

**DAMAGE ASSESSMENT AND
RESTORATION PLAN AND
ENVIRONMENTAL ASSESSMENT
FOR THE
M/V FORTUNE EPOCH OIL SPILL
SAVANNAH, GEORGIA**

November 14th, 2018

Prepared by:

The U. S. Fish and Wildlife Service
on behalf of the
U.S. Department of the Interior

and

The Georgia Department of Natural Resources

EXECUTIVE SUMMARY

An accidental discharge of oil from the Motor Vessel FORTUNE EPOCH in the vicinity of Savannah, Georgia occurred in November 2004 (Spill). The United States Fish and Wildlife Service (USFWS) and the Georgia Department of Natural Resources, acting as natural resource trustees (Trustees), determined that natural resources were injured as a result of the Spill. A damage assessment for natural resource injuries was conducted by the Trustees with participation from the Responsible Party (RP), the Fukunaga Kaiun Co. Ltd.

Based on the results of the natural resource damage assessment, a settlement agreement among the Trustees and the RP was reached and became effective on February 26th, 2018. From this agreement, \$620,894.64 was recovered to implement restoration actions to restore natural resources injured by the Spill.

The Trustees have developed a Damage Assessment and Restoration Plan and Environmental Assessment (DARP/EA) for the Spill. The DARP/EA summarizes the Trustees' assessment of the natural resource injuries caused by the Spill and evaluates several potential restoration alternatives for the restoration of injured natural resources.

A proposed restoration alternative is identified in the DARP/EA and involves the restoration of tidal exchange at several locations on Ossabaw Island, Georgia through the replacement of undersized culverts with adequately-sized bridges. In addition to evaluating the potential for the proposed restoration alternative to restore injured natural resources, the EA portion of the DARP/EA is intended to satisfy the Federal Trustee's requirement to evaluate impacts to the human environment from the proposed restoration alternative identified in the document under the National Environmental Policy Act. A Draft DARP/EA was made available for public review and comment beginning on May 21st, 2018 and ending on June 20th, 2018. No public comments were received. A Finding of No Significant Impact has been issued by USFWS for the proposed restoration alternative.

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1.0 INTRODUCTION

This Damage Assessment and Restoration Plan and Environmental Assessment (DARP/EA) has been developed by the United States Fish and Wildlife Service (USFWS) on behalf of the United States Department of Interior (DOI) and the Georgia Department of Natural Resources (GADNR) on behalf of the State of Georgia, acting as the natural resource trustees (Trustees) in a natural resource damage assessment (NRDA) for an accidental discharge of oil from the Motor Vessel (M/V) FORTUNE EPOCH in the vicinity of Savannah, Georgia that occurred in November 2004 (Spill). . This document summarizes the Trustees' assessment of the natural resource injuries caused by the Spill and evaluates several restoration alternatives for their potential to restore injured natural resources.

A settlement agreement among the Trustees and Fukunaga Kaiun Co. Ltd, the operator of the M/V FORTUNE EPOCH, regarding natural resource damages resulting from the Spill became effective on February 26th, 2018. From this agreement, \$620,894.64 was recovered to implement restoration actions to restore natural resources injured by the Spill.

In developing this plan, the Trustees have acted in accordance with the NRDA regulations applicable to oil spills issued under the Oil Pollution Act of 1990 (OPA), 33 U.S.C. § 2701 *et seq.* set forth at 15 C.F.R. Part 990. Lastly, this document is intended to satisfy the Federal Trustee's requirement to evaluate impacts to the human environment from the proposed restoration alternative identified in the document under the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 *et seq.* and its implementing regulations, 40 C.F.R. Parts 1500-1508.

1.1 Authority

The Federal and State designated Trustees, under their respective authority and responsibilities for the natural resources injured as a result of the discharge of oil during the Spill under the Federal Water Pollution Control Act, 33 U.S.C. § 1251 *et seq.*, OPA, 33 U.S.C. § 2701 *et seq.*, and other applicable federal laws, including Subpart G of the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. 300.600 *et seq.* prepared this DARP/EA. As a designated Trustee, each agency is authorized to act on behalf of the public to assess injuries to natural resources, recover damages, and plan and implement actions to restore natural resources and their associated services injured or lost as the result of a discharge of oil.

Section 1002(a) of OPA provides that each party responsible for a vessel or facility from which oil is discharged, or which poses a substantial threat of a discharge of oil, into or upon the navigable waters of the United States or adjoining shorelines, is liable for natural resource damages resulting from such actual or threatened discharges of oil (33 U.S.C. § 2702(a)). OPA Section 1006(d)(1) defines the measure of natural resource damages as the cost of restoring, rehabilitating, replacing or acquiring the equivalent of the injured natural resources, compensation for the diminution in value of those natural resources pending restoration, and the reasonable costs of assessing such damages (33 U.S.C. § 2706(d)(1)). Damages recovered, aside from those to reimburse assessment costs, are required to be spent to restore, rehabilitate, replace or acquire the equivalent of the injured resources in accordance with a restoration plan developed by the Trustees (33 U.S.C. § 2706(f)).

1.2 Trustee Determinations Supporting Development of this Restoration Plan

The Trustees' decision to conduct a NRDA for this Spill is based on and supported by certain determinations made by the Trustees pursuant to the NRDA regulations, i.e., the Determination of Jurisdiction to Pursue Restoration pursuant to 15 C.F.R. § 990.41 and the Determination to Conduct Restoration Planning pursuant to 15 C.F.R. 990.42. These determinations were set forth and described in a Notice of Intent to Conduct Restoration Planning (NOI) published on February 25, 2009 in *The Savannah Morning News*, a newspaper of large general circulation in and around Savannah, Georgia (Appendix A).

1.3 Coordination with Responsible Party

Under OPA, the responsible party (RP) for a vessel or facility from which oil is discharged is liable for the injuries to natural resources that result from the discharge. The OPA regulations require the Trustees to invite the RP to participate in the damage assessment process. Although the RP may participate, authority to make determinations regarding injury and restoration rests solely with the Trustees.

Fukunaga Kaiun Co. Ltd (a/k/a FSK Line, SA), the owner of the M/V FORTUNE EPOCH, was officially designated as the RP for the Spill. The Trustees invited the RP to cooperatively participate in the NRDA process in a December 2008 letter. Input from the RP was considered by the Trustees in assessing the natural resource injuries and service losses caused by the Spill. This coordination and cooperation between the Trustees and the RP helped avoid duplication of effort, allowed increased information sharing, and has made the process more cost-effective.

1.4 Public Participation

Section 1006(c)(5) of OPA requires the Trustees to involve the public in the restoration planning process (33 U.S.C. § 2706(c)(5)). The NOI published in *The Savannah Morning News* on February 25, 2009, provided an early opportunity for the public to submit restoration ideas or alternatives for consideration by the Trustees in the development of a Draft of this DARP/EA. The NOI described the spill event, identified the Trustees involved, provided general information on the likely natural resource injuries, and invited input from the public regarding restoration alternatives that should be considered.

The Trustees also provided the public with the opportunity to comment on the Draft DARP/EA. A notice of availability indicating that a Draft DARP/EA was available for public review and comment was published in *The Savannah Morning News* beginning on May 21st, 2018 and continuing through June 19th, 2018 (Appendix B). No public comments were received. Affording opportunity for public comment is also consistent with NEPA and its implementing regulations at 40 C.F.R. Parts 1500-1508.

1.5 NEPA Compliance

Actions undertaken by Trustees to restore natural resources or services under OPA and other federal laws are subject to the NEPA regulations at 40 C.F.R. Part 1500. Federal agencies contemplating implementation of a major federal action must produce an environmental impact statement (EIS) if the action is expected to have significant impacts on the quality of the human environment. When it is uncertain whether a contemplated action is likely to have significant impacts, federal agencies prepare an EA to evaluate the need for an EIS. If the EA demonstrates

that the proposed action will not significantly impact the quality of the human environment, the agency issues a Finding of No Significant Impact (FONSI), which satisfies the requirements of NEPA, and no EIS is required. For this DARP/EA, a FONSI has been issued (Appendix C) and no EIS is required.

2.0 PURPOSE AND NEED FOR RESTORATION

The purpose and need for restoration derives from the natural resource injuries and service losses that resulted from the discharge of oil from the M/V FORTUNE EPOCH in the vicinity of Savannah, Georgia. Under OPA, the RP is liable for these resource injuries. Restoration actions to compensate the public should restore, replace, rehabilitate, or acquire the equivalent resources or services.

2.1 Overview of the Incident

In the early morning of November 17th, 2004, the M/V FORTUNE EPOCH was traveling outbound on the Savannah River when it lost power and drifted outside the safe navigation channel at Tybee Roads. Once power was restored, the M/V FORTUNE EPOCH proceeded to a safe anchorage approximately 16 kilometers (km) east of Tybee Island, Georgia. While anchored, the representative of the vessel's owner notified the U.S. Coast Guard National Response Center that fuel oil was leaking from the vessel's port side. On November 18th, divers surveyed the vessel and found cracks in the hull. Temporary patchwork to the damaged #2 port fuel tank and #4 port ballast water tank began the following day.

The vessel was estimated to be carrying 37,000 gallons of fuel oil, of which an estimated 6,800 gallons of Intermediate Fuel Oil (IFO-180) were released into mainly open waters over a period of five hours. A small amount of oil came ashore near the mouth of the Savannah River while the remaining visible oil moved south along the coast (Figure 1). The prevailing wind current during that time was approximately five knots from a northeastern direction. Response activities included conducting survey flights, booming the vessel, lightering off the remaining fuel, skimming free-floating oil, shoreline assessment and clean-up, and oiled wildlife surveys and recovery. Response workers recovered approximately 75 gallons of liquid oil, 14 bags of oiled debris and oil patties from the water, and 26 bags of oiled debris from the shore.

Wildlife recovery efforts included aerial surveillance and on-shore and off-shore surveys via vehicles, on-foot, or by boats. By November 19th, response personnel had received reports of oiled birds. The organization Tri-State Bird Rescue and Research, Inc. was called to assist with the rehabilitation of injured wildlife. Field crews were instructed to retrieve all carcasses to ensure that wildlife impacts could be properly documented.

2.2 Natural Resources Present

Natural resources that were present, or might have been present, at the time of the Spill include both biotic and abiotic resources. Abiotic resources include mainly the nearshore marine waters off the Georgia coast (within 15 km from Tybee Island shoreline), but also the surface waters of the Savannah River estuary as well as the shorelines of Tybee and Wassaw Islands. Biological resources includes a wide variety of fish, shellfish, saltmarsh vegetation, birds and other organisms, including federally threatened and endangered species.

Several types of marine fish, shellfish, mammals and seabirds utilize the waters off the coast of Georgia. In the month of November (the month in which the Spill occurred), wintering and year-round resident gull species would be present in nearshore coastal waters along with other coastal bird species such as the black skimmer, brown pelican, double-crested cormorant, northern gannet and various terns. Pelagic bird species occur offshore much of the time, but can be seen from shore or near shore after several days of strong easterly winds. Also, wintering sea ducks utilize Georgia's marine coastal waters including black scoters, lesser scaup, surf scoters, horned grebes, canvasback, ruddy ducks, red-breasted mergansers, and common and red-throated loons. Marine mammals utilizing waters off of Georgia's barrier islands include striped and bottlenose dolphins while larger marine mammals such as the federally endangered North Atlantic right whale and the humpback whale, which has both federally threatened and endangered distinct population segments, generally move in marine waters further offshore. In the vicinity of the Spill location, there may be various fish species (or their supporting habitat) present that are managed under the Magnuson-Stevens Act. Shark species may use waters in the vicinity of the Spill location during various life stages. Also, live hard bottom habitat, managed under the Magnuson-Stevens Act as Essential Fish Habitat (EFH), may be present in the nearshore waters. These limestone outcrops serve as reef habitat for marine life such as coralline algae, sponges, hydroids, and various species of other invertebrates and coral (South Atlantic Fisheries Management Council 1998). The flora and fauna of these habitats attract other species managed under the Magnuson-Stevens Act such as coastal pelagic species (e.g., Spanish and king mackerel, cobia, and dolphinfish) and fishes of the snapper-grouper complex. A vast number of other marine fish and shellfish use the surrounding pelagic habitat during all or some of their life history. For example, white and brown shrimp release eggs into offshore waters where they hatch and develop into planktonic larvae.

