# *Deepwater Horizon Oil Spill*: Draft Programmatic Damage Assessment and Restoration Plan and Draft Programmatic Environmental Impact Statement

**Abstract:** In accordance with the Oil Pollution Act of 1990 (OPA) and the National Environmental Policy Act (NEPA), the Federal and State natural resource trustee agencies (Trustees) have prepared a Draft Programmatic Damage Assessment and Restoration Plan and Draft Programmatic Environmental Impact Statement (PDARP/PEIS). The PDARP/PEIS considers programmatic alternatives to restore natural resources, ecological services, and recreational use services injured or lost as a result of the Deepwater Horizon oil spill. The Deepwater Horizon oil spill natural resource Trustees have developed restoration alternatives, comprised of various restoration types, to address injuries to natural resources and resource services resulting from the Deepwater Horizon oil spill. Criteria and evaluation standards under the OPA natural resource damage assessment regulations guided the Trustees' consideration of programmatic restoration alternatives. The PDARP/PEIS also evaluates the environmental consequences of the restoration alternatives under NEPA. Specific restoration actions, to be selected in subsequent planning phases, will take place primarily in the northern Gulf of Mexico, Texas, Louisiana, Mississippi, Alabama, and Florida.

**Lead Agency:** National Oceanic and Atmospheric Administration

**Cooperating Agencies:**
Texas Parks and Wildlife Department
Texas General Land Office
Texas Commission on Environmental Quality
Louisiana Coastal Protection and Restoration Authority
Louisiana Oil Spill Coordinator's Office
Louisiana Department of Environmental Quality
Louisiana Department of Wildlife and Fisheries
Louisiana Department of Natural Resources
Mississippi Department of Environmental Quality
Alabama Department of Conservation and Natural Resources
Natural Resources Geological Survey of Alabama
Florida Department of Environmental Protection
Florida Fish and Wildlife Conservation Commission
U.S. Environmental Protection Agency
U.S. Department of Agriculture
U.S. Department of the Interior

**For Further Information Contact:** Courtney Groeneveld, email: *Gulfspill.restoration@noaa.gov*

**Comments Due:** We will consider public comments received on or before December 4, 2015.

**Public Comments May Be Submitted:**
Via the Web: *http://www.gulfspillrestoration.noaa.gov* (preferred method)
Via U.S. Mail: U.S. Fish and Wildlife Service, P.O. Box 49567, Atlanta, GA 30345

# *Deepwater Horizon* Oil Spill Draft Programmatic Damage Assessment and Restoration Plan and Draft Programmatic Environmental Impact Statement

OCTOBER 2015

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

Dear Reviewer:

In 2010, the natural resources of the northern Gulf of Mexico were seriously impacted by the *Deepwater Horizon* oil spill. Since that time, the *Deepwater Horizon* natural resource Trustees have worked together to assess the injuries to natural resources in the northern Gulf of Mexico and to the services those resources provide, and to determine the restoration needed to compensate the public for these impacts. Many habitats, plants, and animals in the northern Gulf of Mexico were injured; indeed, the Trustees believe that the northern Gulf of Mexico ecosystem itself was injured.

The Trustees prepared this *Deepwater Horizon Oil Spill Draft Programmatic Damage Assessment and Restoration Plan and Draft Programmatic Environmental Impact Statement* (Draft PDARP/PEIS) in accordance with the Oil Pollution Act (OPA) and the National Environmental Policy Act of 1969 (NEPA). The document presents the Trustees' injury assessment and proposed restoration plan and considers the environmental impacts of the propose restoration and alternatives to that restoration. The Trustees propose to select a comprehensive, integrated ecosystem restoration plan for implementation. The Draft PDARP/PEIS is programmatic; it describes the framework by which subsequent project-specific restoration plans will be identified and developed during the coming decades.

On behalf of the Trustees, and in accordance with OPA and NEPA, we are submitting this Draft PDARP/PEIS for your review and comment, pursuant to the attached Trustee resolution supporting release to the public. We are the NOAA responsible officials for the Draft PDARP/PEIS:

David G. Westerholm
Director, Office of Response and Restoration
National Ocean Service
National Oceanic and Atmospheric Administration
1305 East-West Highway
Silver Spring, MD 20910

Samuel D. Rauch III
Deputy Assistant Administrator for Regulatory Programs
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway
Silver Spring, MD 20910

The full text of the Draft PDARP/PEIS is available at www.gulfspillrestoration.noaa.gov, and a shorter document highlighting the key findings of the injury assessment and the proposed restoration plan also will be made available on that site. For further information or questions regarding obtaining these documents you may contact Courtney Groeneveld, National Marine Fisheries Service, Office of Habitat Conservation by email at gulfspill.restoration@noaa.gov.

**Comments on the Draft PDARP/PEIS must be received on or before December 4, 2015.** We welcome your comments and invite you to participate in one of the public meetings the Trustees are holding to discuss the document and receive your comments. Details on those public meeting dates and locations are provided at www.gulfspillrestoration.noaa.gov and on other Trustee websites, as well as in the Federal Register notice of availability for this document and several newspapers in each of the five Gulf states.

Printed on Recycled Paper

Written comments may be submitted via the Web at www.gulfspillrestoration.noaa.gov or via U.S. mail to: U.S. Fish and Wildlife Service, P.O. Box 49567, Atlanta, GA 30345. USFWS will provide mailed comments to all of the Trustees. We join our fellow Trustees in encouraging you to comment on the Draft PDARP/PEIS so that your ideas and input can be considered in the Final PDARP/PEIS.

Sincerely,

Samuel D. Rauch, III
Designated NOAA NEPA Coordinator
Deputy Assistant Administrator for
Regulatory Programs
National Marine Fisheries Service

David G. Westerholm
Director, Office of Response and Restoration
National Ocean Service

Enclosure

*DWH Natural Resource Trustees Resolution 15-2*
ADOPTED September 23, 2015

**A RESOLUTION OF THE DEEPWATER HORIZON OIL SPILL NATURAL RESOURCE TRUSTEES TO RELEASE THE PROGRAMMATIC DAMAGE ASSESSMENT AND RESTORATION PLAN AND PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PDARP/PEIS) FOR PUBLIC COMMENT:**

In accordance with the Oil Pollution Act of 1990 (OPA) and the National Environmental Policy Act (NEPA), the undersigned representatives of the Natural Resource Trustees hereby approve the release of the Programmatic Damage Assessment and Restoration Plan and Programmatic Environmental Impact Statement (PDARP/PEIS) for public comment. The PDARP/PEIS approved in this resolution was provided to the Trustees through an e-mail dated September 23, 2015 and titled "PDARP/PEIS for TC Approval." The PDARP/PEIS will be provided to the public for comment through the *Federal Register* following this resolution. After carefully evaluating four restoration alternatives under OPA and NEPA, the Trustees identified Comprehensive Integrated Ecosystem Restoration (Alternative A) as the Trustees' Preferred Alternative, as discussed in Section 5.5 of the PDARP/PEIS. Alternative B is Resource-Specific Restoration and is described in Section 5.6 of the PDARP/PEIS. Alternative C is Continue Injury Assessment and Defer Comprehensive Restoration Planning and is detailed in Section 5.7 of the PDARP/PEIS. Alternative D is Natural Recovery/No Action and is discussed in Section 5.8 of the PDARP/PEIS. The environmental consequences of the four alternatives are evaluated in Section 6 of the PDARP/PEIS.

The Trustees are issuing this PDARP/PEIS for public review and comment. The Trustees will consider public comments on the PDARP/PEIS prior to finalizing the PEIS and prior to selecting a programmatic restoration alternative in a Record of Decision for the PDARP/PEIS.

**SIGNATURES ON FOLLOWING PAGES:**

FOR THE STATE OF ALABAMA:

N. GUNTER GUY, JR.
Alabama Department of Conservation and Natural Resources
Commissioner of Conservation

BERRY H. TEW, JR.
Geological Survey of Alabama and State Oil and Gas Board of Alabama
State Geologist/Oil & Gas Supervisor

FOR THE STATE OF FLORIDA:

LARRY MORGAN
Florida Department of Environmental Protection
Senior Deputy General Counsel

Kelly Samek
Florida Fish and Wildlife Conservation Commission
Gulf Restoration Coordinator

FOR THE STATE OF MISSISSIPPI:

GARY C. RIKARD
Mississippi Department of Environmental Quality
Executive Director

FOR THE STATE OF TEXAS:

CARTER SMITH
Texas Parks and Wildlife Department
Executive Director

ANNE L. IDSAL
Texas General Land Office
Chief Clerk

RICHARD A. HYDE, P.E.
Texas Commission on Environmental Quality
Executive Director

FOR THE STATE OF LOUISIANA:

KYLE GRAHAM
Louisiana Coastal Protection and Restoration Authority
Executive Director

BRIAN WYNNE
Louisiana Oil Spill Coordinator's Office
Director

PEGGY HATCH
Louisiana Department of Environmental Quality
Secretary

ROBERT BARHAM
Louisiana Department of Wildlife and Fisheries
Secretary

STEPHEN CHUSTZ
Louisiana Department of Natural Resources
Secretary

FOR THE UNITED STATES:

CYNTHIA K. DOHNER
Deepwater Horizon Authorized Official
Department of the Interior

KENNETH J. KOPOCIS
U.S. Environmental Protection Agency
Principal Representative

CHRISTOPHER D. DOLEY
National Oceanic and Atmospheric Administration
Principal Representative

ANN C. MILLS
U.S. Department of Agriculture
Deputy Under Secretary for Natural Resources and Environment

