

Marine Mammals Restoration Type

Open Ocean Restoration Area



There are 21 whale and dolphin species found in the northern Gulf of Mexico. Cetaceans (whales and dolphins) are marine mammals that inhabit a broad range of habitats in the marine environment.

Most of the marine mammal species that overlapped with the *Deepwater Horizon* (DWH) oil spill footprint were injured through ingesting, breathing, and potentially absorbing oil components, resulting in adverse health effects.

The marine mammal restoration projects proposed for implementation support the following restoration approaches identified in the DWH Oil Spill Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement:

- Reduce injury and mortality of marine mammals from vessel collisions.
- Measure noise to improve knowledge and reduce impacts on marine mammals.

- Increase marine mammal survival through better understanding of causes of illness and death as well as early detection and intervention of anthropogenic and natural.

Marine Mammals Restoration Goals

- Implement an integrated portfolio of restoration approaches to restore injured marine mammals across the diverse habitats and geographic ranges they occupy.
- Identify and implement restoration activities that reduce key stressors. Collect and use monitoring information, such as population and health assessments.
- Identify and implement actions that support ecological needs of the stocks; improve resilience to natural stressors; and address direct human-caused threats such as vessel collisions and noise impacts.

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Open Ocean Restoration Area

Marine Mammals Restoration Type Proposed Projects

PROJECT NAME	PROJECT DESCRIPTION	EST. COST AND TIMEFRAME
REPLENISH AND PROTECT LIVING COASTAL AND MARINE RESOURCES		
Reducing Impacts to Cetaceans during Disasters by Improving Response Activities	One of the more direct opportunities to benefit cetaceans is through improvement and enhancement of response and assessment activities during those times when large numbers of animals are threatened by human-caused and natural disasters in the Gulf of Mexico. Activities proposed by this project would include conducting a Gulf-wide gap analysis and risk assessment of disaster response capacity; planning and protocol development for disaster response and investigation; and developing new tools and techniques to minimize or reduce injury and mortality. The survival and health of cetacean populations would be enhanced through the implementation of disaster response and preparedness measures.	\$4,287,000 10 Years
<u>Compilation of Environmental, Threats, and Animal Data for Cetacean Population Health Analyses (CETACEAN)</u>	Current information on cetaceans of the Gulf of Mexico is collected by a variety of organizations and is stored using different databases. This project proposes to develop a platform that would coordinate critical data for restoration and provide user-friendly, web-based access to datasets that would assist the restoration and protection of marine mammals. Technical experts would identify key datasets, parameters, analyses, and partners for the project. Additionally, the project would involve training to inform users and data collectors of standardized data collection protocols. The CETACEAN platform would support restoration planning, prioritization, and implementation by making key data available to decision makers in a centralized platform.	\$5,808,500
Reduce Impacts of Anthropogenic Noise on Cetaceans	The acoustic environment in the Gulf of Mexico includes a spectrum of noise sources, including a variety of human-made sounds. Cetaceans rely on sound for vital life functions and increased anthropogenic noise levels may mask important biological sounds, disturb or displace vital behaviors, and cause direct physiological harm. This project would identify activities to reduce noise levels in the Gulf of Mexico; learn more about the status of new technologies and identify mechanisms for applying techniques in the Gulf; and work with groups to identify partnership opportunities to advance noise reducing technologies for testing and implementation. The highest risk areas would be identified and passive acoustic monitoring arrays would be used to continue and enhance baseline data collection to inform restoration and monitor noise reduction outcomes.	\$8,992,200 6 Years
Reduce and Mitigate Vessel Strike Mortality of Cetaceans	Vessel collisions are one of the main anthropogenic sources of mortality for large whales around the world and are a threat to cetaceans in the Gulf of Mexico. In order to appropriately focus vessel strike risk reduction activities, this proposed project would conduct analyses to identify locations of highest vessel activity in the Gulf; consolidate offshore cetacean distribution data; and then combine vessel and cetacean data to identify areas of concern for collision risk. The project would then identify and develop partnerships, cultivate buy-in from other stakeholders, and implement the most effective and efficient activities to reduce and mitigate vessel strike mortality for each high-risk area. By implementing these measures, the project would increase survival of individuals and populations for injured species such as the Gulf of Mexico Bryde's whale.	\$3,834,000 4 Years

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Reducing Impacts to Cetaceans during Disasters by Improving Response Activities

Marine Mammals Restoration Type



This project would improve and enhance whale and dolphin response activities in the Gulf of Mexico to address a variety of potential disasters.

In the years since the *Deepwater Horizon* oil spill, the National Oceanic and Atmospheric Administration has developed guidelines for marine mammal oil spill responses. However, many of these efforts have been general and not specific to situations or regional needs. There is a need for new tools and techniques to enhance our ability to respond to marine mammal disasters in the Gulf of Mexico. An effective, rapid response can have positive benefits to individual animals and populations.

