Louisiana 2019 Flood Disaster Spend Plan

APPLICANT: **Louisiana Department of Wildlife and Fisheries (LDWF)**

DURATION: **July 1, 2023 – June 30, 2027**

TITLE: **Louisiana 2019 Flood Disaster Grant Application and Spend Plan**

OBJECTIVE: **Allocate and distribute disaster assistance funds to restore fisheries and related communities or prevent similar failures in the future and assist fishing communities affected by such failure**

Introduction:

Based on days at or above flood stage at Baton Rouge, LA, the 2018-19 Mississippi River flood is the longest lasting flood on record since 1900 (when records became available), surpassing the flood of 1927 in duration. The extreme duration of high Mississippi River levels since December 2018 has necessitated unprecedented efforts by the U.S. Corps of Engineers to mitigate the threat of levee failures in Louisiana. Such efforts included the opening of the Bonnet Carré Spillway twice in 2019; first in late February and again in early May. The Bonnet Carré Spillway opened for an unprecedented total of 123 days in 2019. The extreme influx of freshwater greatly reduced salinity levels in the coastal waters of Louisiana and disrupted the delicate balance of estuarine productivity. Significant, prolonged flood events also occurred in local river systems from Alabama through Louisiana, impacting regions at least as far west as the Sabine River Basin in Louisiana. As a result, the 2019 flood event can be considered a statewide disaster with the most severe impacts occurring in the eastern half of Louisiana.

Harvester Impacts - Commercial and Charter

Significant negative impacts were identified in many major fisheries, including crustacean, molluscan and finfish fisheries. While primary impacts were identified in inshore fisheries, the offshore charter fishery was also impacted. Unless otherwise stated, all fisheries below are commercial fisheries, and losses are based on analyses of trip ticket landings.

Table 1. Identifiable dockside losses from various fisheries in Louisiana as a result of the 2019 flood event as reported in LDWF's fisheries disaster request in November of 2019.

Fishery	Loss
Blue Crab	$3,528,170
Brown Shrimp	$28,190,488
White Shrimp	$33,066,118
Oysters	$17,332,018
Black Drum	$512,455
Charter (offshore fleet, based on LA Creel effort)	$2,033,412
Menhaden	$16,723,467
Total	**$101,386,128**

Qualified losses were limited to current losses in revenue for the purposes of a National Oceanic and Atmospheric Administration (NOAA) fisheries disaster declaration (Table 1). At the time of this request, LDWF recognized that some fisheries would have resource losses and future dockside losses that did not qualify as actual losses at the time of application. LDWF considered these additional losses while developing this plan.

There were also localized impacts to some fisheries that did not rise to a state-level basis, or were mitigated (on a fishery-level basis, though not on a harvester-level basis) by increases in another part of the state. For example, summarized estimates of losses do not capture the reduced charter activity in western Louisiana as there was also an increase in central and eastern Louisiana.

It should also be noted that these are dockside (revenue) losses, and do not incorporate in any way additional costs associated with longer travel times, increased fuel costs, etc. that would be included in increased costs to those harvesters or charter boat operators.

Processor Impacts:

In late October and early November, 2019, LDWF conducted a survey of seafood processors to assess the economic effects of the 2019 flood event on the seafood processing sector. The questionnaire, modeled after one created for a similar effort by the Alabama Department of Marine Resources, contained eight questions soliciting information about the type of seafood processed, the sources of seafood, employment reductions, lost sales, and insured losses.

The survey sample consisted of 45 firms known to have processed shrimp, blue crab, oysters, and saltwater fish (other than menhaden) in Louisiana. The survey was conducted by telephone in October and November 2019 using telephone numbers from NOAA Fisheries surveys and LDWF data banks.

Depending upon the assumptions used, total lost sales estimates from survey results could range from $41.1 million to $81.1 million. A loss estimate of $75.5 million might be most appropriate, based upon the low range of the estimates from the LDWF survey ($18.7 million) and extrapolations to the non-respondents with available NOAA Fisheries survey sales estimates ($48.2 million) and the remaining non-respondents ($8.6 million).

Loss Calculation Methods:

Fishery losses are based on the changes in revenue (not landings) calculated in the 12-month period for which trip ticket data are available at the time of LDWF's disaster declaration request, compared to a baseline of recent historic revenue in a similar period (i.e. September through the following August). Data were excluded for some fisheries in recent years due to impacts from prior flood or other environmental impacts (e.g. harsh winter in 2013-14 impacted spotted seatrout, a major target of the charter fleet in 2014).

Approach:

LDWF will implement numerous objectives that are intended to meet the unique needs of a diverse range of impacted fisheries. These objectives will address a range of negative impacts associated with flood disasters and target fisheries and sectors that are most heavily impacted by flooding. LDWF recognizes that NOAA encourages the use of funds to strengthen the long-term economic and environmental sustainability of impacted fisheries to avoid similar failures in the future. LDWF considered these factors when determining which objectives to include in this application.

Objectives were prioritized using a deliberative process that analyzed the following factors in no particular order:

- Economic losses within fisheries
- NOAA priorities
- LDWF priorities
- Stakeholder priorities
- Fishery resource / management needs
- Chance of success / level of benefit
- Financial feasibility / level of funding required for success

Table 2 includes a list of objectives selected for funding.

Table 2. Objectives Included in the Louisiana 2019 Flood Spend Plan

Equipment Modernization Grant
Public Seed Ground Cultch Plants
Alternative Oyster Culture Enhancement Grants
Research and Development of Low-salinity Tolerant Oysters
Commercial and Charter Vessel Access Grants
Habitat and Hydrologic Improvement Grants
Marine Aquaculture Grants

Detailed information on each objective, eligibility criteria, and timelines by objective can be found below. LDWF is aware that the final two objectives need additional details regarding the review process and selection criteria. LDWF would like to proceed immediately with the first five objectives and plan to submit additional details on the final two objectives at a later date.

Stakeholder Input:

Many stakeholders informally reached out to LDWF to provide their input. Early drafts of the plan were presented at various objective force meetings. To the extent possible, this input was incorporated into a draft for public comment. A formal request for stakeholder input was initially conducted for a 45-day period following a formal announcement and release of the draft spend plan. Public comment was extended beyond the original 45-day period until August 15, 2021. Public comment could be submitted via email or a form on the Department's website. In addition to written public comment, public meetings were held at the request of stakeholders and included the following:

June 30, 2021 8:00pm – St. Bernard Parish Government – St. Bernard Parish Council room

July 20, 2021 5:00pm – Louisiana Shrimp Association – Belle Chasse Auditorium

July 27, 2021 1:00pm – Louisiana Shrimp Association – St. Mary Parish Council room

August 10, 2021 – 11:00am – Coastal Communities Consulting (CCC) – CCC office, Harvey

Comments received during the public comment period were considered and incorporated into the final version of the plan where appropriate.