# Table of Contents


**1. Introduction and Executive Summary**

1.1 Deepwater Horizon Incident

1.2 Deepwater Horizon Trustees

1.3 Authorities and Requirements

1.3.1 Oil Pollution Act

1.3.2 National Environmental Policy Act Requirements

1.4 The Natural Resource Damage Assessment Process

1.4.1 Preassessment Phase

1.4.2 Restoration Planning

1.4.3 Restoration Implementation

1.5 Summary of This Draft PDARP/PEIS

1.5.1 Approach to the Injury Assessment

1.5.2 Key Findings of the Injury Assessment

1.5.3 Restoring Natural Resources

1.5.4 NEPA Evaluation of Restoration

1.5.5 Governance

1.5.6 Coordination with Other Deepwater Horizon Restoration Planning Efforts

1.6 Proposed Settlement and PDARP Decision

1.7 Public Involvement in Restoration Planning

1.7.1 Request for Public Review of This Draft PDARP/PEIS

1.7.2 Administrative Record

1.8 References

# 2. Incident Overview

Executive Summary

2.1 Introduction

2.2 Explosion, Well Blowout, and Containment

2.3 Consequences of the Blowout

2.3.1 Release of Oil and Natural Gas

2.3.2 Dispersants

2.3.3 Drilling Mud

2.3.4 In Situ Burning

2.3.5 Skimming

2.3.6 Freshwater Releases

2.3.7 Shoreline Protection Actions

2.3.8 Shoreline Response Activities

2.3.9 Wildlife Response Activities

2.3.10 Lost Human Use: Closures

2.3.11 Boat Response Activity

2.4 References

# 3. Ecosystem Setting

Executive Summary

3.1 The Ecosystem Context for PDARP/PEIS Development

3.2 The Gulf of Mexico: A Nationally Important Resource

3.3 The Mississippi River and Northern Gulf of Mexico Geomorphology

3.3.1 Mississippi River and Delta Influence

3.3.2 Impact of River Flows on Northern Gulf Geography and Water Quality

3.3.3 The Northern Gulf's Geomorphological Zones

3.4 The Northern Gulf Ecosystem: An Interconnected Fabric

3.4.1 Biological Connectivity Across the Northern Gulf Regional Ecosystem

3.5 Habitats of the Northern Gulf of Mexico

3.5.1 Nearshore Ecosystem

3.5.2 Water Column Ecosystem

3.5.3 Marine Benthic Ecosystem

3.6 Biota of the Northern Gulf of Mexico

3.6.1 Phytoplankton and Zooplankton

3.6.2 Benthic Organisms

3.6.3 Fish and Crustaceans

3.6.4 Marine Mammals

3.6.5 Sea Turtles

3.6.6 Birds

3.7 Environmental Stressors Affecting the Northern Gulf

3.7.1 Coastal Habitat Loss

3.7.2 Water Quality Impairment

3.7.3 Fishing Impacts

3.7.4 Invasive Species

3.8 An Ecosystem-Level Approach to Restoration

3.9 References

# 4. Injury to Natural Resources

## 4.1 Approach to the Injury Assessment

Executive Summary

4.1.1 Introduction

4.1.2 Regulatory Framework for the Trustees' Injury Assessment

4.1.3 The Trustees' Ecosystem Approach to Injury Assessment

4.1.4 Injury Assessment Timeline and Stages

4.1.5 Injury Assessment Methods

4.1.6 Trustees' Data Management Process and Systems

4.1.7 Road Map to the Trustees' Injury Assessment

4.1.8 References

4.2 Natural Resource Exposure

Executive Summary

4.2.1 Introduction

4.2.2 Contaminants Released During the Spill

4.2.3 Exposure in the Deep Sea and Sea Floor

4.2.4 Exposure Within the Rising Plume

4.2.5 Exposure at the Sea Surface

4.2.6 Exposure in the Nearshore

4.2.7 Conclusions

4.2.8 References

4.3 Toxicity

Executive Summary

4.3.1 Introduction

4.3.2 Approach to the Assessment

4.3.3 Toxic Effects of DWH Oil

4.3.4 Conclusions

4.3.5 References

## 4.4 Water Column

Executive Summary

4.4.1 Introduction and Importance of the Resource

4.4.2 Approach to the Assessment

4.4.3 Exposure

4.4.4 Injury Determination

4.4.5 Injury Quantification

4.4.6 Conclusions and Key Aspects of the Injury for Restoration Planning

4.4.7 References

4.5 Benthic Resources

Executive Summary

4.5.1 Introduction and Importance of the Resource

4.5.2 Approach to the Assessment

4.5.3 Exposure

4.5.4 Injury Determination

4.5.5 Injury Quantification

4.5.6 Conclusions and Key Aspects of the Injury for Restoration Planning

4.5.7 References

4.6 Nearshore Marine Ecosystem

Executive Summary

4.6.1 Introduction

4.6.2 Approach to the Assessment

4.6.3 Exposure

4.6.4 Estuarine Coastal Wetlands Complex Injury Assessment

4.6.5 Subtidal Oyster Assessment

4.6.6 Beach Assessment

4.6.7 Shallow Unvegetated Habitats—Gulf Sturgeon Assessment

4.6.8 Submerged Aquatic Vegetation Assessment

4.6.9 Conclusions and Key Aspects of the Injury for Restoration Planning

4.6.10 References

## 4.7 Birds

Executive Summary

4.7.1 Introduction and Importance of the Resource

4.7.2 Approach to the Assessment

4.7.3 Exposure

4.7.4 Injury Determination

4.7.5 Injury Quantification

4.7.6 Conclusions and Key Aspects of the Injury for Restoration Planning

4.7.7 References

## 4.8 Sea Turtles


4.8.1 Introduction and Importance of the Resource

4.8.2 Approach to the Assessment

4.8.3 Exposure

4.8.4 Injury Determination

4.8.5 Injury Quantification

4.8.6 Conclusions and Key Aspects of the Injury for Restoration Planning

4.8.7 References

4.9 Marine Mammals

Executive Summary

4.9.1 Introduction and Importance of the Resource

4.9.2 Approach to the Assessment

4.9.3 Exposure

4.9.4 Injury Determination

4.9.5 Injury Quantification

4.9.6 Conclusions and Key Aspects of the Injury for Restoration Planning

4.9.7 References

4.10 Lost Recreational Use

Executive Summary

4.10.1 Introduction

4.10.2 Economic Damages

4.10.3 Characterization of Injury

4.10.4 Measurement of Lost User Days

4.10.5 Measurement of Value

4.10.6 Estimate of Damages

4.10.7 Conclusions and Key Aspects of the Injury for Restoration Planning

4.10.8 References

4.11 Injury Assessment: Summary and Synthesis of Findings

4.11.1 Introduction

4.11.2 Exposure to Oil and Response Activities Resulted in Extensive Injuries to Multiple Habitats, Species, Ecological Functions, and Geographic Regions

4.11.3 Use of Inference to Assess Natural Resource Injuries Not Directly Measured by Trustees

4.11.4 The Scope of Adverse Effects from the Deepwater Horizon Incident Constitutes an Ecosystem-Level Injury

4.11.5 Treatment of Unquantified Injuries

4.11.6 References

## 5. Restoring Natural Resources

5.1 Bridging Injury to Restoration

5.2 Overarching Trustee Restoration Planning Approach, OPA Requirements

5.2.1 OPA Requirements and Criteria for Restoration Planning

5.2.2 Scope and Programmatic Context of Restoration Planning

5.2.3 Primary and Compensatory Restoration

5.3 Trustee Programmatic Goals, Purpose, and Need

5.3.1 Programmatic Trustee Goals

5.3.2 NEPA Statement of Purpose and Need

5.4 Approach to Developing and Evaluating Alternatives

5.4.1 Initiating Public Involvement in the NRDA

5.4.2 Scoping for Restoration and for a PEIS

5.4.3 Early Restoration

5.4.4 Screening to Identify Restoration Approaches

5.4.5 Developing Restoration Types Based on Injury

5.4.6 The Trustees' Alternatives

5.4.7 Evaluation of Alternatives Under OPA

5.4.8 Evaluation of Alternatives Under NEPA

5.5 Alternative A: Comprehensive Integrated Ecosystem Restoration (Preferred Alternative)

5.5.1 Restoration Philosophy and Rationale

5.5.2 Restoration Type: Wetlands, Coastal, and Nearshore Habitats

5.5.3 Restoration Type: Habitat Projects on Federally Managed Lands

5.5.4 Restoration Type: Nutrient Reduction (Nonpoint Source)

5.5.5 Restoration Type: Water Quality (e.g., Stormwater Treatments, Hydrologic Restoration, Reduction of Sedimentation, etc.)

5.5.6 Restoration Type: Fish and Water Column Invertebrates

5.5.7 Restoration Type: Sturgeon

5.5.8 Restoration Type: Submerged Aquatic Vegetation

5.5.9 Restoration Type: Oysters

5.5.10 Restoration Type: Sea Turtles

5.5.11 Restoration Type: Marine Mammals

5.5.12 Restoration Type: Birds

5.5.13 Restoration Type: Mesophotic and Deep Benthic Communities

5.5.14 Restoration Type: Provide and Enhance Recreational Opportunities

5.5.15 Monitoring and Adaptive Management
5.6 Alternative B: Resource-Specific Restoration
5.6.1 Restoration Philosophy and Rationale
5.6.2 OPA Evaluation
5.7 Alternative C: Continue Injury Assessment and Defer Comprehensive Restoration Planning
5.7.1 Restoration Philosophy and Rationale
5.7.2 OPA Evaluation
5.8 Alternative D: Natural Recovery/No Action
5.8.1 Restoration Philosophy and Rationale
5.8.2 OPA Evaluation
5.9 Comparative OPA Evaluation of Action Alternatives
5.9.1 Alternative C
5.9.2 Alternatives A and B
5.10 Summary of Preferred Alternative and Funding Allocations
5.10.1 Summary of Preferred Alternative
5.10.2 Funding Allocations
5.10.3 Sense of Restoration Potential by Restoration Type
5.10.4 Subsequent Restoration Planning
5.11 References

Appendix A. Scoping Report 21
Appendix B. Early Restoration 22
Appendix C. Restoration Screening Overview 23
Appendix D. Restoration Approaches and OPA Evaluation 24
Appendix E. Monitoring and Adaptive Management Framework

## 6. Environmental Consequences and Compliance with Other Laws

6.1 Intent of the Chapter

6.2 Approach to Affected Environment

6.3 Approach to Evaluation of Environmental Consequences

6.3.1 Alternatives Considered in the PEIS

6.3.2 Determining the Level of Impact

6.4 Evaluation of Environmental Consequences of Alternative A: Comprehensive Integrated Ecosystem Restoration (Preferred Alternative)

6.4.1 Restoration Type: Wetlands, Coastal and Nearshore Habitats

6.4.2 Restoration Type: Habitat Projects on Federally Managed Lands

6.4.3 Restoration Type: Nutrient Reduction (Nonpoint Source)

6.4.4 Restoration Type: Water Quality (e.g., Stormwater Treatments, Hydrologic Restoration, Reduction of Sedimentation, etc.)

6.4.5 Restoration Type: Fish and Water Column Invertebrates

6.4.6 Restoration Type: Sturgeon

6.4.7 Restoration Type: Sea Turtles

6.4.8 Restoration Type: Submerged Aquatic Vegetation

6.4.9 Restoration Type: Marine Mammals

6.4.10 Restoration Type: Birds

6.4.11 Restoration Type: Mesophotic and Deep Benthic Habitats

6.4.12 Restoration Type: Oysters

6.4.13 Restoration Type: Provide and Enhance Recreational Opportunities

6.4.14 Preliminary Phases of Restoration Planning

6.4.15 Summary of Impacts of Alternative A

6.5 Evaluation of Direct and Indirect Environmental Consequences for Other Alternatives

6.5.1 Alternative B: Resource-Specific Restoration

6.5.2 Alternative C: Continue Injury Assessment and Defer Comprehensive Restoration Planning

6.5.3 Alternative D: Natural Recovery/No Action

6.6 Cumulative Impacts

6.6.1 Potential Cumulative Impacts

6.6.2 Methodology for Assessing Cumulative Impacts

6.6.3 Identification of Resources Affected and Boundaries of Analysis (Steps 1 and 2)

6.6.4 Categories of Cumulative Actions in the Northern Gulf of Mexico Region (Step 3)

6.6.5 Cumulative Impact Analysis (Step 4)
6.7 Comparison of Environmental Consequences of Alternatives
6.8 Cooperating Agencies
6.9 Compliance with Other Applicable Authorities
6.9.1 Endangered Species Act
6.9.2 Magnuson-Stevens Fishery Conservation and Management Act
6.9.3 Marine Mammal Protection Act
6.9.4 Coastal Zone Management Act
6.9.5 National Historic Preservation Act
6.9.6 Coastal Barrier Resources Act
6.9.7 Migratory Bird Treaty Act
6.9.8 Bald and Golden Eagle Protection Act
6.9.9 Clean Air Act
6.9.10 Clean Water Act, Rivers and Harbors Act, and Marine Protection, Research and Sanctuaries Act
6.9.11 Estuary Protection Act
6.9.12 Archaeological Resource Protection Act
6.9.13 National Marine Sanctuaries Act
6.9.14 Farmland Protection Policy Act
6.9.15 Additional Executive Orders
6.9.16 Compliance with State and Local Laws and Other Federal Regulations
6.10 Relationship Between Short-Term Use of the Human Environment and Long-Term Productivity
6.11 Irreversible and Irretrievable Commitment of Resources
6.12 Unavoidable Adverse Impacts
6.13 Consideration of Incomplete or Unavailable Information
6.14 Consideration of the Effects of Climate Change
6.14.1 Impacts of Restoration Approaches on GHG Emissions
6.14.2 Current Climate Change Projections
6.14.3 Climate Change Considerations in Planning
6.15 Best Practices
6.16 Environmental Justice Considerations in Future Restoration Planning
6.17 NEPA Considerations and Tiering Future Restoration Planning
6.17.1 NEPA Considerations and Tiering Future Restoration Planning

6.17.2 Draft Restoration Plans and Corresponding NEPA Analysis
6.18 Deepwater Horizon Draft PDARP/PEIS Repositories
6.19 List of Preparers
6.20 References

Appendix A. Best Practices
Appendix B. Additional Actions for Consideration in Cumulative Impacts Analysis
Appendix C. Cooperating Agency Requests
Appendix D. Other Laws and Executive Orders

