action is the issuance of permits or authorizations for geological and geophysical (G&G) survey activities in the Gulf of Mexico (GOM). The proposed action specifically includes the continuance of G&G activities in the GOM that are:

- (1) subject to regulatory authorities including, but not limited to, 30 CFR parts 551, 580, and 585; Section 11 and Subsections 8(k) and 8(p) of the Outer Continental Shelf Lands Act (OCSLA); and Section 388(a) of the Energy Policy Act of 2005; and
- (2) conducted under a lease as described in 30 CFR part 550 (e.g., 30 CFR §§ 550.207-210).

The purpose of the Federal action is to gather the best obtainable G&G data about the ocean bottom and subsurface. Current G&G data and information are required to support leasing, resource assessment and planning, while taking into account environmental stewardship and protection. The proposed action is needed for BOEM, lessees, and operators to have access to and use of the best G&G information in order to make informed decisions. Such decisions are an integral part of several Outer Continental Shelf (OCS) programs, including oil and gas (e.g., location, extent, fair market value of resources, and orderly development of hydrocarbon reserves), renewable energy (e.g., engineering decisions regarding the construction of renewable energy projects), and marine minerals (e.g., informed estimates regarding the composition and volume of marine mineral resources).

The Area of Interest (AOI) for the proposed action includes the OCS waters of BOEM's Gulf of Mexico planning areas (i.e., the Western, Central, and Eastern Planning Areas [WPA, CPA, and EPA]). BOEM does not approve G&G activities in State waters. However, since G&G activities in OCS waters can potentially impact resources in State waters (e.g., sound traveling from OCS areas into State waters), for purposes of impacts analysis in the Programmatic EIS, the AOI also includes the coastal waters of Texas, Louisiana, Mississippi, Alabama, and Florida, extending from the coastline outside of estuaries seaward 3 nautical miles (nmi) (3.5 miles [mi]; 5.6 kilometers [km]) from Louisiana, Mississippi, and Alabama, and seaward to 9 nmi (10.4 mi; 16.7 km) from the coastlines of Texas and Florida.

On August 04, 2017, BOEM announced in the *Federal Register* (82 FR 36418) the availability of the *Gulf of Mexico OCS Proposed Geological and Geophysical Activities: Western, Central, and Eastern Planning Areas; Final Programmatic Environmental Impact Statement* (Programmatic EIS). The Programmatic EIS was prepared to serve as the programmatic environmental analysis from which BOEM will tier, where appropriate, its site-specific environmental analyses under the National Environmental Policy Act (NEPA) for BOEM to permit or authorize G&G activities under OCSLA. The Programmatic EIS will also support additional coordination and consultation requirements under other statutes, including the Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), Magnuson-Stevens Fishery Conservation and Management Act, Coastal Zone Management Act, National Marine Sanctuaries Act, and National Historic Preservation Act.

BOEM has reviewed new and relevant information since publication of the Programmatic EIS, including updates to the acoustic guidance, and verified that the Programmatic EIS adequately assesses the environmental effects of the proposed G&G activities. There are no new circumstances, information, or changes in the action or its impacts that would require supplementation of the Programmatic EIS.

2. DECISION

In accordance with the Council on Environmental Quality regulations for implementing NEPA (i.e., 40 CFR § 1505.2¹), the U.S. Department of the Interior has selected the Preferred Alternative (Alternative C) of the Programmatic EIS, but with the following exception: rather than adopting the non-airgun, high-resolution geophysical (HRG) survey protocol mitigation at this time, the protocol will be reserved, considered, and applied at the site-specific stage, on an as-needed basis. The continued permitting and authorization of G&G activities, subject to mitigation measures as described in Alternative C of the Programmatic EIS with the above exception, meets the purpose of and need for the proposed action, balances regional and national policy considerations, and includes all practicable and reasonable means to avoid or minimize environmental harm from the selected alternative that are necessary at this programmatic stage of BOEM's decisionmaking process. As explained in the Reasoning for Decision section of this ROD, BOEM has determined some of the mitigation measures analyzed in Alternatives B, D, E, and F are not practicable, feasible, or scientifically justifiable and, therefore, are not adopted.

