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# Grand Bay National Estuarine Research Reserve Disaster Response Plan

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May 2013





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## FOREWORD

The need for a Grand Bay NERR Disaster Response Plan has become obvious over the past several years in light of a series of natural and man-made disasters that have impacted Reserve resources. A comprehensive approach to disaster planning has been undertaken to address health and safety concerns and the desire to protect resources. This plan is part of broader Gulf of Mexico-wide effort to develop disaster response plans for all five Reserves in the Gulf and a model Disaster Response Plan template for use at other Reserves and protected areas nationwide. The work is supported by the National Oceanic and Atmospheric Administration's Estuarine Reserves Division and their Office of Response and Restoration's Disaster Response Center along with the host organizations of the individual Gulf Reserves at Mission-Aransas, Weeks Bay, Apalachicola Bay, Rookery Bay along with Grand Bay.

In the past, the Reserve has worked most closely with the Mississippi Department of Marine Resources on disaster response, mostly in preparing and responding to hurricanes. However, the need to work closely with other local, state and federal agencies and emergency responders has become apparent and this coordination is incorporated into this planning effort.

The development and implementation of this plan will allow Grand Bay NERR staff to be more conscientious regarding health and safety issues, disaster planning and response and the incident command framework on both large and small scales. In addition, area emergency responders will be more aware of Reserve priorities and the natural resources that make the Grand Bay NERR such a special place. Reserve staff are not preparing to become seasoned first responders, but rather to become more attentive of hazardous or emergency situations that may occur onsite, and how to best deal with such events. Staff will be more knowledgeable of incident command, be better trained for emergencies and understand the capabilities and responsibilities of first responders.

Planning is key to being prepared to handle most situations. Planning ahead and working with emergency responders will aid us in protecting staff, visitors and the natural resources of the Reserve. We look forward to increased interactions with area responders in future planning activities and response to emergency and hazardous situations as they may occur.

David Ruple

A handwritten signature in cursive script that reads "David Ruple".

Grand Bay NERR Manager



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## Plan Acknowledgements and Distribution

The following stakeholder agencies and organizations contributed to development of this plan and represent the various relationships and collaboration necessary to maintain disaster preparedness. Each organization listed has received a copy of this plan and is welcome to both lend and request support which may become necessary for the protection of life, health, property, the environment, and the economy in and around the Grand Bay National Estuarine Research Reserve (NERR).

National Oceanic and Atmospheric Administration (NOAA), Estuarine Research Division

NOAA, Office of Response and Restoration, Disaster Response Center

United States Coast Guard (USCG), Sector Mobile

United States Environmental Protection Agency (EPA), Region 4

United States Fish and Wildlife Service (FWS), Grand Bay National Wildlife Refuge and Mississippi Sandhill Crane Refuge

Mississippi Department of Marine Resources

Mississippi Department of Environmental Quality

Mississippi State Department of Health – Public Health District 9 – Coastal / Plains

Mississippi Emergency Management Agency

Jackson County Emergency Management

Jackson County Sheriff's Office

Jackson County Fire District / Forts Lake Volunteer Fire Department



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## Acronyms and Abbreviations

USACE	United States Army Corps of Engineers
AAR	After Action Report
CDMO	Centralized Data Management Office
CELCP	Coastal and Estuarine Land Conservation Program
CFR	<i>Code of Federal Regulations</i>
COOP	Continuity of operations plan
Co-Ops	Center for Operational Oceanographic Products and Service
CORS	Continuously Operating Reference Station
CPR	Cardiopulmonary resuscitation
CZMA	Coastal Zone Management Act
DOI	United States Department of the Interior
DRP	Disaster Response Plan
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	United States Environmental Protection Agency
ET	Emergency Team
FEMA	Federal Emergency Management Agency
FWS	U.S. Fish and Wildlife Service
GRP	Geographic Response Plan
HAB	Harmful Algal Bloom
HazMat	Hazardous Material
HIRA	Hazard Identification and Risk Assessment
HSEEP	Homeland Security Exercise and Evaluation Program
IAP	Incident Action Plan
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
LEPC	Local Emergency Planning Committee
MDEQ	Mississippi Department of Environmental Quality



MDMR	Mississippi Department of Marine Resources
MEMA	Mississippi Environmental Management Agency
MPA	Marine Protected Area
MS	Mississippi
NERR	National Estuarine Research Reserve
NERRS	National Estuarine Research Reserve System
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
NRDA	Natural Resource Damage Assessment
NRF	National Response Framework
NWR	National Wildlife Refuge
NWRS	National Wildlife Refuge System
OCRM	Office of Ocean and Coastal Resource Management (NOAA)
PDA	Preliminary Damage Assessment
PIO	Public Information Office
POC	Point of Contact
RAWS	Remote Automatic Weather Station
SET	Sediment/Surface Elevation Table
SOP	Standard Operating Procedures
SOS	Secretary of State
SWMP	System-wide Monitoring Program
TBD	To Be Determined
TIPS	Tidal Inlet Protection Strategies
TNC	The Nature Conservancy
U.S.C.	<i>United States Code</i>
USCG	United States Coast Guard
UXO	Unexploded ordnance
VHF	Very High Frequency



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## 1.0 Introduction

The Grand Bay National Estuarine Research Reserve (NERR) in Jackson County, Mississippi is part of the National Estuarine Research Reserve System (NERRS). The NERRS is a network of 28 federally designated sites where natural resources are protected, monitored, studied, and shared with the public. The system was created by the federal Coastal Zone Management Act (CZMA) of 1972 and codified as Title 15, Code of Federal Regulations (CFR). The National Oceanic and Atmospheric Administration (NOAA) provides partial funding, program guidance, and technical assistance to maintain the system. Each NERR is managed by a state partner with input from local stakeholders. As identified at 15 CFR Part 921.1(b), five goals have been defined for NERRs (NOAA Undated and 2012a):

1. Ensure a stable environment for research through long-term protection of NERR resources.
2. Address coastal management issues identified as significant through coordinated estuarine research within the System.
3. Enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation.
4. Promote federal, state, public, and private use of one or more Reserves within the System when such entities conduct estuarine research.
5. Conduct and coordinate estuarine research within the System, gathering and making available information necessary for improved understanding and management of estuarine areas.

The vision of work at the Grand Bay NERR over the next five years is to contribute to the broader effort that:

*“Coastal ecosystems of the Gulf of Mexico will be conserved and valued.”*

The mission of the Grand Bay NERR is:

*“To practice and promote informed stewardship of Grand Bay NERR and Mississippi coastal resources through innovative research, education, and training.”* (Grand Bay NERR 2013)



Staff and partners will work collaboratively to address focus areas relating to habitat protection, climate change and water quality. Reserve priorities and specific goals that will support this work include: (1) increase scientific understanding and management of coastal resources, (2) increase appreciation for the significance of coastal resources, and (3) improve science-based decision-making regarding management of coastal resources. The Reserve will address these priorities on a local and regional context and will pursue projects and collaborations relating to promoting resilient communities, promoting sustainable development, monitoring biodiversity, water quality monitoring, conducting habitat restoration and enhancement, understanding impacts of climate change and understanding the impacts of watershed development on natural communities. Reserve education and training activities will share the results of these projects with the public and local decision-makers.

Federal regulations require each NERR to prepare and maintain a NOAA-approved management plan. The plan must describe the NERR's strategies and actions for research, education/interpretation, public access, construction, acquisition and resource preservation, restoration, and manipulation. Staff roles in each of these areas must also be defined. Additional information on the Grand Bay NERR is available at: <http://grandbaynerr.org/>. The Grand Bay NERR Management Plan was revised in 2013 and will be posted to the Grand Bay NERR web site upon finalization; it is also available from the Grand Bay NERR points of contact identified in this Disaster Response Plan.

Effectively managing emergencies is important to protecting natural resources and continuing the work of each NERR; this plan addresses NERR emergency management.

## 1.1 Purpose

Grand Bay NERR has developed this DRP to guide internal response actions and coordinate response actions with partner agencies during disaster response operations. The DRP provides a flexible framework for response and operational guidance to protect the Reserve area ecosystems and help ensure the health and safety of all involved parties. This DRP fulfills the following objectives:

- Describes the resources at risk at the Reserve (people, infrastructure, and natural resources)
- Provides policy and guidance for operations, specifically detailing capabilities
- Presents a concept of operations, and actions, roles, and responsibilities involved with incident management
- Supports effective use of government resources during response operations.



***This DRP focuses on actions to prepare for potential future disaster events, as well as appropriate response actions following confirmation of a disaster and request for response assistance.*** It provides general information regarding the major components of any response effort, and presents specific procedures for general and hazard-specific response (Appendices A and D). Its primary focus does not include issues associated with prevention, post-response recovery, or reporting.

## 1.2 List of Plans

Federal regulations require each NERR to prepare and maintain a NOAA-approved management plan. The management plan must describe the Reserve's strategies and actions for research, education/interpretation, public access, construction, acquisition, and resource preservation, restoration, and manipulation. Staff roles in each of these areas must also be defined. The Grand Bay Management Plan has recently been updated (Grand Bay 2012).

This DRP complements the Grand Bay Management Plan by describing the policies, capabilities, and activities necessary for Reserve staff to respond to both internal and external emergencies. This DRP is not intended to supplant existing plans or policies; it addresses Reserve-specific disaster response planning in line with existing frameworks to strengthen preparedness for future events and to share capabilities to support natural resource protection within the existing emergency management framework. This DRP may also serve as a Reserve-specific annex to the plans of local, state, and federal response agencies, if they choose to incorporate it. Area plans relevant to the area of the Reserve are listed below and in the references section (Appendix M):

- U.S. Coast Guard Area Contingency Plan Sector Mobile (Draft) (USCG 2012) (selected maps included in Appendix L)
- Mississippi Comprehensive Emergency Management Plan (Mississippi Emergency Management Agency (MEMA 2012)
- Mississippi State Hazard Mitigation Plan: 2010 State Hazard Mitigation Plan Update (MEMA 2010)
- Mississippi Department of Marine Resources Tropical Storm and Hurricane Contingency Plan (MDMR 2012, included with Appendix L)
- Jackson County Emergency Management and Mitigation Plans (not available on line) (JCEMA 2011); the NERR communicates regularly with county and other local stakeholders regarding these plans.



The Reserve's Emergency Planner will maintain the list of area plans and update this list when the DRP is periodically updated.

### **1.3 NERR Emergency Management**

NERRs are exposed to many of the same hazards that threaten the built and natural environment in urban, suburban, and rural areas. Emergency planning and other preparedness activity can improve Reserve-related outcomes.

Unlike other jurisdictions responsible for managing emergencies, Grand Bay NERR does not have this authority and does not maintain staff dedicated to emergency management, law enforcement, , emergency medical, or other public health and safety-related services. The Reserve largely depends on other agencies to conduct emergency response. However, the Reserve can add efficacy to local response and better ensures preservation of natural resources and infrastructure by contributing to emergency preparedness in the following ways: providing real-time local knowledge of resources to be protected, maintaining planning activities with the support of stakeholders, training staff, and conducting exercises. This DRP also enhances the Reserve's disaster preparedness by cultivating interest and shared responsibility within all Reserve staff, and supports coordination with managing partners and area response authorities to strengthen preparedness and improve future response outcomes.

### **1.4 Grand Bay NERR Basic Information**

The Grand Bay NERR represents an exceptional part of the local southeastern Mississippi coastal community (Jackson County) and the Gulf of Mexico region. The administrative boundaries of the Reserve include approximately 18,049 acres of lands and waters in south easternmost Jackson County, MS. The Reserve includes Middle Bay, Point Aux Chenes Bay, Bayou Cumbest, Crooked Bayou, Bayou Heron and associated coastal wetland habitats and selected portions of tidal and non-tidal habitats including lands and waters within the boundaries of the Grand Bay National Wildlife Refuge (NWR). The reserve is bounded on the east by the waters of Grand Bay and Middle Bay at the Mississippi-Alabama state line. On the west, the Bangs Lake system borders the Bayou Cassotte Industrial Park, on the north by the communities of Bayou Cumbest, Pecan, Kreole and Orange Grove and on the south by the Mississippi Sound. The Grand Bay NERR is part of the Mississippi Coastal Watershed. The reserve has developed a sub-watershed depiction that more accurately reflects the surrounding lands and waters that influence the reserve. This information is described in more detail in the NERR's Management Plan and Appendix L - Maps and Other Information. Table 1



provides summary information about the Reserve and Figure 1 shows the NERR location and boundaries.

**Table 1 - Summary Information for Grand Bay NERR**

<b>Category</b>	<b>Information</b>
Mailing Address:	Grand Bay National Estuarine Research Reserve, 6005 Bayou Heron Road, Moss Point, MS 39562
Acres:	About 18,000 acres
Summary Description:	The reserve is located on the Mississippi/Alabama state line in Jackson County, MS. The reserve includes about 18,049 acres of lands and waters, stretching from Grand Bay and Bayou Heron in the east to Bangs Lake to the west. The reserve is located primarily within the Grand Bay National Wildlife Refuge and the Grand Bay Savanna Coastal Preserve. This reserve is a marine protected area and includes a variety of wetland habitats, both tidal and non-tidal, such as pine savannas, salt marshes, saltpannes, bays and bayous as well as terrestrial habitats that are unique to the coastal zone such as maritime forests. The reserve supports a highly diverse community of plants and animals and includes one of the largest estuarine systems in Mississippi.
Primary Managing Entity:	The reserve is administered through the Mississippi Department of Marine Resources (MDMR) whose offices are located in Biloxi, MS.
Stakeholders with Ownership or Land Management Responsibilities:	<p>The reserve was established in 1999 and is managed through a unique local, state and federal partnership designed to promote estuarine research and education within MS's Coastal Zone and its adjacent ecosystems. Public lands within the reserve are owned by two state agencies, the county, and one federal entity, including the MDMR, the Mississippi Secretary of State (SOS), Jackson County (JC), and the U.S. Fish and Wildlife Service (FWS). The state lands are part of the Grand Bay Coastal Preserve, a state-designated system of key estuarine areas, while the federal lands are part of the Grand Bay National Wildlife Refuge. In addition, the Grand Bay NERR is located completely within The Nature Conservancy's (TNC) Grand Bay Savanna project area. Reserve ownership by percentage includes: federal (33%), state land (24%), state open water (14%), private (27%) and county (2%).</p> <p>Major partners include the MDMR, the MS SOS, Mississippi State University, TNC, the FWS and the University of Southern Mississippi. Additionally, a Citizens Advisory Board has been established to assure that the concerns of the local citizens are adequately addressed by the Management Board. In addition, the National Oceanic and Administration Agency (NOAA) provides funding and support.</p>
County or Counties:	Jackson County, MS (located near town of Pecan and Moss Point, MS). The reserve lies about 30 miles east of Biloxi, MS and 30 miles southwest of Mobile, AL.
Disater Response Plan Point of Contact:	Will Underwood, Stewardship Coordinator and DRP POC: <a href="mailto:will.underwood@dmr.ms.gov">will.underwood@dmr.ms.gov</a> ; phone: 228-475-7047

- Sources: Grand Bay NERR web site and draft Grand Bay NERR Management Plan (Grand Bay Undateda, Undatedb, 2009, and 2013).

Figure 1 shows the location of the NERR.

Figure 1 – Location Map for Grand Bay NERR



Source: Prepared by NERR GIS Specialist, 2013. .



## 1.5 Authorities

Laws and executive orders that form the statutory basis of the NERR are as follows:

Coastal Zone Management Act (CZMA) – Section 315 of the CZMA of 1972, as amended, initiated the NERR system. The Act is administered by NOAA's Office of Ocean and Coastal Resource Management (OCRM); specifies principles and procedures for management of the nation's coastal resources, including the Great Lakes; and balances economic development with environmental conservation. The CZMA outlines two national programs—the National Coastal Zone Management Program and the NERRS. The 34 coastal programs aim to balance competing land and water issues in the coastal zone. The 28 NERRs serve as field laboratories to provide a greater understanding of estuaries and how humans affect these. The overall program objectives of CZMA remain balanced to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone" (NOAA 2012b).

Each NERR is intended to operate as a federal/state partnership. In Mississippi, the Mississippi Department of Marine Resource (MDMR) is the state level partner for Grand Bay NERR.

National Wildlife Refuge System (NWRS) Improvement Act – Public Law 105-57 (1997) amends the NWRS Administration Act of 1966 and ensures that the Refuge System is managed as a national system of related lands, waters, and interests for the protection and conservation of national wildlife resources. The NWRS is a network of over 545 national wildlife refuges (NWR) and thousands of waterfowl production areas across the U.S. supporting millions of migratory birds, serving as havens for hundreds of endangered species, and hosting an enormous variety of other plants and animals. At least 39 million people visit units of the NWRS each year. Because parts of the Grand Bay NWR are found within or located near Grand Bay NERR boundaries, this act serves as a relevant authority (USFWS 2012). Primary components of the NWRS Improvement Act include (1) a strong and singular wildlife conservation mission for the Refuge System; (2) a requirement that the Secretary of the Interior maintain the biological integrity, diversity, and environmental health of the Refuge System; (3) a new process for determining compatible uses on refuges; (4) a recognition that wildlife-dependent recreational uses (such as hunting, fishing, wildlife observation, photography, and environmental education and interpretation) are legitimate and appropriate public uses of the Refuge System, when determined to be compatible; (5) compatible wildlife-dependent recreational uses are the priority general public uses of the Refuge System;



and (6) a requirement for preparing a comprehensive conservation plan for each refuge (FWS 2012).

State and NERR Emergency Management Authorities - The State partner for Grand Bay NERR is the Mississippi Department of Marine Resources (MDMR). MDMR was created by the legislature as a new state agency in 1994 and manages coastal resources in the state through the authority of the Commission on Marine Resources. The MDMR is dedicated to enhancing, protecting and conserving the marine interests of the state for present and future generations. It manages all marine life, public trust wetlands, adjacent uplands and waterfront areas for the long-term recreational, educational, commercial and economic benefit of everyone. In addition to serving as the state managing agency for the Reserve, the MDMR and the Commission on Marine Resources play an important role in administering MS Seafood Laws, the MS Coastal Wetlands Protection Act, the Public Trust Tidelands Act, the Boat and Water Safety Act, the Derelict Vessel Act, the Non-Point Source Pollution Act, the Magnuson Act, the Wallop-Breaux Sportfish Restoration Act, Marine Litter Act and other state and federal mandates (MDMR Undatedb).

In emergency and disaster situations, the Grand Bay NERR Manager directs immediate notifications and actions to protect life, property, and natural resources at the reserve until appropriate response authorities arrive to assume the lead role. The NERR Manager also coordinates NERR decisions through its parent agency, the MDMR and the state trustee agency MDEQ. The Grand Bay NERR is a NOAA federal trust resource and as such, the GBNERR manager will notify NOAA's Office of Response and Restoration when hazardous spills or other disasters may affect the integrity of the Reserve. Longer-term decisions on NERR closures, participation in NRDA efforts, and consultation for response actions are managed through the MDMR Executive Director or MDMR Director of Coastal Ecology. The Grand Bay NERR Manager will follow procedures identified in this Disaster Response Plan (DRP) and established MDMR procedures and policies. In most disaster situations, the Grand Bay NERR Manager and reserve personnel will support response actions and incident command (ICs) established by the authorized response authority. The Grand Bay NERR personnel will provide consultation support and may provide staffing to IC structures (if appropriately trained and so directed by MDMR).

Where oil or hazardous material spills impact natural resources, MDMR and the Reserve may be called upon to support the NRDA process. In Mississippi, the Governor has designated the Mississippi Department of Environmental Quality (MDEQ) Executive Director, as the state's natural resource trustee for coastal areas. MDEQ has the



regulatory authority to assess damages to natural resources and to collect compensation for those injured natural resources and associated services lost. When appropriate, MDMR may direct the Reserve Manager and staff to support NRDA-related activities such as pre- and post-impact sampling, natural resource research, and other activities to document disaster impacts to natural resources at the Reserve or other areas in Mississippi (MDEQ Undated).

This DRP aligns with existing MDMR procedures and is not intended to supplant or replace any existing policies, guidelines, regulations or and requirements. The DRP addresses specific NERR preparedness and response procedures and demonstrates its commitment to preparedness efforts. Table 2 provides examples of emergency actions and agency authorities for various emergencies. Response procedures for specific hazards are address in the remainder of this DRP and Appendix D.

**Table 2 – Emergency Actions and Agency Authorities for Grand Bay NERR**

<b>Emergency Action</b>	<b>Agency with Authority</b>
Grand Bay Coastal Resources Center closure or emergency restriction of activities	NERR Manager for immediate decisions at the Center in coordination with MDMR-Biloxi, FWS
NERR area closures or emergency restriction of activities	NERR Manager for immediate decisions at the Reserve following County emergency management agency (EMA) warnings and coordinating with MDMR-Biloxi, FWS, and area response agencies or U.S. Coast Guard (USCG)
Area-wide NERR evacuation or shelter-in-place decision	NERR Manager, following County EMA warnings and coordinating area response agencies (see also Fire Evacuation Procedures and Maps included in Appendix L) in coordination with MDMR-Biloxi
Road closures and evacuation routes	County EMA decides on road closures and evacuations. Grand Bay NERR Manager coordinates with MDMR-Biloxi on decisions impacting the Reserve. NERR personnel will call 911 if Reserve personnel or visitors are stranded due to flood or blocked roads.
Navigable waterway closures	USCG Mobile Sector; MDMR-Biloxi may provide consultation and support for decisions related to waterways within the Reserve.
Arrests or reports of trespassers or those harming wildlife, stealing timber, committing vandalism, or initiating wildfires (arson), or other illegal activities	NERR Manager notifies Local Sheriff or Enforcement Divisions of MDMR and FWS. MDMR Marine Patrol provides enforcement related to aquatic life and associated coastal resources. The Marine Patrol also enforces federal laws pertaining to boating safety and provides emergency assistance to marine boaters. The MS Forestry Commission and FWS addresses arson/wildfire (MDMR Undateda).
Response decisions involving environmental trade-offs (e.g., sacrificing certain habitat to protect higher priority habitat)	Local, state, or Federal incident command (IC) lead agency makes response decisions, consulting with the NERR Manager and MDMR, as feasible. The Reserve can consult with these agencies to share information, resources, and local knowledge regarding natural resource priorities and protection strategies.
Determination of oil/hazmat clean-up endpoint (i.e., “how clean is clean?”)	Local, state, or Federal IC lead agency makes decisions, consulting with MDMR, MDEQ, FWS and NERR Manager, as feasible, for decisions within the Reserve’s boundaries.

## 1.6 Scope

This Disaster Response Plan is a comprehensive emergency management plan. As such, it serves as a primary, albeit general, guide for mitigating the full range of emergencies and disasters that may impact the NERR. As a comprehensive emergency plan, it also addresses the full range of activities that may be implemented before, during, and after emergency.

*A **comprehensive emergency management plan** addresses all hazards and phases of related planning—including mitigation, preparedness, response, and recovery. It also addresses issues such as planning for business continuity.*

Most importantly, it provides a framework for effective cooperation among local, state, federal, private and other non-governmental organizations during emergency response. Specifically, this DRP:

- Defines the Reserve’s emergency management policy.
- Identifies the people, natural resources and supporting research infrastructure at risk and methods to protect these.
- Describes a framework, organization, capabilities, and processes needed to implement disaster operations.
- Recognizes National Incident Management System (NIMS) and the National Response Framework (NRF) as the national framework used for response efforts.
- Represents the first effort to formalize an all hazards emergency management program at the Reserve.

***This DRP was developed to support a NOAA and state interest to establish fundamental emergency management programs at several reserves and for the NERRS as a whole.*** This plan uses the terms “emergency” and “disaster” interchangeably. Generally, the term “emergency” describes any situation that requires immediate, extraordinary action to save life, health, property, or the environment. Emergencies can require minutes, hours, or days to overcome. The term “disaster” refers to incidents that result in profound loss, recovery from which can require months, years, or even decades. Both emergencies and disasters require extraordinary response, so the terms are used synonymously in this plan. When it becomes necessary to distinguish between the two terms, this plan explains why a certain term is used.

Grand Bay NERR is committed to support emergency responses on site as so requested by emergency response agencies based on staff availability and training. This plan is separated into a “base plan” and “appendices.” The base plan uses numbered sections



to describe disaster policy and planning. Appendices provide additional information and the tools necessary to implement NERR emergency-related policy.

## 1.7 Assumptions

Planning assumptions provide a foundation for subsequent emergency management program efforts. Planning assumptions related to this plan are listed below:

1. Emergencies and disasters may occur with or without warning. The NERR's primary daily functions are research and monitoring, stewardship, and education. The NERR has responsibility to protect staff, visitors, property, and natural resources from injury or damage within available capabilities.
2. Local, state, federal, and other response organizations will function according to the National Incident Management System (NIMS) and the National Response Framework (NRF) to achieve inter-agency coordination.
3. The NERR staff will be familiar with NIMS to assist or cooperate with other agencies during multi-agency responses.
4. This plan is intended to provide dual functionality: (a) as a detailed document to be used for pre-disaster planning, exercise, and preparation purposes, or (b) as a quick reference guide for response personnel in the event a disaster or emergency situation occurs at the NERR.
5. The NERR will manage some emergencies, whenever possible, without outside assistance. Outside assistance will be requested when capabilities are inadequate or inappropriate to the task.
6. Outside assistance will generally be requested from local emergency authorities or through MDMR.
7. Priorities for incident response will generally be lifesaving, infrastructure protection, natural resource protection, and community resiliency.
8. The NERR and local partner agencies will regularly review planning efforts, conduct training, and engage in exercises to maintain disaster preparedness.

## 2.0 Emergency Planning Factors

Emergency planning for the NERR addresses three critical factors:

1. People, infrastructure, and physical and biological natural resources (along with their vulnerabilities) must be identified so that they can be effectively protected from disaster.



2. Hazards that may affect resources at the NERR must be analyzed to anticipate and mitigate potential impacts of those hazards.
3. To support the timeliest return to normal operations after a disaster, emergency capabilities necessary to respond to that disaster must be identified, maintained, and otherwise readied.

Each of these factors is addressed in the sections that follow; additional information is provided in the appendices.

## 2.1 NERR Resources at Risk

The Grand Bay NERR has identified people, infrastructure, and natural resources that must be protected. General emergency management plans primarily focus on protecting people and infrastructure. Protecting the people and infrastructure at the NERR is understood to be important, but this plan places additional emphasis on protecting the natural resources that are the center of the NERR's mission.

During a response event at the NERR, NERR Emergency Contacts identified in Appendix B should be consulted regarding (1) people, infrastructure, and natural resources to be protected, (2) areas appropriate for staging activities, and (3) NERR emergency capabilities that can support an effective and protective response effort. As part of ongoing preparedness effort, the Grand Bay NERR coordinates with appropriate agencies (such as those identified in Appendices B and G) so that relationships are developed before hazard events that can impact the Grand Bay NERR resources identified in this section.

### 2.1.1 People

Life-saving is the top priority for emergency planning at the reserve. People expected to need protection during an emergency at the NERR include full-time and part-time staff, researchers, visitors to the NERR facility, volunteers, and recreational users. Table 3 presents an overview of the people at risk at the Reserve.



**Table 3 - People at the Grand Bay NERR**

<b>Category</b>	<b>Description</b>
Full Time Staff:	1 NERR Manager, 1 Administrative Assistant, 4 Program Coordinators, 5 Support Specialists, 1 ECSC Site Coordinator. In addition, various U.S. Fish and Wildlife Service Staff (FWS) share the Grand Bay NERR offices.
Part Time Staff:	1 Facilities Manager
Temporary Researchers and Visitors:	1-5 scientists at any time, in conjunction with joint projects and specific grants. AmeriCorps Teams of 10-15 at any one time. 10-15 Students at any one time volunteering for alternative spring break during Spring season.
Annual Visitors:	4,000 visitors annually, with high visitor rates for days of K-12 programs, Other high traffic days include but are not limited to are monthly educational programs for the public, boating activities at the Bayou Heron Boat Launch, Oak Grove Birding Trail (during migration), and Coastal Cleanup (October). Volunteers also support reserve activities.
Potential non-counted users:	Non-registered researchers, commercial fishers, recreational users on boats, etc.

Sources: Updated by NERR from Grand Bay NERR Staff and Management Plan (Grand Bay NERR 2013).

Identifying people within the Grand Bay Coastal Resource Center, outbuildings and grounds is relatively straightforward. However, some scientists and researchers may be in the field when a hazard event occurs. In addition, all of the lands within the reserve boundary are not under the management of the MDMR. Public lands within the site are owned by a combination of two state and one federal entity, including MDMR, the MS Secretary of State (SOS), Jackson County and the U.S. Fish and Wildlife Service (FWS). The state lands are part of the Grand Bay Coastal Preserve, a state-designated system of key estuarine areas, while the federal lands are part of the Grand Bay National Wildlife Refuge (NWR). Current uses within the Reserve include boating, fishing, hunting, photography and other recreational activities. Traditional uses will continue, with limited restrictions that may apply to significant habitats or other areas of special interests (e.g., facilities, trails) and in accordance with Mississippi fish and game regulations. Research and recreational uses are encouraged, but must be balanced with protecting natural resources and goals to reduce impacts to persons during hazard events.

Planning considerations to protect reserve staff and other persons are incorporated into emergency response communication protocols, preparedness activities, and training & exercises referenced in this DRP. The reserve works with stakeholders identified in Appendix G, Disaster Management Planning Stakeholders, on considerations for notifying the public when a hazard event is pending or has occurred. Immediate evacuation and hazard procedures for personnel and visitors in or near the



Grand Bay Coastal Resource Center are addressed in this plan (see Appendix D, Hazards Specific Procedures and Appendix L, Maps and Other Information).

### 2.1.2 Infrastructure

Infrastructure includes physical structures and equipment that support operations of the NERR. Infrastructure to be protected includes primary and support buildings and structures, utilities, and other systems (e.g., communications, information technology). Protecting permanent and temporary monitoring stations is also a priority because these stations support ongoing research critical to the mission of the NERR. Loss of data collection stations could interrupt research efforts or result in an irreplaceable loss of data. Section 2.1.3 presents monitoring stations supporting the NERR's mission; Appendix B identifies emergency contacts that can provide information on these stations. Table 4 summarizes infrastructure at the Reserve.

**Table 4 - Infrastructure at Grand Bay NERR**

Category	Description
Primary Buildings:	Main Building (the Grand Bay Coastal Resources Center) at 6005 Bayou Heron Road, includes: Visitor Center, bathrooms, two training/conference rooms, offices, a small conference room, research laboratories, an interpretive area and an attached dormitory building for visiting researchers and agency personnel.
Support Structures:	Workshop and boat shed for staff only, 1 on-site storage shed, 2 off-site storage sheds, FWS Pavilion on Gautier Bayou used for educational programs.
Utilities:	3-ph-208volts, 400 amps Electric Power (Singing River Electric), 60kw backup diesel generator with 4 day fuel supply 2 - 6500 gallon cisterns for collecting rain water for sanitary purposes and fire suppression, potable water from 2- 4" submersible deep wells cased above flood risk internet and phone (AT&T), 3600 watt portable gasoline generator
Support Equipment:	4 - Trucks, 1 - SUV, 1 - 12 Passenger Van, 2 - Cars, 2 - 20' Skiffs, 2 - 18' Skiffs, 1 - 16' Skiff, 1 - 15' Skiff, 4 - Canoes, 8 - Tandem Kayaks, 2 - Single Kayaks, 1 - UTV, 1 - ATV, 1 - Riding Lawnmower, 5- Boat Trailers
Other Infrastructure:	1 - Public Boat Launch with two ramps, Oak Grove Birding Trail,
Long-term and Permanent Monitoring Stations:	See text and Figure 4 in Section 2.1.3 (Natural Resources) for details and locations. 4 - Permanent Water Quality Monitoring Stations, 1 - Nearshore Meteorological Station, 1 - Upland RAWS Fire Weather Station near the Coastal Resources Center.

Source: Modified Grand Bay NERR Staff and Management Plan (Grand Bay Undateda and 2013).

The NERR works to protect infrastructure by using proper construction techniques and implementing preparedness efforts and hazard procedures identified in this DRP. The Main Building was constructed with a number of protective measures for hurricane, fire, and flood events. It has been equipped with solar power panels to supplement the electric supply grid and generators are maintained for use during power outages.



### 2.1.3 Natural Resources

The NERR's mission includes protecting the physical and biological natural resources within its boundaries. This section describes natural resources to be protected within the NERR boundaries.

Grand Bay is characterized by a broad variety of estuarine and non-estuarine wetland habitats that together form a largely intact coastal watershed. The open-water estuarine areas support declining oyster reefs and extensive seagrass habitats. The intertidal portion of the site includes a wide variety of marsh types (low, mid-level and high elevation zones across a wide range of salinity) as well as some of the most extensive, unvegetated salt flats in this part of the Mississippi Sound. The non-tidal areas include wet pine savannas, coastal bayhead and cypress swamps, freshwater marshes and maritime forests.

Bayous Cumbest and Heron are the primary water courses discharging into Point Aux Chenes Bay and Grand Bay/Middle Bay complex respectively. Both bayous are relatively small with slow flowing waters rich in tannic acid from their forested watersheds. Except in extreme flood events it is believed that freshwater in these waters originates in large part from localized rainfall and groundwater. During moderate flood events the area is connected to the Escatawpa River watershed. This information is described in more detail in the NERR's Site Profile. Table 5 provides a summary of habitats at the reserve. Table 6 provides a breakout of habitat types by land area.



**Table 5 - Natural Resources at the Grand Bay NERR**

<b>Category</b>	<b>Description</b>
Extent of NERR:	The reserve is a marine protected area located in extreme southeastern Mississippi in Jackson County near the small community of Pecan. The reserve is comprised of approximately 18,000 acres, primarily within the Grand Bay National Wildlife Refuge and the Grand Bay Savanna Coastal Preserve.
Habitat Types:	The Reserve contains a variety of wetland habitats, both tidal and non-tidal, such as pine savannas, salt marshes, saltpannes, bays and bayous as well as terrestrial habitats that are unique to the coastal zone (e.g., maritime forests). Healthy estuarine salt marshes and fire-maintained pine savannas are some of the most biodiverse habitats in North America; the reserve includes considerable amounts of both. These habitats support many important species of fish and wildlife, including commercially and recreationally important species of finfish and shellfish (like brown shrimp, speckled trout and oysters). Sea turtles, bottlenose dolphin and, on occasion, manatees can be found in the deeper waters of the reserve. Many species of carnivorous plants and orchids can be found in the higher savanna habitats.
Endangered Species:	Manatee – <i>Trichechus manatus</i>
Critical or Essential Habitat	Salt Marsh; Submerged Aquatic Vegetation (SAV - Seagrasses)
Cultural Resources:	American Indian shell middens located throughout the Reserve
Value:	The reserve is a large, relatively intact area of coastal wetlands and includes a range of wetland types, including tidal estuary and non-tidal wetlands. The reserve supports a highly diverse community of plants and animals and includes one of the largest estuarine systems in MS. These estuarine communities in the northern Gulf of Mexico are vital to many important commercial and recreational species of fish and shellfish. The NERR, therefore, supports resources that have intrinsic natural and cultural resource value; aesthetic, educational and recreational value; and ongoing value to the larger community's tourism, recreation, and economic enterprises.

- Source: Modified Grand Bay NERR 10-Year Report, Web Site, and Grand Bay and Management Plan (Grand Bay Undated and 2013).

Table 6 lists habitat types at the Grand Bay NERR; descriptions of these habitat types are included in Appendix L - Maps and Other Information.



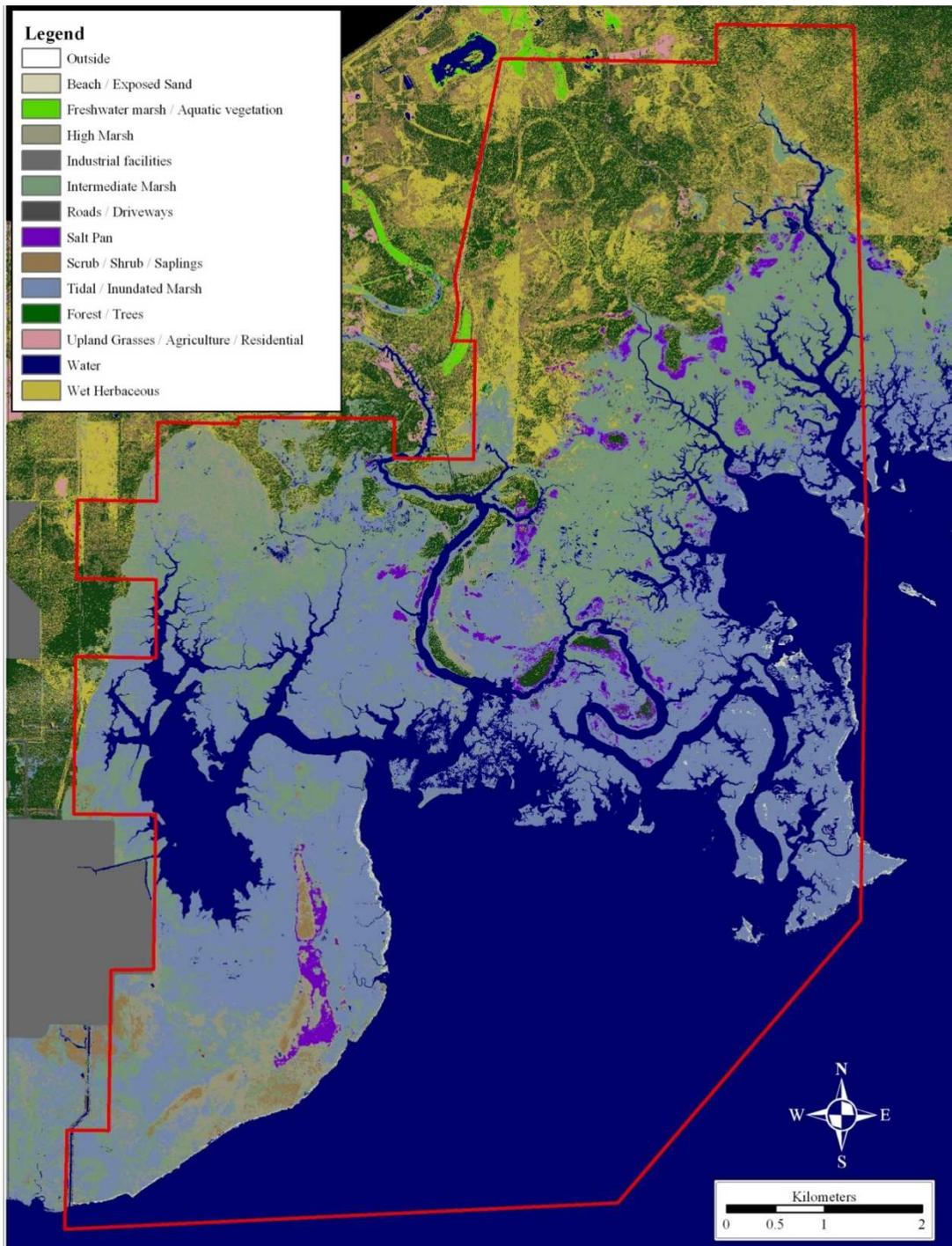
**Table 6 - Habitat Types at the Grand Bay NERR**

Habitat Type	Hectares	Acres
<b>Primarily Water-Based or Mixed Land/Water</b>		
Wet Herbaceous	463.9	1,145.7
Freshwater Marsh/Aquatic Vegetation	8.2	20.2
Tidal/Inundated Marsh	1,611.0	3,979.1
High Marsh	297.2	734.0
Intermediate Marsh	1,129.2	2,789.2
Salt Panne	105.7	261.0
Water	2,835.1	7,002.7
<b>Primarily Land-Based</b>		
Upland Grasses/Agriculture/Residential	7.9	19.4
Scrub/Shrub/Saplings	343.2	847.8
Beach/Exposed Sand	22.6	55.9
Forest Trees	476.3	1,176.5
<b>Other Areas</b>		
Roads/Driveways	3.2	7.8
Industrial Facilities	4.0	9.9

Source: Grand Bay NERR Management Plan (Grand Bay 2013).