# 7. Governance


7.1 Introduction

7.2 Management Structure

7.2.1 Trustee Council

7.2.2 Trustee Implementation Groups

7.2.3 Individual Trustee Agencies

7.3 Restoration Planning

7.3.1 Trustee Implementation Groups

7.3.2 Individual Trustee Agency

7.3.3 Trustee Council

7.4 Restoration Implementation

7.4.1 Trustee Implementation Groups

7.4.2 Individual Trustee Agency

7.4.3 Trustee Council

7.4.4 Relationship to Early Restoration Framework Agreement

7.5 Monitoring and Adaptive Management

7.5.1 Trustee Implementation Groups

7.5.2 Individual Trustee Agency

7.5.3 Trustee Council

7.6 Financial Management

7.6.1 Trustee Implementation Groups

7.6.2 Individual Trustee Agency

7.6.3 Trustee Council

7.7 Public Engagement and Restoration Tracking

7.7.1 Public Engagement

7.7.2 Administrative Record

7.7.3 Restoration Tracking and Reporting

7.8 References

# 1. Introduction and Executive Summary

**What Is in This Chapter?**

- ***Deepwater Horizon* Incident (Section 1.1):** What is the *Deepwater Horizon* incident, and under what authority was this document prepared in response to that incident?
- ***Deepwater Horizon* Trustees (Section 1.2):** Who are the *Deepwater Horizon* Trustees?
- **Authorities and Requirements (Section 1.3):** What authorities and requirements govern preparation of this document, and why did the Trustees decide to take a programmatic, rather than project-specific, approach?
- **The Natural Resource Damage Assessment Process (Section 1.4):** What is the natural resource damage assessment process the Trustees have followed, and what Emergency and Early Restoration has already been implemented?
- **Summary of This Draft PDARP/PEIS (Section 1.5):** In brief: How did the Trustees conduct the injury assessment and what were the key findings? How did the Trustees develop the restoration plan, what are the proposed alternatives and their environmental impacts, and which alternative do the Trustees prefer? How will restoration be governed, and how will Trustees coordinate with other restoration efforts?
- **Proposed Settlement and PDARP Decision (Section 1.6):** What is the proposed settlement with BP, what is the related decision in this Draft PDARP, and why do the Trustees believe these are appropriate?
- **Public Involvement in Restoration Planning (Section 1.7):** How has the public been involved in restoration planning, how can the public comment on this document, and what happens next?
- **References (Section 1.8)**

## 1.1 *Deepwater Horizon* Incident

On April 20, 2010, the *Deepwater Horizon* (DWH) mobile drilling unit exploded, caught fire, and eventually sank in the Gulf of Mexico (Figure 1.1-1), resulting in a massive release of oil and other substances from BP's Macondo well. Tragically, 11 workers were killed and 17 injured by the explosion and fire. Initial efforts to cap the well following the explosion were unsuccessful, and for 87 days after the explosion, the well continuously and uncontrollably discharged oil and natural gas into the northern Gulf of Mexico. Approximately 3.19 million barrels (134 million gallons) of oil were released into the ocean (U.S. v. BP et al. 2015), by far the largest offshore oil spill in the history of the United States. The volume of oil discharged during

***Source:*** *U.S. Coast Guard (USCG 2011).*

**Figure 1.1-1.** *Deepwater Horizon* offshore drilling unit on fire.

the *Deepwater Horizon* spill was equivalent to the *Exxon Valdez* oil spill re-occurring in the same location every week for 12 weeks.

Oil spread from the deep ocean to the surface and nearshore environment, from Texas to Florida. The oil came into contact with and injured natural resources as diverse as deep-sea coral, fish and shellfish, productive wetland habitats, sandy beaches, birds, endangered sea turtles, and protected marine life (Figure 1.1-2). The oil spill prevented people from fishing, going to the beach, and enjoying their typical recreational activities along the Gulf.[1] Extensive response actions, including cleanup activities and actions to try to prevent the oil from reaching sensitive resources, were undertaken to try to reduce harm to people and the environment. However, many of these response actions had collateral impacts on the environment. The oil and other substances released from the well in combination with the extensive response actions together make up the *Deepwater Horizon* oil spill incident.

Unprecedented in both scope and nature, the *Deepwater Horizon* oil spill was the largest offshore oil spill in U.S. history. The spill dealt a heavy blow to the Gulf Coast region natural resources and its natural resource-dependent economy.

As an oil pollution incident, the *Deepwater Horizon* spill was subject to the provisions of the Oil Pollution Act (OPA) of 1990[2], which addresses preventing, responding to, and paying for oil pollution incidents in navigable waters, adjoining shorelines, and the exclusive economic zone of the United States. Under the authority of OPA, a council of federal and state "Trustees" was established (see Section 1.2), on behalf of the public, to assess natural resource injuries resulting from the incident and work to make the environment and public whole for those injuries. As required under OPA, the Trustees have conducted a natural resource damage assessment (NRDA) and prepared this document, which describes the Trustees' injury assessment and proposed restoration plan. The public is encouraged to review and comment on this draft document. See the textbox at the end of this chapter for details about how this document is organized.



[1] This document is concerned with impacts to the public's natural resources and the services provided by those resources, such as recreation. It does not discuss economic harm to private parties and governments caused by the *Deepwater Horizon* spill.
[2] Oil Pollution Act (OPA) of 1990 (33 USC §§ 2701 *et seq*.

***Sources*** *(clockwise from top left): Hsing et al. (2013); International Bird Rescue Center; NOAA; Tomo Hirama; NOAA; Louisiana Department of Wildlife and Fisheries/Mandy Tumlin; NOAA.*

**Figure 1.1-2.** Examples of resources affected by the *Deepwater Horizon* incident (clockwise from top left): injured coral, oiled brown pelicans, dolphins swimming through oil, oiled Kemp's ridley turtle, oiled coastal wetlands, dolphin in oil, and oil on a beach.

## 1.2 *Deepwater Horizon* Trustees

The *Deepwater Horizon* Trustees are the government entities authorized under OPA to act as trustees on behalf of the public to 1) assess the natural resource injuries resulting from the *Deepwater Horizon* oil pollution incident, and then 2) develop and implement a restoration plan to compensate for those injuries. To work collaboratively on the NRDA, the *Deepwater Horizon* Trustees organized a Trustee Council (the Council) comprising representatives of the U.S. Department of Commerce; the U.S. Department of the Interior (DOI); the U.S. Environmental Protection Agency (EPA); the U.S. Department of Agriculture (USDA);[3] and designated agencies representing each of the five Gulf states: Florida, Alabama, Mississippi, Louisiana, and Texas (Figure 1.2-1).

Under OPA, designated Trustees may seek compensation for lost or injured natural resources through restoration.



**Federal Trustee Agencies**

**Department of the Interior**
- U.S. Fish and Wildlife Service
- Bureau of Land Management
- National Park Service

**Department of Commerce**
- National Oceanic and Atmospheric Administration

**Environmental Protection Agency**

**Department of Agriculture**

**State Trustee Agencies**

**Florida**
- Department of Environmental Protection
- Fish and Wildlife Conservation Commission

**Alabama**
- Department of Conservation and Natural Resources
- Geological Survey of Alabama

**Mississippi**
- Department of Environmental Quality

**Louisiana**
- Coastal Protection and Restoration Authority
- Oil Spill Coordinator's Office
- Department of Environmental Quality
- Department of Wildlife and Fisheries
- Department of Natural Resources

**Texas**
- Commission on Environmental Quality
- General Land Office
- Parks and Wildlife Department

**Figure 1.2-1.** *Deepwater Horizon* NRDA Trustee Council and representing agencies.

[3] The federal Trustees are designated pursuant to section 2706(b)(2) of OPA (33 U.S.C. 2706(b)(2)) and by Executive Orders 12777 and 13626 (Executive Order 12777 1991; Executive Order 13626 2012) and 77 FR 56749, September 2012. Although a trustee under OPA by virtue of the proximity of its facilities to the *Deepwater Horizon* oil spill, the U.S. Department of Defense (DOD) is not a member of the Trustee Council and did not participate in development of this Draft PDARP/PEIS.

## 1.3 Authorities and Requirements

As described below, this document simultaneously fulfills requirements under two pertinent regulatory authorities: the Oil Pollution Act of 1990 (OPA) and the National Environmental Policy Act (NEPA).



### 1.3.1 Oil Pollution Act

The primary goal of OPA is to make the environment and public whole for injuries to natural resources and services resulting from an incident involving an oil discharge (or substantial threat of an oil discharge). OPA makes each party responsible for a vessel or facility from which oil is discharged, or which poses the substantial threat of a discharge, liable (among other things) for removal costs and for damages for injury to, destruction of, loss, or loss of use of, natural resources, including the reasonable cost of assessing the damage. Under OPA regulations[4], the natural resource injuries for which responsible parties are liable include injuries resulting from the oil discharge and those resulting from response actions or substantial threat of a discharge. OPA specifies that trustees responsible for representing the public's interest (in this case, state and federal agencies) must be designated to act on behalf of the public to assess the injuries and to address those injuries. The *Deepwater Horizon* Trustees ("the Trustees") for the affected natural resources conducted a natural resource damage assessment to:

- Assess the impacts of the *Deepwater Horizon* oil spill on natural resources in the Gulf of Mexico and the services those resources provide.
- Determine the type and amount of restoration needed to compensate the public for these impacts.

In this document (*Deepwater Horizon* Oil Spill Draft Programmatic Damage Assessment and Restoration Plan and Draft Programmatic Environmental Impact Statement (Draft PDARP/PEIS), which serves as the Damage Assessment and Restoration Plan (DARP) under OPA, the *Deepwater Horizon* Trustees present to the public their findings on the extensive injuries (Chapter 4) to multiple habitats, biological species, ecological functions, and geographic regions across the northern Gulf of Mexico that occurred as a result of the *Deepwater Horizon* oil spill, as well as their programmatic plan for restoring those resources (Chapter 5).

> The injuries from the *Deepwater Horizon* incident affected such a wide array of linked resources over such an enormous area that the effects of the spill must be described as constituting an ecosystem-level injury.

As this document shows, the injuries caused by the *Deepwater Horizon* spill cannot be fully described at the level of a single species, a single habitat type, or a single region. Rather, the injuries affected such a wide array of linked resources over such an enormous area that the effects of the *Deepwater Horizon* spill must be described as constituting an ecosystem-level injury. Consequently, the Trustees' preferred alternative for a restoration plan employs a comprehensive, integrated ecosystem approach to best address these ecosystem-level injuries. The Trustees' full injury assessment and resulting restoration plan were informed by reasonable

[4] The OPA regulations can be found at 15 CFR Part 990.

scientific inferences about the extent of injury and about the resource benefits that can be derived from broad-scale ecosystem restoration.

Given the ecosystem-level nature of the injuries, the *Deepwater Horizon* Trustees decided to prepare a *programmatic* DARP—in other words, a DARP that provides long-term direction for restoring the full suite of injured natural resources and services. Instead of identifying specific restoration projects, the PDARP provides direction and guidance for identifying, evaluating, and selecting future restoration projects to be carried out by Trustee implementation groups (Section 5.10.4 and Chapter 7).

This Draft Programmatic Damage Assessment and Restoration Plan (PDARP) provides long-term direction and guidance for restoring injured natural resources and services caused by the *Deepwater Horizon* oil spill.



### 1.3.2 National Environmental Policy Act Requirements

OPA regulations require federal trustees to comply with National Environmental Policy Act[5] regulations when planning restoration. NEPA requires federal agencies to consider the potential environmental impacts of planned actions. NEPA provides a mandate and framework for federal agencies to determine if their proposed actions have significant environmental effects and related social and economic effects, consider these effects when choosing between alternative approaches, and inform and involve the public in their environmental analysis and decision-making process.

NEPA requires federal agencies to develop an environmental impact statement (EIS) for any "major federal action significantly affecting the quality of the human environment." The EIS typically has several parts:

- A statement of the purpose and need for the proposed action.
- A description of the environment that could be affected (for example: What habitats and species are present? Are any threatened or endangered?).
- A description of the proposed action and a set of alternatives.
- An analysis of the direct, indirect, and cumulative environmental impacts of each alternative.

In this document, the *Deepwater Horizon* Trustees address these requirements by providing a programmatic EIS (PEIS) that evaluates broad (as opposed to project-specific) restoration alternatives. Consequently, while serving as a PDARP under OPA, this document also serves as a PEIS under NEPA. In Section 5.5, the Trustees propose a preferred restoration alternative for comprehensive integrated ecosystem restoration that they judge as best, among several other alternatives (Section 5.9), at compensating the public for the losses to natural resources and services caused by the *Deepwater Horizon* spill. The identification of a preferred alternative is informed by consideration and comparison of the environmental consequences of the alternatives under NEPA in Section 6.5.

[5] See 42 USC § 4321 *et seq.*, and the regulations guiding NEPA implementation at 40 CFR § 1500 *et seq.*

This programmatic document describes the process for subsequent restoration planning to select specific projects for implementation. The subsequent restoration plans will be consistent with this PDARP and integrated with a NEPA analysis tiered from this PEIS. A tiered environmental analysis is a project-specific analysis that focuses on project-specific issues, and summarizes or references (rather than repeats) the broader issues discussed in the PEIS. This process may include formal public scoping (i.e., if a tiered EIS is required) to fulfill federal agencies' NEPA responsibilities.

