

Action Plan for Whales and Dolphins in the Gulf of Mexico



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Legal Mandates for Marine Mammals

- **Marine Mammal Protection Act**
- **Endangered Species Act**
- **National Environmental Policy Act**

(and the Oil Pollution Act as it relates to the BP-DWH oil spill and restoration for marine mammals)



Bryde's Whale

Threats

- Oil and Gas Exploration and Development
- Vessels
- Noise
- Fishery bycatch (commercial and recreational)
- Pollution (chemical, heavy metal)
- Coastal development
- Tourism
- Harmful Algal Blooms
- Freshwater inflow
- Disease
- Climate change
- Adverse weather events



Why an Action Plan for Whales and Dolphins ?

- Impact of human activities on marine mammals in the Gulf
- Impact of natural events
- Nations largest oil spill
- Multiple sources of potential funding
- Concurrent Federal mandates, research, and management
- Opportunities for collaboration
- Need to develop and disseminate an overarching “go-to” planning document.

Sources of Information

- Gulf of Mexico Lease Sale EIS's (BOEM)
- Programmatic Damage Assessment and Restoration Plan (DWH Trustees 2016)
- Gulf 360°: State of the Gulf of Mexico (Harte Research Institute et al. 2013)
- Strategic Plan to Mitigate the Impacts of Ship Strikes on Cetacean Populations: 2017-2020 (IWC 2017)
- Assessing the Long-Term Effects of the BP DWHOS on Marine Mammals of the GoM: Statement of Research Needs (MMC 2011)
- Gulf of Mexico Marine Mammal Research and Monitoring Meeting Summary Report (MMC 2015)
- Opportunities for the Gulf Research Program: Monitoring Ecosystem Restoration and Deep Water Environments: A Workshop Summary (NAS 2015)
- Effective Monitoring to Evaluate Ecological Restoration in the Gulf of Mexico (NAS 2016)
- Bottlenose Dolphin Stock Structure Research Plan for the Central Northern Gulf of Mexico (NMFS 2007)
- Southeast Fisheries Science Center Strategic Plan for Marine Mammal Research (NMFS 2008)
- Endangered Species Act Recovery Plan for Sperm Whale (NMFS 2010)
- International Marine Mammal Action Plan (NMFS 2012)
- Ecosystem Status Report for the Gulf of Mexico (NMFS 2013)
- Southeast Fisheries Science Center Science Plan 2013-2018 (NMFS 2013)
- Southeast Regional Office Strategic Plan FY2016-2020 (NMFS 2015)
- Fisheries of the United States 2015 (NMFS 2016)
- Status Review of Bryde's Whales (*Balaenoptera edeni*) in the Gulf of Mexico under the Endangered Species Act (NMFS 2016)
- Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS 2016)
- U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments (NMFS 2017)
- MMPA List of Fisheries (NMFS 2017)
- A Strategy for a Healthy Gulf of Mexico: Resilience through Ecosystem Restoration (NOAA 2015)
- Ocean Noise Strategy Roadmap (NOAA 2016)
- Charting the Gulf: Analyzing the Gaps in Long-Term Monitoring of the Gulf of Mexico (Ocean Conservancy 2015)
- Action Plan for the Conservation of Marine Mammals (MMAP) in the Wider Caribbean Region (UNEP 2008)
- ...and numerous scientific papers and reports

Purpose and Process

- Inform and guide management, research, restoration, and monitoring efforts for the recovery and conservation of marine mammals in the Gulf in accordance with the ESA, MMPA, National Environmental Policy Act (NEPA), Oil Pollution Act (OPA), RESTORE and other legal mandates.

Process

- Review existing efforts
- Convene Federal Agencies
- Draft Action Plan
- Solicit feedback
- Final Action Plan
- Broad distribution and communication
- Re-evaluate/adjust/update and distribute

Scope of Plan

- Time frame: 5+ years
- Living document
- Gulf-wide
- Priority actions/focal species
- Target audiences



Focal Species

Bay, Sounds and Estuaries- bottlenose dolphins

- Barataria Bay
- Mississippi Sound
- Others?

Coastal

- Northern coastal bottlenose dolphin stock

Shelf

- bottlenose dolphin stock
- pantropical spotted dolphins

Open Ocean

- Risso's dolphins
- Beaked whales
- Sperm whales
- Bryde's whales



How does this Action Plan Fit in With Other Efforts?