Under BOEM's chosen decision, a modified Alternative C, G&G activities would continue to be considered and any permit or authorization in the Gulf of Mexico OCS waters under BOEM's jurisdiction will include, where applicable, the mitigation measures, monitoring, reporting, survey protocols, and guidance that are included in Alternative A, as well as the following mitigation measures: the protected species observer (PSO) program expanded to include manatees and all water depths; passive acoustic monitoring (PAM) for deep-penetration seismic activities in low visibility in >100-meter (m) (328-foot [ft]) isobaths (water depth); PAM for deep-penetration seismic activities in Mississippi Canyon and De Soto Canyon (24 hours); and coastal waters seasonal closures for airgun surveys in <20-m (66-ft) isobaths (water depth) between February 1 and May 31. As appropriate, site-specific analysis will be conducted and decisions regarding surveys and additional mitigation would be made at the time BOEM receives a request to authorize a G&G survey.² The decision to continue permitting or authorizing G&G activities under Alternative C recognizes the importance of having access to and use of the best information that

¹ As the NEPA process for this decision was begun prior to September 14, 2020, all references are to the 1978, as amended, CEQ regulations implementing NEPA.

² BOEM recently completed an ESA consultation and received a biological opinion from the National Marine Fisheries Service (NMFS) for oil and gas activities, including G&G surveys, that occur in areas not under a leasing moratorium imposed by the Gulf of Mexico Energy Security Act (GOMESA; P.L. 109-432). In those areas not subject to the leasing moratorium, BOEM will process requests to conduct G&G surveys related to the oil and gas program, conduct site-specific reviews, and consider, as appropriate, any relevant provisions of NMFS' biological opinion, including application of relevant terms and conditions and reasonable and prudent measures. In those same areas not subject to the leasing moratorium, NMFS has also proposed an incidental take regulation under the Marine Mammal Protection Act; should the regulation be finalized and a G&G survey operator seek a letter of authorization for incidental take coverage under the regulation, additional mitigations may be applied to the survey as requested by NMFS. Under GOMESA, a small number of blocks in the CPA and most blocks in the EPA are currently subject to a moratorium on leasing. While GOMESA does not prevent G&G surveys from being conducted in the area subject to the leasing moratorium, BOEM determined in its ESA consultation with NMFS that it was too speculative at this time to address any future requests for G&G survey approvals in that area as part of the programmatic biological opinion. Should BOEM receive any requests for G&G surveys in the area subject to moratorium, BOEM and NMFS will work together to determine whether and what type of ESA consultation may be required. The applicant may also need to obtain a separate incidental harassment authorization from NMFS to comply with the MMPA.

may be obtained from G&G activities in order to make informed business, management, design, stewardship, and environmental protection decisions. This decision establishes a framework for subsequent NEPA analyses of site-specific actions, where appropriate, while identifying and analyzing suitable mitigation measures to be used or considered during future G&G activities on the OCS in support of BOEM's Oil and Gas, Renewable Energy, and Marine Minerals Programs. Compliance with existing applicable laws and regulations may result in additional mitigation measures or changes to the measures described in this Record of Decision and the Programmatic EIS. Additionally, the mitigation measures required under Alternative C may be supplemented by additional requirements or tailored as site-specific circumstances warrant (e.g., previous, ongoing, or future "Unusual Mortality Events" or "UMEs" for marine mammals in the area) in permits or other specific authorizations after BOEM completes additional environmental reviews. Non-airgun HRG survey protocols and other potential mitigation measures will be analyzed, as appropriate, on a site-specific basis, and additional mitigation may be required based upon that analysis.

Future NEPA review will take place during the following decisionmaking stages of BOEM's oil and gas, renewable energy, and marine minerals programs:

- Oil and Gas Program: NEPA review performed in connection with the evaluation of G&G permit applications (i.e., 30 CFR part 551), ancillary activities (i.e., 30 CFR §§ 550.207-210), and exploration plans (i.e., 30 CFR § 550.201(a)(6)).
- Renewable Energy Program: NEPA review performed in connection with the issuance of leases allowing site characterization activities and the approval of Site Assessment Plans (i.e., 30 CFR part 585); and
- Marine Minerals Program: NEPA review performed in connection with the issuance of negotiated noncompetitive agreements for the use of Outer Continental Shelf sand, gravel, and/or shell resources (i.e., 30 CFR part 583).

If, as a result of the NEPA reviews, BOEM determines that additional mitigation measures are warranted, BOEM's authorizations to conduct G&G activities (e.g., approval letter, permit, plan, agreement, etc.) will require compliance with the mitigation determined to be necessary during the site-specific NEPA review.