## 1.4 The Natural Resource Damage Assessment Process

Under OPA (15 CFR § 990.10), trustees with jurisdiction over resources threatened or affected by an oil release may conduct a NRDA to determine whether natural resources have been injured and then plan restoration to address those injuries. The OPA regulations lay out a process for conducting an NRDA that includes three main phases (Figure 1.4-1). The *Deepwater Horizon* Trustees have been proceeding with this NRDA process but have also included additional steps, such as Early Restoration. In addition, this Draft PDARP/PEIS has been prepared as a programmatic document as part of the restoration planning phase. Subsequent project-specific restoration planning will occur prior to restoration implementation. The three main phases of the NRDA are described briefly below.

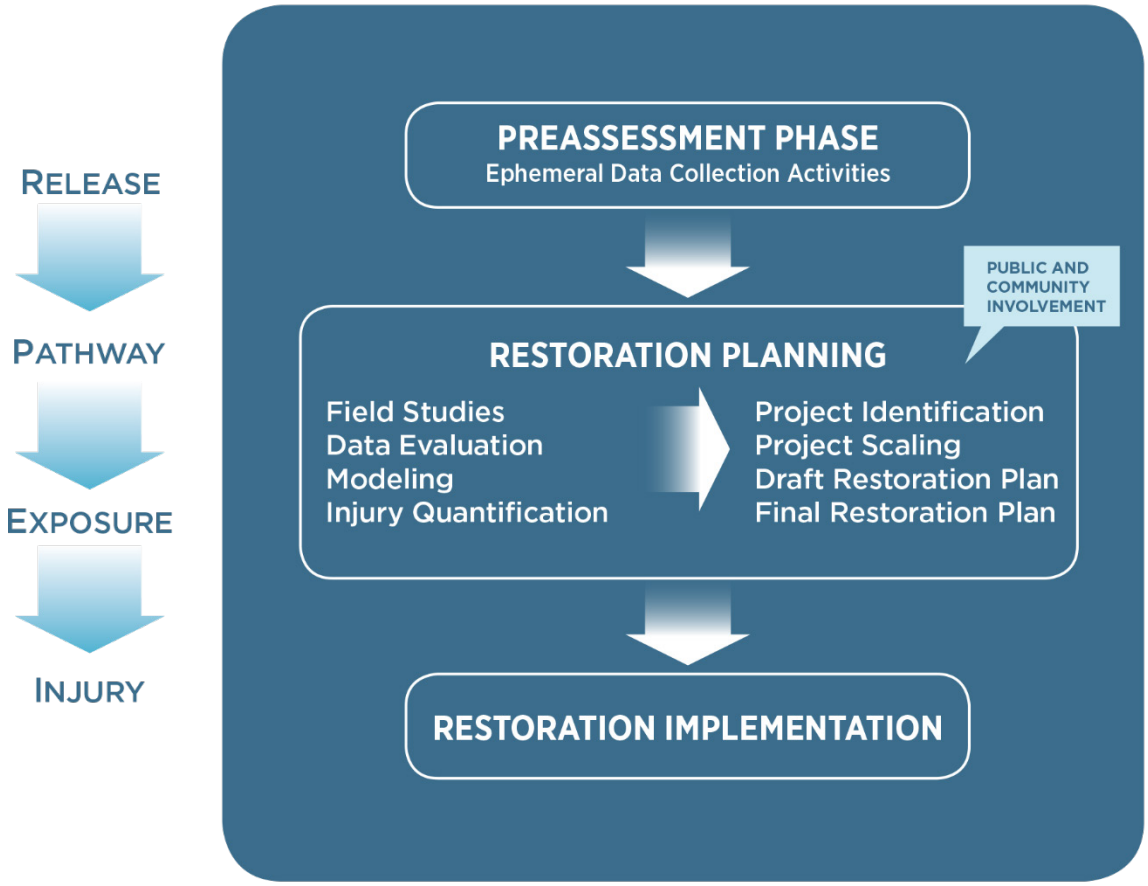



**Figure 1.4-1.** Simplified overview of NRDA process according to OPA regulations.

### 1.4.1 Preassessment Phase

During this phase, trustees determine whether an oil spill incident is likely to have injured natural resources or their services and whether it is appropriate to undertake restoration. If so, the trustees invite the potentially responsible parties to participate in the NRDA and restoration planning.

Shortly after the *Deepwater Horizon* oil spill, the Trustees initiated the preassessment phase (pursuant to 15 CFR §§ 990.40–990.45). By August 19, 2010, Trustee scientists had already observed impacts from the spill, including but not limited to: oil impacts across over 1,300 miles of shoreline habitat; visibly oiled and dead birds, sea turtles, and marine mammals; lost recreational opportunities; and impacts to water column resources. These initial data showed that the spill's geographic scale was unprecedented and the scope of likely injuries to natural resources was vast.

**Joint Studies with BP**

The Trustees invited all responsible parties to participate in the NRDA process; only BP chose to do so. Under a cooperative agreement with BP for the NRDA process, the Trustees conducted many joint studies with BP.

Based on these data and the spill's long duration, the Trustees determined that they had the authority to pursue restoration under OPA. They developed and published a Notice of Intent to Conduct Restoration Planning (DOI 2010),[6] which notified the public of this decision. Pursuant to OPA regulations (15 CFR § 990.14), the Trustees also sent this Notice of Intent to the potentially responsible parties[7] and invited the parties to participate in the NRDA as part of a cooperative process. Of the responsible parties, only BP chose to participate in the NRDA and enter into a cooperative assessment process with the Trustees. Under this arrangement, BP and the Trustees conducted joint studies to collect data.

Even under a cooperative NRDA process, the authority and responsibility to assess natural resource injuries and losses and define appropriate restoration plans rest solely with the trustees. Thus, the Trustees are the sole author of this Draft PDARP/PEIS.

### 1.4.2 Restoration Planning

During the restoration planning phase, trustees assess and quantify potential injuries and lost services and use that information to determine the need for restoration actions. For the *Deepwater Horizon* NRDA, the Trustees conducted two coordinated processes during this phase: injury assessment and restoration planning.

- **Injury assessment.** The purpose of injury assessment is to determine the nature and extent of injuries to natural resources and services from an oil spill. Under the *Deepwater Horizon* injury assessment process, conducted from 2010 through 2015 (and including the work conducted as part of the preassessment process), the Trustees developed and implemented hundreds of scientific assessment studies[8] to assess the impacts of the *Deepwater Horizon* oil spill on natural resources and habitats, as well as lost human recreational uses of these resources and habitats. BP and the Trustees cooperatively developed sampling protocols for certain studies. When they

[6] Notice of Intent, 75 FR 60800, Discharge of Oil From *Deepwater Horizon*/Macondo Well, Gulf of Mexico; Intent to Conduct Restoration Planning (*https://federalregister.gov/a/2010-24706)*; Notice of Intent, 36 La. Reg. 2441-43 (October 20, 2010), Restoration Planning—Discharge of Oil From the *Deepwater Horizon* Mobile Offshore Drilling Unit and the Subsea Macondo Well into the Gulf of Mexico, April 20, 2010 (*http://www.doa.louisiana.gov/osr/reg/1010/1010.pdf*).
[7] Potentially responsible parties identified in the Notice of Intent to Conduct Restoration Planning were BP Exploration and Production, Inc., Transocean Holdings, Inc., Triton Asset Leasing, GmbH, Transocean Offshore Deepwater Drilling, Inc., Transocean Deepwater, Inc., Anadarko Petroleum, Anadarko E&P Company, LP, and MOEX Offshore 2007, LLC (DOI 2010).
[8] These studies have been subject to formal and informal peer review, both within Trustee agencies, by BP scientists (for cooperative studies), and by independent scientists.

did not reach agreement on sampling protocols, both BP and the Trustees conducted independent (i.e., non-cooperative) studies.

- **Restoration planning.** Informed by the injury assessment, the Trustees have developed programmatic restoration alternatives (described in Chapter 5). The Trustees' comprehensive restoration planning work to date has included public scoping to identify appropriate types of restoration; identification and evaluation of alternatives to offset injuries to diverse resources and habitats; evaluation of alternatives under NEPA and OPA; and development of monitoring approaches to better understand the benefits (both qualitative and quantitative) of restoration actions. Chapter 5 of this Draft PDARP/PEIS presents the programmatic restoration plan developed by the Trustees and evaluates alternatives in accordance with OPA. Chapter 6 evaluates the alternatives in accordance with NEPA. After public comment, the Trustees will develop the final PDARP/PEIS.

**Phased Restoration**

**Emergency/early.** Due to the magnitude of the spill, the Trustees began implementing emergency and Early Restoration work before the injury assessment was complete.

**Long-term.** As a programmatic document, this Draft PDARP/PEIS provides long-term direction and guidance that will be used to propose specific future actions for restoring injured natural resources and services.



### 1.4.3 Restoration Implementation

Due to the magnitude of the spill, the Trustees began planning for and implementing Emergency and Early Restoration projects (described below) with funding from BP before the injury assessment was complete. These actions are a subset of the extensive, continuing effort needed to address complete restoration of injured resources.

Once this programmatic restoration planning is complete, the Trustees will, per OPA requirements, develop and solicit public comment on subsequent project-specific restoration plans (integrated with an analysis under NEPA), which will include associated monitoring and performance criteria. Subsequent plans and projects will be consistent with this PDARP/PEIS. Once these plans are final, the Trustees will implement the projects in compliance with environmental laws.

#### 1.4.3.1 Emergency Restoration

Under OPA, Trustees may take emergency primary restoration actions before completing the NRDA process to minimize continuing injury, or prevent additional injury, as long as the actions are feasible and the costs not unreasonable. Guided by preliminary data about resource impacts from the *Deepwater Horizon* spill, the Trustees collectively selected and implemented three types of Emergency Restoration in response to the spill (DWH Trustees 2013):

- **Submerged aquatic vegetation (SAV).** The Trustees implemented Emergency Restoration to prevent additional injury to and restore SAV beds damaged by propeller scarring and other response vessel impacts. The Trustees assessed SAV damage in multiple locations across the Gulf and ultimately selected sites in Florida that best met the Emergency Restoration criteria.

- **Waterfowl and shorebirds.** The Trustees provided alternative wetland habitat in Mississippi for waterfowl and shorebirds that might otherwise winter in oil-affected habitats.
- **Sea turtles.** The Trustees conducted a project to improve the nesting and hatching success of endangered sea turtles on the Texas coast, including Padre Island National Seashore.

Some Trustees also independently implemented additional Emergency Restoration actions.



#### 1.4.3.2 Early Restoration

For the *Deepwater Horizon* spill, Early Restoration was intended to accelerate restoration of injured natural resources and their services, but not to fully compensate the public for all resulting injuries and losses. On the first anniversary of the spill (April 20, 2011), the Trustees and BP agreed that BP would provide up to $1 billion toward Early Restoration projects, under the terms of a Framework Agreement for Early Restoration ("the Framework Agreement"),[9] as a preliminary step toward restoring injured natural resources and services caused by the spill. Early Restoration proceeded in phases, with each phase adding additional projects to partially address injuries to nearshore resources, birds, fish, sea turtles, federally managed lands, and recreational uses. Injuries were partially addressed through coastal habitat restoration, resource-specific restoration, and education and recreational infrastructure projects.

**Early Restoration projects** are aimed at accelerating meaningful restoration while also contributing to knowledge required for long-term restoration planning.

As of October 2015, 64 projects with a total cost of approximately $832 million have been selected through the first four of the five phases of Early Restoration planning (DWH Trustees 2012a, 2012b, 2014, 2015). The Trustees have reached an agreement in principle with BP on the final phase of Early Restoration—an additional potential $45.4-million Phase V project. Chapter 5 provides further details on Early Restoration. The balance of funding originally pledged for Early Restoration has been incorporated into the proposed settlement described in Section 1.6.

[9] The Framework Agreement can be found at *http://www.gulfspillrestoration.noaa.gov/wp-content/uploads/2011/05/framework-for-early-restoration-04212011.pdf*. Accessed July 7, 2015.

## 1.5 Summary of This Draft PDARP/PEIS

This section provides a brief summary of the injury assessment and restoration planning sections of this Draft PDARP/PEIS, including an overview of the approach the Trustees took to the assessment, key findings of the injury assessment, a summary of the programmatic restoration plan, a summary of the NEPA evaluation of restoration, an overview of Trustee governance of restoration implementation, and a discussion of coordination with other *Deepwater Horizon* restoration planning efforts.