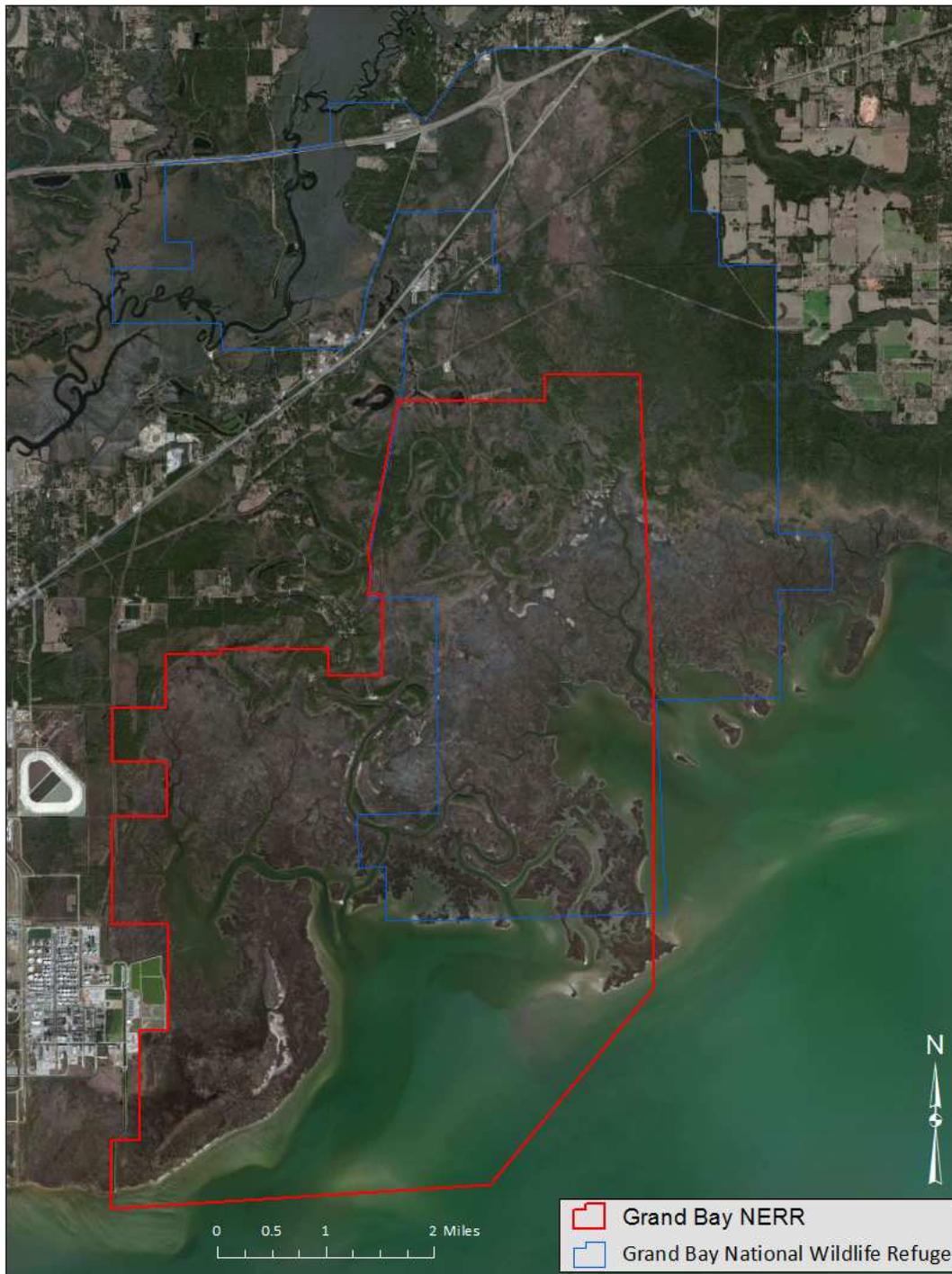
Figure 2 shows the habitat types across the Grand Bay NERR. Figure 3 shows natural resource habitat areas overlain with managing entities.

**Figure 2 - Natural Resource Habitats at the Grand Bay NERR**



Source: Prepared by NERR GIS Specialist, 2013.

Figure 3 - Grand Bay NERR and National Wildlife Refuge Boundaries



Source: Prepared by NERR GIS Specialist, 2013.



Core and Buffer Areas - NOAA regulations define key land and water areas or “core” areas as areas which contain “ecological units of a natural estuarine system which preserves, for research purposes, a full range of significant physical, chemical, and biological factors contributing to the diversity of fauna, flora, and natural processes occurring within the estuary.” The core area is “so vital to the functioning of the estuarine ecosystem that it must be under a level of control sufficient to ensure the long term viability of the reserve for research on natural processes...[These areas] should encompass resources that are representative of the total ecosystem which, if compromised, could endanger the research objectives of the reserve.” A buffer area is defined as an “area adjacent to or surrounding key lands and water areas and essential to their integrity. Buffer zones protect the core area and provide additional protection for estuarine-dependent species.” The buffer area may include areas for research and education facilities.

For the Grand Bay NERR site, the core area was defined by a block of continuous estuarine habitats and waters within the area bounded by the state line to the east, the Industrial Complex to the west. The buffer area was defined generally as a portion of the non-estuarine habitats within the Grand Bay NWR to the north of the estuarine habitats. While not defined specifically, the remaining lands of the Grand Bay NWR serve as a functional buffer, given their protective status. Additionally, other functional buffers in the vicinity included federal buyout properties currently owned by the government agencies, Grand Bay NWR lands in Alabama, a Mississippi Phosphate Mitigation Bank and a Jackson County Mitigation Bank all located to the north of the NERR buffer areas.

The core area of the Grand Bay NERR is comprised of approximately 12,800 acres of estuarine tidal marsh, tidal creeks, shallow open-water habitats, oyster reefs, sea grass beds, maritime forest (pine, live oak), salt flats, sandy beach, shell beach and shell middens. The 5,600 acre buffer area within the Grand Bay NERR boundary is primarily located to the north and consists of tidal marsh, scrub-shrub, pine flatwood and wet pine savanna habitats. Potential buffer expansion includes tidal marsh, scrub-shrub, pine flatwoods, wet pine savanna, coastal bayhead, cypress swamps and freshwater marshes to the north and west. The majority of these properties has been previously identified in past state grant requests or are located within the boundaries of the Grand Bay NWR. Several properties in Alabama just east of the reserve and refuge are part of the State of Alabama Grand Bay Forever Wild preserve.

Water Quality – The Grand Bay NERR is bounded on the west by the Bayou Cassotte Industrial Complex. Nonpoint source pollution associated with improperly treated



sewage from malfunctioning individual septic systems is a potential source of contaminants to the site. These and residential and industrial sources to the east from the Bayou LaBatre and Mobile Bay, AL area, plus natural levels of bacteria in the waters may contribute to various levels of impaired water.

A search of National Pollutant Discharge Elimination System (NPDES) permits at the Mississippi Department of Environmental Quality indicated that the majority of point source discharges from the adjacent industrial sites are located and discharge to the west of the Grand Bay NERR and do not impact the site directly (Coastal Environments, Inc., 1992). However, one industrial NPDES permit allows discharge into an unnamed tributary to Bangs Lake. This permit regulates total suspended solids discharging from a settling pond. There are no permitted domestic discharges within the NERR.

The Grand Bay area is sparsely populated but where population exists, treatment and disposal of domestic wastewater is dependent on individual septic systems. There are no municipal sewage facilities in this area. The major sources of impact to the water quality are the relatively small communities of Kreole and Pecan located to the north, particularly the 50-60 homes located along Bayou Cumbest. A late 1990's effort by a coalition of state, federal and local government entities to reduce the levels of septic discharge from these homes into the Bayou Cumbest and Bangs Lake area led to many modifications to individual wastewater systems. However, many of these systems have not been properly maintained or are abandoned. Many additional homes and small businesses previously located within and adjacent to the boundaries have been removed, potentially reducing human impacts to the area. Several homes damaged by recent hurricanes were not rebuilt or purchased as part of federal buyout programs to remove structures from repetitively flooded areas.

In 1999, when the Reserve was designated, shellfish growing waters within the NERR (Area VIII) were rated as conditionally approved for shellfish harvesting, based on criteria established by the National Shellfish Sanitation Program and followed by the DMR. Conditionally approved waters allow shellfish to be harvested when water quality standards are met. Malfunctioning residential septic systems or other sources of contamination may cause elevated fecal coliform bacteria counts during periods of heavy rainfall. The elevated bacterial counts degrade the water quality and result in the periodic closure of otherwise healthy oyster reefs. In 2008, the DMR recommended permanently closing these waters for shellfish harvest based upon high fecal coliform counts. The area remains closed. DMR and NERR partners are seeking answers to why bacteria levels have increased after 2005 while many of the area residents moved



because of Hurricane Katrina damage. Bacterial source identification and tracking studies will help determine where these bacteria are originating.

Research and Monitoring of Natural Resources - The Grand Bay NERR conducts environmental monitoring and research efforts related to stewardship and research regarding the natural resources at the reserve. Researchers collect this data using monitoring and sampling stations that should be protected. Damage to these stations could represent significant loss of data and compromise the value of long-term studies. In addition to the direct costs of replacing the stations, the loss of data collected at these stations or interruption of studies associated with these stations could reduce the quality of long-term research products, including baseline data necessary to support post-disaster litigation (see Section 3.4.1). Monitoring activities and stations include:

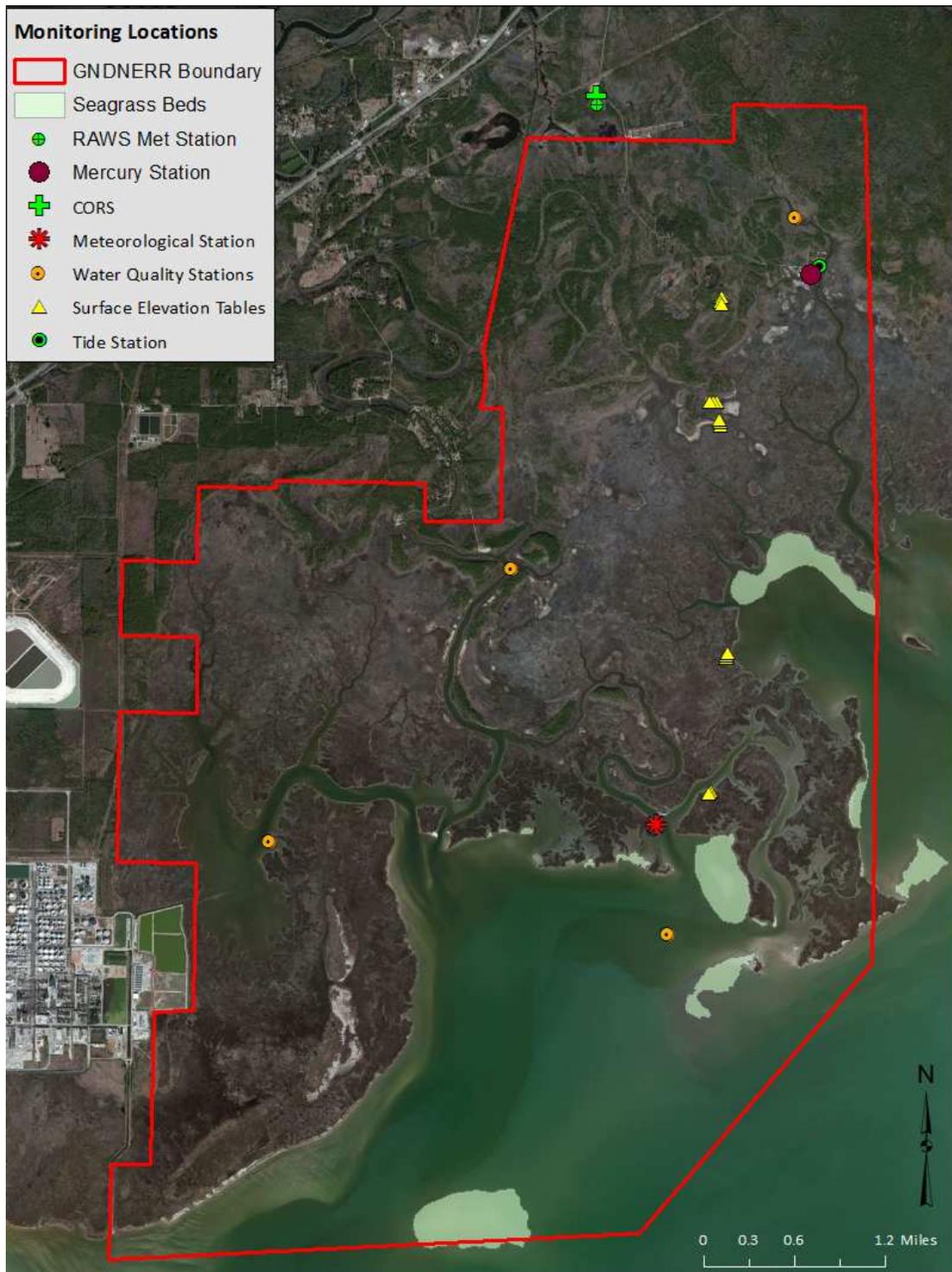
- Remote Automatic Weather Station (RAWS) - This is one of a network of strategically located RAWs in the U.S. These stations track weather data that assists land management agencies with monitoring air quality, rating fire danger, and providing information for research applications. The station was installed in 2009 and is maintained by the FWS/MS Sandhill Crane NWR. The data from the GRBM6 RAWS Station can be found at: [http://raws.wrh.noaa.gov/cgi-bin/roman/meso\\_base.cgi?stn=TS770&time=GMT](http://raws.wrh.noaa.gov/cgi-bin/roman/meso_base.cgi?stn=TS770&time=GMT) . Additional information is available at: <http://raws.fam.nwcg.gov/> .
- Meteorological and Water Quality Monitoring Stations – These support SWMP efforts and include 1 meteorological station and 4 water quality stations that have operated since 2004 at the reserve. Data is managed through the Centralized Data Management Office (CDMO) located in South Carolina. This includes system-wide monitoring program (SWMP) data collection that is provided used to help evaluate overall NERR system health. Real-time conditions are available at: <http://cdmo.baruch.sc.edu/get/realTime.cfm?stationCode=GNDCRMET> . Additional information on SWMP is available at: <http://cdmo.baruch.sc.edu/>
- Mercury Station – This monitoring station has been a cooperative effort between NOAA, MSDEQ and the Grand Bay NERR since 2006. The station measures dry atmospheric mercury deposition, carbon monoxide, sulfur dioxide, nitrogen oxides, ozone, and black carbon. The data from this project are publicly available, and are used to find trends in atmospheric mercury concentrations, estimate dry deposition for the region, trace atmospheric mercury back to potential sources, and to evaluate atmospheric models.
- Three efforts implemented to support vertical change monitoring associated with potential climate change impacts –



- Continuously Operating Reference Station (CORS) – This is one of a network of points that collects data for the National Geodetic Survey (NGS), an office of NOAA's National Ocean Service. CORS provide Global Navigation Satellite System (GNSS) data (carrier phase and code range measurements) to support 3-D positioning, meteorology, space weather, and geophysical applications throughout the United States, its territories, and a few foreign countries. The CORS at Grand Bay NERR (Station ID MSGB) was established in 2010 and the data is managed by the University of Southern Mississippi Gulf Coast Geospatial Center <http://vrsnet.gcgcum.org/>.
- Marsh Surface Elevation Tables – These permanent stations allow for fine-scale measurement of marsh elevation and associated marsh processes. They are sensitive to disturbance from response vehicles and should be avoided. 15 of these collection points have been established. They have been monitored since 2010 and the data is managed internally.
- Tidal Station – This is a temporary NOAA water level station (Grand Bay NERR, Mississippi Sound, MS) (Station ID 8740166). It was established in 2010 and the data is managed by NOAA CO-OPS. Data is available at [www.tidesandcurrents.noaa.gov](http://www.tidesandcurrents.noaa.gov).

Information on the locations and activities at research stations across the NERR also is available from Grand Bay NERR representatives (see Appendix B, Emergency Contact List). These stations can provide early indicators of spills or changes in water quality. During a response action, they should be protected if possible to allow ongoing monitoring to continue. Loss of these stations would incur costs for replacement; however, data losses or interruptions in studies could be irreplaceable. Figure 4 shows monitoring stations at the reserve; Table 4 lists the monitoring station infrastructure.

**Figure 4 - Monitoring Stations at Grand Bay NERR**



Source: Prepared by NERR GIS Specialist, 2013.



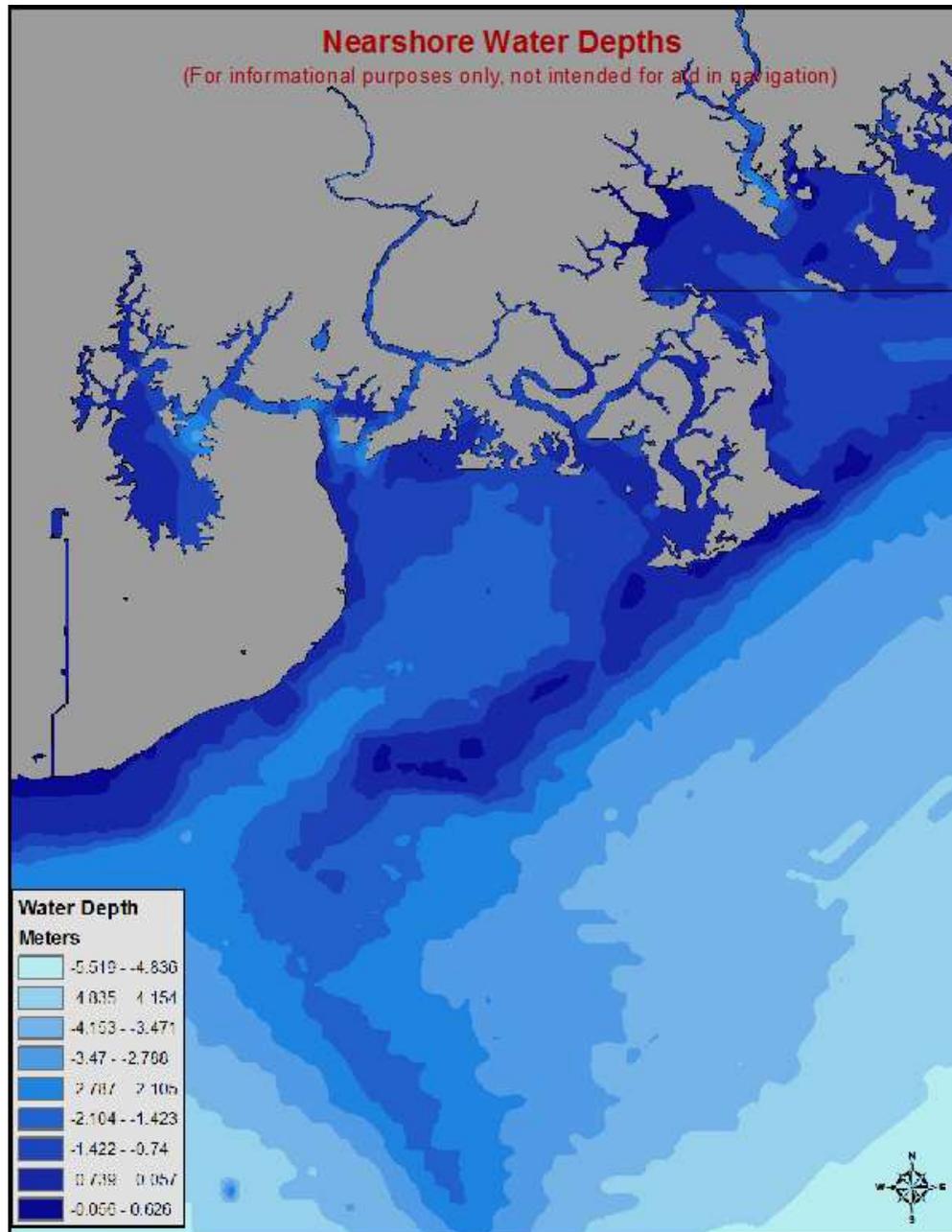
Oceanography and Water Depths at Grand Bay NERR – The Grand Bay area is a shallow, estuarine area with an average water depth of approximately 3 ft. (0.9 m). Water depths can range from 0 ft. at some low tides to 10 ft. (3.1 m) in the channel connecting Point Aux Chenes Bay with the Mississippi Sound. Average water depth in Bangs Lake and Middle Bay is less than 3 ft. (0.9 m). Dominant water movement results from the flood and ebb of the tide except during heavy rain events when freshwater discharge from the bayous is significant. Both astronomical and meteorological tides influence the Grand Bay area. Astronomical tides are diurnal, i.e. usually one high and one low water per day with an average tidal range of approximately 2 ft. (0.6 m). Tidal range fluctuates seasonally with a minimal range of 0 to 1.5 ft. (0.5 m) during the winter months and a maximum range of 2 to 3 ft. (0.6 to 0.9 m) during the summer months. Because of the minimal tide range of the area, meteorological conditions often exert a strong influence on local tide elevations, making this a wind dominated tidal system. Strong southerly winds push water into the area exaggerating and often maintaining high water conditions. Strong northerly winds push water out of the area exaggerating and maintaining low water conditions often resulting in the exposure of large mudflat and sandy shoal areas. Due to the shallow characteristic of some of these near shore areas, snags associated with uprooted trees, large branches and destroyed docks/piers occur frequently but in particular after tropical cyclone events. These hazards are dangerous because they can be barely visible above the water surface and can relocate with shifting tides and winds.

Knowledge of the water depths, tide stage and wind intensity and direction (water flow) is essential to safe navigation. During and after an emergency, Grand Bay NERR personnel can provide consultation information to responders if water-based response actions are required. In addition, Grand Bay NERR personnel will work with area response agencies to ensure that downed trees and debris are removed from to support safe use of the water following a disaster event. Figure 5 shows the water depths for near shore areas of the reserve. Note, this map is provided for information purposes and is not intended to support navigation. Grand Bay NERR personnel can provide information to support navigation or entry by water to support response actions during an emergency or disaster situation.

Reserve water temperatures recorded at the four current SWMP stations ranged between a low of 34.7o F (1.5 o C) in the winter to a high of 96.6o F (35.9o C) in the summer. Average water temperatures at these sites ranged from 72.5 o F (22.5o C) to 73.6o F (23.1 o C).

Salinity values vary along a gradient from bayou to bay and with rainfall events. Salinity values can change from fresh or oligohaline conditions (0.0 to 5.0 ppt) to polyhaline conditions (18 to 30+ ppt). Salinity is generally highest during the late summer dry season and lowest during the winter to early spring wet season.

**Figure 5 - Near Shore Water Depths around Grand Bay NERR**



Source: Prepared by NERR GIS Specialist, 2013.



The Grand Bay NERR Management Plan (Grand Bay 2013) provides additional information on the types of natural resources located at the NERR. Reserve personnel are knowledgeable about the natural resources of the reserve and can assist in identifying sensitive habitats and associated response considerations based on their knowledge, NERR mapping data, and the Quick Reference Tool included in Appendix K of this plan.

NOAA and the Grand Bay NERR collaborate to produce Environmental Sensitivity Index (ESI) maps and Tidal Inlet Protection Strategies (TIPS) for oil spill response. These data can be used to identify sensitive fish, wildlife, and habitat and recommended protection strategies in the event of an oil spill within the area. The ESI data and maps can be found at <http://response.restoration.noaa.gov/maps-and-spatial-data/environmental-sensitivity-index-esi-maps.html>. Grand Bay NERR participates in U.S. Coast Guard led Area Committee planning for oil spills. This includes providing updated data to the USCG Area Contingency Plan Geographic Response Plan (GRP) for the Grand Bay NERR area. Two figures taken from the USCG ACP that address areas of the NERR are included in Appendix L, Maps and Other Information. The USCG Area Contingency Plan GRP includes information and maps on protection strategies for environmentally sensitive areas and is available at: <https://homeport.uscg.mil/mycg/portal/ep/portDirectory.do?tabId=1&cotpId=37>. Select maps addressing the reserve's area (A-1 and A-2) are included in Appendix L, Maps and Other Information for quick reference.

## 2.2 Hazards

The Grand Bay NERR regularly identifies hazards and their potential impacts, and estimates relative risk using a Hazard Identification and Risk Assessment (HIRA) tool. Table 7 lists the hazards identified as most significant to the NERR in order of descending priority.

Results of the most recent HIRA are provided in Appendix F – Hazard Identification and Risk Assessment. Section 3.0 of this DRP addresses preparedness and mitigation actions for priority hazards.

**Table 7 - NERR Hazards and Relative Priority for Hazard Mitigation**

<b>Events/Hazards</b>	<b>Risk Ranking Outcome</b>
Hurricane	High
Severe Storms (including lightning/tornado)	High
Oil Spill*	Medium
Riverine Flooding	Medium
Invasive Species	Medium
Vessel Grounding	Medium
Hazardous Material (HazMat) (Industrial)	Medium
Wildland Fire	Medium
Structure Fire*	Medium
Medical Emergency	Medium
HazMat Spill (Rail Lines)	Medium
Earthquake	Low
Tornado*	Low
Aircraft Crash	Low
Law Enforcement Emergency	Low
Unexploded Ordnance (UXO)/Live Fire	Low

\*Structure fire addressed with Wildland Fire and Tornado addressed with Severe Storms in Appendix D – Hazard Specific Procedures.

The HIRA and mitigation actions are reviewed by the NERR annually. While the NERR’s DRP helps improve preparedness for all hazards, identifying high and medium hazard priorities assists in focusing planning and mitigation resources.

### **2.3 Emergency Capabilities**

Emergency management resources (called emergency capabilities in this plan) are critical for protecting natural resources, people, and property during an emergency. Capabilities include facilities, equipment, supplies, and personnel. NIMS includes standard definitions and categories for cataloging these items (FEMA 2012). Note that this Disaster Response Plans uses the term “capabilities” rather than “resources” to avoid confusion with discussions of the NERR’s natural resources. Representative NERR emergency capabilities are summarized below:



- Equipment – The NERR includes a range of equipment that can support localized or area responses, including: boats, sampling equipment, supplies, radios, log books, GPS/GIS units, computers, cameras, and other equipment.
- Facilities – The NERR includes buildings, boat ramp, support structures (e.g., laboratory space, classroom, secured parking/staging areas, dormitory) and other facilities that can support emergency response personnel during a response effort.
- Supplies – The NERR includes supplies that are used to support day-to-day operations (e.g., laboratory supplies, sample bottles, fuel, tags, etc.) as well as emergency supplies (e.g., water, first aid, etc.).
- Personnel – The NERR includes trained personnel that can support emergency response operations in an Emergency Operation Center (EOC) or in the field. The NERR also includes other personnel that may be able to support ancillary needs during an emergency event or share local knowledge and experience of the area (as appropriate to the emergency response).

The NERR personnel, facilities, and equipment also generate information and data that can support emergency response activities. These include:

- Information on NERR users – The reserve’s researchers, scientists, and administrators understand the NERR area, persons that use the area, entities operating within the NERR boundaries, and particular considerations regarding life-saving concerns that could expedite emergency operations during a hazard event.
- Information on NERR infrastructure – The reserve’s researchers, scientists, and administrators can provide information on buildings, support structures, utilities and other systems (e.g., information technology, communications) that can support prioritization of response efforts at the reserve in the event of a hazard incident.
- Information on NERR natural resources – The reserve’s personnel have significant knowledge and mapping data regarding priority habitats for protection (e.g., booming), cultural and historic resources, oyster beds, coastal areas, endangered species and nesting areas, environmentally sensitive areas, and related natural resource information that can assist response, while protecting resources.
- Data – The NERR mission includes research, stewardship, and education. Therefore, NERR personnel can share data on water quality, tides, water depths and telemetry, areas that present a wildfire risk, endangered or invasive species, safe areas for staging activities, access routes, and other NERR-specific information that can support responders during an emergency event. This information can support emergency



response planning agencies before events as well as during post-emergency assessment and recovery. Typical roles for Grand Bay NERR staff might include providing:

- Biological and oceanographic technical specialists to support NRDA efforts directed by federal and state natural resource trustees.
- Scientific support for fish and wildlife and habitat protection concerns.
- Water, soil, and sediment sampling supporting for spill surveillance and monitoring.
- Consulting on placement of protective booms within Grand Bay NERR boundaries or to protect reserve natural resources.
- Transportation or guides within Grand Bay NERR boundaries.

Appendix B provides an Emergency Contact List; NERR emergency contacts can provide additional information on emergency capabilities to support localized or area response efforts. Appendix C provides a list of emergency capabilities that can support emergency response.



### 3.0 Concept of Operations

Although the Grand Bay NERR does not employ a full-time or part-time emergency manager, maintaining disaster preparedness at the NERR is a priority, and is managed with a Concept of Operations that describes how different emergency activities are to be coordinated.

The NERR Manager assumes primary responsibility for all disaster preparedness and serves as the de facto NERR Emergency Manager. The NERR Manager has assigned emergency management program support activities as described in Table 8.

**Table 8 - NERR Emergency Management Team Assignments**

Support Activity	Assigned To	Title
Attends emergency planning meetings, develops plans and procedures, and supports the Emergency Team	Stewardship Associate	Emergency Planner and Response Coordinator <b>(Emergency Planner)</b>
Facilitates training, maintains an annual training plan, facilitates exercises, and maintains a multi-year training and exercise plan.	Coastal Training Program Coordinator/ Stewardship Coordinator	Emergency Training and Exercise Coordinator <b>(Emergency Training Coordinator)</b>
Maintains the Hazard Identification and Risk Assessment (HIRA). This person also maintains a list of capabilities (supplies and equipment that can be used during emergencies) and serves as a backup to the Emergency Training and Exercise Coordinator and Emergency Manager.	Stewardship Coordinator	Emergency Risk Manager and Emergency Capability Coordinator <b>(Emergency Coordinator)</b>
Develops emergency management policy for the NERR, maintains an emergency management program annual work plan, maintains program notes, and reports progress and serves as manager for response activities.	NERR Manager	<b>Emergency Manager</b>

Individuals assigned roles listed in the table above, together with the NERR Manager, comprise the Grand Bay NERR Emergency Team (ET). This team meets quarterly to discuss relevant events, plan, review progress, and discuss resource needs to support future work. The NERR Manager may add other NERR staff and members of external



agencies to the ET. The role of this expanded ET is to plan and manage response activity.

Each year, the ET performs work in the following four areas: mitigation, preparedness, response, and recovery. The work of each area is described in the following sections.

### **3.1 Mitigation**

Mitigation is activity designed to eliminate or reduce vulnerability before an emergency occurs.

The Grand Bay NERR maintains a HIRA that identifies hazards and considers the probability of occurrence of, vulnerability to, and impacts associated with these hazards. The HIRA output is a list of hazards and relative priorities that drive mitigation strategies and serves as the basis for establishing a list of projects to reduce risk, meet the specified priorities for mitigation, and implement other preparedness activities (see Table 7). Appendix F – Hazard Identification and Risk Assessment documents the hazard review and prioritization process. Past mitigation activities have included building the Coastal Resources Center with hurricane resistant and fire-wise construction elements. This section identifies mitigation actions that the Grand Bay NERR is focusing on to address those hazard priorities, including:

- Increasing readiness through staff training
- Upgrading first-aid equipment
- Increasing wildfire protection capacity through equipment upgrades and enhanced fire breaks at Coastal Resources Center

The NERR Emergency Coordinator maintains the HIRA and works with the ET to identify appropriate mitigation strategies. At times, general fund and grant monies may become available to mitigate risk identified during the HIRA and mitigation planning process.

### **3.2 Preparedness**

Preparedness refers to readiness for response to an emergency or disaster that cannot be entirely mitigated. Preparedness involves planning, training, exercising, equipping, and supplying. Each of these preparedness activities is described below.

#### **3.2.1 Planning**



Emergency planning involves developing plans and procedures to respond to an emergency, including:

- Emergency operations plan (EOP) – This specifies policies and practices associated with an emergency. The elements of an EOP are addressed in Section 3.3.
- Standard operating procedures (SOP) – These describe the roles, responsibilities, resources, and activities of people and organizations assigned to an emergency. The elements for SOPs are referenced in this plan for specific hazards in Appendix D. Additional forms, tools, and procedures are included in Appendices K and L.
- Continuity of operations plan (COOP) – A document that describes how essential services and research will continue despite an emergency. The elements of a basic COOP are addressed in Section 4 and Appendix E.
- Other Emergency Plans – Various agencies prepare emergency and related plans that affect the NERR. The Grand Bay NERR maintains awareness of these plans through cooperation, training, and exercising with stakeholders listed in Appendix D. Representative area plans are listed in Section 1.2.

The NERR Planner periodically may participate in the Sector Mobile Area Committee meetings and coordinate and meet with other area response agencies.

### **3.2.2 Training and Exercising**

Training and exercising familiarizes people with the policies, plans, tools, and procedures for conducting response. The NERR considers the knowledge and experience people gain from training and exercising critical to a successful response, so the NERR maintains an Annual NERR Training Plan. The plan specifies training for each responder, when that training will be available, and where it will take place. The NERR works to provide adequate training so that anyone responding to an incident can do so safely and proficiently.

Training recommended for NERR personnel and the Annual NERR Training Plan are attached as Appendix I – Emergency Training Plan, respectively. The NERR encourages staff to undergo as much training as possible, and maintains a copy of all emergency management training certificates within individual personnel files.



Exercising is an important complement to training. It develops proficiency and allows individuals and organizations to practice what they have learned. Regular exercising is also important to maintain proficiency and NERR preparedness.

The NERR conducts at least one exercise each year using local protocols and/or U.S. Homeland Security Exercise and Evaluation Program (HSEEP) guidelines. HSEEP provides a standard method for designing, conducting, and evaluating exercises. The Federal Emergency Management Agency (FEMA) maintains a HSEEP toolkit ([https://hseep.dhs.gov/pages/1001\\_toolk.aspx](https://hseep.dhs.gov/pages/1001_toolk.aspx)) that provides forms and guides to help plan, conduct, and evaluate exercise activity. The NERR maintains a multi-year exercise plan attached as Appendix J – Emergency Exercise Plan.

The NERR, when invited, participates in the National Preparedness for Response exercise program for oil and hazardous substance spills conducted by USCG Sector Mobile.

Following exercises and responses to emergencies, the NERR develops after-action reports (AAR) (see Appendix K). The AAR notes strengths and weaknesses in response activity and identifies opportunities for improvement. The NERR retains copies of completed AARs so these may be referenced for subsequent program development efforts.

The Emergency Training Coordinator facilitates all training and exercise work for the NERR and maintains associated documentation.

### **3.2.3 Equipping and Supplying**

Various equipment and supplies are typically needed during an emergency. Necessary equipment can range from small or specialized personal protective equipment to boats, to generators and other large equipment. Supplies include batteries for handheld radios and emergency supplies of food and water for those who may have to work for extended times or at remote locations during an emergency.

Many pieces of equipment and supplies are used day-to-day; others are obtained and stored for special use during emergencies (e.g., protective clothing, food, and extra sampling supplies). Still others may be requested from other organizations in the area. The NERR works with internal and external stakeholders to identify and track key equipment and supplies that might be needed during an emergency. This catalog of equipment and supplies is attached as Appendix C – Emergency Capability Catalog.



The NERR Emergency Coordinator facilitates all emergency equipment and supply preparations.

### 3.3 Response

Response is activity that immediately follows an emergency or that occurs when an emergency is imminent. Response begins with notifying response agencies and dispatching responders. Emergencies can quickly overwhelm available resources and can necessitate extraordinary coordination efforts. This section details how the NERR provides the extraordinary level of direction, control, coordination, and communication necessary during NERR emergencies. The NERR Manager is ultimately responsible for the conduct of emergency response activity at the NERR.

#### 3.3.1 National Incident Management System

Homeland Security Presidential Directive 5 and Presidential Policy Directive 8 require use of the National Incident Management System (NIMS) to coordinate interagency response activity. Since 2005, NIMS has been implemented throughout the U.S. from the local government and special district levels all the way to federal agencies and the White House. Advantages of using NIMS include:

- Common terminology – ensuring that responders use the same lexicon. Under NIMS, the terms “Incident Commander (IC),” “Incident Command Post (ICP),” and “Emergency Operations Center (EOC)” carry the same meaning throughout the U.S. Some of these key terms have been included in Appendix N – Glossary; potential responders are introduced to more terms during NIMS training.
- Capability typing – categorizing equipment reduces confusion when people request assistance. For example, when organizations use NIMS to request a small all-terrain brush fire engine with a certain capability and crew, they request a “Type 4 Engine.”
- Model organization – providing a clear, consistent framework to staff and manage an emergency.
- Standard processes and tools – providing methods and tools to conduct important processes like situation reporting, action planning, and resource (termed emergency capability in this plan) ordering (FEMA Undated).

The NIMS is part of a larger set of federal policy, guides, and tools within the National Response Framework (NRF). In general, the NRF includes:



- National Preparedness Goal – a document that describes a national vision of emergency management, defines core capabilities, and identifies scenarios for which the nation should be prepared.
- NIMS – policy, practices, and tools that support interagency response.
- Numerous plans, appendices, guides, and resources – tools to help local and state emergency management organizations conduct their work.

NIMS implementation is scalable and flexible and can support small, isolated response efforts to large-scale, multi-agency, multi-jurisdictional responses. Figure 6 shows that NIMS can address incidents ranging from short-duration Type 5 responses using a handful of resources (e.g. medical emergency), to large, complex Type 1 multi-agency, multi-jurisdiction emergencies (e.g., hurricanes, major oil spills) that may require hundreds or thousands of resources deployed for months.

## Figure 6 - NIMS Scales Response to Incident Complexity

### Incident Complexity

Incident and/or event complexity determines emergency and incident response personnel responsibilities as well as recommended audience for NIMS curriculum coursework delivery. The *NIMS Training Program* training recommendations reflect the following five levels of complexity:

Type 1	<ul style="list-style-type: none"> <li>This type of incident is the most complex, requiring national resources for safe and effective management and operation.</li> <li>All command and general staff positions are filled.</li> <li>Operations personnel often exceed 500 per operational period and total personnel will usually exceed 1,000.</li> <li>Branches need to be established.</li> <li>A written incident action plan (IAP) is required for each operational period.</li> <li>The agency administrator will have briefings, and ensure that the complexity analysis and delegation of authority are updated.</li> <li>Use of resource advisors at the incident base is recommended.</li> <li>There is a high impact on the local jurisdiction, requiring additional staff for office administrative and support functions.</li> </ul>
Type 2	<ul style="list-style-type: none"> <li>This type of incident extends beyond the capabilities for local control and is expected to go into multiple operational periods. A Type 2 incident may require the response of resources out of area, including regional and/or national resources, to effectively manage the operations, command, and general staffing.</li> <li>Most or all of the command and general staff positions are filled.</li> <li>A written IAP is required for each operational period.</li> <li>Many of the functional units are needed and staffed.</li> <li>Operations personnel normally do not exceed 200 per operational period and total incident personnel do not exceed 500 (guidelines only).</li> <li>The agency administrator is responsible for the incident complexity analysis, agency administration briefings, and the written delegation of authority.</li> </ul>
Type 3	<ul style="list-style-type: none"> <li>When incident needs exceed capabilities, the appropriate ICS positions should be added to match the complexity of the incident.</li> <li>Some or all of the command and general staff positions may be activated, as well as division/group supervisor and/or unit leader level positions.</li> <li>A Type 3 IMT or incident command organization manages initial action incidents with a significant number of resources, an extended attack incident until containment/control is achieved, or an expanding incident until transition to a Type 1 or 2 IMT.</li> <li>The incident may extend into multiple operational periods.</li> <li>A written IAP may be required for each operational period.</li> </ul>
Type 4	<ul style="list-style-type: none"> <li>Command staff and general staff functions are activated only if needed.</li> <li>Several resources are required to mitigate the incident, including a task force or strike team.</li> <li>The incident is usually limited to one operational period in the control phase.</li> <li>The agency administrator may have briefings, and ensure the complexity analysis and delegation of authority is updated.</li> <li>No written IAP is required but a documented operational briefing will be completed for all incoming resources.</li> <li>The role of the agency administrator includes operational plans including objectives and priorities.</li> </ul>
Type 5	<ul style="list-style-type: none"> <li>The incident can be handled with one or two single resources with up to six personnel.</li> <li>Command and general staff positions (other than the incident commander) are not activated.</li> <li>No written IAP is required.</li> <li>The incident is contained within the first operational period and often within an hour to a few hours after resources arrive on scene.</li> <li>Examples include a vehicle fire, an injured person, or a police traffic stop.</li> </ul>

Source: FEMA 2011.

In most cases, NERR personnel will support a NIMS organization established by another agency. Familiarity with NIMS practices and principles will enhance the NERR’s ability to undertake initial response actions until primary response agencies arrive on-scene and to integrate into an Incident Command/Unified Command led by another agency, when appropriate. As an event grows in size and complexity, the Incident Commander may delegate functions to incident staff from a range of agencies. NIMS standardizes primary staff positions within the functions of Operations, Planning, Logistics, and Finance/Administration; Figure 7 illustrates the standard this NIMS organizational structure. For responses led by other agencies, NERR personnel may provide technical support in the operations, planning, or logistics sections.

