

APPENDIX B

Project Universe

Table B-1. Project Universe: Nutrient Reduction

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
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| Sarah Howard, The Conservation Fund Scott Edwards, NRCS Louisiana Bridget Collins, National Fish and Wildlife Foundation | Vermillion Parish Working Lands, Water, and Wildlife Partnership | The "Vermillion Parish Working Lands, Wildlife and Water Partnership" project aims to permanently conserve working lands, with substantial natural resource value, through the purchase of conservation easements. Live Oak Farm, the project focus, is under threat of conversion, with potential for loss of wildlife habitat and further water quality degradation, which are critical to the economy and environment both locally and across the Gulf of Mexico. Live Oak Farm, a 5,800 acre property producing rice, crawfish, cattle, and alligator, is recognized as one of the southernmost remaining rice farms in Louisiana. The producers at Live Oak have taken active measures to improve water quality and reduce runoff. It is also a significant resource for migratory birds, with up to 70,000 waterfowl wintering on this acreage annually. A conservation easement would protect the use of the site as working lands and would allow for continued stewardship of the property, contributing to the conservation solution for the region. The project is has secured \$2M in funding and is seeking an additional \$1M to match and leverage those funds for the completion of a Phase 1 easement acquisition. Subsequent phases of the project will be completed with separate funds. The target area is part of the Vermilion-Teche River Basin and the Vermilion Watershed (HUC 08080103). Live Oak Farm is located within the 060802 sub-segment. Louisiana's 2014 Water Quality Integrated Report indicated that this sub-segment was not meeting the designated use standards for Primary Contact Recreation, Secondary Contact Recreation, or Fish & Wildlife Propagation due to high levels of nitrate/nitrites, fecal coliform and low DO. The producers at Live Oak Farm have implemented Best Management Practices (BMPs) to reduce non-point source pollutant runoff and protect sensitive wetland and riparian areas within the property. A significant investment has been made in a tail water recovery system that effectively minimizes water run-off of nutrient loads into local waterways. Tailwater recovery systems retain runoff on the agricultural landscape, thereby reducing the amount of sediment and nutrients entering downstream, but require continued investment for effective ongoing operation. In addition to farming BMPs, the owner has invested significant resources into the restoration and continued management of the sites' wetlands and marshes. It is our intention to preserve working lands like Live Oak Farm as an example of best practices for agricultural production and operational management that reduce non-point source pollution into Louisiana's coastal waterways. With approximately 4 miles of frontage along the Vermilion River and adjacency to the Intracoastal Waterway, Live Oak Farm is at risk for subdivision or future conversion to industrial uses. An easement would permanently preserve the current use of the site as working lands, and the proceeds to the family would allow for continued stewardship and execution of best management practices for agricultural production and protection of downstream water quality. Conversion to another use, or allowing the fields to turn fallow, would have a negative effect on downstream water quality. Vermilion Parish has seen a 46% decrease in rice field acreage in the last 20 years. This trend represents a significant threat to the migratory birds that now rely heavily on flooded rice fields for wintering habitat. While the Gulf Coast remains one of the nation's most wetland-rich regions, it has suffered staggering losses of habitat to development and coastal erosion. In the past 50 years, Louisiana has lost nearly 1mil acres of highly productive coastal wetlands, and could lose an estimated 630,000 acres of wetlands over the next 50 years. Flooded rice fields compensate for this loss and provide critical resting and feeding habitat for migrating and wintering waterfowl. Working lands easements ensure the perpetual protection of this critical habitat. | Vermillion Parish | \$8,700,000 total project cost; Requested \$1,000,000 |
| Vincent Guillory, Lafourche Parish Game and Fish Commission Leslie Suazo, Ducks Unlimited Andrew Barron, Barataria -Terrebonne National Estuary Program Amanda Voisin, Lafourche Parish Government | Lake Fields and Lake Long Water Quality Restoration Plan | The original Lake Fields restoration plan was developed in 2008 by the Lafourche Parish Game and Fish Commission (Commission) with input from a number of conservation organizations and governmental institutions, including Ducks Unlimited (DU), Barataria-Terrebonne National Estuary Program (BTNEP), Louisiana Department of Wildlife and Fisheries (LDWF), U.S. National Resources Conservation Service (NRCS), and the North Lafourche Levee District (NLLD). Lake Fields and Lake Long are located within the Lake Fields Game and Fish Preserve (Preserve), which is west of Lockport, south of U.S. Highway 90, and north of the Gulf Intracoastal Waterway (GIWW) in Lafourche Parish, Louisiana and within an inter-levee basin between the Bayou Lafourche natural ridge to the east and the Bayou Grand Coteau ridge to the west (Figure 1). The Bayou Folse /Lake Fields watershed of 52,214 acres originates just south of Thibodaux and is fairly narrow at the upper end but begins to significantly widen around US Hwy. 90. The watershed has been significantly altered but is sparsely populated except for the Bayou Lafourche corridor. The drainage basin is 38.7% agriculture/cropland/grassland, 20% fresh marsh, 18.4% wetland forests, 9.4% urban, and 8.5% water, with the remainder miscellaneous forests or wetlands. Lake Fields is approximately 2,000 acres in size while Lake Long is approximately 600 acres in size. Both lakes are shallow and average approximately three to four feet in depth. Nearby important water bodies include Bayou Folse, Bayou DuMar, Company Canal, Commercial Canal, Hollywood Canal, and GIWW (Figures 2 and 3). Except for Lake Fields, Lake Long, and Bayou Leau Bleu, there are no natural water bodies within the Preserve. The Preserve was and remains a popular and heavily utilized recreational area because of close proximity to residential areas, numerous nearby camps, availability of state owned land and water bottoms, and access from nearby public launch sites. The Preserve is a freshwater ecosystem. Primary freshwater sources for Lake Fields include the upper Bayou Folse watershed, Bayou Lafourche via Company Canal, and the GIWW via Company Canal. This inflow of freshwater, coupled with minimal daily tidal effects, generally produce year round freshwater conditions although periodic seasonal saltwater intrusion may occur from the south via Company Canal during periods of low rainfall and/or low Atchafalaya River discharges. Lake Fields and Lake Long are primarily surrounded by "flotant" fresh marsh which is characterized by small shallow ponds, open marsh grass areas, and extensive wax myrtle (Morella cerifera) thickets. From an upper watershed drainage and Lake Fields and Lake Long water quality restoration perspective, Bayou Folse is the single most important water body. Bayou Folse is one of the most heavily impacted watersheds along coastal Louisiana, and is considered a priority watershed by the Louisiana Department of Environmental Quality (LDEQ) and BTNEP has proposed likewise in their draft 2018 action plan document. Currently, there are nine forced drainage systems within the Bayou Folse watershed near and south of US Hwy 90 which encompass 13,282 acres draining agricultural crop lands, pasture lands, and residential areas; a high percentage of these outflows eventually enters Bayou Folse. Water quality degradation is probably the most important factor impacting Lake Fields, Lake Long, and other water bodies within the Preserve. Historic literature and recent Bayou Folse water quality monitoring data from BTNEP has documented that outflow from forced drainage systems and in Bayou Folse is of very poor quality with low levels of dissolved oxygen and high levels of nutrients, fecal coliform bacteria, and turbidity. The Lake Fields/Lake Long Water Quality Restoration Plan includes channel constrictions and/or shoreline stabilizations while allowing boat passage at three locations in Lake Fields and two locations in Lake Long : Channel constrictions/shoreline stabilization in lower Bayou Dumar (which empties into Lake Fields) south of Commercial Canal channel constrictions/shoreline stabilization of lower Bayou Folse opening into Lake Fields, shoreline stabilization of Company Canal opening into Lake Fields, channel constriction/shoreline stabilization of Company Canal opening into Lake Long, channel constriction/shoreline stabilization of Hollywood Canal opening into Lake Long. The purpose of these channel constrictions/shoreline stabilizations is to reduce the inflow of turbid, nutrient enriched water from the upper Bayou Folse watershed into Lake Fields and Lake Long. The primary goals of the restoration plan are to improve water quality, stimulate or maintain current SAVs, and enhance waterfowl and fishery resources. There are two complimentary Bayou Folse watershed proposals for BP oil spill funds through the NRDA process that target the reduction of nutrients and fecal coliform bacteria entering waterways from forced drainage systems; these include a NRCS proposal to "reduce nutrients on working agriculture lands" and a LDEQ proposal for "cost share assistance to homeowners for repair of sewage treatment systems". If approved, these two Bayou Folse restoration proposals would improve water quality of upper watershed inflow into Lake Fields and Lake Long. The Bayou Folse watershed is considered a "priority watershed" by LDEQ, and BTNEP has proposed likewise in their draft 2018 action plan document. Additionally, the LDWF has adopted a Lake Fields/Lake Long freshwater fisheries management plan. | Lafourche Parish | \$700,000 total project cost; Requested \$550,000 |
| James Harris, USFWS | Promote public access and recreational use through hydrologic restoration of Bayou Sauvage channel, Bayou Sauvage NWR | Bucket dredging to restore the channel of Bayou Sauvage, Bayou Sauvage National Wildlife Refuge, Orleans, Parish. Dredge spoil to be used beneficially to restore cypress and live oak along bayou shoreline. This is not a navigation project. | Orleans Parish - Channel of Bayou Sauvage, Bayou Sauvage NWR | \$1,800,000 |