### 1.5.1 Approach to the Injury Assessment

The scale of the *Deepwater Horizon* spill was unprecedented, both in terms of the area affected and the duration of the spill. Due to the enormous scope of this incident, evaluation of all potentially injured natural resources in all potentially oiled locations at all times remains cost-prohibitive and scientifically impractical. The Trustees therefore undertook an ecosystem approach to injury assessment that included the evaluation of representative habitats, ecosystem processes and linkages, ecological communities, specific natural resources, and human services.

The Trustees conducted a detailed assessment to determine the nature, degree, geographic extent, and duration of injuries from the *Deepwater Horizon* incident. This information was then used in the restoration planning process to inform the type and amount of restoration appropriate to address these injuries.

The Trustees began to assess injuries as soon as news of the spill was received, and they continued with a multi-phased iterative approach, in which planning and design decisions were informed by the data that had already been collected and evaluated. The Trustees used a variety of methods, including field and laboratory studies and models. They used scientific inference to make informed conclusions about injuries that they were not able to study directly.

The injury assessment involved two main steps: **injury determination** and **injury quantification**.

#### 1.5.1.1 Step 1: Injury Determination

In this step, the Trustees evaluated whether the *Deepwater Horizon* incident injured natural resources or impaired their ability to provide services. This part of the assessment basically involves answering the following questions:

1. Can a **pathway** be established from the discharge to the exposed resource? This step involved confirming the sequence of events that resulted in oil being transported from BP's Macondo well to the locations where injuries occurred.

2. Did **exposure** take place? This step involved confirming that the injured resources were indeed exposed to *Deepwater Horizon* oil.

3. What **injuries** (i.e., adverse effects) occurred as a result of the exposure and/or response activities?

#### 1.5.1.2 Step 2: Injury Quantification

In this step, the Trustees determined the degree (severity), geographic extent, and temporal extent (amount of time) of the injuries and service losses that occurred. To do this, the Trustees compared the injured resources and services with baseline conditions—that is, the condition that would have existed if the *Deepwater Horizon* incident had not occurred. The Trustees could not quantify *every* injury that occurred. Instead, they focused on where injury quantification could be most helpful for restoration planning.

Because of the vast scale of the incident and potentially affected resources, the Trustees evaluated injuries to a set of representative habitats, communities, species, and ecological processes. Studies were conducted at many scales, including the cellular, individual, species, community, and habitat levels. The Trustees generally did not quantify changes in the population size or status of plants and animals because natural variability from year to year can make it difficult to detect oil spill impacts at the population level. They also did not limit their quantification to counts of animals killed by the spill, because so many of the animals killed were not observed.

### 1.5.2 Key Findings of the Injury Assessment

Key findings of the injury assessment are listed below. Figure 1.5-1 depicts the major categories of injury from the *Deepwater Horizon* incident, along with the corresponding sections of this Draft PDARP/PEIS where findings are presented in detail. A detailed summary of findings is also presented in Section 4.11.

- The Trustees documented that oil flowed within deep ocean water currents hundreds of miles away from the blown-out well; and that it moved upwards and across a very large area of the ocean surface. This movement resulted in observable slicks that extended over 43,300 square miles (an area about the size of the State of Virginia), affecting water quality and exposing aquatic biota. Oil was deposited onto at least 400 square miles of the sea floor and washed up onto more than 1,300 miles of shoreline from Texas to Florida.

- The oil came into contact with and injured natural resources as diverse as deep-sea corals, fish and shellfish, productive wetland habitats, sandy beaches, birds, endangered sea turtles, and protected marine life. The oil spill prevented people from fishing, going to the beach, and enjoying their typical recreational activities along the Gulf. Extensive response actions, including cleanup activities and actions to try to prevent the oil from reaching sensitive resources, were undertaken to try to reduce harm to people and the environment. However, many of these response actions had collateral impacts on the environment.

- The oil released into the environment by the *Deepwater Horizon* incident was toxic to a wide range of organisms, including fish, invertebrates, plankton, birds, turtles, and mammals. It caused a wide array of toxic effects, including death, disease, reduced growth, impaired reproduction, and physiological impairments that made it more difficult for organisms to survive and reproduce.

- The waters, sediments, and marsh habitats in many locations in the northern Gulf of Mexico had concentrations of oil that were high enough to cause toxic effects. The degree and extent of

these toxic concentrations varied by location and time. The extent and degree of toxic levels of oil has declined substantially from 2010 to the present.

- Exposure to oil and response activities resulted in extensive injuries to multiple habitats, species, and ecological functions, across broad geographic regions.
- The *Deepwater Horizon* incident resulted in injuries to: intertidal marsh habitats, including marsh plants and associated organisms; shoreline beaches and sediments and organisms that live on and in the sand and sediment; fish and shellfish and other invertebrates that live in the water; a wide range of bird species; floating *Sargassum* habitats offshore and submerged aquatic vegetation; deep-sea and nearshore ocean-bottom habitats, including rare, deep water corals; four species of threatened or endangered sea turtles that live in the Gulf of Mexico; and several species of dolphins and whales.
- The spill directly reduced the use of popular recreational activities including boating, fishing, and going to the beach between May 2010 and November 2011.
- Overall, the ecological scope of impacts from the *Deepwater Horizon* incident was unprecedented, with injuries affecting a wide array of linked resources across the northern Gulf ecosystem.



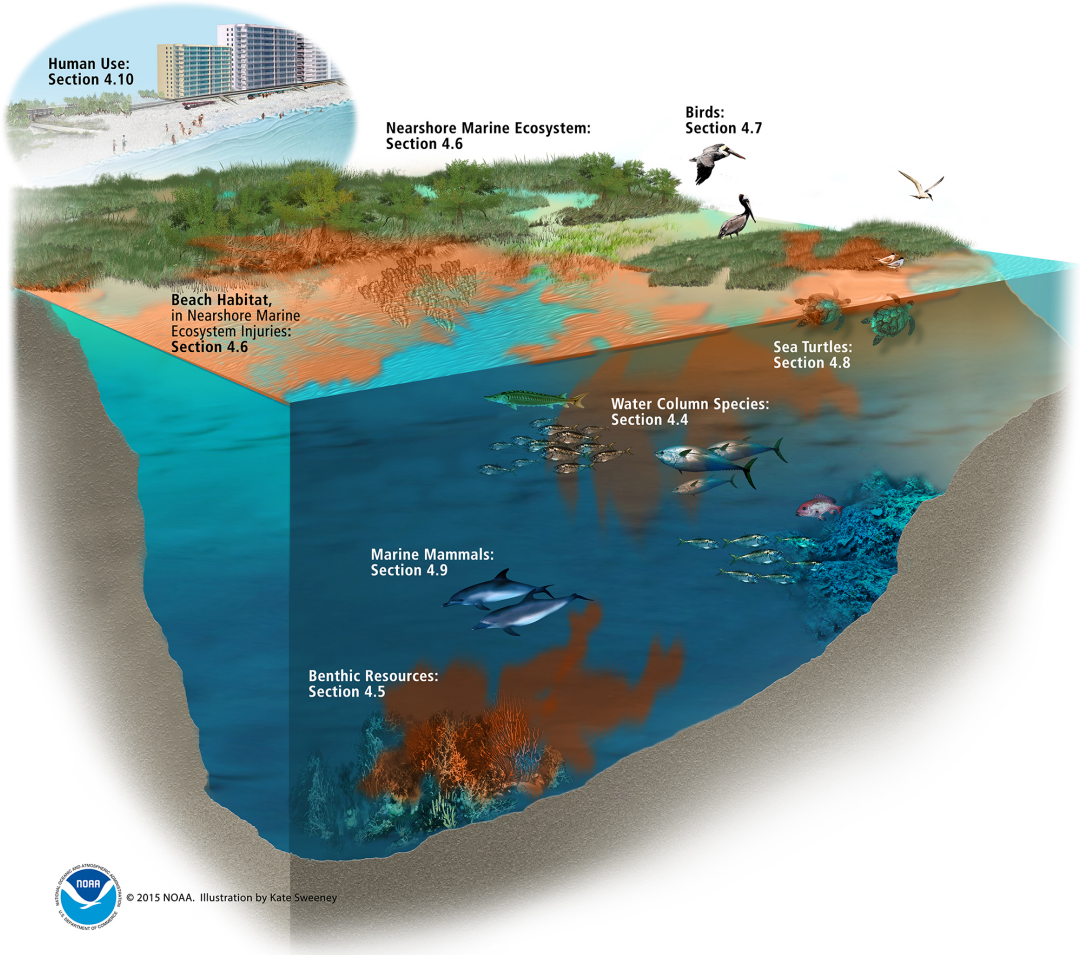
### 1.5.3 Restoring Natural Resources

Given the broad ecological scope of the injuries, restoration planning similarly requires a broad ecosystem perspective to restore the vast array of resources and services injured by the *Deepwater Horizon* incident. Thus, the Trustees are proposing a comprehensive, integrated ecosystem restoration plan with a portfolio of restoration types that address the diverse suite of injuries that occurred at both regional and local scales. The Trustees developed this plan after carefully reviewing the available scientific data, making reasonable scientific inferences, and considering ecological linkages (interactions between habitats and species), resiliency, and sustainability.

The Trustees identified the need for a comprehensive restoration plan at a programmatic level to guide and direct the massive restoration effort, based on the following five overarching goals of this overall programmatic plan:

- Restore and conserve habitat
- Restore water quality
- Replenish and protect living coastal and marine resources
- Provide and enhance recreational opportunities
- Provide for monitoring, adaptive management, and administrative oversight to support restoration implementation

These five goals work both independently and together to restore injured resources and services.




***Source:*** *Kate Sweeney for NOAA.*

**Figure 1.5-1.** Major categories of *Deepwater Horizon* oil spill injuries and the corresponding injury assessment sections in Chapter 4 of this document.

Through their restoration planning efforts, the Trustees identified 13 distinct restoration types that pertain to these goals (Figure 1.5-2). The Trustees also identified restoration planning approaches that can help meet the more specific goals developed for each restoration type. This Draft PDARP/PEIS focuses on presenting these restoration types and approaches at a programmatic level. The Trustees will subsequently identify, plan, evaluate, carry out, and monitor specific restoration activities in accordance with the goals, restoration types, and restoration approaches of this programmatic plan.



As required by OPA and NEPA, the Trustees developed and evaluated alternatives for comprehensive restoration planning:

- Alternative A establishes a comprehensive, integrated ecosystem restoration plan (referred to as the integrated restoration portfolio) based on the programmatic Trustee goals.
- Alternative B establishes a resource-specific restoration plan based on the programmatic Trustee goals.
- Alternative C defers development of a comprehensive restoration plan until greater scientific understanding of the injury determination is achieved.

In addition, as required by OPA and NEPA, the Trustees considered a natural recovery/no action alternative, under which the Trustees would not prepare a restoration plan or implement future restoration projects under NRDA, other than those already approved through the Early Restoration process.

Alternatives A, B, and C represent different restoration philosophies. Alternatives A and B would result in two different investment strategies for the available settlement funds (see Section 1.6), making use of the same restoration types presented in Figure 1.5-3. Alternative C defers restoration and could include the same restoration types as Alternatives A and B, but also could include refinements to those restoration types or a change in focus across the restoration types following further study.

The Trustees identified Alternative A (comprehensive, integrated ecosystem restoration) as preferred because it best restores the range of habitats, resources, and services injured by the spill. By investing in a wide range of resources and habitats throughout the region, the Trustees' integrated portfolio under Alternative A will provide benefits to a large variety of species and ecological services. It will also maximize the likelihood of appropriately compensating the public for all the resources, services, and ecological linkages injured by the spill. Under this preferred alternative, the Trustees allocate funds based on their understanding and evaluation of exposure and injury to natural resources and services, as well as their analysis of where restoration spending for the various restoration types would be most appropriate (see Section 5.10 for details). Allocations are to:

- **Restoration types.** The proposed plan allocates specific amounts of money to the 13 restoration types shown in Figure 1.5-2. The portfolio includes restoration focused on specific resource types, such as marine mammals and migratory birds, as well as restoration of supporting habitats such as coastal wetlands.

- **Restoration areas.** The proposed plan allocates specific amounts of money to seven geographic areas: each of the five Gulf states, regionwide, and the open ocean. The allocation includes funds for administrative oversight and monitoring and adaptive management. Some additional funds will be reserved for currently unknown conditions and adaptive management.