Budget:

NOAA allocated a total of $58,284,841 to Louisiana. Approximately, $2,084,841 (3.5%) will be allocated to cover administrative costs incurred by LDWF associated with the plan. LDWF costs include pre-award spend plan development, program development, industry outreach and assistance, application processing, monitoring, general administrative costs. LDWF will allocate the remaining funds ($56,200,000) to numerous objectives (Table 3).

Table 3. Funding Allocation by Objective

Objective	Allocation
Equipment Modernization Grant	$23,950,000
Public Seed Ground Cultch Plants	$4,000,000
Alternative Oyster Culture Enhancement Grants	$3,000,000
Research and Development of Low-salinity Tolerant Oysters	$5,000,000
Commercial and Charter Vessel Access Grants	$4,000,000
Habitat and Hydrologic Improvement Grants	$13,250,000
Marine Aquaculture Grants	$3,000,000
Total	**$56,200,000**

Objective 1: Equipment Modernization Grant

Overview:

The Equipment Modernization Grant is designed to revitalize the commercial fishing industry within the State of Louisiana by providing updated and modern equipment to commercial fishermen, vessel owners, seafood docks, processors and charter captains. The objective of this grant program is to increase the profitability, sustainability, and adaptability of Louisiana's commercial fishing industry. Equipment meeting this objective could be a valuable resource in long-term recovery and resiliency of Louisiana's fishing industry.

Participants in this grant program may be reimbursed up to $30,000 for eligible expenses. Eligible expenses are any expense related to the commercial fishing industry such as equipment and repairs that meet one of the above listed equipment goals. Eligible expenses also include activities directed at helping the commercial fishing industry adapt to the changing coast in Louisiana. Such expenses include equipment upgrades that allow for increased travel times and distances, expenses associated with new fishing methods or entering an entirely new fishery, as well as elevation of equipment and facilities. These grants would ensure that funds are reinvested into the industry for specific purposes.

Schedule:

This schedule is tentative.

Month 1 – Program and application development begins.

Month 3 – Program outreach begins.

Month 5 – The grant application submission portal opens and remains open through the duration of the program or until the number of applications received is expected to exhaust the available funding.

Budget:

$23,950,000 – 100% allocated to equipment reimbursement payments. The total amount of funds allocated to this objective will be available to all eligible fisheries and sectors.

Eligibility:

Applicant Eligibility:

The program is open to all Louisiana resident docks, processing facilities, commercial fishing vessel owners, commercial fishermen, and charter captains 18 years of age or older that meet the below criteria and were engaged in a fishery impacted by the freshwater flooding event. If the applicant is a limited liability company, corporation, or partnership, the business must register and remain in good standing with the Louisiana Secretary of State.

- Applicants must possess a current resident LDWF commercial fisherman's license, vessel license, charter captain's license, or wholesale retail dealer license.
    - Only one application per license / vessel / facility is allowed.
    - Only one application per license account number / tax id number is allowed.
- Commercial fishermen and charter captains must have a certified endorsement on their license or be able to prove that more than 50% of their income comes from saltwater commercial fishing or charter activity.
    - The certified endorsement or 50% income requirement must be from at least one of the years 2018, 2019, 2020, or 2021.
- Docks, processing facilities, or any other type of facility must be located in Louisiana to be eligible for this grant.
- Applicants must be an active saltwater fishery participant in the current year or the most recent season (if in a seasonal fishery).
- Applicants must have reported saltwater seafood sales on LDWF trip tickets in an impacted fishery in 2018 or 2019 and 2020 or 2021. If the applicant is not legally required to submit trip tickets, the applicant must show proof of business activity in required years using such records as bank statements or legers, quarterly tax payments, sales records, payroll records, tax records, and accounting records.
- Applicants who entered the fishery for the first time after 2019 are not eligible. Applicants who left the fishery after 2019 and did not return are not eligible.

Equipment Eligibility:

Equipment, repairs, modifications, or upgrades meeting any one of the below criteria will be considered eligible.

- Increases harvesting or processing efficiency
- Increases fuel efficiency
- Increases product quality and marketability
- Increases access to restricted / more regulated higher value markets

- Decreases environmental impacts
- Decreases maintenance and overhead burden
- Adapts to changing coast line and environmental impacts
- Allows for increased travel times and distances
- Expenses associated with new fishing methods or entering an entirely new fishery
- Elevation of equipment and facilities

New expenses and previously incurred expenses that occurred on or after September 1, 2019 will be eligible for reimbursement, provided it meets program requirements. Reimbursement for labor costs associated with professional installation of equipment is limited to 15% of the total cost of equipment not to exceed $4,500.

All equipment must be new at the time of purchase.

Application:

The application process will be conducted electronically and will open upon program development completion and approval of the spend plan by NOAA. The application process will remain open through the duration of the program or until the number of applications received is expected to exhaust the available funding. The individual named on the license or a registered agent of the named business must complete the application. Business applicants must also be currently registered and in good standing with the Louisiana Secretary of State. Only one application per license / vessel / facility is allowed. Only one application per license account number / tax id number is allowed.

The application process is divided into two phases. During the initial phase, applicants will be required to provide identifying information, eligibility information, a description of the equipment / work requested, and the funding level of their choice. The following documents are required during the initial application process:

- Copy of photo id.
- For applicants not required to submit LDWF trip tickets, proof of business activity in the qualifying years is necessary. Examples of acceptable documentation include, but are not limited to, municipal permits, occupational licenses, quarterly tax payment records, sales or financial reports, and payroll reports.
- W-9 Form.
- Additional documentation may be requested if necessary (such as affidavit, bank statement, or signed check to verify receipt submitted).

Initial applications will be reviewed for eligibility and allocated funding in the order in which they are received according to the date and time of completion. Eligible applicants will be notified if their application has received funding and will be asked to complete their application by submitting detailed information about the equipment / work requested. The following documents are required during this second phase of the application process:

- Receipts/Quotes:
  - If applicant is seeking reimbursement for existing equipment, applicant must submit receipts dated on or after September 1, 2019.
  - Applicants seeking to purchase new equipment must submit quotes.
  - Receipts and quotes (including handwritten) must be on vendor letterhead, original, itemized, dated and legible.
  - Receipts/Quotes must be highlighted indicating those items for which applicant is requesting reimbursement.
- Manufacturer's equipment specification sheet (if available).