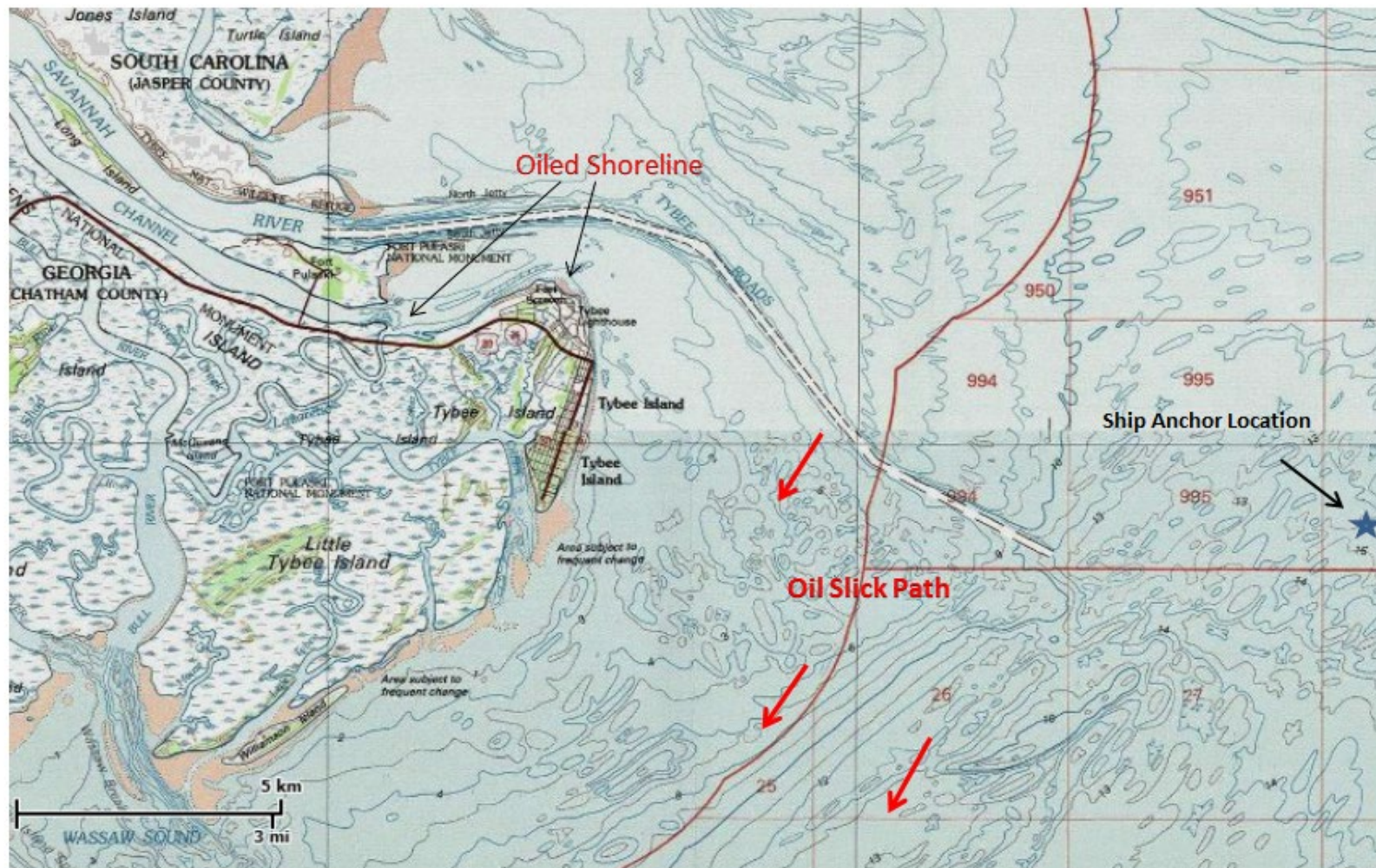


Figure 1. M/V Fortune Epoch Oil Spill Location

Closer to the mouth of the Savannah River, anadromous fish species such as American shad, hickory shad, blueback herring, and striped bass may be present by late fall, heading into open waters. Bay anchovy, Atlantic menhaden, Atlantic croaker, and spot are abundant fish species in the Savannah River estuary. The smooth cordgrass marsh lining the estuary also provides shelter and food for a wide variety of coastal fauna. Mummichogs are abundant within the marsh, as well as invertebrates such as the periwinkle, saltmarsh snail, and fiddler crab. Clapper rails, various egrets and herons, saltmarsh sparrows, raccoons, and mink forage on these lower trophic level species. The diamondback terrapin and the federally threatened West Indian manatee are also found within saltmarsh waters.

Georgia's coastal beaches and dunes provide important habitat for sea turtles and shorebirds. At the time of the Spill, the intertidal sand beaches would be providing foraging and roosting habitat for a great number of wintering shorebirds. Shorebirds such as the American oystercatcher and sanderling would be prevalent, feeding on a variety of invertebrate fauna. Other beach-roosting species that winter in Georgia include the ruddy turnstone, purple sandpiper, western sandpiper, short-billed dowitcher, and various plovers (piping, semipalmated, and black-bellied). The piping plover is a federally threatened species and sections of Georgia's barrier island beaches are designated as critical habitat for this species.

2.3 Natural Resources of Concern

The natural resources of primary concern related to the Spill are migratory birds. Although some oil came ashore on Tybee Island and proximate areas, causing light-to-moderate staining, shoreline clean-up and assessment teams were able to readily identify impacted areas and notify the clean-up strike teams. Shoreline collection efforts were downsized five days after the incident due to no further impact, although continuous monitoring and recovery efforts were maintained in conjunction with wildlife recovery. While some degree of offshore water column injury would have occurred from the release of the oil there were no documented injuries to marine fishes or mammals.

Over the course of a week and a half after the Spill, 41 oiled birds were recovered live and taken to an on-site rehabilitation center set up by Tri-State Bird Rescue and Research, Inc. Reconnaissance teams brought in birds from as far north as Hilton Head Island, South Carolina and as far south as Hird Island, Georgia. Of those recovered, 38 were common loons, two were northern gannets, and one was a brown pelican. Of that total, only three common loons were successfully rehabilitated and released. An attempted release of the brown pelican was unsuccessful. Twenty-four additional bird carcasses were recovered from the incident and sent to the National Fish and Wildlife Forensics Laboratory for necropsy. Of those, seven common loons and one northern gannet had evidence of oiled feathers. The carcasses of four oiled loons also had signs of predation and one oiled loon carcass had been extensively scavenged such that a cause of death could not be determined.

General species information on the three bird species known to be affected by the Spill is provided below.

2.3.1 Common Loon – General Information

Common loons are duck-like diving birds that have long pointed bills. They breed in freshwater habitats of Alaska and northern Canada, east to Iceland, and south to central Massachusetts, Montana, and California. Breeding territories are established on islands or large, deep lakes (generally larger than 24 hectares (ha)) in coniferous forest or on deeper tundra lakes (Evers et al. 2010). In winter, individual birds or loose flocks migrate to sea coasts (both Atlantic and Pacific) and some large inland lakes as far south as Northern Mexico. Within these coastal areas, birds prefer shallow inshore waters with protected bays and inlets. Their diet consists mainly of fish but they may supplement their diet with other items such as crustaceans, aquatic insects, leeches, and plant matter (Barr 1996, Ford and Gieg 1995, Gingras and Paszkowski 2006). The common loon is considered a suitable indicator species of aquatic integrity because of certain biological or behavioral aspects (e.g., high trophic-level feeder, relatively slow replacement rate, foraging preference for locations with high water clarity) and because it is highly observable and audible to humans (Evers et al. 2010).

The common loon is not a federally listed species, but it is protected by the Migratory Bird Treaty Act (MBTA). The loon's conservation status is considered of "Potential Concern" according to a recent American Bird Conservancy (ABC) study (ABC 2012). The "Potential Concern" category indicates that the species is currently safe, but may need more careful monitoring than those species that have no immediate major threats. Threats to this species include exposure to contaminants (particularly heavy metals such as lead and mercury), effects of acid rain at breeding ground habitats, entanglement in monofilament commercial fishing nets, coastal oil spills, human disturbance on breeding grounds, and disease (e.g., avian botulism, aspergillosis) (Evers et al. 2010).

2.3.2 Brown Pelican – General Information

The brown pelican is a coastal seabird that is large in size (weight range of approximately 2-5 kg) and has a long flat bill and an expansive throat pouch. Breeding range includes coastal areas along the Pacific coast (from southern California south to Ecuador), the Gulf of Mexico, and the Atlantic coast (from Maryland to Florida, through the West Indies to Venezuela). In nonbreeding periods, the range expands further north into central California on the Pacific coast and to New Jersey or Delaware on the Atlantic coast (Shields 2002). Nest sites are generally built on the ground on top of sand, shell, or vegetation, but in some locations they nest on cliffs or will build nesting platforms in trees (Shields 2002). This species forages by plunge-diving in shallow inshore waters, estuaries, and bays, and its diet is comprised mostly of fish (e.g., menhaden or mullet) (Shields 2002).

The brown pelican is not a federally listed species, but it is protected by the MBTA and is listed as a State Species of Concern in Georgia. It has been given a Georgia state ranking of 'S2' or 'Imperiled' because there are generally few available nesting sites in any given year. Also, for those birds that are successful in establishing nesting sites, nesting success is diminished by factors such as storms, overwash, predation, and brood parasitism from other colonial nesters. According to the ABC study, the brown pelican's conservation status is of "Potential Concern" (ABC 2012). Current threats to this species include oil spills, human disturbance or intentional acts of harm to birds or eggs at nesting and roosting sites, degradation of habitat, and entanglement in fishing gear (Shields 2002).

2.3.3 Northern Gannet – General Information

Northern gannets are large (approximately 2-3 kg) seabirds with long necks and long, pointed bills. This species spends the majority of time at sea over continental shelves on both sides of the Atlantic Ocean and west along the Gulf Coast. It primarily breeds in large colonies on cliffs and offshore islands. In North America, three breeding colonies occur in the Gulf of St. Lawrence and three occur on the Atlantic coast of Newfoundland. Its diet is comprised mainly of large-bodied, surface schooling fish such as mackerel and herring (Mowbray 2002).

The northern gannet is not a federally listed species, but it is protected by the MBTA and according to the ABC study, its conservation status is of “Potential Concern” (ABC 2012). Current threats to this species include intentional acts of harm by humans, environmental pollution, entanglement in fishing line, and degradation of habitat (Mowbray 2002).

3.0 ASSESSMENT STRATEGY

3.1 Injury Assessment Overview

The goal of injury assessment under OPA is to determine the nature and extent of injuries to natural resources and the services they provide. Such assessment provides a technical basis for evaluating the need for, type of, and scale of restoration actions. Injury is defined by OPA regulations as an observable or measurable adverse change in a natural resource or impairment of a natural resource service (15 C.F.R. Part 990.30). Once there is a determination that a resource is injured, the injury must be quantified. The injury quantification process determines the magnitude and temporal extent of injury.

3.2 Injury Determination and Quantification

The Trustees determined that there were injuries to migratory birds due to the Spill. As stated in Section 2.3 above, oiled birds were collected during the spill event. Oiling of a bird’s feathers can cause loss of insulating and water-repellent properties, resulting in death by hypothermia, starvation, or drowning. Also, birds may attempt to remove the oil from feathers by engaging in preening behavior, which leads to oil ingestion. Ingestion of oil can cause a variety of sub-lethal effects including anemia, intestinal irritation, liver and kidney damage, altered blood chemistry, altered hormone levels, impaired osmoregulation, and decreased production and viability of eggs (Crocker et al. 1974, Miller et al. 1978, Ohlendorf et al. 1978, Stickel and Dieter 1979, Peakall et al 1981, Clark 1984, and Fry and Lowenstine 1985).

Impacts to three bird species were documented. The majority of documented individual birds that were impacted were common loons. Therefore, the Trustees decided to use this species as the focal species for injury quantification. For estimation of bird mortalities, the Trustees and the RP agreed to use a multiplier of six to account for an estimated number of birds that were presumed to have been injured as a result of the Spill but which could not be located and accounted for due to various reasons (e.g., scavenged by predators, movement away from shore with tidal current, low searcher efficiency, sinking of oiled carcasses). As a result, 240 birds were estimated to have been injured as a result of the Spill.

To quantify the loss of these birds, and the future generations that would have been produced had the Spill not occurred, the Trustees used a Resource Equivalency Analysis (REA) model

(adapted from Unsworth and Bishop 1994). A REA model is comprised of two steps: 1) the quantification of natural resource service losses and 2) the quantification of the natural resource services provided by potential compensatory restoration projects. For this incident, natural resource services are represented in bird-years (see Spurduto et al. 2003 for a similar REA model). The Trustees obtained data from scientific literature for the biological inputs for the REA model (e.g., number of reproductive years for an adult female loon, number of loon chicks typically produced, and survivability of fledglings). The REA model results indicated that direct bird losses (bird mortality directly resulting from the Spill) equaled 1,565.45 bird-years and indirect bird losses (loss of fledgling production resulting from direct bird mortality) equaled 505.32 bird-years, for a total of 2,070.77 lost bird-years (Peacock 2009).

4.0 RESTORATION ALTERNATIVES

4.1 Restoration Strategy Overview

The Trustees' primary goal is to implement restoration that compensates for natural resource injury that resulted from the Spill. Acceptable restoration actions include any of the actions authorized under OPA, meaning any action, or combination of actions, to restore, rehabilitate, replace, or acquire the equivalent of injured natural resources and services (15 C.F.R. 990.41). Trustees are required to consider a reasonable number of possible restoration alternatives. Restoration alternatives are evaluated based on multiple factors including:

- 1) The cost to carry out the alternative;
- 2) The extent to which each alternative is expected to meet the Trustees' goal of compensating for natural resource service losses;
- 3) The likelihood of success of each alternative;
- 4) The extent to which each alternative will avoid further natural resource injury;
- 5) The extent to which each alternative benefits more than one natural resource and/or service; and
- 6) The effect of each alternative on public health and safety.

Restoration actions under OPA are termed primary or compensatory. Primary restoration is any action taken to enhance the return of injured natural resources and services to their baseline condition, while compensatory restoration is any action taken to compensate for interim losses of natural resources and services pending recovery.

The Trustees expect that affected migratory birds have or will return to baseline conditions through the natural reproductive process in a reasonable amount of time. Therefore, the Trustees believe natural recovery will achieve primary restoration. The Spill however, caused a certain amount of interim losses, which are losses incurred between the incident and a return to baseline, that are not compensated by natural recovery. Compensatory restoration is necessary to address these interim losses.

The restoration alternatives considered by the Trustees are described below.

4.2 Restoration Alternatives

4.2.1 Alternative 1: No Action

NEPA requires the Trustees to consider a no action alternative, and the OPA regulations require consideration of a roughly equivalent natural recovery alternative. Under this alternative, the Trustees would take no direct action to restore injured natural resources or to compensate for lost services. The interim losses resulting from the Spill would not be compensated through the no action alternative. For this reason, this alternative is not proposed.

4.2.2 Alternative 2: Fund Efforts to Rehabilitate Loons or Other Seabirds

This alternative would provide funds to existing bird rehabilitation centers for the care and medical needs of loons (or other seabirds) suffering from various diseases and injuries such as gunshot wounds and entanglement in fishing gear (but generally not oil-spill related effects as that is already a legal requirement of responsible parties). It would be predicted to result in some level of improvement in the number of individual birds rehabilitated and released each year.

Diving birds (such as loons), however, have a unique physiology that poses several challenges when attempting to keep them in captivity under treatment for long periods. According to Russell et al. (2003), diving birds have difficulty standing for long periods of time because their legs are located more to the posterior end of their bodies. As a result, birds will tend to sit. In this posture, the majority of their weight gets placed on either their keels, resulting in keel sores, or on their hocks, resulting in hock swelling. Diving birds can also suffer from foot lesions (from the drying and cracking of sensitive webbed feet). While new devices have been designed to improve the resting condition and posture of birds that cannot be placed immediately back into the water (Russell et al. 2003), birds that require long-term treatment will still suffer from some degree of bruising.

