

OPEN OCEAN RESTORATION AREA TRUSTEE IMPLEMENTATION GROUP
of the
DEEPWATER HORIZON TRUSTEE COUNCIL

In re: Oil Spill by the Oil Rig “Deepwater Horizon” in the
Gulf of Mexico on April 20, 2010,
Civil Action Nos. 10-4536; 10-04182; 10-03059; 13-4677; 13-158; 13-00123 (ED. La.)
MDL No. 2179

Resolution #OO-2023-018

**Open Ocean Trustee Implementation Group Resolution to Approve Phase 2 and a Change in
Authorized Budget for the Monitoring and Adaptive Management Activity: Evaluating the
Cumulative Impacts of Multiple Stressors on Cetaceans Phase 2 (Project ID 217)**

1. In accordance with the Oil Pollution Act of 1990 (OPA), the National Environmental Policy Act (NEPA), the *Deepwater Horizon* (DWH) Oil Spill Final Programmatic Damage Assessment and Restoration Plan and Programmatic Environmental Impact Statement (Final PDARP/PEIS), the Trustee Council Standard Operating Procedures for Implementation of the Natural Resource Restoration for the DWH Oil Spill, August 2, 2021 (TC SOPs), and the Consent Decree entered in *United States v. BPXP et al.*, Civ. No. 10-4536, centralized in MDL 2179, In re: Oil Spill by the Oil Rig “Deepwater Horizon” in the Gulf of Mexico, on April 20, 2010 (E.D. La.) (Consent Decree), the undersigned representatives of the Open Ocean Trustee Implementation Group (OO TIG) hereby approve the action set forth below to support the restoration of natural resources and services injured or lost as a result of the DWH oil spill, which occurred on or about April 20, 2010, in the Gulf of Mexico.
2. The Activity to be funded through this Resolution is consistent with the restoration goals identified in the Final PDARP/PEIS and the Consent Decree entered in *United States v. BPXP et al.*, Civ. No. 10-4536, centralized in MDL 2179, In re: Oil Spill by the Oil Rig “Deepwater Horizon” in the Gulf of Mexico, on April 20, 2010 (E.D. La.) on April 4, 2016.
3. Through Resolution OO-2019-015 the OO TIG approved the Monitoring and Adaptive Management Activities Implementation Plan (MAIP): Evaluating the Cumulative Impacts of Multiple Stressors on Cetaceans (Cumulative Impacts Activity), an authorized budget of \$3,726,690, and the commitment and disbursement of up to \$1,182,230 to the National Oceanic and Atmospheric Administration (NOAA) (Implementing Trustee) to implement the Cumulative Impacts Activity.
4. The Cumulative Impacts Activity included two phases. Phase 1 is focused on developing models that can be used for evaluation of the benefits of planned and completed stressor reduction activities to sperm whales and oceanic dolphins. During Phase 1, NOAA completed planning for Phase 2 field activities as described in the attached *Addendum to the Monitoring and Adaptive*

Management Activities Implementation Plan: Evaluating the Cumulative Impacts of Multiple Stressors on Cetaceans (Addendum to the MAIP). Phase 2 will be implemented over approximately a four-year period. Phase 2 will focus on field studies that are crucial to improving model predictions, refining the models by incorporating the results of the field studies and other new science into the models, and providing analyses of the model results to DWH stakeholders. The original estimated Phase 2 budget was \$2,544,460. We estimate that completing the Phase 2 field studies will require \$2,652,000, of which \$120,000 would be contingency. Due to increased costs to conduct Phase 2 field studies, the estimated budget to complete the Cumulative Impacts Activity has increased by \$107,540, to a total of \$3,834,230.