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| Natalie Peyronin, Environmental Defense Fund; Rebecca Triche Louisiana Wildlife Federation; Cynthia Duet, National Audubon Society; David Muth, National Wildlife Federation; Simone Maloz, Restore or Retreat | Violet Siphon in Central Wetlands; Maurepas Swamp Diversion; and Create and enhance wetlands and coastal/riparian conservation to protect water quality and remove nutrients and pollution | 1.) Violet Siphon in Central Wetlands: repair cage coupled with hydrologic restoration to divert nutrient-laden water from entering the Gulf of Mexico; 2) East Maurepas Diversion; Create and enhance wetlands and coastal/riparian conservation to protect water quality and remove nutrients and pollution. Pre-construction phases: Requested pre-construction phases of specific projects listed in the 2017 Master Plan are highlighted: a) New Orleans East Land Bridge Creation; b) Golden Triangle Marsh Creation; c) Large-Scale Barataria Marsh Creation; d) Freshwater Bayou North Marsh Creation | St. Bernard Parish, Orleans Parish, St. Tammany Parish, St. Bernard Parish, Jefferson Parish, Lafourche Parish, Plaquemines Parish, and Vermillion Parish | |
| Britt Paul, P.E., USDA/NRCS Louisiana Soil and Water Conservation District Louisiana Department of Agriculture and Forestry | Protect and restore water quality, enhance nutrient reduction in Lake Ponchartrain Basin and lower Louisiana Coastal Zone through improved waste management practices at dairy farms in Florida parishes. | <p>The primary goal is to protect and restore water quality while conserving critical habitat within the Lake Pontchartrain Basin and the lower Louisiana Coastal Zone. The ultimate objective of restoring, protecting, and improving water resources and associated habitat value will be achieved by implementing Comprehensive Nutrient Management Planning and Conservation Practices that will improved waste management on dairy operations in the Pontchartrain Basin. This project will restore resources injured by the DWH oil spill as outlined in the DWH PDARP/PEIS following the Natural Resource Damage Assessment process. This project is included within the following restoration goal, restoration type, restoration approach, restoration technique, TIG, and restoration plan:</p> <ul style="list-style-type: none"> ● Restoration goal: Restore Water Quality ● Restoration type: Nutrient Reduction (Non-point source) ● Restoration approach: Reduce nutrient loads to coastal watersheds ● Restoration techniques: Agricultural Conservation Practices ● TIG: Louisiana Restoration Area <p>There are over 100 active dairies in the Lake Pontchartrain Basin (which including Tangipahoa, Washington, St. Helena, and St Tammany Parishes). Typically, these dairies are currently managing the waste component of their respective operations through waste treatment systems that were constructed in the early 1990's. The effluent waste application systems of these dairies are obsolete or marginal at best.</p> <p>This program will reduce the discharge of sediments and pollutants from agricultural operations and improve the tributary streams, rivers and groundwater that drain to the Gulf of Mexico. The ecosystems in the project area provide habitat for numerous threatened and endangered plants and animals, which will benefit from the proposed land treatments.</p> <p>The USDA-NRCS will provide technical assistance to voluntary participants (landowners), especially on the most vulnerable acres in the watersheds, to develop conservation plans and would use all available conservation practices typically planned and funded by USDA-NRCS programs. The project proposes to implement clusters of projects within the smallest watershed practicable with the goal of making a measurable difference in water quality at the watershed level. The proposed conservation practices would reduce nutrient losses from the landscape, reduce nutrient loads to streams and downstream receiving waters, and reduce water quality degradation in watersheds that could provide benefits to marine resources and benefits to coastal watersheds.</p> <p>All Conservation Practices implemented will meet USDA, NRCS standards and specifications. A representative within the NRCS Field Office, LDAF and SWCD staff will provide technical assistance to participants in designing and implementing Conservation Practices and assist in providing follow-up technical assistance to project participants for the duration of the project. The SWCD will maintain all appropriate project records. It is estimated that this would result in the development (or modification) of comprehensive nutrient management plans for 15-20 active dairies within the watershed.</p> <p>Nutrient reductions can enhance overall ecosystem health by benefitting water quality in estuaries that are integral habitat for providing food, shelter, and nursery grounds for many of the Gulf's ecologically and economically important species impacted by DWH.</p> | Tangipahoa, Washington, St. Helena, St. Tammany | \$1,000,000 |
| Britt Paul, P.E., USDA/NRCS Barataria Terrebonne National Estuary Program Louisiana Soil and Water Conservation District Louisiana Department of Agriculture and Forestry | Protect and restore water quality, enhance nutrient reduction in Bayou Folse watershed, Barataria Terrebonne estuary through erosion and sediment control structures on working cropland and pastureland. | <p>The primary goal of this project is to protect and restore water quality in the Barataria Terrebonne Estuary. Reducing nutrient loading into impaired watersheds by avoiding nutrient loss through enhanced nutrient management on private working lands including sugarcane, soybeans and grazing operations. This project will restore resources injured by the DWH oil spill as outlined in the DWH PDARP/PEIS following the Natural Resource Damage Assessment process. This project is included within the following restoration goal, restoration type, restoration approach, restoration technique, TIG, and restoration plan:</p> <ul style="list-style-type: none"> ● Restoration goal: Restore Water Quality ● Restoration type: Nutrient Reduction (Non-point source) ● Restoration approach: Reduce nutrient loads to coastal watersheds ● Restoration techniques: Agricultural conservation practices ● TIG: Louisiana Restoration Area <p>This project will be carried out through a partnership between the USDA-Natural Resources Conservation Service, Barataria Terrebonne National Estuary Program, Louisiana Department of Environmental Quality, Louisiana Department of Agriculture and Forestry-Office of Soil and Water Conservation, and local Soil and Water Conservation Districts. The Barataria-Terrebonne Estuary is a dynamic working system that supports the people of southeast Louisiana and a diversity of flora and fauna. Farmland runoff containing fertilizers and livestock waste is the main source of the nitrogen and phosphorus, which stimulate an overgrowth of algae that sinks and decomposes in the water. The resulting low oxygen levels are insufficient to support most marine life and habitats in near-bottom waters, posing a serious threat to the Gulf's fisheries. However, anthropogenic alterations to nutrient budgets with the estuary are coupled to an array of ecological impacts, and nutrient-induced degradation of estuarine and near-shore marine habits. This project will implement a well-planned and implemented nutrient management strategy to protect and restore this ecologically, economically, and socially important ecosystem. The primary goal for the nutrient reduction project is water quality improvement through nutrient and sediment reduction. The health of the Gulf of Mexico depends upon the health of its estuaries, and the health of those coastal waters is influenced by land uses in the watersheds of its tributaries. In the five Gulf States, over 80 percent of the acreage is in private ownership (USDA-NRCS 2014) and is used for forestry and agriculture. This watershed-scale project restores water quality impacted by the DWH oil spill by reducing nutrients and the sediments carrying them into coastal waters. Runoff from cropland, pasture, grassland, and forest contributes nutrients and sediments that adversely affect the health of coastal waters of the Gulf. The USDA-NRCS will provide technical assistance to voluntary participants (landowners), especially on the most vulnerable acres in the watersheds, to develop conservation plans and would use all available conservation practices typically planned and funded by USDA-NRCS programs. The project proposes to implement clusters of projects within the smallest watershed practicable with the goal of making a measurable difference in water quality at the watershed level. The proposed conservation practices would reduce nutrient losses from the landscape, reduce nutrient loads to streams and downstream receiving waters, and reduce water quality degradation in watersheds that could provide benefits to marine resources and benefits to coastal watersheds.</p> <p>Priority conservation treatment for this watershed would be erosion and sediment control structures on cropland.</p> | Lafourche and Terrebonne Parish | \$2,500,000 |

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| Scott Mize, U.S.G.S. | Characterization and Trends of existing Coastal Louisiana historical data on nutrient enrichment | Louisiana coastal environments are impacted by nutrient inputs and despite nutrient reduction restoration efforts, concentrations of nitrogen and phosphorus in Gulf waters have increased over the last 50 years (Dagg and Breed, 2003). Excess nutrient inputs to Louisiana's coastal estuaries are associated with harmful algal blooms and oxygen depleted waters - "dead zones". Algal blooms and hypoxic zones in turn negatively impact the spawning habitats and food sources on which the region's economically valuable fisheries rely. The annual summer hypoxic zone in the northern Gulf is the second largest human-caused coastal hypoxic area in the world, typically extending from the outlet of the Mississippi River west along the Louisiana and East Texas coastal shelf. Its size is attributed to the amount of nitrate delivered to the northern Gulf from the Mississippi-Atchafalaya River Basin (MARB) in the spring (Turner et al, 2006). In response, the Louisiana Nutrient Reduction Task Force has identified three coastal ecoregions (Upper and Lower Mississippi Alluvial Plains and Southern Plains Terrace and Flatwoods) on which to focus nutrient reduction restoration. While much work has been done on nutrients within the MARB, a lack of information on long-term trends in nitrogen and phosphorus loads and concentrations in Louisiana's coastal waters limits managers' ability to determine the degree to which changes in land use, management practices, and water diversions have had an effect on riverine and estuarine water quality. A recent analysis of nutrient concentrations by the Louisiana Department of Environmental Quality (LDEQ, 2015) identified upland nutrient trends and land use contributions to coastal basins at LDEQ stations. To improve management decisions targeting nutrient reduction efforts, it is critical to determine the status of not just of current nutrient conditions in uplands but also in these coastal environments and whether changes in water quality attributable to restoration activities can be detected over time. Historical monitoring of water quality conditions by LDEQ, US Geological Survey (USGS), US Environmental Protection Agency (EPA), and others in these basins has consisted of sampling data at locations that coincide with streamflow, discrete sampling for nutrients, and continuous monitoring of salinity and other properties. These data will be used to develop temporal and spatial characterizations nutrient dynamics within these near-shore basins. USGS analysts with expertise in advanced trend analyses such as Generalized Additive Models (GAMs) and the Weighted Regressions on Time, Discharge, and Season (WRTDS) method will examine both long-term and more recent changes in water quality over time. The USGS SPARROW (Spatial Regressions on Watershed attributes) model for the Lower Mississippi Major River Basin will be updated with annualized loadings obtained in this effort and used to support on-going targeting tools such as the EPA Risk Evaluation Tool. When used together, trend analysis and the spatial referencing method afforded by SPARROW are powerful data interpretation tools to evaluate the potential effects of nutrient reduction efforts on downstream water quality. Such understanding is critical to successful adaptive management of Louisiana coastal drainage basins and will be a pilot for other Gulf Coast estuaries. By collaborating closely with regional natural resource managers, we can use these results to help target basin locations and characteristics where restoration practices may have the greatest detectable effects as well as locations that are in need of additional monitoring in order to determine nutrient reduction effects. | Terrebonne Parish | \$1,200,000 |
| Ray Herndon, The Conservation Fund Louisiana Department of Wildlife and Fisheries | Joyce Wildlife Management Area-Land Acquisition | The Conservation Fund is working in partnership with Louisiana Department of Wildlife and Fisheries to acquire 2,975 +/- acres, as an additional to the Joyce Wildlife Management Area (WMA). This acreage is located in Tangipahoa and St. Tammany Parishes, and provides a variety of habitat types, from emergent wetlands, to coastal forested wetlands, to a substantial impoundment, and a smaller upland component. The addition of this tract would compliment the existing recreation opportunities, providing expanded fishing and hunting opportunities within the substantial wetland complex, and it would provide recreation on the upland acreage which does not currently exist on this WMA. This project will also support the health of the Lake Pontchartrain Basin, through the permanent protection of wetlands, which will continue to filter freshwater flows from the Tangipahoa River. | Tangipahoa, St. Tammany | \$5,500,000 |
| Joseph Breaux, LDAF, Ofc Soil and Water Conservation Brad Spicer, LDAF, Ofc Soil and Water Conservation Doug Daigle, LA Hypoxia Work Group and Lower Mississippi River Basin Subcommittee | Implementation of Nutrient Management Conservation Practices and Innovative Nutrient Reduction Measures on working agricultural lands in the Ouachita River Basin to reduce nutrient loading to the Gulf of Mexico. | This project seeks to help achieve both the Restore Water Quality Goal of the Trustee's Plan and the goals of the Gulf Hypoxia Action Plan by reducing nutrient loading to the Gulf from key source watersheds in northeast Louisiana. These watersheds have yields of nitrogen and phosphorus that show up in significant levels in the U.S. Geological Survey (USGS) SPARROW Model for the Mississippi/Atchafalaya River Basin. Because of the particular hydrology of the Ouachita-Tensas-Black River System, which drains into the Red River and then the Atchafalaya River, these nutrient loads have a direct flow path to the Gulf of Mexico through the mouth of the Atchafalaya and Wax Lake Outlet. The Ouachita River Basin includes some of the most diverse and intensively used agricultural land in the Gulf South. Despite decades of successful agricultural conservation and ecosystem restoration activities in this basin, it still contains multiple watersheds identified in the Louisiana Department of Environmental Quality's (LDEQ) 2016 Integrated Report as not meeting their designated uses for Primary Contact Recreation, Secondary Contact Recreation and Fish and Wildlife Propagation. In Ouachita Basins such as Lake St. Joseph, Lake Bruin, Bayou D'Arbonne and Clear Lake, many of these impairments arise from excess nitrogen/nitrates, total phosphorus, sulfates and turbidity believed to be caused by agriculture. The PDARP/PEIS notes that building on existing programs that are working to address nutrient pollution "can enhance overall ecosystem health by benefiting the estuaries that are integral habitat [for] food, shelter, and nursery grounds for many of the Gulf's ecologically and economically important species..." (5.5.4). This project will build upon past and current conservation, management and restoration efforts in watersheds in the Northeast Louisiana Delta/Ouachita River Basin by federal and state agencies, local conservation districts, landowners, and non-governmental organizations. The Office of Soil and Water Conservation will work with partner agencies and organizations, landowners, and other stakeholders to identify gaps in previous conservation efforts along with opportunities for expansion of innovative activities to further reduce nutrient loading to tributary waterbodies that drain into the Atchafalaya River and the Gulf. | Claiborne, Lincoln, Ouachita, Richland, and Tensas parishes | \$3,000,000 |
| Joy Merino, NOAA, Southeast Fisheries Science Center Gulf Coast Research Laboratory University of Southern Mississippi University of New Orleans Golden Meadow Plant Materials Center Marine Fisheries Research Center (TX) | Submerged Aquatic Vegetation Enterprise | We propose a Submerged Aquatic Vegetation (SAV) center to provide nearshore habitat stock. Scalable and flexible, the concept can be adopted across several restoration types, and linked to numerous funds due to implications to wildlife, water quality, shoreline, research, mapping, monitoring, and others. For example, when marsh is created, SAV is often buried in the shallow waters that are replaced with marsh. Both SAV and marsh are EFH for several species and life stages. Perceived as sparsely and erratically occurring for the non-marine species where marsh is created, the impacts to SAV are unmitigated for those actions. So, adding a harvest pre-construction, and/or planting post construction would tie to habitat restoration projects both from NRDA funds, but also with any existing program, so it could be implemented immediately. A suggested primary objective is to establish and maintain a source of SAV species for such use; expand the species being grown (mostly Vallisneria americana, which was most damaged by the DWH spill), and maintain a seed source. Specific objectives are (1) Harvest SAV from marsh construction locations prior to marsh construction, and seed from Rockefeller Refuge Ruppia-managed units, (2) Harvest Ruppia maritima plants from Rockefeller, and transplant to Jean Lafitte, (3) Maintain SAV in tanks, and propagate with growth chambers, and (4) Provide plant source within 3 years for repeat planting events at Chandeleur Is. and/or Jean Lafitte. This project will also select and initiate annual surveys of a subset of sites for long-term monitoring/observation from those of a recently completed 3-year baseline survey of the northern gulf of Mexico that included 384 sites with 38% plant presence. This project addresses multiple restoration types including wetlands, coastal, and nearshore; habitat on federal lands; nutrient reduction; water quality; fish and water column invertebrates; submerged aquatic veg; sea turtles; marine mammals; and birds due to the broad use of SAVs. The activity will address impacts through restoration (create, enhance or restore an injured resource or habitat); protection (shoreline stabilization, remove from threat of other restoration activities and relocate the habitat); maintain and manage the habitat; and education of any targeted group about how SAV tie to all resources damaged. | Plaquemines Parish | \$3,000,000 |
| Louisiana Department of Environmental Quality | Determine Effectiveness of Best Management Practices (BMPs)/Conservation Practices (CPs) | Project locations will be determined by the list of Priority Watersheds as appears in the LDEQ NPS Management Plan, where the latest Louisiana Water Quality Integrated Report cites low dissolved oxygen as a cause of impairment, and agriculture as a source of the impairment, and where LDAF has indicated they will be implementing BMPs. This project will focus on the monitoring, both upstream and downstream from where implementation is occurring, and will include analysis of the data collected to measure water quality response to BMPs, as well as an edge-of field component to obtain direct measurements of nutrients running off of agricultural fields. The primary goal of this comprehensive nutrient reduction project is to enhance overall ecosystem health by benefiting the estuaries that are integral habitat providing food, shelter, and nursery grounds for many of the Gulf's ecologically and economically important species. Improving the understanding of BMPs/CPs effectiveness with respect to Louisiana conditions would provide basis for models that would greatly aid in future selection, identification, and implementation of water quality projects in the state. | | \$1,750,000 |