**Figure 7- Standard NIMS Implementation**

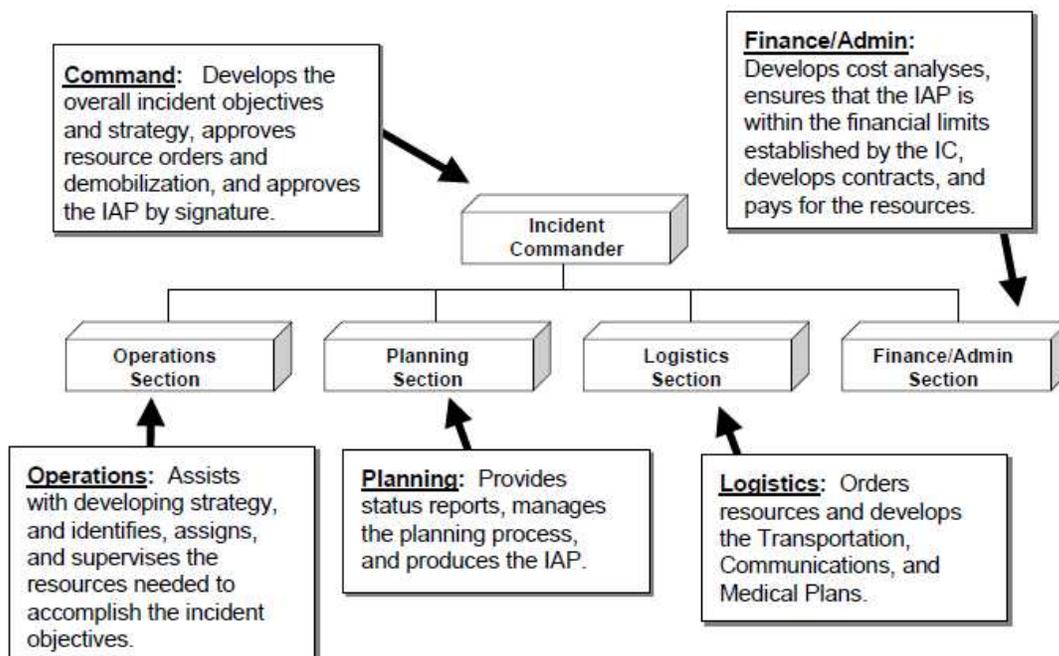


Figure Notes: IC indicates Incident Commander. IAP indicates Incident Action Plan. NIMS implementation will be scaled based on the magnitude of the response. For small events, one party may fulfill multiple NIMS roles.



### 3.3.2 Essential Facilities

For response activities located at the NERR, the NERR will manage or support another agency's management of disaster from the Grand Bay Coastal Resource Center at Grand Bay National Estuarine Research Reserve, 6005 Bayou Heron Road, Moss Point, MS 39562. The Reserve provides access to equipment and supplies identified in Appendix C - Emergency Capability Catalog. In some cases, the Grand Bay NERR may provide trained personnel to support operations at an essential facility maintained and operated by a local, state, or federal emergency management entity. When operating to support a response effort led by another agency, reserve personnel would use essential facilities of agencies identified in Appendix B (e.g., associated with local fire department or county, state, NOAA DRC and other federal emergency management agencies).

### 3.3.3 Situation Awareness

Effectively planning and, when necessary, managing emergencies that could result from a range of potential hazards within a large, remote, and environmentally sensitive region requires (1) a good understanding of conditions that affect the NERR and (2) close coordination among response agencies. The Emergency Planner serves as the day-to-day duty officer and monitors information pertinent to a potential or actual emergency. When an emergency occurs, the Emergency Coordinator also performs initial notification and coordination tasks under the general direction of the NERR Manager. The Emergency Coordinator serves as the duty officer during periods of the Emergency Coordinator's absence (unless the NERR Manager assigns another alternate). When information received by the duty officer warrants notification of others, the duty officer uses Appendix B – Emergency Contact List to carry out notifications. Under the general direction of the NERR Manager, the duty officer may also support initial response and coordination activity.

The NERR Manager may elect to assign a weekly emergency duty officer when the pace of emergency operations requires a distribution of workload. The duty officer maintains contact with pre-identified members of the Reserve and response community. Remaining in contact means that the duty officer has at least two methods of viable communication available at any one time. Forms of communication include land-line telephone, cellular telephone, smart phone, or conventional radio. E-mail is not considered one of two required forms of communication unless linked to a smart phone that is enabled to alert on receipt of an email.



The duty officer reviews weather forecasts, the NOAA, U.S. Geological Survey (USGS), and other relevant websites daily to remain aware of potential or actual emergencies that can affect the NERR. For potential emergencies (where lead time allows) and actual emergencies, the Emergency duty officer should provide a verbal or written Situation Report (Appendix K) for the NERR Manager and MDMR that incorporates:

- A description of the actual or potential emergency, area impacted, and potential health and safety hazards.
- A description of current and planned actions taken to minimize the hazards.
- A description of response resources or field teams deployed and identification of the lead organization.

An example Situation Report is attached in Appendix K – Forms and Tools. As an alternative, the ICS-201 (Appendix K) and companion ICS forms can be used for documentation and reporting (FEMA 2010). When current emergencies are detailed in a Situation Report, documentation includes a description of action(s) by the Reserve or other agencies that the Reserve may be supporting in an emergency.

### **3.3.4 Roles, Responsibilities, and Assignments**

Management of an emergency that has occurred (or is about to occur) may involve any one of five roles for the NERR, depending on the nature of the emergency and the capability of the NERR. Potential roles include the following:

- Calling for assistance and taking immediate actions to stabilize an emergency within the Reserve until emergency response organizations arrive and assume Incident Command.
- Serving as a technical specialist (e.g., natural resource impacts, GIS data, etc.) or field responder (e.g., wildland firefighter) within an Incident Command (IC) or Unified Command (UC) led by another agency.
- Assisting the lead Natural Resource Trustees engaging in Natural Resource Damage Assessment or advising IC/UC on environmental impacts and strategies.
- Serving as Incident Commander for NERR-led responses (e.g., hurricane, invasive species).
- Supporting an incident outside the NERR with specific capabilities.

Generally, responsibility for managing an incident falls on the organization with jurisdiction, authority, and the ability to respond. Table 8 shows the likely role of the NERR for the anticipated range of hazards at the Reserve. Within its capabilities, the



NERR will take actions to stabilize an incident as much as possible while awaiting the arrival of emergency responders. For events led by the NERR, the NERR Manager will designate an Incident Commander and a location (the Grand Bay Coastal Resource Center) or a boat/vehicle to serve as an Incident Command Post (ICP) from which operations will be directed. Under NIMS, the responsible agency may assign an individual with greater authority and experience to relieve the initial Incident Commander, who may then assume another role within the Incident Command.



**Table 9 - Lead and Supporting Agency Roles for NERR Hazard Events**

<b>Events/Hazards within NERR</b>	<b>Lead Agency</b>	<b>NERR Role</b>
Hurricane (NERR facilities only)	County EMA	Incident Commander for NERR facilities.
Severe Storms (NERR facilities only)	County EMA	Incident Commander for NERR facilities.
Oil Spill	MDEQ, Coast Guard, or EPA	Cooperating or assisting agency
Riverine Flooding	County EMA	Cooperating or assisting agency
Invasive Species	MDMR/FWS	Incident Commander for NERR
Vessel Grounding	Coast Guard or MDMR	Cooperating or assisting agency
Hazardous Material (HazMat) (Industrial Facilities)	MDEQ, Coast Guard, or EPA	Cooperating or assisting agency
Wildland Fire	FWS/Fire Dept.	IC and suppression responsibilities are delegated annually to the Fire Program at Gulf Coast Complex.
Structure Fire	Fire Dept.	Cooperating or assisting agency.
Medical Emergency	EMS	Cooperating or assisting agency.
HazMat (Rail Lines)	Fire Dept.	Cooperating or assisting agency.
Tsunami	County EMA	Cooperating or assisting agency.
Earthquake	County EMA	Cooperating or assisting agency.
Aircraft Crash	Fire Dept.	Cooperating or assisting agency.
Law Enforcement Emergency	Sheriff's Office/FWS LE/MDMR – Marine Patrol	Cooperating or assisting agency.
Unexploded Ordnance (UXO)/Live Fire	Sheriff's Office	Cooperating or assisting agency.

Since NIMS is flexible and scalable, for NERR-led responses, the NERR manager will establish the Incident Command, where warranted, and assign responsibilities to NERR personnel. Figure 8 is an example of how the NERR might organize for a localized Type 4 or 5 incident requiring only an Incident Commander and Operations Section Chief along with field teams.

**Figure 8 - Example Response Organization for NERR-led Incident (Hurricane)**

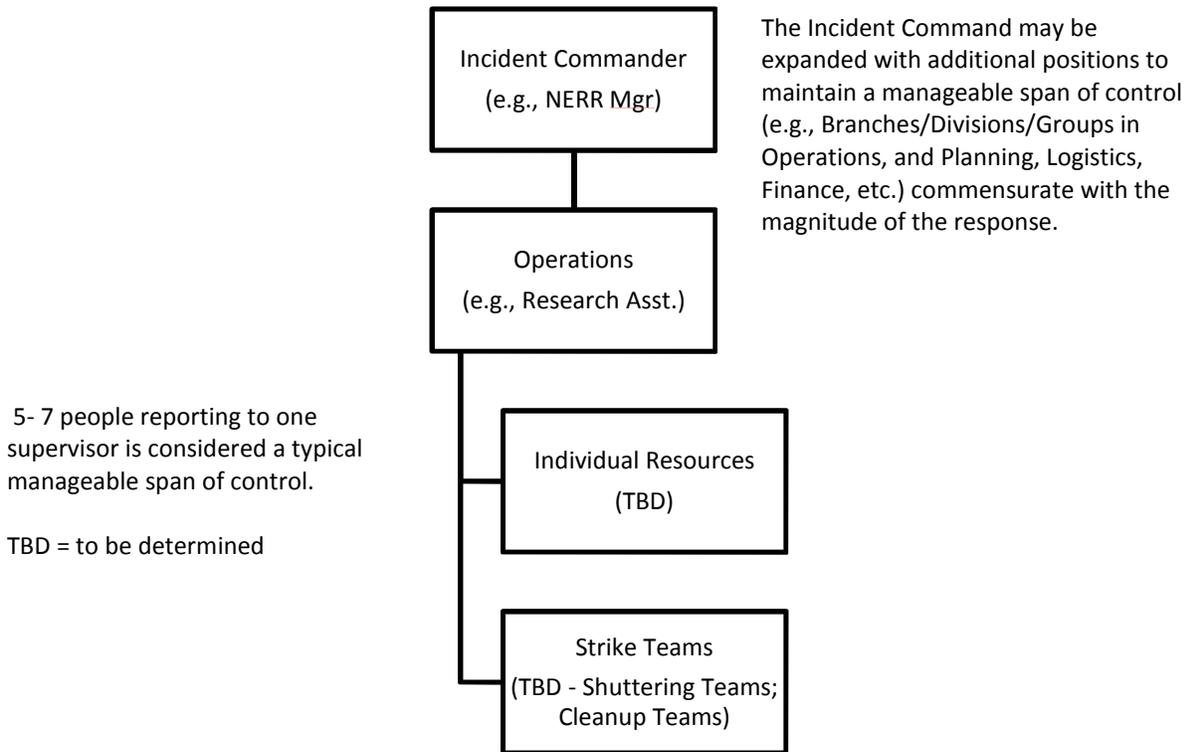
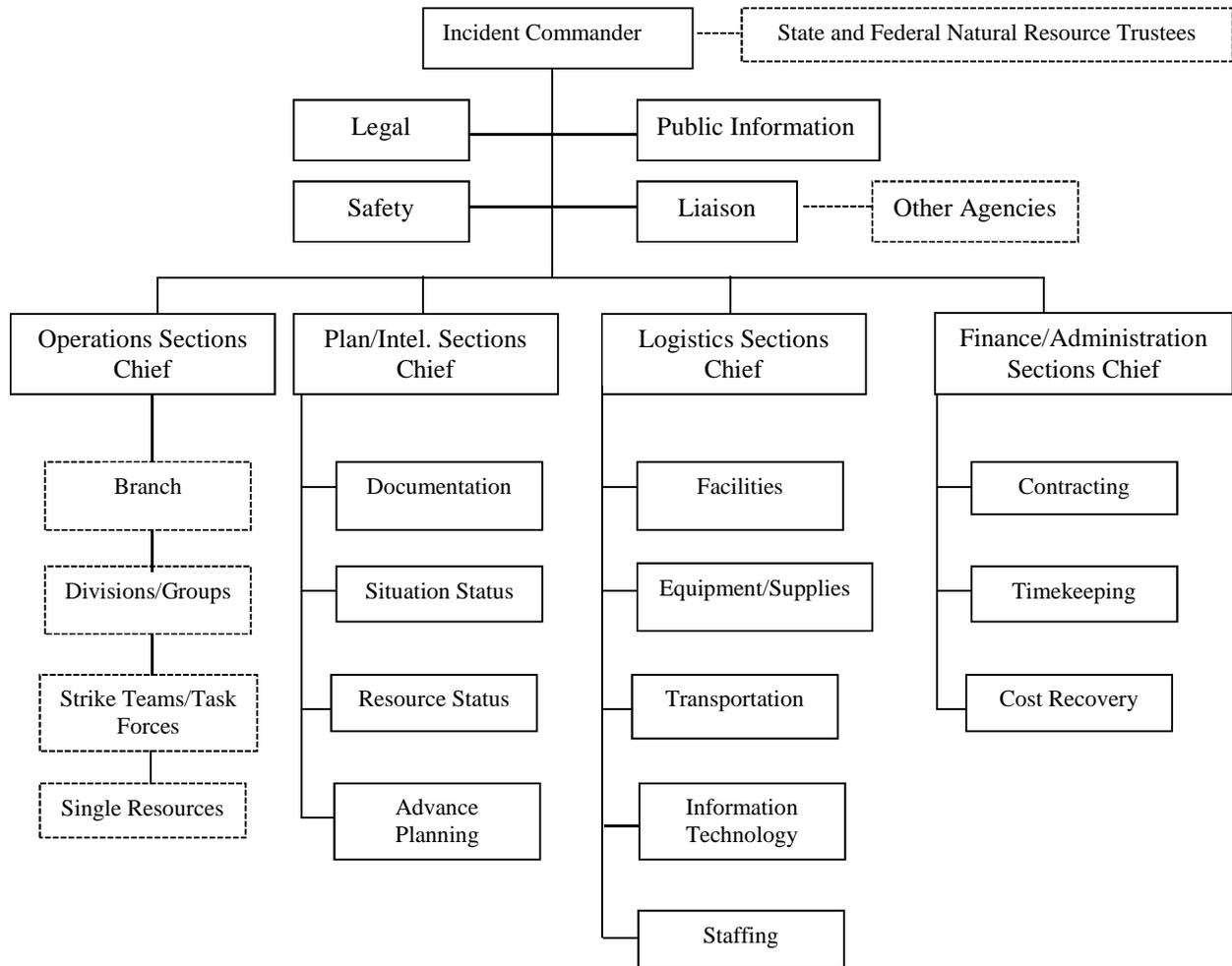


Figure 9 shows the typical expanded NIMS organizational model for larger and more complex events requiring multi-agency staffing. These larger responses would be led by the appropriate emergency response agency and a qualified Type 1, 2, or 3 Incident Commander. For these larger events, NERR staff may be called upon to (1) provide input through the lead State Trustee agencies or Liaison Officer; or (2) support Operations, Planning, or Logistics sections based on the specific capabilities and qualifications they bring to the event.

**Figure 9 - NIMS Expanded Organizational Chart**



Note: Within the National Incident Management System (NIMS), one person can function in several roles. Dotted lines indicate “to be determined” based on the needs of the incident.



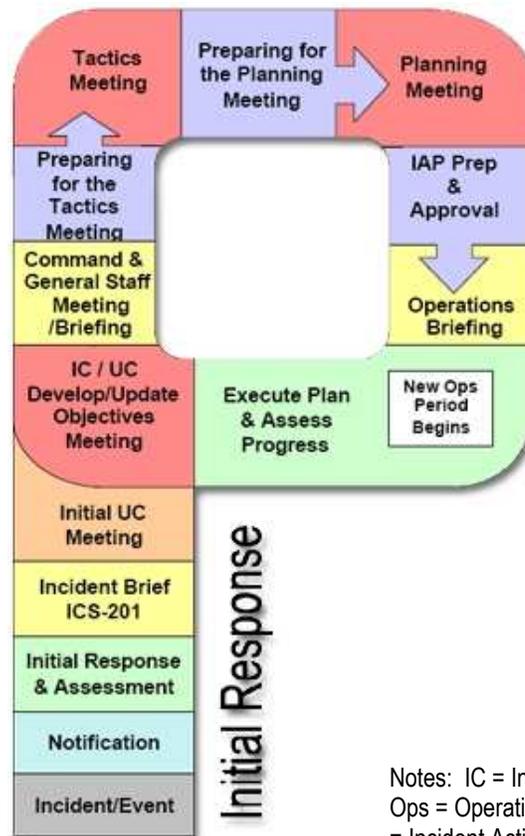
### 3.3.5 Priorities and Action Planning

Effective response results from establishing priorities, developing incident action plans (IAP), and carefully executing plans. Generally, NERR priorities during an emergency or disaster involve protection of the following elements:

1. Life
2. Human health and safety
3. Property, especially critical infrastructure
4. The environment
5. Economic interests

The NERR provides particular knowledge and capabilities to support environmental protection activities. The Reserve follows the general ICS/NIMS process to guide response actions (represented by the “Planning P” shown in Figure 10). General and hazard-specific procedures for the NERR are identified in Appendices A and D. Forms and Tools that support response activities by the Reserve are included in Appendix K.

Figure 10 - ICS/NIMS Planning P



Notes: IC = Incident Command; UC = Unified Command; Ops = Operations; ICS = Incident Command System; IAP = Incident Action Plan

### 3.3.6 Communications

Communications affect emergency management outcomes. To help ensure effective internal and external communications, the NERR will maintain the following forms of communication. This capability will be tested on a quarterly basis.

- One commercial Internet connection (secured hardwired and wireless network for NERR, secured wireless for public)
- Three land-based phone lines
- Five mobile hand held Very High Frequency (VHF) radios (use for watercraft)
- Four 800 MHz Motorola Jack County Fire and Emergency handheld radios (note: Jackson County is switching from 800 MHz in the future- upgrades will be made accordingly)
- One dedicated fax line
- Work and personal cell phones used for communication on site



### 3.3.7 Information Sharing

Sharing information during an emergency with agencies, government leaders, and the public is an important part of response. The Reserve uses the abbreviated Situation Report or, optionally, the ICS forms listed in Appendix K to share information internally and with MDMR.

During an emergency, the NERR Manager and reserve personnel will communicate incident facts and details to responders and the public, as necessary to protect human health, property and the environment. For public communication beyond immediate needs, the MDMR Public Information Office (PIO) will lead communications with external parties. Information shared with the media by the PIO will be carefully developed and approved using established MDMR communication authorities and protocols. The PIO will work to provide accurate, timely, and informative. When supporting a response managed by others, NERR personnel are not expected to play a role in communication with the public.

### 3.3.8 Emergency Capabilities

Capabilities are specific resources like people, facilities, systems, equipment, and supplies needed to respond to an emergency. Effectively managing capabilities during a disaster is critical to success. Failure to fill capability requests can lead to serious impacts. Requests delayed, even by minutes, can result in serious effects as well. Under NIMS, the response community uses "Resource Requests" to expand or sustain deployed capabilities.

When an emergency or disaster occurs, the NERR acts as follows:

- Evaluate information provided by the Emergency Coordinator, duty officer, or other source to make a decision whether to respond or call for assistance.
- Notify the State Warning Point, NERR staff, and other relevant agencies of NERR status and intended action.
- Recall staff to perform emergency functions.
- Establish a NERR ICP (if warranted) or deploy appropriate personnel to another location.
- Use general and hazard-specific procedures (Appendices A and D) and forms/tools (Appendix K) to perform emergency duties or call for assistance.



The NERR will follow MDMR guidance to request additional agency resources when are needed. Typically, this involves an e-mail or telephone call to the MDMR Director; however, in large disasters lead agencies may establish more formalized NIMS “Resource Request” processes that any Reserve personnel would support, if so directed by MDMR.

If the Reserve receives a Resource Request from another agency during an emergency, the NERR Manager will attempt to fulfill the request using its available emergency capabilities; the NERR Manager will consult with the MDMR Director as soon as it is practicable to do so.

### 3.4 Recovery

Recovery is the process of returning an area affected by an emergency to normal conditions. Recovery may sometimes occur in a matter of hours—for example, restoration of electricity and telephone service. Following disasters, complete recovery can take years. Two keys to effective recovery are to complete a plan for recovery before an emergency occurs and to begin recovery as soon as possible.

Appropriate recovery activities will depend on the circumstances of each emergency. Using ICS and NIMS, the ICP Planning Section (whether led by NERR or another agency) is responsible for initiating recovery. In a Reserve- only emergency, the planning section will be staffed by Reserve personnel. During a regional emergency or disaster, the Reserve will likely provide support to another ICP planning section (e.g., serving as Technical Specialists within a planning section).

#### 3.4.1 Damage Assessment

Damage assessment involves identifying, recording, compiling, and analyzing damage information to determine what recovery action and assistance may be needed. Following major disasters, a process known as a Preliminary Damage Assessment (PDA) is used by FEMA and states to determine to what extent state and federal assistance may be available. States can assist with the FEMA recovery process typically used to recover overtime, the cost of rebuilding infrastructure, and other costs associated with disaster.

When injuries to natural resources are caused by oil or chemical spills, the NRDA process may apply. Concurrent with, but separate from the initial response to protect life and property, natural resource trustee agencies such as NOAA and the U.S. Fish and



Wildlife Service (FWS) initiate a NRDA to determine the type and extent of injury to natural resources, the strategies necessary for recovery, and the estimated cost and schedule for recovery. The NRDA characterizes pre-spill or baseline conditions so that financial damages can be assessed to the party responsible for the spill and resulting injury to natural resources. The NRDA process does not apply to injury caused by natural disasters (such as hurricanes), but may apply to oil or chemical releases resulting from a natural disaster. The NRDA process will be led by a group of natural resource trustees known as the Trustee Council, which may include federal and state natural resource agencies such as the coastal state trustee, the MDEQ. Grand Bay NERR staff may support NRDA efforts. Trustee representatives work in parallel with the USCG or EPA ICs during the initial stages of a major spill, then continue data collection after the clean-up to document residual injuries to natural resources. Whereas the initial incident response may wind down after a few weeks or months, it may take years to collect the data necessary to support a NRDA claim. To the extent practicable, NERR staff should contribute to the NRDA process by collecting baseline environmental data prior to the hazard event, if so directed by MDMR. They may also be called upon by MDMR to support post-event data collection under the direction.

NERR staff should be proficient in responding to disasters resulting from both accidental and natural events in ways that support recovery. Consequently, both FEMA and NRDA processes are addressed in NERR training and exercise recommendations included in Appendices I and J.

### 3.4.2 Short-Term Recovery

Establishing priorities is just as important in recovery as in response, ensuring a timely and orderly return to pre-disaster conditions. Short-term recovery objectives will be established by the NERR Manager for Reserve facilities and natural resources before response activities cease. Short-term recovery objectives typically include the following:

- Implementing immediate environmental protection measures
- Restoring monitoring infrastructure and real-time telemetered data streams
- Opening access routes
- Restoring utility service
- Securing damaged areas for safety
- Removing HazMat and debris



- Providing temporary work or housing facilities
- Accomplishing cost recovery
- Establishing long-term recovery objectives
- Completing a damage assessment

Recovery activities during a response will be managed by the Incident Commander (which may be a Reserve or other agency representative). NERR-specific recovery activities after response are managed by the NERR Manager.

### 3.4.3 Long-Term Recovery

Long-term recovery objectives are generally not met until long after the cessation of response and closure. Long-term recovery activities include the following:

- Restoring the natural environment (i.e., removing hazards to navigation and wildlife; implementing restoration of impacted habitats)
- Rebuilding infrastructure (i.e., docks, offices, interpretive center)
- Replacing lost equipment and supplies (i.e., water monitoring stations, boats)
- Monitoring the environment for signs and effects of recovery.

The NERR Manager is responsible for coordinating all long-term recovery activity at the NERR.



## 4.0 Continuity of Operations

Emergencies can threaten to destroy or delay the NERR's ability to provide essential services and continuity of research programs. Therefore, the NERR also develops a Continuity of Operations Plan (COOP) that includes the following:

- A line of succession for department leadership
- A list of essential services (including research), tolerances for interruption, and strategies to maintain continuity
- Assignment of responsibility for continuity activity
- Directions for preserving vital records, including historical research data, and a strategy for ensuring access to these following an emergency.

Because continuity of operations is vital to natural resource protection efforts, the NERR incorporates continuity of operations objectives in emergency planning, training, and exercise work. Roles, processes, and tools to help maintain NERR continuity of operations are described further in Appendix E – Continuity of Operations Plan.



## 5.0 Plan Maintenance

This DRP will be maintained by the Grand Bay NERR and reviewed by the ET annually. As changes are needed to the plan or its appendices, the NERR Manager will assign this work to one or more ET members and provide the support necessary to accomplish that work.

Annual training on the DRP will be provided as orientation for new staff or as refresher training for staff who have already received an orientation to this plan and their potential roles. A record of this training will be retained in employee records.

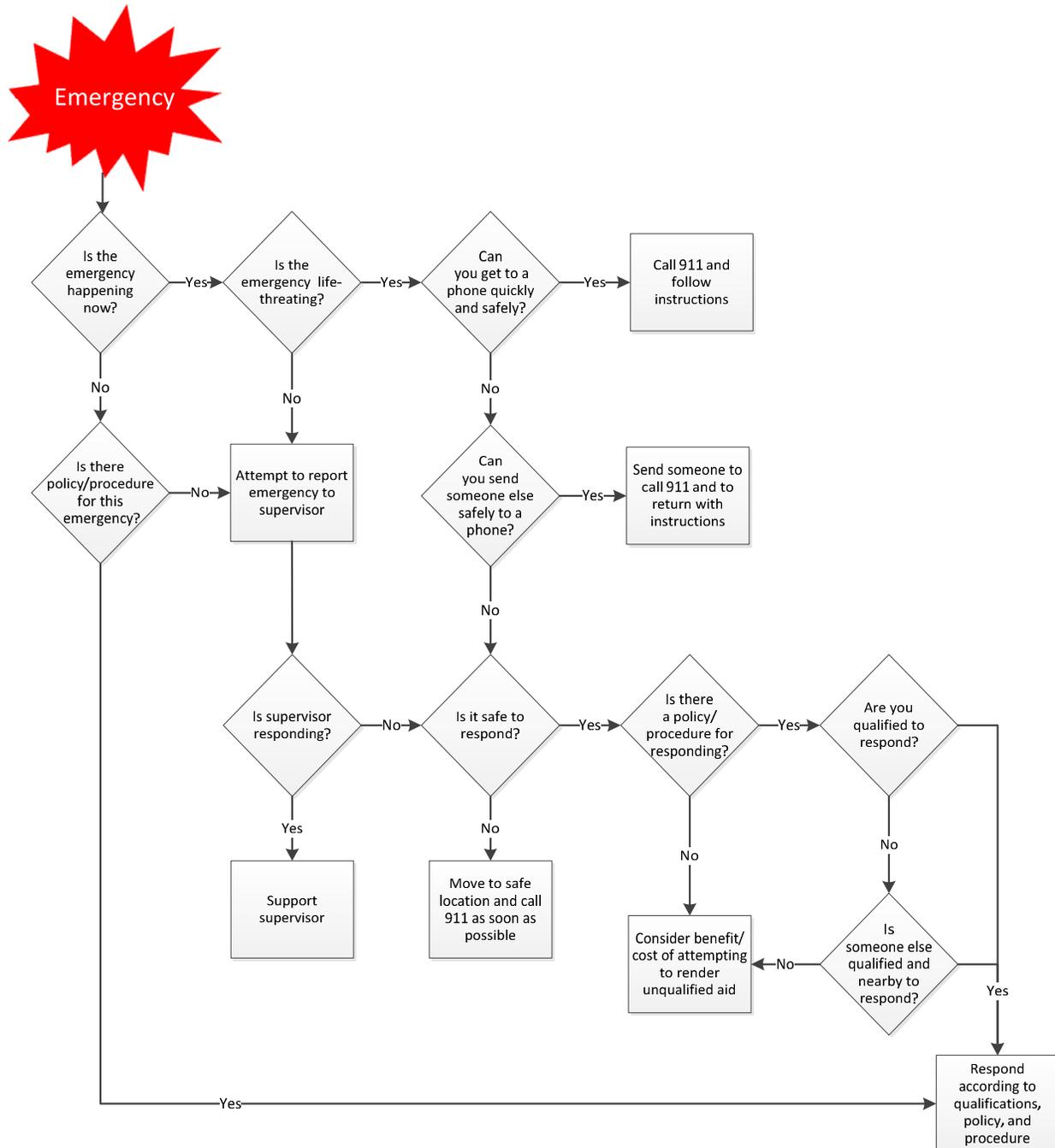
An annual exercise will be conducted to maintain and validate planning, and to maintain and improve proficiency in performing emergency and disaster activities. The NERR may develop and conduct internal exercises, including those that prepare for interagency coordination. Annual exercises may be table-top, functional, or full-scale exercises, although a functional exercise will occur at least every 3 years. Appendices J, K, and L address training and exercise recommendations and plans (Appendix I - Emergency Training Plan, and Appendix J - Emergency Exercise Plan).



## Appendices

- Appendix A - General Response Procedures
- Appendix B - Emergency Contact List
- Appendix C - Emergency Capabilities Catalog
- Appendix D - Hazard Specific Procedures
- Appendix E - Continuity of Operations Planning (COOP)
- Appendix F - Hazard Identification and Risk Assessment
- Appendix H - Annual Work Plan
- Appendix I - Emergency Training Plan
- Appendix J - Emergency Exercise Plan
- Appendix K - Forms and Tools
- Appendix L - Maps and Other Information
- Appendix M - References
- Appendix N - Glossary

## Appendix A - General Response Procedures





### Appendix B - Emergency Contact List

Name	Agency	Title/ Role	Office Location	Office Phone	Other Phone	Alternate Phone	Email	Notes
<b>ANERR EMERGENCY CONTACTS</b> (use phone tree notify activate staff for emergency or disaster)								
David Ruple	MDMR NERR	NERR and ER Mgr	6005 Bayou Heron Road, Moss Point, MS 39562	228-475-7047	228-697-0039	See NERR phone tree	<a href="mailto:David.Ruple@dmr.ms.gov">David.Ruple@dmr.ms.gov</a>	Leads NERR emergency management decisions for the NERR.
Will Underwood	MDMR NERR	Stewardship Coordinator	6005 Bayou Heron Road, Moss Point, MS 39562	228-475-7047	228-697-0415	See NERR phone tree	<a href="mailto:will.underwood@dmr.ms.gov">will.underwood@dmr.ms.gov</a>	Member of NERR Emergency Team (ER); supports NERR Manager
Jay McIlwain	MDMR NERR	Stewardship Associate	6005 Bayou Heron Road, Moss Point, MS 39562	228-475-7047	NA	See NERR phone tree	<a href="mailto:jay.mcilwain@dmr.ms.gov">jay.mcilwain@dmr.ms.gov</a>	Member of NERR Emergency Team (ER); supports NERR Manager and SC
Jan Boyd	MDMR	Director Coastal Ecology	1141 Bayview Avenue, Biloxi, MS 39530	228-523-4102	NA	Oil Spill Response Env./ Community Hotline: 866- 448-5816	<a href="mailto:Jan.Boyd@dmr.ms.gov">Jan.Boyd@dmr.ms.gov</a>	NERR Manager consults with MDMR Coastal Ecology Director and MDMR Director for longer- term response actions/decisions.
James McClelland	FWS – MS Sandhill Crane Refuge	Complex Law Enforcement Officer	7200 Crane Lane Gautier, MS 39553	228-217-0751	NA	NA	<a href="mailto:James_McClelland@fws.gov">James_McClelland@fws.gov</a>	Lead for law enforcement activities Refuge/Reserve
Patrick Levine	MDMR	Lt., Marine Patrol	1141 Bayview Ave., Biloxi, MS 39530	228-760-0502	NA	NA	<a href="mailto:Patrick.Levine@dmr.ms.gov">Patrick.Levine@dmr.ms.gov</a>	Lead for enforcement of boating, fishing.
Charlie Henry/ Michele Finn	NOAA DRC	Director	7344 Zeigler Blvd., Mobile, AL 36608	251-544-5006 (general)	NA	NA	<a href="mailto:Charlie.henry@noaa.gov">Charlie.henry@noaa.gov</a> ; <a href="mailto:michele.a.finn@noaa.gov">michele.a.finn@noaa.gov</a> ;	Charlie Henry attended DRP workshop; NOAA DRC connects to science and other support.



Name	Agency	Title/ Role	Office Location	Office Phone	Other Phone	Alternate Phone	Email	Notes
<b>EXTERNAL NOTIFICATIONS AND PRIMARY CONTACTS</b>								
Not applicable (NA)	Public Safety Answering Point	NA	NA	911	NA	NA	Report any spill to the 24-hour State Warning Point: 1-800-222-6362	First contact for most emergency/disaster notifications.
NA	National Response Center	NA	c/o United States Coast Guard (CG-5335) - Stop 7581, 2100 2nd Street, SW Washington, DC 20593-0001	800-424-8802	NA	NA	<a href="http://www.nrc.uscg.mil/">http://www.nrc.uscg.mil/</a> (web site, on line incident reporting tool); Duty Officer Email: <a href="mailto:HQS-DG-1st-NRCINFO@uscg.mil">HQS-DG-1st-NRCINFO@uscg.mil</a>	For oil spill, hazmat, and America Waterways Watch notifications
Duty Officer	Local Fire Dept – Moss Point	NA	4204 Bellview Street, Moss Point, MS	Emergency: 911	NA	NA	Fire Chief - Clarence Parks: <a href="mailto:clarence.parks@cityofmosspoint.org">clarence.parks@cityofmosspoint.org</a> ;	Fire emergencies (can be reached through 911). website: <a href="http://cityofmosspoint.org/fire-department/">http://cityofmosspoint.org/fire-department/</a>
Doug Winters	Forts Lake Volunteer Fire Dept.	Fire Chief	10701 Forts Lake Road Moss Point, MS 39562	Emergency: 911 Office: 228-474-2424	NA	228-623-5398	<a href="mailto:Doug.Winters@gmail.com">Doug.Winters@gmail.com</a> Or <a href="mailto:Doug.Winters401@gmail.com">Doug.Winters401@gmail.com</a>	Fire emergencies (can be reached through 911).
Donald Langham	Jackson County EMA	Director	600 Convent St, Pascagoula, MS	Emergency 911: Office 228-769-3111	NA	Emergency Number: 228-769-3063	<a href="mailto:Donald.Langham@co.jackson.ms.us">Donald.Langham@co.jackson.ms.us</a>	County EM Director at DRP Workshop
Mike Byrd	Jackson County Sheriff's Office	Sherriff	P.O. Box 998 Pascagoula, MS 39568-0998	Emergency: 911; Office: 228-769-3024	NA		<a href="mailto:Mike_Byrd@co.jackson.ms.us">Mike_Byrd@co.jackson.ms.us</a> ; <a href="http://www.co.jackson.ms.us/officials/sheriff/">http://www.co.jackson.ms.us/officials/sheriff/</a>	Law enforcement matters (can be reached through 911).



Name	Agency	Title/ Role	Office Location	Office Phone	Other Phone	Alternate Phone	Email	Notes
Tony Wilder	Incident Fire Mgmt. Officer	Sandhill Crane NWR	7200 Crane Lane Gautier, MS 39553	Fire center: 228- 497-5780	General office: 228-497-6322	NA	Tony_Wilder@fw s.gov	Contact for wildfire issues and events.
Caroline Nelson	MS Emergency Mgmt. Agency (MEMA)	Area Coordinator	P.O. Box 5644 Pearl, MS 39288	Nelson: 601- 398-6881	General line: 601-933- MEMA	Emergency: 800-222-MEMA (6362)	<a href="mailto:CNelson@mema.ms.gov">CNelson@mema. ms.gov</a> ; Website: <a href="http://www.msema.org/">http://www.msema a.org/</a>	Emergency line is 24- hour number. Attended DRP workshop.
Earl Etheridge	MSDEQ	Emergency Response	MDEQ, Office of Pollution Control Emerg. Services Div, P. O. Box 2261, Jackson, MS 39225	228-326-6401	NA	NA	<a href="mailto:Earl_Etheridge@deg.state.ms.us">Earl_Etheridge@ deg.state.ms.us</a>	Attended DRP Workshop.
Duty Officer	USCG Sector Mobile, District 8	NA	1500 15Th St., Brookley Complex, Mobile, AL 36615-1300	Emergency: 251-441-6211	251-441-5720	877-24-WATCH (America waterway watch)	<a href="https://homeport.uscg.mil/mycg/port/ep/portDirector.y.do?tabId=1&amp;cotpld=37">https://homeport.u scg.mil/mycg/port al/ep/portDirector y.do?tabId=1&amp;cot pld=37</a>	Web site provides links to plan, schedule for meetings, river conditions, etc.
Commanding Officer	USCG Station Gulfport	NA	USCG Station Gulfport, 991 23rd Ave., Gulfport, MS 39501	228-868-3743	NA	Emergency: 228-863-5818	<a href="http://www.uscg.mil/d8/staGulfport/">http://www.uscg. mil/d8/staGulfport /</a>	Listed on MDMR web site emergency contacts list for MS.
Commanding Officer	USCG Pascagoula Station	NA	USCG Station Pascagoula, 108 Singing River Is., Pascagoula, MS 39595	228-769-5600	NA	Emergencies: 911	<a href="http://www.uscg.mil/d8/staPascagoula/default.asp">http://www.uscg. mil/d8/staPascag oula/default.asp</a>	Listed on MDMR web site emergency contacts list for MS.
Duty Officer	Mississippi Forestry Commission	Southeast Dispatch	600 North Street, Suite 300, Jackson, MS 39202	800-240-5161	NA	601-359-1386	<a href="mailto:lharris@mfc.state.ms.us">lharris@mfc.state. ms.us</a> ; <a href="http://www.mfc.ms.gov">www.mfc.ms.gov</a>	Addresses arson enforcement and other laws related to forestry protection.



Name	Agency	Title/ Role	Office Location	Office Phone	Other Phone	Alternate Phone	Email	Notes
Duty Officer	MDMR	Report Oiled or Injured Wildlife	NA	886-557-1401	NA	NA	<a href="http://www.dmr.state.ms.us/emergency-contacts">http://www.dmr.state.ms.us/emergency-contacts</a>	Numbers listed on MDMR web site for Emergency Contacts and 2010 Oil Spill Incident Response web site.
Duty Officer	MDMR	Report Stranded Dolphins or Sea Turtles	NA	888-767-3657	NA	NA	<a href="http://www.dmr.state.ms.us/2010-oil-spill-response-and-information">http://www.dmr.state.ms.us/2010-oil-spill-response-and-information</a>	
Duty Office	MDMR	Report Stranded Marine Mammals	NA	888-806-1674	NA	NA	NA	
Duty Officer	MDMR	Report Oil on Land	NA	866-448-5816	NA	NA	NA	
Duty Officer	American Association of Poison Control Centers	NA	NA	Emergency: 800-222-1222	NA	NA	<a href="http://www.aapcc.org/">http://www.aapcc.org/</a>	Provides information and referrals for poison concerns, 24-hours per day/7-days per week
Duty Officer	American Red Cross	South MS Chapter - Pascagoula Office	1096 Jackson Ave., Pascagoula, MS 3956	228-762-2455	NA	NA	NA	<a href="http://www.redcross.org/mississippi/about/chapters/south-mississippi/offices">http://www.redcross.org/mississippi/about/chapters/south-mississippi/offices</a>



### Appendix C - Emergency Capabilities Catalog

Resource	Description	Quantity	Location	Owner/POC	Notes
<b>General Infrastructure</b>	This includes: Grand Bay Coastal Resource Center, other buildings, boat ramps, lifts, docks, helicopter pads (paved or unpaved), paved and unpaved parking areas (suitable for staging)				
Main Building Facilities (Grand Bay Coastal Resources Center)	Includes 15 offices, Public office space for 4, two large classrooms, two conference rooms, interpretive/visitor center, 1 biological lab, 1 chemistry lab, 1 microbiology lab, 20 person capacity dorm, public restrooms, 2 screened outdoor wet labs, 1 amphitheater space, 5 space boat shed, workshop, 1 storage shed	1 main building with dorms connected to main building footprint	6005 Bayou Heron Rd., Moss Point MS 39562	NERR Manager	Additionally there is FWS office space located on the south wing. NERR facility owned by state, located on federal land.
Boat Launches	Bayou Heron Boat Launch (Public) – 2 launch capability, 1 fishing pier, 10-12 vehicle/trailer parking; Point O Pines Boat Ramp (Private) – 2 launch capable (\$3 launching fee) located at the end of Grand Battures Rd.	2	Bayou Heron Boat Launch – located at end of Bayou Heron Rd.; Point O Pines Boat Launch – located at end of Grand Battures Rd.	<ul style="list-style-type: none"> <li>– Bayou Heron Launch, NERR Manager</li> <li>– Point O Pines, David Glennon</li> </ul>	Area Maps are available upon request. Special use of Point O Pines Boat Launch will need special permission from Point O Pines POC.
<b>Communication Assets</b>	This includes: EOC communications or dispatch center (if there is one), wired communications (telephone, internet), and wireless communications (radios, cellular phones, etc.)				
Internet	One commercial internet connection with wireless capability.	(1 Staff network and 1 visitor network)	6005 Bayou Heron Rd, Moss Point MS 39562	NERR Manager/Admin Assistant	Contact POC for access.
Phone/Fax	Land line service phone service to main facility (NERR and FWS wings); dedicated fax line (main building); cell phones dedicated or personal use (phone tree maintained with staff cell phone #s)	3 land lines; 1 dedicated fax line; staff cell phones (various)	Main building  With owner for cell phones	NERR Manager/Admin. Assistant	Contact POC for use.