3. BACKGROUND ON G&G SURVEY ACTIVITIES

The activities included in BOEM's permitting or authorization processes are G&G activities associated with the exploration, development, or scientific study of oil, gas, sulfur, other minerals (e.g., sand), and alternative energy-related resources. For oil and gas activities, there are on-lease and off-lease G&G activities. A permit must be obtained from BOEM before an operator may conduct G&G activities on any unleased OCS lands or on lands under lease to a third party (30 CFR §§ 551.4(a) and (b)). Surveys done by a lessee in support of a BOEM-issued oil and gas lease that are on or around geospatial lease boundaries are regulated under the terms of a lease agreement and are referred to as "ancillary activities" or "on-lease activities" (refer to 30 CFR § 550.207), and may be conducted via an ancillary activities notice or an approved plan, if required by the Regional Director (refer to BOEM's Notice to Lessees and Operators [NTL] No. 2009-G34, "Ancillary Activities," which describes the types of activities that may require plan approval instead of an ancillary activities notice).

In general, G&G activities include the following:

- (a) types of deep-penetration seismic airgun surveys used almost exclusively for oil and gas exploration and development;
- (b) other types of surveys and sampling activities used only in support of oil and gas exploration and development, including electromagnetic surveys, geological test wells, and various remote-sensing methods;
- (c) non-airgun HRG surveys used in all three BOEM program areas (oil and gas, renewable energy, and marine minerals) to detect and monitor geohazards, archaeological resources, and certain types of benthic communities; and
- (d) geological and geotechnical seafloor sampling used in all three program areas to assess the suitability of seafloor sediments for supporting structures (e.g., platforms, pipelines, cables, and renewable energy facilities, such as wind turbines) or to evaluate the quantity and quality of sand for beach nourishment and coastal restoration projects.

The G&G activities in support of renewable energy development would consist mainly of HRG and geotechnical surveys in Federal waters (and State waters related to the project) <40 m (131 ft) deep. The G&G activities in support of marine mineral uses (e.g., sand and gravel mining) would consist mainly of HRG and geotechnical surveys in Federal waters (and State waters related to the project) <30 m (98 ft) deep.

Deep-penetration seismic surveys are conducted almost exclusively in support of oil and gas exploration and development, and would be conducted in all three planning areas. For these surveys, vessels tow an airgun or an array of airguns that emit acoustic energy pulses through the overlying water and into the seafloor over long durations and over large areas. Thus, these surveys are among the most extensive G&G activities analyzed in the Programmatic EIS.

As noted in the Programmatic EIS, environmental resources could be negatively impacted to varying degrees by routine activities (e.g., seismic airgun surveys) and accidental events. Possible adverse impacts might include behavioral changes and auditory impacts to marine mammals, sea turtles, fish, and birds; individual mortality of species from various impact-producing factors, such as vessel strike, entanglement, or indirect effects of exposure to intense underwater sound; spatially limited impacts to essential fish habitat; and localized, short-term interruption of commercial and, possibly, recreational fishing activities. The impact conclusions related to routine activities and accidental events are summarized in the “Executive Summary” of the Programmatic EIS.

4. ALTERNATIVES FOR PERMITTING OR AUTHORIZING G&G ACTIVITIES IN THE GOM

The Programmatic EIS was issued in August 2017 and evaluated seven alternatives.

- *Alternative A – Pre-Settlement (June 2013) Alternative:* BOEM would continue to permit or authorize at the projected activity levels with implementation of standard mitigation measures applied to G&G activities through lease stipulations and permit and authorization conditions of approval (COAs), as well as NTLs referenced in stipulations or COAs, as required prior to the June 25, 2013, *Natural Resources Defense Council v. Zinke* Settlement Agreement for Civil Action No. 2:10-cv-01882 (E.D. La.) (the “Settlement Agreement”). These measures are derived from the 2007 Biological Opinion from the National Marine Fisheries Service (NMFS) and include

such mitigation measures as vessel strike avoidance measures, PSOs, and marine trash and debris awareness and reduction strategies.