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| Louisiana Department of Environmental Quality | Implement Agricultural Best Management Practices (BMPs)/Conservation Practices(CPs) | Project locations will be determined by the list of Priority Watersheds as appears in the LDEQ NPS Management Plan, where the latest Louisiana Water Quality Integrated Report cites low dissolved oxygen as a cause of impairment, and agriculture as a source of the impairment, and where a TMDL has calculated the required NPS load reduction to achieve use support restoration. Best management practices (BMPs) and conservation practices (CPs) describe acceptable practices that could be implemented to protect water quality and promote soil conservation. BMPs and CPs to be established in target areas from the USDA, National Resource Conservation Service (NRCS) Louisiana conservation practice list including conservation crop rotation, residue and tillage management-no till/reduced till/strip till, cover crops, critical area planting, fence, field borders, grade stabilization structure, irrigation pipeline, livestock pipeline, irrigation water management, irrigation system, precision land forming, irrigation land leveling, access control, forage and biomass planting, prescribed grazing, heavy use area protection, stream crossing, nutrient management, pest management, watering facility, water well, wetland wildlife habitat management, shallow water development and management, prescribed burning, firebreak, pollinator habitat, waste storage facility, waste facility closure, waste transfer, brush management, silvopasture establishment, woody residue treatment, riparian herbaceous cover, riparian forest buffer, filter strip, grassed waterway, tree/shrub site preparation, tree/shrub establishment, livestock shelter structure, streambank and shoreline protection, structure for water control, early successional habitat management, wetland restoration, forest stand improvement, etc. The primary goal of this comprehensive nutrient reduction project is to enhance overall ecosystem health by benefitting the estuaries that are integral habitat providing food, shelter, and nursery grounds for many of the Gulf's ecologically and economically important species. Producers can employ a suite of BMPs/CPs via resource management system (RMS) plans through voluntary conservation programs in order to decrease the amount of nutrients and sediments that enter a watershed and ultimately discharge into the Gulf of Mexico. | | \$5,250,000 |
| Louisiana Department of Environmental Quality | Monitoring Best Management Practices (BMPs)/Conservation Practices (CPs) | Monitoring efforts will be made in vulnerable areas statewide. The state has delineated 12 basins and 473 drainage subsegments within those basins. Watershed characterization, source identification, and prioritization involve identifying the natural characteristics of land and water bodies found within watersheds, and identifying the possible suspected sources of nutrients to a given water body. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) programs including the Gulf of Mexico Initiative (GoMI), Mississippi River Basin Initiative (MRBI), and National Water Quality Initiative (NWQI) have utilized watershed level characteristics and identification of potential sources to prioritize watersheds at the HUC 8 and 12 levels within the state of Louisiana for water quality improvement through implementation of BMPs and CPs. Factors in selection of priority water bodies for nutrient reduction projects include consideration of the current water quality, implementation activities, and participation of local, state, and federal programs within the watershed to manage nutrients. The LDEQ Nonpoint Source Program prioritizes water bodies throughout the state to address nonpoint sources that may be causing issues in water quality. Monitoring is a crucial element to assess the effectiveness of BMPs/CPs and for water quality-based decision making. Because of natural variability, one of the challenges in water quality monitoring is to be able to demonstrate a link between the implementation of management measures and water quality improvement. The success of identifying water quality improvements at geographic scales greater than the field level relies heavily on the identification of an agricultural pollutant that is a primary cause of poor water quality. Monitoring water quality before and after implementation of BMPs/CPs is essential to document changes in water quality as a result of the BMPs/CPs. Edge-of-field and in-stream monitoring can document water quality changes and improvements resulting from management practice implementation. Another area previously identified as a potential data gap under the Louisiana Nutrient Management Strategy is the monitoring of stream flow in receiving water bodies. Quantitative measurements for flow that are correlated with nutrient monitoring are lacking. Correlated nutrient monitoring and quantitative flow measurements allow for loading determinations, which will aid in improving our understanding of nutrient loadings from various sources in Louisiana water bodies. Continuous nutrient monitoring will be particularly important for assessing and managing nutrient loads delivered across the land-water interface. Much of the current understanding of the patterns and trends in water-quality parameters is based on traditional (discrete) monitoring approaches. Currently, LDEQ conducts monitoring through its Ambient Water Quality Monitoring Network (AWQMN). This entails 400 water bodies statewide on a four-year rotating cycle where each water body is monitored monthly for one year out of the four-year cycle; thus, approximately only 25% of these surface water bodies are monitored within a given year. There are currently only 21 stations that are located on larger water bodies in the state and sampled monthly as part of a long-term monitoring plan. While this low temporal frequency approach - coupled with modeling and statistical techniques - has yielded critical information, continuous measurements can improve the calculation of nutrient trends and loads where discrete sampling cannot fully represent the concentration-discharge relationship. Continuous nutrient monitoring also solves the interpretation challenge imposed by the mismatch between temporal scales on which hydrologic processes and water quality parameters are measured. The high temporal frequency of continuous monitoring provides an opportunity to improve the accuracy and reduce the uncertainty of nutrient load estimates from the edge-of-field, and thus, guide the implementation and evaluation of BMPs/CPs at both the field and watershed scales. The primary goal of this comprehensive nutrient reduction project is to enhance overall ecosystem health by benefitting the estuaries that are integral habitat providing food, shelter, and nursery grounds for many of the Gulf's ecologically and economically important species. Monitoring allows for observing the progress made towards restoration over the duration of the project through field inspections, data collection, and data analysis. The objectives of this project will include measuring performance of specific management practices, filling data gaps in watershed characterization, and prioritization, assessment, protection, alternatives, engagement, and integration to ensure improvement of water quality. | | \$1,125,000 |
| Louisiana Department of Environmental Quality | Nutrient Management for Dairy Farms | Those regions of the state where dairy farms are concentrated or significant agricultural enterprises may potentially contribute to any level of impairment of state surface waters. Primary target areas will be the upper Sabine and Red River Basin areas of northwest Louisiana, and the Lake Pontchartrain Basin area of southeast Louisiana. The primary goal of this comprehensive nutrient reduction project is to enhance overall ecosystem health by benefitting the estuaries that are integral habitat providing food, shelter, and nursery grounds for many of the Gulf's ecologically and economically important species. Dairy farms in Louisiana can have a considerable negative effect on water quality. Nutrients, sediment, and fecal coliform bacteria originating from dairy operations can enter water bodies through runoff. Nutrient management planning and implementation of BMPs/CPs on dairy farms can improve water quality for the receiving water body and the downstream water bodies. Conservation on dairy operations normally begins with a complete operational and natural resource assessment, conducted with the operator's plans and objectives in mind. While striving to address all present and future resource concerns associated with the operation. Ultimately, all conservation concerns and objectives are addressed by developing and implementing a Comprehensive Waste Management System which will include a Zero Waste Discharge system. All enrolled dairy land tracts will be included in development of a Comprehensive Nutrient Management Plan (CNMP) which will be used to define all conservation practice design parameters. The existing USGS/Water Resources and LDEQ Ambient Monitoring Data will be utilized within priority watersheds named in this project. However, through this project the LSU Ag Center will collect water quality base data, and conduct project specific water quality monitoring by focusing on 1) Nitrates/Nitrites, turbidity and others and necessary to accurately discern seasonal nutrient load variations as may be induced by agriculture., and to accurately gauge project success on a HUC-12 scale. | | \$1,875,000 |