- Check Mailing Authorization Form (if applicable).
    - Can be requested from the department if payments need to be forwarded to a third party (such as a financial institution).
- Additional documentation may be requested if necessary (such as affidavit, bank statement, or signed check to verify receipt submitted).

The division of the application process into two phases ensures that applicants with previously incurred expenses and those seeking to request new equipment / work are given the same opportunity in the first come, first served application process.

Applicants may be required to complete a short survey related to flood impacts as part of the application process.

Validation and Monitoring:

Eligible entities will be required to agree to a validation process allowing LDWF or its contractors to review business and financial records related to claims made in the application. Such records can include bank statements or legers, quarterly tax payments, sales records, payroll records, and accounting records. If such records submitted with the application do not clearly document satisfactory eligibility criteria, LDWF may require additional documentation. All applications submitted by entities reporting trip ticket data will be validated against the LDWF trip ticket database for eligibility.

After equipment has been purchased and installed, an on-site inspection may be conducted before applicant receives funding. If applicant fails the first inspection, applicant will be notified by letter and given a deadline to rectify deficiencies, at which point the dock, processing facility, or vessel will be re-inspected. If the applicant fails the re-inspection, applicant will be notified by letter of ineligibility. LDWF will attempt to conduct an on-site inspection on a minimum of 20% of the applicants prior to funds disbursement.

Fund distribution:

Applicants will be reimbursed for their eligible expenses upon submission and approval of a final invoice. Applicants will be notified to submit receipts/invoices for purchased equipment by a designated date. If receipts/invoices are not submitted by this deadline, applicants may be disqualified. Final approval of funds disbursement may be subject to an on-site inspection.

A single individual and / or business entity may not be awarded more than one grant.

As required by Louisiana State law, all applicants will be checked against state records for delinquent tax bills and child support. Identified delinquencies will be deducted from the applicant's payment amount and the funds provided to appropriate government agencies.

Objective 2: Public Seed Ground Cultch Plants

Overview:

Louisiana public oyster areas have historically been used as a source of seed oysters for transplant to private oyster leases to be grown out to market size. Public oyster areas also yield a supply of market-size oysters which may be taken directly to market. LDWF manages public oyster areas to balance the economic opportunity of the fishery with the biological sustainability of the resource. Natural and man-made processes remove exposed shell mass from reefs on an annual basis. Replacing the lost habitat is

vitally important because oyster larvae require clean, hard substrate on which to settle and grow. Cultch plants are included as an activity within the Louisiana Oyster Strategic Plan and have been used as a tool by LDWF for many years. This program will allow LDWF to continue this practice.

Schedule:

Month 1 – Begin site location process and develop bid specifications

Month 15 – Cultch plant deployment work to begin

Budget:

$4,000,000 – Public seed ground cultch plants

Site Selection:

The LDWF oyster program has identified three potential locations for the deposition of cultch on Louisiana's public oyster seed grounds. Sister Lake and Morgan Harbor will serve as the preferred locations receiving $2 million in cultch material each. Three-mile Bay will serve as a back-up / alternate location. Use of this alternate location will depend upon the future success of near-by brood reefs in Petit Pass and West Karako Bay.

Both Sister Lake and Morgan Harbor are removed from freshwater influence and are unlikely to be impacted by future flood events. Sister Lake (Figure 1) has a proven history of oyster production and is easily accessible. Morgan Harbor (Figure 2) has less of a proven history but has shown a recent increase in CPUE and will have been recently surveyed (8,000 acres) prior to construction. It also is near private leases known to have survived the 2019 flood event. Three-mile Bay (Figure 2) area is in a location that is more susceptible to fresh water impacts, but has shown resiliency and has outperformed other sites in the area.

Figure 1. Sister Lake proposed cultch plant location.

Figure 2. Three-mile Bay and Morgan Harbor cultch plant locations.

Monitoring:

LDWF has well established monitoring protocols to ensure contractors are placing the appropriate amount of material in the correct locations. Final surveys are required to make sure the material is in the permitted area and meets the approved depth requirements. Biological monitoring including dredge and square meter samples will be conducted for a minimum of two years post construction.

Cultch plant construction will follow the bidding and permitting processes described in Louisiana law.

Objective 3: Alternative Oyster Culture (AOC) Enhancement Grants

Overview:

This program is part of the Louisiana Oyster Strategic Plan and is designed to expand the adoption of alternative oyster culture (AOC) in Louisiana waters through grants for new and existing hatcheries, nurseries, and grow out operations. A major goal of this program is to provide grants to local entities wishing to establish new AOC parks in Louisiana coastal waters. Included in this work is the development and implementation of educational and outreach opportunities for the industry and general public.

Historically, Louisiana estuaries have had an adequate supply of oyster larvae to replenish reefs that were impacted by natural and anthropogenic events. However, this is no longer the case due to natural and man-made modifications to the estuaries. In order to adjust to changing coastal conditions, new techniques need to be initiated and/or expanded to assist the oyster industry in remaining sustainable into the future. One such technique is the use of AOC for providing marketable oysters. This technique allows for the cultivation of oysters while taking into account the possibility of natural and anthropogenic changes to an estuary. In Louisiana, the technique most often associated as AOC is that of “off-bottom” culture.

Encouraging alternative oyster culture techniques, such as off-bottom cage culture, could help reduce industry reliance on the public oyster areas of Louisiana and provide the oyster industry with options to successfully raise marketable oysters. Off-bottom culture of oysters can be done within floating or suspended containers that provide protection from predation and siltation as well as afford the operator the

ability to move to different growing areas in response to episodic events or longer-term changes in salinity. The State of Louisiana recognizes AOC as an initiative that can help diversify the oyster industry and add a level of sustainability as the industry adjusts to a changing coast.

LDWF will be working with Louisiana Sea Grant (LSG) to implement this program.

This program is supported by an additional $2,000,000 funding provided by the Coastal Protection and Restoration Authority (CPRA).

In an effort to minimize impediments for AOC farmers, LDWF will contract the Louisiana Department of Health (LDH) to establish monitoring stations within AOC designated areas. Sampling will be conducted as necessary to monitor water quality in order to efficiently open or restrict areas to harvest before, during, and following disaster events. Water quality monitoring will also be expanded in an effort to identify new areas for the expansion of AOC operations.

Schedule:

This program is currently being designed using another funding source. We expect that a fully developed program will be implemented by the time disaster funding is available.