- *Alternative B – Settlement Agreement Alternative:* BOEM would continue to permit or authorize G&G activities through the use of site-specific NEPA evaluations, lease stipulations, NTLs, best management practices, and COAs, with the addition of the interim mitigation measures from the Settlement Agreement. Mitigation measures in Alternative B include the measures from Alternative A as well as the interim measures being implemented by industry from the Settlement Agreement, such as expansions of the PSO and PAM Programs; implementation of separation distances between simultaneous surveys; seasonal restriction in coastal waters; and restrictions within and adjacent to the Plaintiffs' Areas of Concern, as defined in the Settlement Agreement.
- *Alternative C – Alternative A Plus Additional Mitigation Measures (the Preferred Alternative):* BOEM would continue to authorize G&G activities that would include the mitigation measures, monitoring, reporting, survey protocols, and guidance that are included in Alternative A, as well as the following mitigation measures: the PSO program expanded to include manatees and all water depths; PAM for deep-penetration seismic in low visibility in >100-m (328-ft) isobaths (water depth); PAM for deep-penetration seismic in Mississippi Canyon and De Soto Canyon (24 hours); Non-Airgun HRG Survey Protocol; and coastal waters' seasonal closures for airgun surveys in <20-m (66-ft) isobaths (water depth) between February 1 and May 31.
- *Alternative D – Alternative C Plus Marine Mammal Shutdowns:* BOEM would authorize G&G activities and would include all mitigation measures included in Alternative C with the addition of shutdowns of airgun and HRG survey sound sources for all marine mammals, except bow-riding dolphins within an exclusion zone or actively approaching dolphins.
- *Alternative E – Alternative C at Reduced Activity Levels:* BOEM would authorize G&G activities and would include all mitigation measures included in Alternative C, but BOEM would authorize a reduced level of G&G activity for seismic airgun surveys under two sub-alternatives:
 - Sub-Alternative E1 includes a 10-percent reduction in deep-penetration, multi-client seismic airgun surveys and
 - Sub-Alternative E2 includes a 25-percent reduction in deep-penetration, multi-client seismic airgun surveys.
- *Alternative F – Alternative C Plus Area Closures:* BOEM would continue to permit or authorize G&G activities and require that operators comply with the mitigation requirements from Alternative C, with the addition of area closures to provide additional protection for certain cetaceans and other resources, and distance restrictions based on received sound levels into waters adjacent to the closure areas. The four closure areas are the CPA Closure Area, EPA Closure Area, Dry Tortugas Closure Area, and Flower Garden Banks Closure Area (described in the Programmatic EIS).
- *Alternative G – No New Activity Alternative:* BOEM would cease issuing permits or authorizations for new G&G surveys and would not approve new G&G surveys proposed under exploration or development plans. However, G&G activities previously authorized under an existing permit or lease would proceed using mitigation

measures described under Alternative A and the industry-implemented mitigations from the Settlement Agreement under Alternative B, but the activities would not be renewed or reauthorized and, thus, would eventually be phased out.

5. ENVIRONMENTALLY PREFERABLE ALTERNATIVE

Alternative G, defined as the No Action Alternative in the Programmatic EIS, is identified as the environmentally preferable alternative. Under the No Action Alternative, BOEM would cease issuing permits or authorizations for new G&G surveys and would not approve new G&G surveys proposed under exploration or development plans. The No Action Alternative is considered environmentally preferable because environmental impacts from BOEM-authorized G&G activities would be avoided completely once previously authorized G&G activities were eventually completed and phased out.

Though the environmentally preferable alternative, Alternative G would not meet the purpose of and need for the proposed action nor would it implement the resource development policy of OCSLA to advance expeditious and orderly development of OCS resources, subject to environmental safeguards, in a manner that is consistent with the maintenance of competition and other national needs. Therefore, Alternative G was not selected since these surveys provide information on the location, extent, fair market value/fair return of resources, and orderly development of hydrocarbon reserves, including safety considerations.

Alternative G also has safety and development implications for oil and gas, renewable energy, and marine minerals activities. Oil and gas leasing and future operations require G&G activities in order to evaluate potential reservoirs and to conduct operations in a safe and secure manner. For example, placement of a permanent platform requires a shallow hazard survey and geological sampling (coring) to ensure that the proposed location is free of potential hazards and to determine the geotechnical properties of the substrate to assess stability for placement and anchoring. Under the No Action Alternative, G&G activities could not take place for future leases, infrastructure and other related activities may not be as safely constructed or conducted, and development could be suspended.