5. NOAA, as the Implementing Trustee, shall implement and monitor the Cumulative Impacts Activity according to the originally approved MAIP, the attached Addendum to the MAIP, and the TC SOPs. All reports and other materials prepared for publication pursuant to or related to the Cumulative Impacts Activity shall acknowledge the OO TIG and DWH funding as follows: *Funding for the activity, Evaluating the Cumulative Impacts of Multiple Stressors on Cetaceans, was provided by the Open Ocean Trustee Implementation Group to restore natural resources injured by the 2010 Deepwater Horizon oil spill in the Gulf of Mexico.* The Implementing Trustee shall provide the OO TIG notice of public reports or other publications in accordance with the OO TIG Project Publications Guidelines.
6. The Implementing Trustee shall provide the OO TIG with project completion and closeout reports in accordance with the TC SOPs and guidelines from the OO TIG and Lead Administrative Trustee. Upon request, the Implementing Trustee shall provide the OO TIG with additional information and supporting documents.
7. The Implementing Trustee shall notify the OO TIG of any proposed material project changes before taking further action on the Cumulative Impacts Activity, consistent with the TC SOPs. Any material change would be evaluated by the OO TIG based on factors identified in section 9.5.2 of the TC SOPs prior to its implementation.
8. The Implementing Trustee may modify the MAIP in writing if the modifications are minor. Approval of these minor modifications by the OO TIG may be communicated verbally during an OO TIG meeting and memorialized with a memorandum to the administrative record, by email, or through other procedures agreed to by the OO TIG that result in a written record of the decision.
9. Funds transferred from the DOI Restoration Fund to NOAA as authorized by this Resolution may be used only for the tasks and activities authorized by this Resolution, the Cumulative Impacts Activity MAIP, and attached Addendum to the MAIP. Any other use of funds disbursed pursuant to this Resolution is prohibited. Any unauthorized use of disbursed funds must be reported to the full OO TIG immediately upon discovery.
10. Through this Resolution and the associated DWH Withdrawal Forms, the OO TIG authorizes the commitment and disbursement of up to \$2,652,000 in Monitoring and Adaptive Management

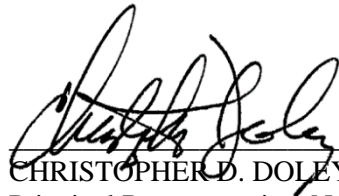
funds to NOAA from the DOI Restoration Fund OO TIG General Subaccount and an increase of \$107,540 in the NOAA Authorized Budget as follows:

Project	NOAA Authorized Budget	Funds Previously Committed (OO-2019-015)	Funds Committed by this Resolution	Total Funds Committed to Date	Updated NOAA Authorized Budget
Evaluating the Cumulative Impacts of Multiple Stressors on Cetaceans (#217)	\$3,726,690	\$1,182,230	\$2,652,000	\$3,834,230	\$3,834,230

11. At the time this Resolution was signed, the NEPA evaluation provided in the attached Addendum to the MAIP is complete. Environmental compliance technical assistance for the Cumulative Impacts Activity is complete, and compliance reviews are underway. The Implementing Trustee will ensure that all necessary environmental compliance is completed prior to the commencement of any field work. All compliance documents will be posted to the DWH Administrative Record.

12. It is resolved that after a review of this Resolution and the attached *Addendum to the Monitoring and Adaptive Management Activities Implementation Plan: Evaluating the Cumulative Impacts of Multiple Stressors on Cetaceans*, the duly authorized officials for the OO TIG approve a) Phase 2 activities and continued implementation of the Cumulative Impacts Activity; b) the public release of the attached Addendum to the MAIP; c) the change in authorized budget as detailed in Paragraph 10; and d) the commitment and disbursement of funds as identified in Paragraph 10. This resolution may be authorized in counterparts. The effective date of this resolution is the date of last signature below.

OPEN OCEAN RESTORATION AREA TRUSTEE IMPLEMENTATION GROUP



CHRISTOPHER D. DOLEY

Principal Representative, National Oceanic and Atmospheric Administration



MARY JOSIE BLANCHARD

Principal Representative, Department of the Interior



RONALD HOWARD

Alternate to Principal Representative, U.S. Department of Agriculture



MARY KAY LYNCH

Alternate to Principal Representative, U.S. Environmental Protection Agency

DATE OF LAST SIGNATURE: November 16, 2023

*Deepwater Horizon Open Ocean Trustee
Implementation Group*

**ADDENDUM TO:
MONITORING AND ADAPTIVE
MANAGEMENT ACTIVITIES
IMPLEMENTATION PLAN:
EVALUATING THE CUMULATIVE IM-
PACTS OF MULTIPLE STRESSORS ON
CETACEANS (PROJECT ID 217)**

