Deepwater Horizon

Louisiana Trustee Implementation Group

MONITORING AND ADAPTIVE MANAGEMENT ACTIVITY IMPLEMENTATION PLAN:

SEA TURTLE HABITAT USE AND ABUNDANCE IN EASTERN LOUISIANA WATERS

June 2022

Implementing Trustee: NOAA

Introduction

Sea turtles incurred significant injuries throughout the Gulf of Mexico (GOM) as a result of the *Deepwater Horizon* oil spill, including within LA waters. A targeted sea turtle distribution and habitat use study will provide critical insight into important sea turtle habitats to support adaptive management and restoration planning and evaluation to reduce threats to sea turtles in the marine environment in LA.

The Deepwater Horizon oil spill settlement (2016) provides Natural Resource Damage Assessment (NRDA) Trustees (Trustees) up to $8.8 billion, distributed over 15 years, to restore natural resources and services injured by the Spill[1]. As described in the PDARP/PEIS, the Trustees identified a comprehensive, integrated ecosystem restoration approach as the most effective and representative means to address the broad and geographically expansive resource injuries associated with the Spill (DWH NRDA Trustees 2016a). For sea turtles, The Strategic Framework for Sea Turtle Restoration Activities describes potential restoration approaches and techniques, identifies potential restoration benefits, and highlights the importance of monitoring and adaptive management considerations.

Document Purpose

This Monitoring and Adaptive Management Activity Implementation Plan (MAIP) describes the Monitoring and Adaptive Management (MAM) Activity "Sea Turtle Habitat Use and Abundance in Eastern Louisiana Waters", which will support four of the LA TIG Sea Turtle MAM Fundamental Objectives.

LA TIG MAM Strategy Goals Addressed by this MAM Activity

This MAM activity aligns with the LA TIG MAM Strategy (DWH LA TIG 2021) by addressing four Sea Turtle Restoration Type Fundamental Objectives and one MAM Need to develop SMART objectives. As noted in the LA TIG MAM Strategy, baseline data were not available to establish a "quantifiable and time-sensitive threshold or target to justify a SMART Objective" for many fundamental objectives. All of the Sea Turtle SMART Objectives are in the "Metric and Target to be Developed" category. This activity will address MAM need 1b - Enhance understanding of habitat use by sea turtles in LA, which will in turn support development of SMART objectives associated with the LA Sea Turtle MAM Fundamental Objectives listed below.

1. Restore and maintain forage and prey resources sufficient to support injured sea turtle species and life stages in LA waters
2. Reduce sea turtle bycatch in recreational fisheries in LA waters
3. Reduce sea turtle bycatch in commercial fisheries in LA waters (e.g., fish trawl, shrimp trawl, pot/trap, trot lines, purse seine)
4. Reduce sea turtle mortality from vessel strikes

MAM Activity Overview

Activity Description

This targeted data collection and analysis project will address the Sea Turtle Restoration Type. It will include two years of field work in Chandeleur Sound and Lake Borgne, Louisiana and one year of data analysis, focused primarily on loggerhead, Kemp's ridley, and green sea turtles.

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[1] PDARP/PEIS and information on the settlement with BP Exploration and Production Inc. (called the Consent Decree) are available at the Gulf Spill Restoration website.

Background

Loggerhead, Kemp's ridley and green sea turtles are known to occur in Louisiana waters, but gaps exist in our understanding of relative abundance, and seasonal and spatial habitat use. The purpose of this MAM activity is to inform restoration planning and restoration evaluation through enhancing our understanding of sea turtle distribution and habitat use in Louisiana waters. Sea turtle distribution, density, demographic, and movement data (e.g., systematic surveys in multiple seasons) are sparse for inshore Louisiana marine habitats, therefore, key gaps exist in baseline data (NMFS-SEFSC unpublished data, Hart et al. 2013, Hart et al. 2021, Shaver et al. 2013). This information is necessary to effectively plan and evaluate the feasibility and success of restoration efforts in Louisiana. A targeted sea turtle distribution and habitat use study will provide critical insight into important marine habitats to support adaptive management and restoration planning and evaluation to reduce sea turtle threats in the marine environment. This project will also endeavor to collaborate with recent and ongoing sea turtle survey efforts in the northern Gulf of Mexico and to leverage the existing and unpublished datasets (e.g., stranding data; satellite tracks in Chandeleur Sound, Breton Sound, Port Fourchon, and Ship Shoal; CPRA's PO-0199 project; Regionwide and Open Ocean TIGs).