6. REASONING FOR DECISION

BOEM evaluated and compared each of the above alternatives for its ability to support BOEM's mission and mandates based on the following criteria: (1) meeting G&G data demands for BOEM's three programs; (2) environmental considerations; and (3) socioeconomic considerations. Based on this evaluation, I have concluded that the continued permitting and authorization of G&G activities, in accordance with my decision to implement a modified Preferred Alternative (Alternative C) of the Programmatic EIS, best meets the above goals and criteria. BOEM believes the additional mitigation measures under Alternative C would further minimize the potential for injury to ESA-listed marine mammals and sea turtles and provide additional protection for coastal stocks of common bottlenose dolphins, with minimal socioeconomic effects. As noted above, under this decision, BOEM will continue to process G&G applications and apply the mitigation measures analyzed under the Preferred Alternative, Alternative C of the Programmatic EIS, with one exception: a decision on whether to apply the Non-Airgun HRG Survey Protocol is being reserved at this time. The Non-Airgun HRG Survey Protocol will be considered, as requests for G&G authorizations are processed on a case-by-case basis, when site-specific information (e.g., water depth, substrate type, and species present) is available to be evaluated and determine if the protocol is warranted.

In reaching my decision to select Alternative C, I fully considered the other alternatives and did not select them for the following reasons:

- *Alternative A* – Alternative C was selected over Alternative A because it allowed for the same access to G&G data throughout the GOM while providing additional targeted protection to further minimize the potential for injury to ESA-listed marine mammals, sea turtles, and coastal stocks of common bottlenose dolphins with minimal socioeconomic effects.
- *Alternative B* – The minimum separation distance (maintaining 30-40 km [19-25 mi] distance between surveys) is not shown to reduce adverse impacts and could potentially increase sounds impacts; the coastal waters seasonal closure in Alternative B is less aligned with the bottlenose reproductive season than the coastal waters seasonal closures in Alternative C; and closures in the EPA at this stage provide minimal known additional coverage or protection given no lease sales are scheduled and no requests (plans or permits) for oil and gas activities in the area are foreseeable at this time. If such a request were received, it would likely require additional ESA consultation and site-specific review due to the nature of the target species of concern.
- *Alternative D* – There are additional concerns with PSOs' capability to timely and accurately determine whether or not a dolphin(s) is actively approaching a vessel to bowride; therefore, implementing the additional shutdown requirements would likely result in a large number of unwarranted shutdowns. Furthermore, because portions of surveys may need to be re-shot due to additional shutdowns, the overall reduction on impacts would not appreciably change by applying this requirement.
- *Alternative E* – The uncertainty and challenges with implementing the 10 percent or 25 percent reductions in lines miles could have significant Program implications and likely would not reduce impacts as there are numerous other factors including, but not limited to, airgun size, spatial and temporal conditions, species presence, among others, that influence the level of potential effects.
- *Alternative F* – Limiting activities through closures could provide additional protection to target species; however, BOEM holds that these closures are not warranted given the availability of mitigation measures that can reduce potential impacts while still allowing access to survey areas with known significant oil and gas potential (e.g., Mississippi Canyon).
- *Alternative G* – Alternative G would not meet the purpose of and need for the proposed action or BOEM's mission and mandates under OCSLA and other statutes (refer to Section 5).

While offshore G&G activities cannot be made risk free, G&G activities can be conducted safely and responsibly with strong regulatory oversight and appropriate measures to protect human safety and the environment. To minimize the environmental impacts that could occur from G&G activities in Federal waters of the GOM, Alternative C requires a suite of mitigation measures to effectively avoid or reduce impacts. These mitigation measures are described below in Section 7.

BOEM has considered all comments received on the Draft Programmatic EIS, has responded to those comments as appropriate in the Final Programmatic EIS, and has considered substantive comments submitted on the Final Programmatic EIS. A summary of the public comments received on the Final Programmatic EIS is provided in the Addendum below.

After considering the benefits and potential impacts evaluated in the Programmatic EIS, I have concluded that it is in the Nation's best interest to continue to consider the issuance of authorizations to allow G&G activities throughout Gulf of Mexico OCS waters, subject to the mitigation measures set forth in Alternative C of the Programmatic EIS (40 CFR § 1505.2(c)).

7. MITIGATION MEASURES AND GUIDANCE FOR G&G ACTIVITIES

The mitigation measures provided for in Alternative C include all practicable and reasonable means to avoid or minimize environmental harm necessary at this programmatic stage of BOEM's decisionmaking process. The principal standard mitigation measures under Alternative C for G&G activities within the AOI are summarized below. After careful consideration of the analysis provided in the Programmatic EIS, I believe the mitigation measures under Alternative C would further minimize the potential for injury to marine mammals and sea turtles, and provide additional protection for coastal stocks of common bottlenose dolphins with minimal socioeconomic effects. These mitigation measures may be supplemented or tailored by additional requirements (e.g., site-specific circumstances and specific authorizations) after BOEM completes any necessary additional environmental reviews at the site-specific stage.