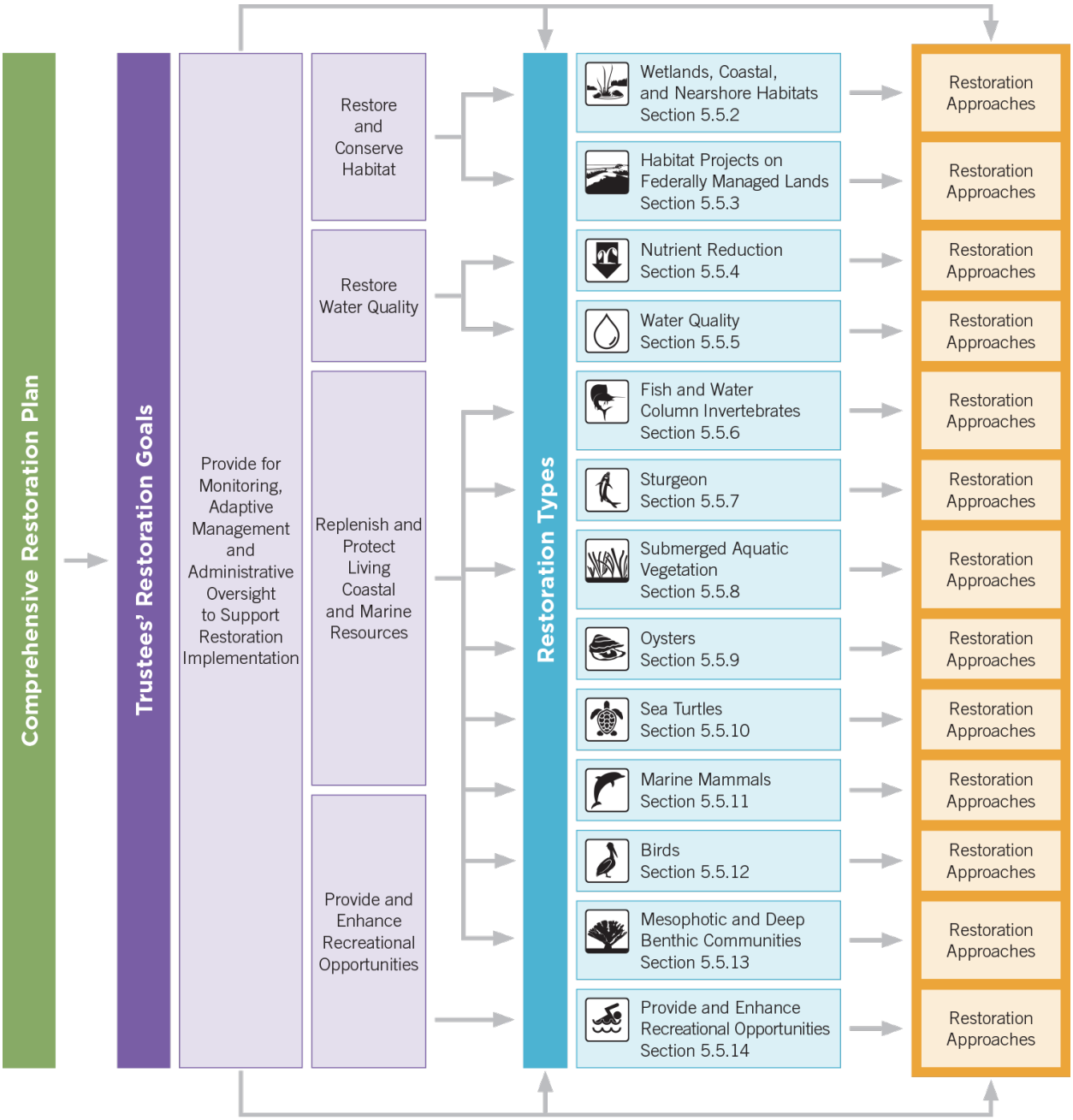



**Figure 1.5-2.** The Trustees' approach to developing this restoration plan showing the goals and their related restoration type(s) connecting to restoration approaches, with monitoring, adaptive management, and administrative oversight planned throughout all approaches.

***Source:*** *Top: Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Task Force. Middle left: Florida Department of Environmental Protection. Middle right: Jud Kenworthy. Bottom left: CWPPRA Task Force. Bottom right: CWPPRA Task Force.*

**Figure 1.5-3.** A wide variety of coastal habitat restoration projects have been successfully implemented in the northern Gulf of Mexico.

***Top:*** CWPPRA Barataria Barrier Island Complex project (BA-38), Plaquemines Parish, Louisiana.
***Middle left:*** Pensacola Bay oyster reef restoration, Santa Rosa County, Florida, NOAA Restoration Center, Community-based Restoration Program.
***Middle right:*** Scientist monitoring a seagrass restoration site.
***Bottom left:*** CWPPRA Whiskey Island back-barrier marsh creation (TE-50), Terrebonne Parish, Louisiana.
***Bottom right:*** CWPPRA Bayou Dupont sediment delivery system project, Jefferson and Plaquemines Parishes, Louisiana (BA-39).

The investment of funds proposed under Alternative A particularly focuses on restoring Louisiana coastal marshes, which is an essential element of the proposed plan. Given both the extensive impacts to Louisiana marsh habitats and species from the *Deepwater Horizon* incident and the critical role that these habitats play for many injured resources and for the overall productivity of the northern Gulf region, coastal and nearshore habitat restoration (see examples in Figure 1.5-3) is the most appropriate and practical mechanism for restoring the ecosystem-level linkages disrupted by the *Deepwater Horizon* incident. Aspects of this vast and diverse injury, however, will require additional restoration, especially to resources that spend some or all of their lives in the open waters of the Gulf of Mexico. Therefore, this plan also calls for restoration focused on specific resources. To ensure that recreational use injuries are fully compensated, additional investments will be made to enhance human interaction with the environment by increasing recreational opportunities, improving water quality and habitats, and using education and outreach to engage people in restoration and stewardship of natural resources.



### 1.5.4 NEPA Evaluation of Restoration

In addition to presenting the findings of a natural resource damage assessment and providing a proposed restoration plan under the Oil Pollution Act, this Draft PDARP/PEIS includes an examination of the environmental impacts of the preferred alternative and additional restoration alternatives, as required by NEPA.

The proposed restoration is broad and unprecedented in scope, and may be taking place in an environmentally sensitive area. For example, there are areas designated as critical habitat for a number of Endangered Species Act-listed species in the northern Gulf of Mexico, including loggerhead sea turtles, smalltooth sawfish, Gulf sturgeon, beach mice, and piping plover. Thus, it was important for the Trustees[10] to develop a programmatic EIS to correspond with the proposed restoration plan. More specific environmental analyses will be developed for specific restoration activities in the future.

Restoration can potentially affect natural, social, cultural, and economic resources in many ways. Impacts could include direct effects, indirect effects, and cumulative effects—that is, the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions. While restoration projects are intended to have positive effects on the environment overall, it is possible that some projects could also have unintended negative consequences. For example, a construction project might disturb plant and animal habitats, and it might produce air pollution and noise while construction is taking place. A project designed to improve habitat for certain plant or animal species might inadvertently diminish habitat for other species. The types of impacts considered in the PEIS are:

- Impacts to physical resources.
    - Geology (soil, erosion).
    - Hydrology (surface water and ground water flows) and water quality.

[10] The *Deepwater Horizon* Trustee Council agencies are serving as cooperating agencies under NEPA. While the Army Corps of Engineers has not participated as a cooperating agency on the Draft PDARP/PEIS, the Corps has special expertise and experience with some of the projects likely to be proposed in the course of implementing the PDARP/PEIS, and will be invited to participate as a cooperating agency on such projects.

  - Air quality.
  - Noise.

- Impacts to biological resources.
  - Habitats.
  - Living coastal and marine resources (wildlife, marine and estuarine fauna and flora, protected species).

- Impacts to socioeconomics and environmental justice (disproportionate effects on minority and low-income populations).
  - Cultural resources.
  - Infrastructure.
  - Land and marine management.
  - Tourism and recreational use.
  - Fisheries and aquaculture.
  - Marine transportation.
  - Aesthetics and visual resources.
  - Public health and safety, including flood and shoreline protection.

By using a PEIS process to carefully review the potential impacts of the proposed integrated restoration plan as well as the potential impacts of restoration alternatives, the Trustees determined that the proposed integrated restoration plan will have both beneficial and adverse impacts, with the beneficial impacts of restoration substantially outweighing potential adverse impacts, especially in the long term and especially if best practices are used to minimize adverse impacts. For example, benefits to physical and biological resources are typically long-term and focus on recovery of habitat and/or species populations. Adverse impacts can be related to construction impacts such as short-term disturbance. Adverse impacts can also result from intentional long-term changes that are made to geology, vegetation, and substrates when an existing habitat is converted to a restored habitat, such as shallow open-water being converted to marsh. In Appendix 6.A, Best Practices, the Trustees recommend best practices to guide future restoration activities.

In addition to evaluating the potential impacts of the preferred alternative (integrated restoration portfolio), the Trustees examined the potential environmental impacts of alternatives, as follows:

- **Alternative B—Resource-specific restoration.** This alternative would rely on the same restoration types as the preferred alternative, but with a different emphasis across restoration types (i.e., a focus on replenishing and protecting specific marine resources with correspondingly less emphasis on coastal habitat restoration). At a programmatic level, the potential adverse environmental consequences could largely be the same as with the preferred alternative, since the same restoration types are proposed. However, environmental impacts may differ as the project approaches emphasized in subsequent restoration plans may differ. Given the reduced emphasis on restoration of Gulf coastal habitats, there is less certainty about

the benefits that Alternative B would provide for the reasonably inferred but unquantified injuries described in Chapter 4.

- **Alternative C—Continue injury assessment and defer restoration planning.** This alternative increases the potential for targeting restoration projects to identified injuries, however it would delay restoration action and would result in less restoration funding, as funds would be needed for the continued injury assessment. Continued assessment would cause substantial delays in comprehensive restoration action beyond Early Restoration, which would lead to further losses in natural resources and their services, along with corresponding socioeconomic impacts. Additionally, the reduction in funds available for restoration (due to expenditure on continued assessment) would result in Alternative C not providing as much benefit to injured resources as Alternative A or B.

- **Alternative D—Natural recovery/no action.** The Trustees are required under NEPA to evaluate a No Action alternative. Under this alternative, Early Restoration would be the only restoration implemented; no additional restoration under NRDA would be done by Trustees. This alternative would not accomplish beneficial impacts to injured resources via additional active NRDA restoration. Natural resources would recover more slowly or some might not recover without restoration, and the public would not be compensated for losses to natural resources and their services during this recovery time period ("interim" losses).

### 1.5.5 Governance

In keeping with the Trustees' responsibilities under OPA, and in the context of the comprehensive, integrated ecosystem restoration plan identified as the preferred alternative, the Trustees' governance structure guides the continuing restoration process and establishes transparency and public accountability of the Trustees' actions. The Trustees assure restoration is achieved with financial accountability and that obligations set forth in the Oil Pollution Act, the future Consent Decree, the Final Programmatic DARP, and future restoration plans are met. The duties of the Trustees include restoration planning, restoration implementation, monitoring and adaptive management, financial management, public engagement, and restoration tracking.

The Trustees propose a distributed governance structure that assigns a Trustee Implementation Group (TIG) for each of seven restoration areas (restoration in each of the five Gulf States, Open Ocean, and Regionwide), and additionally establishes a TIG for "Unknown Conditions and Adaptive Management." The Trustees believe that restoration can be carried out most efficiently by directly vesting restoration decision-making to those Trustees who have the strongest collective trust interests in natural resources and their services within each restoration area. Because these are shared public trust resources, with overlap in federal and state jurisdiction, both state and federal Trustees serve on the Trustee Council and within respective TIGs. The general division of responsibilities between the TIGs and the Trustee Council is as follows:

- *The TIGs' function* will primarily be planning, deciding on, and implementing restoration, including monitoring and adaptive management. Each TIG will make all restoration decisions for the funding allocated to its restoration area.

- *The Trustee Council's function* will primarily be to ensure coordination and efficiency across the TIGs by establishing procedures and practices needed to standardize or provide for consistency for some TIG activities.

### 1.5.6 Coordination with Other *Deepwater Horizon* Restoration Planning Efforts

Coordination between the NRDA restoration and other *Deepwater Horizon* restoration programs will promote successful implementation of this PDARP and optimize ecosystem recovery within the Gulf. The Trustee Council may consider the restoration actions of these other programs to identify synergies and reduce potential redundancies when selecting projects under this PDARP. These programs will produce significant monitoring data to inform restoration decisions and improve adaptive management. Data sharing between programs is encouraged and the Trustee Council will make information for projects selected under this PDARP available to the public, as well as to the scientific community and other restoration programs.