In addition to improving understanding of distribution and relative abundance of sea turtles in Louisiana inshore and nearshore waters, this MAM activity will monitor sea turtle movements and behavior using specialized salinity sensor equipped satellite tags to understand habitat use patterns. These specialized tags will enable us to better understand how sea turtles are using habitat in Louisiana and if changes in salinities affect their foraging behavior and movement patterns. Natural and anthropogenic changes to freshwater flow are likely to affect the extent and composition of suitable foraging habitat by potentially changing salinity, nutrient conditions, and prey species composition and availability. Such changes are likely to affect the behavior, abundance and distribution of sea turtles that forage in these habitats. The Mid-Breton Sediment Diversion will alter current salinity profiles, habitat distribution, and prey composition. The data collected by this proposed study will allow insight into how sea turtle species will be impacted to inform sea turtle restoration decisions in this area. Preliminary deployments of the salinity tags on loggerhead and Kemp's ridley turtles in Mississippi demonstrated a difference in salinity in the surface freshwater lens and the bottom 3 - 4 m where turtles are foraging, as well as variability in salinity levels within the locations where turtles resided during the duration of the deployments. Given that sea turtles are affected by salinity and that sea turtle prey is affected by salinity levels, salinity tags can provide insight into why sea turtles may prefer to inhabit certain areas over other areas, and the Trustees can focus sea turtle restoration efforts on higher use and preferred habitats.

Objectives

The goal of this MAM Activity is to provide updated information on sea turtle habitat use and abundance in eastern LA waters to inform restoration planning and restoration evaluation in the LA Restoration Area. The objectives are to document sea turtle distribution and habitat use in Louisiana; to understand how and where important habitats overlap with known threats; and to inform the development of MAM SMART objectives for sea turtles. This work will directly benefit the Trustees' ability to effectively restore sea turtles in LA waters and to inform and evaluate the success of future sea turtle restoration efforts.

Tasks
- Conduct 2 years of field work, with sampling three times each year
- Employ transect surveys by trawl vessels to capture turtles at designated study sites
- Conduct health assessments on captured turtles and apply satellite tags to a subset of captured turtles

- Estimate habitat use by overlaying collected satellite tracking data on available GIS benthic habitat layers, as well as salinity information collected by the satellite tags.
- Complete development of a predictive model for sea turtle species habitat use and distribution in relation to physical and biological habitat characteristics.

Activity Implementation Description

Project activities include:

1. **Project Planning:** Further design the survey parameters and field components, 6 months
   a. Sampling Locations: Determine potential trawl sampling locations by consulting with State of Louisiana, DOI-USGS, commercial fishers, and charter captains to determine appropriate sampling locations based on bottom type, sea turtle sightings, and previous trawl captures. Review NMFS bycatch and strandings data to assess likely turtle residence within the study area. This will result in selected trawl locations and development of a transect map
   b. Contracting and Labor: The implementing trustee will identify FTEs for field work and/or contract staff, charter vessels to conduct field work, and purchase large mesh skimmer and otter trawl nets and other supplies.