November 2023



1 Introduction

On August 23, 2019, the Open Ocean Trustee Implementation Group (the TIG) approved Resolution OO-2019-015, for the *Monitoring and Adaptive Management Activities Implementation Plan (MAIP), Evaluating the Cumulative Impacts of Multiple Stressors on Cetaceans* (Open Ocean Trustees 2019). The resolution provided a total budget that was divided between two phases of planned MAM activities. Phase 1 funds were made available immediately, and were provided for the development of a common Population Consequences of Multiple Stressors (PCoMS) modeling framework and subsequent development and initial parameterization of two PCoMS models, one specific to sperm whales and the other specific to pelagic dolphins (e.g., pantropical spotted dolphins). Initial sensitivity analyses of the sperm whale model were to be used to identify the data needed that would most effectively reduce uncertainty in the model's predictions. This information would be used to develop a plan for specific ship-based surveys and other field- and laboratory-based activities to collect and analyze the needed data. Based on the feasibility of the field plan and the expected improvement in model predictions, Phase 2 funds were to be provided to carry out the plan, analyze the data, and incorporate the results in the model. The model would be re-run to evaluate its accuracy and utility for restoration planning and evaluation. As a condition written into the original MAIP, funds to cover Phase 2 were withheld pending the analysis of the results of the sperm whale model runs and the development of the plan for data collection. This addendum presents that plan and associated compliance affirmation for Phase 2 activities.

2 Document Purpose

The purpose of this document is to present the plan for Phase 2 for the TIG's approval.

3 Overview

The objectives and overall design of the project have not changed from the description provided in the original MAIP. The project was divided into two phases, 1 and 2. Phase 1 continues to be focused on developing models that can be used for evaluation of the benefits of planned and completed stressor reduction activities to sperm whales and oceanic dolphins. Phase 2 will focus on field studies that are crucial to improving model predictions, refining the models by incorporating the results of the field studies and other new science into the models, and providing analyses of the model results to DWH stakeholders.

4 Phase 2 Rationale

The original plan for Phase 2 included two major tasks:

1. Conduct field studies to collect data required to address identified data gaps; examples of field projects may include:

- deployment of telemetry tags to measure dive profiles and estimate body composition, swimming energetics, and feeding rates;
 - remote biopsy, photo-monitoring, and health assessment studies to compare survival, reproduction, or health under varying stressor exposures; and
 - controlled behavioral response studies.
2. Integrate the results of field studies to refine parameter estimates and/or model structure to reduce uncertainty in PCoMS outputs for iterative monitoring and adaptive management throughout the DWH NRDA restoration program.

These tasks are still appropriate, given the results from the project to date. However, the information and studies needed to refine the models have been more clearly identified, as described below, and do not include a need for controlled behavioral response studies.

Sensitivity analyses of the initial multiple-stressor sperm whale model conducted as part of Phase 1 demonstrate that the estimation of Field Metabolic Rate (FMR), or the energy an animal uses during its daily activities, is a key parameter determining the importance of lost foraging opportunities. Measuring FMR requires information on both the daily activity budget (i.e., the proportion of time spent diving, foraging, traveling, resting, etc.) and the energetic cost of locomotion associated with each activity. In the Phase 1 model, FMR ranges were inferred from studies of orca whales; however, it is likely that FMR values for deep-diving sperm whales are different given the differences in body size and feeding behaviors. As a continuation of Phase 1 work, we are working with external partners to gather available telemetry tag data that provides information on sperm whale energetic cost of locomotion and FMR in a variety of regions globally. While this analysis will better inform FMR estimates, very few of these data are available for GoM sperm whales. Therefore, a primary objective of Phase 2 will be to deploy telemetry tags on sperm whales in the GoM to inform both daily activity budgets (through application of longer duration, dive recording tags) and FMR (through application of shorter duration behavioral tags).