As described above, the rehabilitation of diving birds is challenging and the likelihood of success and the magnitude of potential benefits are uncertain. For these reasons, this alternative is not proposed.

4.2.3 Alternative 3: Fund Research for Seabird Bycatch Reduction Techniques

This alternative would provide funds for the continuation of research into finding effective techniques that would reduce incidental capture and mortality (bycatch) of loons and other seabirds. Commercial fishing gear, such as longlines and gillnets, are significant sources of incidental mortalities for different types of marine vertebrates, including seabirds (National Marine Fisheries Service 2011). From 1996 to 2007, yearly estimates of gillnet bycatch off the mid-Atlantic coast for common loons ranged from 107 to 1294 individuals per year, and for red-throated loons, the estimates ranged from 135 to 1567 individuals per year (Warden 2010). The North American Waterbird Conservation Plan (Kushlan et al. 2002) suggests that “bycatch reduction should be achieved through development and deployment of multifaceted mitigating measures, and outreach, education, and training programs within the affected fisheries and consumer groups.” Werner et al. (2006) and Cox et al. (2007) listed several experimental studies for seabird bycatch reduction techniques and provided examples of successful achievement in reducing numbers of incidental take. However, which type(s) of bycatch reduction measures would be most effective for protecting seabirds is still unclear, as efficacy is likely dependent on the target species. Few studies in the past have examined reduction methods specifically for

loons. For trap nets used in freshwater lakes in upper mid-western states, loon excluder nets (ones that have a larger ceiling mesh size so that loons trapped at the water surface can escape) can reduce catch and mortality (Christiansen and Robinson 1997). However, in coastal waters gillnets pose a different logistical challenge. A recent study by Warden (2010) addresses this issue and provides some ideas for potential engineering solutions. Warden (2010) used gillnet fisheries observer data off the Atlantic coast (1996 to 2007) to predict common and red-throated loon bycatch rates and investigate gear characteristics associated with high bycatch rates. Her data analyses indicated that gill nets deployed in a way that allows for space between nets (thereby allowing birds to pass through the net string) may lower bycatch, although haul and soak durations may also be equally important factors. This study is valuable in providing a direction for future work in developing bycatch engineering solutions for loons, but it is clear that additional data collection and research needs to be conducted.

Identification of fisheries techniques or gear adjustments that could significantly reduce bycatch would be clearly beneficial for seabird populations. However, because there are still large data gaps that need to be addressed through scientific study, it is difficult to predict 1) when there might be actual benefits to future seabird populations and 2) how to quantify those benefits. Also, since gill netting (which has been shown to have high loon bycatch) is limited off the coast of Georgia, such a project would likely not benefit loon populations that typically winter in areas proximate to the Spill location and may be better implemented at a location outside of Georgia. Trustee oversight and monitoring would be difficult and costs would be large for a project not implemented in Georgia. For these reasons, this alternative is not proposed.

4.2.4 Alternative 4: Reducing Bird Mortality from Lead Tackle

This alternative would fund outreach efforts aimed at educating anglers about the impact of lead fishing tackle on loons and other wildlife. The goal is to reduce lead-related wildlife mortalities by persuading the angler community to abandon the use of lead tackle and switch to alternative types of lead-free tackle.

Species assessments for the common loon have identified lead poisoning as a current threat (Evers 2007). For loons, lead ingestion is a common hazard since they forage for digestive aids such as small grit and pebbles at the bottom of lakes where lost tackle gets deposited. Loons may also ingest lead by swallowing fish with fishing gear still attached. Lead poisoning negatively affects the loon's physiology and disrupts nerve impulse transmission within the nervous system, resulting in abnormal behaviors such as head-shaking, open-mouth breathing, wing and eye droop, disorientation, and lethargy (Sidor et al. 2003). Ingestion of even a small amount of lead (one or two pieces of lead fishing tackle, such as a 0.5 - 15 g sinker or jig) is enough to kill an adult loon (Twiss and Thomas 1998). In a study conducted in New England, necropsy results indicated that confirmed and suspected lead toxicosis accounted for nearly half of the mortality observed in breeding common loons between 1987 and 2000 (Sidor et al. 2003). In Wisconsin between 2006 and 2008, 26 common loons were submitted for necropsy and approximately 30% were determined to have died from lead poisoning (Strom et al. 2009). In Canada, 27% of dead adult loons (out of a total of 185) were determined to have died due to lead toxicosis during a period between 1983 and 1998 (Twiss and Thomas 1998).

The success of outreach efforts to alter angler behavior is unknown and the expected benefits per unit cost and/or effort are also unknown. Also, this type of outreach would be less effective in

benefiting loons in Georgia's coastal areas as loons are generally only found wintering at off-shore locations. To have a significant impact, outreach funds would have to be spent at inland lakes where these birds nest and forage during the spring/summer periods, i.e. Canada or upper mid-western states such as Wisconsin and Minnesota (Kenow et al. 2002). Implementation, oversight, and monitoring of this alternative by the Trustees at out-of-state locations would be labor-intensive and costly. For these reasons, this alternative is not proposed.

4.2.5 Alternative 5: Purchasing or Protecting Seabird Nesting Habitat

This alternative would involve purchasing or protecting breeding ground habitat for seabirds. The goal of this alternative would be to promote successful fledging of chicks, thereby increasing overall loon populations to replace birds injured by the Spill. Since the majority of birds injured in the Spill were common loons, the target habitat for protection would be shorelines along inland lakes in Canada or in upper mid-western states since loons wintering off the south Atlantic coast have been documented as migrating from those areas (Kenow et al. 2002).

Protecting breeding habitat from development would assist in fulfilling the need for improved breeding habitat quality that has been mentioned in several conservation plans for the common loon (Evers 2007, Tischler 2011). Shoreline development in breeding ground areas may lead to an increased human presence and an increase in predator densities, shoreline erosion, loss of supporting vegetation for nesting and cover, and impacts to water quality which may result in changes in prey and plant communities (Evers 2007, Tischler 2011). Meyer (2006) showed that loon pair presence and reproductive success was negatively impacted when shoreline building densities exceed 25 buildings per km of shoreline. Also, Titus and VanDruff (1981) reported reproductive losses for loons resulting from disturbance by human-related recreational activities. When birds are repeatedly flushed off their nests, eggs are often subject to abandonment and/or predation, or are accidentally rolled into the water by the flushing movements of the nesting bird (Titus and VanDruff 1981).

Considering the relatively large size of a loon nesting territory, protecting a sufficient amount of lakeshore breeding habitat to produce benefits would be a costly alternative. The size of a loon nesting territory varies due to several factors (e.g., food source availability, the presence of predators), but part of the reason for large territories may be because as loon densities increase, there tends to be increases in divorce rates and declines in reproductive success (Evers 2007). In Wisconsin, Strong and Baker (2000) found that the mean number of loons per lake ranged from one-half on 4 to 19 ha lakes to close to three loons on lakes greater than or equal to 202 ha. The Trustees for the 1996 North Cape Oil Spill estimated a protection requirement of 1,911 m linear shoreline per nest in their 1999 Restoration Plan and Environmental Assessment (NOAA, RI DEM, USDO, and USFWS 1999). At that time, the average cost for sites in New England were at an estimated \$158,000 per nest site. However, Meyer (2006) reported that vacant land on some lakes in Wisconsin was selling as high as \$1,500 - \$2,000 per linear foot of lake frontage and up to \$250,000 for vacant parcels on some lakes. In Minnesota, mean lakeshore property sales prices in 1996-2001 averaged between \$434 and \$959 per frontage foot (Krysel et al. 2003). It is reasonable to assume that current costs are significantly higher than these outdated estimates.

This project could produce direct benefits by supporting loon reproduction. However, this project may be more costly relative to other alternatives due to high costs for land acquisition. Also,

since this project would have to be implemented in out-of-state locations, Trustee oversight and monitoring of this alternative would be more costly and more difficult than for projects that could be implemented in-state. While this alternative would likely supplement the adult loon population that eventually migrates to the southeastern region for the winter, this alternative does not address threats to survival for wintering adult loon populations off the southeastern Atlantic coast. For these reasons, this alternative is not proposed.

4.2.6 Alternative 6 (Proposed Alternative): Saltmarsh Restoration on Ossabaw Island to Enhance Production of Seabird Wintering Prey Base

This alternative would restore saltmarsh areas that are hydrologically-restricted, thereby providing better quality habitat for the production and transport of seabird prey items. This project would enhance the tidal exchange into saltmarsh habitat that is currently restricted by undersized culverts. Specific culverts would be removed and replaced with adequately-sized bridges. The bridges will have greater capacity to allow tidal exchange to occur. Also, the scouring effects observed adjacent to the culverts would decrease with the installation of the bridges. Restoring saltmarsh areas by enhancing the hydrology and tidal flow would benefit loons, and other seabirds, by 1) improving the habitat conditions of saltmarsh areas that serve as the nursery grounds for prey items (e.g., fish, crustaceans, other invertebrates) and 2) widening and reshaping the hydraulic channel currently restricted by the culverts, thereby improving the transport of those prey items from the saltmarsh to seabird foraging locations along Georgia's coast.

This restoration alternative would compensate for natural resource injuries resulting from the Spill by benefiting adult loon populations and other seabirds that migrate to the Southeast Atlantic coast to survive winter months. Enhancing the production and transport of food resources to wintering loons and other seabirds will support their survival and long-term stability. This restoration alternative should also aid in lessening the impacts of emaciation syndrome, a term used to describe large loon die-offs where the common condition is emaciation, but which may originate from several, synergistic abiotic and biotic stress-causing factors (Forrester et al. 1997, Evers et al. 2010). Wintering loons may be particularly vulnerable to this syndrome due to depletion of energy reserves after migration and molting of flight feathers. During the molting process, loons will also undergo periods of flightlessness thereby restricting foraging capabilities. Habitat stability with adequate food resources, therefore, is particularly critical for survival during this period (Spitzer 1995). Marsh production of forage fish such as Atlantic menhaden is also of significance because emaciation syndrome has been partially attributed to an increase in salt-intake and higher parasite loads from dietary switches to crustaceans when fish are less abundant (Forrester et al. 1997). This project would provide greater transport of forage food for loons during periods when foraging mobility is restricted and energy reserves are low.

Priority saltmarsh restoration sites have been identified on Ossabaw Island. Ossabaw Island (Figure 2) is one of Georgia's thirteen barrier islands and is located within Chatham County. It was purchased by the State of Georgia in May 1978 and was declared as Georgia's first Heritage Preserve with an agreement that Ossabaw Island would "only be used for natural, scientific and cultural study, research and education, and environmentally sound preservation, conservation and management of the Island's ecosystem." Although it is cooperatively managed by three entities (the GADNR -Wildlife Resources Division (WRD), the Ossabaw Island Foundation, and the West Life Estate), WRD has the responsibility for the management and educational use of Ossabaw's natural, cultural, historic and archaeological resources. The island has just over 4,269

ha of upland and over 5,989 ha of tidally influenced saltmarsh¹. The natural environment is comprised of three distinct ecosystem communities: beaches and dunes, maritime forest, and saltmarsh/estuarine. The island holds a diversity of wildlife species, including several federally listed species (described in section 5.1.2.3). Two mixed-species wading bird rookeries exist on the island and several species of coastal shorebirds utilize Ossabaw Island's beaches.

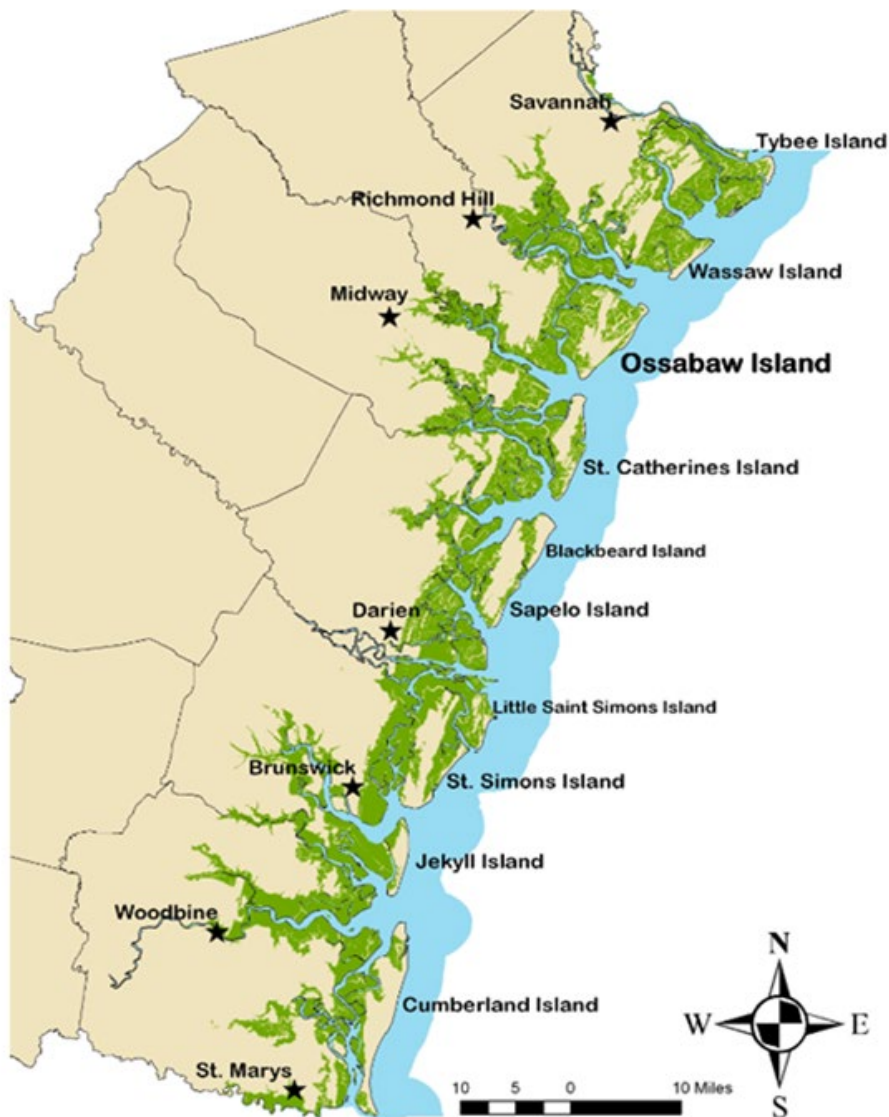


Figure 2. Location of Ossabaw Island along Georgia's Coast

Three sites on Ossabaw Island have been identified for saltmarsh restoration through an increase in tidal exchange by replacing undersized culverts with adequately-sized bridges. Site 1

¹ Area estimates were determined from a digitized vegetation community habitat map created by GADNR in 2010.