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
|--|---|--|---------------------|------------------------------------|
| Louisiana Department of Environmental Quality | Nutrient Management of Easements | <p>Nutrient-laden agricultural runoff will be managed by utilizing previously established long-term and permanent bottomland restoration easements and by enrolling additional riparian lands topographically situated to provide maximum swale or bio-filter effect for removal or assimilation of nutrients and associated sediments from agricultural runoff. Within suitable areas of the priority watersheds, agricultural runoff from row crop, and other agricultural operations will be managed for nutrient loading reduction by connecting runoff from separate tracts to more fully utilize irrigation water and rainfall runoff via gravity or forced drainage on and between farms or tracts. Excess irrigation water or rainfall runoff will also be diverted, through gravity or forced drainage, through nearby existing Agricultural Conservation Easements and similarly vegetated riparian or wetland areas for maximum sediment retention, nutrient assimilation and other surface water quality benefits.</p> <p>Participating producers will be permitted the benefit of higher conservation project application ranking based on location relative to such riparian or wetland easement areas and/or affected water bodies, with higher points awarded to practices providing the greatest positive impact on nutrient reduction, and to farmers who implement an RMS level plan on their whole farm within the project area, and not only on acres under contract</p> <p>In addition to existing lowland or riparian easements, this project will encourage and incentivize enrollments of additional forest or herbaceous riparian tracts whereby agricultural runoff may be directed and retained for nutrient and sediment reduction. The tracts targeted through this project for riparian restoration will be those lands that have suitable riparian "swamp" potential for nutrient and sediment reduction, but may have not been eligible for WRP/WRE due to geographic proximity to established wildlife corridors, tract size or similar factors. By enrolling such acreages in this nutrient reduction project, it is anticipated that their easement program eligibility and ranking potential for USDA easement programs will increase, helping to ensure sustained nutrient load reductions into these watersheds. The primary goal of this comprehensive nutrient reduction project is to enhance overall ecosystem health by benefitting the estuaries that are integral habitat providing food, shelter, and nursery grounds for many of the Gulf's ecologically and economically important species. Assisting landowners convert vulnerable lands to permanent cover for long-term duration will aid in nutrient management and improve water quality.</p> | | \$11,000,000 |
| Louisiana Department of Environmental Quality | Winter Water Holdings on Agricultural Lands | <p>Vulnerable areas statewide within the 44 Soil and Water Conservation Districts with specific focus on areas of current rice production with levee and irrigation systems in place, as well as in fallow fields formerly planted to rice, but are currently grazed continuously or intermittently, and retain the original levee with pumping or passive irrigation capacity. Winter water holding includes both Wetland Wildlife Habitat Management and Shallow Water Development and Management conservation practices where water is held seasonally during waterfowl and other wildlife use. The primary goal of this comprehensive nutrient reduction project is to enhance overall ecosystem health by benefitting the estuaries that are integral habitat providing food, shelter, and nursery grounds for many of the Gulf's ecologically and economically important species. Winter water holding for nutrient management on agricultural lands can create wildlife habitats and filter water for improved water quality. Implementation of these practices requires retention of irrigation water over the fall/winter usually from October through March during waterfowl use or other specified periods of time. The retained water allows for: sediment deposition if the soil or following year's seedbed has been disturbed, nutrient uptake by emergent aquatic vegetation, utilization of the previous planting year's crop residue to reduce soil disturbance from wind induced water movement, animal feeding activity and discharge outflow velocity, thereby reducing or eliminating sediment transport/soil erosion. Late winter or spring season de-watering is done in 1-2 inch increments to: prevent erosive current velocity, prevent nutrient/bacteria loading in receiving water body, provide a greater diversity of waterfowl, wading bird, shorebird, invertebrate habitat, and to enhance native vegetation density and diversity. Levels of nutrients and suspended sediments in impounded or retained water are assessed prior to dewatering. Other conservation practices such as Irrigation Land Leveling, Grade Stabilization Structures, and Irrigation Water Management can also be used to help establish shallow water areas, allow the slow graded release of water from fields, and provide record keeping data such as pump efficiency, water level, etc.</p> <p>The existing USGS/Water Resources and LDEQ Ambient Monitoring Data will be utilized within priority watersheds named in this project. However, through this project the LSU Ag Center will collect water quality base data, and conduct project specific water quality monitoring by focusing on 1) Nitrates/Nitrites, turbidity and others necessary to accurately discern seasonal nutrient load variations as may be induced by agriculture, and to accurately gauge project success on a HUC-12 scale.</p> | | |
| Louisiana Department of Environmental Quality | Cost Share Assistance Program for Individual Sewage Repair/Replacement | <p>Targeted Watersheds within the Coastal Zone Act Reauthorization Amendments (CZARA) coastal zone, prioritized by watersheds where the suspected source of impairment, according to the most current Louisiana Water Quality Integrated Report, is on-site waste disposal systems, and by parishes where there are no local ordinances requiring regular on-site disposal system inspections. Individual sewage systems are common in Louisiana. Unfortunately, improper maintenance and operation of these systems is also common and result in water quality concerns and impairments for nutrients and fecal coliform in Louisiana water bodies. A failing septic system can also allow harmful bacteria from untreated waste to leach into groundwater supplies, potentially contaminating drinking water. Individual waste system initiatives can help to assist low-income residents to bring their waste system back into working order. Inspections of individual sewage systems will help provide education material on the proper operation and maintenance of systems; and address any issues or concerns in reference to the proper maintenance of individual home sewage treatment systems. The primary goal of this comprehensive nutrient reduction project is to enhance overall ecosystem health by benefitting the estuaries that are integral habitat providing food, shelter, and nursery grounds for many of the Gulf's ecologically and economically important species. Given the important link between healthy natural resources and recreational activities, restoring habitats and improving water quality will also provide human use benefits. Emphasis on public health and protection of water quality with respect to nonpoint source pollution and sewage disposal management is a major component of the overall education outreach program.</p> | | \$9,740,000 |
| USGS | Flux of Nutrients and Sediments from the outlet of the Mississippi River to nearshore Gulf of Mexico waters | <p>The proposed study addresses the NRDA objective to restore water quality by quantifying nutrient and sediment delivery to Gulf waters. The project will aid in guiding nutrient reduction strategies ultimately aimed at reducing hypoxic zones in the Gulf and improving water quality of nearshore waters. Addressing habitat restoration approaches to protect and conserve marine, coastal, estuarine, and riparian habitats is critical to achieving NRDA restoration objectives. As coastal restoration continues in the Gulf, the need to measure critical water-quality parameters directly at the outlet of the Mississippi River distributaries is becoming increasingly important. Gulf hypoxia is linked to influx of the Mississippi River nutrients and will require a better data record of water quality and quantity inputs into coastal zones at and near the outlet of the Mississippi River to inform restoration. Because many natural and planned diversions of river water will be in the lower-most portion of the Mississippi River, using data from the furthest station downstream on the Mississippi River that currently collects water quality information routinely, at Belle Chasse, is not sufficient to determine chemical and physical changes in the water column near the mouth of the river and fluxes of chemical constituents to nearshore waters. The development of water-quality monitoring to determine the contributions of nutrients and sediments in these areas to nearshore and offshore environments is vital to adaptively manage nutrient reduction efforts to the Gulf. The purpose of this work is to quantify the distribution and relative flux of nutrients and sediments to near shore environments off of the mouth of Mississippi River. The project has two main objectives: 1) extending monitoring of flow, sediment and water-quality downstream from Belle Chase to the mouth of the Mississippi River; and 2) quantitatively and qualitatively distinguishing the river water that enters shallow waters east of the Mississippi River for example Breton Sound from that flowing south and west through the main passes. On its eastern side, a longer portion of the Mississippi River is without levees and there is widespread leakage of river water into the adjacent estuarine waters. Little is known about the quantity and quality of this water. The shallow estuaries east of the Mississippi River were an area of widespread environmental damage from the Deepwater Horizon oil spill and understanding water-quality and quantity of this area is fundamental to all restoration activities here, including critical wetland habitats and diverse biota for example the endangered sturgeon. Moreover, understanding how much water and associated sediments and nutrients flow south and west are important to understanding hypoxia formation in offshore waters. We will use a combination of gage installations measuring continuous discharge, turbidity and nitrate and a series of synoptic measurements of these variables at differing stages of the Mississippi river. We will include in these surveys the major distributaries and exit routes of Mississippi River water. Synoptics at high water will focus on the quantity of river water exiting the system. At low water, the distribution of nitrate along vertical transects will be a primary focus, with partitioning into sink and source terms with depth. While installation of a single super-gage on the main channel near the mouth of the river will be considered, we believe using a combination of synoptic measurements at many sites paired with continuous data collection at one or two sites not directly on the main channel will provide a better chance of success for achieving project objectives.</p> | Plaquemines Parish | \$1,200,000.00 |

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
|---|---|--|----------------------------|------------------------------------|
| CPRA | Pilot Project Linking Offshore to Onshore Water Quality Monitoring | Coastal Louisiana's ecosystems are affected by various stressors, including wetland loss, riverine nutrient loading, hypoxia, oil pollution and climate change. For example, an estimated quarter of Louisiana's wetlands have been lost due to a variety of natural and anthropogenic factors, including erosion caused by the Deepwater Horizon oil spill (DWH; McClenachan et al. 2013, Turner et al. 2016). Large summertime hypoxic zone in the Louisiana's coastal waters causes large-scale spatial population displacements and reduction in growth and reproduction rates of commercially important fish and shrimp species (Craig et al. 2001, Rabalais et al. 2001, Justic et al. 2017). Further, the DWH oil spill caused negative health effects on fish (Dubansky et al. 2013, Incardona et al. 2013), shifts in phytoplankton and microbial communities (Ozhan et al. 2014), and possible stimulation of harmful algal blooms (Bargu et al. 2016). Louisiana's Coastal Master Plan (CPRA 2017) identified a number of river diversion projects that could have multiple potential restoration benefits, including mitigation of wetland loss, improvement of offshore water quality (including mitigation of hypoxia) through enhanced wetland nutrient retention, and protection of wetlands from oil exposure. However, currently there is no monitoring in place to assess water quality changes in the Louisiana nearshore coastal region (barrier islands to shelf). This region is a key intersect for the interactive effects of multiple ecosystem change drivers (e.g., restoration projects, riverine nutrient loading, hypoxia, oil pollution, climate change) on living resources in the North-Central Gulf of Mexico. The objective of this project is to fill the critical water quality monitoring gap by establishing a monitoring transect extending from Barataria Pass, Louisiana, to the inner shelf. Extending the monitoring to this region is vitally important for understanding of: 1) baseline conditions, 2) inshore to offshore water quality dynamics, 3) changes in extent and severity of hypoxia, and, 4) far-field effects of restoration projects. This project will serve as a pilot project to investigate the connection between inshore and offshore water quality across a federal-state boundary. The project will monitor nitrogen (NO3, NH4, TN), phosphorous (PO4, TP), silicate (SiO3), dissolved oxygen, temperature, salinity, chlorophyll a, total suspended solids, turbidity, and pH (see map). The monitoring transect will be an open-water complement to the CPRA's estuarine SWAMP program (Hijuelos and Hemmerling 2016). The transect will provide, on an expanded scale, data for isohaline mapping of water quality parameters, and will be invaluable for calibration and validation of riverine, estuarine and coastal numerical models to support management decisions and adaptive management of water quality and fish resources. Bargu, S., Baustian, M.M., Rabalais, N.N., Del Rio, R., Von Korff, B. and Turner, R.E., 2016. Influence of the Mississippi River on Pseudo-nitzschia spp. Abundance and Toxicity in Louisiana Coastal Waters. Estuaries and Coasts, 39(5), pp.1345-1356. Coastal Protection and Restoration Authority (CPRA) of Louisiana. 2017. Louisiana's Comprehensive Master Plan for a Sustainable Coast. Coastal Protection and Restoration Authority of Louisiana. Baton Rouge, LA. Craig, K., L. B. Crowder, C. D. Gray, C. J. McDaniel, T. A. Henwood, and J. G. Hanifen. 2001. Ecological effects of hypoxia on fish, sea turtles, and marine mammals in the northwestern Gulf of Mexico. Pages 269–291 in Rabalais NN, Turner RE, eds. Coastal Hypoxia: Consequences for Living Resources and Ecosystems (Coastal and Estuarine Studies 58). Washington (DC): American Geophysical Union. Dubansky, B., Whitehead, A., Miller, J.T., Rice, C.D. and Galvez, F., 2013. Multitissue molecular, genomic, and developmental effects of the Deepwater Horizon oil spill on resident Gulf killifish (<i>Fundulus grandis</i>). Environmental science | Jefferson Parish | |
| The Nature Conservancy | Nutrient Reduction Pilot Projects in the Mississippi Valley | The Nature Conservancy is engaged in a large scale project to reduce nutrient inputs to the Mississippi River. The project is a multi-faceted effort involving TNC Chapters in the whole Mississippi Basin. In this portion of the project we would conduct one or more nutrient reduction pilot projects in the Mississippi Valley as prototypes for reducing nutrient flows into the Gulf and, thus, the size of the Dead Zone a. Objective: Demonstrate cost-effective and practical methods of agricultural nutrient reduction that can be replicated in the Mississippi Valley. b. Species group/habitat: Fish and Water Column Invertebrates, Marine Mammals. c. Description: Evidence suggests that the Gulf Dead Zone impacts the health of Fish and water column invertebrates and, potentially, marine mammals in a large area south and west of the Mississippi River Delta. The Dead Zone is caused primarily by agricultural nutrients flowing into the Mississippi River and then into the Gulf. While there have been long-standing efforts to reduce nutrient runoff, progress in reducing the size and duration of the Dead Zone is not evident. The Nature Conservancy is currently involved in activities across the entire Mississippi Valley to reduce nutrients. Large scale pilot projects are needed to demonstrate new on-field and edge of field reduction techniques. In addition, there is increasing evidence that floodplain and wetland restoration removes nutrients in tributary rivers. This project would create a large-scale pilot project on a Mississippi tributary in Louisiana or Mississippi to test a broad range of strategies for nutrient reduction that could be measured, described, and then be replicated elsewhere. | East Carroll Parish | |
| Little Lagoon Preservation Society | Little Lagoon Multiple Site Living Shoreline Restoration | Living shoreline quantity and quality in Little Lagoon has been severely impacted by ever increasing population density and property modifications such as bulkheads and piers. Coastal expert Scott Douglas has estimated over 50% of Little Lagoon has a hardened shoreline. Of the remaining 50% of Little Lagoon that remains unhardened, 2/3 can be found within the boundary of Bon Secour National Wildlife Refuge (BSNWR). Ultimately, the Lagoon is showing signs of stress due to the reduction of natural shorelines, inadequate flushing, high bacteria levels in parts of the Lagoon, and increasingly frequent and dense harmful algal blooms (HABs) throughout the Lagoon. Nutrient sources are significant and should be remediated. Flushing is part of the solution but another is nutrient removal via natural vegetation and filter feeders, such as mussels, that can both be found in functioning living shorelines. Shoreline loss/erosion is another chronic issue for properties along the Lagoon. Although efforts to keep oil out of the Lagoon during the Deepwater Horizon (DWH) oil spill were successful, some unintended consequences were noted. Heavy rain fall during the latter part of the multiple pass closure period resulted in high water and infrastructure damage (sea walls/bulkheads, piers, roads, etc.). An opportunity exists to improve water quality in the lagoon, return shorelines to a natural state, repair roads/shorelines and "showcase" methods to improve the health of the Lagoon and remediate problems. Little Lagoon Preservation Society, the City of Gulf Shores, and the BSNWR would like to work in partnership to conduct several shoreline restoration projects: 1) restore .3 miles of shoreline along the south west corner and the south shore of the Lagoon within the BSNWR and on State owned water bottom. Pine Beach Road is nearly in the water along that portion of the Lagoon due to shoreline erosion and few viable options exist to move/repair the road due to adjacent Alabama beach mouse and wetland habitats. Pine stumps and degraded shoreline vegetation in the water and along that waterfront are ample evidence of eroding shoreline. Restoration would include a combination of evaluation, planning and implementation of a living shoreline project. The specifics of the living shoreline project would be finalized during the evaluation and planning process. However, the living shoreline restoration project is likely to include, but is not limited to, shoreline grass planting (<i>Spartina alterniflora</i> and <i>Juncus roemerianus</i>), wave attenuation structure (reef balls), a graded bottom slope, and possibly mussel seeding in the shoreline grasses. 2) Construct a living shoreline at the City of Gulf Shores property at Moe's Landing Boat Launch. The water front there also is severely eroded and parts of it are hardened with deteriorating bulkheads. The same or a similar restoration method would be used at the Moe's Landing Boat Launch site. Both the Moe's Landing and BSNWR sites would provide very visible "showcases" of natural shoreline restoration for the public and could be a catalyst for future return of more hardened shorelines in the Lagoon to a natural state. | Not located in Louisiana | \$950,000 |
| Mississippi-Alabama Sea Grant Consortium (on behalf of LSU) | Joyce Wildlife Management Area | Historical modification: The building of a railway and a parallel highway bisected wetlands eliminating the east to west flow of water through the Joyce Wildlife Management area and surrounding wetlands. Additionally, the dredging of a slough canal adjacent to the management area blocked input of freshwater from the upland watershed with the placement of the spoil on the south side. Explicit goals and objectives: Benefits and or goals include: reconnection of freshwater flow to the Joyce WMA and surrounding wetlands; remove nutrients from wastewater treatment plants upstream; and improve current delivery system to include water control structures for flood/drawdown plusing. Type of restriction impeding or preventing historical hydrological flows: Road Railroad Design strategy to address issue: Water control structures (i.e., gates and weirs) Top three ecological benefits: Improved habitat longevity and sustainability Adaptation or accommodation of sea level rise Improved ground water and surface water quality | Tangipahoa, St. Tammany | \$250,000 |