In addition to FMR, many parameters in the Phase 1 PCoMS model are derived from sperm whale populations outside of the GoM. The majority of information on body size, weight, age at maturity, and reproductive rates were collected from whaling records in the Atlantic and Pacific oceans or from directed studies on sperm whales in temperate and arctic habitats. The resident sperm whale population (made up of primarily breeding females and juveniles) differs from these populations in that they are generally smaller in size, have smaller group sizes, and have different foraging behaviors and habitats. Stage-structured demographic models are very sensitive to parameters such as the proportion of reproductively active females in a population and calving rates, and therefore this aspect of the Phase 1 PCoMS model will be significantly improved by the collection of data specific to GoM sperm whales. Therefore, in addition to the deployment of telemetry tags noted above, the Phase 2 field activities will include approaches to characterize body sizes and estimate mass of encountered sperm whales, evaluate reproductive status from hormones, and collect additional information on the metabolic state of the whales

through analysis of blubber from biopsy samples. These metrics will directly inform the structure of the PCoMS model and ensure that it is accurately reflecting the unique demographics and growth of GoM Sperm whales.

Due to the lack of exposure history for most individual cetaceans, estimates of the effects of stress on health and energy reserves are difficult to validate. Therefore, we are also using samples from traumatically injured individuals as a proxy for otherwise healthy body condition and from emaciated stranded individuals to evaluate the lower threshold of body condition at terminal starvation. Proximate composition analysis is used to more accurately determine the body composition (i.e., available energy reserves in blubber, muscle, and viscera. These samples can only be obtained opportunistically, when animals become stranded. Because strandings of sperm whales and oceanic dolphins are relatively uncommon in the GoM, in 2022 we began analyzing samples provided by the Marine Mammal Stranding Network to help ensure that the project would have a reasonable number of samples for statistical analysis. The body composition estimates derived from these samples will be used to update the PCoMS model during Phase 2, replacing parameters borrowed from sperm whales sampled in the Northern Atlantic. Given the smaller overall body size of GoM sperm whales, this information is essential to better understand the potential for increased vulnerability of this unique population.

Additional work is also needed to complete the Phase 1 task and refine the oceanic dolphin model. Although the overall framework developed earlier for sperm whales is applicable to the oceanic dolphin model, there are three challenges that will make the modeling more difficult. First, the pantropical spotted dolphin (*Stenella attenuata*) population in the GoM is at least one order of magnitude (10 times) larger than the sperm whale population. By simple math, this indicates that runs would likely require at least ten times as much time as has been needed for the sperm whale model. That does not include additional computational overhead from changes to physiological functions or population dynamics. Second, pantropical spotted dolphins are not well-studied. The overall impression is that they are more robust than some highly sensitive species, like harbor porpoises, but are less robust than bottlenose dolphins. Data from these groups can be used to bracket expected responses, but it would be better to have data that are specific to this species within the GoM. Third, the population dynamics of pantropical spotted dolphins are more complicated than that of sperm whales, because they include fission and fusion of groups. This results in different levels of correlation of exposure among individuals in the larger population. Addressing this may require a different approach for representing individuals in the model or additional computing resources, such as high performance computing. These activities are all within the Phase 1 scope of this project and will continue concurrently with Phase 2 activities described below.

5 Phase 2 Methodologies

The 2019 MAIP identified general methodologies anticipated for use in Phase 2 activities. Based on the results of Phase 1 work and the additional information described above, the specific methodologies planned for Phase 2 field activities are described, below.

The field activities will include a survey of sperm whales in the GoM using a NOAA oceanographic research vessel (likely the NOAA Ship *Gordon Gunter*). If pantropical spotted dolphins are encountered during the survey, they may also be approached to collect biopsy samples and/or photogrammetry, but they will not be tagged. The survey will include approximately 60 days at sea, which will allow sufficient opportunities to locate and work with sperm whales to collect the required data. The survey will focus on areas of known high aggregations of sperm whales to ensure relatively high encounter rates (Figure 1). If time allows, the survey will include secondary areas in the southeastern and western GoM to allow regional comparisons among sperm whale groups. In addition, the project will continue to opportunistically obtain and analyze tissue samples collected by the Marine Mammal Stranding Network in the course of their normal operating procedures during responses to stranded sperm whales and pantropical spotted dolphins. The specific sampling methods to be used are detailed in the sections below.