To address this need, this proposed project would support the refinement and development of marine mammal response plans for a variety of potential disasters. The focus is to improve and enhance response and assessment activities for marine mammals threatened by disasters in the Gulf of Mexico. Disasters include natural, human-caused, and whale and dolphin stranding events.

Participation by the Gulf stakeholders would be sought in disaster response planning and implementation. Potential partners include the Southeast Marine Mammal Stranding Network, academic institutions, state agencies and other organizations involved in conducting

Estimated Cost and Timeframe

\$ 4,287,000 • 10 years



response and related research activities. Other programs such as the National Fish and Wildlife Foundation Gulf Environmental Benefit Fund are continuing to fund related studies and stranding network capabilities, and it is anticipated that this project would collaborate with those programs by sharing data and leveraging and engaging similar activities.

Project Objectives

- Identify area-specific disaster risks and gaps in responses.
- Address gaps through planning, development of new techniques and tools, and acquisition of stranding specific equipment and supplies.
- Minimize or reduce marine mammal injury and mortality by improved response and assessment activities.

All project activities would be closely coordinated with the Environmental Protection Agency National Response Team, the Federal Emergency Management Agency, and other relevant agencies to ensure that activities are consistent with appropriate authorizations.

The project supports the Trustees' goal to implement integrated approaches for restoring injured marine mammals throughout the Gulf of Mexico.

Components

The project would begin with establishment of a working group to review existing response plan documents and complete a gap analysis/risk assessment. This would help to identify areas in the current stranding response network that would benefit from additional support, including staffing, training, equipment, communications, and expertise. The capacity of the marine mammal stranding network would then be increased through enhanced equipment and response capabilities. Further investigation would be performed to collect data, refine tools and techniques, and improve situational response.

The project focuses on improving and enhancing response and assessment activities for marine mammals threatened by human-caused and natural disasters.

The overall focus of the effort would primarily be on the species over the continental shelf and in the open ocean of the northern Gulf of Mexico. Based on the gap analysis for all disaster scenarios, specific locations may be targeted for certain issues such as mass strandings of pelagic marine mammal species in the waters of southwest Florida and the Florida panhandle.

The project is expected to span 10 years. The disaster response working group and leadership would be established in the first year followed by response plan and protocol development in years two and three. Years three to 10 would include continued operations and analysis of the developed plans and protocols.

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Compilation of Environmental, Threats, and Animal Data for Cetacean Population Health Analyses

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This project would develop a data platform that would provide user-friendly access to datasets for assessing the health of whales and dolphins and the stressors that threaten them.

The data platform, named CETACEAN, is short for **C**ompilation of **E**nvironmental, **T**hreats, and **A**nimal data for **C**etacean population health **A**nalyses. Currently, information on Gulf whales and dolphins is collected by a variety of organizations using different data formats and services. This proposed project would provide for the development of an user-friendly platform with comprehensive data management capabilities. This platform would assist Trustees, restoration planners, responders, and conservation

Estimated Cost and Timeframe

\$5,808,500 • 5 years

This web-based application would provide access to the best available data about the health of Gulf of Mexico whales and dolphins.

managers in assessing the health of and threats to whale and dolphin populations in the Gulf. This database would provide integrated information to inform decision

makers on the development of restoration activities and the assessment of restoration effectiveness.



Project Objectives

- Identify key datasets, parameters, analyses and partners.
- Develop solutions for more effective access to marine mammal-related databases holding health and threats information.
- Create a centralized, web-based application that provides access to these datasets and is compatible with other key data repositories.
- Improve and sustain the use of standardized data formats, data collection protocols, analyses, and training materials by groups working with whales and dolphins in the Gulf of Mexico.

In addition, the platform would inform decision making for timely and effective responses.

The key outcome of the project would be a web-based, cloud-based application that provides access to the best available data about the health of and threats to Gulf of Mexico whales and dolphins.

The project supports the Trustees' goal to implement integrated approaches for restoring injured marine mammals throughout the Gulf of Mexico.

Components

The project would provide a Gulf-wide approach to planning and monitoring whale and dolphin restoration, encompassing a location-based and/or project specific approach for data collection and utilization. Priority would be given to the locations with

species adversely affected by the *Deepwater Horizon* oil spill.

To ensure that the CETACEAN platform would meet the needs of end users and incorporate the best available information, the project team would work with a team of key collaborators in both planning and implementation and provide opportunities to meet with contributors and end-users throughout the process.

The platform would be developed and released in intermediate versions to targeted stakeholders to allow for adaptive development and management.

The proposed project would require approximately five years for full implementation. Project planning would occur in years one and two and development of the database platform would occur in years one through four. The CETACEAN platform would be released over the first three years of the project. Training sessions would be held to inform users and data collectors of standardized data collection protocols. Platform maintenance would occur in years two through five.