Budget:

$3,000,000 – Total

Eligibility:

Applicant Eligibility:

Any Louisiana resident or company initiating or currently operating, an oyster hatchery, oyster nursery, or AOC operation.

Any Louisiana local entity or authority initiating or currently operating an AOC park.

Must be at least 18 years old and a Louisiana resident or a corporation organized in Louisiana.

Must not have been convicted or plead guilty to a class 4 or greater oyster-related violation within prior three years.

Equipment Eligibility:

Equipment and supplies must meet standards currently used in the industry. Experimental or novelty equipment, salaries, fund disbursement, outboard motors, vehicles, or land are ineligible.

Application:

The application process will be handled through LSG utilizing a partnership with the Iberia Development Foundation (IDF). It will require the applicant to complete a paper application and participate in an interview with the programs Advisory Group and Selection Committee. Each application will then be run through an objective scoring system developed the Advisory Group and Selection Committee.

The Advisory Group will consist of members of the Louisiana Oyster Task Force (LOTF). The Selection Committee will be composed of two LOTF members, three LSG members, the Executive Director of IDF, and one at large member.

Monitoring:

Monitoring of this project will consist of regular contact with LSG, submission of invoices and reports, and review of grant award documentation. Grantees will be required to enter a contract with LSG and provide

regular reporting to demonstrate oyster product is being grown and cultivated. Grants will be terminated if the grantee does not meeting the requirements of the contract and must return any equipment and supplies purchased with grant funding.

Fund distribution:

The funding process will be through a cost reimbursable process handled through LSG utilizing a partnership with the Iberia Development Foundation (IDF). Maximum award amounts will vary depending on the category of applicant (Park, Seed Nursery, Grow-out Farm, or Hatchery).

Objective 4: Research and Development of Low-salinity Tolerant Oysters

Overview:

Innovative solutions are needed to help the Louisiana oyster industry survive in the future. In recent years, oyster production has declined severely, influencing the entire oyster industry and related businesses. A major factor contributing to the decline of oyster production includes the decrease of salinity in areas that historically produced oysters. If increased fresh water is expected, the development of Eastern Oyster broodstock capable of survival, growth, and reproduction in low-salinity environments is essential. This effort is outlined as a goal in the Louisiana Oyster Strategic Plan.

Research suggests that low salinity survival of the Eastern Oyster is a genetic trait that is heritable and selectable in a breeding program (McCarthy et al. 2020). A research and development program dedicated to the development of a low-salinity strain of the Eastern Oyster is necessary and best accomplished through a research institution. Low salinity oysters will be characterized as an oyster that can withstand low salinities (below 5ppt) when water temperatures rise above 25°C for at least 60 days or more (Johnson and Kelly 2020, McCarty et al. 2020).

Goals of this program include:

- Identify and build a broodstock of oysters persisting in low salinity natural environments
- Use the developed broodstock to understand the genetic and phenotypic underpinnings of physiological tolerance and acclimation
- Selectively breed subsequent generations of oyster from these broodstock
- Deploy and track success of these oysters in estuarine environments through LA
- Engage the GOM oyster industry in understanding the role of these oysters in restoration and other commercial sectors.

LDWF will work with the University of Louisiana at Lafayette (ULL) to implement this program. This program is supported by an additional $5,000,000 in funding provided by the Coastal Protection and Restoration Authority (CPRA) and $4,000,000 in state funding. While the full proposal covers five years at a cost of $25 million, the initial contract covers three years at a cost of $14 million. Funding allocated under this spend plan will be used to cover costs associated with year two of this 3-year contract. Louisiana will provide the remaining funding for year three from a source yet to be determined.

Schedule:

This program is currently being designed using another funding source. We expect that a fully developed program will be implemented by the time disaster funding is available.

Budget:

$5,000,000 – ULL research of low-salinity tolerant oysters

Monitoring:

Monitoring of this project will consist of regular contact with ULL, submission of invoices and reports, and production of deliverables.

Objective 5: Commercial and Charter Vessel Access Grants

Overview:

Flood events often restrict access for commercial fishing and charter vessels. Floodwaters prohibit the use of boat ramps, mooring docks, fuel docks and can make navigation dangerous as it increases the number of underwater obstructions. This grant program provides funding to public and private entities interested in constructing new facilities or making improvements to existing facilities. The additions and/or improvements will allow commercial fishing and charter vessels to operate during flood events.

A broad range of access facilities and associated amenities qualify for funding; however, they must provide benefits to commercial fishing and/or charter vessels during flood events and cannot restrict access to the public. Projects may include acquiring new land (if allowed within federal regulations) for facilities, building new facilities, or acquiring, renovating, or improving existing facilities to create or improve public access or improving the suitability of these waters for commercial or charter fishing during flood events. 'Facilities' include auxiliary structures necessary to ensure safe use of access areas.

Schedule:

The below schedule is tentative and dependent upon plan approval.

Month 1 – Program and application development begins.

Month 6 – The grant application submission portal opens and remains open through the duration of the program or until funds are exhausted.

Budget:

$4,000,000

Grants cannot exceed $500,000.

Eligibility:

Applicant Eligibility:

This program is available to any governmental entity, public entity, private organization or private company; however, the proposed project must be located in Louisiana. The applicant must own the property or have a lease/land control agreement with at least 20 years remaining post project completion. If the applicant is a limited liability company (LLC), corporation, or partnership, the business must register and remain in good standing with the Louisiana Secretary of State. The applicant is responsible for maintaining the project elements for a period of 20 years.

Project Eligibility:

- Projects must create or improve public access for and the resiliency of commercial fishers or charter fishers during flood events
- Project must be located in an area that was impacted by the 2019 Flood event
- Cannot restrict access to the public
- Projects may include acquiring new land (if allowed within federal regulations) for facilities; however, the project must also include the facility (i.e., land cannot be purchased for future development)
- Project may include building new facilities, or acquiring, renovating, or improving existing facilities
- 'Facilities' include auxiliary structures necessary to ensure safe use of access areas

Application:

Applicants must submit a PDF file via e-mail to XX@wlf.la.gov by XX, 2022 and include the following documentation:

- Project Title, Sponsor Name (i.e., applicant) and Contact Information
- Project Location Maps and Drawings
- Proof of Ownership (title or a lease/land control agreement with at least 20 years remaining post project completion)
- Project Statement
  - *NEED:* Explain why the project is necessary and how it will provide protection or resiliency against future flood events. This section should also include information regarding the fishing and boating pressure relative to the site or area.
  - *USE:* Number of vessels currently using your facility on a daily basis. Expected number of vessels using your facility on a daily bases after the proposed improvements are made.
  - *OBJECTIVES:* Identify specific, measurable, attainable, relevant, and time-bound (SMART) objectives for the project.
  - *EXPECTED RESULTS AND BENEFITS:* Describe the expected results and benefits from accomplishing the objectives.
  - *APPROACH:* Describe the approach to meet the objectives including a timeline of significant milestones.
- Budget Narrative – Provide details regarding the allocation of funds for the project. (Note: planning costs are limited to no more than 10% of the construction budget)
- Resolution – A document approved by the governing entity of an organization or the owner(s) of a business authorizing a designated representative to apply and administer grant funds on behalf of the applicant. The document must include a 20- year agreement for the maintenance and operation of the project.