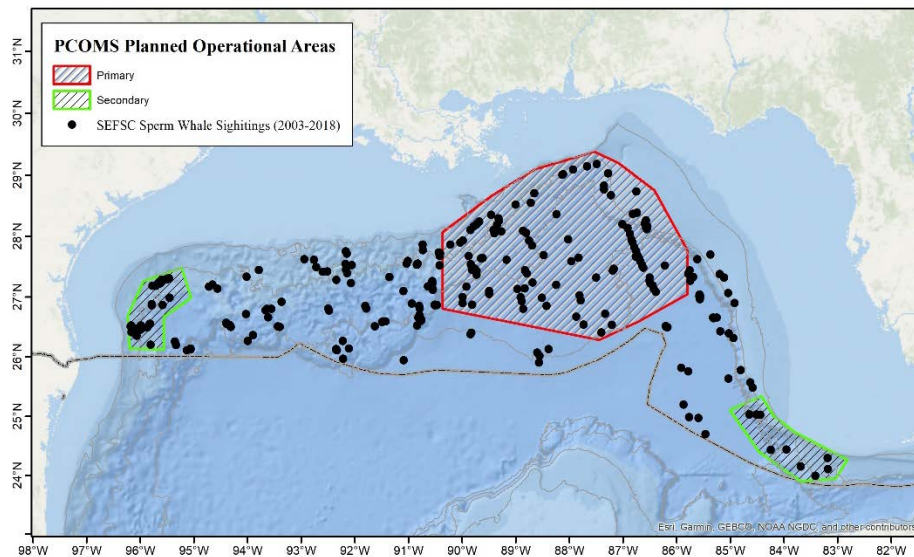


Figure 1. Potential operational areas for PCOMS Phase II study

5.1 Vessel-Based Survey Data Collection Methods

The following methodologies will be used during the vessel-based survey:

3. *Visual and Passive Acoustic Surveys:* Visual surveys will be conducted from the vessel's flying bridge and a passive acoustic array will be towed behind the vessel to aid in locating sperm whales for closer study, characterizing and tracking group behaviors, and recording information on animal occurrence in relation to oceanographic features. The primary objective will be to locate whales that can be approached for photogrammetry, biopsy, and tagging. Using information from the towed passive acoustic array, animal size and dive behaviors will also be estimated.

4. *Small Unmanned Aerial Systems (sUAS)*: Hand-deployed hexacopters equipped with camera systems and appropriate sensors will be deployed over sperm whales at the surface to collect photogrammetric information on body size, estimate body mass, and collect images to characterize skin condition and animal health from morphometrics.
5. *Small Boat Based Photography and Biopsy Sample Collection*: On close approaches to sperm whales at the surface using the small boat, photographs of individuals will be collected to characterize skin and body condition. In addition, images of the fluke of sperm whales can be used to identify individual animals and compare them to existing catalogs of individual sperm whales in the GoM. During close approaches, remote tissue biopsy samples may be collected using a specialized dart deployed using a cross-bow or rifle. The technique is regularly used during similar studies and does not cause undue distress to the whales under normal circumstances. See Sections 7 and 8, below, for additional considerations related to environmental compliance. The collected tissue includes skin and a core of blubber. These tissues can be used to collect a number of different parameters on the individual including sex, genetics, reproductive hormones, stress hormones, fatty acid composition, pollutant load, and other parameters that inform assessment of animal condition.
6. *Animal telemetry tags*: A variety of animal telemetry tags are available for deployment on sperm whales (during close approaches with the small boat) to collect data needed to inform estimation of activity budgets and FMR. These include intermediate (20-30 day) duration dive-recording tags that are attached to the animal and collect position information and summaries of dive-surface behaviors. In addition, we would deploy shorter duration tags that attach via suction cups with durations of less than 24 hours. These tags include the collection of acoustic data, depth, and 3-axis accelerometer data. These data provide the highly detailed behavioral information needed to inform calculations of cost of locomotion and field metabolic rates (Chakravarty et al. 2023, Fahlman et al. 2016). We anticipate deploying approximately 10 tags of each type during the survey.
7. *Opportunistic sampling of oceanic dolphins*: If oceanic dolphins are visually detected during the survey (see method 1, above), sUAS and/or Small Boat Based Photography and Biopsy Sample Collection (see methods 2 and 3, above) may be conducted. No more than 20 individuals would be sampled.