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
|--|---|--|---------------------|------------------------------------|
| Lafourche Parish Game and Fish Commission | Lake Fields Hydrologic Restoration | <p>Lake Fields is located due west of Lockport, south of U.S. Highway 90, and north of the Gulf Intracoastal Waterway in Lafourche Parish and is approximately 2,000 acres in size. Prior to the early 1960s, Lake Fields was known for clear water, profuse submergent vegetation, and excellent sport fish and waterfowl populations. However, sport fish and waterfowl populations have declined dramatically in the lake proper in association with declining water quality and physical habitat. The lake is currently characterized by low water clarity, high nutrient levels, periodic algal blooms, and a virtual absence of ecologically important submergent aquatic vegetation. The deterioration of the Lake Fields ecosystem can largely be attributed to major physical modifications in the watershed. During the 1800s, Lake Fields was a semi-isolated freshwater lake with a small and undeveloped watershed and surrounded by continuous fresh marsh. Upper watershed water via Bayou Dumar and upper Bayou Folse once largely bypassed Lake Fields by flowing into Bayou Folse and eventually into Company Canal south of Lake Fields (see www.lafourchegfc.org/preservefigures.html). Bayou Dumar entered Lake Fields in the northwest corner, but a significant portion of Bayou Dumar capacity flowed into Commercial Canal and then into lower Bayou Folse. By the 1960s, however, various hydrological and physical changes rerouted an increased proportion of flow entering Lake Fields from lower Bayou Folse to the east and from Bayou Dumar to the north. Several specific physical watershed modifications contributed to this increased inflow into Lake Fields. The first was the erosion / subsidence of the west bank of lower Bayou Folse, which created a substantial opening into Lake Fields. The second was the decrease in water depths and water capacity of lower Bayou Folse due to the accumulation of sediments and organic materials. The decrease in the flow capacity of lower Bayou Folse significantly altered drainage basin hydrology: a significant portion of water from upper Bayou Folse was diverted through Commercial Canal into Bayou Dumar and eventually Lake Fields; and, more upper Bayou Dumar flowed southward directly into Lake Fields rather than through Commercial Canal into lower Bayou Folse. The increased inflow of nutrient-laden, poor quality water from the upper watershed resulted in immediate and long-term adverse impacts on water quality and physical habitats in Lake Fields. Periodic algal blooms and a dramatic decline in submergent aquatic plants occurred as water became more turbid and nutrient enriched. The Lafourche Parish Game and Fish Commission is promoting a restoration plan to improve water quality and increase submergent vegetation in Lake Fields, which will result in increased sports fish and waterfowl populations. The initial restoration plan included several different components. One major component involved the dredging of lower Bayou Folse south of Commercial Canal to deepen the channel and increase flow capacity; this component will be completed in the near future through a cooperative project with the North Lafourche Levee District. However, several additional projects are needed to further restrict the inflow of degraded water into Lake Fields: - Restriction of the large opening into Lake Fields through the western shoreline of lower Bayou Folse - Restriction of the channel in lower Bayou Dumar to redirect water flow into Commercial Canal, Bayou Folse, and Company Canal Plantings of appropriate emergent vegetation are recommended to stabilize the spoil.</p> | Lafourche Parish | |
| Partnership for Gulf Coast Land Conservation | Increase the pace, quality and permanence of voluntary land and water conservation through the Partnership for Gulf Coast Land Conservation | <p>The Partnership for Gulf Coast Land Conservation project The Partnership for Gulf Coast Land Conservation (PGCLC) is a new coalition of local, regional state and national land conservation organizations devoted to advancing land and water conservation in the Gulf of Mexico region. This initiative is organized under the auspices of the non-profit Land Trust Alliance (Alliance) and is patterned after other successful land trust coalitions across the country. Today our membership consists of 25 national, regional and local land trusts operating in the Gulf States. The Partnership's mission is to work together across the five Gulf of Mexico states to increase the pace, quality and permanence of voluntary land and water conservation in the coastal region. Land trusts are community-based non-profit organizations that work with landowners to permanently conserve forests, rivers, farms, ranches and other natural areas critical to a sustainable environment and healthy, thriving communities. Through this project, the Partnership proposes to: 1. Increase the effectiveness and efficiency of land trusts in the Gulf Region. 2. Develop and promote a public policy agenda which will reduce the barriers to private sector conservation efforts and increase funding for acquisition and restoration. 3. Develop collaborative projects that will enable the land trust community and supporters to implement landscape scale conservation measures in the region. Collaborative projects may be built around water quality, critical habitat, or other criteria. 4. Participate in landscape-scale conservation planning in collaboration with other conservation partners (resource agencies and other non-government organizations) that prioritizes habitat for endangered and threatened species, improvements to water quality, connectivity to other protected lands, trust resources and important cultural and recreational features. 5. Participate in and coordinate our efforts with other ongoing conservation planning and implementation activities through entities such as the Gulf of Mexico Alliance and the Gulf of Mexico Foundation and others.</p> | | |

Table B-2. Project Universe: Recreation Use

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
|---|--|---|---------------------------------------|------------------------------------|
| Louisiana Office of State Parks | Grand Isle State Park | The extension and upgrade of the fishing pier at Grand Isle State Park, at a cost of \$1.5M, will provide for an additional 400 feet of pier, associated lighting, and a fish cleaning station. Another \$1.5M would provide for upgrades to the existing rock groins (aka, the rock jetty) which keeps beach erosion – and general topography subsidence – to a minimum. The rock groins would allow for additional property to be developed/protected for coastal bird habitat. Existing roads and nature trails also require repairs and upgrades due to flooding; an additional \$500,000 is needed to bring them up to standard. The nature trails will be utilized for bird watching and other nature/recreation activities. | Jefferson Parish | \$3,500,000 |
| Louisiana Office of State Parks | Cypremore Point State Park | Reinforcement of the existing rock jetties and replacement of the breakwater system, to alleviate beach erosion at the park, at a cost of \$2M; reclamation and re-sanding of the beach would cost an additional \$1M while the replacement of the fishing pier – damaged due to unbroken wave action from tropical disturbances – would cost \$500,000. The additional beach property would allow for both recreational opportunities and creation of coastal bird habitat. Roads are also in need of upgrading, at a cost of \$1M. The addition of a 30-site campground and associated bathhouse would fill the long-requested need for camping facilities in the area; estimated cost is \$2M. The additional overnight facilities and infrastructure improvements will allow for bird watching and recreational opportunities. | St. Mary Parish | \$6,500,000 |
| Louisiana Office of State Parks | St. Bernard State Park | Existing structures – restrooms, bathhouses, entrance station – are due an upgrade. An event pavilion also has been repeatedly requested by the community, to increase the opportunities for day-use at the park. | St. Bernard Parish | \$1,000,000 |
| Louisiana Office of State Parks | Bayou Segnette State Park | The boat launch, boat slips, playground for children with disabilities, parking lot, and park roads are long overdue upgrades. | Jefferson Parish | \$3,000,000 |
| Louisiana Office of State Parks | Grand Isle State Park | Campground improvements, pothole repairs, nature trails resurfacing, road repairs and improvements, sewer treatment plant installation, road striping, trail improvements, road and park painting. Improvements include increased accessibility for persons with disabilities. | Jefferson Parish | \$400,000 |
| Louisiana Office of State Parks | Cypremore Point State Park | Road repair, Lake Bank stabilization, building flooring, building painting. Improvements include increased accessibility for persons with disabilities. | St. Mary Parish | \$300,000 |
| Louisiana Office of State Parks | St. Bernard State Park | Installation of backflow preventers, siding and post repairs, new parking lots, pool demolition, dump station repairs, lift stations repairs, dirt work to enhance campsites. Improvements include increased accessibility for persons with disabilities. | St. Bernard Parish | \$250,000 |
| Louisiana Office of State Parks | Bayou Segnette State Park | Construction of ADA accessible sidewalks, boat launch repair, playground repairs, and campground repairs. Improvements include increased accessibility for persons with disabilities. | Jefferson Parish | \$2,050,000 |
| Louisiana Office of State Parks | Sam Houston Jones State Park | Restroom renovations, Cabin renovations, HVAC replacements, new restrooms. | Calcasieu Parish | \$350,000 |
| Louisiana Office of State Parks | Sam Houston Jones State Park | Replacement of 10 cabins, some dating from the 1950s and other that are temporary structures. As one of the top 5 visited parks in the system, this upgrade would improve the park's image – and thereby, OSP's – to its many visitors. | Calcasieu Parish | \$4,000,000 |
| Louisiana Office of State Parks | Marketing | The Office of State Parks requests \$500,000 per year, for three years, for the purpose of promoting, marketing, and interpreting the importance of Louisiana's natural and cultural resources, as experienced at Louisiana's State Parks and Historic Sites, particularly found along the Louisiana Gulf Coast. The funds will allow Louisiana State Parks to advertise and promote Louisiana as a tourism destination for outdoor enthusiasts, families, history buffs and ecotourists. Marketing the parks and historic sites will be accomplished by leveraging the assets of key tourism and community members, benefiting the economy and welfare of the state and the Gulf Coast region. | | \$3,000,000 |
| Louisiana Office of State Parks | Palmetto Island State Park | Bear proof dumpsters, replace HVAC, enhance trail system, construct large pavilion | Vermillion Parish | \$200,000 |
| Louisiana Office of State Parks | Atchafalaya Basin Conservation Learning Center | Establish, construct, and operate the Atchafalaya Conservation Learning Center, a facility [to] educate and promote restoration and stewardship of the Atchafalaya Basin's natural resources to students, teachers, as well as the general public, in an effort to preserve the culture of the people of the area, the quality of life, and recreational fishing sustainability. In addition, the Learning Center will be a facility for conducting scientific study related to hydrology, forest ecology, restoration and conservation of the Atchafalaya Basin - one of America's great wetlands. A Conservation Fellows Program designed for students to perform scientific monitoring and research regarding efforts in the Atchafalaya Basin will be housed in the Learning Center. This project will be performed in collaboration with The Nature Conservancy, a nonprofit organization, and in consultation with the Louisiana Department of Natural Resources. | | \$880,000 |
| Louisiana Office of State Parks | Palmetto Island State Park | To fulfill the park's original Master Plan, construct a \$3M group camp, 5 additional cabins at a total cost of \$2.5M, and an event pavilion at a cost of \$350,000. The nature trails also are in need of maintenance and expansion, as a cost of \$250,000. | Vermillion Parish | \$6,250,000 |
| Louisiana Department of Wildlife and Fisheries | Island Road Piers | Island Road Fishing Piers; Island Road is a small two lane road connecting highway 665 to the Isle de Jean Charles - southern boundary of the Ensminger/Songe marsh management unit on Pointe-aux-Chenes WMA in Terrebonne Parish. This project would provide safe roadside parking in conjunction with public fishing piers. | Pointe-aux-Chenes WMA - Terrebonne | \$3,000,000 |