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Reduce Impacts of Anthropogenic Noise on Cetaceans

Marine Mammals Restoration Type



This project would reduce whale and dolphin exposure to human-caused noise in priority areas of the Gulf of Mexico.

Whales and dolphins rely on sound for vital life functions including foraging, navigation, and reproduction. The Gulf of Mexico environment is impacted by a variety of human-made sound sources including seismic airguns, small and large vessels, explosives, and pile driving. Increased noise levels from these sources

Estimated Cost and Timeframe

\$8,992,200 • 6 years

may disrupt or displace life function behaviors and cause direct physical harm to whales and dolphins.

Impacts from noise may include, reduced foraging success, reduced reproductive success, masking of communication and environmental cues, and habitat displacement.



Project Objectives

- Advance existing noise-reduction technologies.
- Identify high-risk areas for restoration.
- Monitor the soundscape in the Gulf of Mexico.
- Develop and implement a strategic approach to restoration for preventing and reducing noise in each high-risk area.

This proposed project would reduce noise exposure in the Gulf of Mexico by conducting a risk assessment to identify priority areas, further developing noise reduction strategies and technologies, and deploying passive acoustic monitoring (PAM) equipment in areas of interest. The project would focus on low- and mid-frequency sound sources of greatest potential for harm to open ocean whale and dolphin populations in the northern Gulf of Mexico.

The project supports the Trustees' goal to identify and implement actions that address direct human-caused threats such as noise.

Components

Target species would be those with known or suspected sensitivity to noise, those injured by the *Deepwater Horizon* oil spill, and those found in areas of greatest human activity. Priority species for this project are the sperm whale and the Gulf of Mexico Bryde's whale (both listed as endangered under the Endangered Species Act), and beaked whales.

It is expected that noise-reduction measures will benefit other oceanic species whose

hearing sensitivity overlaps with activities in these areas.

Project components would be implemented simultaneously when possible, but many activities would be in sequence as early activities address data gaps that then would inform ongoing restoration planning and implementation.

Whales and dolphins rely on sound for vital life functions and increased noise levels may disrupt or displace these functions.

Monitoring activities would include maintenance of an existing PAM array as well as extending the PAM array to areas with data gaps. Monitoring the noise environment would take place years one through six and would help to expand baseline data, inform future restoration of the soundscape, and monitor noise reduction outcomes.

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Reduce and Mitigate Vessel Strike Mortality of Cetaceans

Marine Mammals Restoration Type



This project would decrease the risk of vessel collisions with whales, particularly large whales in the offshore waters of the Gulf

of Mexico.

Vessel collisions are a known source of human-caused mortality for many marine mammal species and, in particular, for large whales. Collisions can result in serious injury or death due to either penetrating injuries from propeller cuts or blunt force trauma from collisions with vessel hulls. The true numbers of whale interactions with vessels are typically underestimated. While vessel collisions may be documented relatively infrequently in some large whale species, collisions may still be considered a major threat, particularly for specific whale populations that are small.

Estimated Cost and Timeframe

\$3,834,000 • 4 years

Although there are several potential actions for reducing whale-vessel contacts such as changing vessel routes and speeds, there is insufficient information regarding the most effective measures that can be implemented in the Gulf of Mexico.

This project would conduct a risk assessment to identify high risk areas and possible restoration options for reducing vessel strikes in those areas.

The project supports the Trustees' goal to identify and implement actions that address direct human-caused threats such as vessel collisions.





Project Objectives

- Identify high-risk areas for vessel strikes on marine mammals in the northern Gulf of Mexico.
- Identify and implement restoration activities for each of those areas that would most effectively reduce the risk of vessel strikes through collaborative partnerships.

Components

The project would begin with a Gulf-wide risk assessment to characterize high risk areas of vessel collisions. It would then narrow in focus to specific locations based on the overlap of vessel traffic and marine mammal distributions. Priority would be given to the locations that overlap with where animals were impacted by the *Deepwater Horizon* oil spill.

Collaborative partnerships would be developed with Gulf of Mexico stakeholders, including the

This project would conduct a risk assessment to identify high risk collision areas and possible restoration opportunities for reducing vessel strikes in those areas.

public; commercial industries; the states and countries bordering the Gulf of Mexico; and environmental and conservation groups. The project team would conduct outreach with the commercial shipping industry, high-risk ports, and federal stakeholders.

Engagement opportunities would be made available to stakeholders to discuss the types of implementation activities that have the highest likelihood of successfully meeting project goals.

Identifying high-risk areas and restoration options for each identified area would occur in years one through three. Stakeholder engagement and implementation of restoration options would occur in years three and four. Restoration monitoring would occur in year four.

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