The following mitigation measures apply to G&G surveys undertaken for oil and gas, renewable energy, and marine minerals activities within the AOI, as described in Chapter 2 and Appendix B of the Programmatic EIS.

- **Guidance for Vessel Strike Avoidance:** All authorizations for shipboard surveys will include guidance for vessel strike avoidance per BOEM NTL No. 2016-G01 ("Vessel Strike Avoidance and Injured/Dead Protected Species Reporting").
- **Guidance for Marine Debris Awareness:** All authorizations for shipboard surveys will include guidance for marine debris awareness under the Bureau of Safety and Environmental Enforcement (BSEE) NTL No. 2015-G03 ("Marine Trash and Debris Awareness and Elimination").
- **Avoidance of Sensitive Benthic Resources:** Based on site-specific information, BOEM will require G&G activities to avoid sensitive benthic (seafloor) biological communities, where applicable.
- **Guidance for Avoidance of Historic and Prehistoric Sites:** BOEM and BSEE will require site-specific information regarding potential archaeological resources prior to approving any G&G activities involving seafloor-disturbing activities or placement of bottom-founded equipment or structures in the AOI.
- **Guidance for Shallow Hazards Survey and Reporting:** A portion of BOEM NTL No. 2008-G05 ("Guidance for Shallow Hazards Program") applies to all G&G surveys performed. For any activities that involve seafloor-disturbing activities, in accordance with Section VI.B of the NTL, data must be collected to locate existing hazards.
- **Consultation for Activities In or Near National Marine Sanctuaries:** The G&G noise-generating activities require consultation under Section 304(d) of the National Marine Sanctuaries Act if those activities are likely to injure resources within the National Marine Sanctuaries.
- **Guidance for Military Coordination:** To ensure personnel safety and to reduce the likelihood of conflicts between military and OCS operations, BOEM NTL No. 2014-04 ("Guidance for Activities In or Near Military Warning and Water Test Areas") stipulates requirements in which the lessee or designated operator must enter into an agreement

with the appropriate individual military command headquarters concerning the control of electromagnetic emissions and use of boats and aircraft in the applicable warning or water test area before commencing such traffic.

- **Guidance for Ancillary Activities (Oil and Gas Program only):** This measure requires the reporting of ancillary G&G activities in depths >200 m (656 ft) or in the EPA at any water depth, as outlined in BOEM NTL No. 2009-G34 (“Guidance for Conducting Ancillary Activities”). No notification to BOEM is required for ancillary activities that do not involve explosives, do not use airguns in water depths <200 m (656 ft) in the CPA and WPA, or do not disturb the seafloor.
- **Implementation of the Seismic Airgun Survey Protocol:** The Seismic Airgun Survey Protocol (as described in Appendix B of the Programmatic EIS) specifies mitigation measures, including an exclusion zone, ramp-up requirements, visual monitoring by PSOs prior to and during seismic airgun surveys, and array shutdown requirements. The purpose of the protocol is to minimize the potential for injury to marine mammals (as defined in BOEM NTL No. 2016-G02, “Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program”) and sea turtles, and to avoid most Level A takes of marine mammals as defined pursuant to the MMPA. The Seismic Airgun Survey Protocol includes expanded PSO and PAM Programs as follows:
 - implementation of expanded PSO Program (manatees and depth): expanded to include manatees as well as whales (excluding marine mammal species in the Family Delphinidae, which includes killer whales, pilot whales, and all of the dolphin species) and would apply to all authorizations for deep-penetration seismic airgun surveys in the AOI regardless of water depth;
 - implementation of expanded PAM requirement (low visibility): the required use of PAM during periods of reduced visibility for all deep-penetration seismic airgun surveys in water depths >100 m (328 ft); and
 - implementation of expanded PAM requirement (canyons): the required use of PAM for all deep-penetration seismic airgun surveys at all times in the Mississippi Canyon and De Soto Canyon lease blocks (Figure 2.2-1 of the Programmatic EIS);
- **Site-specific Consideration of the Non-Airgun- HRG Survey Protocol (decision reserved to site-specific review):** For non-airgun HRG surveys using sources operating at and below 200 kilohertz, the implementation of the non-airgun HRG survey protocol (as described in Appendix B of the Programmatic EIS) will be considered at the site-specific stage to further minimize the potential for injury to marine mammals and sea turtles and avoid most Level A takes of marine mammals when practicable. The Non-Airgun HRG Survey Protocol is for surveys that use only non-airgun acoustic sources, such as side-scan sonar; boomers, sparkers, and CHIRP subbottom profilers; and single-beam and multibeam echosounders. The need to implement this mitigation would be determined at the site-specific review stage when more refined information on variables such as water depth, substrate type, species presence and abundance, and survey design can be determined. This approach will ensure that the full effectiveness of the Non-Airgun HRG Survey Protocol is still achieved, but it allows BOEM flexibility to not apply the Non-Airgun HRG Survey Protocol when the site-specific data and the nature of the survey deem it not likely to reduce potential impacts to target species.