2. **Field Work:** Conduct 2 years of field work employing the following methods:
   a. <u>Transect surveys</u> - Direct capture of sea turtles using two different vessels, one equipped with otter trawl gear, the other with skimmer trawl gear. Both vessels will use standardized seasonal 30-minute transects during spring (April), summer (July), and autumn (October) for 2 weeks in each season over 2 years to obtain a statistically appropriate sample size in Chandeleur Sound and Lake Borgne, Louisiana. These sites have been selected for several reasons, including that sea turtles are known to occur and forage in the Chandeleur Sound area, and there is a high likelihood that we would be able to capture and tag turtles in this area. While turtles are known to occur in this region of LA waters, there are still significant questions on their abundance and habitat use. Turtles will be captured using skimmer trawls in shallow areas (<10 ft.), focusing on open water adjacent to salt marsh habitat where (based on existing stranding data and northern Gulf of Mexico observations) we expect to find smaller juvenile sea turtles, and paired otter trawls in depths >10 ft.

   Approximately 120 transects will be selected from random points in appropriate depths and habitats within the study area (approx 60 transects in Chandeleur Sound and 60 in Lake Borgne), 60 will be executed by the skimmer vessel and 60 by the otter vessel. Local input will be required to replace any transects in non-towable locations due to known submerged obstructions. Once selected, the same transects will be sampled among all seasons and years. Approximately 10 separate transects will be sampled each day for both trawl types. Sampling will occur for 6 days and then repeated the following week to double sample each transect for each season in both years. Trawls will be deployed for 30 minutes of bottom time for both otter and skimmer trawls at a targeted speed of 2.5 kts for an approximate transect of 1.25 nm. The sum total length of the 120 transects with be about 150 nm sampled that will be double samples during each period. Trawls will use non-TED equipped large mesh "turtle" nets to minimize bycatch of non-turtles. Upon completion of each 30-minute tow, turtles will be brought onboard for biological sampling and tagging.

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b. <u>Health assessments</u> - Turtles captured in trawl surveys will be measured, weighed, tagged with flipper and passive integrated transponder (PIT) tags, tissue sampled (for genetic analysis and stable isotopes), blood sampled, and evaluated visually for any externally evident abnormalities. Turtles will be released at or near the capture site as soon as possible once biological sampling and/or satellite tagging is completed.

Blood will be collected from each turtle for analysis of health condition parameters including packed cell volume, total solids, and complete blood cell counts (CBCs). In addition, blood plasma extracted from each whole blood sample will be analyzed for biochemical indicators of physiological and health status (e.g., sodium, potassium, chloride, calcium, phosphorus, glucose, urea, uric acid, creatinine, cholesterol, total protein, and aspartate and alanine aminotransferases (AST and ALT), and alkaline phosphatase (ALP). Health assessments provide insight into sea turtles' use of the habitat (e.g., if they are all robust and healthy). Additionally, stable isotopes provide insight into the prey base and genetics on the natal origin/population of these animals.

<u>Satellite Tagging</u> -Twenty turtles per year, captured in the trawl surveys, will be satellite tagged to monitor GPS location, dive behavior, and water temperature.
Standard satellite tags (n=10) will collect GPS location, dive behavior, and water temperature data on turtles >30 cm SCL. Salinity tags (n=10) will collect the standard satellite tag data, plus they are equipped with a specialized salinity sensor to better understand habitat use patterns relative to salinity regimes and if shifts in salinity affect behavior in turtles >45 cm straight carapace length (SCL). All tags will be programmed for up to one year deployment. Turtles will be released at or near the capture site once epoxy has cured (approximately 120-140 minutes after capture). The team may also consider use of acoustic tags to make use of existing acoustic arrays, within the scope of permit requirements and budget constraints, and in coordination with other regional efforts (e.g., Open Ocean TIG; Sasso and Garrison, unpublished data). The team may also consider use of acoustic tags to make use of existing acoustic arrays, within the scope of permit requirements and budget constraints, and in coordination with other regional efforts (e.g., Open Ocean TIG; Sasso and Garrison, unpublished data).

Satellite tagging may occur in any season but will be targeted to spring and autumn to understand how turtles use the area during the summer and whether they leave during the late autumn/winter as water temperatures cool as well as how changes in salinity across seasons impacts turtles. Although programmed to transmit for up to one year, most tags return data for 3 to 6 months.