(31.76202N, 81.14149W) is just southeast of the island's hunt camp on the mid-west side of the island, Site 2 (31.75507N, 81.12827W) is just over 1 km southeast from site 1 (Figure 3), and Site 3 (31.77689N, 81.10485W) is north of Sites 1 and 2, and is located at the mid-center of the island (Figure 4). The estimated area of the saltmarsh habitat that will be restored for each of the three sites is 10, 6, and 64 ha, respectively².



Figure 3. Proposed Restoration Sites 1 and 2 on Ossabaw Island

² Restored area estimates were calculated by GADNR using geographic information system software to compare 2006 aerial imagery to 1942 imagery, and then calculated the anticipated vegetation response to reestablished natural tidal flow for the areas currently restricted by undersized culverts.



Figure 4. Proposed Restoration Site 3 on Ossabaw Island

Construction activities at the sites will include removing the existing plastic culverts and timbers under the roadway, the excavation of a small section of the causeway, and the construction of timber bridges as replacements. The replacement bridges will be designed to support the crossing of excavators and dump trucks. Preliminary bridge designs indicate that bridges will be approximately 4 m in width. Bridge length may vary at each site but is approximated to be 12 m, 15 m and 20 m at Sites 1, 2, and 3, respectively. Supporting timber piles (approximately 3 m high) will be located every 3 m and there will be 1.5m wing walls on either side. Overall, the construction footprint in the saltmarsh varies depending on bridge length but is estimated to be approximately 92 m², 116 m², and 154 m² for bridge Sites 1, 2, and 3, respectively. Once the bridges are installed, it is expected that there will be an increased tidal flow to approximately 6, 10 and 64 ha of saltmarsh at Sites 1, 2, and 3, respectively. Restoration monitoring will be conducted pre- and post-construction. Monitoring may include an evaluation of plant community changes, water quality, and hydrologic changes.

The proposed alternative is consistent with restoration needs listed in environmental

management plans such as the 2001 Ossabaw Island Comprehensive Management Plan (GADNR 2001) and GADNR's 2005 Comprehensive Wildlife Conservation Strategy (GADNR 2005). Specifically, in the Ossabaw Island Comprehensive Management Plan, the Ecology and Natural History Subcommittee made the following recommendation regarding wetlands (p. 28):

“Roads over culverts restricting water flow into estuarine areas should be evaluated for importance.....Bridges or multiple culverts should be considered to replace the more restrictive culvert design on heavily used roads. This recommendation was also supported by the Management subcommittee.”

In GADNR's 2005 Comprehensive Wildlife Conservation Strategy, Ossabaw Island is listed as a 'High Priority Site' for the Southern Coastal Plain Ecoregion. Also, 'Estuarine and Inshore Marine Waters' are listed as high priority habitats because they serve as nursery grounds for many species of fish and shellfish and are considered habitat for marine mammals such as the federally threatened West Indian manatee. Under "Conservation Goals" for this ecoregion, it is stated (p. 157):

“Encourage restoration of important wildlife habitats through reintroduction of prescribed fire, hydrologic restoration, and revegetation efforts.”

The natural resource service gains from the proposed alternative were evaluated using the REA model described in Section 3.2. The expected benefits of the restoration actions to loons and other seabirds would be the production and transport of prey necessary to support the survival of adult wintering seabirds. The model quantified the natural resource services that would be gained by conducting the proposed restoration actions. The Trustees used data from scientific literature for model inputs such as annual secondary production for local saltmarshes (Kneib 2003, Dr. Dennis Allen, University of South Carolina, personal communication 2010) and common loon consumption rates (Barr 1996, Fournier et al. 2002, Fournier et al. 2007). The Trustee-calculated bird-year gain from restoration of the three Ossabaw Island sites is 1,650.94 bird-years. Although this estimated bird-year gain is less than the total Trustee-estimated 2,070.77 bird-years lost as a result of the Spill, the proposed restoration alternative does offset the Trustee-calculated 1,565.45 bird-years lost from direct mortality and the Trustees and RP agreed that the proposed saltmarsh restoration projects on Ossabaw Island are a suitable alternative to address natural resource injury from the Spill and that funds from the settlement agreement described in Section 1.0 should be used to implement the proposed restoration alternative.

5.0 ENVIRONMENTAL ASSESSMENT

5.1 NEPA Evaluation

As noted in subsection 1.5, NEPA requires federal agencies to produce an EIS if they are contemplating implementation of a major federal action expected to have significant impacts on the quality of the human environment. NEPA defines the human environment comprehensively to include the “natural and physical environment and the relationship of people with that environment” (40 C.F.R. § 1508.14). All reasonably foreseeable direct and indirect effects of implementing a project, including beneficial effects, must be evaluated (40 C.F.R. § 1508.8). Federal agencies prepare an EA to consider these effects and evaluate the need for an EIS. If the

EA demonstrates that the proposed action will not significantly impact the quality of the human environment, the agency issues a FONSI, which satisfies the requirements of NEPA, and no EIS is required.

In accordance with NEPA, an EA is integrated into this DARP/EA. The EA details an evaluation of the expected effects of the proposed alternative on the quality of the human environment. This section of the DARP/EA evaluates the potential impacts of both Alternative 1 – No Action Alternative, and the proposed alternative, Alternative 6 – Saltmarsh Restoration on Ossabaw Island to Enhance Production of Seabird Wintering Prey Base. A FONSI, based on the evaluation detailed below, has been issued by the USFWS for potential impacts of the proposed alternative and is attached to this document (Appendix C).

5.1.1 Physical Environment Impacts

5.1.1.1 Air Quality Impacts

5.1.1.1.1 No Action Alternative

The No Action Alternative would not result in any air quality impacts since no restoration actions would be undertaken.

5.1.1.1.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island through the replacement of undersized culverts to allow greater tidal flow and inundation should not have a significant impact on air quality. Increased emissions from construction-related machinery would be expected, but these emissions would be short-term and minor and should not have an impact on the human environment outside of the restoration site.

5.1.1.2 Hydrological Impacts

5.1.1.2.1 No Action Alternative

The No Action Alternative would not result in any hydrological impacts since no restoration actions would be undertaken.

5.1.1.2.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island would have a significant impact on tidal hydrology at the site. Increasing tidal flow into the saltmarsh through the removal of culverts that are currently restricting flow is the primary objective of this alternative. The effects of this altered hydrology are expected to be long-term and beneficial, as it will support increased biological productivity within the restored saltmarsh habitat. The expected changes in hydrology should not have an impact on the human environment outside of the restoration site.

5.1.1.3 Water Quality Impacts

5.1.1.3.1 No Action Alternative

The No Action Alternative would not result in any water quality impacts since no restoration actions would be undertaken.

5.1.1.3.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island is expected to impact water quality in the

restored saltmarsh habitat. Currently, the restricted tidal exchange in the areas to be restored limits the flushing of nutrients from the existing marsh. Increasing tidal exchange in the habitat to be restored through the replacement of the undersized culverts is expected to produce long-term and beneficial impacts by allowing greater nutrient flushing to occur. Some adverse impacts to water quality may be observed through increased turbidity and/or suspended sediment as a result of the construction activities related to the restoration actions. Such adverse impacts are expected to be temporary and minor. The expected eventual improvement in water quality in the marsh would have beneficial impacts on the human environment by better supporting fish and wildlife resources that would be available for active (fishing) or passive (observing) recreation for the public.

5.1.1.4 Sediment Quality Impacts

5.1.1.4.1 No Action Alternative

The No Action Alternative would not result in any sediment quality impacts since no restoration actions would be undertaken.

5.1.1.4.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island is expected to have an impact on sediment quality in the restored saltmarsh habitat. Adverse impacts to sediments through disturbance are expected during construction activities. These adverse impacts are expected to be short-term and moderate. Increasing tidal exchange will allow for a more natural cycle of sediment movement and deposition, which is considered beneficial. Additionally, the scouring effects currently observed on sediments adjacent to the undersized culverts would be alleviated by replacing the culverts with adequate-sized bridges. Beneficial impacts to sediment quality are expected to be long-term. The expected improvement in sediment quality in the marsh would have beneficial impacts on the human environment by better supporting fish and wildlife resources that would be available for active (fishing) or passive (observing) recreation for the public.

5.1.1.5 Prime Agricultural Lands

There are no known prime agricultural lands in the vicinity of the restoration sites on Ossabaw Island.

5.1.2 Biological Impacts

5.1.2.1 Vegetation

5.1.2.1.1 No Action Alternative

The No Action Alternative would not result in any impacts to vegetation since no restoration actions would be undertaken.

5.1.2.1.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island is expected to impact vegetation. As the undersized culverts are replaced with adequately-sized bridges, tidal exchange will increase in the marsh leading to greater inundation for longer periods of time. This altered hydrologic cycle is expected to elicit changes in the plant community structure. There are no rare, threatened, or endangered plant species at the restoration site that will be adversely impacted by the restoration actions. Changes to the plant community will be long-term and beneficial as the saltmarsh is

fully restored. Changes in the vegetative community in the restored saltmarsh will not impact the human environment outside of the restoration sites.

5.1.2.2 Fish and Wildlife Resources

5.1.2.2.1 No Action Alternative

The No Action Alternative would not result in any impacts to fish and wildlife resources since no restoration actions would be undertaken.

5.1.2.2.2 Saltmarsh Restoration on Ossabaw Island

Aquatic Biota

The restoration of saltmarsh habitat on Ossabaw Island is expected to impact aquatic biota including fish and benthic invertebrates. Increased turbidity and/or suspended sediments as a result of construction activities may impact fish gills. Being mobile, fish would be expected to vacate areas of impact during construction activities, which would limit the scale of impacts. Benthic species with limited mobility may be crushed by construction activities. Best management practices will be implemented during construction activities to limit both suspended sediment releases and the disturbance to benthic habitat. The expected adverse impacts to aquatic biota from construction activities would be short-term and minor. Additional habitat will be available for both fish and benthic species as a more natural hydrologic cycle is restored to areas of the saltmarsh. The creation of such additional habitat is expected to be long-term and beneficial.

Mammals

The restoration of saltmarsh habitat on Ossabaw Island may impact mammals in and around the restoration sites. Construction activities may temporarily displace mammals, and may even cause mortality during the use of heavy machinery. Being mobile, mammals are expected to vacate areas of impact, which will limit adverse impacts. Adverse impacts to mammals are expected to be short-term and minor. The restoration of the saltmarsh sites may ultimately be beneficial to mammals that forage in the saltmarsh as prey abundance may increase.

Birds

The restoration of saltmarsh habitat on Ossabaw Island may impact birds in and around the restoration sites. Construction activities may disturb birds through noise and general human presence. Birds are expected to vacate construction areas to avoid any direct injury or mortality. The restoration of the saltmarsh sites may ultimately be beneficial to birds that forage in the saltmarsh as prey abundance may increase.

5.1.2.3 Rare, Threatened, or Endangered Species

5.1.2.3.1 NoAction Alternative

The No Action Alternative would not result in any impacts to rare, threatened, or endangered species since no restoration actions would be undertaken.

5.1.2.3.2 Saltmarsh Restoration on Ossabaw Island

The USFWS' Information for Planning and Consultation (IPAC) database lists twelve federally threatened or endangered species that occur in Chatham County, Georgia. These species include the threatened West Indian manatee (*Trichechus manatus*), the threatened piping plover

(*Charadrius melodus*), the threatened red knot (*Calidris canutus rufa*), the threatened wood stork (*Mycteria americana*), the threatened eastern indigo snake (*Drymarchon corais couperi*), the threatened green sea turtle (*Chelonia mydas*), the threatened loggerhead sea turtle (*Caretta caretta*), the threatened frosted flatwoods salamander (*Ambystoma cingulatum*), the endangered red-cockaded woodpecker (*Picoides borealis*), the endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), the endangered leatherback sea turtle (*Dermochelys coriacea*), and the endangered pondberry (*Lindera melissifolia*). The gopher tortoise (*Gopherus polyphemus*) and the striped newt (*Notophthalmus perstriatus*) also occur in Chatham County, both of whom are candidates for listing under the Endangered Species Act. There is designated critical habitat for the loggerhead sea turtle and the piping plover along the oceanfront beaches of Ossabaw Island.

While these species all occur in Chatham County, the majority are not found in saltmarsh habitat, the predominant habitat at the proposed restoration sites. Such species should not be impacted at all by the proposed restoration actions. Although critical habitat for the loggerhead sea turtle and the piping plover is found on Ossabaw Island, the proposed restoration actions at the inshore saltmarsh sites are expected to have no impact on the critical habitat units along the oceanfront beaches of Ossabaw Island.

Two federally listed species, the wood stork and the West Indian manatee, may be present at the proposed restoration sites. Potential impacts to both of these species are described below.

Wood Stork

The wood stork utilizes both freshwater and estuarine wetland habitats for nesting, roosting, and foraging. They nest in large rookeries in trees located on islands, marsh hammocks, or along the edges of the marsh where the surrounding water serves as a protective barrier against nest predators. Their diet consists mainly of small fish (supplemented with amphibians and aquatic invertebrates) found in brackish and freshwater wetlands. Suitable foraging habitat for the wood stork exists at all three of the proposed restoration sites. There are active wood stork rookeries on Ossabaw Island, but a review of the rookeries' locations indicates that the nearest rookery is greater than 3 km from any of the proposed restoration sites.