- **Coastal Waters Seasonal Restrictions:** This mitigation implements seasonal restrictions for airgun surveys for all OCS coastal waters shoreward of the 20-m (66-ft) isobath between February 1 and May 31. This means that no seismic airgun surveys can be performed in these OCS coastal waters during the timeframe identified (Figure 2.3-1 of the Programmatic EIS).

The purpose of the mitigation measures included in Alternative C is to avoid space-use conflicts, protect seafloor resources, further minimize the potential for injury to ESA-listed marine mammals and sea turtles, further reduce Level B takes and avoid most opportunities for Level A takes of marine mammals, and provide additional protection for coastal stocks of common bottlenose dolphins. This alternative was developed based on the Alternative A mitigation measures (as described in the Programmatic EIS). However, in Alternative C, the seasonal restrictions for OCS coastal waters are included to protect reproducing dolphins, and the requirements to use PAM in the Mississippi Canyon and De Soto Canyon lease blocks are also included to protect marine mammals known to congregate there. The coastal restriction is from February 1 to May 31 and was designed to protect the coastal and estuarine stocks of the common bottlenose dolphin during their peak reproductive activity by reducing active acoustic sound sources from airguns in the area. The seasonal restriction in OCS coastal waters would also provide protection for loggerhead sea turtles during a portion of their mating, nesting, and inter-nesting seasons. In addition, the inclusion of the expanded PSO Program for all surveys performed in water depths >100 m (328 ft) and for all deep-penetration seismic airgun surveys performed in the Mississippi Canyon and De Soto Canyon lease blocks reduces the potential for Levels A and B exposures to marine mammals, including manatees, vocalizing Bryde's whales, sperm whales, and deep-diving odontocetes. Implementation of the non-airgun HRG survey protocol would further reduce exposure of marine mammals to acoustic sources that fall within their hearing range (≤ 200 kilohertz), resulting in fewer Levels A and B exposures; however, for the reasons cited above, I am reserving to the site-specific stage decisions on whether to require the non-airgun HRG survey protocol when additional case-specific information (e.g., water depth, location, and species presence and abundance) can be analyzed.

Mitigation Effectiveness, Monitoring, and Adaptation – In accordance with 40 CFR § 1505.2(c), BOEM will monitor implementation of these mitigation measures and, if warranted, will modify them as described in the provisions of the Programmatic EIS addressing “adaptive management.” BSEE’s Environmental Compliance Division is also responsible for monitoring the execution and effectiveness of environmental compliance activity. BOEM may also refer potential violations to BSEE for investigation and potential enforcement. BSEE may impose penalties or other remedies on any permittee, lessee, or operator that fails to comply with the terms of a permit, authorization, or lease, including stipulations and other mitigating measures.

BOEM and BSEE continually assess compliance and effectiveness of mitigation measures, where appropriate, to allow the New Orleans Office to adjust mitigation as needed. This effort relies on requiring post-approval submittal of information within a specified timeframe or after a triggering event that is tracked by BOEM or BSEE. Any changes originating from either a programmatic EIS or a site-specific environmental analysis for a G&G permit would occur only after BOEM considers the relevant and scientifically sound information available at the time. Further, BOEM emphasizes that any changes to mitigation measures at either a programmatic level or at the site-specific review phase may require coordination under other agency authorities.