5.2 Other Field Data Collection

In addition to the vessel-based survey and sample collection described above, we will continue opportunistically obtaining and analyzing tissue samples from necropsies of stranded (dead) sperm whales and oceanic dolphins. Samples may also include complete or partial remains, depending on the ability of stranding response teams to preserve and transport specimens. Collection of these samples are part of the standard necropsy protocols of the Marine Mammal Stranding Network partners, and will be carried out independently of this project under their permits.

5.3 Model Refinement and Outcomes

The data collected during field studies will reduce uncertainties in key parameters identified in the interim PCoMS models. As a result of incorporating this information, the predictions generated by these models will also have reduced biases and uncertainty. While it is unlikely that all critical information gaps can be filled, the iterative process of identifying information gaps that are essential to model parameterization and designing field studies to address those gaps will help ensure that the data collected provide the most direct benefit for restoration. The end product of these efforts would be improved estimates for key parameters of the PCoMS models that would be integrated into updated models.

Following the completion of field studies and associated data analysis, the PCoMS model framework will be updated with newly estimated parameters (e.g., bioenergetic parameters, dose-response curves, etc.). The updated framework can then be incorporated into the restoration planning and evaluation process for a broad suite of potential restoration actions. It is anticipated that these analyses would take the form of quantitative evaluations to predict which restoration actions are expected to have the greatest benefits to cetaceans and to identify mechanisms to assess changes in population status in response to restoration projects. It is also anticipated that this framework would be helpful in identifying additional data gaps and key metrics to monitor as restoration projects continue.

The critical task for managing risk of cumulative effects is to determine which combination of stressors could be reduced in order to bring the population (or ecosystem) into a more favorable state (NAS 2017). Although it may be challenging to parameterize the models to the extent that definitive statements can be made regarding the population effects of single stressors, the PCoMS models should allow reliable relative comparisons between proposed restoration actions. The final product of this activity would be updated PCoMS models that provide the information necessary to support restoration planning and evaluation. The PCoMS models would provide input to restoration projects on the potential impacts of environmental stressors on population dynamics, and integrate the available information on the effects of changes in anthropogenic stressors during the implementation of restoration projects. As part of the refinement of the models, we will evaluate the effects of the reduction in bias and uncertainty in stressor parameters on the precision of the model outputs and will continue to refine the use of these models for restoration planning and evaluation. In addition, the completion of these models will support the development of similar models for a larger suite of species if needed. Finally, we anticipate the identification of additional key parameters that are important data gaps for cetacean restoration.

These studies will be conducted under research permits and take authorizations held by the Southeast Fisheries Science Center. The current permit expires in May 2024; the renewal process will be initiated prior to expiration, and will include additional environmental compliance reviews. All necessary permits and compliance reviews will be obtained prior to conducting any field studies. See additional considerations for environmental compliance in Sections 8 and 9, below.

6 Timeline

We anticipate that improvements to the interim sperm whale model that can be implemented without additional fieldwork will be completed in the winter of 2024, and the interim oceanic dolphin model will be completed in the fall of 2024. Due to limitations on vessel and crew availability, we currently anticipate that the vessel-based survey will be performed in the summer of 2025. Subsequent model refinement, model runs, analysis, and publication will require a minimum of 2 years. Therefore, we anticipate project completion by the end of 2027.

7 Budget

The original estimated Phase 2 budget was \$2,544,460. We estimate that completing the tasks described above will require \$2,652,000, of which \$120,000 would be contingency. This is an increase of approximately \$107,540 from the original project budget estimate. The budget increase is necessary due to:

- the additional work and time needed to extend the project to 2027 based on NOAA ship availability (will not be able to complete fieldwork until 2025) and the need to analyze those data for incorporation into each model, as appropriate; and
- increased vessel and crew costs from what was initially estimated in 2017/2018, which include increased fuel costs, cost of living and wage adjustments for crew, and other cost increases for all supplies and materials associated with the daily ship rate.