The proposed restoration projects are expected to increase tidal exchange at the project sites. The long-term impacts to the wood stork are likely to be beneficial in that there will be an enhancement to foraging habitat as previously dried or stagnant tidal creeks or pools will be reopened and may hold additional prey. During the construction period, there may be short-term, minor impacts to wood storks in the form of disturbance due to an increased human presence, increases in noise levels, and heavy machinery traffic. Wood stork foraging may also be temporarily limited in the vicinity of the restoration sites. The Trustees have consulted with the USFWS' Georgia Ecological Services Office (GESO) for potential impacts to the wood stork under Section 7 of the Endangered Species Act and made a determination that the proposed restoration alternative may affect, but is not likely to adversely affect the wood stork. The GESO concurred with this determination. Documentation of this consultation is provided in Appendix D..

West Indian Manatee

West Indian manatees in Georgia can be found in nearshore ocean waters, tidal creeks, estuaries, and the lower reaches of large rivers, preferring slow-moving and shallow waters. Because manatees are thermally stressed at low water temperatures, manatees are typically found in Georgia during the warmer months of the year. As water temperature drops, they may congregate at warm water sources such as warm springs or industrial outfalls. The West Indian manatee is herbivorous and eats aquatic plants such as sea grasses, marine algae, water hyacinth, and hydrilla. In Georgia, manatees may eat marsh grass. Critical habitat for the West Indian manatee has been designated, but there is no designated critical habitat within the state of Georgia. Manatees may inhabit the estuary in and around the proposed restoration sites, particularly during warmer months of the year. In order to limit potential impacts to the manatee, the Trustees will implement the manatee guidelines found in Appendix D.

The Trustees have consulted with the GESO for potential impacts to the West Indian manatee under Section 7 of the Endangered Species Act and made a determination that the proposed restoration alternative conducted in accordance with the manatee guidelines in Appendix D may affect, but is not likely to adversely affect the West Indian manatee. The GESO concurred with this determination. Documentation of this consultation is provided in Appendix D.

5.1.3 Socio-Economic Impacts

5.1.3.1 Aesthetics Impacts

5.1.3.1.1 No Action Alternative

The No Action Alternative would not result in any impacts to aesthetic or scenic qualities as no restoration actions would be undertaken.

5.1.3.1.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island is expected to have short-term and minor adverse impacts to aesthetic or scenic qualities at the restoration sites. During construction activities, the scenic quality of the sites will be impacted due to the presence of construction equipment and construction activities. Once construction is completed, the aesthetic qualities of the sites will return to their pre-construction status, and may even improve as the saltmarsh is fully restored through greater tidal exchange.

5.1.3.2 Noise Impacts

5.1.3.2.1 No Action Alternative

The No Action Alternative would not result in any noise impacts as no restoration actions would be undertaken.

5.1.3.2.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island is expected to have short-term and minor noise impacts while construction activities are being conducted. As there are no private residences in the vicinity of the restoration sites, local citizens should not be impacted by the construction-related noise. Wildlife resources may be temporarily disturbed by noise, but this disturbance would be short-term and minor and would cease once construction activities are completed.

5.1.3.3 Recreational Impacts

5.1.3.3.1 No Action Alternative

The No Action Alternative would not result in any recreational impacts as no restoration actions would be undertaken.

5.1.3.3.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island may have short-term and minor impacts on recreation. The roads where the undersized culverts are to be replaced with bridges provide access to various parts of Ossabaw Island. In order to access parts of the island where recreational activities, such as bird watching, may occur, alternate, possibly longer routes may need to be taken. Also, scheduled hunting events periodically occur on Ossabaw Island. Such events will be considered when the project construction schedules are developed in order to limit impacts to the scheduled hunting events.

5.1.3.4 Transportation Impacts

5.1.3.4.1 No Action Alternative

The No Action Alternative would not result in any impacts to transportation as no restoration actions would be undertaken.

5.1.3.4.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island will have short-term impacts on transportation. The roads where the undersized culverts are to be replaced with bridges provide access to various parts of Ossabaw Island. Transportation will be restricted at each site as construction work is conducted and alternate, possibly longer, routes will be used. The roads where construction will occur are not major thoroughfares and do not function as regular commuting roads for the public, therefore the impacts to transportation will be minor. The timing of construction activities will be coordinated to limit transportation impacts.

5.1.3.5 Public Health and Safety

5.1.3.5.1 No Action Alternative

The No Action Alternative would not result in any impacts to public health and safety as no restoration actions would be undertaken.

5.1.3.5.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island would involve short term risks to workers from the operation and transportation of construction equipment and machinery. To minimize such risk, all activities would be conducted in accordance with applicable occupational safety regulations. Public access to restoration sites would be restricted during construction activities to limit risks to the public. Once completed, the final restoration projects should pose no risk to public health and safety at neither the restoration sites nor within the local community.

5.1.3.6 Economic Impacts

5.1.3.6.1 No Action Alternative

The No Action Alternative would not result in any economic impacts as no restoration actions would be undertaken.

5.1.3.6.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island will create temporary employment opportunities while the construction activities are conducted and may benefit the local economy to a minor degree. No adverse economic impacts are expected. The proposed restoration sites are not suitable for commercial or residential development; therefore the restoration actions will not impact the potential for the sites to generate future economic benefits. Successful restoration of the saltmarsh sites may enhance local fish and wildlife resources which could produce minor economic benefits to the local community through an increase in eco-tourism and/or recreational fishing.

5.1.3.7 *Historic and Cultural Impacts*

5.1.3.7.1 No Action Alternative

The No Action Alternative would not result in any impacts to historic or cultural resources as no restoration actions would be undertaken.

5.1.3.7.2 Saltmarsh Restoration on Ossabaw Island

The restoration of saltmarsh habitat on Ossabaw Island is not expected to impact any historic or cultural resources. The Trustees have considered potential impacts to historic properties under Section 106 of the National Historic Preservation Act of 1966 (NHPA) and O.C.G.A. § 12-3-50.1(c)(6) & (7) and have determined that impacts to historic properties are not expected to occur. GADNR manages Ossabaw Island and is aware of the locations of the historic and cultural resources on the island and will ensure that impacts to such resources are avoided.

5.1.4 Cumulative Impacts

To evaluate cumulative impacts the proposed restoration alternative along with other past, present, and reasonably foreseeable future actions must be considered. Previous actions relevant to this analysis on Ossabaw Island include the construction of the current roads and their associated culverts. These previous actions caused adverse impacts to the adjacent saltmarsh habitat by restricting tidal exchange. The proposed restoration actions under consideration would require construction activities to be conducted in the same location as the original culvert installation, but the ultimate impacts should be beneficial and should mitigate some of the initial adverse impacts of the culverts by improving tidal exchange into the saltmarsh habitat of interest.

The adverse impacts to the environment from the proposed restoration actions will be short-term and minor. As Ossabaw Island is managed for conservation and educational use by GADNR, no foreseeable future actions that would contribute additional adverse impacts to those already expected from the proposed restoration alternative are predicted.

6.0 COMPLIANCE WITH OTHER KEY STATUTES, REGULATIONS AND POLICIES

6.1 Federal Laws, Regulations, and Policies

Federal Water Pollution Control Act

The Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA), 33 U.S.C. § 1251, *et seq.*, was established to restore and maintain the chemical, physical and

biological integrity of the United States' waters. The CWA sets a long-term goal of eliminating the discharge of pollutants into navigable waters, and an interim goal of attaining water quality that provides for the protection and propagation of fish, shellfish, and wildlife, as well as opportunities for water recreation. The CWA and its amendments comprise a complex set of programs and regulations including, among other things, permit programs for discharges from facilities and other point sources, specific discharge limitations for certain identified pollutants or categories of pollutants, provisions for qualitative and quantitative water quality standards to be set by states for their water bodies, and regulation of dredge and fill operations.

Section 404 of the CWA authorizes the U.S. Army Corps of Engineers (Corps) to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into the waters of the United States. Section 401 of the CWA provides that any applicant for a federal permit or license to conduct any activity which may result in any discharge into navigable waters must obtain certification of compliance with state water quality standards.

The Trustees anticipate that the selected restoration project will trigger CWA permitting requirements. The Trustees, or their implementing entity, will obtain the appropriate permits prior to project implementation.

Endangered Species Act

The purpose of the Endangered Species Act (ESA), 16 U.S.C. § 1531 *et seq.*, is to protect and recover imperiled species and the ecosystems upon which such species depend. All projects funded by federal agencies are required to insure that those activities are not likely to jeopardize the continued existence of any federally threatened or endangered species, or result in the destruction or adverse modification of habitat designated as critical for such species. Section 7 of the ESA requires federal agencies to consult with the Department of Commerce (through the National Oceanic and Atmospheric Administration (NOAA)) and/or DOI (through USFWS), depending on which agency has jurisdiction over a species of interest, when a federal action may impact a federally listed species. The Trustees have consulted with USFWS regarding potential impacts to federally listed species, in particular the wood stork and West Indian manatee. Determinations that the proposed restoration alternative may affect, but is not likely to adversely affect the wood stork and manatee were made by the Trustees. USFWS provided concurrence with these determinations (Appendix D).

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1361 *et seq.*, is the principal federal legislation for the protection of marine mammals. The MMPA prohibits, with few exceptions, the taking or importing into the United States of marine mammals or their products. The West Indian manatee is the marine mammal of most concern with regard to the proposed restoration alternative. The Trustees will implement manatee guidelines, found in Appendix D, which should provide adequate protection for the manatee. Other marine mammals, such as dolphins, may be present in the vicinity of the restoration sites, but would be expected to vacate construction areas without being harmed.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act, 16 U.S.C. § 661 *et seq.*, requires that agencies receiving

federal funds consult with the USFWS, the National Marine Fisheries Service, and state wildlife agencies for activities that result in the impoundment, diversion, channel deepening, or control or modification of any stream or water body, to minimize and mitigate any adverse effects on fish and wildlife resources and habitats. This consultation is generally incorporated into the process of complying with Section 404 of the CWA and other federal permit, license, or review requirements.

The Trustees, or implementing entity, will coordinate with all necessary agencies prior to project implementation.

Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act (FWCA), 16 U.S.C § 2901 *et seq.*, encourages all agencies receiving federal funds to use their statutory and administrative authorities to the maximum extent practicable and consistent with the agency's statutory responsibilities, to conserve and to promote the conservation of nongame fish and wildlife species and their habitats.

The proposed restoration alternative should benefit nongame fish and wildlife species and habitat and is expected to fully comply with the FWCA

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Act, as amended, 16 U.S.C. § 1801, *et seq.* and reauthorized by the Sustainable Fisheries Act of 1996, provides for the conservation and management of the Nation's fishery resources within the Exclusive Economic Zone (from the seaward boundary of every state to 200 miles from that baseline). The resource management goal is to achieve and maintain the optimum yield from U.S. marine fisheries. It also establishes a program to promote the protection of essential fish habitat (EFH) in the review of projects conducted under federal permits, licenses, or other authorities that affect or have the potential to affect such habitat. After EFH has been described and identified in fishery management plans by the regional fishery management councils, federal agencies are obligated to consult with the Secretary of Commerce with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any EFH.

The Trustees have determined that the proposed restoration actions will not adversely affect EFH.

Coastal Zone Management Act

The goal of the Coastal Zone Management Act (CZMA), 16 U.S.C. § 1451, *et seq.* is to encourage and assist states to preserve, protect, develop and, where possible, restore and enhance valuable natural coastal resources. Participation by states is voluntary. Section 1456 of the CZMA requires that any federal action inside or outside of the coastal zone that affects any land or water use or natural resources of the coastal zone be consistent to the maximum extent practicable with the enforceable policies of approved state management programs.

The Trustees believe that the proposed restoration alternative is consistent with the policies of the CZMA and will be submitting this consistency determination to the Georgia Coastal Management Program for review and concurrence prior to project implementation.

Rivers and Harbors Appropriation Act

The Rivers and Harbors Act of 1899, 33 U.S.C. § 401 *et seq.*, regulates the development and use of the nation's navigable waterways. Section 10 of the Act prohibits unauthorized obstruction or alteration of navigable waters and vests the US Army Corps of Engineers with authority to regulate discharges of fill and other materials into such waters.

The Trustees do not believe that the proposed restoration alternative will negatively impact navigable waters. The permitting process with the Corps required for compliance with the CWA will include compliance with the requirements of the Rivers and Harbors Act.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918, 16 U.S.C. § 703 *et seq.*, provides for the protection of migratory birds.

Implementation of the proposed restoration alternative is not expected to have an adverse impact on migratory birds.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (BGEPA) as amended, 16 U.S.C. § 668 *et seq.*, provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds.

The National Bald Eagle Management Guidelines (USFWS 2007) recommend that construction projects, which cannot be conducted outside of the breeding season, maintain a distance over 201 m from nests in situations in which the construction site activity is visible to the nest. Prior to implementing any construction activities, the Trustees will determine if bald eagle nests are present within the recommended buffer.

National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966 (NHPA) as amended, 16 U.S.C. § 470 *et seq.*, mandates federal agencies undergo a review process for all federally-funded and permitted projects that will impact sites listed on, or eligible for listing on, the National Register of Historic Places.

The Trustees have determined that no historic properties will be adversely impacted by the proposed restoration alternative.

Information Quality Guidelines Issued Pursuant to Public Law 106-554

Information disseminated by federal agencies to the public after October 1, 2002, is subject to information quality guidelines developed by each agency pursuant to Section 515 of Public Law 106-554 that are intended to ensure and maximize the quality of such information (i.e., the objectivity, utility and integrity of such information).

This DARP/EA is an information product covered by information quality guidelines established by USFWS and DOI for this purpose. The quality of the information contained herein is consistent with the applicable guidelines.

Executive Order 12898 (59 Fed. Reg. 7629) -Environmental Justice

Executive Order 12898 (February 11th, 1994) requires each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. As described in the analyses above, the proposed restoration actions are not expected to have long-term and/or major impacts on any physical, biological, or socio-economic factors. Minority and low-income populations will not be disproportionately affected by the short-term, minor impacts that are expected.

Executive Order Number 11514 (35 Fed. Reg. 8,693) – Protection and Enhancement of Environmental Quality

An EA is integrated within this DARP/EA and environmental analyses and coordination are taking place as required by NEPA.