Resource	Description	Quantity	Location	Owner/POC	Notes
Radios	5 Mobile handheld VHF Radios for use with watercraft, 4 – 800 Mhz Motorola Jackson County Fire and Emergency handheld radios	9 Total	See Description	Stewardship Associate	Jackson County is switching from 800 Mhz system to an updated system soon.
<b>Emergency Power Supply</b>	This includes: Fixed emergency generators and portable (provide KW power rating)				
Generators	60 KW Kohler Diesel Generator to power emergency back-up lighting and outlets (Tested weekly) for Main Building, 250 gallons fuel (~4 day supply); 1 portable Craftsman 3600 Watt Generator	2	Main Building – Vehicle Compound and Workshop	Facilities Manager	
<b>Emergency Medical Assets</b>	This includes: number of first aid/CPR trained staff, number of EMT, RN, LPN trained staff, AED, and first aid kits				
CPR/First Aid Trained Personnel	<ul style="list-style-type: none"> <li>All reserve field personnel are trained in CPR/First Aid;</li> <li>First aid kits in various locations in main building and vehicles</li> </ul>	~10	Main Building	Field Staff	CPR and First Aid certified staff will need to be re-certified summer of 2013
First aid kits and related equipment	First aid kits in various locations. Eyewash and shower stations in biological and chemistry laboratories, and eyewash station in large classroom	3	Main building labs	Stewardship/Research/Education Coordinators	1 ventilation hood in each of the bio and chem laboratories
<b>Emergency Supplies</b>	This includes: food (number of days for how many people), water (number of days for how many people), cots/blankets				
Bottled water	Bottled water stored in most areas	Multiple, no formal count	Main building	Stewardship Associate	Not designated as “emergency supply;” maintained for day-to-day use
Other	No other emergency supplies are maintained (food, water, blankets, etc.) at this time.	0	Not applicable	Not applicable	
<b>Environmental and Data Assets</b>	This includes laboratories, field soil/water sampling gear, GPS, research libraries, GIS and natural resource data, SWMP data loggers/data, weather stations (fixed and portable)				
Laboratories (Research Section)	1 biological lab, 1 chemistry lab, 1 microbiology lab, 2 screened outdoor wet labs, resources include: stereo microscopes, centrifuge, vacuum pump filtration system (for water samples), data loggers, sample bottles, stirrers, hot plates, 1 dryer oven, computer with microscope	2 wet labs, 2 dry lab	Main Building	Stewardship Coordinator – Bio Lab; Research Coordinator – Chemistry/Micro Lab	



Resource	Description	Quantity	Location	Owner/POC	Notes
GPS Units	Handheld Global Positioning System (GPS) units, including 3 - Trimble GeoXT unit, handheld Garmins for field staff, 1 – R8 RTK/RTN, 1 – Tornado Antenna, 1 – Total Station, Large format printer	Various	Main building	Stewardship Coordinator/Stewardship Associate	All GPS units used portably
GIS Software and Personnel	Computers for data storage and management; various layers covering natural resource information (habitats, estuarine species, listed species), research information, land use and cover maps, ArcGIS 9.3, 10,10.1; Global Mapper	ESRI Software	Main building	Stewardship Coordinator/Stewardship Associate	GIS-equipped computers in GIS labs and on 4 staff computers.
GIS Personnel	Trained GIS personnel	4	Main Building	Stewardship Coordinator/Stewardship Associate	Other personnel can support data collection and map use
Field Sampling Gear (RS)	Bottles, Samplers, Meters, Seine Nets, 1 – 16' Trawl, Nets, Cameras; Water sampling bottles, grab sampler, handheld YSI 85 water quality meters, plankton nets, waterproof digital cameras. Automatic water sampler used monthly to collect data (portable).	Multiple items	Main Building	Research Coordinator	1 underwater camera, 1 automated camera
SWMP Dataloggers and Associated Water Quality Baseline and Trend Data	YSI 6600 EDS multi-parameter programmable data loggers. Measuring: specific conductivity, salinity, dissolved oxygen (percent and mg/l), pH, water level and turbidity every fifteen minutes. Some data also telemetered to CDMO.	4 deployed in field at all times	North Bayou Heron, Point aux Chene Bay, Bangs Lake, Bayou Cumbest	SWMP Technician	
Stewardship Data	Items being monitored include: habitat mapping; invasive species mapping; photo monitoring; and vegetation monitoring (rare plants, emergent marsh); Submerged Aquatic Vegetation Monitoring, Erosion Monitoring, Dedicated GIS Server	Various locations	Stewardship Section	Stewardship Coordinator/Stewardship Associate	
Weather Station and Associated Weather Data	Measures air temperature, relative humidity, wind speed/direction, barometric pressure, rainfall, and photo-synthetically active radiation. Stores data every 15 minutes and downloaded monthly. The site has also been telemetered.	1 (fixed location)	North Rigolets/Crooked Bayou Mouths	SWMP Technician	Telemetered data goes to CDMO; backup data collected each month by NERR; solar powered unit. Access data at: <a href="http://cdmo.baruch.sc.edu/get/realTime.cfm">http://cdmo.baruch.sc.edu/get/realTime.cfm</a>



Resource	Description	Quantity	Location	Owner/POC	Notes
Research Library	Publications pertaining to research and monitoring studies conducted within GNDNERR and Northern Gulf Of Mexico, and other related topics; Organized using a computerized bibliographic indexing system..	1 library	Main Building	Research Coordinator	None
Other Tools and Data	Quarterly Fish Monitoring Data, Shoreline Data, and Seagrass Data. statistical software, including: SPSS and MS Excel	Various	Main Building	Research Coordinator/Research Assistant	None
<b>Firefighting</b>	This includes: number of professional or volunteer certified firefighters, if any; fixed firefighting system installations (sprinklers, hose), and portable or mobile firefighting systems				
Wildland fire	All wildland fire response is under jurisdiction of Gulf Coast Refuge Complex (FWS)			Stewardship Associate	Stewardship Associate has working relationship with MSCNWR Fire Team
Building Fire Suppression	16,500 gallon Fire Tank; 500 gpm, Fire Department Hookups, Auxiliary Water Hookup connected to two 6,500 rainwater cisterns connected to fire		Main Building – Vehicle Compound	Facilities Manager	Fire Tank filled by well
Fire Gear	2 – 5 gallon Indian Pumps (backpack pumps), 2 – Rogue Hoes, 2 – Fire Rakes, 2 – Pulaskis, 5 – Flappers, 5 – Fire Shovels, 1 - Combi Tool, All Personal Protective Equipment for 4 firefighters (excluding fire boots), 3 – Firebroom Rakes, 2 – Brush Torches, 1 – Drip Torch, 1 – Chainsaw, 2 – Chainsaw Chaps, 4 – Felling Wedges, Box of Fuzees,	Various	Storage Shed at Main Building	Stewardship Associate	None
Wildland fire trained staff	Several fire-trained individuals may be available (varies over time); the NERR Manager can provide additional information	2	GNDNERR	Stewardship Associate	None
<b>Oil/Hazmat Spill Response</b>	This includes: number of Hazwoper trained staff, booms, sorbents, sampling bottles for oil related sampling, anything else that is relevant				
Trained Hazwoper Personnel	24 hour HAZWOPER	Various	Main Building	n/a	All staff with 24 HAZWOPER need refresher to maintain currency
Wildlife stranding kits	Remaining kits from BP Deepwater Horizon are available.	Various No formal count	Main Building – Storage Shed	Stewardship Associate	
<b>Transportation</b>	This includes: boats, trailerable, boats, non-trailerable, vehicles, on-site fuel capacity (if any)				



Resource	Description	Quantity	Location	Owner/POC	Notes
Vehicles	Ford Expedition, 1997 Ford F-150 2x4 Regular Cab, 1997 Ford F-150 4x4 Crew Cab, 2010 Ford F-150 4x4 Crew Cab, 2010 Ford F-150 4x4 Extended Cab, 2010 Ford Fusion, 2003 Toyota Prius, 2010 Chevy 15 Passenger Van	8	Main Building – Vehicle Compound	NERR Manager	All trucks are used for trailering, other vehicles are for personnel transport
All-Terrain Vehicles	1 – Kubota UTV With dump bed (Diesel), 1 – Honda ATV (Gasoline)	2	Main Building – Boat and ATV/UTV shed	Stewardship Associate	None
Boats/Vessels	2 – 20' Lynn Flat bottom skiffs(one with Mercury 115hp 4-Stroke, one with Evinrude E-Tech 115hp), 2 – 18' Lynn Flat bottom skiffs (with Evinrude E-Tech 60hp), 1– G3 16' Skiffs(with Yamaha 50hp 4-Stroke) 4 – Canoes, 8 – Tandem Kayaks, 2 – Single Kayaks, 1 – 26' Pontoon Boat with Observation Deck	13	Main Building Boat Storage Shed and Vehicle Compound	NERR Manager/Facilities Manager	None
Boat drivers and Training personnel	11 Staff members with Boating License	11	Main Building	NA	
<b>Wildlife Care and Cleaning</b>	This includes: veterinarians or trained wildlife care specialists, cages or pens (unoccupied) (if any), wildlife cleaning materials (for oil spills)				
Equipment	Portable cage	2	Main Building – Storage Shed	Stewardship Associate	NERR does not generally implement wildlife care and cleaning
Personnel	Various Staff trained in wildlife strandings	3	Main Building	Stewardship Associate	
<b>Other Equipment</b>	This includes: dozers, fork lists, crane loaders (if any)				
Trailers/Tractors	1 Utility Trailer, 1 – Gravely Zero Turn Lawnmower	2	Main Building – Vehicle Compound	Stewardship Associate	None
Ice Machines	1 – 250lbs/day; 1 – 150lbs/day	2	Main building	n/a	



## Appendix D - Hazard Specific Procedures

Hazard specific procedures are included for:

1. Hurricane
2. Severe Storms (Including Lightning/Tornado)
3. Oil Spill
4. Riverine Flooding
5. Invasive Species
6. Vessel Grounding
7. Hazmat Event (area industry/pipelines and rail)
8. Wildland Fire
9. Medical Emergency
10. Structure Fire (addressed in association with wildland fire procedures)
11. Hazmat Event (addressed in association with Hazmat Event area industry/pipelines)

## Hazard 1 - Hurricane

**Scenario: Hurricane**

**What you should do:** This hurricane preparation procedure addresses the Grand Bay Resources Center, Grand Bay NERR/National Wildlife Refuge (NWR).

The Reserve Manager will coordinate Hurricane Planning with the Mississippi Department of Resources (MDMR) and will follow preparations directed in the Department's Hurricane Plan (included in Appendix L and referenced in this procedure). The Reserve Manager will integrate considerations specific to the Reserve and Grand Bay Coastal Resources Center as identified in this procedure.

**Preparatory Conditions – Condition 4**

1. Brief all NERR staff, FWS staff and dorm occupants about storm preparations.
2. Ensure all staff has an updated Grand Bay NERR Emergency Contact List (Phone Tree) with phone numbers for NERR staff, FWS staff, dorm occupants and emergency notification numbers (maintained internally by Administrative Assistant).
3. Ensure emergency generator is full of fuel at beginning of hurricane season.

**Hurricane/Tropical Storm Watch - Condition 3**

1. All vehicles and boats should be full of fuel.
2. Move boats and vehicles to FWS Independence Road compound.
3. Clean out refrigerators and ensure freezers and refrigerators are plugged into emergency outlets.
4. Brief staff to prepare to backup all computers prior to leaving. Begin moving critical items away from windows into an inner room. Cover what cannot be moved, if close to a window.
5. Lower and secure all shutters.
6. Move mercury trailer to compound.
7. Brief staff on storm's progress and give them an expected evacuation date and time.
8. Take flags down/take down entrance sign.
9. Secure chairs outside dorm and chain or tie metal gate by dorm.
10. Secure all loose items in yard and under building.
11. Elevate tools and equipment in shop and outside storage areas as needed.
12. Move mower, Kubota and four-wheeler to front ramp or compound if a trailer is available.
13. Clean out refrigerator in kitchen and dorm.
14. Backup all computers, unplug and cover. Cover lab equipment as needed.
15. Turn off Energy Recovery Ventilator (ERV) unit in main building and dorm.
16. Put up "closed to public" sign at the front door.
17. Turn on magnets and lock all doors prior to leaving.
18. Turn off well.
19. Inform MDMR, FWS, NOAA and janitorial service of the evacuation plans.

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<sup>1</sup> "You" refers to the NERR Manager and designated NERR emergency team personnel (if so directed by NERR Manager).

## Hurricane/Tropical Storm Warning - Condition 2

**All Final Preparations are to be completed immediately.**

### Post Hurricane Recovery Procedures

1. Follow instructions provided by the MDMR Executive Director.
2. Reserve Manager and Facilities Manager will seek to access facilities as soon as possible after conditions are safe to do so.
3. Specific plans will be relayed to staff as per MDMR procedures taking into considerations for damages and or flooding events at the NERR.
4. Document damages to infrastructure or natural resources if so directed by MDMR based on local impacts.
5. Prepare an After Action Report (Appendix K), as appropriate (based on scale of event).
6. Review and update this procedure, as necessary, based on lessons learned.

### What you can do now to reduce risk:

1. Ensure Grand Bay NERR Emergency Contact Numbers are up-to-date (beginning of hurricane season). The Administrative Assistant maintains and distributes this list.
2. Annually identify and implement hazard mitigation actions (Section 3.1 of Disaster Response Plan).
3. Encourage staff members to maintain a personal Home and Family Hurricane Preparedness Plan and Kit.
4. Sign up for Jackson County EMA Emergency Notifications (email, phone, text): <http://www.co.jackson.ms.us/departments/public-safety/emsignup.php> and check Mississippi's EMA website for weather alerts: <http://www.msema.org/>
5. Review hurricane procedures against recommended actions (e.g., those at NOAA CSC: <http://www.csc.noaa.gov/magazine/2006/03/article4.html>)
6. Participate in NOAA/FEMA Severe Weather Preparedness Week (March/April of each year): <http://www.nws.noaa.gov/com/weatherreadynation/force.html> or local training (for example, Mississippi Emergency Management Agency [MEMA] officers an extensive array of training opportunities): <http://www.msema.org/training/>
7. Conduct annual hurricane evacuation planning meeting, workshop, drill, or tabletop exercise one month prior to hurricane season (May).
8. At the beginning of Hurricane Season (June 1 – November 30):
  - a. Review the Grand Bay NERR hurricane procedure (this document) and the attached MDMR Tropical Storm and Hurricane Contingency Plan (included with Appendix L).
  - b. Instruct staff to monitor for tropical cyclone weather reports; Reserve Manager will maintain contact with MDMR main office regarding potential hurricane or tropical storm development (during hurricane season) (see Where You Can Find More Data below). The Emergency Planner also monitors day-to-day hazard event potential (see example, Situation Awareness in Appendix K of this plan).

### Where you can find more data:

1. Review the MDMR Tropical Storm and Hurricane Contingency Plan (attached in Appendix L).
2. Review NOAA Severe Weather Fact Sheet for the area (Mississippi): <http://www.ncdc.noaa.gov/activities/weather-ready-nation/news/>
3. Review Jackson County EMA web site updates and resources (including Evacuation Routes): <http://www.co.jackson.ms.us/departments/public-safety/emergency-management.php> and Jackson County EMA web site



information and links (MDOT evacuation routes, links to hurricane information, live weather cam): <http://www.co.jackson.ms.us/departments/public-safety/emergency-management.php#hurricanemaps>

4. Review Mississippi Emergency Management Agency (MEMA) Hurricane Information: <http://www.msema.org/be-prepared/hurricanes/> (includes MS Hurricane Preparedness Plan and local surge maps by county).
5. Find information on Mississippi Emergency Operations Plan at: <http://www.msema.org/wp-content/uploads/2012/07/BasicPlan.pdf>
6. Review MEMA Hurricane Incident Annex – Mississippi Comprehensive Emergency Management Plan: <http://www.msema.org/wp-content/uploads/2012/07/MississippiHurricaneIncidentAnnex.pdf>
7. Find information on Home and Family Preparedness Planning at <http://www.redcross.org/prepare/location/home-family>
8. Find information on hurricane preparedness at: <http://www.ready.gov/hurricanes>

**Attachment:**

MDMR Tropical Storm and Hurricane Contingency Plan, Revision 2 (April 2007) – see Appendix L

## Hazard 2- Severe Storms/Lightning/Tornado

### Scenario: Severe Storm/Lightning/Tornado

#### What you should do:

1. The day-to-day duty officer monitors NOAA weather radio and/or other local weather forecasts for severe storm warnings (Emergency Planner or other designated by NERR Manager). If the U.S. Weather Service issues a tornado or severe storm watch or warning for the Moss Point area, the Emergency Planner will work with the NERR Manager to issue instructions to employees.
2. Notify all Grand Bay NERR staff of storm watch or warning (Emergency Planner/NERR Manager). Recall staff in the field or on the water to safe shelter, based on weather alerts and advisements.
3. Document Grand Bay NERR staff and visitors present at the NERR or in the field to the degree feasible (Administrative Assistant).
4. If time permits before storm arrival:
  - a. Secure all loose outside equipment.
  - b. Secure boats at docks, on lifts, or trailers with additional tie-down or mooring lines.
  - c. Charge cell phones and portable radios.
  - d. Unplug all non-essential equipment.
  - e. Back-up the research server and other data; power down computers and networks.
  - f. Prepare generators for potential use.
5. Ensure all staff and visitors take shelter during periods of severe storm/lightning/tornado. All employees and visitors should move to the hallway or center of the building away from windows and doors until the warning has ended. Remember the 30/30 Lightning Safety Rule: "Go indoors if, after seeing lightning, you cannot count to 30 before hearing thunder. Stay indoors for 30 minutes after hearing the last clap of thunder."
6. After the storm passes:
  - a. Account for all Grand Bay NERR staff and visitors (Administrative Assistant).
  - b. Check for injuries. Do not attempt to move seriously injured people unless they are in immediate danger of further injury. Request emergency medical assistance via 9-1-1. First Aid/CPR trained personnel can provide first aid/CPR for injured personnel (see Hazard 9, Medical Emergency). Otherwise, help keep the injured party calm until help arrives.
  - c. Inspect buildings and equipment for damage (Facilities Manager).
  - d. Secure electrical power, water, and gas service to any damaged buildings (Facilities Manager).
  - e. Initiate clean-up and repairs. Clean gutters and drains (Facilities Manager).
7. Document all injuries and damages for potential legal claims or cost reimbursement. The Facilities Manager shall continue to inspect and clear drains and gutters in accordance, as directed by the NERR Manager
8. Conduct incident debrief/lessons learned review; complete an After Action Report (Appendix K), if appropriate (for significant events).
9. Update the Reserve DRP (this procedure) and training, as necessary.

- What you can do now to reduce risk:**
1. Pre-identify a safe room away from windows and flying debris (generally find areas away from windows and in the center of the building).
  2. Ensure Grand Bay Employee Emergency Contacts List (Phone Tree) is up-to-date (Administrative Assistant maintains and distributes this list).
  3. Participate in NOAA Severe Weather Preparedness Week each year: <http://www.nws.noaa.gov/com/weatherreadynation/force.html> or MEMA training: <http://www.msema.org/training/>
  4. Consider signing up for Jackson County EMA emergency notifications (email, phone, text) at: <http://www.co.jackson.ms.us/departments/public-safety/emsignup.php> and check Mississippi's EMA website for weather alerts: <http://www.msema.org/>
  5. Annually identify and implement mitigation actions (see Section 3.1 of DRP).
  6. Have staff learn how to protect themselves in a tornado or thunderstorm/lightning storm (See Tab A and references below.)
- Where you can find more data:**
1. Review NOAA Severe Weather Fact Sheet for your area (Mississippi): <http://www.ncddc.noaa.gov/activities/weather-ready-nation/news/>
  2. Review MEMA Hurricane and Tornado Information: <http://www.msema.org/>
  3. Find information on Home and Family Preparedness Planning at: <http://www.redcross.org/prepare/location/home-family>
  4. Find information on selecting a safe refuge in buildings at: <http://www.fema.gov/library/viewRecord.do?id=1563>
  5. Find information on securing buildings from high winds at: <http://www.fema.gov/library/viewRecord.do?id=3263>.
  6. Find information on Tornado Preparedness at <http://www.ready.gov/tornadoes>
  7. Find information on Thunderstorm and Lightning Preparedness at: <http://www.ready.gov/thunderstorms-lightning>
  8. Find information on lightning safety for boaters at: <http://www.nws.noaa.gov/os/lightning/resources/LightningFactsSheet.pdf>

## Tab A – Tornado Safety

**Source: Mississippi Emergency Management Agency Website: Preparedness** (<http://www.msema.org/be-prepared/tornados/>). The following are some tips to help you prepare your home and family for a tornado:

What to do if you are in your **home** during a Tornado:

- Go to the lowest level of the home, an inner hallway, or smaller inner room without windows, such as a closet or bathroom.
- Get away from windows and go to the center of the room. Avoid corners, because they tend to attract debris.
- Get under a sturdy piece of furniture, such as a workbench or heavy table.

If you are in a **mobile home**:

- Evacuate the mobile home, even if it is equipped with tie-downs. Take shelter in a building with a strong foundation, or if one is not available, lie in a ditch or low-lying area a safe distance away from the mobile home. Tornadoes cannot change elevation quickly enough to pick someone up out of a ditch, especially a deep ditch or culvert.

If you are at **work or school**:

- Go to the basement or to an inside hallway at the lowest level of the building.
- Avoid places with wide-span roofs, such as auditoriums, cafeterias, large hallways or shopping malls.
- Use your arms to protect your head and neck.

If **outdoors**:

- If possible, get inside a sturdy building with a concrete foundation.
- If shelter is not available, or there is no time to get indoors, lie in a ditch or low-lying area or crouch near a strong building.
- Be aware of the potential for flooding.

If you are in a **vehicle**:

- Never try to out drive a tornado in your vehicle. Tornadoes can change direction very quickly and can lift a vehicle and toss it in the air
- Get out of the vehicle and take shelter in a nearby building.
- If there is no time to get indoors, get out of the vehicle and lie in a ditch or low-lying area away from the vehicle.

## Hazard 3 - Oil Spill

### Scenario: Oil Spill

#### What you should do:

1. Report all oil spills that threaten state waterways or hazardous materials spills to the National Response Center at 1-800-424-8802 and 24-hours a day to the Mississippi State Warning Point at 1-800-222-6362. Notify appropriate MDMR personnel.
2. Contact the U.S. Coast Guard, NOAA Estuarine Reserves Division and NOAA Disaster Response Center, and other state/county agencies, as soon as possible after item 1 notifications (see Emergency Contacts List, Appendix B of this plan). Follow established emergency procedures and direction from lead response agency U.S. Coast Guard, EPA, MS Emergency Management Agency (MEMA), or MDMR. Note: MEMA serves as the coordination point between agencies for spills in Mississippi (<http://www.msema.org/>).
3. In the unlikely event that the Grand Bay NERR is responsible for a small oil spill on the water:
  - a. Contact HAZWOPER-trained NERR staff (Emergency Planner and Emergency Coordinator).
  - b. Stop or minimize the leak, if possible, using appropriate personnel protective equipment (PPE) and HAZWOPER trained personnel.
  - c. Contain the extent of the spill with oil boom on water, earthen dikes on land, and sorbent materials.
  - d. If there is a threat of fire or explosion, or no trained personnel are available at the reserve, call 9-1-1.
  - e. Coordinate with MDMR and U.S. Coast Guard representatives for spill clean-up.
4. If there is an oil spill on the water from external source within or threatening the Grand Bay NERR and personnel at the Reserve:
  - a. Notify the appropriate authorities (see item 1 above).
  - b. Evacuate for a safe distance and stay upwind of the spill if there is a potential toxic air hazard.
  - c. Identify priority natural resources for protection given spill location and current conditions; consult with lead response agency as directed by the MDMR.
  - d. Provide technical and logistical support to the Incident/Unified Command for fish and wildlife protection as directed by the MDMR or federal agency in charge if appropriate.
  - e. Provide personnel to assist the Mississippi Department of Environmental Quality (MDEQ) (state natural resource trustee) in conducting the Natural Resources Damage Pre-Assessment prior to spill impact, if so directed by MDMR.
  - f. Assist MDEQ in conducting the Natural Resources Damage Assessment (NRDA) following spill impact, if so directed by MDMR.

5. Document all activities and impacts for potential cost reimbursement.
6. Conduct incident debrief/lessons learned review, prepare After Action Report (Appendix K), if appropriate (for larger events).
7. Update this disaster response plan procedure and Reserve training, as necessary.

**What you can  
do now to  
reduce risk:**

1. Minimize on-site storage of oil/gas and promptly dispose of waste materials at approved disposal sites. Annually, identify and implement any mitigation actions (see Section 3.1 of DRP).
1. Strive to maintain two NERR staff that have HAZWOPER training.
2. Participate in the U.S. Coast Guard (USCG) Sector Mobile Area Committee periodically to support oil/hazardous materials (HazMat) preparedness and to ensure that updated data is provided for the USCG Area Contingency Plan for the Grand Bay NERR area.
3. Periodically, participate in local emergency planning committee (LEPC) meetings or other trainings/meetings to maintain currency on hazmat and oil spill risks, mitigation, and response measures for the Grand Bay NERR area.
4. Consider pre-identifying interested and capable staff in the MS Disaster Reservists Program: <http://www.msema.org/training/disaster-reservists/>, if appropriate (training required for qualifying and participating personnel). This program pre-identifies personnel with special skills and abilities to be called upon during disaster response situations.
5. Participate in oil spill and HazMat training and exercises with the County or other stakeholders, where appropriate and resources allow. For example, MEMA offers an array of training opportunities: <http://www.msema.org/training/>

**Where you can  
find more data:**

1. Become familiar with environmentally sensitive areas and protection strategies in U.S. Coast Guard Sector Mobile Area Contingency Plan at: <https://homeport.uscg.mil/mycg/portal/ep/portDirectory.do?tabId=1&cotpId=37>
2. Find information on Federal Region IV regional response protocols for natural resource trustees, shoreline cleanup, oil spills, and use of response technologies including dispersants, in-situ burning, and bioremediation at: <http://www.rrt4.nrt.org/>.
3. Maintain currency with State of Mississippi Emergency Response contacts and information at: <http://www.dmr.state.ms.us/emergency-contacts>

## Hazard 4 - Riverine Flooding

### Scenario: Riverine Flooding

- What you should do:**
1. Prior to flooding:
    - a. The duty officer (generally, the Emergency Planner) will monitor NOAA weather radio and/or other local weather forecasts for flash flood warnings. River Stages information is also available by phone at: 228.769.6508, Updated daily (Mon-Fri).
    - b. The duty officer will notify Grand Bay NERR Manager and staff of flash flood warnings.
    - c. Evacuate staff and visitors from flood-prone areas (Emergency Coordinator /NERR Manager makes decision; Emergency Planner assists and works with Administrative Assistant to document staff/visitors present).
    - d. If time permits, move critical equipment and vehicles in flood-prone areas to higher ground.
    - e. Secure and evacuate any buildings that are in the flood hazard area. Implement equipment shutdown and computer/data backup procedures. Move equipment to protected location or implement removal as part of evacuation if warranted.
    - f. Consider procuring and using sandbags to protect vulnerable buildings or areas.
  2. During the flood:
    - a. Do not attempt to cross flooded streams or roadways on foot or in vehicles. **Water is often moving faster than it appears** and there is a high risk of being swept away. Move to a safe area and call for help.
    - b. Request assistance via 9-1-1 for anyone who is stranded by flood waters.
  3. After the floodwaters recede:
    - a. Inspect buildings and equipment for damage.
    - b. Inspect shorelines for critical erosion.
    - c. Ensure electrical power, gas service, and water service are shut-off to any flood damaged buildings prior to re-entry. Obtain support for safe resumption of operations.
    - d. Inspect buildings and equipment for damage.
    - e. Initiate clean-up and repairs. The Facilities Manager will inspect and clear gutters and drains.
  4. Document all costs incurred in damage assessment and recovery for potential reimbursement or to guide repair efforts.
  5. Conduct incident debrief/lessons learned review and prepare an After Action Report (Appendix K), as appropriate (for larger events).
  6. Update this plan and training, as necessary.

- What you can do now to reduce risk:**
1. Ensure Grand Bay NERR Employee Emergency Contact List (Phone Tree) phone numbers are up-to-date. (Administrative Assistant maintains and distributes this list).
  2. Annually, identify and implement any mitigation actions (see Section 3.1 of DRP).
  3. Ensure all staff members have a personal Home and Family Preparedness Plan and Kit.
  4. Pre-identify flood risk zones and potential evacuation routes/high ground areas.

Review riverine flooding procedure with NERR staff annually.

5. Participate in training and exercises to improve preparedness for riverine flooding (coordinating with area response agencies/neighbors facilities and entities).
6. Monitor weather reports for flash flood warnings. Check MEMA's website for weather alerts: <http://www.msema.org/> and sign up for alerts.
7. Participate in NOAA Severe Weather Preparedness Week each year: <http://www.nws.noaa.gov/com/weatherreadynation/force.html> or MEMA training: <http://www.msema.org/training/>

**Where  
you can  
find  
more  
data:**

1. Review NOAA Severe Weather Fact Sheet for your area (Mississippi): <http://www.ncddc.noaa.gov/activities/weather-ready-nation/newis/>
2. Review Jackson County EMA web site updates and resources on hazards, evacuation routes, shelters: <http://www.co.jackson.ms.us/departments/public-safety/emergency-management.php>
3. Review MEMA Flood Information Links: <http://www.msema.org/be-prepared/floods/>
4. Find information on Home and Family Preparedness Planning at <http://www.redcross.org/prepare/location/home-family>
5. Find information on flood preparedness at: <http://www.ready.gov/floods>

## Hazard 5 - Invasive Species

### Scenario: Invasive Species

- What you should do:**
1. Identify any invasive species or symptoms that may indicate invasive species are present. Determine whether this is an “incident” or an “issue.”
    - a. An incident is an isolated introduction of a species that has yet to become established in the ecosystem.
    - b. An issue is ongoing challenge with an established nonindigenous species; for ongoing challenges, implement existing NERR efforts and programs to address invasive species, in cooperation with appropriate partner agencies.
  2. If an incident, notify MDMR, Office Director of Coastal Ecology and Gulf Coast Refuge Complex Manager. If an incident, proceed to item 3.
  3. Establish Incident Command.
  4. Implement established response procedure (e.g., a Rapid Response Plan or similar MDMR/NERR procedure (see links to an example MD plan and template at end of this hazard procedure).
  5. As necessary, obtain funding and establish agreements to execute the plan.
  6. Streamline the permit process, if applicable.
  7. Conduct training for team members.
  8. Conduct education and outreach.
  9. Implement species-specific eradication or control measures as identified in established plans (e.g., MDMR or other MS plans or a pre-developed Rapid Response Plan).
  10. Conduct research for improved rapid response.
  11. Revise the eradication or control measures based on research.
  12. Conduct monitoring for effectiveness.
  13. Demobilize when complete and monitor for species re-introduction.
  14. Prepare an After Action Report, if appropriate (for larger events) and identify lessons learned.
  15. Update this procedure and plan, as appropriate.

- What you can do now to reduce risk:**
1. Monitor Grand Bay NERR for introductions of invasive species.
  2. Note invasive species sightings in adjacent land and water and block potential routes of introduction.
  3. Monitor and take early action to control newly introduced species before they become established.
  4. Annually identify any needed mitigation measures (Section 3.1 of this plan).
  5. Conduct public outreach and education through on-going NERR programs to focus on preventing the introduction and transfer of invasive species into the NERR and surrounding environment. Communicate with responders to prevent transfers of invasive species during response actions.

**Where you  
can find  
more  
information:**

1. See MDMR information on Invasive Species:  
<http://www.dmr.state.ms.us/boating/invasive-species>
2. See USDA National Invasive Species Information Center information:  
<http://www.invasivespeciesinfo.gov/aquatics/detection.shtml>
3. See US Environmental Protection Agency (EPA) information on Invasive Species: [http://water.epa.gov/type/oceb/habitat/invasive\\_species\\_index.cfm](http://water.epa.gov/type/oceb/habitat/invasive_species_index.cfm)
4. Review NOAA Aquatic Invasive Species information:  
<http://www.research.noaa.gov/research/2007/ais.shtml>
5. Review and apply Maryland example of Rapid Response Planning for Aquatic Invasive Species (includes an example and a Word.doc Template)  
<http://www.mdsg.umd.edu/programs/gateway/invasives/rapidresponse/>

## Hazard 6 - Vessel Grounding

### Scenario: Vessel Grounding

- What you should do:**
1. If a vessel is observed or reported as being aground in the Grand Bay NERR:
    - a. If a small pleasure craft, ask if they need assistance contacting the U.S. Coast Guard (USCG) or a vessel towing service.
    - b. For any large or commercial vessel, contact the USCG Marine Safety Office for the Coastal Zone (Mobile, AL) at: 334-441-5121.
    - c. Provide as much information as is readily available to support the response:
      - Vessel name, description, and location
      - Number of persons on-board
      - Signs of damage, fire, leaking oil, etc.
      - Observed weather conditions
  2. If oil or hazardous materials (HazMat) is observed leaking, report all spills that threaten state waterways or HazMat spills to the National Response Center at 1-800-424-8802 and the MDMR Oil Spill Response Environmental/Community Hotline at 1-866-448-5816 or 24-hours per day to the Mississippi State Warning Point at 1-800-222-6362. Notify appropriate MDMR personnel.
  3. If directed by MDMR, assign a NERR staff to the U.S. Coast Guard or other agency's Incident Command to support response efforts and provide data and consultation on NERR sensitive areas and protection strategies.
  4. Be prepared to evacuate the premises should any imminent risks be presented to personnel safety and health (see Appendix L, Evacuation Maps and Procedures).
  5. Assist the Incident Commander, as requested, with Grand Bay NERR staff technical competencies and resources, if so directed by MDMR (e.g., consulting on resources at risk, priorities and tides; sharing equipment; or providing support for pre- and post-event NRDA efforts led by MDEQ).
  6. Monitor for impacts to Grand Bay NERR natural resources. Report natural resource impacts to MDEQ.
  7. Document all injuries and damages for potential legal claims or cost reimbursement or to identify natural resource restoration needs.
  8. Conduct incident debrief/lessons learned review, prepare an After Action Report (Appendix K), as needed (for larger events).
  9. Update this plan and training as necessary.

- What you can do now to reduce risk:**
1. Strive to maintain at least two Reserve staff that have HAZWOPER training.
  2. Periodically participate in the USCG Sector Mobile Area Committee for oil/HazMat preparedness meetings and exercises.
  3. Review USCG Mobile Area Geographic Response Plan data and participate in updates to this data and associated protection strategies for areas within the Grand Bay NERR boundaries (see Maps included in Appendix L).
  4. Participate in area boating safety or emergency response training and consider hosting safe boating practices training for area residents at the NERR in cooperation with area stakeholders.

**Where you  
can find more  
data:**

1. Review and update (as necessary) information on environmentally sensitive areas and protection strategies in USCG Sector Mobile Area Contingency Plan at <https://homeport.uscg.mil/mycg/portal/ep/portDirectory.do?tabId=1&cotpId=37>
2. Find information on Federal Region IV regional response team protocols for natural resource trustees, shoreline cleanup, and use of response technologies including dispersants, in-situ burning, and bioremediation at: <http://www.rrt4.nrt.org/>.
3. Review the Regional Response Team (Region IV) pamphlet, “Vessel Groundings in the Coastal Environment” and become familiar with associated contacts for Grand Bay NERR area (NRC, USCG Marine Safety Office, etc.): [http://www.nrt.org/production/NRT/RRTHome.nsf/Allpages/newrrt\\_iv-pamphlets.htm](http://www.nrt.org/production/NRT/RRTHome.nsf/Allpages/newrrt_iv-pamphlets.htm) (see Vessel Groundings in the Coastal Environment link)
4. Read about seagrass impacts and restoration efforts following vessel groundings: <http://sanctuaries.noaa.gov/science/conservation/ncontrol.html>

## Hazard 7 - Hazardous Materials Spill (Industrial, Pipelines, Rail Lines)

### Scenario: Hazardous Material Spill

#### What you should do:

1. Report all Hazardous Material (HazMat) spills that threaten state waterways or HazMat spills to the National Response Center at 1-800-424-8802 and the MDMR's Oil Spill Response Environmental/Community Hotline: 1-866-448-5816 or 24-hours per day to the Mississippi State Warning Point at 1-800-222-6362. Notify appropriate reserve staff and other MDMR personnel.
2. Contact USCG, NOAA ERD, other state/county agencies, as soon as possible after item 1 notifications. Follow established emergency procedures and direction from lead response agency U.S. Coast Guard, EPA, MDMR, or MDEQ. Note: MEMA serves as the coordination point between agencies for spills in Mississippi. (<http://www.msema.org/>)
3. Grand Bay NERR maintains a small amount of HazMat in a laboratory locker. If there is a spill of laboratory HazMat materials:
  - a. Evacuate the area if there is a toxic air hazard; if you are not sure, evacuate. If time allows, turn on the fume hoods and close the laboratory doors as you evacuate.
  - b. Follow laboratory protocols for clean-up using appropriate personnel protective equipment (PPE) and HAZWOPER trained personnel (Emergency Planner and Emergency Coordinator).
  - c. Call 9-1-1 if emergency assistance is needed.
4. In the unlikely event that the Grand Bay NERR is responsible for HazMat spill:
  - a. Contact NERR HAZWOPER-certified NERR staff (Emergency Planner and Emergency Coordinator).
  - b. Stop or minimize the leak, if possible, using appropriate personnel protective equipment (PPE) and HAZWOPER trained personnel.
  - c. Contain the extent of the spill with boom (on water), earthen dikes or sorbent materials (on land or in boat); properly manage and dispose of these materials. If there is a threat of fire or explosion, or no trained personnel are available at the reserve, call 9-1-1.
  - d. Coordinate with responding agency representatives for spill clean-up and further direction.
5. If there is an oil or HazMat spill from external source within or threatening the Grand Bay NERR:
  - a. Notify the appropriate authorities (see item 1 above).
  - b. Evacuate for a safe distance and stay upwind of the spill if there is a potential toxic air hazard, risk for explosion or other concern (use the Emergency Contact Phone Tree to contact staff, as appropriate).
  - c. Identify priority natural resources for protection given spill location and current conditions.
  - d. Provide technical and logistical support to the Incident/Unified

Command for fish and wildlife protection as directed by the MDMR or federal agency in charge if appropriate.

- e. Assist MDEQ (state natural resource trustees) in conducting the Natural Resources Damage Pre-Assessment prior to spill impact, if so directed by MDMR.
  - f. Assist MDEQ in conducting the Natural Resources Damage Assessment (NRDA) following spill impact, if so directed by MDMR.
6. Document all activities for potential cost reimbursement.
  7. Conduct incident debrief/lessons learned review, prepare an After Action Report (Appendix K) if needed, and update this plan and training as necessary.