8 Oil Pollution Act (OPA) and National Environmental Policy Act (NEPA) Review

8.1 OPA Review

The Phase 2 field activities were generally known at the time of and described in the original MAIP; therefore, there is no change to the original OPA evaluation of this project based on the proposed activities. The proposed project budget changes described in Section 7 do not affect the selection of this MAM Activity by the OO TIG under OPA. The Activity continues to address the information needs identified in the Programmatic Damage Assessment and Restoration Plan and Programmatic Environmental Impact Statement (PDARP/PEIS) to restore Marine Mammals. The field methods are known, will be carried out by permitted and qualified individuals, and have been completed successfully for oceanic cetacean species on other projects so they are likely to be carried out successfully for this project. Cost increases for the field activities are consistent with standard industry rate increases due to long periods of time between initial budget estimates and implementation, so the costs are reasonable. No additional OPA evaluation is necessary.

8.2 NEPA Review

The approach to compliance with NEPA summarized in the initial MAIP is followed where applicable from the PDARP/PEIS Section 6.4.14 (DWH NRDA Trustees 2016a). Resources considered and impacts definitions (minor, moderate, major) align with the PDARP/PEIS. Relevant analyses from the PDARP/PEIS are incorporated by reference. The original MAIP incorporated by reference information from existing plans, studies or other material to address the Open Ocean TIG's compliance with NEPA (40 CFR 1506.3, 40 CFR § 1508.9). All source documents relied upon are available to the public and links are provided in the discussion where applicable. With the additional clarity on implementation activities, the following sections summarize other relevant environmental analyses associated with similar field techniques.

8.2.1 NEPA Review of Phase 2 Activities

Phase 2 actions, described above in Section 5, include additional desktop actions to improve the models and field studies to address data gaps and uncertainty. Specific field activities include close approach by small boat and sUAS deployment of telemetry tags to measure dive profiles and estimate body composition, swimming energetics, and feeding rates; remote biopsy; and photogrammetry. The primary environmental impacts would be from nonlethal takes¹ of endangered and/or protected marine mammals. These activities would focus on GoM Sperm Whales, which are listed as endangered under the Endangered Species Act (ESA) and protected under the Marine Mammal Protection Act (MMPA) and possibly oceanic dolphins which are protected by the MMPA. Annual takes of these species for these studies would likely be on the order of 50 individual sperm whales and up to 20 individual oceanic dolphins. Incidental take of other marine mammal species and of sea turtles could also occur in the course of conducting the field studies. These activities are permitted and authorized under ESA Section 10(a)(1)(A) scientific research permits and MMPA take authorizations held by the NMFS Southeast Fisheries Science Center, and as such, have been previously evaluated per the NEPA analyses associated with those permits and authorizations (NMFS 2019). The current scientific research permit expires in May 2024, and the renewal process will begin soon. The prior NEPA analyses for these types of field activities are incorporated here by reference (NMFS 2019), and considered methods of implementation; reasonably foreseeable direct, indirect, and cumulative effects; and mitigation activities required. The process utilized by NOAA as part of each Environmental Assessment (EA) to confirm the range of environmental consequences is also incorporated here by reference (NOAA 2017). The following summarizes the findings from NOAA's NEPA evaluation:

¹ The Endangered Species Act defines Take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct" (16 USC § 1532). Take as defined under the Marine Mammal Protection Act means "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal" (16 USC § 1362).