Other *Deepwater Horizon* restoration planning efforts are planned or underway as a result of:

- **Clean Water Act penalties (RESTORE Act).** The Resources and Ecosystems Sustainability, Tourist Opportunities and Revived Economies of the Gulf Coast States (RESTORE) Act of 2012 dedicates 80 percent of any civil and administrative penalties paid under the Clean Water Act to the Gulf Coast Restoration Trust Fund for ecosystem restoration, economic recovery, and tourism promotion in the Gulf Coast region.

- **Criminal plea agreement payments.** In 2012-2013, BP and Transocean each entered into criminal plea agreements with the United States Justice Department. Substantial funding under those plea agreements is being directed to:

    - The **Gulf Environmental Benefit Fund**, administered by the National Fish and Wildlife Foundation, to restore and protect Gulf Coast natural resources.

    - The **North American Wetlands Conservation Fund,** administered by the U.S. Fish and Wildlife Service, for "wetlands restoration and conservation projects" located in the Gulf or projects that would "benefit migratory bird species and other wildlife and habitat" affected by the oil spill.

    - The **National Academy of Sciences**, to enhance the safety of offshore drilling to protect human health and the environment.

## 1.6 Proposed Settlement and PDARP Decision



Under OPA, there are several different possible scenarios for the Trustees to receive the funding needed to implement restoration. In one scenario, the Trustees prepare a draft and final PDARP and present a written demand to the responsible parties to either implement the restoration or provide the funding necessary for restoration implementation (15 CFR § 990.62). If the responsible parties reject the demand, the Trustees can then file a judicial claim (i.e., a lawsuit) in an attempt to win a judgment for the cost of restoration, or the Trustees can seek funding for restoration from the federal government's Oil Spill Liability Trust Fund (15 CFR § 990.64). This litigation scenario typically results in long delays and has an uncertain outcome with respect to the amount of funding that may be gained for restoration.

A second scenario under OPA is a settlement scenario. The OPA regulations note that "Trustees may settle claims for natural resource damages . . . at any time, provided that the settlement is adequate in the judgement of the trustees to satisfy the goal of OPA and is fair, reasonable, and in the public interest" (15 CFR § 990.25). A settlement avoids the risks and delays of litigation and provides the Trustees with certainty about the amount of funding available for restoration.

On July 2, 2015, BP, the major party responsible for the *Deepwater Horizon* spill, announced that the Trustees and BP had reached an agreement in principle to settle natural resource damages for the spill (DOJ 2015a, 2015b). The Trustees have proposed to accept the settlement with BP to resolve BP's liability for natural resource damages associated with the *Deepwater Horizon* oil spill. Under this settlement, BP would pay a total of $8.1 billion for restoration to address natural resource injuries (this includes $1 billion already committed for Early Restoration), plus up to an additional $700 million (some of which is in the form of accrued interest) to respond to natural resource damages unknown at the time of the agreement and/or to provide for adaptive management. Finally, the settlement also includes a proposed allocation of the settlement proceeds to various restoration types and restoration areas. This proposed settlement is described in a proposed Consent Decree that was recently lodged in a federal case arising from matters related to the *Deepwater Horizon* oil spill: *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.).* The proposed Consent Decree is subject to its own public comment process regarding the sufficiency of the settlement or other terms.[11] Upon conclusion of the public comment process, if both the plaintiffs and then the Court find the decree to be adequate, fair, reasonable, and in the public interest, the Court will officially enter the final Consent Decree between defendant BP and plaintiffs United States and the Gulf States.

In this Draft PDARP/PEIS, the Trustees outline the injury assessment (Chapter 4) and proposed restoration plan (Chapters 5, 6, and 7). The Trustees propose to make a programmatic decision regarding how this funding would be used for restoration to offset the natural resource injuries described in this document. This programmatic decision includes the preferred restoration alternative described in Chapter 5, as well as the associated provisions for governance of restoration spending

[11] The Consent Decree also relates to other types of legal claims (such as civil penalties) that are not part of the NRDA process and are not discussed here. Comments related to these other claims should be addressed to the United States Department of Justice, Environment and Natural Resources Division. A link for the proposed Consent Decree and directions for comment to the Department of Justice is available at *www.gulfspillrestoration.noaa.gov*.

described in Chapter 7. As explained in summary above and in detail in Chapter 5.5, the preferred restoration alternative provides for a comprehensive, integrated, ecosystem restoration plan with a portfolio of restoration types that address the diverse suite of injuries that occurred at both regional and local scales. This proposal focuses allocating funds to meet five goals, and 13 restoration activities designed to meet these goals. This decision for restoration planning is being proposed herein for public review and comment, as is the integrated PEIS.[12]



The Trustees believe that both the settlement and the programmatic plan are appropriate for the following reasons. The Trustees have jointly examined and assessed the extent of injury and the proposed restoration alternatives with particular consideration of approaches to restoring, replacing, rehabilitating, or acquiring the equivalent of the injured natural resources and services. If the proposed decree becomes final, and if the funding available for restoration is expended in conformance with the programmatic plan proposed in this Draft PDARP/PEIS, the Trustees are satisfied that the resulting efforts (together with the work flowing from the Framework Agreement) will make the public whole for the loss in natural resources and services suffered here. In reaching this conclusion, the Trustees have considered, among other things:

- The nature and extent of the specific injuries that have been identified and studied and the uncertainties attached to those injuries.
- Uncertainties as to other injuries not fully studied.
- The potential benefits (and detriments) of ecosystem-level habitat restoration, and the uncertainties attached to those restoration options.
- Potential benefits (and detriments) from other approaches to restoration, such as shifting the focus of restoration away from ecosystem restoration to restoration of specific, well-studied resources, and the uncertainties attached to those restoration options.
- The further degradation to the environment that would occur as restoration is delayed while further study is undertaken to narrow uncertainties.
- The further degradation to the environment that would occur as restoration is delayed during the litigation process.
- The benefits of starting restoration sooner rather than litigating.

The Trustees conclude that the settlement provides a reasonable approach to achieving the goals of OPA to make the public and the environment whole, is a fair and reasonable result, and advances the public interest.

The public is encouraged to review and comment on this Draft PDARP/PEIS (see Section 1.7.1), as well as under the separate Department of Justice process for the Consent Decree.

[12] The Trustees will hold a series of public meetings to facilitate public review and comment on the proposed restoration plan. Meeting locations, dates, and times will be specified in the *Federal Register* notice announcing the Draft PDARP/PEIS.

## 1.7 Public Involvement in Restoration Planning

OPA and NEPA require the Trustees to consider public comments on the *Deepwater Horizon* restoration planning process. Public outreach and involvement have been an integral part of Trustee restoration planning since 2010.

The Trustees first provided public notice on the need for restoration planning for the *Deepwater Horizon* oil spill in October 2010.[13] Since then, the Trustees have engaged the public in several different ways, including obtaining input during a formal restoration scoping process in 2011.[14] Each state and federal Trustee established a website to provide the public with information about injury and restoration processes.[15] The Trustees also developed a website[16] where the public can submit restoration project ideas on an ongoing basis. The Trustees have reviewed and considered these project ideas as part of restoration planning and during development of this document.

**Public Engagement During the NRDA Process**

Trustees have engaged with the public throughout the NRDA process. Key outreach methods have included:

- Announcements in the *Federal Register*
- Public meetings
- Websites

Trustees welcome all public comments and consider recommended restoration ideas to help identify what types of projects should be implemented and their potential impacts.

In addition, during each of the four completed phases of Early Restoration planning, the Trustees published a draft restoration plan, held public meetings, solicited public comments, and responded to comments in a final restoration plan. Although these comments were targeted at Early Restoration, much of the input is relevant to the programmatic restoration planning process. Future phases of restoration planning and

[13] Notice of Intent, 75 FR 60800, Discharge of Oil From *Deepwater Horizon*/Macondo Well, Gulf of Mexico; Intent to Conduct Restoration Planning (*https://federalregister.gov/a/2010-24706*); Notice of Intent, 36 La. Reg. 2441-43 (Oct. 20, 2010), Restoration Planning – Discharge of Oil From the *Deepwater Horizon* Mobile Offshore Drilling Unit and the Subsea Macondo Well into the Gulf of Mexico, April 20, 2010 (*http://www.doa.louisiana.gov/osr/reg/1010/1010.pdf*).

[14] Public Scoping for Preparation of a Programmatic Environmental Impact Statement for the *Deepwater Horizon* BP Oil Spill, April 2011; *http://www.gulfspillrestoration.noaa.gov/wp-content/uploads/2011/04/Public-DWH-PEIS-Scoping-Review-Document.pdf*. The April 2011 scoping document provided the public with background on scoping, the NRDA process, the relationship of the NRDA and NEPA processes, alternatives development, restoration types, and environmental consequences.

[15] The Trustees established the following websites:

- NOAA, Gulf Spill Restoration, available at *http://www.gulfspillrestoration.noaa.gov/*
- NOAA, DIVER, available at *https://dwhdiver.orr.noaa.gov/*
- DOI, *Deepwater Horizon* Oil Spill Response, available at *http://www.fws.gov/home/dhoilspill/*
- Texas Parks and Wildlife Department, *Deepwater Horizon* Oil Spill, available at *http://www.tpwd.state.tx.us/landwater/water/environconcerns/damage_assessment/deep_water_horizon.phtml/*
- Louisiana, *Deepwater Horizon* Oil Spill Natural Resource Damage Assessment, available at *http://la-dwh.com/*
- Mississippi Department of Environmental Quality, Natural Resource Damage Assessment, available at *http://www.restore.ms/*
- Alabama Department of Conservation and Natural Resources, NRDA Projects, available at *http://www.alabamacoastalrestoration.org*
- Florida Department of Environmental Protection, *Deepwater Horizon* Oil Spill Response and Restoration, available at *www.deepwaterhorizonflorida.com*.

[16] See *http://www.gulfspillrestoration.noaa.gov/restoration/give-us-your-ideas/*.

implementation for specific projects will provide the public with additional opportunities for review and comment.

### 1.7.1 Request for Public Review of This Draft PDARP/PEIS

The public is encouraged to review and comment on this Draft PDARP/PEIS. The Trustees will hold a series of public meetings to facilitate the public review and comment process. Meeting locations, dates, and times will be set when this document is released for public review and will be specified in the *Federal Register* notice announcing release of this document. After the close of the public comment period, the Trustees will consider all relevant comments received during the public comment period and revise the PDARP/PEIS as may be appropriate. A summary of comments received and the Trustees' responses will be included in the final document.

After public release of the Final PDARP/PEIS, the Trustees will prepare a Record of Decision that formally selects a programmatic alternative for implementation. The selected programmatic alternative will direct and guide over 15 years of subsequent restoration planning and implementation.

Separately, the United States Department of Justice, Environment and Natural Resources Division, will be taking public comment on the proposed Consent Decree that is lodged with the court in *Deepwater Horizon* oil spill: *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.).* The Consent Decree also relates to other types of legal claims (such as civil penalties) that are not part of the NRDA process and are not discussed here. To access the proposed Consent Decree or comment visit *http://www.justice.gov/enrd/deepwater-horizon*.

### 1.7.2 Administrative Record

The Trustees opened a publicly available Administrative Record for the NRDA for the *Deepwater Horizon* oil spill, including restoration planning activities, concurrently with publication of the 2010 Notice of Intent (pursuant to 15 CFR § 990.45). DOI is the lead federal Trustee for maintaining the Administrative Record, which can be found at *http://www.doi.gov/deepwaterhorizon/adminrecord*. Information on restoration implementation for Emergency and Early Restoration efforts is being provided to the public through the Administrative Record and other outreach efforts, including *http://www.gulfspillrestoration.noaa.gov*.

### What Is in This Draft *Deepwater Horizon* Programmatic Damage Assessment and Restoration Plan/Draft Programmatic Environmental Impact Statement (Draft PDARP/PEIS)?

**Chapter 1 (Introduction and Executive Summary)** describes why this Draft PDARP/PEIS was written and under what authority. It also presents the DWH Trustees and NRDA process, the injury assessment process and key findings, the restoration planning approach and alternatives, the settlement proposed by BP and the Trustees' response, public involvement in restoration planning, and opportunities for public comment.

**Chapter 2 (Incident Overview)** provides an overview of the *Deepwater Horizon* oil spill incident. It describes what happened in the aftermath of the *Deepwater Horizon* explosion, the amount of oil and other spill materials released into the Gulf, and the response actions taken to try to reduce harm to people and the environment.