**What you can  
do now to  
reduce risk:**

1. Maintain the Reserve Emergency Contact Phone Tree (Administrative Assistant maintains and distributes this list).
2. Minimize on-site storage of HazMat and promptly dispose of waste materials at approved disposal sites. Ensure HazMat is stored properly with material safety data (MSDS) available.
3. Strive to maintain at least two NERR staff that have HAZWOPER training.
4. Periodically participate in the U.S. Coast Guard (USCG) Sector Mobile Area Committee for oil/HazMat preparedness and ensure that updated data is provided for the USCG Area Contingency Plan.
5. Periodically, participate in local emergency planning committee (LEPC) meetings or other trainings/meetings to maintain currency on hazmat and oil spill risks, mitigation, and response measures for the Grand Bay NERR area: <http://www.jclepc.org/>
6. Participate in oil spill and HazMat training and exercises with area stakeholders, where appropriate and resources allow. For example, area industry partners with operations, pipelines and rail lines in the area (see those listed in Appendix G). Also, MEMA officers an extensive array of training opportunities: <http://www.msema.org/training/>

**Where you  
can find more  
data:**

1. Ask to review safety plans and procedures, and participate in exercises or training, sponsored by industrial and rail companies that can impact the NERR (see Appendix G list of planning stakeholders and Appendix J exercise plan).
2. Review County information (links to FEMA Ready.gov) information on hazmat spills: <http://www.ready.gov/hazardous-materials-incidents>
3. Learn about LEPC and attend periodic meetings. Information is at: <http://www.jclepc.org/>
4. Find information on environmentally sensitive areas and protection strategies in USCG Sector Mobile Area Contingency Plan at (website address includes "Florida" but site includes Mississippi): <http://ocean.floridamarine.org/ACP/MOBACP/Documents.html>

5. Find information on Federal Region IV regional response protocols for natural resource trustees, shoreline cleanup, oil spills, and use of response technologies including dispersants, in-situ burning, and bioremediation at: <http://www.rrt4.nrt.org/>.
6. Maintain currency with State of Mississippi Emergency Response contacts and information at: <http://www.dmr.state.ms.us/emergency-contacts>

## Hazard 8 - Wildland Fire (and Associated Building Impacts)

**Scenario: Wildland Fire**

- Jurisdiction** All wildland fire response is under jurisdiction of Gulf Coast Refuge Complex (U.S. Fish and Wildlife Service). The Grand Bay NERR Stewardship Associate has a working relationship with the Mississippi Sandhill Crane National Wildlife Refuge (MSCNWR) Fire Team. Under this jurisdictional structure, Grand bay NERR will implement the following:
- Issue a Delegation of Authority letter to the Fire Management Office at the Gulf Coast Complex for Type 4 or 5 fires
  - Issue a Delegation of Authority letter to the Incident Command of each Type 3 or higher incident occurring on NERR-owned lands.
  - Provide resource advisors to initial attach Incident Command for every fire on NERR-owned lands
- What you should do:**
1. Monitor local weather forecasts and the Mississippi Forestry Commission (MFC) Wildfire Risk and fire weather links: <http://www.mfc.ms.gov/index.php>
  2. Notify all Grand Bay NERR staff when wildfire risk conditions are present or if a building fire is observed. In the event of fire on or near Grand Bay NERR lands, notify (9-1-1) and all Grand Bay NERR staff:
    - a. Buildings - Depending on the severity of the fire, notification of the Fire Department will occur as the building is evacuated (dial 9-1-1). The NERR Manager or his/her designee will direct actions until local fire department arrives (Forts Lake Fire Department). The evacuation point for a building fire is at the North end of the visitor parking lot unless directed otherwise.
    - b. Wildfire –Notify MSCNWER Dispatch at 228-497-5780, Extension 21 if within one mile of Refuge boundary and other parties, as appropriate on the Emergency Contact List, Appendix B of this plan. Evacuate the buildings and reserve, as appropriate. The NERR Manager or designee will issue evacuation orders and provide direction until local fire department or responders arrive. Note: evacuation points may be off site for wildfire.
  3. Document staff and visitors present, if applicable (pre-evacuation).
  4. Assess the fire hazard area and available evacuation routes.
  5. Evacuate staff, visitors, and researchers from the immediate fire hazard area, including:
  6. If so directed by MDMR, assign a Grand Bay NERR liaison to the Wildfire Incident Commander to provide technical and consultation assistance regarding Grand Bay NERR resources and needs.
  7. If so directed by MDMR, support consultations with the Incident Commander, determine if a larger evacuation is necessary.
  8. If so directed by MDMR, assist the Incident Commander as requested within Grand Bay NERR staff technical competencies.
  9. Monitor on-going wildfire risk and suppression efforts.
  10. Upon conclusion of the fire, assess the wildfire damages. Remain alert for re-ignition and hotspots.

11. Assess buildings and areas of Grand Bay NERR for safe re-entry and restart operations upon direction by Incident Commander.
12. Document all injuries and damages for potential legal claims or cost reimbursement. Document staff and visitors post-emergency/evacuation.
13. Conduct incident debrief/lessons learned review and prepare an After Action Report for major fire incidents (Appendix K), as appropriate (for larger events).
14. Update this plan and Reserve training, as necessary.

**What you  
can do now  
to reduce  
risk:**

1. Periodically, conduct a Wildfire Risk Assessment around Grand Bay NERR structures. Conduct an annual building Fire Drill.
2. Maintain training currency for wildfire trained personnel and a current list of trained personnel. Training requirements are summarized in the Appendix J Training Plan.
3. Maintain fire suppression equipment listed in Appendix C (Stewardship).
4. Implement mitigation strategies including maintaining defensible space around Grand Bay NERR structures and fuel management programs on Grand Bay NERR lands. Prescribed Fires are managed by the MS Sandhill Crane NWR. Review mitigation actions annual (Section 3.1 of this plan).
5. Include public education and outreach on fire prevention in Grand Bay NERR programs.
6. Review current evacuation plans and update periodically (see Appendix L for building evacuation routes).
7. Monitor wildfire risk conditions at: <http://www.mfc.ms.gov/index.php>
8. Encourage Grand Bay staff to prepare family preparedness plans.
9. Mississippi Department of Health information at:  
[http://msdh.ms.gov/msdhsite/\\_static/44,4800,122,218.html](http://msdh.ms.gov/msdhsite/_static/44,4800,122,218.html)
10. FEMA hazard, emergency supply recommendations, and communications plan information at: <http://www.ready.gov/wildfires>

**Where you  
can find  
more data:**

1. Mississippi Forest Commission Fire Information: <http://www.mfc.ms.gov/facts-n-data.php>
2. FEMA information on preparedness for wildfire at:  
[http://www.usfa.fema.gov/citizens/home\\_fire\\_prev/wildfire/](http://www.usfa.fema.gov/citizens/home_fire_prev/wildfire/)

Reference: Fire Evacuation Procedures and Maps attached in Appendix L.

## Hazard 9- Medical Emergency

### Scenario: Medical Emergency

#### What you should do:

1. If a medical emergency occurs in or around the NERR facility/main building.
  - a. Remain calm. Assess the situation, making sure the scene is safe.
  - b. Determine if the incident requires external medical assistance or if the victim can safely be transported for help to an area hospital (see attached map of nearest hospital/urgent care). If you are not sure, get external help by calling 9-1-1.
  - c. When calling 9-1-1, provide the following information:
    - Number and location of victim(s)
    - Nature of injury or illness
    - Hazards involved
    - Nearest entrance (emergency access point)
  - d. Alert trained personnel to implement CPR/First Aid until help arrives.
  - e. Do not move the victim unless the victim's location is unsafe. Stay with the victim and help him or her remain calm.
  - f. Control access to the scene.
  - g. Notify the NERR Manager or another emergency team member of the situation if they are available.

2. If a medical emergency is reported elsewhere in the NERR, dial 9-1-1 and request an ambulance. Provide the following information:
  - Number and location of victim(s)
  - Nature of injury or illness
  - Hazards involved
  - Nearest entrance (emergency access point)

Make sure to provide clear and concise information on your location if you are not in the main facility. If access to your location is restricted by road, provide alternate access information or ask for direction from 911 personnel. If appropriate, send someone to meet the ambulance at the main road and guide them to the incident location.

3. Alert trained employees (members of the medical response team/CPR/First Aid trained) to respond to the victim's location and bring a first aid kit or the Automated External Defibrillator (AED, located in the Visitor Center). The NERR Manager or his designee maintains a list of trained personnel.
4. If first aid can safely be implemented, use NERR first aid tools to administer immediate help. Take "universal precautions" to prevent contact with body fluids and exposure to blood borne pathogens.
5. Try to keep the victim calm if they are conscious. Avoid unnecessary conversation about the condition of the victim.
6. Implement CPR/First Aid until help arrives. Note that the response time from the nearest hospital to the NERR main facility will be between 15 and 40 minutes.
7. Assist the response personnel when they arrive. Provide them with map to nearest hospital, if needed.
8. When the victim(s) have been supported. Assess if the threat that caused the incident remains and address it with appropriate support (e.g., power lines,

slipping hazard, etc.). If evacuation is warranted refer to the Fire Evacuation Plan and Maps included in Appendix L, Maps and Other Information.

9. After the emergency, complete an Incident/Accident Report.
1. Maintain first aid kits in appropriate locations. Maintain and test AED unit in Visitor Center as recommended by manufacturer.
2. Provide basic CPR/First Aid Training to staff annually, including review of this procedure. Pre-identify any staff or volunteer medical conditions (e.g., allergies) (note: medical condition information will be collected on a voluntary basis; not required to be provided).
3. Review the emergency procedure included from the Wildfire Protection Plan and associated emergency numbers and hospitals provided at the end of this procedure (including numbers for Medivac and additional area hospitals).
4. Annually review and revise this procedure with Red Cross or external responder personnel, integrating expert input, new information, and lessons learned.
5. Consider implementing Wilderness Safety Training periodically (already performed at Grand Bay?).
6. Develop an alternate evacuation route procedure working with local hospitals and police/fire department personnel.
7. Participate in area training or host a training/exercise related to a Medical Emergency situation at the NERR.

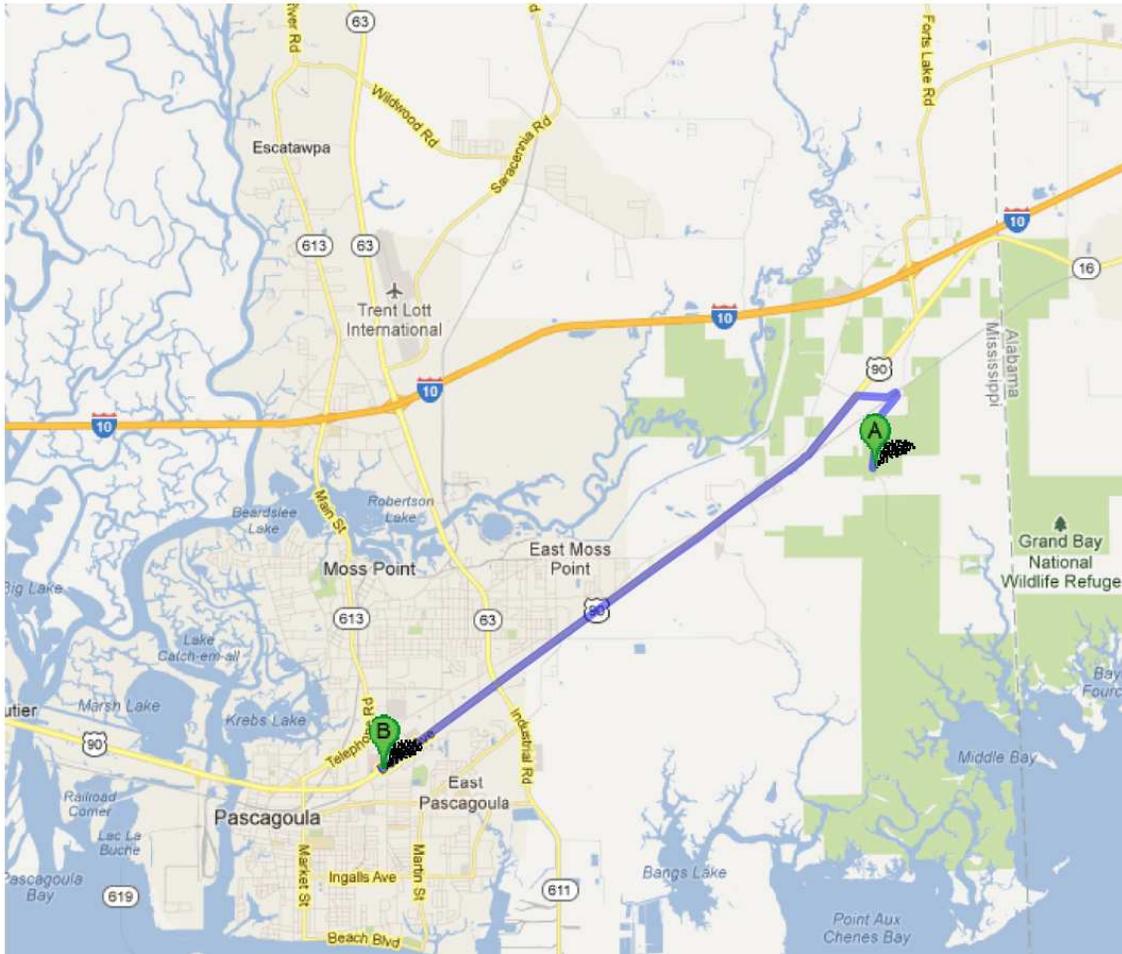
**What you can  
do now to  
reduce risk:**

**Where you can  
find more data:**

1. Review information available from FEMA at:  
[http://www.ready.gov/sites/default/files/documents/files/EmergencyResponsePlan\\_Oct2012.pdf](http://www.ready.gov/sites/default/files/documents/files/EmergencyResponsePlan_Oct2012.pdf)
2. Review Centers for Disease Control information on preparedness planning for businesses and industry (including plans and evacuation drills) at:  
<http://www.cdc.gov/niosh/topics/emres/business.html>

See attached map, route information, and evacuation/hospital numbers.

## Hospital Route Map



Singing River Hospital: Approximately 14 minutes. Phone number 228-809-5000. Additional areas hospitals, capabilities and medivac resources are listed on the next page as provided by Jay MacIlvain from another plan for the area.

**A** 6005 Bayou Heron Rd, Moss Point, MS 39562

- |   |                           |
|---|---------------------------|
| 1. Head <b>north</b> on <b>Bayou Heron Rd</b> toward <b>Missala Rd E</b><br>About 2 mins      | go 1.0 mi<br>total 1.0 mi |
| 2. Turn left onto <b>Missala Rd</b>   | go 190 ft<br>total 1.0 mi |
| 3. Turn left onto <b>Pecan Rd</b><br>About 1 min  | go 0.5 mi<br>total 1.6 mi |
| 4. Take the 2nd left onto <b>US-90 W</b><br>Destination will be on the right<br>About 10 mins | go 7.7 mi<br>total 9.3 mi |

**B** **Singing River Hospital**  
2809 Denny Ave, Pascagoula, MS 39581



Additional information for Grand Bay NERR area (provided to support evacuation/calls for help).

Ambulance Services	Location	Phone	Paramedics
Acadian - Ground	Throughout Jackson County	911 access	Yes
Life Flight	Mobile AL Airport	TBD/Acadian	Yes

**From Wildfire Plan:** (aligns with DRP procedure above)

1. Ensure scene safety
2. Contact supervisor, to modify operations.
3. Begin 1st aid within your training and capabilities.
4. Remember: (1) Airway (2) Breathing (3) Circulation (4) Spinal Stabilization (if possible)
5. All personnel prepare to assist EMT's with patient care and transport as directed.

Hospitals	Location	Phone	Helipad	Burn Center	Distance
Ocean Springs	Hwy 90 and Ocean Springs Road	228-818-1111	Yes	No	24.5 mile
Singing River	Hwy 90 and Hospital Road	228-809-5000	Yes	No	7.7 mile
USA Medical Center	2451 Fillingim Street, Mobile AL 36617	251-471-7000	Yes	Yes	31.7 mile



## Appendix E - Continuity of Operations Planning (COOP)

### Succession: NERR Leadership for Disaster Response

1. NERR Manager (Emergency Manager)
2. Stewardship Coordinator (Emergency Coordinator)

### Continuity: Essential Functions

Essential Function	Consequence of Interruption	Continuity Strategy	Continuity Assigned To
Support visitor access and use of Main Building and facilities	Loss of visitors' services due to impacts or injuries at the Main Building (including the Visitor's Center)	<p>Implement periodic training and awareness of hazard procedures</p> <p>During event, evacuate visitors and implement closure/protection measures (e.g., those identified in Hurricane Procedures).</p>	<p>NERR Manager (decisions) Emergency Coordinator (Stewardship Manager) (coordination of personnel) Facilities Manager (facility shut down steps)</p>
Vehicles and boats for research.	Research and observation delayed until alternate transportation arrange	Evacuate vehicles and boats from harm's way in advance of a known threat.	Emergency Planner – maintain plans for equipment protection
Access to and use of research and monitoring data	Loss of monitoring program and individual researcher data may impact overall success of Grand Bay NERR mission.	<p>4 monitoring stations at the Grand Bay Reserve are telemetered and automatically upload data to the NERR Central Data Management Office.</p> <p>When CDMO telemeters are not working, Reserve collects data manually and loads to CDMO and Grand Bay NERR local servers. Local servers are backed up weekly to MDMR central servers. Discourage use of computers and external hard drives for data backup.</p> <p>Individual researchers and NERR personnel encouraged to work from local area network (servers), which are backed up weekly to MDMR central servers in Biloxi, MS. Hard copy data sheets scanned and stored to local area network.</p>	<p>Lead: Stewardship Coordinator (Emergency Coordinator) – maintain procedures and communication on data continuity precautions</p> <p>Support: Individual Program leads and Facilities Manager (for IT support and cases of facility closure/shut down)</p>



Essential Function	Consequence of Interruption	Continuity Strategy	Continuity Assigned To
<p>Maintain communication capabilities to support response needs and return to operations.</p>	<p>Loss of communication with field teams and outside to request emergency assistance.</p>	<p>Coordinate with U.S. Fish and Wildlife Service. NERR and FWS each have a phone switchboard/ computerized phone routing system. Communicate on how to share resources if one system is lost. Also consider pre-system jack for standard phone as a backup.</p> <p>Maintain phone tree with cell phone numbers and rely on cell phones for communication with field, as needed.</p> <p>Maintain and use battery powered handheld radios. Check batteries are charged when potential events pending (storms); ensure facility generator is maintained and fueled for emergency power during hazard events.</p>	<p>Emergency Coordinator (Stewardship Coordinator)</p> <p>Administrative Assistant (maintain phone tree) and share with relevant personnel.</p> <p>Emergency Planner (Stewardship Associate) (maintain radios and non-land line communication tools)</p> <p>Facilities Manager (maintain emergency generator and fuel – support facility shut down when needed)</p>
<p>Protections of specimens for research and stewardship efforts</p>	<p>Loss of materials collected to support research and stewardship projects and mission</p>	<p>Maintain emergency generator and ensure prepared to provide electricity to laboratory refrigerators and vital equipment during facility shut down, including: (1) check fuel for generator, (2) maintain generator and test as specified by manufacturer</p>	<p>Maintenance Supervisor</p>

**Continuity: Facilities** - In the event of a significant hazard that requires evacuation of Grand Bay NERR facilities, staff will evacuate to their homes or an alternate safe location. They will check-in daily with the NERR Emergency Coordinator or NERR Stewardship Coordinator or via the Emergency Employee Contact List (maintained by the Administrative Assistant) for assignments to work from home or an alternate designated facility until it is safe to return to the office. In the event that facility damage precludes return to Grand Bay facilities, the NERR Manager will consult with Mississippi Department of Marine Resources (MDMR) management to establish alternate worksite arrangements.



**Training and Exercises** - Grand Bay NERR staff should review and drill the Hurricane Hazard Procedure (Appendix D) at least once per year. At the start of hurricane season, the NERR staff will review the Hazard Procedure (Appendix D) at a staff meeting. An actual evacuation of people and preparation of equipment in preparation for a potential or actual tropical storm or hurricane may be substituted for the annual drill.

## Appendix F - Hazard Identification and Risk Assessment

Hazard	Potential Impacts [Focused on National Estuarine Research Reserve (NERR)]								Probability Indicator (0 to 1)	Potential Impact Indicator (0 to 1)	Probability Weight	Potential Impact Weight	Overall Ranking	Relative Priority
	Life	Health	Property	Environment		Economy								
				Physical	Biological	NERR	Natural Resources	Local/Area Business						
Hurricane	3	3	3	1	1	2	2	3	1	0.75	50%	50%	88	High
Severe Storms	2	2	2	1	1	1	1	1	0.75	0.46	50%	50%	60	High
Oil Spill	1	2	2	2	2	2	3	2	0.5	0.67	50%	50%	58	Medium
Riverine Flooding	2	1	2	2	1	1	1	2	0.5	0.50	50%	50%	50	Medium
Invasive Species	1	1	1	2	2	2	2	1	0.5	0.50	50%	50%	50	Medium
Vessel Grounding	1	1	2	1	2	2	2	1	0.5	0.50	50%	50%	50	Medium
HazMat (Industry) Spill	1	2	1	1	2	2	2	1	0.5	0.50	50%	50%	50	Medium
Wildland Fire	1	2	2	1	1	2	2	1	0.5	0.50	50%	50%	50	Medium
Structure Fire	2	2	1	1	1	2	1	1	0.5	0.46	50%	50%	48	Medium
Medical Emergency	3	1	1	1	1	1	1	1	0.5	0.42	50%	50%	46	Medium
HazMat (Rail) Spill	2	2	1	1	1	1	1	1	0.5	0.42	50%	50%	46	Medium
Earthquake	2	1	3	1	1	1	1	1	0.25	0.46	50%	50%	35	Low
Tornado*	2	1	3	1	1	1	1	1	0.25	0.46	50%	50%	35	Low
Aircraft Crash	2	1	1	1	1	1	1	1	0.25	0.38	50%	50%	31	Low
Law Enf. Emergency	2	1	1	1	1	1	1	1	0.25	0.38	50%	50%	31	Low
UXO/Live Fire	1	1	1	1	1	1	1	1	0.25	0.33	50%	50%	29	Low



**Potential Impact Descriptions**

Life	Loss of human life [staff, visitors, researchers (registered, unregistered), persons working or recreating within NERR boundaries].
Health	Human Injury or illness [risk to staff, visitors, researchers (registered, unregistered), persons working or recreating within NERR boundaries]
Property	Damage to buildings and infrastructure (buildings, roads, roofs, vehicles, boats, piers, transformers, power lines, etc.)
<u>Environment</u>	<u>Impacts to the environment</u>
Physical	Coastline, cultural resources, wetlands, barrier islands, rivers, other landforms and waterways
Biological	Animal and plant life (sea grass, protected species, reefs, plankton, etc.)
<u>Economy</u>	<u>Economy considered at three levels</u>
NERR	Impacts to NERR operations and ability to accomplish its mission - research, stewardship, education, outreach
Natural Resources	Impacts to natural resources protected by the NERR in terms of aesthetics, fishing, and other economic uses
Local/Regional Resources	Impacts to NERR natural resources that have an impact on local/regional economy - hotels, gas stations, shops, etc. tied to tourism/fishing/recreational/natural resource driven economy

**Impact Legend**

0 = No Potential Impact

1 = Minimum Potential Impact: little to no potential for loss of life; minor health impacts ( injury, illness), few and minor property impacts (no major repairs needed; no significant impact to operations); injury to environment within range of natural impacts, total recovery expected without human intervention; minor damage to economy (little noticeable impact, short term return to normal economic conditions)

2 = Moderate Potential Impact: potential for loss of life; potential for some health impacts (sickness and injury causing need for first aid; injury to environment reversible with human intervention, no permanent loss; moderate damage to economy (noticeable short- to mid-term impact, requiring some time for recovery)

3 = Major Potential Impact: significant potential for loss of life; major potential for health impacts (sickness and injury, requiring EMT or hospitalization); major potential property losses (requiring replacement before resuming operations); 3. irreversible injury to or loss of environmental resource; not recoverable even with human intervention; major damage to economy (significant impact, long-term to recover and requiring outside assistance)



### **Probability Indicate Legend**

0 = Does not occur

0.25 = Has not occurred but the potential exists

0.5 = Occurred once in recorded history or has not happened but climate change is increasing the future potential

0.75 = Occurred several times in recorded history or occurred once and climate change is increasing the future potential

1 = Occurs chronically/regularly and climate change is increasing future potential

### **Priority Ranges**

Low = 0 to 40

Medium = 41 to 60

High = 61 and above



## Appendix G - Disaster Management Planning Stakeholders

Name	Org./Agency	Title	Address	Office Phone/ Cell Phone	Email	Notes
David Ruple	MDMR, Grand Bay NERR	Manager	6005 Bayou Heron Road, Moss Point, MS 39562	228-475-7047	<a href="mailto:David.Ruple@dmr.ms.gov">David.Ruple@dmr.ms.gov</a>	Attended DRP Workshop
James McClelland	FWS – MS Sandhill Crane Refuge	Complex Law Enforcement Officer	7200 Crane Lane Gautier, MS 39553	228-217-0751	<a href="mailto:James_McClelland@fws.gov">James_McClelland@fws.gov</a>	Attended DRP Workshop
Matt Chasse	NOAA Estuarine Research Div.	Program Specialist	1305 E West Hwy #13632 Silver Spring, MD 20910	301-563-1198	<a href="mailto:matt.chasse@noaa.gov">matt.chasse@noaa.gov</a>	Attended DRP Workshop
Charlie Henry	NOAA Disaster Response Center	Director	7344 Zeigler Blvd., Mobile, AL 36608	251-544-5006 (general)	<a href="mailto:Charlie.henry@noaa.gov">Charlie.henry@noaa.gov</a>	Attended DRP Workshop
Paul Ricketson	USCG Sector Mobile	Not provided	1500 15Th St., Brookley Complex, Mobile, AL 36615-1300	251-441-6857	<a href="mailto:Paul.B.Ricketson@uscg.mil">Paul.B.Ricketson@uscg.mil</a>	Attended DRP Workshop
To be added	EPA	To be added	To be added	To be added	To be added	To be added
To be added	United States Army Corps of Engineers (ACOE)	To be added	To be added	To be added	To be added	
Donald Langham	Jackson County EMA	Director	600 Convent St., Pascagoula, MS	228-769-3111	<a href="mailto:Donald_Langham@co.jackson.ms.us">Donald_Langham@co.jackson.ms.us</a>	Attended DRP Workshop
Not yet identified	Jackson County Health Department & Environment	Not yet identified	4600 Vega Street Pascagoula, MS 39581	Phone: 228-762-1117; Env. Office: 228-762-1173	<a href="http://msdh.ms.gov/msdhsite/static/19.816.166.html#Jackson">http://msdh.ms.gov/msdhsite/static/19.816.166.html#Jackson</a>	
Caroline Nelson	MEMA	Area Coordinator	P.O. Box 5644 Pearl, MS 39288	601-398-6881	<a href="mailto:CNelson@mema.ms.gov">CNelson@mema.ms.gov</a>	Attended DRP Workshop
Earl Etheridge	MDEQ Office of Pollution Control Emergency Services Division	Emergency Response	P. O. Box 2261 Jackson, MS 39225	228-326-6401	<a href="mailto:Earl_Etheridge@deq.state.ms.us">Earl_Etheridge@deq.state.ms.us</a>	Attended DRP Workshop
Larissa Graham	MDMR GB NERR	CTP Coordinator	6005 Bayou Heron Road, Moss Point, MS 39562	228-475-7047	<a href="mailto:Larissa.graham@dmr.ms.gov">Larissa.graham@dmr.ms.gov</a>	Attended DRP Workshop



Name	Org./Agency	Title	Address	Office Phone/ Cell Phone	Email	Notes
Will Underwood	MDMR GB NERR	Stewardship Coordinator	6005 Bayou Heron Road, Moss Point, MS 39562	228-475-7047	<a href="mailto:Will.Underwood@dmr.ms.gov">Will.Underwood@dmr.ms.gov</a>	Attended DRP Workshop
Mark Woodrey	GB NERR	Research Coordinator	6005 Bayou Heron Road, Moss Point, MS 39562	228-475-7047	<a href="mailto:Msw103@ra.msstate.edu">Msw103@ra.msstate.edu</a>	Attended DRP Workshop
Jay McIlwain	MDMR GB NERR	Stewardship Associate	6005 Bayou Heron Road, Moss Point, MS 39562	228-475-7047	<a href="mailto:Jay.McIlwain@dmr.ms.gov">Jay.McIlwain@dmr.ms.gov</a>	Attended DRP Workshop
Ann Weaver	NOAA GCC SC	Program Training Specialist	Not provided	228-688-2061	<a href="mailto:Ann.Weaver@noaa.gov">Ann.Weaver@noaa.gov</a>	Attended DRP Workshop
Marian Hanisko	NOAA GC CSC	Facilitator	Not provided	228-818-8840	<a href="mailto:Marian.Hanisko@noaa.gov">Marian.Hanisko@noaa.gov</a>	Attended DRP Workshop
Tony Wilder	FWS – MS Sandhill Crane Refuge	Commander South Incident Command Team	7200 Crane Lane Gautier, MS 39553	228-497-5780 ext. 22	<a href="mailto:Tony_Wilder@fws.gov">Tony_Wilder@fws.gov</a>	Attended DRP Workshop
Jan Boyd	MDMR	Director Coastal Ecology	1141 Bayview Avenue, Biloxi, MS 39530	228-523-4102	<a href="mailto:Jan.Boyd@dmr.ms.gov">Jan.Boyd@dmr.ms.gov</a>	Attended DRP Workshop
Lt. Patrick Levine	MDMR	Marine Patrol	1141 Bayview Avenue, Biloxi, MS 39530	228-760-0502	<a href="mailto:Patrick.Levine@dmr.ms.gov">Patrick.Levine@dmr.ms.gov</a>	Attended DRP Workshop
Barry Cumbest	Jackson County Board of Supervisors	District 1 Supervisor	P.O. Box 998, Pascagoula, MS 39568	228-769-3403	<a href="mailto:Barry_Cumbest@co.jackson.ms.us">Barry_Cumbest@co.jackson.ms.us</a>	Attended DRP Workshop
Earl Etheridge	Jackson County Fire District	Fire Coordinator	P.O. Box 998, Pascagoula, MS 39568	228-769-3110	<a href="mailto:Earl_Etheridge@co.jackson.ms.us">Earl_Etheridge@co.jackson.ms.us</a>	Attended DRP Workshop
Jeff Mattison	Jackson County Fire District	Director of County Fire District	P.O. Box 998, Pascagoula, MS 39568	228-219-9920	<a href="mailto:Jeff_Mattison@co.jackson.ms.us">Jeff_Mattison@co.jackson.ms.us</a>	At DRP Workshop.
Chad Maxwell	Jackson County Fire District	Fire Fighter	P.O. Box 998, Pascagoula, MS 39568	228-229-7475	<a href="mailto:ChadMaxwell925@gmail.com">ChadMaxwell925@gmail.com</a>	At DRP Workshop.
Roger Gibson	Jackson County Fire District	Fire Fighter	P.O. Box 998, Pascagoula, MS 39568	228-990-8503	<a href="mailto:bigrog392@yahoo.com">bigrog392@yahoo.com</a>	At DRP Workshop.



Name	Org./Agency	Title	Address	Office Phone/ Cell Phone	Email	Notes
Sgt. Jeremy Skipper	Jackson County Sheriff Office	Sergeant	P.O. Box 998, Pascagoula, MS 39568-0998	228-762-4986	Not yet identified	At DRP Workshop.
Terry Jackson	Jackson County EMA	Deputy Fire Coordinator	P.O. Box 998, Pascagoula, MS 39568	228-219-8006	<a href="mailto:Terry.Jackson@co.jackson.ms.us">Terry.Jackson@co.jackson.ms.us</a>	At DRP Workshop.
Doug Winters	Forts Lake Volunteer Fire Dept.	Fire Chief	10701 Forts Lake Road, Moss Point, MS 39562	228-474-2424/228-623-5398	<a href="mailto:Doug.Winters@gmail.com">Doug.Winters@gmail.com</a> OR <a href="mailto:Doug.Winters401@gmail.com">Doug.Winters401@gmail.com</a>	At DRP Workshop
Brandon Saska	Forts Lake Volunteer Fire Dept.	Fire Fighter	10701 Forts Lake Road, Moss Point, MS 39562	228-623-8032	<a href="mailto:BrandonSaska@yahoo.com">BrandonSaska@yahoo.com</a>	At DRP Workshop.
Joy Slaback	BP	USPL (pipeline) Environmental & Emergency Response Coordinator	Not provided (located outside area)	713-323-2168	<a href="mailto:Joy.Slaback@bp.com">Joy.Slaback@bp.com</a>	At DRP Workshop.
Ken Roberts	BP	BP Pipelines & Logistics	Not provided	228-327-1569	<a href="mailto:robertk5@bp.com">robertk5@bp.com</a>	At DRP Workshop.
Rhad Carter	BP	BP Damage Prevention	Not provided	228-761-6277	<a href="mailto:Rhad.Carter@bp.com">Rhad.Carter@bp.com</a>	At DRP Workshop.
Lee Heffernan	BP	BP Damage Prevention	Not provided	228-219-4608	<a href="mailto:Lee.Heffernan@bp.com">Lee.Heffernan@bp.com</a>	At DRP Workshop.
Tyler Merwin	Chevron	Emergency Response Coordinator	Not provided	228-938-4407	<a href="mailto:TylerMerwin@chevron.com">TylerMerwin@chevron.com</a>	At DRP Workshop.

## Appendix H - Annual Work Plan

Objective	Activity	Responsible Party	Est. Cost, Time	Outcome(s)	Notes
Stay connected with response community.	Attend Local Emergency Planning Committee (LEPC) meetings, periodically	Emergency Planner or Emergency Coordinator	40 hrs	<ol style="list-style-type: none"> <li>1. Maintain contact list of regional emergency planners and response agencies.</li> <li>2. Gain access to other response planning capabilities/experience.</li> <li>3. Gain invitations to training and exercising.</li> <li>4. Promote NERR objective to protect natural resources.</li> <li>5. Ensure responders are familiar with NERR resources, hazards, and capabilities.</li> </ol>	Time accounts for attending four, 8-hour quarterly meetings, with 8 hours of pre- and post-meeting work (total). Assume time is covered through salary; travel cost not estimated but would be low.
Stay connected with response community.	Attend Coast Guard Sector Mobile Area Contingency Planning Meetings, periodically	Emergency Planner or Emergency Coordinator	\$1350, 64 hrs	<ol style="list-style-type: none"> <li>1. Maintain contact list of all regional emergency planners and response agencies.</li> <li>2. Gain access to other response planning.</li> <li>3. Gain invitations to training and exercising.</li> <li>4. Promote NERR goals and objectives.</li> <li>5. Ensure responders are familiar with NERR resources, hazards, and capabilities.</li> </ol>	Cost does not account for salary but includes cost of personal vehicle mileage, one night lodging and two days partial per diem. Time accounts for one person to attend four 8-hour quarterly meetings, including 4 hours travel each way and perform 4 hours of pre- and post-meeting work.
Maintain NERR internal awareness.	Report on safety/emergency preparedness status at monthly NERR staff meetings.	Emergency Planner or Emergency Coordinator	NA	<ol style="list-style-type: none"> <li>1. NERR managers can coordinate staff schedules for emergency preparedness activities.</li> <li>2. NERR managers engaged in emergency preparedness.</li> </ol>	Cost and time – Not Applicable (NA); included with regular monthly staff meetings – no additional preparation required

Objective	Activity	Responsible Party	Est. Cost, Time	Outcome(s)	Notes
Maintain NERR emergency preparedness.	Review and update annual training and exercise plan.	Emergency Training Coordinator	4 hrs	<ol style="list-style-type: none"> <li>1. NERR managers can coordinate staff schedules for emergency preparedness activities.</li> <li>2. NERR managers engaged in emergency preparedness.</li> </ol>	Emergency Training Coordinator will work with the Emergency Team annual to review and update Appendices I and J.
Maintain NERR emergency preparedness	Schedule and provide training classes (internally or external), as needed	Emergency Training Coordinator	40 hours	<ol style="list-style-type: none"> <li>1. NERR personnel receive training identified in the plan.</li> <li>2. Emergency Training Coordinator aware of, and documents, training provided.</li> <li>3. NERR aware of available training resources.</li> </ol>	Cost and time for training not included; estimated 3 hours per month time for Emergency Training Coordinator; no additional cost
Maintain NERR emergency preparedness.	Conduct drill/ exercises as needed.	Emergency Coordinator and Emergency Planner	160 hours	<ol style="list-style-type: none"> <li>1. Maintain familiarity with emergency plans and procedures.</li> <li>2. Test equipment.</li> <li>3. Cooperate with partner agencies and neighboring facilities.</li> <li>4. Sustain emergency skills.</li> <li>5. Identify needed improvements in equipment, plans, training, and exercises.</li> </ol>	Includes estimated 16 hrs for 2 people to participate in Wildfire Refresher exercise with MSCNWR; includes 80 hours to plan, participate, and follow up on annual drills/exercises (Appendix J). Additional, one-time exercises not included in estimate.
Maintain NERR emergency preparedness.	Update Disaster Response Plan, Hurricane Plan, and Evacuation Procedure (annual)	Emergency Planner	40 hours	<ol style="list-style-type: none"> <li>1. Emergency contact numbers are up-to-date in plan.</li> <li>2. Hazards, resources at risk, and capabilities updated as changes occur.</li> <li>3. Hazard specific procedures are updated based on lessons learned.</li> </ol>	Emergency Planner will work with the Emergency Team to review and update procedures in Appendix D and Appendix L (Evacuation, Hurricane), as needed.

Objective	Activity	Responsible Party	Est. Cost, Time	Outcome(s)	Notes
Ensure necessary emergency equipment is available and ready.	Coordinate acquisition of new emergency response equipment	Emergency Coordinator	8 hours (review); 24 hours (follow up); cost variable based on needs	<ol style="list-style-type: none"> <li>1. Capabilities assessed periodically and needs identified.</li> <li>2. New equipment purchases based on reducing NERR risk and available resources.</li> <li>3. May require requesting additional funds as part of annual budget process.</li> </ol>	Priority equipment would include those directly supporting protection of human health in the event of a hazard; other equipment to facility response will be obtained as feasible.
Increase NERR long-term disaster resilience	Plan new mitigation projects (annually).	NERR Manager	4 hours (annual review); additional, as needed. Cost variable.	<ol style="list-style-type: none"> <li>1. Identify structural or other mitigation measures and prioritize based on need and risk reduction.</li> <li>2. Reduce losses during disasters.</li> <li>3. Implementation will be dependent on annual funding and potential additional monies/grants that may be available.</li> </ol>	<p>New mitigation projects should be factored into all new construction or major facility repairs.</p> <p>Consider use of FEMA post-disaster mitigation grants, when available and appropriate.</p>

## Appendix I - Emergency Training Plan

Course	Date/ Time	Location	Pre-requisite	This course allows people to	Who takes this
<b>Baseline ICS for Low Complexity Incidents</b> (See Figure 3 and course descriptions in FEMA NIMS Training Program Manual: <a href="https://www.fema.gov/pdf/emergency/nims/nims_training_program.pdf">https://www.fema.gov/pdf/emergency/nims/nims_training_program.pdf</a> )					
ICS 100 (Introduction to the Incident Command System)	Self-guided (estimated 3 hours to complete)	<a href="http://training.fema.gov/IS/NIMS.aspx">http://training.fema.gov/IS/NIMS.aspx</a>	None	Participate as member of Incident Command Post (ICP) at the NERR Headquarters building or another location (as appropriate and needed to support area response efforts). Preparation for low complexity incidents (see Figure 6 in DRP); recommended for Type 5 incidents.	As directed by NERR Manager to gain familiarity with NIMS/ICS terms and procedures. Recommended for Emergency Team members. After initial training, staff should take course as refresher training when directed by NERR Manager.
IS 700 (NIMS, an Introduction)	Self-guided (estimated 3 hours to complete)	<a href="http://training.fema.gov/IS/NIMS.aspx">http://training.fema.gov/IS/NIMS.aspx</a>	None	Participate as member of Incident Command Post (ICP) at the NERR Headquarters building or another location (as appropriate and needed to support area response efforts). Preparation for low complexity incidents (see Figure 6 in DRP); recommended for Type 5 incidents.	As directed by NERR Manager to gain familiarity with NIMS/ICS terms and procedures. Recommended for Emergency Team members. After initial training, staff should take course as refresher training when directed by NERR Manager.
HAZWOPER - 24 hr 29CFR1910.120 29CFR 1926.65	To be determined (TBD)	TBD	None	As directed by the NERR Manager, prepares staff to participate as workers on oil and hazardous materials emergency response or clean-up operations who are on-site occasionally (e.g., ground-water monitoring, land surveying, etc.) and are not expected to exceed permissible exposure levels, or where exposure levels are below the permissible exposure limits.	Determined in consultation with Incident Command at the time of a large oil/hazardous materials spill. NERR Manager will direct which employees need this training based on Reserve needs, available resources, and MDMR input.

Course	Date/Time	Location	Pre-requisite	This course allows people to	Who takes this
HAZWOPER – 8 hr Refresher 29CFR1910. 120 29CFR 1926.65	TBD	TBD	None (but relevant only to HAZWOPER 40- or 24-hour trained staff)	Required annual refresher for those with HAZWOPER training who are involved in emergency response or clean-up operations for oil and hazardous materials spills.	All ANERR staff with initial 24-hr or 40-hr HAZWOPER training who may respond to oil/hazardous materials spills.
First Aid	Annually	Reserve (with MDMR providing training)	None	Provide emergency medical assistance to staff and visitors, while awaiting external medical response personnel (ambulance, EMT)	Required by MDMR for all NERR staff every two years. MDMR provides the training
CPR/AED	Annually	Reserve (with MDMR providing training)	None	Provide emergency medical assistance to staff and visitors, while awaiting external medical response personnel (ambulance, EMT)	Required by MDMR for all NERR staff every two years. MDMR provides the training
Red Cross Ready	Self-Guided	American Red Cross, <a href="http://www.redcross.org/take-a-class">http://www.redcross.org/take-a-class</a>	None	Improve family and individual preparedness for disasters.	Optional –similar introductory hazard awareness courses available on line at no cost (e.g., FEMA, State, local)
Wilderness First Aid	At Reserve, based on offerings and funding availability	Implemented by Outward Bound at the Reserve in the past	Current Adult CPR/AED Certification	Provides preparedness to provide immediate First Aid in the field when professional medical assistance may be far away. May be available through Alabama Outward Bound School which trained various NERR's personnel (251-990-0323) or based on past offering at GBNERR.	As directed by NERR Manager; previously provided to field personnel. Future offerings will be implemented based on need and resource availability.