8. CONCLUSION

BOEM's selection of the Preferred Alternative (Alternative C of the Programmatic EIS), with the non-airgun HRG survey protocol mitigation being carried forward for consideration on an as-needed basis at the site-specific stage, reflects a balancing of the orderly development of BOEM-managed resources with the protection of the human, marine, and coastal environments by (1) allowing activities to occur, (2) establishing a framework for subsequent NEPA analyses of site-specific G&G activities, and (3) implementing appropriate measures at the programmatic stage to reduce potential impacts to the environment. Alternative C meets the purpose of and need for the proposed action, which includes the gathering of the best obtainable G&G data to make informed decisions in connection with BOEM's Oil and Gas, Renewable Energy, and Marine Minerals Programs. In addition, the Preferred Alternative includes measures to minimize the potential environmental and socioeconomic impacts of G&G activities, including additional protection for ESA-listed species (i.e., sperm whales and sea turtles) and reproducing or calving coastal bottlenose dolphins. The Preferred Alternative provides the best balance of environmental protection with consideration of impacts to industry.

This decision does not in any way serve as an approval for a specific permit or authorization for a G&G survey in connection with BOEM's Oil and Gas, Renewable Energy, and Marine Minerals Programs. Requests for approvals of such activities will be considered on a case-by-case basis after review of the request and additional environmental analysis is conducted. However, BOEM expects to prepare analyses that tier to the larger Programmatic EIS, as appropriate, when reviewing and processing authorizations for specific activities. Subsequent (tiered) analyses will be based on project-specific factors when a specific G&G activity authorization is requested.

Michael A. Celata
Regional Director
New Orleans Office

Date: November 30, 2020

ADDENDUM: DISCUSSION OF PUBLIC COMMENTS ON THE FINAL PROGRAMMATIC EIS

BOEM received a total of nine comments on the Final Programmatic EIS. Six comments were received from the general public in opposition of continuing or expanding oil and gas operations, and those comments were noted. BOEM received a comment from the Alabama Historical Commission concurring with the Final Programmatic EIS' conclusions regarding potential adverse effects to cultural resources from G&G activities and requesting consultation for any future activities in Alabama waters. BOEM received one data request regarding the Excel Workbooks showing updated 24-hour, injury-exposure probability estimates using NMFS' 2016 Technical Guidance described in Appendix N of the Final Programmatic EIS; the information was sent to the individual. Lastly, BOEM received one substantive comment letter from the American Petroleum Institute and International Association of Geophysical Contractors (hereinafter, the Associations) stating their concerns regarding the conservative nature of the modeling effort used in the Final Programmatic EIS, which included an associated model report to demonstrate results if model input variables are adjusted. BOEM reviewed the letter and modeling report in detail prior to finalizing this Record of Decision.

In their letter and associated model report, the Associations focused on a number of the model variables. Their model report and letter asserted that the use of the NMFS' 2016 Technical Guidance significantly reduces the predicted (modeled) injurious exposures for most species, thus reducing the potential of overestimating marine mammal exposures when compared with the JASCO modeling effort used in the Programmatic EIS. Additionally, the associated model report demonstrated that a reduction in airgun array size in the model effort would also reduce the number of exposures to marine mammals.

BOEM has considered the Associations' comments on the Final Programmatic EIS. The 2016 Technical Guidance was not available for BOEM to use when the Draft Programmatic EIS was completed; however, BOEM did include modeling using NMFS' 2016 Technical Guidance as part of the Final Programmatic EIS. Exposures were reduced by orders of magnitude. For example, injurious exposure to sperm whales using an 8,000-in³ airgun array dramatically dropped from 81,239 to 350 exposures for the 10 years. BOEM understands that a smaller array size would also likely result in less exposures; however, BOEM felt it most prudent to model the larger airgun array in order to adequately provide NEPA coverage for the entire range of reasonably foreseeable airgun array sizes included in the scenario. This approach is reasonable under NEPA and serves to fully inform the public and decisionmaker of the potential impacts to the resources analyzed.

Throughout the Final Programmatic EIS, BOEM clarified the assumptions and scenarios used in the modeling, as well as the limitations that may be inherent in any modeling effort (e.g., inability to account for mitigation measures and aversion). While the results of the modeling may be conservative, BOEM asserts that there remains credible, science-based information based on reasonable modeling assumptions. Additionally, BOEM reviewed NMFS' 2018 revisions to the technical guidance addressed above and found that the updates would not significantly alter the overall exposure calculations presented in the Final Programmatic EIS or how these calculations informed the impact conclusions. Chapter 1.2.5 of the Programmatic EIS provides an in-depth overview of the model and how it was applied as one component to inform the overall NEPA analysis.