Action Plan Components

- **Executive Summary**
- **Overview**
- **Background**
 - State of Gulf
 - Marine Mammal Stocks
 - Human Activities
 - Other Threats
 - Cumulative Impacts
- **Action Items**
 - **Addressing critical uncertainties and data gaps**
 - Stock structure
 - Abundance estimates
 - Distribution and movements
 - Habitat use
 - Causes of morbidity, injury, mortality
 - **Addressing primary threats to recovery and conservation**
 - Fishery Interactions
 - Large Scale Die-Offs Caused by Disease or Exposure to Harmful Algal Blooms
 - Vessel Strikes
 - Exposure to Freshwater or Low Salinity Conditions
 - Exposure to Contaminants
 - Exposure to Sound
 - Cumulative Impacts
 - **Cross-Cutting Actions**
 - Data standards
 - Technical guidance
 - Data archival and sharing
 - **State-by-State Actions**

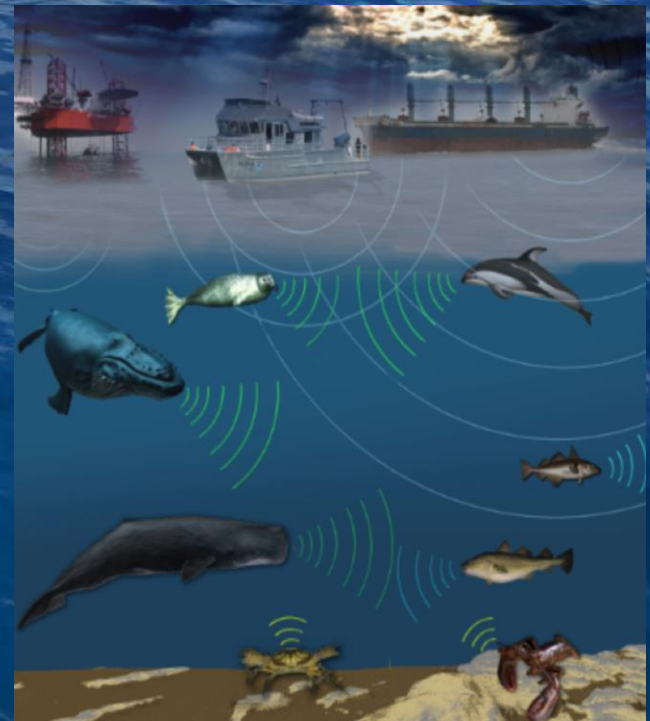
SAMPLE:

Action Item – Exposure to Sound

Problem: Human-generated underwater sound can disturb whales and dolphins and cause damage to hearing capabilities

Sound sources of concern for marine mammals:

- Seismic airguns
- Pile driving
- Vessel noise (propellers, engine noise)
- Underwater detonations
- Military sonar
- Other acoustic sources
(sub-bottom profilers, echosounders, pingers, etc.)



Action Item- Exposure to Sound

Objective: Develop a soundscape for the Gulf of Mexico and overlay distribution of focal and other species of whales and dolphins

Priority Species: Focal species/all species

Priority Actions:

- Use information generated by BOEM's open ocean passive acoustic monitoring program to characterize sound sources and levels
- Integrate data on visual sightings of whales and dolphins with passive acoustic detections collected from research and seismic surveys
- Overlay soundscape data with data on whale and dolphin distribution
- Identify spatial and temporal gaps in passive acoustic monitoring and modify scope of acoustic monitoring in future as needed
- Extend duration of BOEM and/or complementary acoustic monitoring to determine trends in sound sources and levels over time
- Develop methods to characterize soundscape for bay, sound, and estuarine and coastal environments

Action Item- Exposure to Sound

Objective: Gain better understanding of how, and under what circumstances, sound exposure results in harm to whales and dolphins

Priority Species ??

Priority Actions:

- Investigate sound propagation parameters, specifically for multiple source vessels
- Incorporate behavioral measures into PCOD (Population Consequences of Disturbance) model to assess population level effects from acute and chronic sound exposure
- Develop and standardize methodology and analyses that can be conducted on live animals to determine physiological effects of sound exposure and biological relevance at both the individual and population level

Objective: Using live strandings, develop age-specific and location-specific hearing curves for cetacean species

Priority Species: All cetaceans

Priority Actions:

- Develop cost-effective and user-friendly methods for collecting hearing data on captive and live-stranded whales and dolphins
- Develop standardized protocols and conduct training for stranding network members to increase capacity for collection of hearing sensitivity data (i.e., Auditory Evoked Potential) from captive and live-stranded whales and dolphins

Objective: Ensure that harm to cetaceans from human-caused sound in the Gulf is avoided or reduced to the maximum extent possible

Priority Species: All cetaceans

Priority Actions:

- Maintain and improve current Best Management Practices (BMPs) to manage sound exposure to whales and dolphins during industrial activities such as seismic surveys, pile driving, military activities, and decommissioning (particularly explosive removal) of offshore platforms
- Create a central database to inventory and coordinate human activities that produce sound (i.e, seismic surveys) in state and open ocean waters and use this system to alert stranding networks of acoustic activities occurring in their area

What is Next?



Questions?



Problem Statements

- Insufficient understanding of populations, numbers, distribution, habitat use, etc. to inform decision making and management
- Cetaceans interact with several fisheries that are causing unsustainable interactions
- Bottlenose dolphins cannot survive prolonged exposure to fresh water.
- Cetaceans are injured and die from being struck by fast-moving vessels
- Cetacean health, reproduction, and resilience can be impaired by exposure to contaminants
- Cetaceans rely on hearing to communicate, navigate, and find and capture prey; human-generated noise can impair and damage hearing capabilities
- Cetaceans experience large-scale die-offs caused by disease outbreaks and harmful algal blooms (HABs)