**Chapter 3 (Ecosystem Setting)** describes the Gulf of Mexico regional ecosystem and its diverse natural resources and associated services to provide context for the injury assessment and restoration alternatives, including understanding the affected environment (as defined by NEPA) for the programmatic restoration plan and EIS.

**Chapter 4 (Injury to Natural Resources)** summarizes the Trustees' approach to and findings resulting from the injury assessment. Each section in Chapter 4 covers a key part of the injury assessment:

- Section 4.1 (Approach to the Injury Assessment) describes how the Trustees considered how to study the effects from the spill.
- Section 4.2 (Natural Resource Exposure) explains how oil moved through the environment after the spill and the nature and extent of exposure to that oil experienced by biota and habitats.
- Section 4.3 (Toxicity) describes the toxicity of *Deepwater Horizon* oil to natural resources and summarizes the results of the Trustees' comprehensive toxicity testing program.
- Sections 4.4 through 4.10 describe the injury assessment for specific resources, habitats and services) as follows: water column resources (Section 4.4); benthic (i.e., bottom-dwelling) resources and habitats (Section 4.5); nearshore marine ecosystem (Section 4.6); birds (Section 4.7); sea turtles (Section 4.8); marine mammals (Section 4.9); and lost recreational use (Section 4.10).

- Section 4.11 (Injury Assessment: Summary and Synthesis of Findings) summarizes the Trustees' injury assessment findings and synthesizes those conclusions in an ecosystem context.

**Chapter 5 (Restoring Natural Resources)** provides the Trustees' approach to restoration planning and evaluates the restoration alternatives, including the preferred alternative of comprehensive integrated ecosystem restoration.

- Section 5.1 (Bridging Injury to Restoration) presents the wide-ranging injuries identified in Chapter 4 as an ecosystem-level injury and ties this injury to the Trustees' preferred alternative for restoration, which is an ecosystem-level approach.
- Section 5.2 (Overarching Trustee Restoration Planning Approach, OPA Requirements) describes the Trustees' overall approach to restoration planning.
- Section 5.3 (Trustee Programmatic Goals, Purpose, and Need) describes the Trustees' overarching goals, purpose, and need for restoration.
- Section 5.4 (Approach to Developing and Evaluating Alternatives) describes the Trustees' process for developing restoration alternatives, which is a required step under the OPA and NEPA statutes that guide Trustee action.
- Section 5.5 (Alternative A: Comprehensive Integrated Ecosystem Restoration [Preferred Alternative]) describes the Trustees' preferred alternative of comprehensive integrated ecosystem restoration. It introduces each of the restoration types that together form a comprehensive, integrated approach to restoration.
- Sections 5.6, 5.7, and 5.8 describe the three other restoration planning alternatives considered by the Trustees.
- Section 5.9 (Comparative OPA Evaluation of Action Alternatives) compares the two action alternatives and explains why the Trustees selected comprehensive integrated restoration as their preferred alternative.
- Section 5.10 (Summary of the Preferred Alternative and Funding Allocations) summarizes the preferred alternative, presents the funding allocation to each restoration type in defined restoration areas, provides a sense of the restoration potential associated with that funding, and describes the process for subsequent restoration planning.

**Chapter 6 (Environmental Consequences and Compliance with Other Laws)** describes the predicted consequences, or effects, of implementing PDARP/PEIS restoration alternatives proposed in Chapter 5, Restoring Natural Resources, on the physical, biological, and socioeconomic environment as required by NEPA.

**Chapter 7 (Governance)** presents the Trustees' governance approach for implementing the preferred alternative.

## OPA and NEPA Requirements: The Basics

### What Is the Oil Pollution Act of 1990 (OPA)?

The Oil Pollution Act of 1990 (OPA) (33 U.S.C. 2701 *et seq.*) is a law enacted by Congress in 1990, partly in response to the *Exxon Valdez* oil spill in 1989. OPA amends the Clean Water Act and addressed problems associated with preventing, responding to, and paying for oil pollution incidents in navigable waters, adjoining shorelines, and the exclusive economic zone of the United States. It created a comprehensive prevention, response, liability, and compensation regime to deal with vessel- and facility-caused oil pollution to U.S. navigable waters. The goal of OPA is to make the environment and public whole for injuries to natural resources and services resulting from an incident involving a discharge of oil or a substantial threat of a discharge of oil.

### Under OPA, Who Acts for the Public and Why?

OPA provides for federal and state agencies (and federally recognized Indian Tribes) to act as **trustees** for natural resources on behalf of the public. Under OPA, the designated trustees develop and implement a plan for the restoration, rehabilitation, replacement, or acquisition of the equivalent of the injured natural resources under their trusteeship (collectively referred to as "restoration").

### Under OPA, Who Is Liable and What Are "Damages"?

Under OPA, liabilities to be borne by the responsible parties include "damages for injury to, destruction of, loss of, or loss of use of, natural resources [land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources], including the reasonable costs of assessing the damage." This means that the responsible parties must pay the costs of identifying the injuries and restoring natural resources injured by the spill, including compensating for any loss in value of natural resources from the time of injury until the resources are restored. Responsible parties are also liable for the costs of cleaning up spilled oil (or other contaminants).

### What Is a Natural Resource Damage Assessment?

Under OPA, an NRDA is conducted to determine the type and amount of restoration needed to compensate the public for harm to natural resources as a result of an oil spill.

OPA regulations define a process for injury assessment and restoration planning consisting of three phases: preassessment, injury assessment/restoration planning, and restoration implementation (15 CFR§ 990). The trustees also develop a **restoration plan** that outlines alternative approaches to make the public whole for the injuries to natural resources and the loss of services. The final step of an NRDA is to implement restoration and monitor its effectiveness.

Trustees solicit public comment on proposed restoration plans and then select and implement restoration projects.

**What Is the National Environmental Policy Act (NEPA)?**

The National Environmental Policy Act (NEPA), enacted in 1969, establishes procedural requirements for federal agencies and ensures fully informed and well-considered decisions by requiring federal agencies to consider the environmental impacts of their major proposed actions and reasonable alternatives to those actions.

**What Is an Environmental Impact Statement (EIS)?**

NEPA's implementing regulations (40 CFR §§ 1500 et seq.) specify that federal agencies must prepare an Environmental Impact Statement for certain proposed actions "significantly affecting the quality of the human environment." For an NRDA restoration plan, the purpose of the EIS is to involve the public and facilitate the decision-making process in the federal trustees' analysis of alternative approaches to restoring injured natural resources and services.

**How Are NEPA and OPA Related?**

OPA regulations require that restoration planning actions undertaken by federal trustees comply with NEPA and its implementing regulations. The OPA regulations specify that a Draft Restoration Plan/EIS should be prepared when the restoration is anticipated to have a significant impact on the quality of the human environment.

**What Is a "Programmatic" EIS?**

A federal agency may prepare a programmatic EIS (PEIS) to evaluate broad actions (rather than site- or project-specific actions). When a federal agency prepares a PEIS, the agency may "tier" subsequent narrower environmental analyses on site-specific plans or projects from the PEIS to eliminate repetitive discussions and to focus on project-specific issues for each level of environmental review.

**Where Can I Find the Text of OPA, NEPA, and the NRDA and NEPA Regulations?**

- OPA can be accessed at *http://www.epw.senate.gov/opa90.pdf*.
- The NRDA regulation can be accessed at *http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title15/15cfr990_main_02.tpl*.
- NEPA can be accessed at *https://ceq.doe.gov/laws_and_executive_orders/the_nepa_statute.html*.
- The NEPA regulations can be accessed at *https://ceq.doe.gov/ceq_regulations/regulations.html*.

## 1.8 References


Aeppli, C., Carmichael, C.A., Nelson, R.K., Lemkau, K.L., Graham, W.M., Redmond, M.C., Valentine, D.L., & Reddy, C.M. (2012). Oil weathering after the Deepwater Horizon disaster led to the formation of oxygenated residues. *Environmental Science and Technology, 46*(16), 8799-8807. doi:10.1021/es3015138

DOI (U.S. Department of the Interior). (2010). *Notice of intent to conduct restoration planning (pursuant to 15 CFR section 990.44) – Discharge of oil from the Deepwater Horizon Mobile Offshore Drilling Unit and the subsea Macondo Well into the Gulf of Mexico, April 20, 2010*. Retrieved from *http://www.gulfspillrestoration.noaa.gov/wp-content/uploads/2011/02/Deepwater-Horizon-Final-NOI-Fully-Executed.pdf*.

DOJ (U.S. Department of Justice). (2015a). *Background sheet on Agreement in Principle with BP*. Retrieved from *http://www.justice.gov/opa/file/625011/download*.

DOJ (U.S. Department of Justice). (2015b). *Statement by Attorney General Loretta E. Lynch on the Agreement in Principle with BP to settle civil claims for the Deepwater Horizon oil spill* [Press release]. Retrieved from *http://www.justice.gov/opa/pr/statement-attorney-general-loretta-e-lynch-agreement-principle-bp-settle-civil-claims*

DWH Trustees (Deepwater Horizon Natural Resource Damage Assessment Trustees). (2012a). *Deepwater Horizon oil spill Phase I early restoration plan and environmental assessment*. Retrieved from *http://www.gulfspillrestoration.noaa.gov/wp-content/uploads/Final-ERP-EA-041812.pdf*

DWH Trustees (Deepwater Horizon Natural Resource Damage Assessment Trustees). (2012b). *Deepwater Horizon oil spill Phase II early restoration plan and environmental review*. Retrieved from *http://www.gulfspillrestoration.noaa.gov/wp-content/uploads/Phase-II-ERP-ER-12-21-12.pdf*.

DWH Trustees (Deepwater Horizon Natural Resource Damage Assessment Trustees). (2013). Deepwater Horizon oil spill natural resource damage assessment: Emergency restoration. Retrieved from *http://www.gulfspillrestoration.noaa.gov/wp-content/uploads/TC_Toolkit_EmergRest_FINAL_6_12_13.pdf*

DWH Trustees (Deepwater Horizon Natural Resource Damage Assessment Trustees). (2014). *Deepwater Horizon oil spill: Programmatic and Phase III early restoration plan and early restoration programmatic environmental impact statement*. Retrieved from *http://www.gulfspillrestoration.noaa.gov/restoration/early-restoration/phase-iii/*.

DWH Trustees (Deepwater Horizon Natural Resource Damage Assessment Trustees). (2015). *Deepwater Horizon oil spill draft Phase IV early restoration plan and environmental assessments*. Retrieved from *http://www.gulfspillrestoration.noaa.gov/restoration-planning/phase-iv/*.

Executive Order 12777 (1991). *Implementation of Section 311 of the Federal Water Pollution Control Act of October 18, 1972, as amended, and the Oil Pollution Act of 1990. 56 FR 54757*.

Gulf Coast Ecosystem Restoration. FR DOC #: 2012-22807, pages 56749 - 56752 (2012).

Executive Order No. 12777. Implementation of Section 311 of the Federal Water Pollution Control Act of October 18, 1972, as amended, and the Oil Pollution Act of 1990. 56 FR 54757 (1991).

Hsing, P.Y., Fu, B., Larcom, E.A., Berlet, S.P., Shank, T.M., Govindarajan, A.F., Lukasiewicz, A.J., Dixon, P.M., & Fisher, C.R. (2013). Evidence of lasting impact of the Deepwater Horizon oil spill on a deep Gulf of Mexico coral community. *Elementa: Science of the Anthropocene*. doi:10.12952/journal.elementa.000012

U.S. v. BP et al. (United States of America v. BP Exploration & Production, Inc., et al.). (2015). *Findings of fact and conclusions of law: Phase two trial. In re: Oil spill by the oil rig "Deepwater Horizon" in the Gulf of Mexico, on April 20, 2010, No. MDL 2179, 2015 WL 225421 (LA. E.D. Jan. 15, 2015)*. (Doc. 14021). U.S. District Court for the Eastern District of Louisiana. Retrieved from *http://www.laed.uscourts.gov/OilSpill/Orders/1152015FindingsPhaseTwo.pdf*.

USCG (U.S. Coast Guard). (2011). *On scene coordinator report: Deepwater Horizon oil spill.* Washington, DC: U.S. Department of Homeland Security, U.S. Coast Guard. Submitted to the National Response Team. Retrieved from *http://www.uscg.mil/foia/docs/dwh/fosc_dwh_report.pdf*.