Project Evaluation and Selection:

The LDWF will form an evaluation committee consisting of five (5) members of the Office of Fisheries. The committee will evaluate applications to determine the most beneficial and cost effective projects. The committee will disqualify applications if they do not meet the eligibility requirements or do not include the project elements listed above. Each project will receive a score based on a set of criteria. The committee will rank projects based on the score and will assign funding starting with the highest ranked project and work down the list until all funding is obligated. If the committee assigns the same score to multiple projects, they will rank those projects by the funding request amount. The lowest funding request amount will be ranked the highest among the projects with matching scores. This tiebreaker is intended to

maximize the number of projects funded under this program. The LDWF will inform the applicants when they finalize project selections. If an applicant withdraws a project after the selection process, the committee will choose the next application in order of rank.

The LDWF will contact the applicant and then draft a Cooperative Endeavor Agreement (CEA) for each project. Upon execution of the CEA, the sponsor can begin the project. Cost incurred prior to the CEA agreement are not eligible for reimbursement unless specifically authorized by LDWF. The project sponsor is responsible for administering the entire project, which includes securing a United States Army Corp of Engineers (USACE) '404 permit' or clearance, a Louisiana Coastal Use Permit and any other required permits. The sponsor is required to secure three (3) bids for construction and provide the bids to LDWF for review prior to awarding the contract.

The project sponsor is responsible for maintaining control of the property and maintaining the project for its intended purpose for a period of 20 years. The project shall be recorded on the property title through the Clerk of Court. If the project sponsor sells or transfers the property, the maintenance requirements remain with the property and are the responsibility of the new owner.

Monitoring:

The LDWF will determine if an on-site visit is necessary to evaluate the project location and applicability. The LDWF will make on-site inspections during the construction phase based on staff availability and will make a final inspection post construction.

Fund Distribution:

LDWF will provide financial assistance on a cost reimbursement basis for eligible expenses. Planning/design costs are limited to 10% of the construction budget.

Reimbursement requests must be submitted electronically to XX@wlf.la.gov and include the total reimbursement request along with copies of itemized invoices detailing the expenses. Requests must not be less than $5,000. The LDWF will hold the final payment until the sponsor provides a Certificate of Substantial Completion, the Clear Lien Certificate and an on-site visit is completed.

Objective 6: Habitat and Hydrologic Improvement Grants

Overview:

Excessive freshwater input has negatively impacted some habitat and fisheries following flood events. Various construction projects (e.g., removal or alteration of water control structures, dredging, repair of lock systems) have been proposed by local governments and members of the fishing industry in an effort to minimize similar impacts in the future. This objective is designed to provide funding to implement construction projects that have been fully evaluated for effectiveness and/or to provide funding for feasibility studies to determine if a proposed project would provide protection from flood events in the future.

Each project must address how the improvement or adjustment will reduce the negative impacts of freshwater on commercial fisheries or related habitats during flood events. Construction projects must be supported by a feasibility study. Feasibility studies must provide recommendations regarding a specific hydrologic improvement or adjustment and/or provide information to determine the conditions under which certain hydrologic adjustments could be beneficial to commercial fisheries coast wide. Projects are limited to coastal areas that were impacted by the 2019 flood event.

Schedule:

TBD

Budget:

$13,250,000 – amount per grant will be contingent on the number of applications and eligible projects.

Eligibility:

Applicant Eligibility:

This program is available to any governmental entity, public entity, private organization or private company; however, the proposed project must be located in Louisiana. If the applicant is a limited liability company (LLC), corporation, or partnership, the business must register and remain in good standing with the Louisiana Secretary of State.

- The sponsor is required to enter into a Cooperative Endeavor Agreement with LDWF.
- The sponsor is responsible for directly administering the project.
- Planning costs are limited to 10% of the construction budget.
- The sponsor is required to get 3 bids for the construction project and provide the bids to LDWF for review prior to awarding the contract.
- Maintenance and land control of infrastructure will be required by the landowner for a period of 20 years post project completion.

If a project is selected, the local sponsor is responsible for acquiring United States Army Corp of Engineers (USACE) '404 permit' or clearance, a Louisiana Coastal Use Permit and any other required permits.

Funding will not be provided for costs incurred prior to the execution date of the Cooperative Endeavor Agreement unless specifically authorized by LDWF.

Application:

Projects will be evaluated to determine the most beneficial and cost effective projects. Financial assistance is provided on a cost reimbursement basis.

The application process will occur online and will require the following documentation:

- Project Location Maps and Drawings (construction projects)
- Proof of Ownership (construction projects - title or lease/land control agreement with at least 20 years remaining post project completion)
- Project Statement (all projects)
    - *NEED:* Explain why the project is necessary and how it will provide protection against future flood events. This section should also include information regarding the fishing and boating pressure relative to the site or area.
    - *OBJECTIVES:* Identify specific, measurable, attainable, relevant, and time-bound (SMART) objectives to be accomplished during the project period.
    - *EXPECTED RESULTS AND BENEFITS:* Describe the expected results and benefits from accomplishing the objectives.
    - *APPROACH:* Describe the approach to be used in meeting the objectives including a timeline of significant milestones.
- Budget Narrative – Provide details regarding the allocation of funds for the project.

- Resolution - An adopted resolution, by the local governmental entity authorizing that a designated representative has the authority to apply and administer grant funds on behalf of the applicant and stating that the local governmental entity is willing to enter into a 20- year agreement for the maintenance and operation of the project.

Monitoring:

Construction Projects: LDWF will conduct a site visit with the local sponsor to evaluate the project location and applicability. On-site inspections will be made during construction based on staff availability and a final inspection will be made post construction.
Feasibility Studies: LDWF will review all feasibility reports. The final report must be reviewed and approved by LDWF.