Executive Order Number 11990 (42 Fed. Reg. 26,961) -Protection of Wetlands

Issued in 1977, Executive Order 11990 instructs each Federal agency to avoid, to the extent possible, the long- and short-term adverse effects associated with the destruction or modification of wetlands.

It is not anticipated that the proposed restoration alternative will adversely affect wetlands but rather will provide for the enhancement of wetlands and wetland services. However, appropriate regulatory permits will be obtained by the Trustees or the implementing entity before construction begins.

Executive Order Number 12962 (60 Fed. Reg. 30,769) -Recreational Fisheries

The proposed restoration actions will not result in adverse effects on recreational fisheries but will contribute to the enhancement of, and help support, such fisheries.

Executive Order 13112 - Invasive Species

The purpose of Executive Order 13112 is to prevent the introduction of invasive species and provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species cause. "

The Trustees do not believe that the proposed restoration alternative would promote the introduction or spread of invasive species.

Occupational Safety and Health Act

The Occupational Safety and Health Act (OSHA) of 1970, as amended, 29 USC § 651 *et seq.*, governs the health and safety of employees from exposure to recognized hazards, such as toxic chemicals, excessive noise, mechanical dangers, and unsanitary conditions.

The Trustees expect that all work conducted will comply with OSHA requirements.

6.2 State Laws, Regulations, and Policies

Coastal Marshlands Protection Act

The State of Georgia established the Coastal Marshlands Protection Act (CMPA), O.C.G.A. 12-5-280, *et seq.*, to protect the marsh and estuarine areas, and to regulate the activities within these

public trust lands that are held for the citizens of Georgia. It requires that any entity seeking to remove, fill, dredge, drain, or otherwise alter any marshlands, or construct or locate any structure on or over marshlands within the estuarine area, must first obtain a permit from the Coastal Marshlands Protection Committee or, in the case of minor alteration of marshlands, the Commissioner of Natural Resources. The appropriate permits will be obtained prior to project implementation.

7.0 REFERENCES

- American Bird Conservancy (ABC). 2012. List of the Birds of the United States with Conservation Rankings. <https://abcbirds.org/birds/watchlist/>
- Barr, J. F. 1996. Aspects of Common Loon (*Gavia immer*) feeding biology on its breeding grounds. *Hydrobiologia* 321: 119-144.
- Christiansen, J. L. and W. L. Robinson. 1997. Modification of trap nets to reduce capture of common loons. *Lake and Reservoir Management* 13(1):13-15.
- Clark, R. B. 1984. Impact of oil pollution on seabirds. *Environmental Pollution (Series A)* 33:1-22.
- Cox, T. M., R. L. Lewison, R. Žydelis, L. B. Crowder, C. Safina, and A. J. Read. 2007. Comparing effectiveness of experimental and implemented bycatch reduction measures: the ideal and the real. *Conservation Biology* 21(5):1155-1164.
- Crocker, A. D., J. Cronshaw, and W. M. Holmes. 1974. The effect of a crude oil on intestinal absorption in ducklings (*Anas platyrhynchos*). *Environmental Pollution* 7:165-177.
- Evers, D. C. 2007. Status Assessment and Conservation Plan for the Common Loon (*Gavia Immer*) in North America. BRI Report 2007-20. U.S. Fish and Wildlife Service, Hadley, MA.
- Evers, D. C., J. D. Paruk, J. W. McIntyre and J. F. Barr. 2010. Common Loon (*Gavia immer*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/313>
- Ford, T. B., and J. A. Gieg. 1995. Winter behavior of the common loon. *Journal of Field Ornithology* 66(1):22-29.
- Forrester, D. J., W. R. Davidson, R. E. Lange, R. K. Stroud, L. L. Alexander, J. C. Franson, S. D. Haseltine, R. C. Littell, and S. A. Nesbitt. 1997. *Journal of Wildlife Diseases* 33(4): 833-847.
- Fournier, F., W. H. Karasov, K. P. Kenow, M. W. Meyer, and R. K. Hines. 2002. The oral bioavailability and toxicokinetics of methylmercury in Common Loon (*Gavia immer*) chicks. *Comparative Biochemistry and Physiology a-Molecular and Integrative Physiology* 133(3):703-714.
- Fournier, F., W. H. Karasov, K. P. Kenow, and M. W. Meyer. 2007. Growth and energy requirements of captive-reared common loon (*Gavia immer*) chicks. *Auk* 124(4):1158-1167.

- Fry, D. M. and L. J. Lowenstine. 1985. Pathology of common murre and Cassin's auklets exposed to oil. *Achieves of Environmental Contamination and Toxicology* 14: 725-737.
- Georgia Department of Natural Resources (GADNR). 2001. Ossabaw Island Comprehensive Management Plan. Georgia Department of Natural Resources, Wildlife Resources Division. May 1, 2001.
- Georgia Department of Natural Resources (GADNR). 2005. A Comprehensive Wildlife Conservation Strategy for Georgia. Georgia Department of Natural Resources, Wildlife Resources Division. August 31, 2005.
- Gingras, B. A., and C. A. Paszkowski. 2006. Feeding behavior and modeled energetic intake of common loon (*Gavia immer*) adults and chicks on small lakes with and without fish. *Hydrobiologia* 567:247-261.
- Kenow, K. P., M. W. Meyer, D. C. Evers, D. C. Douglas, and J. Hines. 2002. Use of satellite telemetry to identify common loon migration routes, staging areas and wintering range. *Waterbirds* 25(4):449-458.
- Kneib, R. T. 2003. Bioenergetic and landscape considerations for scaling expectations of nekton production from intertidal marshes. *Marine Ecology Progress Series* 264:279-296.
- Krysel, C., E. M. Boyer, C. Parson, and P. Welle. 2003. Lakeshore property values and water quality: Evidence from property sales in the Mississippi headwaters region. Submitted to the Legislative Commission on Minnesota Resources by the Mississippi Headwaters Board and Bemidji State University, May 14, 2003.
- Kushlan, J. A., M. J. Steinkamp, K. C. Parsons, J. Capp, M. A. Cruz, M. Coulter, I. Davidson, L. Dickson, N. Edelson, R. Elliot, R. M. Erwin, S. Hatch, S. Kress, R. Milko, S. Miller, K. Mills, R. Paul, R. Phillips, J. Salvia, B. Sydeman, J. Trapp, J. Wheeler, and K. Wohl. 2002. Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan, Version 1. Waterbird Conservation for the Americas, Washington, DC, U.S.A., 78 pp.
- Meyer, M. W. 2006. Evaluating the impact of multiple stressors on common loon population demographics: an integrated laboratory and field approach. Final Report. Wisconsin Department of Natural Resources. Available online at: http://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/1916/report/F
- Miller, D. S., D. B. Peakall, and W. B. Kintner. 1978. Ingestion of crude oil: sublethal effects in herring gull chicks. *Science* 199: 315-317.
- Mowbray, Thomas B. 2002. Northern Gannet (*Morus bassanus*), *The Birds of North America*

- Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/609>
- National Marine Fisheries Service. 2011. U.S. National Bycatch Report (W. A. Karp, L. L. Desfosse, S. G. Brooke, Editors). U.S. Department of Commerce, NOAA Tech. Memo. NMFS-F/SPO-117E, 508 pp.
- National Oceanic and Atmospheric Administration, Rhode Island Department of Environmental Management, U.S. Department of the Interior and U.S. Fish and Wildlife Service (NOAA, RI DEM, USDOl, and USFWS). 1999. Restoration Plan and Environmental Assessment for the January 19, 1996 *North Cape* Oil Spill: Revised draft for Public Comment. March 31, 1999. Prepared by the National Oceanic and Atmospheric Administration, Rhode Island Department of Environmental Management, U.S. Department of the Interior and U.S. Fish and Wildlife Service.
- Ohlendorf, H. M., R. W. Risebrough, and K. Vermeer. 1978. Exposure of marine birds to environmental pollutants. U. S. Fish and Wildlife Service, Wildlife Research Report 9. 40pp.
- Peakall, D. B., J. Tremblay, W. B. Kintner, and D. S. Miller. 1981. Endocrine dysfunction in seabirds caused by ingested oil. *Environmental Research* 24: 6-14.
- Peacock, B. 2009. Resource equivalency analysis of interim losses resulting from the M/V Fortune Epoch oil spill. Prepared for: U.S. Fish and Wildlife Service, Georgia Ecological Services Office, Townsend, GA by Bruce E. Peacock, National Park Service, Environmental Quality Division, Fort Collins, CO. Draft May 19, 2009.
- Russell, M., J. Holcomb, and A. Berkner. 2003. Thirty Years of Oiled Wildlife Response Statistics. Proceedings of the 7th International Effects of Oil on Wildlife Conference, Hamburg, Germany, October 14-16, 2003.
- Shields, Mark. 2002. Brown Pelican (*Pelecanus occidentalis*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/609>
- Sidor, I. F., M. A. Pokras, A. R. Major, R. H. Poppenga, K. M. Taylor, and R. M. Miconi. 2003. Mortality of common loons in New England, 1987 to 2000. *Journal of Wildlife Diseases* 30:306-315.
- South Atlantic Fishery Management Council. 1998. Final Habitat Plan for the South Atlantic Region: Essential Fish Habitat Requirements for Fishery Management Plans of the South Atlantic Fishery Management Council. October 1998. National Oceanic and Atmospheric Administration Award #s NA77FC0002 and NA87FC0004.
- Sperduto, M. B., S. P. Powers, and M. Donlan. 2003. Scaling restoration to achieve quantitative enhancement of loon, seaduck, and other seabird populations. *Marine Ecology Progress Series* 264: 221-232.

- Spitzer, P. R. 1995. Common loon mortality in marine habitats. *Environmental Reviews* 3: 223-229.
- Stickel, L. F. and M. P. Dieter. 1979. Ecological and physiological/toxicological effects of petroleum on aquatic birds. U. S. Fish and Wildlife Service, FWS/OBS-79-23. 14pp.
- Strom, S. M., J. A. Langenberg, N. K. Businga, and J. K. Batten. 2009. Lead exposure in Wisconsin birds. *In* R. T. Watson, M. Fuller, M. Pokras, and W. G. Hunt (Eds.). *Ingestion of Lead from Spent Ammunition: Implications for Wildlife and Humans*. The Peregrine Fund, Boise, Idaho, USA.
- Strong, P. I., and R. J. Baker. 2000. An estimate of Minnesota's summer population of adult common loons. *In* *The Common Loon: Population Status and Fall Migration in Minnesota*. M.O.U. Occasional Papers: Number 3 (edited by Peder H. Svingen and Anthony X. Hertz). Minneapolis, Minnesota, September 2000.
- Tischler, K. B. 2011. Species conservation assessment for the Common Loon (*Gavia Immer*) in the Upper Great Lakes. USDA Forest Service, Eastern Region.
- Titus, J. R. and L. W. VanDruff. 1981. Response of the common loon to recreational pressure in the boundary waters canoe area, northeastern Minnesota. *Wildlife Monographs* 79: 3-59.
- Twiss, M. P., and V. G. Thomas. 1998. Preventing fishing-sinker-induced lead poisoning of common loons through Canadian policy and regulative reform. *Journal of Environmental Management* 53: 49-59.
- Unsworth, R., and R. Bishop. 1994. Assessing natural resource damages using environmental annuities. *Ecological Economics* 11: 35-41.
- U.S. Fish and Wildlife Service (USFWS). 2007. National Bald Eagle Management Guidelines. May 2007.
- Warden, M. L. 2010. Bycatch of wintering common and red-throated loons in gillnets off the U.S. Atlantic Coast, 1996-2007. *Aquatic Biology* 10: 167-180.
- Werner, T., S. Kraus, A. Read and E. Zollett. 2006. Fishing techniques to reduce the bycatch of threatened marine animals. *Marine Technology Society Journal* 40(3):50-68.

Appendix A: Notice of Intent to Conduct Restoration Planning

AFFIDAVIT OF PUBLICATION SAVANNAH MORNING NEWS

STATE OF GEORGIA
COUNTY OF CHATHAM

Personally appeared before me, Alaina Williams-Fincher, to me known, who being sworn, deposes and says:

That she is the Obituary/Legal Clerk for Southeastern Newspaper Corporation, a Georgia corporation, doing business in Chatham County, GA, under the trade name of Savannah Morning News, a daily newspaper published in said county;

That he is authorized to make affidavits of publication on behalf of said published corporation;

That said newspaper is of general circulation in said county and in the area adjacent thereto;

That he has reviewed the regular editions of the Savannah Morning News, published on:

Feb 25th, 2009 _____, 2009,

_____, 2009, _____, 2009,
and finds that the following advertisement, to-wit:

Appeared in each of said editions.
Sworn to and subscribed before me

This 25 day of Feb, 2009

Alaina Williams-Fincher
(Deponent)

Eugene J. Cronk
Notary Public, Chatham County, Ga.

EUGENE J. CRONK
Notary Public, Chatham County, GA
My Commission Expires January 26, 2010

THE STATE OF GEORGIA
Acting through the Commissioner of Natural Resources
AND THE
UNITED STATES DEPARTMENT OF THE INTERIOR,
acting through its Bureau
The United States Fish and Wildlife Service

Notice of Intent To Conduct Restoration Planning for Natural Resources Injured by the Release of Oil From the M/V Fortune Epoch in and around Savannah, Georgia, and environs.

DATE: February 25, 2009

ACTION: Notice of Intent, issued pursuant to 15 C.F.R. § 990.44.

SUMMARY: The Commissioner of Natural Resources (the Commissioner), acting on behalf of the State of Georgia and the United States Fish and Wildlife Service, acting on behalf of the United States Department of the Interior (DOI), as natural resource trustees and as lead administrative trustees (collectively, the Natural Resource Trustees or the Trustees) for an incident involving the discharge of oil from the M/V Fortune Epoch (the Incident), have chosen to enter into the restoration planning phase of a Natural Resource Damage Assessment. The purpose of this phase is to evaluate and quantify information on potential injuries, to use that injury assessment to determine the need for and scale of restoration actions and to prepare a plan for the restoration, rehabilitation, replacement, or the acquisition of the equivalent of, the natural resources injured, destroyed or lost, and the uses of which were lost due to the diminution of those natural resources before restoration actions are completed, as a result of this discharge. The activities of this phase are being carried out as part of the process to proceed with a Natural Resources Damage Assessment and to address the Trustees' claims for damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing damages, resulting from the Incident under the Oil Pollution Act of 1990 (OPA), 33 U.S.C. §§ 2701 et seq.