Course	Date/Time	Location	Pre-requisite	This course allows people to	Who takes this
Wildland Fire Safety Training – Annual Refresher (RT-130)	Implemented at NERR with MSCNWR	National Interagency Fire Center (NIFC), <a href="http://www.nifc.gov/wfstar/index.html">http://www.nifc.gov/wfstar/index.html</a>	Previous Wildland Firefighting Certification	Support immediate response needs for Wildfire at the NERR.	Annually for all Wildland Fire certified staff; current certified staff include the Emergency Planner, who participates annual in this 8-hour recertification
Work Capacity Test (“Pack Test”) (Arduous Level, 45 pound pack, 3 miles, in 45 minutes)	Implemented at NERR with NSCWR	<a href="http://www.fs.fed.us/fire/safety/wct/wct_index.html">http://www.fs.fed.us/fire/safety/wct/wct_index.html</a>	Medically fit to take test. AED should be located in area hosting test.	Safely support wildfire response without endangering responder’s own health.	Annually, for all Wildland Fire certified staff; current certified staff include the Emergency Planner, who participates annual in this 8-hour recertification
Mississippi Boating Safety Course and Exam	On line	Free offering listed at: <a href="http://www.boat-us.org/onlinecourse/Mississippi.asp">http://www.boat-us.org/onlinecourse/Mississippi.asp</a>	None	Operate boats owned or maintained at the NERR	New employees at the NERR that will operate boats.
<b>ICS Training for Long Term Consideration</b> (for Higher Complexity Incidents and for those that May Provide Supervisory Role within a Larger Incident Command) ((See Figure 3 and course descriptions in FEMA NIMS Training Program Manual: <a href="https://www.fema.gov/pdf/emergency/nims/nims_training_program.pdf">https://www.fema.gov/pdf/emergency/nims/nims_training_program.pdf</a> )					
IS 200 (ICS for Single Resources and Initial Action Incidents)	Self-guided (estimated 3 hours to complete)	<a href="http://training.fema.gov/IS/NIMS.aspx">http://training.fema.gov/IS/NIMS.aspx</a>	None	Participate as member of Incident Command Post (ICP) at the NERR Headquarters building or another location (as appropriate and needed to support area response efforts). Preparation for low complexity incidents (see Figure 6 in DRP); recommended to support Type 4 incidents.	As directed by NERR Manager based on annual reviews of response needs and resource availability.

Course	Date/Time	Location	Pre-requisite	This course allows people to	Who takes this
IS 800 (National Response Framework (NRF), an Introduction)	Self-guided (estimated 3 hours to complete)	<a href="http://training.fema.gov/IS/NIMS.aspx">http://training.fema.gov/IS/NIMS.aspx</a>	None	Participate as member of Incident Command Post (ICP) at the NERR Headquarters building or another location (as appropriate and needed to support area response efforts). Preparation for low complexity incidents (see Figure 6 in DRP); recommended to support Type 1, 2, and 3 incidents.	As directed by NERR Manager based on annual reviews of response needs and resource availability.
IS 300 (Intermediate ICS) and 400 (Advanced ICS)	Classroom training	Various off site offerings	ICS 100 and 200	Gain more knowledge and qualifications to support higher complexity incidents and serve with increasing supervisory role in response organizations. Provides training for personnel who require advanced knowledge and will support Type 1, 2, and 3 incidents. These courses build on ICS 200 and 300.	As directed by NERR Manager based on annual reviews of response needs and resource availability.



## Appendix J - Emergency Exercise Plan

The following exercises are planned for annual implementation, based on NERR resource availability, current priorities, and partner interest and schedules. Periodically, the NERR may also participate in other exercises and if resources allow.

Hazard /Exercise Type	Objectives
Hurricane	<ol style="list-style-type: none"> <li>1. Validate disaster response plan (DRP) and hurricane procedures (Appendices D and L).</li> <li>2. Test equipment, communication, and identified responsibilities.</li> <li>3. Raise awareness and skills through practice.</li> <li>4. Identify any needed training, mitigation, or revisions to procedures.</li> </ol> <p><i>Note: If hurricane plan is implemented in a given year, this will count as the "drill." Otherwise, the drill will be implemented at the end of hurricane season. A review of the procedures will be implemented at a staff meeting at the start of each hurricane season.</i></p>
Drill	
Structure Fire	<ol style="list-style-type: none"> <li>1. Validate procedures and maps (see Appendices D and L).</li> <li>2. Test equipment, communication, and identified responsibilities.</li> <li>3. Raise awareness and skills through practice.</li> <li>4. Identify any needed training, mitigation, or revisions to procedures.</li> </ol>
Drill	
Wildfire	<ol style="list-style-type: none"> <li>1. Meet annual 8-hour refresher training requirement for wildland fire certified personnel.</li> <li>2. Practice donning equipment, implementing procedures, and cooperating with Mississippi Sandhill Crane National Wildlife Refuge (FWS) personnel.</li> <li>3. Test communications and refresh skills.</li> <li>4. Identify any needed training, mitigation, or revisions to procedures.</li> </ol> <p><i>Note: Wildfire training and certification for NERR personnel is implemented through training with the FWS.</i></p>
Drill/ Exercise	
Oil Spill *	<ol style="list-style-type: none"> <li>1. Share information on NERR procedures and gain understanding of Chevron facility procedures.</li> <li>2. Raise awareness, test NERR oil spill procedure and communication protocols, and observe Chevron procedures.</li> <li>3. Observe boom deployments of neighboring facility and compare to Area Contingency Plan procedures and strategies.</li> <li>4. Share input and ideas to improve preparedness.</li> </ol> <p><i>Note: The Reserve is an invited observer/participant to an annual Chevron exercise. Generally, this is implemented annually. It provides a good opportunity to share natural resource priorities and goals with Chevron and learn more about booming approaches and capabilities available through Chevron. *Other exercises with partner agencies focusing on other hazards and locations may be implemented based on MDMR and NERR priorities, exercise opportunities available through other agencies, and other factors.</i></p>
Exercise	

## Appendix K - Forms and Tools

This appendix includes the following forms and tools:

1. NERR Situation Report
2. NERR After Action Report
3. NERR Quick Reference Tool
4. List of ICS Forms available from FEMA
5. ICS-201 Form: Incident Report

## NERR Situation Report

*Insert the Date of Incident (Start-Current)*

Date/Time of Report		Duty Officer (Name, Phone, Email)	
<p><b>Describe the Situation and its Current Status</b></p> <p><i>Describe the emergency/disaster conditions, area impacted, and threatened areas. Describe potential incident health and safety hazards.</i></p>			
<p><b>Current and Planned Actions of Response Team</b></p> <p><i>Describe the agencies notified, actions taken at the NERR, NERR responsibilities, and next steps, if any.</i></p>			
<p><b>Response Resources Summary and Organization</b></p> <p><i>Describe NERR resources assigned to the response and NERR role within Incident Command.</i></p>			
/s/	Duty Officer Signature		
Report Distribution: (list the email or fax numbers and contacts provided the report)			

## NERR After Action Report (AAR)<sup>2</sup>

<b>Event/Hazard:</b>		<b>Duration</b>	
<b>Location:</b>		<b>Prepared by:</b>	
<b>Description</b>			
<i>Describe the emergency/disaster, notification procedures, parties involved, lead agency, and areas impacted.</i>			
<b>Applicable FEMA Core Capabilities:</b> <input type="checkbox"/> Planning <input type="checkbox"/> Operational Coordination (Incident Mgt, EOC Support) <input type="checkbox"/> Environmental Response/Health and Safety (Oil/HAZMAT/HAB) <input type="checkbox"/> Public Health & Medical (Emergency Lifesaving) <input type="checkbox"/> Public & Private Services (Firefighting) <input type="checkbox"/> Natural and Cultural Resources <input type="checkbox"/> Other _____			
<b>Lessons Learned</b>			
<i>List things that went well and gaps or problems with the response. Categories can include: plans &amp; procedures, equipment, communication, training requirements, protection strategies, access to data, documentation, restoration activities, and cost recovery.</i>			
<b>Strengths:</b>			
<b>Gaps:</b>			
<b>Improvement Plan</b>			
<i>List actions required and planned to improve preparedness for future events (e.g., revisions to DRP procedures, exercises on particular topics, equipment/supply purchase, protocol development)</i>			
/s/	NERR Manager Signature		
Report Distribution: <i>(list the email or fax numbers and contacts provided the report)</i>			

<sup>2</sup> Condensed from FEMA Homeland Security Exercise and Evaluation Program (HSEEP) After Action Report

## Grand Bay NERR Quick Reference Tool

Use this as a quick reference that can be marked on and handed to a responder, who is likely to be unaware of natural resource considerations at the NERR. Like any “visitor,” responders need a quick visual aid to alert them to danger, to show them areas and species to protect, and to illustrate invasive species to avoid relocating.

**Front:** Locational map, notes, and emergency contacts.

**Back:** Emergency precautions for the NERR and Responders – things to avoid.

**Mark on this map to communicate locations of hazards and highly sensitive natural resources.**



**Notes:**

**For additional information, consult the following at 228-475-7047:**

NERR Manager: David Ruple (Emergency Manager)

NERR Stewardship Coordinator: Will Underwood (Emergency Coordinator)

NERR Management Plan and GIS Maps – information on NERR habitat and species.

Sector Mobile Geographic Response Plans – pre-planned protection strategies for oil spills.

Environmental Sensitivity Index (ESI) Maps – priorities for species and habitat to be protected.

***Add/delete new precautions as necessary for an incident. May also be laminated for reuse.***

**PROTECT IF AT ALL POSSIBLE – TAKE PRECAUTIONS TO AVOID INJURY**

**HIGHLY SENSITIVE NATURAL RESOURCES – HABITATS AND SPECIES**



**Saltmarsh** – Sensitive habitat; minimize walking, no airboats or marsh buggies allowed.



**Shell Midden** – Do not disturb bird nests and archaeological sites or other culturally significant sites.



**Submersed Aquatic Vegetation** – Sensitive habitat, do not anchor or step here.



**Sandy Beaches** – Do to disturb terrapin and bird nests while walking on beach and do not stage equipment or move it through these areas.

**DANGER – BE OBSERVANT AND ACT QUICKLY**

**INVASIVE SPECIES – DO NOT TRANSPORT**



**Wildfire** - In the event of a wildfire call 911 and evacuate the area.



**Invasive Species** – These include: Chinese Tallow Trees, Camphor Trees, Cogon Grass and Torpedo Grass. Machinery must be washed before and after leaving the site to minimize seed dispersal.

## List of ICS Forms

The following ICS Forms are available on the FEMA website at <http://training.fema.gov/EMIWeb/IS/ICSResource/icsforms.htm>

Notes:

- In the following table, the ICS Forms with an asterisk (\*) are typically included in an IAP.
- Forms identified with two asterisks (\*\*) are additional forms that could be used in an IAP.
- The other ICS Forms are used in the ICS process for incident management activities, but are not typically included in an IAP.
- The date and time entered in the form blocks should be determined by the Incident Command or Unified Command. Local time is typically used.

ICS Form #:	Form Title:	Typically Prepared by:
<a href="#">Form 201 (Word Fillable)</a>	<b>Incident Briefing</b>	Initial Incident Commander
* <a href="#">Form 202 (Word Fillable)</a>	<b>Incident Objectives</b>	Planning Section Chief
* <a href="#">Form 203 (Word Fillable)</a>	<b>Organization Assignment List</b>	Resources Unit Leader
* <a href="#">Form 204 (Word Fillable)</a>	<b>Assignment List</b>	Resources Unit Leader and Operations Section Chief
* <a href="#">Form 205 (Word Fillable)</a>	<b>Incident Radio Communications Plan</b>	Communications Unit Leader
** <a href="#">Form 205A (Word Fillable)</a>	<b>Communications List</b>	Communications Unit Leader
* <a href="#">Form 206 (Word Fillable)</a>	<b>Medical Plan</b>	Medical Unit Leader
<a href="#">Form 207 (Word Fillable)</a>	<b>Incident Organization Chart</b> <i>(wall-mount size, optional 8.5" x 14")</i>	Resources Unit Leader
** <a href="#">Form 208 (Word Fillable)</a>	<b>Safety Message/Plan</b>	Safety Officer
<a href="#">Form 209 (Word Fillable)</a>	<b>Incident Status Summary</b>	Situation Unit Leader
<a href="#">Form 210 (Word Fillable)</a>	<b>Resource Status Change</b>	Communications Unit Leader
<a href="#">Form 211 (Word Fillable)</a>	<b>Incident Check-In List</b> <i>(optional 8.5"x14" and 11"x17")</i>	Resources Unit Leader/Check-In Recorder
<a href="#">Form 213 (Word Fillable)</a>	<b>General Message</b> <i>(3-part form)</i>	Any Message Originator
<a href="#">Form 214 (Word Fillable)</a>	<b>Activity Log</b> <i>(optional 2-sided form)</i>	All Sections and Units
<a href="#">Form 215 (Word Fillable)</a>	<b>Operational Planning Worksheet</b> <i>(optional 8.5"x14" and 11"x17")</i>	Operations Section Chief
<a href="#">Form 215A (Word Fillable)</a>	<b>Incident Action Plan Safety Analysis</b>	Safety Officer
<a href="#">Form 218 (Word Fillable)</a>	<b>Support Vehicle/Equipment Inventory</b> <i>(optional 8.5"x14" and 11"x17")</i>	Ground Support Unit
<a href="#">Form 219s (Word Fillable)</a>	<b>Resource Status Card (T-Card)</b> <i>(may be printed on card stock)</i>	Resources Unit
<a href="#">Form 220 (Word Fillable)</a>	<b>Air Operations Summary Worksheet</b>	Operations Section Chief or Air Branch Director
<a href="#">Form 221 (Word Fillable)</a>	<b>Demobilization/Check-Out</b>	Demobilization Unit Leader
<a href="#">Form 225 (Word Fillable)</a>	<b>Incident Personnel Performance Rating</b>	Supervisor at the Incident

### Incident Briefing (ICS 201)

<b>1. Incident Name:</b>	<b>2. Incident Number:</b>	<b>3. Date/Time Initiated:</b> Date: _____ Time: HHMM
<p><b>4. Map/Sketch</b> (include sketch, showing the total area of operations, the incident site/area, impacted and threatened areas, overflight results, trajectories, impacted shorelines, or other graphics depicting situational status and resource assignment):</p> <div style="background-color: #e0f0ff; height: 400px; width: 100%; margin-top: 10px;"></div>		
<p><b>5. Situation Summary and Health and Safety Briefing</b> (for briefings or transfer of command): Recognize potential incident Health and Safety Hazards and develop necessary measures (remove hazard, provide personal protective equipment, warn people of the hazard) to protect responders from those hazards.</p>		
<b>6. Prepared by:</b>	Name: _____	Position/Title: _____
<b>ICS 201, Page 1</b>		Signature: _____
		Date/Time: Date _____

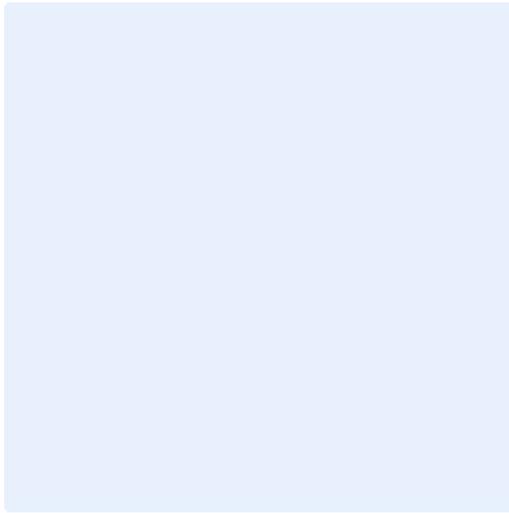
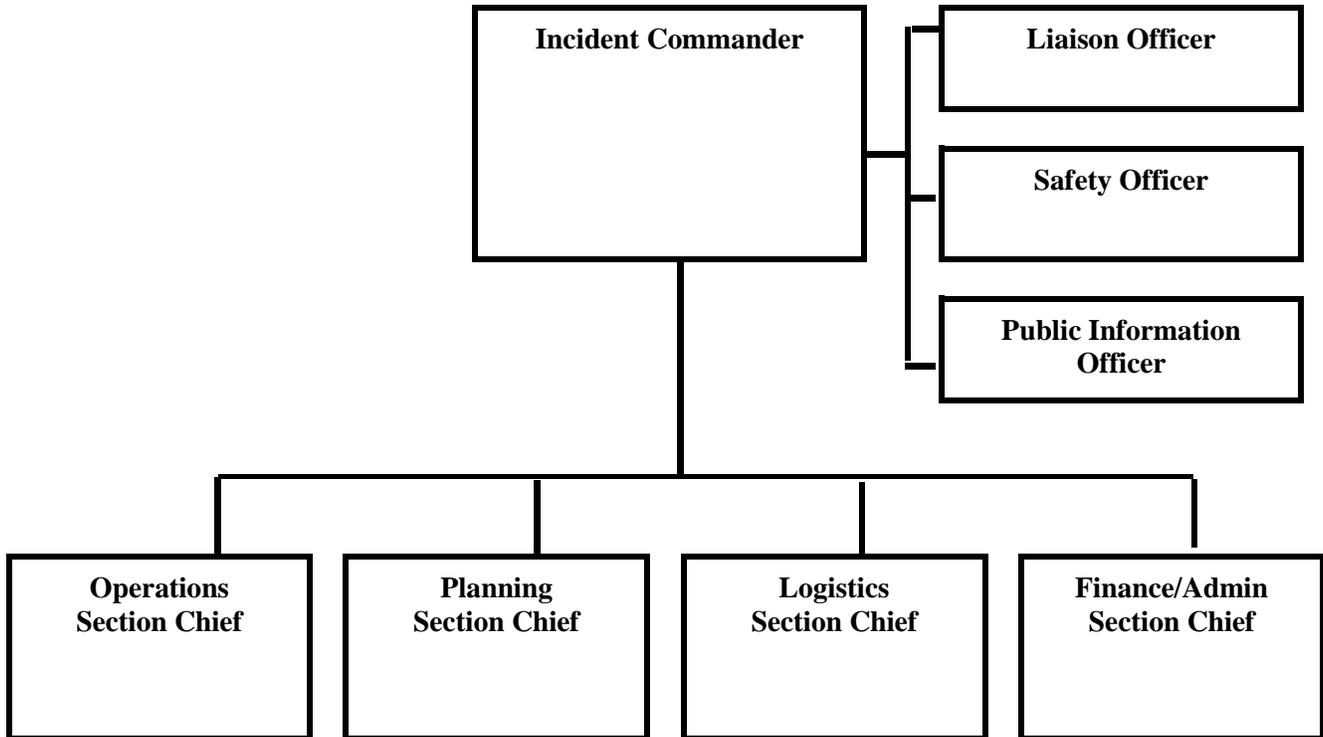
### Incident Briefing (ICS 201)

<b>1. Incident Name:</b>	<b>2. Incident Number:</b>	<b>3. Date/Time Initiated:</b> Date: _____ Time: HHMM
<b>7. Current and Planned Objectives:</b>		
<b>8. Current and Planned Actions, Strategies, and Tactics:</b>		
Time:	Actions:	
HHMM		
<b>6. Prepared by:</b>	Name: _____	Position/Title: _____
		Signature: _____
<b>ICS 201, Page 2</b>	Date/Time: _____	

### Incident Briefing (ICS 201)

<b>1. Incident Name:</b>	<b>2. Incident Number:</b>	<b>3. Date/Time Initiated:</b> Date: _____ Time: HHMM
--------------------------	----------------------------	--

**9. Current Organization** (fill in additional organization as appropriate):



<b>6. Prepared by:</b> Name: _____	Position/Title: _____	Signature: _____
<b>ICS 201, Page 3</b>	Date/Time: _____	



## ICS 201 Incident Briefing

**Purpose.** The Incident Briefing (ICS 201) provides the Incident Commander (and the Command and General Staffs) with basic information regarding the incident situation and the resources allocated to the incident. In addition to a briefing document, the ICS 201 also serves as an initial action worksheet. It serves as a permanent record of the initial response to the incident.

**Preparation.** The briefing form is prepared by the Incident Commander for presentation to the incoming Incident Commander along with a more detailed oral briefing.

**Distribution.** Ideally, the ICS 201 is duplicated and distributed before the initial briefing of the Command and General Staffs or other responders as appropriate. The “Map/Sketch” and “Current and Planned Actions, Strategies, and Tactics” sections (pages 1–2) of the briefing form are given to the Situation Unit, while the “Current Organization” and “Resource Summary” sections (pages 3–4) are given to the Resources Unit.

### Notes:

- The ICS 201 can serve as part of the initial Incident Action Plan (IAP).
- If additional pages are needed for any form page, use a blank ICS 201 and repaginate as needed.

Block #	Block Title	Instructions
1	<b>Incident Name</b>	Enter the name assigned to the incident.
2	<b>Incident Number</b>	Enter the number assigned to the incident.
3	<b>Date/Time Initiated</b> <ul style="list-style-type: none"> <li>• Date, Time</li> </ul>	Enter date initiated (month/day/year) and time initiated (using the 24-hour clock).
4	<b>Map/Sketch</b> (include sketch, showing the total area of operations, the incident site/area, impacted and threatened areas, overflight results, trajectories, impacted shorelines, or other graphics depicting situational status and resource assignment)	Show perimeter and other graphics depicting situational status, resource assignments, incident facilities, and other special information on a map/sketch or with attached maps. Utilize commonly accepted ICS map symbology.  If specific geospatial reference points are needed about the incident’s location or area outside the ICS organization at the incident, that information should be submitted on the Incident Status Summary (ICS 209). North should be at the top of page unless noted otherwise.
5	<b>Situation Summary and Health and Safety Briefing</b> (for briefings or transfer of command): Recognize potential incident Health and Safety Hazards and develop necessary measures (remove hazard, provide personal protective equipment, warn people of the hazard) to protect responders from those hazards.	Self-explanatory.
6	<b>Prepared by</b> <ul style="list-style-type: none"> <li>• Name</li> <li>• Position/Title</li> <li>• Signature</li> <li>• Date/Time</li> </ul>	Enter the name, ICS position/title, and signature of the person preparing the form. Enter date (month/day/year) and time prepared (24-hour clock).

Block #	Block Title	Instructions
7	<b>Current and Planned Objectives</b>	Enter the objectives used on the incident and note any specific problem areas.
8	<b>Current and Planned Actions, Strategies, and Tactics</b> <ul style="list-style-type: none"> <li>• Time</li> <li>• Actions</li> </ul>	Enter the current and planned actions, strategies, and tactics and time they may or did occur to attain the objectives. If additional pages are needed, use a blank sheet or another ICS 201 (Page 2), and adjust page numbers accordingly.
9	<b>Current Organization</b> (fill in additional organization as appropriate) <ul style="list-style-type: none"> <li>• Incident Commander(s)</li> <li>• Liaison Officer</li> <li>• Safety Officer</li> <li>• Public Information Officer</li> <li>• Planning Section Chief</li> <li>• Operations Section Chief</li> <li>• Finance/Administration Section Chief</li> <li>• Logistics Section Chief</li> </ul>	<ul style="list-style-type: none"> <li>• Enter on the organization chart the names of the individuals assigned to each position.</li> <li>• Modify the chart as necessary, and add any lines/spaces needed for Command Staff Assistants, Agency Representatives, and the organization of each of the General Staff Sections.</li> <li>• If Unified Command is being used, split the Incident Commander box.</li> <li>• Indicate agency for each of the Incident Commanders listed if Unified Command is being used.</li> </ul>
10	<b>Resource Summary</b>	Enter the following information about the resources allocated to the incident. If additional pages are needed, use a blank sheet or another ICS 201 (Page 4), and adjust page numbers accordingly.
	• Resource	Enter the number and appropriate category, kind, or type of resource ordered.
	• Resource Identifier	Enter the relevant agency designator and/or resource designator (if any).
	• Date/Time Ordered	Enter the date (month/day/year) and time (24-hour clock) the resource was ordered.
	• ETA	Enter the estimated time of arrival (ETA) to the incident (use 24-hour clock).
	• Arrived	Enter an "X" or a checkmark upon arrival to the incident.
	• Notes (location/ assignment/status)	Enter notes such as the assigned location of the resource and/or the actual assignment and status.

## Appendix L - Maps and Other Information

This Appendix includes:

1. Grand Bay NERR Fire Evacuation Procedures and Maps (for Building Fire)
2. Mississippi DMR (MDMR) Hurricane Plan and Reserve Hurricane Procedure
3. USCG Area Contingency Plan Information for
  - a. A-1 (Multiple Pages)
  - b. A-2 (Multiple Pages)

## Fire Alarm Procedures

1. In the event of a fire or fire alarm, proceed to the nearest exit and depart the building without delay. Most areas have more than one possible exit. If fire or smoke blocks us of the closest exit, proceed quickly to the next nearest exit and depart the building.
2. Proceed down the stairs or ramp and get away from the building. Make your way to the northeast corner of the parking lot for a headcount as soon as you can.
3. If you see a fire but the fire alarm has not been activated, proceed to one of the **Red Fire Boxes**, pull the alarm and exit the building.

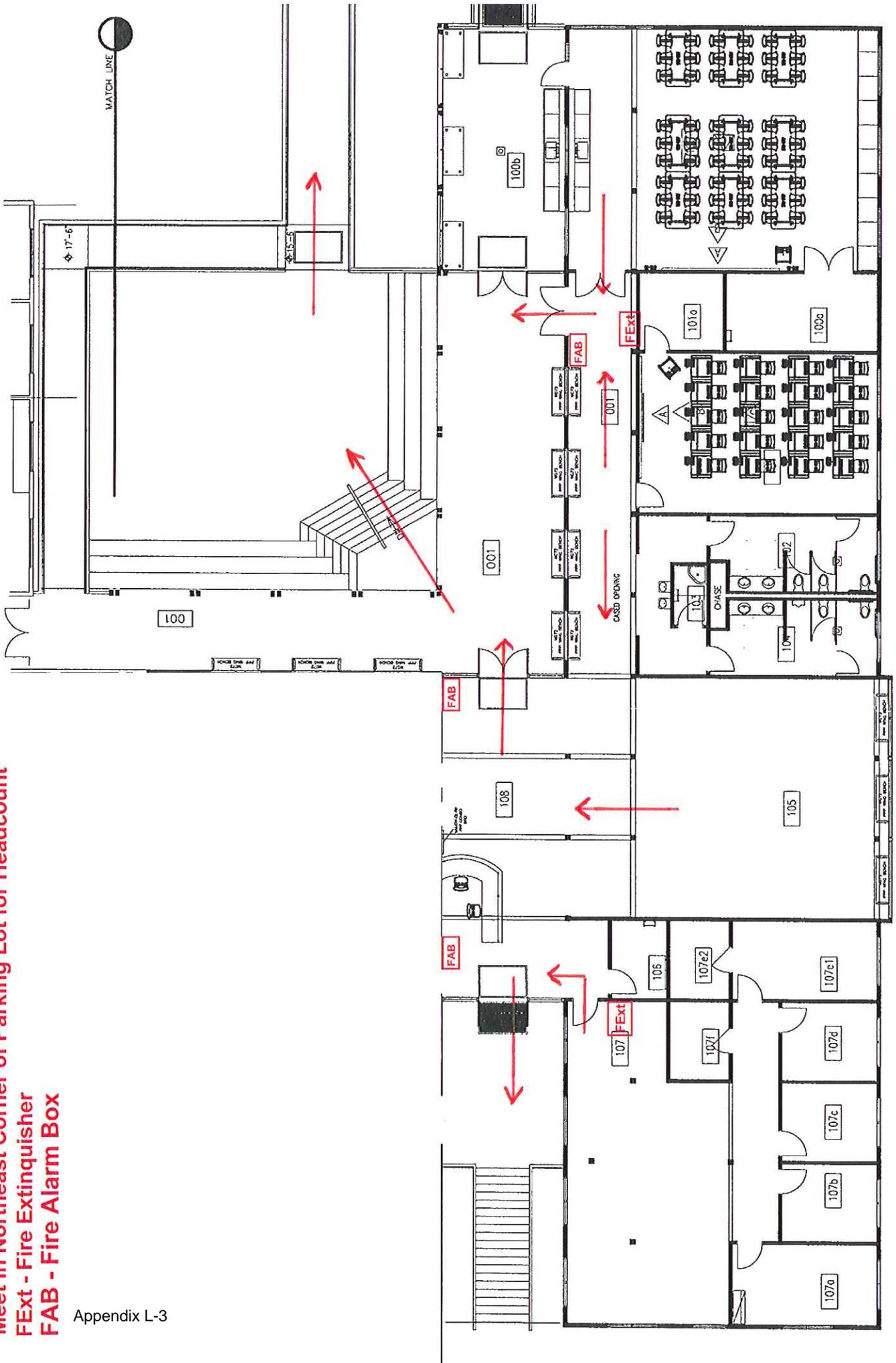


# Fire Escape Plan

Meet In Northeast Corner of Parking Lot for Headcount

FExt - Fire Extinguisher

FAB - Fire Alarm Box

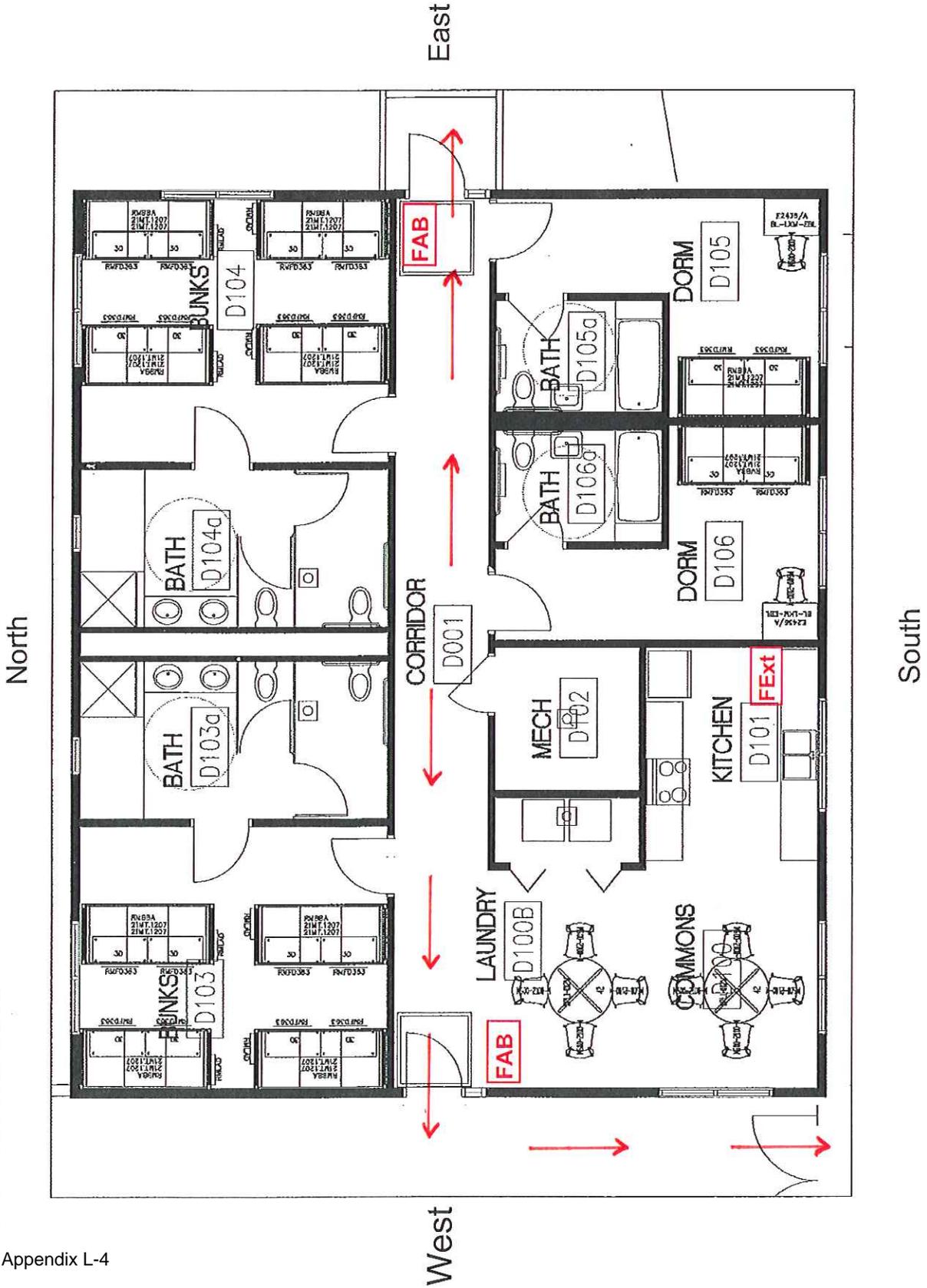


# Fire Evacuation Plan

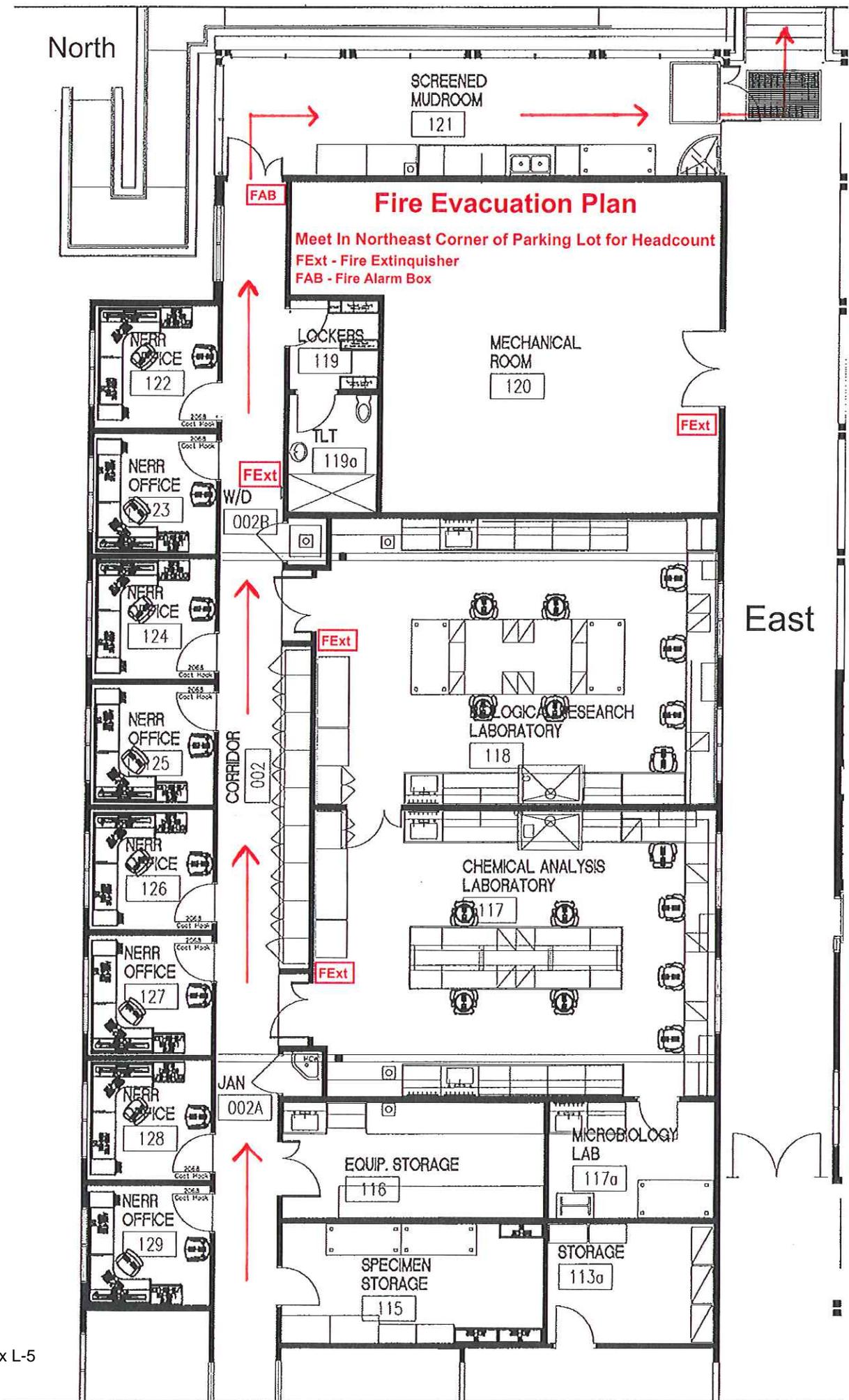
Meet In Northeast Corner of Parking Lot for Headcount

FEExt - Fire Extinguisher

FAB - Fire Alarm Box



North





**DEPARTMENT OF MARINE RESOURCES  
TROPICAL STORM AND HURRICANE  
CONTINGENCY PLAN**

**(Revision 2- April 2007)**

**Mississippi Department of Marine Resources  
1141 Bayview Avenue  
Biloxi, MS 39530  
228-374-5000**

# CONTINGENCY PLAN FOR IMPENDING TROPICAL STORMS AND HURRICANES

## DEFINITIONS

**Tropical Depression:** A tropical cyclone in which the maximum sustained surface wind is not greater than 38 mph.

**Tropical Storm:** A tropical cyclone in which the maximum sustained winds are greater than or equal to 39 mph but less than 74 mph.

**Category One Hurricane:** Has winds between 74 and 95 mph and a storm surge of 4-5 feet and results in damage to shrubbery, trees and unanchored mobile homes.

**Category Two Hurricane:** Has winds between 96 and 110 mph and a storm surge of 6-8 feet and results in considerable damage to trees, windows, roofs, etc.

**Category Three Hurricane:** Has winds between 111 and 130 mph and a storm surge of 9-12 feet and results in considerable damage to large trees, most signs, homes and mobile homes.

**Category Four Hurricane:** Has winds between 131- and 155 mph and a storm surge of 13-18 feet and results in complete failure of most roofs, the destruction of mobile homes and extensive window and door damage.

**Category Five Hurricane:** Has winds greater than 155 mph and a storm surge of 18 or more feet and results in complete failure of most roofs and the destruction of small homes and mobile homes.

**Hurricane/Tropical Storm Watch:** A Hurricane/ Tropical Storm may pose a threat to the coast within 36 hours.

**Hurricane/Tropical Storm Warning:** A Hurricane/Tropical Storm may pose a threat to the coast within 24 hours.

**Prep Team:** Consist of the Emergency Response Officer (ERO) and one representative from each office.

## I. PREPARATORY CONDITION 4

The Emergency Response Officer (ERO) will monitor the development of tropical systems that are located near or within the Gulf of Mexico and keep the Executive Director posted on their movements. Once a storm enters the Gulf, the DMR Emergency Prep Team shall meet and begin to make plans for relocation and proper securing of all DMR assets. A pre-designated post storm meeting site shall be agreed upon so that the recovery phase can be set into motion without delay. All DMR vehicles should be filled with fuel in preparation for the storm. Additionally, the 1000 gallon emergency fuel tank shall be checked to make sure that it is full. The 1000 gallon tank shall be filled and fuel stabilizing chemical shall be added at the beginning of hurricane season in June of each year. At the end of hurricane season in November the fuel in the tank shall be utilized in DMR boats and vehicles to prevent fuel spoilage due to prolonged storage.

## II. HURRICANE/TROPICAL STORM WATCH CONDITION THREE

### A. If a Watch is issued during working hours:

The ERO will monitor the progress of the storm. When necessary, the Executive Director, after coordination with the ERO, will order hurricane preparations to begin. Preparations should begin early enough so that they may be completed before a Warning is issued:

1. Each employee shall secure his or her office and assist in the securing of the shared work areas and the offices of the Prep Team, if the team is engaged in other storm preparations. All data on computer hard drives shall be backed up on discs and the discs shall be removed to a place of safe keeping separate from the pc drive units. Computers and electronic equipment shall be **COVERD WITH PLASTIC AND SECURED IN AN INTERNAL OFFICE. ADDITIONALLY, IF A CATEGORY 2 HURRICANE OR GREATER IS ANTICIPATED, THE COMPUTERS MUST BE MOVED TO INTERNAL OFFICES ON AN UPPER FLOOR OF OUR FACILITY;**
2. If deemed necessary by the Executive Director and the ERO, the Prep Team shall begin securing materials within the compound, filling ice chests with ice, etc. Other employees as needed may be recruited to help with this job;
3. Each Office shall be responsible for moving their vehicles to a pre-designated place of safety in an open field or other safe parking area. Boats shall be moved to a safe harbor of refuge and properly moored with adequate anchors and doubled up lines. Trailerable boats shall be moved

to a place of safe refuge. All utility trailers, 4-wheelers, outboard motors, etc. will be removed from the DMR compound. No DMR vehicle, utility trailer, outboard motor, or boat, shall be left on the Bolton Building property if a storm of hurricane strength is anticipated. Non-assigned cars shall be moved by employees designated by the Executive Director's Office;

4. Pertinent documents and records shall be placed in plastic bags and stored in the safe. Back-up copies should be made when possible and stored in a different location in case the building sustains major damages; and
5. If the oyster season is open, the check-in stations and reefs will be closed and evacuated at the time the Executive Director orders hurricane preparations to begin. Oyster season will remain closed until the threat of the tropical system passes and the Executive Director determines that the environmental and physical conditions of the reefs warrant their reopening. (acceptable fecal counts, minimal physical damage, etc.)