Fund distribution:

Financial assistance is provided on a cost reimbursement basis.

Construction Projects: LDWF will conduct a final inspection for all construction projects prior to approval and final reimbursement.

Feasibility Studies: The final report must be reviewed and approved by LDWF prior to approval and final reimbursement.

Objective 7: Marine Aquaculture Grants

Overview:

According to the NOAA 2018 Fisheries of the United States report, one billion pounds of wild seafood was landed in Louisiana, placing it second in the national ranking. Wild caught seafood is a major contributor to the Louisiana economy and is expected to remain so in the foreseeable future. However, there is increasing interest in marine aquaculture in the Gulf of Mexico and Louisiana must be prepared to manage new methods of seafood production.

This grant program is designed to encourage and establish new forms of aquaculture in Louisiana. Funding will be provided to public or private entities interested in pursuing marine aquaculture on land or in territorial waters. This program will promote the diversification of seafood production. New forms of aquaculture will provide economic opportunities that will strengthen the sustainability and resiliency of the Louisiana seafood industry.

Funding will be provided for pilot projects that attempt to establish or establish new marine aquaculture operations. Aquaculture operations include hatcheries, nurseries, grow out facilities, development of aquaculture parks or zones, or other related operations reviewed and accepted by LDWF. Any aquaculture activity related to oysters will not be eligible under this objective (see Objective 3).

Schedule:

Month 7 – Program and application development begins.

Month 13 – The grant application submission portal opens and remains open through the duration of the program or until funds are exhausted.

Budget:

$3,000,000

Eligibility:

Applicant Eligibility:

This program is available to any governmental entity, public entity, private organization or private company; however, the proposed project must be located in Louisiana. If the applicant is a limited liability company (LLC), corporation, or partnership, the business must register and remain in good standing with the Louisiana Secretary of State.

- The applicant is required to enter into a Cooperative Endeavor Agreement with LDWF.
- The applicant is responsible for directly administering the project.

If a project is selected, the applicant is responsible for acquiring United States Army Corp of Engineers (USACE) '404 permit' or clearance, a Louisiana Coastal Use Permit and any other required permits.

Funding will not be provided for costs incurred prior to the execution date of the Cooperative Endeavor Agreement unless specifically authorized by LDWF.

Application:

Projects will be evaluated to determine the most beneficial and cost effective projects. Financial assistance is provided on a cost reimbursement basis.

The application process will occur online and will require the following documentation:

- Project Location Maps and Drawings
- Proof of Ownership
- Project Statement
    - *OBJECTIVES:* Identify specific, measurable, attainable, relevant, and time-bound (SMART) objectives to be accomplished during the project period.
    - *EXPECTED RESULTS AND BENEFITS:* Describe the expected results and benefits from accomplishing the objectives.
    - *APPROACH:* Describe the approach to be used in meeting the objectives including a timeline of significant milestones.
- Budget Narrative – Provide details regarding the allocation of funds for the project.

Monitoring:

Monitoring will be dependent on the type of work being done, however, all projects will be monitored through regular communication with the grantee and progress reports.

Construction Projects: LDWF will conduct a site visit with the applicant to evaluate the project location and applicability. On-site inspections will be made during construction based on staff availability and a final inspection will be made post construction.

Fund distribution:

Financial assistance is provided on a cost reimbursement basis.

Louisiana 2019 Flood Disaster Spend Plan

APPLICANT: **Louisiana Department of Wildlife and Fisheries (LDWF)**

DURATION: **July 1, 2023 – June 30, 2027**

TITLE: **Louisiana 2019 Flood Disaster Grant Application and Spend Plan**

OBJECTIVE: **Allocate and distribute disaster assistance funds to restore fisheries and related communities or prevent similar failures in the future and assist fishing communities affected by such failure.**

Addendum

Approach:

LDWF is requesting to modify the objectives listed in Table 2 of the original plan. Some of the objectives are no longer needed, and some are no longer considered feasible.

LDWF is requesting to eliminate Alternative Oyster Culture Enhancement (AOC) Grants from the plan. The original intent of this objective was to add additional funding to an existing AOC grant program. It was anticipated that demand for this program would be high. However, the existing AOC grant program has been unable to expend the funds initially allocated to it. Therefore, additional funding is no longer needed. The budget associated with this objective will be allocated to Equipment Modernization Grant.

LDWF is requesting to eliminate the Habitat and Hydrologic Improvement Grants from the plan. The projects envisioned for this program were large scale environmental construction projects. Given the four year time limitation placed on the grant, LDWF no longer feels these types of projects are feasible. As an alternative, LDWF has been discussing feasibility studies with local parishes. One of these study proposals, the Mississippi River Gulf Outlet Rock Dam Closure Modification Feasibility Study (MRGO), is ready to proceed. LDWF is requesting the MRGO study to be added to the spend plan as an objective. A portion of the budget associated with the original objective will be used to fund this study, with an additional portion reserved for a future study to be submitted at a later date. The remaining budget will be allocated to the Equipment Modernization Grant.

An updated Table 2 is provided below.

Table 2. Objectives Included in the Louisiana 2019 Flood Spend Plan

Equipment Modernization Grant
Public Seed Ground Cultch Plants
Research and Development of Low-salinity Tolerant Oysters
Commercial and Charter Vessel Access Grants
Mississippi River Gulf Outlet Rock Dam Closure Modification Feasibility Study
Marine Aquaculture Grants

Budget:

As a result of the changes described above, LDWF is requesting to reallocate funding from several objectives as listed in Table 3 of the original spend plan. The amounts allocated to cover administrative costs and the total amount allocated to implementation of the objectives will remain $2,084,841 and $56,200,000 respectively.

LDWF is requesting to reallocate $3,000,000 from the eliminated Alternative Oyster Culture Enhancement Grants objective to the Equipment Modernization Grant.

LDWF is requesting to reallocate $13,250,000 from the eliminated Habitat and Hydrologic Improvement Grants to the Equipment Modernization Grant ($9,250,000), the MRGO study ($2,000,000) and an additional parish sponsored hydrologic/habitat study ($2,000,000) to be detailed in a later addendum.

LDWF is requesting to reallocate $2,000,000 from the Marine Aquaculture Grants to the Equipment Modernization Grant. The budget for the Marine Aquaculture Grants objective is being reduced due to a lack of interest and a potential feasibility issue due to the complexity of such projects and the time constraints associated with this funding.