FOR FURTHER INFORMATION CONTACT: Strant Colwell, Case Manager, United States Fish and Wildlife Service, 4980 Wildlife Drive, N.E., Townsend, Ga. 31331, telephone (912) 265-9336.

SUPPLEMENTARY INFORMATION: In the early morning of November 17, 2004, the M/V Fortune Epoch was transiting outbound in Georgia when it lost power and drifted outside the safe navigation channel at Tybee Roads. Power was soon restored and the vessel proceeded to a safe anchorage approximately 10 miles east of Tybee Island, Georgia. At 10:05 a.m. EST, the vessel owner's representative notified the U.S. Coast Guard National Response Center that fuel oil was leaking from the vessel's port side. Subsequent U.S. Coast Guard overflights identified oil sheens leading from the vessel to the mouth of the Savannah River.

The vessel was estimated to be carrying 37,000 gallons of IFO-180 fuel oil of which an estimated 6,800 gallons were released into open waters. A small amount of oil came ashore near the mouth of the Savannah River while the remaining visible oil moved south-southwest along the coast. Response activities included booming the vessel, lightening off the remaining fuel, skimming free-floating oil (as weather permitted), shoreline assessment and clean-up, and oiled wildlife surveys and recovery. Response workers recovered approximately 75 gallons of liquid oil and 14 bags of oiled debris from the water, and 26 bags of oiled debris from the shore. Response workers, U.S. Fish and Wildlife Service personnel, Georgia Department of Natural Resources personnel, and private citizens recovered 54 seabirds during this spill event, 47 of which were determined to have been oiled. The oiled birds included: 43 common loons (*Gavia immer*), 3 northern gannets (*Morus bassanus*), and 1 brown pelican (*Pelecanus occidentalis*). Three of the common loons were successfully treated and released. All others were either dead upon recovery or died during treatment.

Pursuant to Section 1006(b) of the OPA, 33 U.S.C. § 2706(b), Executive Order 12777, and the National Contingency Plan, 40 C.F.R. § 300.600 and § 300.605, the Secretary of DOI and the Commissioner are designated trustees of natural resources for this incident and thus have authority to proceed with the assessment of natural resources injuries. The natural resources and services that are likely to be injured as a result of the Incident are the birds and other wildlife and aquatic life affected, and wetlands, similar littoral areas and ocean bottoms affected. The Trustees are responsible for assessing the injuries caused by the Incident to natural resources under their trusteeship, developing a plan for the restoration of these resources, and pursuing funding from responsible parties for the implementation of this plan or the implementation of the plan by the responsible parties themselves. The Trustees are proceeding in accordance with regulations for conducting Natural Resource Damage Assessments found at 15 C.F.R. Part 990.

One of the goals of OPA is to make the environment and the public whole for injuries to natural resources and services resulting from an incident involving a discharge or substantial threat of a discharge of oil from a vessel into or upon navigable waters or adjoining shorelines. This goal is achieved through the return of the injured natural resources and services to baseline and the provision of compensation for interim losses of such natural resources and the services they provide, to other natural resources and/or the public, from the date of an incident until recovery.

The Trustees have performed pre-assessment activities in connection with the Incident, including collecting and cataloging bird carcasses, reviewing veterinarian records and necropsy reports, and data analysis. Pre-assessment efforts demonstrated that exposure to the Incident-related oil caused the deaths of at least 44 birds, including 40 common loons (*Gavia immer*), 3 northern gannets (*Morus bassanus*), and 1 brown pelican (*Pelecanus occidentalis*). The oiled birds are Federal trust resources protected under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 701 et seq.). They are also natural resources managed by the Department of Natural Resources under State Game and Fish laws, Title 27 of the Official Code of Georgia Annotated, particularly O.C.G.A. § 27-1-3, and the Rules and Regulations of the Board of Natural Resources, Ga. Comp. R. & Regs. Ch. 391. The supporting habitats for these resources are also under the trusteeship of DOI and the State. The State also has authority under O.C.G.A. § 12-5-51(a) and § 12-5-297 to recover expenses incurred in, inter alia, replacing aquatic life destroyed.

On February 15, 2007, the Trustees invited Fukunaga Kai Ltd. (a/k/a FSK Lines), to participate in the Natural Resource Damage Assessment and Restoration (NRDAR) Planning process. This party is being asked whether it will accept the invitation and participate cooperatively in the assessment and restoration process. It has already informally participated in the process.

Trustees' Determination of Jurisdiction

Following notice of the Incident, the Trustees initiated pre-assessment data collection activities, such as bird carcass collection. After these activities, the Trustees made the determinations required by 15 C.F.R. § 990.41, which are set forth below.

(1) The spill of approximately 6,800 gallons of CFO-180 fuel oil from the M/V Fortune Epoch into the area surrounding the mouth of the Savannah River that occurred November 17, 2004, was an incident as defined at 15 C.F.R. § 990.30.

(2) The Incident was not permitted under Federal, state, or local law; it did not occur from a public vessel; and it did not occur from an offshore facility subject to the Trans-Alaska Pipeline Authority Act, 43 U.S.C. §§ 1651 et seq..

(3) The Trustees have reviewed information gathered during the response and pre-assessment phases of this incident and determined that natural resources under their trusteeship have been injured as a result of the Incident. The discharged oil contained components that are toxic at certain exposure levels to aquatic organisms, birds, wildlife, and vegetation. In addition, the physical characteristics of the oil adversely affected seabirds that came into contact with it.

Based upon the above findings, the Trustees have determined that they have jurisdiction to pursue restoration planning activities pursuant to OPA, 33 U.S.C. §§ 2702 and 2706(b)-(c).

Trustees' Determination to Conduct Restoration Activities

For the reasons discussed below, the Trustees have made the determination required by 15 C.F.R. § 990.42(a) and are proceeding with restoration planning to develop restoration alternatives that will restore, replace, rehabilitate, or acquire the equivalent of, the natural resources and/or natural resource services lost as a result of the Incident.

(1) Injuries have resulted from the Incident. The Trustees base this determination upon data collected and analyzed pursuant to 15 C.F.R. § 990.43 demonstrating that injuries are likely to have resulted from the Incident, and include but are not limited to, the following natural resource categories: birds and other wildlife.

(2) Response actions have not adequately addressed the injuries resulting from the Incident. Although response actions were initiated promptly, the nature of the discharge, weather and tide conditions, and the sensitivity of the environment precluded the prevention of injuries to some natural resources. It is anticipated that injured natural resources will eventually return to baseline levels, but there is a potential for significant interim losses of natural resource services to occur and to continue to occur, until return to baseline is achieved.

(3) Feasible primary and compensatory restoration alternatives exist to address injuries from the Incident. Components of the restoration plan and actions may include, but are not limited to, projects involving land acquisition and wetland/marsh enhancement.

Public Involvement

Pursuant to 15 C.F.R. § 990.55, the Trustees will seek public involvement in restoration planning by establishing public review and comment opportunities.

Administrative Record

The Trustees have opened an Administrative Record (the Record) in compliance with 15 C.F.R. § 990.45. The Record includes documents relied upon by the Trustees to date in the pre-assessment phase of the natural resource damage assessment in connection with the Incident, and the Record will be supplemented with additional relevant documents as warranted. The Record is on file at: 4980 Wildlife Drive, N.E., Townsend, Ga. 31331. Access to the Record may be obtained by contacting Case Manager Strant Colwell at the above provided address and phone number.

Jackie Parrish for Sam Hamilton, Acting Regional Director,
U.S. Fish and Wildlife Service, Atlanta, Georgia
and
Noel Holcomb, Commissioner of Natural Resources
Georgia Department of Natural Resources

Appendix B: Draft DARP/EA Notice of Availability

AFFIDAVIT OF PUBLICATION SAVANNAH MORNING NEWS

STATE OF GEORGIA,
COUNTY OF CHATHAM

Personally appeared before me, Alaina Fincher, to me known who being sworn, deposes and says: That he/she is the authorized agent of GateHouse Media, Georgia Holdings, Inc., d. b. a. Savannah Morning News in Chatham County, Georgia;

That he/she is authorized to make affidavits of publication on behalf of said company; That said newspaper is of general circulation in said county and in the area adjacent thereto; That said newspaper is the legal organ for publication in Chatham County, Georgia; That he/she has reviewed the regular editions of the Savannah Morning News, published:

May 26, 2018

June 2, 9, 2018

June 16, 2018

June 19, 2018

And finds that the following advertisement to wit:

NOTICE OF AVAILABILITY
MV FORTUNE EPOCH Oil Spill
Draft Damage Assessment
and Restoration Plan and
Environmental Assessment
The U.S. Fish and Wildlife Service
and the Georgia Department of
Natural Resources, collectively the
Trustees, have prepared a
Draft Damage Assessment and
Restoration Plan and
Environmental Assessment
(DARP/EA) for the Motor Vessel
(MV) FORTUNE EPOCH oil spill.
The Draft DARP/EA was prepared
as part of a 2018 natural resource
damage assessment and agreement
between the Fikunaga Kaiun Co.,
Ltd and the Trustees. Restoration
alternatives to address natural
resources believed to have been
injured, lost, or destroyed due to
discharges of oil from the
MV FORTUNE EPOCH near
Savannah, Georgia in November
2004 are evaluated in the Draft
DARP/EA. National Environmental
Policy Act environmental
assessment requirements are also
addressed by the Draft DARP/EA
by describing the affected
environment, describing the
purpose and need for restoration,
identifying restoration alternatives,
and assessing the nature of the
environmental, social, and
economic impacts or benefits that
may result from implementing the
proposed restoration alternative.
The Trustees are requesting public
input on the material presented in
the Draft DARP/EA, which is now
available for review and public
comment. All comments received
by June 20th, 2018 will be
considered in finalizing the
Draft DARP/EA.
The public can access the
Draft DARP/EA online at
https://www.cerc.usgs.gov/ordo_docs/CaseDetails?ID=1759 or by contacting Anthony Sowers at the U.S. Fish and Wildlife Service at 912-332-8739 extension 3. Comments may be submitted to Anthony Sowers, U.S. Fish and Wildlife Service, 4990 Wildlife Drive NE, Townsend, Georgia 31331, or by email to anthony_sowers@fws.gov.

appeared in each of said editions.

Sworn to and subscribed before me;

Alaina Fincher

(Deponent)

This 19 day of June, 2018

Eugene J. Cronk

Notary Public; Chatham County, GA.

EUGENE J CRONK

Notary Public, Chatham County, Georgia
My Commission Expires January 24, 2022

Appendix C: Finding of No Significant Impact

FINDING OF NO SIGNIFICANT IMPACT

M/V FORTUNE EPOCH Damage Assessment and Restoration Plan and Environmental Assessment

Under the Oil Pollution Act (OPA) of 1990, the U.S. Fish and Wildlife Service (USFWS), as the lead federal agency for the Natural Resource Trustee Agencies (Trustees), on behalf of the Department of the Interior (DOI), prepared the Damage Assessment and Restoration Plan and Environmental Assessment (DARP/EA) for the Motor Vessel (M/V) FORTUNE EPOCH Oil Spill, Savannah, Georgia. The other Trustee involved in preparing the DARP/EA is the Georgia Department of Natural Resources (GADNR), acting on behalf of the State of Georgia.

The DARP/EA evaluates restoration alternatives that are to be implemented with settlement funds from a natural resource damage assessment to compensate for natural resource injuries incurred as a result of the release of oil from the M/V FORTUNE EPOCH near Savannah, Georgia in 2004. The DARP/EA identified a proposed restoration alternative: Saltmarsh Restoration on Ossabaw Island to Enhance Production of Seabird Wintering Prey Base. The proposed restoration activities include the removal of undersized culverts that will be replaced with bridges to allow an increased tidal flow into the saltmarsh. In addition, as required by applicable regulations, the DARP/EA evaluated a “No Action” alternative.

The Council on Environmental Quality (CEQ) regulations at 40 C.F.R. § 1508.27 direct Federal agencies to analyze an action’s significance in terms of context and intensity using defined criteria. The CEQ context and intensity criteria are discussed below with respect to the proposed action’s effects on the environment and support a Finding of No Significant Impact, consistent with 40 C.F.R. § 1508.13.

1. Can the proposed action reasonably be expected to cause both beneficial and adverse impacts that overall may result in a significant effect, even if the effect will be beneficial?

No. As documented in the DARP/EA, the Trustees do not expect future implementation of the selected restoration alternative to result in adverse impacts to the environment. The removal of undersized culverts followed by replacement with adequately sized bridges will improve hydrology in the saltmarsh and will not cause adverse impacts to the environment. Minor, temporary disturbance may occur within the limited construction footprint during culvert removal and bridge installation, but the proposed action should improve ecological function and are not expected to adversely impact the subject property or the surrounding area.

2. Can the proposed action reasonably be expected to significantly affect public health or safety?

No. All restoration activities will be conducted in accordance with applicable occupational health and safety guidelines and regulations. Public access to Ossabaw Island is limited; therefore, exposure to construction activities will be minimal. During construction activities, the

public will not have access to the immediate project area, which will also avoid potential safety issues.

3. Can the proposed action reasonably be expected to result in significant impacts to unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?

No. Prior to project implementation, the proposed action will be reviewed under Section 106 of the National Historic Preservation Act of 1966, as amended to ensure that no historic resources are impacted. GADNR, manages Ossabaw Island, is aware of the historic and cultural resources on the island, and does not anticipate impacts. The proposed action will improve ecological function and should not result in adverse impacts to ecologically sensitive/critical areas. The State has indicated their State Historic Preservation Officer (SHPO) will work with them on the Section 106 consultation prior to implementation of any activities on the preferred option.

4. Are the proposed action's effects on the quality of the human environment likely to be highly controversial?

No. The proposed action will improve ecological function in disturbed areas and provide long-term ecological benefits. Such action is not expected to be highly controversial. This conclusion is supported by the fact that public comments were not received regarding the proposed action in the DARP/EA.