3. **Analysis and Modeling**: Conduct data analysis, including the following:

a. Annual and seasonal estimates of relative abundance will be generated from the trawl capture-mark-recapture data at the conclusion of each year's sampling. If recaptures are not high enough to estimate relative abundance, we will use catch per unit effort analysis as a proxy for relative abundance. By analyzing the satellite tag tracking data in relation to habitat data through Kernal density estimates, we will summarize core areas used and describe salinity regimes where turtles choose to reside based on data from the salinity tags.

b. Estimate habitat use by overlaying the satellite tracking and salinity data over available GIS benthic habitat layers. Additionally, available data from current in-water environmental monitoring stations will be identified and incorporated to assist in understanding movements of sea turtles that did not have a satellite tag that monitored salinity. In addition, we plan to coordinate with other research groups (e.g., lower trophic level studies, LDWF FIMP data), to provide abundance and species composition data for key prey organisms to further understand foraging habitat use and sea turtle distribution.

c. Complete development of a predictive model for sea turtle species habitat use and distribution based on turtle behavior in relation to physical and biological habitat characteristics and salinity level parameters. The model would be used to assess the overlap of sea turtle distribution with known and emerging threats (*i.e.* bycatch in fishing gear and vessel strikes) to prioritize the type and location of restoration activities and to evaluate their effectiveness. Additionally, such a model will help predict the impacts of changes in freshwater flow on sea turtles in the area, as well as throughout Louisiana waters and the northern Gulf of Mexico. This project will build on existing model development efforts (e.g., by NOAA Southeast Fisheries Science Center).

4. **Coordination**
    a. This project will collaborate with recent and ongoing sea turtle survey efforts in the northern Gulf of Mexico to leverage the existing and unpublished datasets (e.g., stranding data; satellite tracks in Chandeleur Sound, Breton Sound, Port Fourchon, and Ship Shoal).
    b. The implementing Trustee will coordinate with other project teams in the northern Gulf of Mexico (as described in the Background section). The project team will provide periodic updates (e.g., data collection completion; results availability) on this project to the LA TIG, and to other Trustees and TIGs as appropriate. Additionally, this project will share the sea turtle data and analyses, as available, to inform restoration planning and evaluation for LA project PO-0199.

Project Location:
The project area is Lake Borgne and Chandeleur Sound. Specific transect survey lines will be identified as part of Task 1.
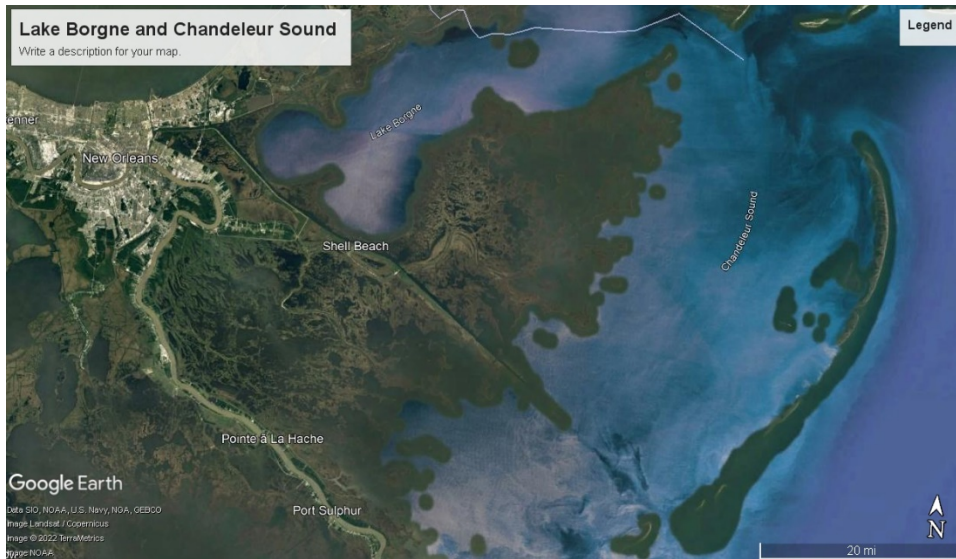
Project Outputs/Deliverables: Data collected will be used to analyze habitat use in relation to physical and biological habitat characteristics and salinity level parameters. Outputs include:

- Satellite tagging datasets
- Salinity profiles for tags equipped with salinity monitors.
- Transect survey data
- Health assessment data
- Predictive model and modeling outputs
- Technical report synthesizing data

Intended outcomes:

The data obtained from this study will fill MAM need #1b and provide critical information (habitat use, prey, and movement patterns) to develop SMART objectives for Fundamental Objectives #1 - 4. More generally, key gaps exist in baseline data from Louisiana waters and in the understanding of distribution, relative abundance, and seasonal and spatial habitat use. The data collected by this project and the associated modeling and data analysis will directly inform decision-making related to the development of SMART objectives and priorities for sea turtle restoration in LA waters, such as which in-water habitats and seasons to target to ensure sea turtle restoration in LA waters will be most effective.

Budget

Cost Category	Cost Estimate
Planning and Design	$41,512
Implementation (e.g., data collection, analysis)	$1,167,642
Field Work Direct Costs	*$640,410*

Technical Labor	$527,232
MAM Activity Management, Oversight, and Reporting	$235,232
Total MAM Activity Cost Without Contingency	**$1,444,386**
Contingency (10%)	$144,439
CPRA (coordination, technical document reviews)	$30,000
DOI (study planning and data collaboration)	$63,168
TOTAL ESTIMATED COST	**$1,681,993**

Schedule

This MAM Activity will be completed within a 3.5 year timeframe (including contracting pre-field work), with project start-up in Federal FY23 (~March 2023).

Field work will be conducted in calendar years 2024 and 2025. Data analysis and modelling will occur in calendar year 2026.

	2023 (partial year)	2024	2025	2026
Project initiated	■			
Pre-field work project planning	■			
Contracting Complete	■			
Field Work		■	■	
Review of sampling protocol (ongoing)		■	■	
Data Analysis				■
Modeling				■
Final products				■

Implementation Roles

NOAA is the Implementing Trustee responsible for all of the tasks associated with this MAM activity. NOAA will lead all project planning, field activities, data analyses and modeling, technical review of documents, and will provide project administration and oversight.

NOAA will work collaboratively with DOI and CPRA throughout project implementation. DOI and CPRA will be receive updates on project implementation and will have the opportunity to review data products. Additionally, DOI may participate in project planning (Activity 1) and analysis modeling (Activity 3). DOI may contribute data to the final modeling efforts, and assist with the development of the modeling products.

Data Management and Reporting

The DWH Trustees, as stewards of public resources under OPA, will inform the public on the MAM activity's progress and performance. Therefore, NOAA will report the status of the proposed activity via the Data Integration, Visualization, Exploration, and Reporting (DIVER) Restoration Portal annually, as outlined in Chapter 7 of the PDARP/PEIS (DWH Trustees, 2016). All reports, documents, and final datasets created as part of this MAM activity, including a NOAA final summary report synthesizing the findings of the activity, will also be stored on the DIVER Restoration Portal.

Data storage and accessibility will be consistent with the guidelines in Section 3.1.3 of the MAM Manual (DWH NRDA Trustees 2019). In the event of a public records request related to data and information that are not already publicly available, the Trustee to whom the request is addressed would provide notice to the other Louisiana TIG members prior to releasing any data that are the subject of the request. Consistency of MAM Activity with the PDARP/PEIS

The PDARP/PEIS established goals for Sea Turtle Restoration to implement an integrated portfolio of projects to address the injured species and life stages through addressing key threats to the injured species and life stages in relevant geographic areas for those species. This project is consistent with the PDARP goals, as it is intended to collect data on sea turtle habitat use in eastern LA waters, which will allow the Trustees to better understand how habitat use may overlap with key threats in this region. Therefore, this MAM activity is consistent with the PDARP/PEIS, including the Monitoring and Adaptive Management Framework, as described in Section 5.5.11.4, and the *Strategic Framework for Sea Turtle Restoration Activities* which includes considerations for monitoring. It is also consistent with the LA TIG MAM Strategy (DWH LA TIG 2021), supporting Sea Turtle Restoration Type Fundamental Objectives, as described earlier in this MAIP.