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
|---|---|--|--|------------------------------------|
| Louisiana Department of Wildlife and Fisheries | Port Sulfur | Civic Drive fishing pier (Wallop Breaux proposed project); Improvement to makeshift boat launch (CSA suggested project) | Port Sulfur - Plaquemines | \$150,000 |
| Louisiana Department of Wildlife and Fisheries | Belle Chase | Walker Road boat launch facility in Belle Chase; Plaquemines Parish | Belle Chase - Plaquemines | \$200,000 |
| Louisiana Department of Wildlife and Fisheries | Seawall Lights | Installation of light poles and safety lights along Reaches 4 and 4 of the south shore seawall, which would enhance night fishing opportunities for the south shore of Lake Pontchartrain. | New Orleans - Orleans | \$330,000 |
| Louisiana Department of Wildlife and Fisheries | Montegut S1/S2 Access (renamed Pointe-aux-Chenes Wildlife Management Area Recreation Use Enhancement) | Pointe Aux Chenes WMA - Montegut Unit S1 (West) and S2 (East) access improvements; construct boat docks/fishing piers and walkway at water control structures to allow for safe fishing opportunities. | Pointe-aux-Chenes WMA - Terrebonne | \$500,000 |
| Louisiana Department of Wildlife and Fisheries | Island Rd Launch | Island Road boat launch renovation; PAC WMA has two boat launches - one of the launches, Island Road boat launch, is in a state of disrepair and needs a number of renovations to make it serviceable. This project would completely renovate and enhance this launch. | Pointe-aux-Chenes WMA - Terrebonne | \$3,000,000 |
| Louisiana Department of Wildlife and Fisheries | PAC Fishing Piers | Pointe-aux-Chenes fishing piers; this project would provide safe roadside parking in conjunction with public fishing piers. | Pointe-aux-Chenes WMA - Terrebonne | \$500,000 |
| Louisiana Department of Wildlife and Fisheries | Des Allemands | Create a new boat launch facility to replace current unsafe launch | Des Allemands - St. Charles | \$1,110,000 |
| Louisiana Department of Wildlife and Fisheries | Pirogue Launch | Montegut Pirogue Launch; Develop a launch for small vessels like pirogues and kayaks on the Montegut Management Unit of the WMA | Pointe-aux-Chenes WMA - Terrebonne | \$300,000 |
| Louisiana Department of Wildlife and Fisheries | Rockefeller Piers | Create new recreation and observation piers for birding, fishing, and crabbing opportunities. | Rockefeller Wildlife Refuge - Cameron/Vermilion | \$100,000 |
| Louisiana Department of Wildlife and Fisheries | Rockefeller Signage | Create signage for informational outreach display for recreational users of the Refuge | Rockefeller Wildlife Refuge - Cameron/ Vermilion | \$30,000 |
| Louisiana Department of Wildlife and Fisheries | Pirogue Pull-Overs | Create pirogue pull-overs for Montegut and PAC units | Pointe-aux-Chenes WMA - Terrebonne | \$100,000 |
| Louisiana Department of Wildlife and Fisheries | Berwick | Improvements to Jessie Fontenot boat launch near Berwick | Berwick - St. Mary | \$270,000 |
| Louisiana Department of Wildlife and Fisheries | PAL WMA Campgrounds | Projects - Public campground improvements to WMA | Pass-a-Loutre - Plaquemines | \$1,500,000 |
| Louisiana Department of Wildlife and Fisheries | PAL WMA Access | Recreational access enhancements to WMA | Pass-a-Loutre - Plaquemines | \$100,000 |
| Louisiana Department of Wildlife and Fisheries | Grand Isle LDWF Lab | Fishing pier to enhance outreach activities at the LDWF Fisheries Research Laboratory | LDWF Grand Isle Complex - Jefferson | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | AD WMA Campgrounds | Campground Improvements including bulkhead addition | Atchafalaya Delta WMA - St. Mary | \$4,300,000 |
| Louisiana Department of Wildlife and Fisheries | Hwy 90 | Hwy 90 Boat Launch improvements to existing launch (Pier 90) located near the St. Charles/Jefferson parish line | Hwy 90 Boat Launch - St. Charles | \$1,340,000 |
| Louisiana Department of Wildlife and Fisheries | Middle Pearl | Improvements to launch and parking | Middle Pearl Boat Launch - St. Tammany | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | AD WMA Access | Public Access Enhancement (dredging channels popular with public navigation) | Atchafalaya Delta WMA - St. Mary | \$1,500,000 |

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
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| Louisiana Department of Wildlife and Fisheries | WHARF | Wetland Harbor Activities Recreational Facility; Development of multi-use facilities for recreational access of nearby areas including Bayou Segnette | Westwego - Jefferson | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | Bonne Carre | Shoreline access and/or fishing pier near the Bonne Carre recreational area that has an existing launch and the Wetland Watchers Park | Bonne Carre Recreation Area - St. Charles | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | I-10 Bridge/Lake Charles | I-10 boat ramp could be put in consideration as it is largely due for some major repair work; existing ramp does not have the slope needed to launch more than a flat bottom vessel; upgrading this launch would be very beneficial for many users | Lake Charles - Calcasieu | \$1,000,000 |
| Louisiana Department of Wildlife and Fisheries | Maurepas | Lake Maurepas Access Improvements; components include improved parking, boat ramp, wetland walk/boardwalk | Lake Maurepas - St. John the Baptist | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | Old Hwy 1 | Parking improvements with improved shoreline access and/or fishing pier | Leeville - Lafourche | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | Cane Bayou | Improvements to launch and additional parking | Cane Bayou Boat Launch - St. Tammany | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | Fort Pike | Improve launch and rebuild fishing pier | Fort Pike - Orleans | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | Oak Ridge | There is a pumping station adjacent to the Oak Ridge Boat Launch, behind the Oak Ridge Community Park in Golden Meadow, which pumps rainwater into a dead-end canal just east of Catfish Lake (popular fishing spot) | Golden Meadow - Lafourche | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | Hwy 11/I-10 | Improved parking, kayak launch, and shoreline fishing access | Irish Bayou Area - Orleans | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | Deatonville | Kayak launch and roadside fishing | Deatonville - Calcasieu | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | Bubba Dove | Pier adjacent to the Bubba Dove water control structure | Bubba Dove - Terrebonne | \$400,000 |
| Louisiana Department of Wildlife and Fisheries | Fourchon | Kayak launch and roadside fishing | Fourchon - Lafourche | \$250,000 |
| Louisiana Department of Wildlife and Fisheries | Williams Blvd | Kayak launch and roadside fishing | Williams Blvd - Jefferson | \$250,000 |
| CCA Louisiana | East Calcasieu Reef Area | New 68 acre planning area for reef development; Permitting pending LDWF approvals; 5000 ton reef covering 4-5 acres; Funding from CCA's Building Conservation Trust, LDWF, and contractor | | |
| CCA Louisiana | St. John Reef Area | New 10 acre planning area; Near Frenier Landing boat launch; Permit pending Army Corps; 3000 ton reef covering 2-3 acres; Funding from CCA's Building Conservation Trust, LDWF, and contractor | | |
| CCA Louisiana | Point Mast Reef Expansion | Original deployment 2009; Permit pending Army Corps; 2000 ton reef area covering 2-3 acres; Funding from Chevron, LDWF, and contractor | | |
| CCA Louisiana | Nearshore Reef Planning Areas | Final approval by Artificial Reef Council 9/15/16; Adoption into the program with guidelines and requirements; Permit submitted for Bay Marchand 3 Reef; Donated platforms likely for material | | |
| CCA Louisiana | Cypremore Point Floating Islands Installation | Permitting not required; 3 elementary schools have expressed interest; Request for partial funding to CCA's Building Conservation Trust, Entergy Environmental Initiatives Fund, additional funding sought through St. Mary's Parish and Iberia Parish | St. Mary Parish | \$20,000 (To maximize the grass growing season, this installation may not take place until spring 2018. CCA would like to formally request \$20,000 to support participation of school children in the installation, including pre-event education) |
| CCA Louisiana | Cypremore Point Reef | Exact location yet to be identified; In concert with LDWF and CCA's Building Conservation Trust | St. Mary Parish | |