**B.** If a watch is issued after normal working hours or on a weekend:

1. The ERO shall advise the DMR Executive Director and all DMR Department Heads of the warning. Department Heads shall institute an emergency recall of personnel so that immediate action may be taken as necessary. The DMR Prep Team shall also be notified by the ERO so that emergency preparations can be set into motion.

### **III. HURRICANE/TROPICAL STORM WARNING CONDITION TWO**

**ALL PREPARATION SHOULD BE FINALIZED IMMEDIATELY**

Once Mississippi has been placed under a Storm Warning and the office has been secured, the Executive Director upon permission of the Governor and in accordance with the State Employee's Handbook, will place all employees on administrative leave until all danger has passed. The Executive Director, Deputy Director, Chief of Staff, ERO, and all Office Directors should take cell phones, State radios, complete set of building keys, and a State vehicle home in order to be able to communicate and travel easier after the storm. Any remaining radios shall be distributed among key staff personnel. Radios shall be monitored during the passage of the storm and as much as practicable, routine radio checks shall be made at the top of each hour.

#### **IV. POST-HURRICANE RECOVERY PROCEDURES**

As soon as possible after the storm, Office Directors shall attempt to contact their employees (and vice versa) in order to see if they need help.

- A.** If no major damage results from the storm in the local area:
  - 1. Employees will return to work during the next regular working shift after the storm warning have been lifted; and
  - 2. Upon returning to work, the entire staff will join in restoring the office to its pre-storm configuration (returning the vehicles to the compound, setting up the computers, etc.)
  
- B.** In the event that major damages have occurred in the local area:
  - 1. Employees shall attempt to contact their Office Director and/or the office as soon as possible.
  - 2. Employees should attempt to gather at a pre-designated meeting place as soon as possible after the storm. Those employees needing help should identify their immediate needs so that more fortunate employees can help out if possible. Those employees living closest to the office should try to visit the office as soon as possible after the passing of the storm to assess the damages.
  - 3. Employees who are able to return to work will:
    - a. First secure the premises and with permission of Office Directors, offer assistance to the other employees;
    - b. Enter the building only after getting the go-ahead by the Executive Director or his designee;
    - c. Upon order of the Executive Director, contribute to the overall recovery process of the local community by cooperating with the Office of Homeland Security, Federal Emergency Management Agency, Mississippi Emergency Management Agency and/or the Federal Food and Drug Administration . Oil spill response, seafood house inspections etc. are examples of recovery activities that should be prioritized;
    - d. Salvage whatever possible from the building if it is damaged;
    - e. If needed, employees will be given permission to work out of t their homes until temporary offices can be set up.

4. If looting is a problem, the Executive Director may request security assistance from the Department of Finance and Administration.
5. Once the emergency phase of the recovery process is complete, employees shall begin documenting damages to critical habitats (oyster and sea grass beds), coastal preserves and waterfront improvements within the coastal zone. This documentation process should be prioritized in order to assess the most crucial matters first.
6. All emergency preparation and response activities will be logged daily and turned in to the DMR Administrative office for possible FEMA/MEMA reimbursement. The preparation and response activities shall also be entered on the monthly time sheet and recorded as Disaster Relief 613 in order to facilitate the recovery of FEMA/MEMA disaster aid.

# USCG Sector Mobile Geographic Response Plan Map Series

Notes:  
Map Numbers Match ESI Map Numbers.  
MAP NOT INTENDED FOR NAVIGATION.



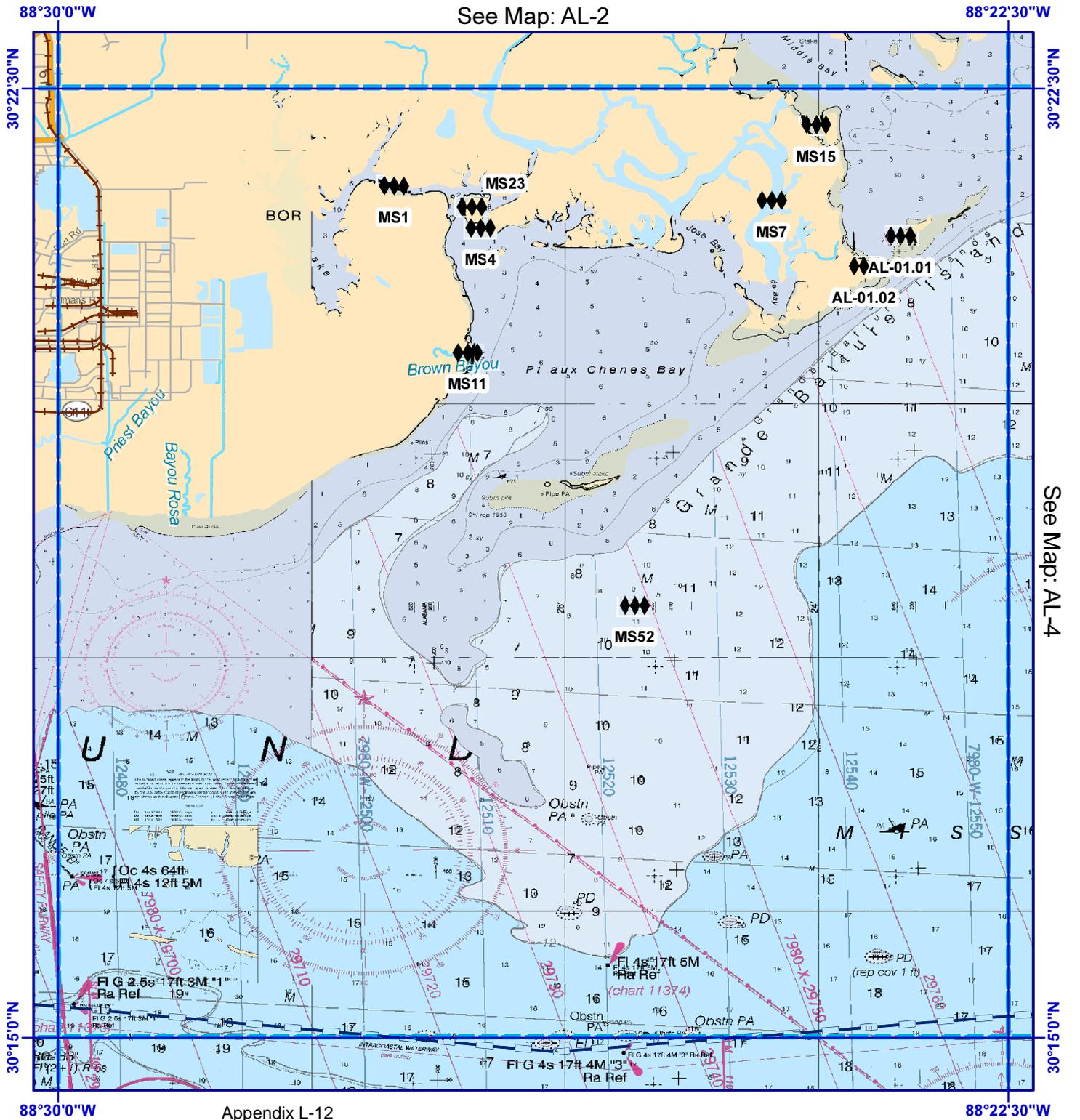
Map #: AL-1  
TOPO NAME: GRAND BAY SW, ALA. (1977)

Legend	
◆◆ Oil Spill Sensitive Areas	Ⓢ Staging Area
Ⓢ Staging Area; Boat Ramp; Marina	Ⓢ Boat Ramp
Ⓢ Staging Area; Boat Ramp	Ⓢ Marina
Ⓢ Boat Ramp; Marina	🏠 Regulated Facilities
🚢 Commercial Shipping Lanes	- - - - - USCG-EPA MOU Line Draft - 2008
[ ] GRP Map Boundaries	[ ] Sector Boundary

**Kilometers**  
0 0.450.9 1.8

**Miles**  
0 0.5 1 2

Map Produced July 2009 by FWC-FWR1



**Name:** Bangs Bayou

**Site ID:**

**MS1**

**Protection Priority (Season):** Spring:  Summer:  Fall:  Winter:

**Site Description:** Shallow water by Bangs Island

**GEOSPATIAL INFORMATION**

**Latitude (DMS):** 30° 21' 43.72" N

**Longitude (DMS):** 88° 27' 21.04" W

**County:**

**Latitude (DD):** 30.36214417

**Longitude (DD):** -88.45584499

**SCAT Division:** MS-1NE

**ESI Map:** AL-1

**ESI Name:** Grand Bay SW

**NOAA Chart:** Unknown

**CHART Name:** Unknown

**USGS Quad:** 30088-C4

**QUAD Name:** GRAND BAY SW, ALA. (1977)

**Managed Area (if applicable):** State of MISS (open water)

**General Location:**

**CONTACT INFORMATION**

**Contacts:** Christopher May Grand Bay Nerr-228-475-7047 Dale Diaz MS DMR-228-523-4064 Frank Wescovich-MS DMR; 228-523-4126/228-326-6153(cell)

**RESOURCES AT RISK INFORMATION**

**Shoreline Type:** Salt Marsh,

**Habitat:** Salt Marsh,Oyster Beds, Tidal Bayou,

**Wildlife:** Fish,Shell Fish, Wading birds, Raptors., ,

**Threaten/Endangered Species:** ,

**Socio-Economic Resources:**

**RESPONSE CONSIDERATIONS**

**Staging Area:** Bayou Casotte(Point of Pinds boat ramp on Bayou Cumbest and boat ramp on Bayou Heron for shallow draft(<1.5ft) boats)

**Collection Points:** South side of Singing river island

**Area Access:** From Bayou Casotte,Bayou Cumbest,Bayou Heron,pt.aux Chenes Bay-boat only

**Spill Risk:** Industries along Bayou Casotte- Chevron, First Chemical, MS Phosphates

**Response Resources:** ,

**PROTECTION STRATEGY INFORMATION**

**Tidal Range (FT):** 1.5

**Average Current (KTS):**

**Ease of Protection:** Unknown

**Min. Boom Length (FT):** 3000

**Boom Type:**

**Booming Method:** Deflection, Protection/Exclusion

**Protection Strategy:** Deploy 3000 of boom to protect sensitive areas related to Bangs Bayou



**Name:** Grand Batture Island

**Site ID:**

**AL-01.01**

**Protection Priority (Season):** Spring:  A Summer:  A Fall:  A Winter:  A

**Site Description:** Shallow shoal just east of MS-AL state line. Intertidal salt marsh shoreline

**GEOSPATIAL INFORMATION**

**Latitude (DMS):** 30° 21' 19.94" N

**Longitude (DMS):** 88° 23' 20.99" W

**County:**

**Latitude (DD):** 30.35553993

**Longitude (DD):** -88.38916303

**SCAT Division:** MS-1NE

**ESI Map:** AL-1

**ESI Name:** Grand Bay SW

**NOAA Chart:** Unknown

**CHART Name:** Unknown

**USGS Quad:** 30088-C4

**QUAD Name:** GRAND BAY SW, ALA. (1977)

**Managed Area (if applicable):** Alabama

**General Location:**

**CONTACT INFORMATION**

**Contacts:** USFWS - Grand Bay NWR (228) 497-6322, USFWS Daphne (251) 441-5781;

**RESOURCES AT RISK INFORMATION**

**Shoreline Type:** Salt and Brackish Water Marsh,

**Habitat:** Salt and Brackish Water Marsh, Piping Plover designated critical habitat, breeding and feeding habitat for numerous juvenile species, Grand Butturre Island, Grand Bay NWR,

**Wildlife:** Throughout Area - Gulf Sturgeon (T), Bald Eagle (T), Manatees (E), Gopher Tortoise (T), Gulls & Terns, Pelagic birds. Waterfowl, Fish, Shrimp, Submerged aquatic vegetation, possible Gulf Sturgeon (T),

**Threaten/Endangered Species:** Throughout Area - Gulf Sturgeon (T), Bald Eagle (T), Manatees (E), Gopher Tortoise (T), Piping Plover,

**Socio-Economic Resources:** OSROs

**RESPONSE CONSIDERATIONS**

**Staging Area:** Bayou Casotte, Bayou LaBatre, \*Bayou Cumbest, point-o-pines located closer but need pitches \*, Jemison Ramp, Alabama Port, Fowl River Marina, 1-NW Middle Bay Port

**Collection Points:** Fowl River

**Area Access:** Boat only, Fowl River Marina, Alabama Port; Shallow area, access difficult in shoreline areas

**Spill Risk:** Shipping channels, offshore oil rigs, sites in Alabama.

**Response Resources:** Mobile CO EMA - (251) 460-8000,

**PROTECTION STRATEGY INFORMATION**

**Tidal Range (FT):** 1.5

**Average Current (KTS):**

**Ease of Protection:** Unknown

**Min. Boom Length (FT):** 10000

**Boom Type:**

**Booming Method:** Deflection, Protection/Exclusion

**Protection Strategy:** Exclusion booming around entire island due to tidal factors, possible diversion boom to south side of island depending on size of spill, current, or tidal range. Refer to Contractor Guidance GSTRP - Mobile Bay (OP - Area) 3 SW



**Name:** S. Rigolets Island

**Site ID:**

**AL-01.02**

**Protection Priority (Season):** Spring:  Summer:  Fall:  Winter:

**Site Description:** Intertidal salt marsh shoreline. Shallow water on approach to south Rigolets Island.

**GEOSPATIAL INFORMATION**

**Latitude (DMS):** 30° 21' 5.71" N

**Longitude (DMS):** 88° 23' 38.31" W

**County:**

**Latitude (DD):** 30.35158696

**Longitude (DD):** -88.39397491

**SCAT Division:** MS-1NE

**ESI Map:** AL-1

**ESI Name:** Grand Bay SW

**NOAA Chart:** Unknown

**CHART Name:** Unknown

**USGS Quad:** 30088-C4

**QUAD Name:** GRAND BAY SW, ALA. (1977)

**Managed Area (if applicable):** Private

**General Location:**

**CONTACT INFORMATION**

**Contacts:** USFWS Grand Bay National Wildlife Refuge - Durwin Carter - (228) 497-6322/ USFWS Daphne FO - (251) 441-5181/ National Response Center: 1-800-424-8802;

**RESOURCES AT RISK INFORMATION**

**Shoreline Type:** Salt & Brackish Water Marsh, Sheltered Tidal Flats, Sand Beaches,

**Habitat:** Sheltered Tidal Flats, Salt/Brackish Marsh, South Rigolet Island,

**Wildlife:** Small Mammals, Shorebirds, Wading Birds, Turtles, Diamondback Terrapin, Fish, Crab, Shrimp, possible Gulf Sturgeon (T),

**Threaten/Endangered Species:** Piping Plover designated critical habitat, Snowy Plover, Throughout Area - Gulf Sturgeon (T), Bald Eagle (T), Manatees (E), Gopher Tortoise (T),

**Socio-Economic Resources:** OSROs

**RESPONSE CONSIDERATIONS**

**Staging Area:** Bayou Casotte, Bayou LaBatre, \*Bayou Cumbest, point-o-pines located closer but need pitches \*, Jemison Ramp, Alabama Port, Fowl River Marina, 1-NW Middle Bay Port

**Collection Points:** Fowl River

**Area Access:** From Bayou Casotte, Bayou Cumbest, Bayou Heron, through MS sound-Boat only, Fowl River Marina, Alabama Port; Shallow area, access difficult in shoreline S

**Spill Risk:** Industries along Bayou Casotte, including shipping channels. Pascagoula Industry, Pipeline, Vessel

**Response Resources:** Mobile Co. EMA (251) 460-8000,

**PROTECTION STRATEGY INFORMATION**

**Tidal Range (FT):** 2

**Average Current (KTS):**

**Ease of Protection:** Unknown

**Min. Boom Length (FT):** 10000

**Boom Type:**

**Booming Method:** Deflection, Protection/Exclusion

**Protection Strategy:** Deploy 10000' of boom to protect sensitive areas that are associated with Rigolets Bayou. Exclusion boom to protect shoreline, diversion boom to natural collection areas.



**Name:** Bangs Island

**Site ID:**

**MS23**

**Protection Priority (Season):** Spring:  Summer:  Fall:  Winter:

**Site Description:** Old Indian Midden. Deepest Water is from pt.aux Chenes Bay. (e 1.5 ft) Boats)

**GEOSPATIAL INFORMATION**

**Latitude (DMS):** 30° 21' 33.72" N

**Longitude (DMS):** 88° 26' 44.04" W

**County:**

**Latitude (DD):** 30.35936649

**Longitude (DD):** -88.44556678

**SCAT Division:** MS-1NE

**ESI Map:** AL-1

**ESI Name:** Grand Bay SW

**NOAA Chart:** Unknown

**CHART Name:** Unknown

**USGS Quad:** 30088-C4

**QUAD Name:** GRAND BAY SW, ALA. (1977)

**Managed Area (if applicable):** Private

**General Location:**

**CONTACT INFORMATION**

**Contacts:** See Contacts for MS1(Bangs Bayou);

**RESOURCES AT RISK INFORMATION**

**Shoreline Type:** Shell Beaches, Salt Marsh,

**Habitat:** Salt Marsh, Shellfish Beds- Archeological site,

**Wildlife:** Shore Birds,Raptors,Gulls& Terns, Wading birds, possible Gulf Sturgeon (T),

**Threaten/Endangered Species:** ,

**Socio-Economic Resources:**

**RESPONSE CONSIDERATIONS**

**Staging Area:** See Entry for MS1(Bangs Bayou)

**Collection Points:** Needs Review

**Area Access:** Boat Only-From Bayou Casotte(or Bayou Cumbest and Bayou Heron for Shallow draft

**Spill Risk:** Industries along Bayou Casotte, including shipping channels.

**Response Resources:** ,

**PROTECTION STRATEGY INFORMATION**

**Tidal Range (FT):** 1.5

**Average Current (KTS):**

**Ease of Protection:** Unknown

**Min. Boom Length (FT):** 7000

**Boom Type:**

**Booming Method:** Deflection, Protection/Exclusion

**Protection Strategy:** Deploy 7000' of Boom to protect sensitive areas associated with Bangs Bayou



**Name:** Bayou Cumbest

**Site ID:**

**MS4**

**Protection Priority (Season):** Spring:  Summer:  Fall:  Winter:

**Site Description:** Shallow water<3 ft at mouth of Bayou and near Point O' Pines Boat Ramp

**GEOSPATIAL INFORMATION**

**Latitude (DMS):** 30° 21' 23.72" N

**Longitude (DMS):** 88° 26' 40.04" W

**County:**

**Latitude (DD):** 30.35658880

**Longitude (DD):** -88.44445549

**SCAT Division:** MS-1NE

**ESI Map:** AL-1

**ESI Name:** Grand Bay SW

**NOAA Chart:** Unknown

**CHART Name:** Unknown

**USGS Quad:** 30088-C4

**QUAD Name:** GRAND BAY SW, ALA. (1977)

**Managed Area (if applicable):** State of Miss.(open water), Private adjacent Marsh, USFWS

**General Location:**

**CONTACT INFORMATION**

**Contacts:** See Contacts on MS1 (Bangs Bayou);

**RESOURCES AT RISK INFORMATION**

**Shoreline Type:** Clay Scraps, Mixed sand and shell beach, Exposed Tidal Flats, Salt Marsh,

**Habitat:** Exposed Tidal Flats, Salt Marsh, Shellfish Beds, Submerged Aquatic Vegetation -Archeological site,

**Wildlife:** Small Mammals, Raptors, Shorebirds, Wadind birds, Diving birds, Fish, Shellfish, possible Gulf Sturgeon (T),

**Threaten/Endangered Species:** Brown Pelican, Piping Plover,

**Socio-Economic Resources:**

**RESPONSE CONSIDERATIONS**

**Staging Area:** See Entry for MS1 (Bangs Bayou)

**Collection Points:** Needs Review

**Area Access:** From Bayou Casotte, Bayou Cumbest, Bayou Heron- Boat only

**Spill Risk:** Industries along Bayou Casotte, including shipping Channels

**Response Resources:** ,

**PROTECTION STRATEGY INFORMATION**

**Tidal Range (FT):** 1.5

**Average Current (KTS):**

**Ease of Protection:** Unknown

**Min. Boom Length (FT):** 3000

**Boom Type:**

**Booming Method:** Deflection, Protection/Exclusion

**Protection Strategy:** To Protect sensitive areas associated with Bayou Cumbest



Name: Jose Bayou

Site ID:

MS15

Protection Priority (Season): Spring:  Summer:  Fall:  Winter:

Site Description: Shallow water

**GEOSPATIAL INFORMATION**

Latitude (DMS): 30° 22' 12.72" N

Longitude (DMS): 88° 24' 1.03" W

County:

Latitude (DD): 30.37019970

Longitude (DD): -88.40028729

SCAT Division: MS-1NE

ESI Map: AL-1

ESI Name: Grand Bay SW

NOAA Chart: Unknown

CHART Name: Unknown

USGS Quad: 30088-C4

QUAD Name: GRAND BAY SW, ALA. (1977)

Managed Area (if applicable): State of Miss.

General Location:

**CONTACT INFORMATION**

Contacts: See contacts on MS1 (Bangs Bayou);

**RESOURCES AT RISK INFORMATION**

Shoreline Type: Salt Marsh, Sheltered Tidal Flats,

Habitat: Salt Marsh, Tidal Flats, Shellfish beds,

Wildlife: Diving birds, Wading birds, Crabs, Bivalves, Waterfowl, Fish, Shrimp, possible Gulf Sturgeon (T),

Threaten/Endangered Species: Brown Pelican, Throughout Area - Gulf Sturgeon (T), Bald Eagle (T), Manatees (E), Gopher Tortoise (T),

Socio-Economic Resources:

**RESPONSE CONSIDERATIONS**

Staging Area: Bayou Casotte, Bayou LaBatre, \*Bayou Cumbest, point-o-pines located closer but need pitches \*

Collection Points: Needs Review

Area Access: Boat only- from Bayou Casotte(or Bayou Cumbest and Bayou Heron for shallow draft(<1.5ft) boats)

Spill Risk: Industries along Bayou Casotte, including shipping channels. Bayou La Batre

Response Resources: ,

**PROTECTION STRATEGY INFORMATION**

Tidal Range (FT): 1.5

Average Current (KTS):

Ease of Protection: Unknown

Min. Boom Length (FT): 3000

Boom Type:

Booming Method: Deflection, Protection/Exclusion

Protection Strategy: To protect sensitive areas associated with Jose Bayou



**Name:** L'Isle Chaudre Bay

**Site ID:**

**MS7**

**Protection Priority (Season):** Spring:  Summer:  Fall:  Winter:

**Site Description:** Shallow water from north (Crooked Bayou) and south (Jose Bay)

**GEOSPATIAL INFORMATION**

**Latitude (DMS):** 30° 21' 36.72" N

**Longitude (DMS):** 88° 24' 22.03" W

**County:**

**Latitude (DD):** 30.36019990

**Longitude (DD):** -88.40612072

**SCAT Division:** MS-1NE

**ESI Map:** AL-1

**ESI Name:** Grand Bay SW

**NOAA Chart:** Unknown

**CHART Name:** Unknown

**USGS Quad:** 30088-C4

**QUAD Name:** GRAND BAY SW, ALA. (1977)

**Managed Area (if applicable):** State of Miss. (open water) USFWS (adjacent marsh)

**General Location:**

**CONTACT INFORMATION**

**Contacts:** See contacts on Ms1 ( Bangs Bayou);

**RESOURCES AT RISK INFORMATION**

**Shoreline Type:** Shell beaches ,Sheltered tidal flats,Salt marsh,

**Habitat:** Sheltered tidal flats, salt marsh, Shellfish beds, Shell Middens-Archaeological site,

**Wildlife:** Small Mammals, Raptors, Shorebirds, Wading birds, Fish, Bivalves, Crabs Shrimp,, possible Gulf Sturgeon (T),

**Threaten/Endangered Species:** Brown pelican, Throughout Area - Gulf Sturgeon (T), Bald Eagle (T), Manatees (E), Gopher Tortoise (T),

**Socio-Economic Resources:**

**RESPONSE CONSIDERATIONS**

**Staging Area:** Bayou Casotte, Bayou LaBatre, \*Bayou Cumbest, point-o-pines located closer but need pitches \*

**Collection Points:** Needs Review

**Area Access:** Boat only- shallow draft (<1ft) from Bayou Casotte, Bayou Cumbest, Bayou Heron

**Spill Risk:** Industries along Baoyu Casotte, including shipping channels

**Response Resources:** ,

**PROTECTION STRATEGY INFORMATION**

**Tidal Range (FT):** 1.5

**Average Current (KTS):**

**Ease of Protection:** Unknown

**Min. Boom Length (FT):** 5500

**Boom Type:**

**Booming Method:** Deflection, Protection/Exclusion

**Protection Strategy:** Deploy 5500' of boom to protect sensitive areas associated with ('Isle Chavee Bay



**Name:** Bennett Bayou (North of I-10)

**Site ID:**

**MS52**

**Protection Priority (Season):** Spring:  Summer:  Fall:  Winter:

**Site Description:** Unknown

**GEOSPATIAL INFORMATION**

**Latitude (DMS):** 30° 18' 24.77" N

**Longitude (DMS):** 88° 25' 26.88" W

**County:**

**Latitude (DD):** 30.46108959

**Longitude (DD):** -88.45266270

**SCAT Division:** MS-1NE

**ESI Map:** AL-1

**ESI Name:** Grand Bay SW

**NOAA Chart:** Unknown

**CHART Name:** Unknown

**USGS Quad:** 30088-C4

**QUAD Name:** GRAND BAY SW, ALA. (1977)

**Managed Area (if applicable):** Private

**General Location:**

**CONTACT INFORMATION**

**Contacts:** USFWS- Paul Necaize 228-493-0634;

**RESOURCES AT RISK INFORMATION**

**Shoreline Type:** Rivering Banks with grasses or Trees,

**Habitat:** Riverine- Archeological Site,

**Wildlife:** Gulf sturgeon, Raptors, Fish, Wading birds, possible Gulf Sturgeon (T),

**Threaten/Endangered Species:** Gulf Sturgeon,

**Socio-Economic Resources:**

**RESPONSE CONSIDERATIONS**

**Staging Area:** I-10 Boat launch

**Collection Points:** Needs Review

**Area Access:** Boat ramp located on site

**Spill Risk:**

**Response Resources:** ,

**PROTECTION STRATEGY INFORMATION**

**Tidal Range (FT):** 0

**Average Current (KTS):**

**Ease of Protection:** Unknown

**Min. Boom Length (FT):** 10000

**Boom Type:**

**Booming Method:** Deflection, Protection/Exclusion

**Protection Strategy:** Deploy 10000' of boom to protect sensitive areas associated with Bennett Bayou



Name: Brown Bayou

Site ID:

MS11

Protection Priority (Season): Spring:  Summer:  Fall:  Winter:

Site Description: Shallow water on approach to shoreline.

**GEOSPATIAL INFORMATION**

Latitude (DMS): 30° 20' 24.72" N

Longitude (DMS): 88° 26' 46.04" W

County:

Latitude (DD): 30.34020008

Longitude (DD): -88.44612210

SCAT Division: MS-1NE

ESI Map: AL-1

ESI Name: Grand Bay SW

NOAA Chart: Unknown

CHART Name: Unknown

USGS Quad: 30088-C4

QUAD Name: GRAND BAY SW, ALA. (1977)

Managed Area (if applicable): State of Miss.

General Location:

**CONTACT INFORMATION**

Contacts: See entry for MS1 (Bangs Bayou);

**RESOURCES AT RISK INFORMATION**

Shoreline Type: Salt marsh, Sheltered tidal flats,

Habitat: Salt marsh, Sheltered tidal flats, Diamondback terrapin habitat, Archaeological site,

Wildlife: Small mammals, Shorebirds, Wading birds, Sankes, Turtles, Crabs, possible Gulf Sturgeon (T),

Threaten/Endangered Species: ,

Socio-Economic Resources:

**RESPONSE CONSIDERATIONS**

Staging Area: See entry for MS1 (Bangs Bayou)

Collection Points: Needs Review

Area Access: Boat only, from Bayou Casotte, or Bayou Cumbest for shallow draft (<1.5ft boats)

Spill Risk: Industries along Bayou Casotte, including shipping channels

Response Resources: ,

**PROTECTION STRATEGY INFORMATION**

Tidal Range (FT): 1.5

Average Current (KTS):

Ease of Protection: Unknown

Min. Boom Length (FT): 10000

Boom Type:

Booming Method: Deflection, Protection/Exclusion

Protection Strategy: Deploy 10000' of boom to protect sensitive areas associated with Brown Bayou



USCG Sector Mobile  
Geographic Response Plan Map Series

Notes:  
Map Numbers Match ESI Map Numbers.  
MAP NOT INTENDED FOR NAVIGATION.



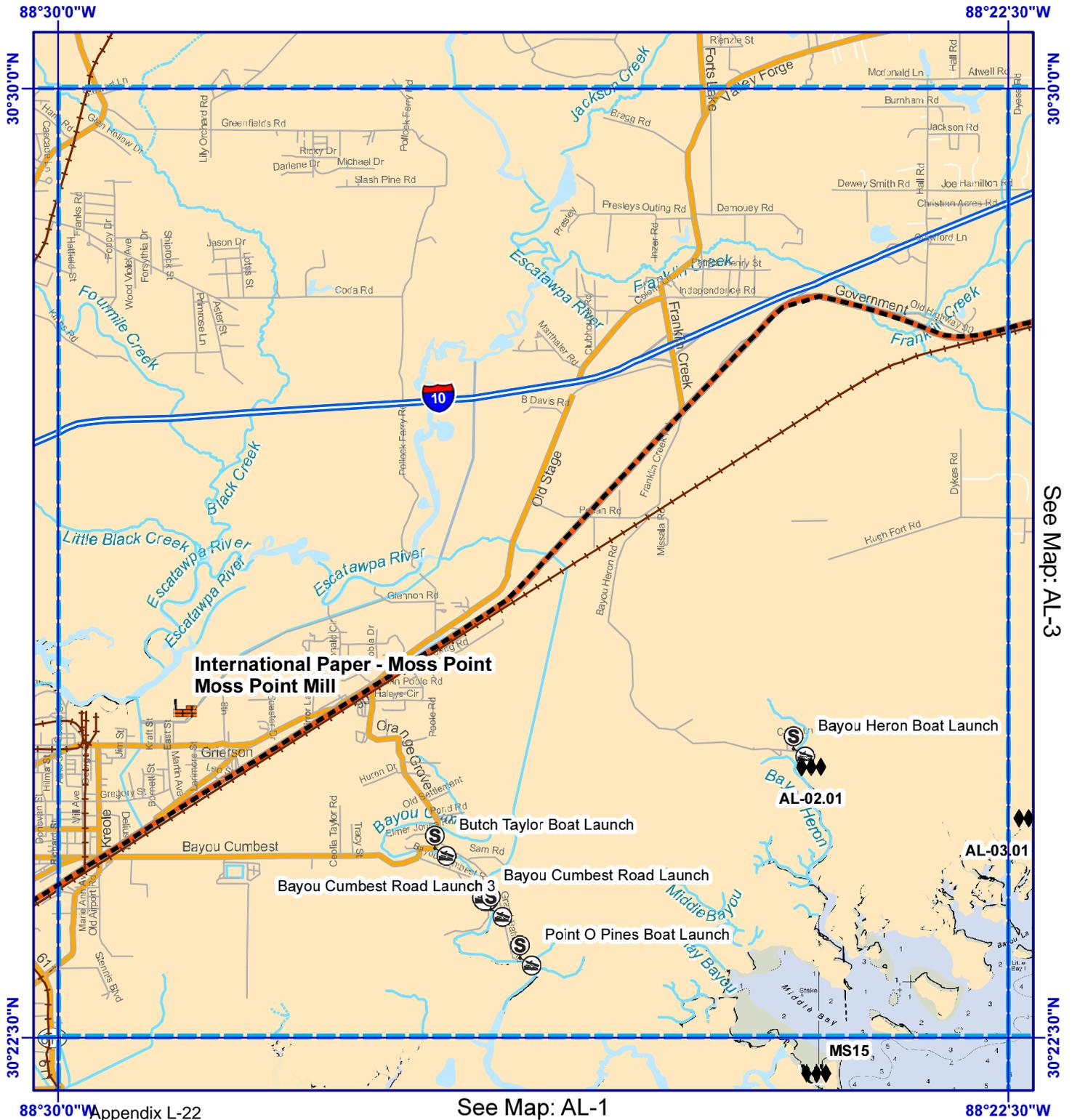
Map #: AL-2  
TOPO NAME: KREOLE, ALA.-MISS. (1977)

Legend	
	Oil Spill Sensitive Areas
	Staging Area; Boat Ramp; Marina
	Staging Area; Boat Ramp
	Boat Ramp; Marina
	Staging Area
	Boat Ramp
	Marina
	Regulated Facilities
	Commercial Shipping Lanes
	USCG-EPA MOU Line Draft - 2008
	GRP Map Boundaries
	Sector Boundary

Kilometers  
0 0.40.8 1.6

Miles  
0 0.5 1 2

Map Produced July 2009 by FWC-FWR1



88°30'0"W Appendix L-22

See Map: AL-1

88°22'30"W

Name: Grand Bay NWR - East

Site ID:

AL-03.01

Protection Priority (Season): Spring:  Summer:  Fall:  Winter:

Site Description: Marshland

**GEOSPATIAL INFORMATION**

Latitude (DMS): 30° 24' 13.72" N Longitude (DMS): 88° 22' 20.41" W County:  
 Latitude (DD): 30.40381156 Longitude (DD): -88.37233581 SCAT Division:  
 ESI Map: AL-3 ESI Name: Grand Bay  
 NOAA Chart: Unknown CHART Name: Unknown  
 USGS Quad: QUAD Name: GRAND BAY, ALA. (1986)

Managed Area (if applicable): USFWS - Grand Bay National Wildlife Refuge

General Location:

**CONTACT INFORMATION**

Contacts: USFWS - Grand Bay NWR (228) 497-6322, USFWS Daphne (251) 441-578, ADCNR/ National Response Center: 1-800-424-8802;

**RESOURCES AT RISK INFORMATION**

Shoreline Type: Salt and Brackish Water Marsh,

Habitat: Salt and Brackish Water Marsh, Piping Plover designated critical habitat, breeding and feeding habitat for numerous juvenile species,

Wildlife: Throughout Area - Gulf Sturgeon (T), Bald Eagle (T), Manatees (E), Gopher Tortoise (T), Fish, Crab, Shrimp, numerous juvenile fish species, possible Gulf Sturgeon (T),

Threaten/Endangered Species: Throughout Area - Gulf Sturgeon (T), Bald Eagle (T), Manatees (E), Gopher Tortoise (T), Alabama Red Belly Turtle (E), Possible Archaeological Site,

Socio-Economic Resources: Numerous bird and fish species

**RESPONSE CONSIDERATIONS**

Staging Area: Jemison Ramp (See AL-03), Bayou LaBatre (see AL-03), Alabama Port (GSTRP 2 & 3 SW), Fowl River Marina (3 SW & 1 NW), Middle Bay Port (1 NW)

Collection Points: Fowl River, Alabama Port

Area Access: shallow areas, access difficult in shoreline areas, Apart from channel to Bayou La Batre, water is mostly shallow.

Spill Risk: Shipping channels, offshore oil rigs, sites in Alabama.

Response Resources: Mobile CO EMA - (251) 460-8000,

**PROTECTION STRATEGY INFORMATION**

Tidal Range (FT): 2 Average Current (KTS): Ease of Protection: Unknown  
 Min. Boom Length (FT): Boom Type: Booming Method: Deflection, Protection/Exclusion

Protection Strategy: Exclusion boom to protect shoreline and diversion boom to natural collection areas



Name: Grand Bay NWR

Site ID:

AL-02.01

Protection Priority (Season): Spring:  Summer:  Fall:  Winter:

Site Description: Intertidal salt marsh shoreline

**GEOSPATIAL INFORMATION**

Latitude (DMS): 30° 24' 38.11" N Longitude (DMS): 88° 24' 3.45" W County:  
 Latitude (DD): 30.41058746 Longitude (DD): -88.40095768 SCAT Division:  
 ESI Map: AL-2 ESI Name: Kreole  
 NOAA Chart: Unknown CHART Name: Unknown  
 USGS Quad: QUAD Name: KREOLE, ALA.-MISS. (1977)

Managed Area (if applicable): USFWS - Grand Bay National Wildlife Refuge

General Location:

**CONTACT INFORMATION**

Contacts: USFWS - Grand Bay NWR (228) 497-6322, USFWS Daphne (251) 441-5781/ National Response Center: 1-800-424-8802;

**RESOURCES AT RISK INFORMATION**

Shoreline Type: Salt and Brackish Water Marsh,

Habitat: Salt and Brackish Water Marsh, Piping Plover designated critical habitat, breeding and feeding habitat for numerous juvenile species; Grand Bay NWR,

Wildlife: Throughout Area - Gulf Sturgeon (T), Bald Eagle (T), Manatees (E), Gopher Tortoise (T), Fish, Crab, Shrimp, numerous juvenile fish species, ,

Threaten/Endangered Species: Gulf Sturgeon, Bald Eagle, Manatee, Piping Plover, Gopher Tortoise, Alabama Red Belly Turtle (E),

Socio-Economic Resources: Numerous bird and fish species

**RESPONSE CONSIDERATIONS**

Staging Area: Jemison Ramp (See AL-03), Bayou LaBatre (see AL-03), Alabama Port (GSTRP 2 & 3 SW), Fowl River Marina (3 SW & 1 NW), Middle Bay Port (1 NW)

Collection Points: Fowl River, Alabama Port

Area Access: shallow areas, access difficult in shoreline areas

Spill Risk: Shipping channels, offshore oil rigs, sites in Alabama. Industries along Bayou Casotte, including shipping channels. Pascagoula Industry, Pipeline, Vessel

Response Resources: Mobile CO EMA - (251) 460-8000, OSROs,

**PROTECTION STRATEGY INFORMATION**

Tidal Range (FT): 2 Average Current (KTS): Ease of Protection: Unknown

Min. Boom Length (FT): Boom Type: Booming Method: Deflection, Protection/Exclusion

Protection Strategy: Exclusion boom to protect shoreline and diversion boom to natural collection areas



**Name:** Jose Bayou

**Site ID:**

**MS15**

**Protection Priority (Season):** Spring:  Summer:  Fall:  Winter:

**Site Description:** Shallow water

**GEOSPATIAL INFORMATION**

**Latitude (DMS):** 30° 22' 12.72" N

**Longitude (DMS):** 88° 24' 1.03" W

**County:**

**Latitude (DD):** 30.37019970

**Longitude (DD):** -88.40028729

**SCAT Division:** MS-1NE

**ESI Map:** AL-1

**ESI Name:** Grand Bay SW

**NOAA Chart:** Unknown

**CHART Name:** Unknown

**USGS Quad:** 30088-C4

**QUAD Name:** GRAND BAY SW, ALA. (1977)

**Managed Area (if applicable):** State of Miss.

**General Location:**

**CONTACT INFORMATION**

**Contacts:** See contacts on MS1 (Bangs Bayou);

**RESOURCES AT RISK INFORMATION**

**Shoreline Type:** Salt Marsh, Sheltered Tidal Flats,

**Habitat:** Salt Marsh, Tidal Flats, Shellfish beds,

**Wildlife:** Diving birds, Wading birds, Crabs, Bivalves, Waterfowl, Fish, Shrimp, possible Gulf Sturgeon (T),

**Threaten/Endangered Species:** Brown Pelican, Throughout Area - Gulf Sturgeon (T), Bald Eagle (T), Manatees (E), Gopher Tortoise (T),

**Socio-Economic Resources:**

**RESPONSE CONSIDERATIONS**

**Staging Area:** Bayou Casotte, Bayou LaBatre, \*Bayou Cumbest, point-o-pines located closer but need pitches \*

**Collection Points:** Needs Review

**Area Access:** Boat only- from Bayou Casotte(or Bayou Cumbest and Bayou Heron for shallow draft(<1.5ft) boats)

**Spill Risk:** Industries along Bayou Casotte, including shipping channels. Bayou La Batre

**Response Resources:** ,

**PROTECTION STRATEGY INFORMATION**

**Tidal Range (FT):** 1.5

**Average Current (KTS):**

**Ease of Protection:** Unknown

**Min. Boom Length (FT):** 3000

**Boom Type:**

**Booming Method:** Deflection, Protection/Exclusion

**Protection Strategy:** To protect sensitive areas associated with Jose Bayou



## Appendix M - References

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## Appendix N - Glossary

This glossary includes terms focusing primarily on emergency management. References used for the terms are included at the end of this appendix. Terms are largely presented as provided in the source documents for consistency with relevant standards and frameworks.