5. Are the proposed action's effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

No. The proposed action includes standard activities that will be conducted by qualified individuals. There are no unique or unknown risks associated with the proposed action.

6. Can the proposed action reasonably be expected to establish a precedent for future action with significant effects or represent a decision in principle about a future consideration?

No. The proposed action includes typical ecological restoration techniques that will not set a precedent for future action or represent a decision in principle about a future consideration.

7. Is the proposed action related to other action that when considered together will have individually insignificant but cumulatively significant impacts?

No. The proposed action is not related to other known and/or planned activities on Ossabaw Island and is not expected to produce significant cumulative impacts. A complete evaluation of cumulative impacts is provided in Section 5.1.4 of the DARP/EA.

8. Can the proposed action reasonably be expected to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources?

No. The proposed project is not expected to impact any cultural, scientific, or historic resources. Prior to implementing a specific restoration project, a review of all scientific, cultural, and historic resources within the project footprint will be evaluated and care will be taken to avoid impacts to such resources. GADNR, manages Ossabaw Island and is aware of the historic and cultural resources on the island. The proposed action will improve ecological function and should not result in adverse impacts to ecologically sensitive/critical areas. The State has detailed knowledge of historical and cultural resources on the Island and does not anticipate any impacts. Nonetheless their State Historic Preservation Officer (SHPO) will work with them on the Section 106 consultation prior to implementation of any activities conducted under the preferred option.

9. Can the proposed action reasonably be expected to have a significant impact on endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973?

No. The Trustees have consulted with the appropriate USFWS office under Section 7 of the Endangered Species Act to ensure that impacts to threatened and endangered species and their critical habitats are avoided. Documentation of this consultation is provided in Appendix C of the DARP/EA. The proposed action will improve ecological function, which should benefit threatened and endangered species.

10. Can the proposed action reasonably be expected to threaten a violation of Federal, state, or local law or requirements imposed for environmental protection?

No. A review of appropriate Federal, State, and local laws was conducted in the DARP/EA to ensure that the proposed action does not violate any applicable environmental laws. This evaluation is detailed in Section 6 of the DARP/EA.

Finding of No Significant Impact

Based upon the information presented in this document and the evaluation conducted in the M/V Fortune Epoch Oil Spill DARP/EA, it is determined that the proposed action will not significantly impact the quality of the human environment. All beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impact. Accordingly, preparation of an environmental impact statement for this action is not necessary.

for  *Acting Deputy Regional Director*
Michael Oetker
Acting Regional Director
Southeast Region
U.S. Fish and Wildlife Service

10/10/2018
Date

Appendix D: Endangered Species Act Consultation

REGION 4 INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Person: Anthony Sowers

Telephone Number: 912-832-8739 extension 3

E-Mail: anthony_sowers@fws.gov

Date: 6/5/2018

PROJECT NAME (Grant Title/Number): Fortune Epoch Natural Resource Damage
Assessment Ossabaw Island Restoration Projects

I. Service Program:

☒ **Ecological Services**

☐ **Federal Aid**

☐ **Clean Vessel Act**

☐ **Coastal Wetlands**

☐ **Endangered Species Section 6**

☐ **Partners for Fish and Wildlife**

☐ **Sport Fish Restoration**

☐ **Wildlife Restoration**

☐ **Fisheries**

☐ **Refuges/Wildlife**

II. State/Agency: Georgia, US Fish and Wildlife Service

III. Station Name: Coastal Georgia Ecological Services

IV. Description of Proposed Action (attach additional pages as needed):

The United States Fish and Wildlife Service (Service) on behalf of the United States Department of the Interior and the Georgia Department of Natural Resources (GADNR) on behalf of the State of Georgia, collectively the "Trustees", have determined through a natural resource damage assessment (NRDA) that natural resources were injured due to the release of oil from the Motor Vessel (M/V) FORTUNE EPOCH in the vicinity of Savannah, Georgia in 2004. As part of the NRDA process, a settlement agreement was reached between the responsible party and the Trustees that provided funds for the Trustees to use to restore, rehabilitate, replace, or acquire the equivalent of the injured natural resources. The Trustees have identified and proposed restoration projects on Ossabaw Island to be implemented with the recovered funds from the settlement agreement. The Service, as the lead administrative trustee for the NRDA, is requesting informal consultation for the potential impacts of the proposed project on threatened and endangered species.

Three sites on Ossabaw Island in Chatham County, Georgia have been identified for saltmarsh restoration through an increase in tidal exchange by replacing undersized culverts with adequately-sized bridges. Site 1 (31.76202N, 81.14149W) is just southeast of the island's hunt camp on the mid-west side of the island, Site 2 (31.75507N, 81.12827W) is just over 1 km southeast from site 1 (Figure 1), and Site 3 (31.77689N, 81.10485W) is north of Sites 1 and 2,

and is located at the mid-center of the island (Figure 2). Figure 3 displays the full extent of Ossabaw Island and the locations of the proposed restoration sites. The estimated area of the saltmarsh habitat that will be restored for each of the three sites is 10, 6, and 64 ha, respectively. Restored area estimates were calculated by GADNR using geographic information system software to compare 2006 aerial imagery to 1942 imagery, and then calculated the anticipated vegetation response to reestablished natural tidal flow for the areas currently restricted by undersized culverts.

Construction activities at the sites include removing the existing plastic culverts and timbers under the roadway, the excavation of a small section of the causeway, and the construction of timber bridges as replacements. The replacement bridges will be designed to support the crossing of excavators and dump trucks. Preliminary bridge designs indicate that bridges will be approximately 4 m in width. Bridge length may vary at each site but is approximated to be 12 m, 15 m and 20 m at Sites 1, 2, and 3, respectively. Supporting timber piles (approximately 3 m high) will be located every 3 m and there will be 1.5m wing walls on either side. Overall, the construction footprint in the saltmarsh varies depending on bridge length but is estimated to be approximately 92 m², 116 m², and 154 m² for bridge Sites 1, 2, and 3, respectively. Once the bridges are installed, it is expected that there will be an increased tidal flow to approximately 6, 10 and 64 ha of saltmarsh at Sites 1, 2, and 3, respectively.

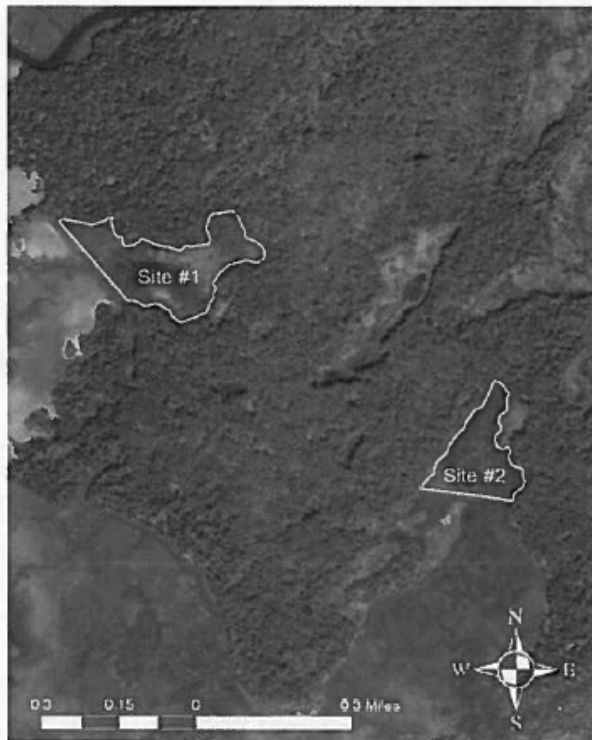


Figure 1. Proposed Restoration Sites 1 and 2 on Ossabaw Island



Figure 2. Proposed Restoration Site 3 on Ossabaw Island



Figure 3. Full Extent of Ossabaw Island

V. Pertinent Species and Habitat:

A. Complete the following table:

SPECIES/CRITICAL HABITAT	STATUS¹
West Indian Manatee	T
Wood Stork	T
Red Knot	T
Piping Plover and its Critical Habitat	T, CH
Green Sea Turtle	T
Kemp's Ridley Sea Turtle	E
Leatherback Sea Turtle	E
Loggerhead Sea Turtle and its Critical Habitat	T, CH

¹STATUS: E=endangered, T=threatened, PE=proposed endangered, PT=proposed threatened, CH=critical habitat, PCH=proposed critical habitat, C=candidate species

VI. Location (attach map): See Figure 3 Above

- A. Ecoregion Number and Name: 232, Outer Coastal Plain Mixed Forest Province**
- B. County and State: Chatham County, Georgia**
- C. Section, township, and range (or latitude and longitude): (31.76202N, 81.14149W), (31.75507N, 81.12827W), (31.77689N, 81.10485W)**
- D. Distance (miles) and direction to nearest town: Approximately 15 miles Southwest of Richmond Hill, Georgia**

VII. Determination of Effects:

A. Explanation of effects of the action on species and critical habitats in item V. A (attach additional pages as needed):

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
West Indian Manatee	Manatees may be present in the project areas during warmer months of the year and could be subject to physical injury during construction activities.
Wood Stork	Wood storks may be present in the project areas and foraging activities may be disturbed during construction activities. The nearest known wood stork rookery is greater than 3 km from the closest proposed project area and should not be impacted by construction activities. Following project completion, wood stork foraging may be enhanced in the restored marsh area.
Red Knot	Red knots may utilize beach areas near the project areas, but are not expected to be present in the immediate project areas and should not be adversely impacted by construction activities.
Piping Plover/CH	Piping plovers may utilize beach areas near the project areas, but are not expected to be present in the immediate project areas and should not be adversely impacted by construction activities. Critical habitat is located along the beachfront of Ossabaw Island and is outside of the areas expected to be impacted during construction activities.
Green Sea Turtle	Green sea turtles may nest on the beaches of Ossabaw Island, but are not expected to utilize the inshore marsh areas in and around the projects areas and should not be adversely impacted by construction activities.
Kemp's Ridley Sea Turtle	Kemp's Ridley sea turtles may nest on the beaches of Ossabaw Island, but are not expected to utilize the inshore marsh areas in and around the projects areas and should not be adversely impacted by construction activities.

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
Leatherback Sea Turtle	Leatherback sea turtles may nest on the beaches of Ossabaw Island, but are not expected to utilize the inshore marsh areas in and around the projects areas and should not be adversely impacted by construction activities.
Loggerhead Sea Turtle/CH	Loggerhead sea turtles may nest on the beaches of Ossabaw Island, but are not expected to utilize the inshore marsh areas in and around the projects areas and should not be adversely impacted by construction activities. Critical habitat for the loggerhead sea turtle is found on the beachfront of Ossabaw Island, but should not be impacted by the proposed construction activities in the marsh.

B. Explanation of actions to be implemented to reduce adverse effects:

SPECIES/ CRITICAL HABITAT	ACTIONS TO MITIGATE/MINIMIZE IMPACTS
West Indian Manatee	The attached manatee construction guidelines will be implemented during all construction activities in the project areas to minimize impacts to the manatee.
Wood Stork	Potential impacts to the wood stork are expected to be minimal and temporary and do not require minimization actions.
Red Knot	No actions to mitigate/minimize impacts to the red knot are needed.
Piping Plover/CH	No actions to mitigate/minimize impacts to the piping plover or its critical habitat are needed.
Green Sea Turtle	No actions to mitigate/minimize impacts to the green sea turtle are needed.
Kemp's Ridley Sea Turtle	No actions to mitigate/minimize impacts to the Kemp's Ridley sea turtle are needed.

SPECIES/ CRITICAL HABITAT	ACTIONS TO MITIGATE/MINIMIZE IMPACTS
Leatherback Sea Turtle	No actions to mitigate/minimize impacts to the leatherback sea turtle are needed.
Loggerhead Sea Turtle/CH	No actions to mitigate/minimize impacts to the loggerhead sea turtle or its critical habitat are needed.

VIII. Effect Determination and Response Requested:

SPECIES/ CRITICAL HABITAT	DETERMINATION ¹			RESPONSE ¹ REQUESTED
	NE	NA	AA	
West Indian Manatee		X		Concurrence
Wood Stork		X		Concurrence
Red Knot	X			Concurrence
Piping Plover/CH	X			Concurrence
Green Sea Turtle	X			Concurrence
Kemp's Ridley Sea Turtle	X			Concurrence
Leatherback Sea Turtle	X			Concurrence
Loggerhead Sea Turtle/CH	X			Concurrence

¹DETERMINATION/RESPONSE REQUESTED:

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested is optional but a "Concurrence" is recommended for a complete Administrative Record.

NA = not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response Requested is a "Concurrence".

AA = likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested for listed species is "Formal Consultation". Response Requested for proposed or candidate species is "Concurrence".

Ant Swera
signature (originating station)

6/5/18
date

Toxicologist
title

IX. Reviewing Ecological Services Office Evaluation:

A. Concurrence X Nonconcurrence _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

<u>William B. Whitfield</u>	<u>6-14-2018</u>
signature	date
<u>Fish & wildlife biologist</u>	<u>Georgia ES</u>
title	office

for Donald W. Imm, Ph.D., Field Supervisor

Concur ✓

Rob Tawes, Rd Mgt Chief

Concur ✓

Matthew DeKarr, Acting ARD 10/3/18

Manatee Guidelines

To reduce potential construction-related impacts to the manatee to discountable and insignificant levels, the permittee will comply with the following manatee protection construction conditions:

- a. The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel must monitor water-related activities for the presence of manatee(s) during May 15 - October 15.
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973.
- c. Any siltation barriers used during the project shall be made of material in which manatees cannot become entangled and must be properly secured, and regularly monitored to avoid manatee entrapment.
- d. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- e. If manatee(s) are seen within 100 yards of the active construction area all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet to a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) has departed the project area of its own volition.
- f. Any collision with and/or injury to a manatee shall be reported immediately to the Georgia Department of Natural Resources (GADNR) at 912-264-7218 or 1-800-272-8363 on weekdays between 8 am and 4:30 pm, or 1-800-241-4113 on nights and weekends, Jim Valade of the U.S. Fish and Wildlife Service, North Florida Ecological Services Office, at (904) 731-3116 and Anthony Sowers of the U.S Fish and Wildlife Service, Coastal Georgia Ecological Services Office, at 912-403-1838.