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
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| CCA Louisiana | Plaquemine Parish Reef | Exact location yet to be identified; In concert with LDWF and CCA's Building Conservation Trust | Plaquemines Parish | |
| CCA Louisiana | Vermillion Parish Floating Islands Installation | Exact location yet to be determined; Funding identification underway including parish support | Vermillion Parish | \$20,000 (To maximize the grass growing season, this installation may not take place until late spring 2018 or early spring 2019. CCA would like to formally request \$20,000 to support participation of school children in the installation, including pre-event education) |
| CCA Louisiana | Deatonville | Kayak Launch | Calcasieu Parish | \$250,000 |
| CCA Louisiana | Calcasieu Lake - Joes Cove | Kayak Launch | Cameron Parish | \$250,000 |
| CCA Louisiana | Calcasieu Lake - Southeast Corner | Kayak Launch | Cameron Parish | \$250,000 |
| CCA Louisiana | Calcasieu Lake - West Cove | Kayak Launch | Cameron Parish | \$250,000 |
| CCA Louisiana | Sabine National Wildlife Refuge | Kayak Launch | Sabine Parish | \$250,000 |
| CCA Louisiana | Mermentau | Pier | Acadia Parish | \$1,000,000 |
| CCA Louisiana | Grand Isle, WLF Lab | Pier | Jefferson Parish | \$250,000 |
| CCA Louisiana | Lake Pontchartrain at Williams Boulevard | Kayak Launch | Jefferson Parish | \$250,000 |
| CCA Louisiana | Lake Pontchartrain at Bucktown | Kayak Launch and Pier | Jefferson Parish | \$1,750,000 |
| CCA Louisiana | Highway 1, Caminada Bridge Launch | Kayak Launch and Pier and Reef | Jefferson Parish | \$250,000 |
| CCA Louisiana | Highway 1, Caminada Bridge Launch (Old Caminada Bridge) | Kayak Launch | Jefferson Parish | \$3,500,000 |
| CCA Louisiana | Lake Pontchartrain at Pass Manchac | Pier Enhancement | | \$1,000,000 |
| CCA Louisiana | Lake Pontchartrain at West End Blvd. | Pier | Orleans Parish | \$750,000 |
| CCA Louisiana | Lake Pontchartrain, Southshore near I-10 | Kayak Launch and Pier | Orleans Parish | \$250,000 |
| CCA Louisiana | Chef Pass | Pier | Orleans Parish | \$1,000,000 |
| CCA Louisiana | Fort Jackson Fishing Pier | Pier | Plaquemines Parish | \$1,000,000 |
| CCA Louisiana | Empire, Bay Adams | Pier | Plaquemines Parish | \$400,000 |
| CCA Louisiana | Yellow Cotton Bay, Venice | Kayak Launch and Pier | Plaquemines Parish | \$400,000 |
| CCA Louisiana | Fourchon Public Launch | Kayak Launch and Pier | Lafourche Parish | \$250,000 |
| CCA Louisiana | Highway 1, Leeville Launch | Kayak Launch | Lafourche Parish | \$400,000 |
| CCA Louisiana | Shell Beach | Pier | St. Bernard Parish | \$1,000,000 |
| CCA Louisiana | Cypremore Point State Park | Kayak Launch and Pier | St. Mary Parish | \$1,250,000 |

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
|--|--|--|---------------------|------------------------------------|
| CCA Louisiana | Mandeville Boat Harbor | Kayak Launch and Pier | St. Tammany Parish | \$1,250,000 |
| CCA Louisiana | Bayou Dularge | Kayak Launch | Terrebonne Parish | \$250,000 |
| CCA Louisiana | Dulac Launch | Kayak Launch | Terrebonne Parish | \$400,000 |
| CCA Louisiana | Bubba Dove Pier | Pier | Terrebonne Parish | \$1,000,000 |
| CCA Louisiana | Bayou Point Aux Chenes | Kayak Launch and Pier | Terrebonne Parish | \$1,000,000 |
| CCA Louisiana | Vermillion, Intercoastal City Launch and | Kayak Launch and Pier | Vermillion Parish | \$1,250,000 |
| CCA Louisiana | Davis Pond | Kayak Launch and Pier | St. Charles Parish | \$750,000 |
| CCA Louisiana | Elmer's Island | Kayak Launch and Pier | Jefferson Parish | \$1,250,000 |
| CCA Louisiana | East Point a la Hache | Kayak Launch and Pier | Plaquemines Parish | \$750,000 |
| CCA Louisiana | Lakeshore Drive Fishing Lighting | Access Lighting | | \$650,000 |
| CCA Louisiana | Bayou Bienvenue at Paris Road | Kayak Launch and Pier | | \$500,000 |
| Louisiana Board of Regents | Retrofit LUMCON Vessel | Retrofit Louisiana University Marine Consortium research vessel | | \$5,000,000 - \$15,000,000 |
| Lake Pontchartrain Basin Foundation | Lake Pontchartrain Beach | Pontchartrain Beach Stabilization Plan - Revitalize beach adjacent to the LPV (HSDRRS) levee. Placement of sand, removal of damaged metal sheet pile groin, and construction of a new offshore breakwater. | Orleans Parish | \$10,000,000 |
| Town of Jean Lafitte | The Wetlands Center | Construction of The Wetlands Center in Lafitte. The project objectives are to educate the general public about the function, purpose and importance of wetlands as they relate to the coast and our public environment, and to show the dynamic value of this vital resource. A public building, adjacent to the existing museum, theatre, library and community center, will be constructed to provide an educational and cultural venue for the Town of Jean Lafitte and the surrounding area. Wetlands exhibits, to include multi-media interactive storytelling through permanent and changing exhibits, hands-on experiential learning activities, historical and cultural artifacts, aquarium tanks, exterior wildlife tanks, 3D interactive maps and habitat models, will be displayed in a state of the art facility to provide a passive as well as an interactive experience for visitors. The flora and fauna of the wetlands and their wetland habitats will be presented for everyone to appreciate and learn the importance of preserving, protecting, restoring and nurturing these precious resources. Also planned is an observation tower with spotting scopes. The Center will educate through direct contact, discovery-based activities and field trips emphasizing exploration, discovery, and imagination; and linking science, ecology, geography, history, sociology, and economics. The expected outcome is that each person can relate and apply some aspect of wetland preservation, protection and restoration in their local and/or regional area. The benefit of this project will be to highlight the threat to the land and people from coastal land loss and stimulate interest in coastal restoration and environmental sciences while exploring the unique natural resources and environmental issues of the region. Being only 25 minutes from New Orleans, this location is the right story, the right place and the right time. | Jefferson Parish | Estimated Project Cost \$7,000,000 |
| Audubon Nature Institute | Louisiana Wetlands Gallery at Aquarium | Louisiana Wetlands Gallery at the Aquarium. With funding, Audubon will leverage the Aquarium's existing infrastructure, access to a large, geographically diverse audience, and proven experience in creating, engaging, educational exhibitry to create a new gallery focused on Louisiana's coast. The new gallery concept will transform the 7,450 square foot Mississippi River Gallery into a Louisiana Wetlands Gallery to exhibit the vast biodiversity of Louisiana's coast while conveying the urgency of its fragile state and inspiring guests to take action to protect and restore our coastal ecosystem. The Louisiana Wetlands Gallery will interweave live animal exhibits and hands-on, interactive educational experiences to tell the story of Louisiana's coast as well as the importance of preserving coastal land and what each of us can do to make a difference. | Orleans Parish | \$6,000,000 |
| Audubon Nature Institute | Louisiana Swamp Exhibit at Audubon Zoo | Louisiana Swamp Exhibit at Audubon Zoo. With funding, Audubon will refocus the interpretive exhibitry at the Louisiana Swamp and utilize this remarkable asset to share the story of our coast and inspire visitors to take action to preserve and restore coastal Louisiana. The revitalized Louisiana Swamp at Audubon Zoo will provide an entirely immersive experience designed to transport visitors to the Louisiana coast. | Orleans Parish | \$3,000,000 |
| Audubon Nature Institute | Traveling Exhibits | Traveling exhibits. The storyline and experiences of the traveling exhibit will echo that of the new Louisiana Wetlands Gallery at Audubon Aquarium of the Americas, with the ability to adapt exhibit components regionally. Educational resources developed for the Louisiana Wetlands Gallery will be made available to museums that rent the touring exhibit to further enrich the traveling exhibit experience. | | \$1,750,000 |
| Audubon Nature Institute | Signature Film | Signature Film - Hurricane on the Bayou. To tell the story of Louisiana's coast before and after Hurricane Katrina. | | \$5,000,000 |

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
|---|---|---|--|------------------------------------|
| Jeff. Parish Dept of Env. Affairs | Wetland Harbor Activities Recreational Facility (WHARF) (CS-4); Jefferson Parish; Region 2; Barataria Basin; 29.87933262 / -90.14028758 | Development of multi-use facilities to provide individuals of all physical capabilities with onsite recreational opportunities; will afford access to adjacent wetlands, nearby State and Federal parks, and the abundant natural and cultural experiences offered by Louisiana's wetlands. | Jefferson Parish | |
| LDWF (Todd Baker) | Bayou Pointe Aux Chenes Fishing Piers; Lafourche & Terrebonne Parishes; Regions 2 & 3; Terrebonne Basin; 29.45195 / -90.46665 | Docks/fishing piers will be constructed into the Grand Bayou #1 water management unit and into Bayou Pointe aux Chenes. By having the piers these fishing areas will be handicap accessible, more user friendly and safer. This area is a very popular fishing area and we have had several requests to enhance fishing opportunities on the WMA. Boaters will also benefit by using the piers as docks. | Lafourche and Terrebonne Parishes | |
| LDWF (Todd Baker) | Pass a Loutre WMA Campground Improvements; Plaquemines Parish; Region 2; Miss R. Delta Basin; 29.13931 / -89.1488 | The campgrounds could use approximately 20 picnic tables and 20 BBQ pits. Four of them could also be enhanced by putting in boat docking structures and all need lighting. These improvements will enhance recreational opportunity on the Wildlife Management Area, will make the areas safer, and more attractive to outdoor enthusiasts. | Plaquemines Parish | |
| Beadfilters (Douglas Drennan) | Marine Finfish Hatchery for Stock Enhancement of Important Recreational Species Affected by the Oil Spill | Provide funds to construct and operate a Marine Finfish Hatchery for the culture and release of important marine finfish species such as spotted sea trout, red drum, flounder and blue fin tuna. The uncertainty about the effects of the oil spill on the impact of the eggs and larvae of the 2010 spawn in the Gulf necessitate the need for stock enhancement of these important recreational fish species. Est. cost \$50M | | \$50,000,000 |
| Randy Lanctot | Caminada Pass Bridge Fishing Pier Restoration; Jeff. Parish; Region 2; Barataria Basin | The Caminada Pass bridge fishing pier remains a popular fishing destination for anglers of all ages. Creating a first class fishing pier from the remains of the old wooden Highway 1 bridge across Caminada Pass would be a reparation with a direct nexus to the spill, unlike many of the other projects recommended in this long list. Est. cost under \$1M | Jefferson Parish | ~\$1,000,000 |
| Daniel Breaux, U.S. Fish and Wildlife Service; Neil Lalonde, U.S. Fish and Wildlife Service; Deborah Abibou, Coalition to Restore Coastal Louisiana | Plant marsh grass and trees in Louisiana's coastal zone using volunteers in Cameron, Orleans, St Tammany, Tangipahoa, Vermilion Parishes | The Coalition will plant marsh grasses Spartina patens and Spartina alterniflora and salt marsh grass on dedicated dredge cells up to 400 acres on Big Branch Marsh NWR. | Cameron, Orleans, St. Tammany, Tangipahoa, Vermillion Parishes | \$1,050,000 |
| Lisa Valence, Council member, City of Westwego | WHARF Project: Wetlands Harbor Activities Recreational Facility in Jefferson Parish | This project involves the development of multi-use facilities to provide individuals of all physical capabilities with onsite recreational opportunities. The development will afford access to adjacent wetlands, nearby State and Federal parks, and the abundant natural resources and cultural experiences offered by Louisiana's wetlands. Includes site acquisition, construction of entry complex, cabins, sensory gardens, meeting center, the forest centre, multipurpose fields and athletic complex. | Jefferson Parish | \$28,000,000 |
| James Harris, USFWS | Promote public access and recreational use through hydrologic restoration of Bayou Sauvage channel, Bayou Sauvage NWR in Orleans Parish | Bucket dredging to restore the channel of Bayou Sauvage, Bayou Sauvage National Wildlife Refuge, Orleans, Parish. Dredge spoil to be used beneficially to restore cypress and live oak along bayou shoreline. This is not a navigation project. | Orleans Parish | \$1,800,000 |
| Mark Van Mouwerik, NPS Guy Hughes, NPS | Recreational Use Improvements at Barataria Preserve in Jefferson Parish - Jean Lafitte National Historic Park and Preserve - Barataria Unit | The park will work with Harpers Ferry Center to create a Wayside Plan for 30-35 new waysides and interpretive signs along the preserve's ten miles of trails and in parking areas at trail heads. Project includes: 1) Access improvements; 2) Education improvements; 3) Infrastructure improvements. | Jefferson Parish | \$9,350,000 |
| Lauren Averill, Jefferson Parish | Town of Jean Lafitte Kayak and Pirogue Recreational Building and Education Program in Jefferson Parish | The project concept includes the design and construction of small water sport rental and storage building, the purchase of canoes, pirogues and equipment, and the funding to develop a safety and education program, and man the rental facility for the first 5 years. | Jefferson Parish | \$250,000 |
| Sara Bradford, Audubon Nature Institute | Coastal Wetlands Education Center at Audubon Nature Institute in Orleans Parish | See Audubon Nature Institute Project Submission for additional details | Orleans Parish | \$10,750,000 |
| Carla Chiasson, St. Charles Parish | Des Allemands Boat Launch in St. Charles Parish | Construction of a new boat launch facility in Des Allemands, Louisiana, to provide enhanced recreational opportunities. The proposed Des Allemands Boat Launch will improve public access for recreational boaters and anglers to the surrounding waterways, including Lake Des Allemands to the northwest of the launch, Petit Lake Des Allemands, Bayou Gauche, Lake Salvador and Lake Cataouatche to the southeast; and other Barataria Basin waterways in southeast Louisiana. | St. Charles Parish | \$1,841,116 |
| Carla Chiasson, St. Charles Parish | Highway 90 Boat Launch in St. Charles Parish | Construction of a new boat launch facility in Luling, Louisiana, to provide enhanced recreational opportunities. The launch will improve public access for recreational boaters and anglers to the surrounding waterways, including Lake Cataouatche, Lake Salvador, and other Barataria Basin Waterways all located to the south of the Launch and Des Allemands to the west. | St. Charles Parish | \$2,650,404 |