**AFTER-ACTION REPORT (AAR):** Reports that summarize and analyze performance in both exercises and actual events. The reports for exercises may also evaluate achievement of the selected exercise objectives and demonstration of the overall capabilities being exercised. (FEMA 2007)

**AREA COMMAND:** (also called, Unified Area Command) An organization established to oversee the management of (1) multiple incidents that are each being handled by an ICS organization, or (2) large or multiple incidents to which several Incident Management Teams have been assigned. Area Command has the responsibility to set overall strategy and priorities, allocate critical resources according to priorities, ensure that incidents are properly managed, and ensure that objectives are met and strategies followed. Area Command becomes Unified Area Command when incidents are multijurisdictional. Area Command may be established at an emergency operations center facility or at some location other than an Incident Command Post. (FEMA Undated)

**AREA COMMITTEE (AC):** Under the Clean Water Act, the entity appointed by the President consisting of members from qualified personnel of federal, state, and local agencies with responsibilities that include preparing an area contingency plan for an area designated by the President. (NCP 1994)

**AREA CONTINGENCY PLAN (ACP):** Under the Clean Water Act, the plan prepared by an Area Committee that is developed to be implemented in conjunction with the National Contingency Plan (NCP) and Regional Contingency Plan (RCP), in part to address removal of a worst case discharge of an oil or hazardous substance, and to mitigate or prevent a substantial threat of such a discharge from a vessel, offshore facility, or onshore facility operating in or near an area designated by the President. (NCP 1994).

**ASSIGNED RESOURCES:** Resources checked in and assigned work tasks on an incident. (ICS Undated)

**ASSIGNMENTS:** Tasks given to resources to perform within a given operational period, based upon tactical objectives in the Incident Action Plan. (ICS Undated)

**ASSISTING AGENCY:** An agency or organization providing personnel, services, or other resources to the agency with direct responsibility for incident management. (FEMA Undated)

**AUTOMATED EXTERNAL DEFIBRILLATOR (AED):** A portable device that checks the heart rhythm. If needed, it can send an electric shock to the heart to try to restore a normal rhythm. AEDs are used to treat [sudden cardiac arrest](#) (SCA). (NIH 2013)

**AVAILABLE RESOURCES:** Resources assigned to an incident, checked in, and available for a mission assignment, normally located in a Staging Area (note: these are categorized as

emergency capabilities for the purposes of this Disaster Response Plan to avoid confusion with the term “natural resources.” (FEMA Undated)

**BRANCH:** The organizational level having functional or geographic responsibility for major parts of incident operations. The Branch level is organizationally between Section and Division/Group in the Operations Section, and between Section and Units in the Logistics Section. Branches are identified by the use of Roman Numerals or by functional name (e.g., medical, security, etc.). (ICS Undated)

**CARDIO-PULMONARY RESPIRATION (CPR):** a procedure designed to restore normal breathing after cardiac arrest that includes the clearance of air passages to the lungs, mouth-to-mouth method of artificial respiration, and heart massage by the exertion of pressure on the chest. (Merriam-Webster 2013)

**CHECK-IN:** The process whereby resources first report to an incident. Check-in locations include: Incident Command Post (Resources Unit), Incident Base, Camps, Staging Areas, Helibases, Helispots, and Division Supervisors (for direct line assignments). (ICS Undated)

**COASTAL ZONE MANAGEMENT ACT (CZMA):** Administered by NOAA's Office of Ocean and Coastal Resource Management (OCRM), the CZMA provides for management of the nation's coastal resources, including the Great Lakes, and balances economic development with environmental conservation.

The CZMA outlines two national programs, the National Coastal Zone Management Program and the National Estuarine Research Reserve System. The 34 coastal programs aim to balance competing land and water issues in the coastal zone, while estuarine reserves serve as field laboratories to provide a greater understanding of estuaries and how humans impact them. The overall program objectives of CZMA remain balanced to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." (NOAA 2012)

**COMMAND:** The act of directing and/or controlling resources by virtue of explicit legal, agency, or delegated authority. May also refer to the Incident Commander. (ICS Undated)

**COMMAND POST:** See Incident Command Post.

**COMMAND STAFF:** The Command Staff consists of the Public Information Officer, Safety Officer, and Liaison Officer. They report directly to the Incident Commander. They may have an Assistant or Assistants, as needed. (FEMA Undated)

**COMMUNICATIONS UNIT:** An organizational unit in the Logistics Section responsible for providing communication services at an incident. A Communications Unit may also be a facility (e.g., a trailer or mobile van) used to provide the major part of an Incident Communications Center. (ICS Undated)

**COMPENSATION UNIT/CLAIMS UNIT:** Functional unit within the Finance/Administration Section responsible for financial concerns resulting from property damage, injuries, or fatalities at the incident. (ICS Undated)

**CONTINUITY OF OPERATIONS PLAN (COOP):** The COOP outlines essential functions; orders of succession; delegations of authority; continuity facilities; continuity communications; vital records management; human capital; tests, training, and exercises;

devolution of control and direction; and reconstitution. The plan could be activated in response to a wide range of events or situations – from a fire in the building; to a natural disaster; to the threat or occurrence of a terrorist attack. Any event that makes it impossible for employees to work in their regular facility could result in the activation of the continuity plan. Continuity planning is the practice of ensuring the execution of essential functions through all circumstances. (FEMA 2013c)

**COOPERATING AGENCY:** An agency supplying assistance other than direct operational or support functions or resources to the incident management effort. (FEMA Undated)

**COORDINATION:** The process of systematically analyzing a situation, developing relevant information, and informing appropriate command authority of viable alternatives for selection of the most effective combination of available resources to meet specific objectives. The coordination process (which can be either intra- or interagency) does not involve dispatch actions. However, personnel responsible for coordination may perform command or dispatch functions within the limits established by specific agency delegations, procedures, legal authority, etc. (FEMA Undated)

**COORDINATION CENTER:** A facility that is used for the coordination of agency or jurisdictional resources in support of one or more incidents. (FEMA Undated)

**COST SHARING AGREEMENTS:** Agreements between agencies or jurisdictions to share designated costs related to incidents. Cost sharing agreements are normally written but may also be oral between authorized agency or jurisdictional representatives at the incident. (FEMA Undated)

**COST UNIT:** Functional unit within the Finance/Administration Section responsible for tracking costs, analyzing cost data, making cost estimates, and recommending cost-saving measures. (ICS Undated)

**DEPUTY:** Deputy: A fully qualified individual who, in the absence of a superior, could be delegated the authority to manage a functional operation or perform a specific task. In some cases, a Deputy could act as relief for a superior and therefore must be fully qualified in the position. Deputies can be assigned to the Incident Commander, General Staff, and Branch Directors. (FEMA Undated)

**DEMOBILIZATION UNIT:** Functional unit within the Planning Section responsible for assuring orderly, safe, and efficient demobilization of incident resources. (ICS Undated)

**DIRECTOR:** The ICS title for individuals responsible for supervision of a Branch. (ICS Undated)

**DISASTER:** Incidents that result in profound loss, recovery from which can require months, years, or even decades. (Disaster Response Plan Usage)

**DIVISION:** Divisions are used to divide an incident into geographical areas of operation. A Division is located within the ICS organization between the Branch and the Task Force/Strike Team (See Group). Divisions are identified by alphabetic characters for horizontal applications and, often, by floor numbers when used in buildings. (ICS Undated)

**DOCUMENTATION UNIT:** Functional unit within the Planning Section responsible for collecting, recording, and safeguarding all documents relevant to the incident. (ICS Undated)

**DRILL:** A drill is a type of HSEEP exercise. It is coordinated, supervised activity usually employed to test a single specific operation or function within a single entity (e.g., a fire department conducts a decontamination drill).

**EMERGENCY:** Absent a Presidentially declared emergency, any incident(s), human-caused or natural, that requires responsive action to protect life or property. Under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, an emergency means any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States. (FEMA Undated)

**EMERGENCY MANAGEMENT COORDINATOR/DIRECTOR:** The individual within each political subdivision that has coordination responsibility for jurisdictional emergency management. (ICS Undated)

**EMERGENCY MEDICAL TECHNICIAN (EMT):** A health-care specialist with particular skills and knowledge in pre-hospital emergency medicine. (ICS, Undated)

**EMERGENCY OPERATIONS CENTER (EOC):** Emergency Operations Centers (EOCs): The physical location at which the coordination of information and resources to support domestic incident management activities normally takes place. An EOC may be a temporary facility or may be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, and medical services), by jurisdiction (e.g., Federal, State, regional, county, city, tribal), or some combination thereof. (FEMA Undated)

**EMERGENCY OPERATIONS PLAN:** The plan that each jurisdiction has and maintains for responding to appropriate hazards. (ICS Undated)

**ENDANGERED SPECIES:** The classification provided to an animal or plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range. (FWS 2013a)

**ENVIRONMENTAL SENSITIVITY INDEX (ESI) MAP:** ESI maps provide a concise summary of coastal resources that are at risk if an oil spill occurs nearby. Examples of at-risk resources include biological resources (such as birds and shellfish beds), sensitive shorelines (such as marshes and tidal flats), and human-use resources (such as public beaches and parks).

When an oil spill occurs, ESI maps can help responders meet one of the main response objectives: reducing the environmental consequences of the spill and the cleanup efforts. Additionally, ESI maps can be used by planners—before a spill happens—to identify vulnerable locations, establish protection priorities, and identify cleanup strategies. (NOAA 2013b)

**ESTUARY/ESTUARINE:** In the most general terms, an estuary is an ecosystem, comprising both the biological and physical environment, which has developed in a region where rivers meet the sea and fresh flowing river water mingles with tidal salt water to become brackish, or partly salty. However, there are also several types of wholly freshwater ecosystems that have many similar characteristics to what we think of as traditional brackish estuaries. Estuaries are connected by water to many different surrounding environments (oceans, lakes, forests, grassy plains) as well as nearby human communities, and they are therefore affected by what takes place in those environments whether it be natural processes or human activities. (NOAA 2013c)

**EVACUATION:** To withdraw from a place in an organized way especially for protection. (Merriam-Webster 2013)

**EVENT:** A planned, non-emergency activity. ICS can be used as the management system for a wide range of events, e.g., parades, concerts, or sporting events. (ICS Undated)

**FACILITIES UNIT:** Functional unit within the Support Branch of the Logistics Section that provides fixed facilities for the incident. These facilities may include the Incident Base, feeding areas, sleeping areas, sanitary facilities, etc. (ICS Undated)

**FIELD OPERATIONS GUIDE:** A pocket-size manual of instructions on the application of the Incident Command System. (ICS Undated)

**FINANCE/ADMINISTRATION SECTION:** The Section responsible for all incident costs and financial considerations. Includes the Time Unit, Procurement Unit, Compensation/Claims Unit, and Cost Unit. (ICS Undated)

**FOOD UNIT:** Functional unit within the Service Branch of the Logistics Section responsible for providing meals for incident personnel. (ICS Undated)

**FUNCTION:** In ICS, function refers to the five major activities in the ICS, i.e., Command, Operations, Planning, Logistics, and Finance/Administration. The term function is also used when describing the activity involved, e.g., the planning function. (ICS Undated)

**FUNCTIONAL EXERCISE (FE):** A functional exercise is a type of HSEEP exercise. It examines and/or validates the coordination, command, and control between various multi-agency coordination centers (e.g., emergency operation center, joint field office, etc.). A functional exercise does not involve any "boots on the ground" (i.e., first responders or emergency officials responding to an incident in real time). (FEMA 2013a)

**FULL-SCALE EXERCISE (FSE):** A full-scale exercise is a multi-agency, multi-jurisdictional, multi-discipline exercise involving functional (e.g., joint field office, emergency operation centers, etc.) and "boots on the ground" response (e.g., firefighters decontaminating mock victims). (FEMA 2013a)

**GAME:** A game is a type of HSEEP exercise. It is a simulation of operations that often involves two or more teams, usually in a competitive environment, using rules, data, and procedure designed to depict an actual or assumed real-life situation. (FEMA 2013a)

**GENERAL STAFF:** The group of incident management personnel reporting to the Incident Commander. They may each have a deputy, as needed. The General Staff consists of:

Operations Section Chief, Planning Section Chief, Logistics Section Chief,  
Finance/Administration Section Chief (ICS Undated)

**GEOGRAPHIC RESPONSE PLAN (GRP):** A site-specific strategy for the initial response to a spill of oil or oil products on water. (Ellis 2009)

**GROUP:** Groups are established to divide the incident into functional areas of operation. Groups are composed of resources assembled to perform a special function not necessarily within a single geographic division (See Division). Groups are located between Branches (when activated) and Resources in the Operations Section. (FEMA Undated)

**HARMFUL ALGAL BLOOM (HAB):** A harmful algal bloom (HAB), also known as a red tide, is the proliferation of toxic nuisance algae that cause a negative impact to natural resources or humans. Currently 85 toxic microalgal species have been documented; of these, 37 live in Gulf of Mexico waters. (EPA 2013f)

**HAZARD:** Something that is potentially dangerous or harmful, often the root cause of an unwanted outcome (FEMA Undated)

**HAZARD IDENTIFICATION AND RISK ASSESSMENT (HIRA):** Hazard Identification is the process of determining whether exposure to a stressor can cause an increase in the incidence of specific adverse health effects (e.g., cancer, birth defects) and whether the adverse health effect is likely to occur in humans. In the case of chemical stressors, the process examines the available scientific data for a given chemical (or group of chemicals) and develops a weight of evidence to characterize the link between the negative effects and the chemical agent. Risk assessment is used to characterize the nature and magnitude of health risks to humans (e.g., residents, workers, recreational visitors) and ecological receptors (e.g., birds, fish, wildlife) from chemical contaminants and other stressors that may be present in the environment. Risk managers use this information to help them decide how to protect humans and the environment from stressors or contaminants. (EPA 2013e) *See also FEMA's Threat and Hazard Identification and Risk Assessment (THIRA).*

**HAZARDOUS MATERIALS (HAZMAT):** Hazardous and toxic substances are defined as those chemicals present in the workplace which are capable of causing harm. In this definition, the term "chemicals" includes dusts, mixtures, and common materials such as paints, fuels, and solvents. OSHA currently regulates exposure to approximately 400 substances. The OSHA [Chemical Sampling Information](#) file contains listings for approximately 1500 substances; the Environmental Protection Agency's (EPA's) Toxic Substance Control Act (TSCA) Chemical Substances Inventory lists information on more than 62,000 chemicals or chemical substances; some libraries maintain files of material safety data sheets (MSDS) for more than 100,000 substances. (OSHA 2013b)

**HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE (HAZWOPER):** Because of the seriousness of the safety and health hazards related to hazardous waste operations and emergency response, the Occupational Safety and Health Administration (OSHA) issued its Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, Title 29 *Code of Federal Regulations* (CFR) Parts 1910.120 and 1926.65 (*see 54 Federal Register* 9294-9336, March 6, 1989) to protect employees in this environment and to help them handle hazardous substances safely and effectively.

The HAZWOPER standard covers all employers performing the following three general categories of work operations:

- Hazardous waste site cleanup operations [paragraphs (b)-(o)] (e.g., SUPERFUND cleanup),
- Operations involving hazardous waste that are conducted at treatment, storage, and disposal (TSD) facilities [paragraph (p)] (e.g., landfill that accepts hazardous waste), and
- Emergency response operations involving hazardous substance releases [paragraph (q)] (e.g., chemical spill at a manufacturing plant). (OSHA 2008)

**HOMELAND SECURITY EXERCISE AND EVALUATION PROGRAM (HSEEP):** The HSEEP is a capabilities and performance-based exercise program that provides a standardized methodology and terminology for exercise design, development, conduct, evaluation, and improvement planning. HSEEP exercises include workshops, seminars, games, tabletop exercises, functional exercises, and full-scale exercises.

The HSEEP is maintained by the Federal Emergency Management Agency's National Preparedness Directorate, Department of Homeland Security. (FEMA 2013a)

**INCIDENT:** An occurrence or event, natural or human-caused, which requires an emergency response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response. (FEMA Undated)

**INCIDENT ACTION PLAN:** Contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period. The Plan may be oral or written. When written, the Plan may have a number of forms as attachments (e.g., traffic plan, safety plan, communications plan, map, etc.). (ICS Undated)

**INCIDENT COMMANDER:** The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site. (FEMA Undated)

**INCIDENT COMMAND POST (ICP):** The location at which the primary command functions are executed. The ICP may be collocated with the incident base or other incident facilities. (ICS Undated)

**INCIDENT COMMAND SYSTEM (ICS):** A standardized on-scene emergency management construct specifically designed to provide for the adoption of an integrated organizational structure that reflects the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries. ICS is the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to aid in the management of resources during incidents. It is used for all kinds of emergencies and is applicable to small as well as large and complex incidents. ICS is used by various jurisdictions and functional agencies, both public and private, to organize field-level incident management operations. (FEMA Undated)

**INCIDENT MANAGEMENT TEAM:** The Incident Commander and appropriate Command and General Staff personnel assigned to an incident. (ICS Undated)

**INCIDENT OBJECTIVES:** Statements of guidance and direction necessary for the selection of appropriate strategy(s), and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed. Incident objectives must be achievable and measurable, yet flexible enough to allow for strategic and tactical alternatives. (ICS Undated)

**INCIDENT TYPES:** Incidents are categorized by five types based on complexity. Type 5 incidents are the least complex and Type 1 the most complex. (FEMA Undated)

**INFORMATION OFFICER:** A member of the Command Staff responsible for interfacing with the public and media or with other agencies requiring information directly from the incident. There is only one Information Officer per incident. The Information Officer may have assistants. (ICS Undated)

**INITIAL ACTION:** The actions taken by resources which are the first to arrive at an incident. (ICS Undated)

**INITIAL RESPONSE:** Resources initially committed to an incident. (ICS Undated)

**INVASIVE SPECIES:** An invasive species is one that is not native to an ecosystem and which causes, or is likely to cause, economic or environmental harm or harm to human health. In addition to the many invasive species from outside the U.S., there are many species from within the U.S. that are invasive in other parts of the country. (FWS 2013b)

**JURISDICTION:** The range or sphere of authority. Public agencies have jurisdiction at an incident related to their legal responsibilities and authority for incident mitigation. Jurisdictional authority at an incident can be political/geographical (e.g., city, county, state, or federal boundary lines) or functional (e.g., police department, health department, etc.). (See Multijurisdiction.) (ICS Undated)

**JURISDICTIONAL AGENCY:** The agency having jurisdiction and responsibility for a specific geographical area, or a mandated function. (ICS Undated)

**LEADER:** The ICS title for an individual responsible for a Task Force, Strike Team, or functional unit. (ICS, Undated)

**LIAISON OFFICER:** A member of the Command Staff responsible for coordinating with representatives from cooperating and assisting agencies. (ICS Undated)

**LISTED SPECIES:** A species, subspecies, or distinct vertebrate population segment that has been added to the Federal lists of Endangered and Threatened Wildlife and Plants as they appear in sections 17.11 and 17.12 of Title 50 of the Code of Federal Regulations (50 CFR 17.11 and 17.12). (FWS 2013a)

**LOGISTICS SECTION:** The Section responsible for providing facilities, services, and materials for the incident. (ICS Undated)

**LIFE-SAFETY:** Refers to the joint consideration of both the life and physical well-being of individuals. (ICS Undated)

**MANAGERS:** Individuals within ICS organizational units that are assigned specific managerial responsibilities, e.g., Staging Area Manager or Camp Manager. (ICS Undated)

**MANAGEMENT BY OBJECTIVES:** In ICS, this is a top-down management activity which involves a three-step process to achieve the incident goal. The steps are: establishing the incident objectives, selection of appropriate strategy(s) to achieve the objectives, and the tactical direction associated with the selected strategy. Tactical direction includes: selection of tactics, selection of resources, resource assignments, and performance monitoring. (ICS Undated)

**MARINE PROTECTED AREAS (MPA):** special places that protect coastal and marine resources. These resources - like fish, wildlife, big waves, beautiful beaches and clean water - also make them great places for recreation. MPAs provide an opportunity for us to connect with the great outdoors, and they generate billions of dollars to help support coastal communities. (NOAA 2013c)

**MEDICAL UNIT:** Functional unit within the Service Branch of the Logistics Section responsible for the development of the Medical Emergency Plan, and for providing emergency medical treatment of incident personnel. (ICS Undated)

**MITIGATION:** Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. Mitigation is taking action *now*—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, insuring against risk). (FEMA 2013b)

**MULTI-AGENCY INCIDENT:** An incident where one or more agencies assist a jurisdictional agency or agencies. May be single or unified command. (ICS Undated)

**MULTI-AGENCY COORDINATION (MAC):** A generalized term which describes the functions and activities of representatives of involved agencies and/or jurisdictions who come together to make decisions regarding the prioritizing of incidents, and the sharing and use of critical resources. The MAC organization is not a part of the on-scene ICS and is not involved in developing incident strategy or tactics. (ICS Undated)

**MULTI-AGENCY COORDINATION SYSTEM (MACS):** The combination of personnel, facilities, equipment, procedures, and communications integrated into a common system. When activated, MACS has the responsibility for coordination of assisting agency resources and support in a multi-agency or multijurisdictional environment. A MAC Group functions within the MACS. (ICS Undated)

**MULTIJURISDICTION INCIDENT:** An incident requiring action from multiple agencies that have a statutory responsibility for incident mitigation. In ICS these incidents will be managed under Unified Command. (ICS Undated)

**MUTUAL AID AGREEMENT:** Written agreement between agencies and/or jurisdictions in which they agree to assist one another upon request, by furnishing personnel and equipment. (ICS Undated)

**NATIONAL CONTINGENCY PLAN (NCP):** The National Oil and Hazardous Substances Pollution Contingency Plan, commonly referred to as the [NCP](#), is the Federal government's strategy for responding to both oil spills and hazardous substance releases. These

requirements outline the steps On-Scene Coordinators must take when responding to situations in which oil is discharged into or upon the navigable waters of the United States, or when hazardous substances, pollutants, or contaminants are released into the environment. (EPA 2013b)

**NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM (NERRS):** The National Estuarine Research Reserve System is a network of 28 areas representing different biogeographic regions of the United States that are protected for long-term research, water-quality monitoring, education and coastal stewardship. Established by the Coastal Zone Management Act of 1972, as amended, the reserve system is a partnership program between the National Oceanic and Atmospheric Administration and the coastal states. NOAA provides funding, national guidance and technical assistance. Each reserve is managed on daily basis by a lead state agency or university, with input from local partners. (NOAA 2013c)

**NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS):** A system mandated by HSPD-5 that provides a consistent nationwide approach for Federal, State, local, and tribal governments; the private sector; and nongovernmental organizations to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. To provide for interoperability and compatibility among Federal, State, local, and tribal capabilities, the NIMS includes a core set of concepts, principles, and terminology. HSPD-5 identifies these as the ICS; multiagency coordination systems; training; identification and management of resources (including systems for classifying types of resources); qualification and certification; and the collection, tracking, and reporting of incident information and incident resources. (FEMA Undated)

**NATIONAL RESPONSE FRAMEWORK (NRF):** A guide to how the Nation conducts all-hazards response. It is built upon scalable, flexible, and adaptable coordinating structures to align key roles and responsibilities across the Nation, linking all levels of government, nongovernmental organizations, and the private sector. It is intended to capture specific authorities and best practices for managing incidents that range from the serious but purely local, to large-scale terrorist attacks or catastrophic natural disasters. (FEMA 2013d)

**NATIONAL RESPONSE TEAM (NRT):** Response planning and coordination is accomplished at the federal level through the [U.S. National Response Team \(NRT\)](#), an interagency group co-chaired by the EPA and the [U.S. Coast Guard](#) (also see [NRT Member Roles and Responsibilities](#) for more information on this group). Although the NRT does not respond directly to incidents, it is responsible for three major activities related to managing responses: (1) distributing information; (2) planning for emergencies; and (3) training for emergencies. The NRT also supports the Regional Response Teams. (EPA 2013a)

**NATIONAL WILDLIFE REFUGE:** There are two ways that lands in the National Wildlife System are categorized: 1) Code of Federal Regulations definitions and 2) real property classification. In general these lands include refuges, waterfowl production areas, and coordination areas. The Refuge System does not currently include any of the lands identified as Administrative Sites in the property records. Refuge System lands are

acquired through a variety of acquisition methods such as withdrawal from the public domain, fee title purchase, transfer of jurisdiction, donation, gift, exchange, and partial interest such as agreements, easements, and leases.

By Fish and Wildlife Service definitions in the Title 50 of the Code of Federal Regulations (CFR), lands within the National Wildlife Refuge System include two major categories – National Wildlife Refuges and [Coordination Areas](#). National Wildlife Refuges are defined as all units of the Refuge System except Coordination Areas. Within the National Wildlife Refuge category, a further distinction is made for the subset of units known as [Waterfowl Production Areas](#). (FWS 2012)

**NATURAL RESOURCE:** In both CERCLA and OPA, there are two parts to the "natural resources" definition. First, natural resources are defined broadly to include land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources. Second, the resource must belong to, be managed by, held in trust by, appertain to, or otherwise be controlled by the United States, any State, an Indian Tribe, a local government, or a foreign government [CERCLA [§101\(16\)](#); OPA [§1001\(20\)](#)]. (EPA 2013d)

**NATURAL RESOURCE DAMAGE ASSESSMENT (NRDA):** [Natural Resource Trustees](#) conduct NRDA's to calculate the monetary cost of restoring injuries to natural resources that result from releases of hazardous substances or discharges of oil. Damages to natural resources are evaluated by identifying the functions or 'services' provided by the resources, determining the baseline level of the services provided by the injured resource(s), and quantifying the reduction in service levels as a result of the contamination. Regulations for assessing NRD have been promulgated under both CERCLA and OPA.

If natural resources are injured by a discharge or release of a mixture of oil and hazardous substances, the DOI regulations are used. The NOAA regulations are applicable only in assessing damages which may result from discharges of oil. (EPA 2013d)

**NATURAL RESOURCE TRUSTEES:** CERCLA and OPA authorize the United States, States, and Indian Tribes to act on behalf of the public as Natural Resource Trustees for natural resources under their respective trusteeship [CERCLA [§107\(f\)\(1\)](#); OPA [§1006\(c\)](#)]. OPA also authorizes foreign governments to act as Trustees [OPA [§1006\(b\)\(5\)](#)].

Trustees often have information and technical expertise about the biological effects of hazardous substances, as well as the location of sensitive species and habitats that can assist On-Scene Coordinators in characterizing the nature and extent of site-related contamination and impacts. Coordination at the investigation and planning stages provides the Trustees early access to information they need to assess injury to natural resources. This assists Trustees in making early decisions about whether restoration is needed in light of the response actions, and should generally result in more efficient settlement negotiations and an opportunity to address all liabilities at the site simultaneously. (EPA 2013d)

**NAVIGABLE WATERS:** The term *navigable waters* encompasses more than bodies of water large enough to accommodate a boat. The term may also include streams, creeks, and wetlands that empty into larger rivers and lakes as well as their adjoining shorelines. (USCG 2013)

**OFFICER:** The ICS title for the personnel responsible for the Command Staff positions of Safety, Liaison, and Information. (ICS Undated)

**OIL POLLUTION ACT OF 1990 (OPA90):** The Oil Pollution Act (OPA) was signed into law in August 1990, largely in response to rising public concern following the [Exxon Valdez incident](#). The OPA improved the nation's ability to prevent and respond to oil spills by establishing provisions that expand the federal government's ability, and provide the money and resources necessary, to respond to oil spills. The OPA also created the national [Oil Spill Liability Trust Fund](#), which is available to provide up to one billion dollars per spill incident.

In addition, the OPA provided new requirements for contingency planning both by government and industry. The [National Oil and Hazardous Substances Pollution Contingency Plan \(NCP\)](#) has been expanded in a three-tiered approach: the Federal government is required to direct all public and private response efforts for certain types of spill events; Area Committees -- composed of federal, state, and local government officials - - must develop detailed, location-specific Area Contingency Plans; and owners or operators of vessels and certain facilities that pose a serious threat to the environment must prepare their own Facility Response Plans.

Finally, the OPA increased penalties for regulatory noncompliance, broadened the response and enforcement authorities of the Federal government, and preserved State authority to establish law governing oil spill prevention and response. (EPA 2013a)

**ON-SCENE COORDINATOR (OSC):** The On-Scene Coordinator (OSC) is the federal official responsible for monitoring or directing responses to all oil spills and hazardous substance releases reported to the federal government. The OSC coordinates all federal efforts with, and provides support and information to, local, state and regional response communities. The OSC is an agent of either EPA or the [U.S. Coast Guard](#), depending on where the incident occurs. EPA OSCs have primary responsibility for spills and releases to inland areas and waters, while U.S. Coast Guard OSCs have responsibility for coastal waters and the Great Lakes. In general, the OSC has the following key responsibilities during and after a response to a hazardous substance release or an oil spill: (1) assessment; (2) monitoring; (3) response assistance; and (4) evaluation. (EPA 2013a)

**OPERATIONAL PERIOD:** The period of time scheduled for execution of a given set of operation actions as specified in the Incident Action Plan. Operational Periods can be of various lengths, although usually not over 24 hours. (FEMA 2008b)

**OPERATIONS SECTION:** The Section responsible for all tactical operations at the incident. Includes Branches, Divisions and/or Groups, Task Forces, Strike Teams, Single Resources, and Staging Areas. (FEMA 2008b)

**PERSONAL PROTECTIVE EQUIPMENT (PPE):** Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to a variety of hazards. Examples of PPE include such items as gloves, foot and eye protection, protective hearing devices (earplugs, muffs) hard hats, respirators and full body suits. (OSHA 2013c)

**OPERATIONAL PERIOD:** The period of time scheduled for execution of a given set of operation actions as specified in the Incident Action Plan. Operational Periods can be of various lengths, although usually not over 24 hours. (FEMA Undated)

**OPERATIONS SECTION:** The Section responsible for all tactical operations at the incident. Includes Branches, Divisions and/or Groups, Task Forces, Strike Teams, Single Resources, and Staging Areas. (FEMA Undated)

**PLANNING MEETING:** A meeting held as needed throughout the duration of an incident, to select specific strategies and tactics for incident control operations, and for service and support planning. On larger incidents, the Planning Meeting is a major element in the development of the Incident Action Plan. (FEMA Undated)

**PLANNING SECTION:** Responsible for the collection, evaluation, and dissemination of information related to the incident, and for the preparation and documentation of Incident Action Plans. The Section also maintains information on the current and forecasted situation, and on the status of resources assigned to the incident. Includes the Situation, Resources, Documentation, and Demobilization Units, as well as Technical Specialists (FEMA Undated)

**PRELIMINARY DAMAGE ASSESSMENT (PDA):** Following a disaster, a Governor requests PDAs as the first step in the declaration process. Federal representatives, including the U.S. Small Business Administration, join state, tribal, and local officials to form “PDA teams.” PDA teams are responsible for surveying damages in designated counties, and they do this by going city-by-city, street-by-street, door-to-door, until *impacted* areas identified by state, tribal, and local officials have been thoroughly assessed. Along with assessing the damages that affected individuals within a community, PDA teams consisting of state, federal, tribal and local officials will also assess the impact of the incident on public infrastructure. This includes the cost of emergency measures, such as debris removal, and repair or restoration of public facilities such as roads and buildings. (FEMA 2012a)

**PREPAREDNESS:** The range of deliberate, critical tasks and activities necessary to build, sustain, and improve the operational capability to prevent, protect against, respond to, and recover from domestic incidents. Preparedness is a continuous process. Preparedness involves efforts at all levels of government and between government and private-sector and nongovernmental organizations to identify threats, determine vulnerabilities, and identify required resources. Within the NIMS, preparedness is operationally focused on establishing guidelines, protocols, and standards for planning, training and exercises, personnel qualification and certification, equipment certification, and publication management. (FEMA Undated)

**PREVENTION:** The capabilities necessary to avoid, prevent, or stop a threatened or actual act of terrorism. As defined by Presidential Policy Directive 8, the term “prevention” refers to preventing imminent threats. (FEMA 2013d)

**PROCUREMENT UNIT:** Functional unit within the Finance/Administration Section responsible for financial matters involving vendor contracts. (ICS Undated)

**PROTECTION:** The capabilities necessary to secure the homeland against acts of terrorism and manmade or natural disasters. (FEMA 2013d)

**RECOVERY:** The development, coordination, and execution of service- and site-restoration plans; the reconstitution of government operations and services; individual, private-sector, nongovernmental, and public-assistance programs to provide housing and to promote restoration; long-term care and treatment of affected persons; additional measures for social, political, environmental, and economic restoration; evaluation of the incident to identify lessons learned; post incident reporting; and development of initiatives to mitigate the effects of future incidents. (FEMA Undated)

**REGIONAL CONTINGENCY PLAN (RCP):** The Regional Response Teams (RRTs), working with the states, shall develop federal RCPs for each standard federal region, Alaska, Oceania in the Pacific, and the Caribbean to coordinate timely, effective response by various federal agencies and other organizations to discharges of oil or releases of hazardous substances, pollutants, or contaminants. RCPs shall, as appropriate, include information on all useful facilities and resources in the region, from government, commercial, academic, and other sources. To the greatest extent possible, RCPs shall follow the format of the NCP and be coordinated with state emergency response plans, Area Cleanup Plans (ACPs). Such coordination should be accomplished by working with the State Emergency Response Commissions (SERCs) in the region covered by the RCP. RCPs shall contain lines of demarcation between the inland and coastal zones, as mutually agreed upon by USCG and EPA. (Cornell 2013)

**REGIONAL RESPONSE TEAM (RRT):** There are thirteen RRTs in the U.S., each representing a particular geographic region (including the Caribbean and the Pacific Basin). RRTs are composed of representatives from field offices of the federal agencies that make up the [National Response Team](#), as well as state representatives. The four major responsibilities of RRTs are: (1) response; (2) planning; (3) training; and (4) coordination. (EPA 2013a)

**RESOURCES:** Personnel and major items of equipment, supplies, and facilities available or potentially available for assignment to incident operations and for which status is maintained. Resources are described by kind and type and may be used in operational support or supervisory capacities at an incident or at an EOC. (FEMA Undated)

**RESOURCES UNIT:** Functional unit within the Planning Section responsible for recording the status of resources committed to the incident. The Unit also evaluates resources currently committed to the incident, the impact that additional responding resources will have on the incident, and anticipated resource needs. (ICS Undated)

**RESPONSE:** The capabilities necessary to save lives, protect property and the environment, and meet basic human needs after an incident has occurred. (FEMA 2013d)

**SAFETY OFFICER:** A member of the Command Staff responsible for monitoring and assessing safety hazards or unsafe situations, and for developing measures for ensuring personnel safety. The Safety Officer may have assistants. (ICS Undated)

**SCIENTIFIC SUPPORT COORDINATOR (SSC):** OR&R's Emergency Response Division (ERD) consists of an interdisciplinary scientific team that responds to oil and chemical spills in U.S. waters and helps the On-Scene Coordinator make timely operational decisions. The team is headquartered at NOAA's campus in Seattle; however ERD's Scientific Support Coordinators (SSCs), located around the country, lead the team at spills, drawing on the

team's spill trajectory estimates, chemical hazards analyses, and assessments of the sensitivity of biological and human-use resources. OR&R staff members also represent NOAA and the DOC on the [National Response Team](#) and [Regional Response Teams](#). (NOAA 2013b)

**SECTION:** That organization level with responsibility for a major functional area of the incident, e.g., Operations, Planning, Logistics, Finance/Administration. The Section is organizationally between Branch and Incident Commander. (ICS Undated)

**SEMINAR:** A seminar is a type of HSEEP exercise. It is an informal discussion, designed to orient participants to new or updated plans, policies, or procedures (e.g., a seminar to review a new Evacuation Standard Operating Procedure). (FEMA 2013a).

**SHELTER-IN-PLACE:** Selecting an interior room or rooms within your facility, or ones with no or few windows, and taking refuge there. In many cases, local authorities will issue advice to shelter-in-place via TV or radio. (OSH, 2013a)

**SHORELINE CLEAN-UP AND ASSESSMENT TEAM (SCAT):** SCAT teams include people trained in the techniques, procedures, and terminology of shoreline assessment. Teams should include people with knowledge and experience in oil and oil cleanup techniques, geomorphology, ecology, and in some cases, archeology. Members of a SCAT team may include federal representatives (usually from the [NOAA Scientific Support Team](#) or U.S. Coast Guard), state representatives, a representative of the responsible party, and possibly the landowner or other stakeholders. A SCAT coordinator directs the activities of the SCAT teams from the command post and coordinates with people working on other aspects of the response. (NOAA 2013b)

**SINGLE RESOURCE:** An individual, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified work Supervisor that can be used on an incident. (FEMA Undated)

**SITUATION UNIT:** Functional unit within the Planning Section responsible for the collection, organization, and analysis of incident status information, and for analysis of the situation as it progresses. Reports to the Planning Section Chief. (ICS Undated)

**SPAN OF CONTROL:** The supervisory ratio of from three-to-seven individuals, with five-to-one being established as optimum. (ICS Undated)

**STAFFORD ACT:** The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) was enacted to support state and local governments and their citizens when their resources are overwhelmed by the effects of a disaster. The law establishes [the process for requesting and obtaining a Presidential disaster declaration](#), defines the type and scope of assistance available under the Stafford Act, and sets the conditions for obtaining assistance. (EPA 2013c)

**STAGING AREA:** Staging Areas are locations set up at an incident where resources can be placed while awaiting a tactical assignment. Staging Areas are managed by the Operations Section. (ICS Undated)

**STANDARD OPERATING PROCEDURES (SOP):** A complete reference document that details the procedures for performing a single function or a number of interdependent functions. (FEMA 2007)

**STATE WARNING POINT (SWP):** A Warning Point is a facility with the responsibility for receipt of warnings and other emergency information over the National Warning System (NAWAS) and disseminating it in accordance with State and local emergency preparedness plans. Each State has a Primary and Alternate SWP. The primary SWP is staffed 24 hours a day, and exercises operational control over NAWAS within the State. The Alternate SWP is generally located in the State EOC. (FEMA 2001)

**STATE WATCH OFFICE (SWO):** Provides efficient and effective communications during normal periods as well as pre-and-post disaster periods and serves as the contact point in some states for communications between local Governments and Emergency Agencies, State Government Agencies and the Federal Government. (Florida Disaster 2013)

**STRATEGY:** The general plan or direction selected to accomplish incident objectives. (ICS Undated)

**SUPERVISOR:** The ICS title for individuals responsible for command of a Division or Group. (ICS Undated)

**TABLETOP EXERCISE (TTX):** A tabletop exercise is a type of HSEEP exercise. It involves key personnel discussing simulated scenarios in an informal setting. TTXs can be used to assess plans, policies, and procedures. (FEMA 2013a)

**TACTICAL DIRECTION:** Direction given by the Operations Section Chief which includes the tactics appropriate for the selected strategy, the selection and assignment of resources, tactics implementation, and performance monitoring for each operational period. (ICS Undated)

**TASK FORCE:** A combination of single resources assembled for a particular tactical need, with common communications and a leader. (ICS Undated)

**TECHNICAL SPECIALISTS:** Personnel with special skills that can be used anywhere within the ICS organization. (FEMA Undated)

**THREAT AND HAZARD IDENTIFICATION AND RISK ASSESSMENT (THIRA):** A comprehensive approach developed by FEMA for identifying and assessing risks and associated impacts to communities. The approach includes assessing the threats and hazards facing a community of any size, assessing the vulnerability of a community to those hazards, estimating the consequences of the hazards, and establishing capability targets to address the overall community risk. (FEMA2012b)

**THREATENED SPECIES:** The term “threatened species” means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range - - as defined in the Endangered Species Act. (FWS 2013a)

**TIME UNIT:** Functional unit within the Finance/Administration Section responsible for recording time for incident personnel and hired equipment. (ICS Undated)

**UNIFIED COMMAND:** An application of ICS used when there is more than one agency with incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the Unified Command, often the senior person from agencies and/or disciplines participating in the Unified Command, to establish a common set of objectives and strategies and a single Incident Action Plan. (FEMA Undated)**UNIT:** The organizational element having functional responsibility for a specific incident planning, logistics, or finance/administration activity. (ICS Undated)

**UNITY OF COMMAND:** The concept by which each person within an organization reports to one and only one designated person. The purpose of unity of command is to ensure unity of effort under one responsible commander for every objective. (FEMA Undated)

**WORKSHOP** A workshop is a type of HSEEP exercise. It resembles a seminar but is employed to build specific products, such as a draft plan or policy (e.g., a Training and Exercise Plan Workshop is used to develop a Multi-Year Training and Exercise Plan). (FEMA 2013a)

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