National Environmental Policy Act Review

Introduction

Section 6.4.14 of the PDARP/PEIS considers the environmental consequences associated with activities including, but not limited to planning, feasibility studies, design, engineering, and permitting of conceptual projects. These activities can include a mixture of data collection into historical conditions, modeling of ecological response to the project, conducting surveys, and creating maps and scale drawings of potential project sites. These activities may also include minimally intrusive field activities. The MAM activities focused on analysis and modeling described in this MAIP fall within the scope described in the PDARP/PEIS. Upon review, the federal trustees of the LA TIG find the environmental conditions and NEPA analysis in the PDARP/PEIS current and valid. Therefore, this review relies on the analysis in Section 6.4.14 of the PDARP/PEIS, which is incorporated herein by reference and summarized below. Field work activities (transect surveys, health assessments, satellite tagging) identified in this plan are a continuation of prior NOAA actions fully evaluated as part of the issuance of the National Marine Fisheries Service (NMFS) Research Permit #21233 to the NMFS Southeast Fisheries Science Center, and as such this MAIP relies upon previous environmental review of Permit #21233, summarizing and incorporating by reference that material below.

Summary NEPA Review

For purposes of this NEPA review, activities to be performed can be categorized as data-based actions and field-based actions. In this review, visual data auditing, development of improved habitat use models and a final report are considered data-based actions. These activities are consistent with the

previous evaluation in the PDARP/PEIS Section 6.4.14 and would not cause adverse impacts to any resource category, and require no additional environmental review.

For field-based actions, the PDARP/PEIS states that temporary impacts on the biological and physical environment could include short-term, temporary disturbance of habitats and species, minor emissions from equipment and vehicles, and minor disturbance to terrestrial, estuarine, and marine environments. Field work in this MAIP consists of transect surveys, direct capture of sea turtles, and health assessment and satellite tagging of sea turtles, per existing permits. Some of these activities have minor adverse effects on resources and require permitting and authorization under the ESA.

Transect Surveys
Transect surveys involve the use of a National Marine Fisheries Service research vessel and contracted skimmer trawl vessels. The vessels will deploy gear in the water for 30-minute transects with the intention of direct capture of sea turtles. Surveys will be conducted over a 2-week period, 3 times each year, for 2 years. Once turtles are captured they will be brought on board the vessel for assessment. Surveys will be conducted in Chandeleur Sound and Lake Borgne, Louisiana. As summarized in the previous NMFS environmental review for Permit #21233 (CE Memo, NMFS, 2018a), turtles may be forcibly submerged when entrapped in trawl gear, which may result in mortality or serious injury. However, most turtles captured by these methods are not killed or seriously injured and most animals will recover within minutes to hours of capture. All live captured animals would be released at or near the point of capture to minimize disruption of an animal's previous behaviors.

Sea Turtle Health Assessments
Once turtles are captured in the trawls, they will be brought on board to be measured, weighed, tagged with flipper and passive integrated transponder (PIT) tags, tissue sampled (for genetic analysis and stable isotopes), blood sampled, and selected turtles of an appropriate minimum size will have a satellite tag attached. Turtles will be released at or near the capture site.

The proposed health assessment activities are expected to result in effects ranging from minor, short-term (recoverable) behavioral effects, to moderate effects on the individual animals sampled. Such impacts fall within the range of activities permitted and authorized under existing ESA Section 10(a)(1)(A) scientific research permit (#21233) held by the NMFS Southeast Fisheries Science Center, and as such, have been previously evaluated per the NEPA analyses associated with the permit and authorizations (CE Memo, NMFS, 2018a).