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
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| Henry C. "Bo" La Grange, St. Mary Parish | Improvements to Grand Avoille Boat Launch in St. Mary Parish | Remove broken concrete and or rip-rap and shape subgrade for ramp. Install 25' x 30' concrete boat ramp and 20' x 40' concrete apron of 6" rein concrete. Install 8' wide timber mooring docks along each side of boat ramp. Grade existing shell/limestone parking to establish drainage and install 8" compacted limestone for parking. | St. Mary Parish | \$247,426 |
| Henry C. "Bo" La Grange, St. Mary Parish | Fishing Pier at Fontenot Boat Launch (Berwick) in St. Mary Parish | The proposed project entails the construction of a Fishing Pier for pedestrian use on the Atchafalaya River side of the protective peninsula at the Jessie Fontenot Boat Launch south of Berwick, LA, in St. Mary Parish. The boat launch is used by thousands of sport fishermen annually accessing the gulf region. The pier would provide recreational opportunities for those without boats, especially those with accessible needs, to access the benefits of outdoor recreational fishing. | St. Mary Parish | \$592,340 |
| Jim Firmin, St. Mary Parish Government | Fishing Pier at Fontenot Boat Launch (Berwick) in St. Mary Parish | The proposed project entails the construction of a Fishing Pier for pedestrian use on the Atchafalaya River side of the protective peninsula at the Jessie Fontenot Boat Launch south of Berwick, LA, in St. Mary Parish. The boat launch is used by thousands of sport fishermen annually accessing the gulf region. The pier would provide recreational opportunities for those without boats, especially those with accessible needs, to access the benefits of outdoor recreational fishing. | St. Mary Parish | \$275,000 |
| Wayne (Keller?), Grand Isle Community Development Team | Grand Isle Butterfly Dome in Jefferson Parish | The Grand Isle Butterfly Dome was first erected over 15 years ago with funds from private and corporate donations. It is a 42 foot diameter geodesic structure, covered with greenhouse shadecloth. The structure contains flowers and plants specifically chosen to maintain native butterflies. It has been an extremely popular attraction for local residents, tourists, and school tours. Most of our donations for its upkeep came from petroleum related companies, whose contributions are no longer forthcoming. | Jefferson Parish | \$20,000 |
| Natalie Peyronin, Environmental Defense Fund; Rebecca Triche Louisiana Wildlife Federation; Cynthia Duet, National Audubon Society; David Muth, National Wildlife Federation; Simone Maloz, Restore or Retreat | Elmer's Island: enhanced recreational opportunities in Jefferson Parish | We support the advancement of recreational opportunities for the culturally significant and publicly accessible refuge to enhance recreational fishing, bird watching, outdoor education programs and volunteer opportunities, as well as encouraging and supporting research on the wildlife and fisheries resources and protecting endangered and threatened species through regulatory and habitat management. | Jefferson Parish | |

| Agency/Entity/ Person | Project Title | Project Description/ Summary | Project Location | Estimated/Proposed Project Cost |
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| Vincent Guillory, Lafourche Parish Game and Fish Commission Leslie Suazo, Ducks Unlimited Andrew Barron, Barataria - Terrebonne National Estuary Program Amanda Voisin, Lafourche Parish Government | Lake Fields and Lake Long Water Quality Restoration Plan | The original Lake Fields restoration plan was developed in 2008 by the Lafourche Parish Game and Fish Commission (Commission) with input from a number of conservation organizations and governmental institutions, including Ducks Unlimited (DU), Barataria-Terrebonne National Estuary Program (BTNEP), Louisiana Department of Wildlife and Fisheries (LDWF), U.S. National Resources Conservation Service (NRCS), and the North Lafourche Levee District (NLLD). Lake Fields and Lake Long are located within the Lake Fields Game and Fish Preserve (Preserve), which is west of Lockport, south of U.S. Highway 90, and north of the Gulf Intracoastal Waterway (GIWW) in Lafourche Parish, Louisiana and within an inter-levee basin between the Bayou Lafourche natural ridge to the east and the Bayou Grand Coteau ridge to the west (Figure 1). The Bayou Folse /Lake Fields watershed of 52,214 acres originates just south of Thibodaux and is fairly narrow at the upper end but begins to significantly widen around US Hwy. 90. The watershed has been significantly altered but is sparsely populated except for the Bayou Lafourche corridor. The drainage basin is 38.7% agriculture/cropland/grassland, 20% fresh marsh, 18.4% wetland forests, 9.4% urban, and 8.5% water, with the remainder miscellaneous forests or wetlands. Lake Fields is approximately 2,000 acres in size while Lake Long is approximately 600 acres in size. Both lakes are shallow and average approximately three to four feet in depth. Nearby important water bodies include Bayou Folse, Bayou DuMar, Company Canal, Commercial Canal, Hollywood Canal, and GIWW (Figures 2 and 3). Except for Lake Fields, Lake Long, and Bayou Leau Bleu, there are no natural water bodies within the Preserve. The Preserve was and remains a popular and heavily utilized recreational area because of close proximity to residential areas, numerous nearby camps, availability of state owned land and water bottoms, and access from nearby public launch sites. The Preserve is a freshwater ecosystem. Primary freshwater sources for Lake Fields include the upper Bayou Folse watershed, Bayou Lafourche via Company Canal, and the GIWW via Company Canal. This inflow of freshwater, coupled with minimal daily tidal effects, generally produce year round freshwater conditions although periodic seasonal saltwater intrusion may occur from the south via Company Canal during periods of low rainfall and/or low Atchafalaya River discharges. Lake Fields and Lake Long are primarily surrounded by "flotant" fresh marsh which is characterized by small shallow ponds, open marsh grass areas, and extensive wax myrtle (Morella cerifera) thickets. From an upper watershed drainage and Lake Fields and Lake Long water quality restoration perspective, Bayou Folse is the single most important water body. Bayou Folse is one of the most heavily impacted watersheds along coastal Louisiana, and is considered a priority watershed by the Louisiana Department of Environmental Quality (LDEQ) and BTNEP has proposed likewise in their draft 2018 action plan document. Currently, there are nine forced drainage systems within the Bayou Folse watershed near and south of US Hwy 90 which encompass 13,282 acres draining agricultural crop lands, pasture lands, and residential areas; a high percentage of these outflows eventually enters Bayou Folse. Water quality degradation is probably the most important factor impacting Lake Fields, Lake Long, and other water bodies within the Preserve. Historic literature and recent Bayou Folse water quality monitoring data from BTNEP has documented that outflow from forced drainage systems and in Bayou Folse is of very poor quality with low levels of dissolved oxygen and high levels of nutrients, fecal coliform bacteria, and turbidity. The Lake Fields/Lake Long Water Quality Restoration Plan includes channel constrictions and/or shoreline stabilizations while allowing boat passage at three locations in Lake Fields and two locations in Lake Long : Channel constrictions/shoreline stabilization in lower Bayou Dumar (which empties into Lake Fields) south of Commercial Canal channel constrictions/shoreline stabilization of lower Bayou Folse opening into Lake Fields, shoreline stabilization of Company Canal opening into Lake Fields, channel constriction/shoreline stabilization of Company Canal opening into Lake Long, channel constriction/shoreline stabilization of Hollywood Canal opening into Lake Long. The purpose of these channel constrictions/shoreline stabilizations is to reduce the inflow of turbid, nutrient enriched water from the upper Bayou Folse watershed into Lake Fields and Lake Long. The primary goals of the restoration plan are to improve water quality, stimulate or maintain current SAVs, and enhance waterfowl and fishery resources. There are two complimentary Bayou Folse watershed proposals for BP oil spill funds through the NRDA process that target the reduction of nutrients and fecal coliform bacteria entering waterways from forced drainage systems; these include a NRCS proposal to "reduce nutrients on working agriculture lands" and a LDEQ proposal for "cost share assistance to homeowners for repair of sewage treatment systems". If approved, these two Bayou Folse restoration proposals would improve water quality of upper watershed inflow into Lake Fields and Lake Long. The Bayou Folse watershed is considered a "priority watershed" by LDEQ, and BTNEP has proposed likewise in their draft 2018 action plan document. Additionally, the LDWF has adopted a Lake Fields/Lake Long freshwater fisheries management plan. | | \$700,000 |
| Ray Herndon, The Conservation Fund Louisiana Department of Wildlife and Fisheries | Joyce Wildlife Management Area-Land Acquisition | The Conservation Fund is working in partnership with Louisiana Department of Wildlife and Fisheries to acquire 2,975 +/- acres, as an additional to the Joyce Wildlife Management Area (WMA). This acreage is located in Tangipahoa and St. Tammany Parishes, and provides a variety of habitat types, from emergent wetlands, to coastal forested wetlands, to a substantial impoundment, and a smaller upland component. The addition of this tract would compliment the existing recreation opportunities, providing expanded fishing and hunting opportunities within the substantial wetland complex, and it would provide recreation on the upland acreage which does not currently exist on this WMA. This project will also support the health of the Lake Pontchartrain Basin, through the permanent protection of wetlands, which will continue to filter freshwater flows from the Tangipahoa River. | Tangipahoa and St. Tammany Parishes | \$5,500,000 |
| Louisiana Department of Environmental Quality | Statewide Mercury Initiative Implementation | The location for this project will be statewide. The LDEQ proposes to continue statewide sampling and risk assessment of fish for mercury contamination in water bodies throughout the state and maintenance of four mercury atmospheric deposition network sites in the state. Further, dissemination of risk information, blood screenings, and sign repair and replacement would occur throughout the state. Mercury in the environment poses a significant health threat to consumers of certain fishes. Whether obtained recreationally or commercially, consumption of too many of some species can result in neurological damage, especially in young children and a developing fetus. Mercury is present in fish tissue as a result of anthropogenic (human-influenced) contributions added to background concentrations of the naturally occurring element. This project proposes to 1) conduct sampling of mercury in fish tissue which will be used to reevaluate current fish consumption advisories due to mercury, as well as to look at additional water bodies where advisories may be required, 2) disseminate mercury risk assessment information and conduct targeted blood screening; 3) repair and replace mercury fish consumption advisory signs, and 4) resume participation in the National Atmospheric Deposition Program (NADP), Mercury Deposition Network (MDN) for determination of total mercury concentration and deposition in precipitation. The primary goal of this comprehensive Mercury project is to enhance overall ecosystem health by benefitting the estuaries that are integral habitat providing food, shelter, and nursery grounds for many of the Gulf's ecologically and economically important species. Given the important link between healthy natural resources and recreational activities, restoring habitats and improving water quality will also provide human use benefits. Results of the sampling effort will be used to reevaluate current fish consumption advisories due to mercury, as well as to look at additional water bodies where advisories may be required. | | \$13,259,568 |
| Louisiana Department of Wildlife and Fisheries | Chitimacha Boat Launch | Chitimacha boat launch; construction of a new boat launch facility. | St. Mary Parish | \$650,000 |

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