NOAA's 2019 NEPA evaluation considered all the activities intended to occur under Phase 2 of this project including vessel and aerial surveys, biopsies, and tagging in the same or similar geographic areas where work will occur. The analysis concludes the following for each of the activities:

- Vessel and Aerial Surveys – Minor to moderate impact during vessel and aerial surveys since cetaceans may exhibit signs of temporary disturbance, such as diving or moving away from the aircraft or vessel, but these behaviors would dissipate within minutes after the encounter.
- Biopsies - Would result in minor injury at the wound site with wounds healing within days to weeks of the event.
- Tagging - Permit conditions for invasive procedures have been revised and improved based on input from NMFS Office of Protected Resources scientists and veterinary medical officers to minimize the chance of mortality and injury to targeted animals. These conditions include 1) post-tag monitoring to observe any adverse impacts or evidence of tag breakage, 2) sterilization of invasive equipment, and 3) the use of aseptic protocols. The current scientific research permit includes these improved mitigation measures and they will be carried over to the new permit. NOAA concluded that the mitigation measures required by this permit would minimize the potential for adverse impacts to the target species, including unintended consequences, such as mortality or serious injury to the individual animals.

No additional NEPA evaluation is needed for Phase 2 activities that can be carried out under existing permits and authorizations. As NOAA concluded, numerous Environmental Assessments (EAs) that analyze the environmental impacts of the categories of activities to be carried out as part of this project were prepared and resulted in Findings of No Significant Impacts. These EAs demonstrate the issuance of a given permit does not affect other aspects of the human environment because the action only affects animals that are the subject of the permit. These EAs also addressed factors in 40 CFR 1508.27 regarding the potential for significant impacts and demonstrate the issuance of permits for the categories of activities encompassed by this project would not individually or cumulatively have a significant effect on the human environment. Further, the data gathered are expected to lead to beneficial impacts to biological resources through increased understanding of cumulative anthropogenic stressors on cetaceans and the application of this understanding to future restoration activities. to such actions being taken.

8.2.2 NEPA Conclusion

Based on review of the proposed activities against those actions previously evaluated in the PDARP/PEIS, OO RP2/EA, *Monitoring and Adaptive Management Activities Implementation Plan (MAIP), Evaluating the Cumulative Impacts of Multiple Stressors on Cetaceans* (2019), and the incorporation by reference of relevant NOAA analyses, no additional NEPA evaluation is necessary.

9 Compliance with Environmental Laws and Regulations

The OO TIG evaluated the existing SEFSC research permit that applies to Phase 2 field work and concluded that the field work fits within the permit parameters. The current permit expires in May 2024, and the renewal process will begin soon. For any field work that would be conducted under the renewed permit, the requirements of the most recent permit will be followed. Additional reviews are in process, see the status table below.

Status of federal regulatory compliance reviews and approvals for the proposed project.

<u>Federal Statute</u>	<u>Compliance Status</u>
Bald and Golden Eagle Protection Act (USFWS)	N/A
Coastal Barrier Resources Act (USFWS)	N/A
Coastal Zone Management Act	N/A
Endangered Species Act (NMFS)	Complete
Endangered Species Act (USFWS)	Complete
Essential Fish Habitat (NMFS)	Complete
Marine Mammal Protection Act (NMFS)	Complete
Marine Mammal Protection Act (USFWS)	Complete
Migratory Bird Treaty Act (USFWS)	Complete
National Historic Preservation Act	Complete
Rivers and Harbors Act/Clean Water Act	N/A
National Environmental Policy Act	Complete, see analysis above.

Federal environmental compliance responsibilities and procedures follow the Trustee Council Standard Operating Procedures (SOP), which are laid out in Section 9.4.6 of that document (DWH NRDA Trustees 2016b). Following this SOP, the Implementing Trustees for each activity will ensure that the status of environmental compliance (e.g., completed vs. in progress) is tracked through the Restoration Portal. The Implementing Trustees will keep a record of compliance documents (e.g., ESA biological opinions, USACE permits) and ensure that they are submitted for inclusion in the Administrative Record. The current status of environmental compliance by project can be viewed at any time on the Trustee Council’s website: <http://www.gulf-spillrestoration.noaa.gov/environmental-compliance/>.

10 References

Chakravarty P., G. Cozzi, D.M. Scantlebury, A. Ozgul, K. Aminian. 2023. Combining accelerometry with allometry for estimating daily energy expenditure in joules when in-lab calibration is unavailable. *Movement Ecology* 11(1):29. doi: 10.1186/s40462-023-00395-0. PMID: 37254220; PMCID: PMC10228015.

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