All reallocated funds are being directed to the Equipment Modernization Grant due to a tremendous show of interest in this program after holding informational public meetings and opening the grant system registration portal. As originally approved, this program has enough funding to fund roughly 800 individuals. There are roughly 2,300 individuals currently registered for this program. The reallocated funding will allow LDWF to provide assistance to approximately 475 additional recipients under this objective.

An updated Table 3 is listed below.

Table 3. Funding Allocation by Objective

Objective	Allocation
Equipment Modernization Grant	$38,200,000
Public Seed Ground Cultch Plants	$4,000,000
Research and Development of Low-salinity Tolerant Oysters	$5,000,000
Commercial and Charter Vessel Access Grants	$4,000,000
Marine Aquaculture Grants	$1,000,000
Mississippi River Gulf Outlet Rock Dam Closure Modification Feasibility Study	$2,000,000
Additional parish sponsored hydrologic/habitat study (TBD)	$2,000,000
Total	**$56,200,000**

Objective 1: Equipment Modernization Grant

LDWF is requesting the following changes to Objective 1.

Budget:

$38,200,000 – 100% allocated to equipment reimbursement payments. The total amount of funds allocated to this objective will be available to all eligible fisheries and sectors.

Eligibility:

Applicant Eligibility:

LDWF is requesting the following bullet to be modified to include licenses from the most recent season. The time of year the application is being released will result in applicants with expired licenses from the previous season having to renew their licenses months in advance of their normal timeline just to stay qualified for this program.

- Applicants must possess a current resident LDWF commercial fisherman's license, vessel license, charter captain's license, or wholesale retail dealer license.
    - Only on application per license / vessel / facility is allowed.
    - Only one application per license account number / tax id number is allowed.
    - *Expired licenses that were valid during the most recent fishing season will be considered 'current' and eligible for the purposes of this program.*

LDWF is requesting the following bullet be modified to align with the language and requirements associated with certification forms already in use.

- Commercial fishermen and charter captains must have a certified endorsement on their license or be able to prove that ~~more than~~ *at least* 50% of their income comes from saltwater commercial fishing activity.
    - The certified endorsement or 50% income requirement must be from at least one of the years 2018, 2019, 2020, or 2021.

LDWF is requesting the following bullet be added to the applicant eligibility criteria.

- *Applicants not meeting seafood sales or fishery activity requirements may submit an appeal request to LDWF with documented proof of a no-fault medical or disaster related hardship. This appeal and associated documentation will be reviewed and if it is determined that a valid hardship has occurred, LDWF may waive certain eligibility criteria.*

Equipment Eligibility:

LDWF is requesting the following clarification be made to the equipment eligibility criteria.

All equipment must be new at the time of purchase. *New equipment includes new, remanufactured, or rebuilt equipment purchased from a reputable dealer.*

Fund distribution:

After further investigation and discussion with the legal staff of both LDWF and Child and Family Services (CFS), we cannot legally deduct child support from disaster fund payments. We can only notify CFS that a payment has been made.

LDWF is requesting the following language be deleted from the fund distribution process.

~~As required by Louisiana State law, all applicants will be checked against state records for delinquent tax bills and child support. Identified delinquencies will be deducted from the applicant's payment amount and the funds provided to appropriate government agencies.~~

Objective 2: Public Seed Ground Cultch Plants

LDWF is requesting the addition of the following section to Objective 2 in the spend plan.

Material Selection:

LDWF may utilize any cultch material traditionally used for constructing oyster reefs, including concrete, limestone and shell, as well as material containing remotely set oyster larvae, also known as spat.

Objective 3: Alternative Oyster Culture (AOC) Enhancement Grants

LDWF is requesting the deletion of this objective from the plan for reasons described in the Approach section above.

Objective 4: Research and Development of Low-salinity Tolerant Oysters

There are no changes requested for Objective 4 in this addendum.

Objective 5: Commercial and Charter Vessel Access Grants

There are no changes requested for Objective 5 in this addendum.

Objective 6: Habitat and Hydrologic Improvement Grants

LDWF is requesting the deletion of this objective from the plan for reasons described in the Approach section above.

Objective 7: Marine Aquaculture Grants

LDWF is requesting the following changes to Objective 7.

Budget:

$1,000,000

Application:

LDWF is requesting the application section to be modified to remove language associated with an online application process. The anticipated number of applications does not warrant the development of an online application process. A paper/electronic document process will be used in its place.

Projects will be evaluated to determine the most beneficial and cost effective projects. Financial assistance is provided on a cost reimbursement basis.

The application process ~~will occur online and~~ will require the following documentation:

LDWF is requesting the following language to be added to the application section in order to provide greater detail on the application and selection process.

A complete set of application instructions and detailed evaluation criteria can be found in Appendix E.

Objective 8: Mississippi River Gulf Outlet Feasibility Study

LDWF is requesting the addition of Objective 8. Details regarding Objective 8 below should be added to the spend plan in their entirety.

Overview:

Excessive freshwater input has negatively impacted some habitat and fisheries following flood events. Various projects (e.g., removal or alteration of water control structures, dredging, and repair of lock systems) have been proposed by local governments and members of the fishing industry in an effort to minimize similar impacts in the future. One such proposal from the St. Bernard Parish Government (SBPG) is a feasibility study looking at modifications to the rock dam closure of the Mississippi River Gulf Outlet (MRGO). Since construction of the MRGO rock dam closure, SBPG and other stakeholders have observed the closure adversely impacting hydrology, salinity, and water quality throughout the region. Additionally, when the Bonnet Carre' Spillway is open, the MRGO rock dam closure is likely preventing freshwater from passing through the MRGO into the Chandeleur Sound, thereby intensifying and prolonging the adverse impacts associated with spillway openings.

The purpose of this objective is to provide funding to SBPG to conduct a feasibility study and determine whether modifying the MRGO rock dam closure would mitigate the impacts of future Bonnet Carre' Spillway openings and provide other related benefits. The full proposal can be found in Appendix F.

Schedule:

Upon approval - Implementation of a sub-award agreement between LDWF and SBPG.

Budget:

$2,000,000

Monitoring:

Monitoring by LDWF will occur throughout the duration of the project through reports, meetings, and direct communication with members of SBPG. The final feasibility report must be reviewed and approved by LDWF.

Fund distribution:

Financial assistance is provided on a cost reimbursement basis. Each request for reimbursement must be accompanied by a report describing the work done and the status of the study.