Satellite Tagging
Approximately 20 turtles per year (>40 cm straight carapace length (SCL)), captured in the trawl surveys, will be satellite tagged to monitor location, dive behavior, and temperature. The specialized salinity sensor satellite tags will be used on a portion of these turtles to better understand habitat use patterns relative to salinity regimes and if shifts in salinity affect behavior. The proposed satellite tagging research activities are expected to result in effects ranging from minor, short-term (recoverable) behavioral effects, to moderate effects on the individual animals sampled. Transmitters have the potential to increase the turtle's hydrodynamic drag, affect lift and pitch, and increase an animal's risk of entanglement. NMFS' studies in San Diego Bay have shown that 1) transmitters do not alter the turtle's diving and surface behaviors or swimming speeds, and 2) transmitters and the tagging experience leave no lasting effect on a sea turtle's habitat use patterns indicating that tag attachments have negligible impacts to tagged sea turtles. Such impacts fall within the range of activities permitted and authorized under existing ESA Section 10(a)(1)(A) scientific research permit (#21233) 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 (CE Memo, NMFS, 2018a). The NOAA SEFSC also currently holds a Louisiana permit allowing work to occur in state waters.

Conclusion

No long-term moderate adverse impacts would occur because of performing these MAM activities. Short-term, negligible to moderate adverse impacts could occur to sea turtles from capture in trawl gear and associated health assessments. Beneficial impacts would result from increased understanding about the habitat use and abundance of sea turtles in the LA waters of Chandeleur Sound and Lake Borne to help ensure maximum restoration benefits during project planning in the LA Restoration Area. The impacts fall within the analysis provided in Section 6.4.14 of the Final PDARP/PEIS, the ESA Research Permit to Take Endangered Species for Scientific Purposes (No. 21233) and the NEPA analyses associated with the permit (CE Memo, NMFS, 2018a). Therefore, no further NEPA analysis for these MAM activities is required.

Compliance with Other Environmental Laws and Regulations

The Louisiana TIG will ensure compliance with all applicable state and local laws and other applicable federal laws and regulations relevant to this MAM Activity. Impacts protected species and habitats under NMFS and USFWS jurisdiction have already been evaluated for compliance with applicable state and Federal laws. For the status of reviews under Federal regulatory statutes, see the table below.

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. Following the SOP, the Implementing Trustees will ensure that the status of environmental compliance (e.g., completed vs. in progress) is tracked through the Restoration Portal.

Documentation of regulatory compliance will be available in the Administrative Record that can be found at the DOI's Online Administrative Record repository for the DWH NRDA (https://www.doi.gov/deepwaterhorizon/adminrecord). The current status of environmental compliance can be viewed at any time on the Trustee Council's website: http://www.gulfspillrestoration.noaa.gov/environmental-compliance/.

Table 1. Status of federal regulatory compliance reviews and approvals for the proposed project: Sea Turtle Habitat Use and Abundance in LA Waters

Federal Statute	Compliance Status
Bald and Golden Eagle Protection Act (USFWS)	N/A
Coastal Barrier Resources Act (USFWS)	In progress
Coastal Zone Management Act	In progress
Endangered Species Act (NMFS)	Complete, covered by existing compliance. SEFSC holds an existing ESA permit (No. 21233), which authorizes take from the proposed survey and sampling techniques described above, (NMFS, 2018a and NMFS, 2018b). A consultation under Section 7 of the ESA with NMFS was completed on the issuance of permits for sea turtle research (NMFS 2017).
Endangered Species Act (USFWS)	In progress.
Essential Fish Habitat (NMFS)	Complete, covered by existing compliance.
Marine Mammal Protection Act (NMFS)	Complete, covered by existing compliance
Marine Mammal Protection Act (USFWS)	In progress
Migratory Bird Treaty Act (USFWS)	N/A
National Historic Preservation Act	Complete, covered by existing compliance. Per NMFS permit, research activities will not be conducted in areas listed on the National Register Historic Places or National Historic Landmarks.
Rivers and Harbors Act/Clean Water Act	N/A

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