STATE OF LOUISIANA
DEPARTMENT OF WILDLIFE AND FISHERIES

2019 FLOOD DISASTER MARINE AQUACULTURE GRANT GUIDELINES

GENERAL INFORMATION

Purpose

The purpose of 2019 Flood Disaster Marine Aquaculture Grant is to provide funding to qualified applicants for the development of new non-oyster marine aquaculture opportunities in Louisiana. According to the NOAA 2018 Fisheries of the United States report, one billion pounds of wild seafood was landed in Louisiana, placing it second in the national ranking. Wild caught seafood is a major contributor to the Louisiana economy and is expected to remain so in the foreseeable future. However, there is increasing interest in marine aquaculture in the Gulf of Mexico and Louisiana must be prepared to manage new methods of seafood production.

Goals/ Objectives/Performance Measures

The Louisiana Department of Wildlife and Fisheries (LDWF) intends to provide up to $1,000,000 to the applicant with the most developed business plan, competitive amounts of working capital, and experience for the purpose of establishing a new marine aquaculture operation. All reasonable requests will be considered.

Performance will be monitored by the Biologist Administrator of the Fisheries Research and Development Division, through progress reports, on-site visits, regularly-scheduled meetings, e-mails, and phone calls with the recipient for the duration of the grant. Written progress reports for the project, signed by the recipient, will be due as described in APPENDIX A, within 30 days of the end of each period and a final report upon submission of the final invoice at the end of the project. Progress reports must show the status of all tasks, problems encountered and proposed solutions, and meet the approval of the Biologist Administrator.

Performance will be measured by timely submission of progress reports which clearly describe project status and completion of performance elements of all tasks identified in the Scope of Services, and by verified accuracy, completeness and timeliness of task completion and system performance.

Minimum Qualifications of Applicant

- Recipient must be one of the following:
  - Private individual and considered a Louisiana resident; or
  - Private company or organization and registered with the Secretary of State in Louisiana; or
  - Governmental or public entity within a political subdivision of Louisiana; or
  - Combinations of the above
- Recipient must possess or have the ability to possess a Louisiana resident Wholesale/Retail Dealer License and Domesticated Aquatic Organism (DAO) permit
- Recipient or staff must possess or have the ability to possess the appropriate licenses or other legal documents required to conduct business in the state of Louisiana
- Business Plan as described in APPENDIX B
- Currently possess or provide plan to acquire (build, purchase or lease) a marine aquaculture facility in Louisiana (Grant funds may not be used to lease or purchase land)
- Comply with LDWF Domesticate Aquatic Organism permit reporting regulations
- Agree to enter into a Cooperative Endeavor with LDWF
- Projects involving the aquaculture or mariculture of oysters are not eligible

RESPONSE INSTRUCTIONS

Document Submission

Documents must be received on or before May 31, 2024. Applicants may email documents to jfroeba@wlf.la.gov. Applicants mailing their documents should allow sufficient mail delivery time to ensure receipt by the specified date.

Jason Froeba
Biologist Administrator
Louisiana Department of Wildlife and Fisheries
P. O. Box 98000
Baton Rouge, LA 70898-9000

For courier delivery, the street address is 2000 Quail Drive, Baton Rouge, LA 70808. It is solely the responsibility of each applicant to assure that his/her documents are delivered at the specified place and prior to the deadline for submission. Late submissions will not be considered for any reason.

ADMINISTRATIVE INFORMATION

All questions should be directed to the Biologist Administrator listed below:

Jason Froeba
Biologist Administrator
Louisiana Dept. of Wildlife and Fisheries
2000 Quail Drive
Baton Rouge, LA 70898-9000
225-765-0123(office)
jfroeba@wlf.la.gov

Grant period

Grant funding and reporting will occur over 1-2 year period depending on the nature of the selected project.

Award Amount

The maximum award amount is $1,000,000.

Calendar of Events

EVENT	**DATE**
Advertise Grant and Distribute Application	March 2024
Deadline for Receiving Applications	May 31, 2024
Announcement of Recipient	August 1, 2024

NOTE: The State of Louisiana reserves the right to amend and/or change this schedule of Grant activities, as it deems necessary.

EVALUATION AND SELECTION

Evaluation Team

Applications will be evaluated by a team, designated by LDWF. The recipient will be determined according to the evaluation criteria.

Evaluation Criteria

All applications will be reviewed to determine compliance with the qualifications/requirements as specified in the guidelines and application. Applications that do not meet the qualifications/requirements will be removed from further consideration.

The Evaluation Team will evaluate and score the applications using the evaluation criteria described in APPENDIX D. The scoring criteria are summarized in the following table:

Evaluation Scoring

CRITERIA	MAXIMUM SCORE
1. Business Plan (Approach and Methodology)	**45**
2. Available Capital	**15**
3. Project Management Experience	**25**
4. Production Capacity	**15**
TOTAL SCORE	**100**

The Evaluation Team will compile the scores and make a recommendation to the Fisheries Research and Development Division Biologist Administrator.

Payment:

Payments will be made not more frequently than monthly on a cost reimbursable basis upon submission of a report and supporting documentation as described in Scope of Services in Appendix A.

Use of Funds:

Funds may be used as necessary to carry out the functions and tasks described in the Scope of Services, including but not limited to facility modifications, salaries, equipment purchases, and other operating costs.

Funds may **NOT** be used to pay the salary of any owner or principal.

Funds may **NOT** be used to lease or purchase a facility or land.

Funding will not be provided for costs incurred prior to the execution date of the Cooperative Endeavor Agreement.

Confidentiality

Recipient shall protect from unauthorized use and disclosure all information relating to the State's operations and data (e.g. financial, statistical, personal, technical, etc.) that becomes available to Recipient in carrying out this agreement. Recipient shall use protecting measures that are the same or more effective than those used by the State. Recipient is not required to protect information or data that is publicly available outside the scope of this contract; already rightfully in recipient’s possession; independently developed by recipient outside the scope of the agreement; or rightfully obtained from third parties.

Under no circumstance shall recipient discuss and/or release information to the media concerning this project without prior express written approval of the State.

Statements of Understanding

All owners and corporate officers should initial and sign all statements and understandings that are listed in Appendix E.

APPENDIX A

SCOPE OF SERVICES

The recipient is to implement the accepted business plan to establish a new marine aquaculture operation in Louisiana. Any changes to the accepted business plan shall be approved by LDWF.

Deliverables

The deliverables listed in this section are the minimum required elements from the recipient. It is expected that the recipient will exceed these minimum requirements. Reports should include an expense report with all invoices for which reimbursement is requested, and should be submitted to the Biologist Administrator 30 days after the end of the corresponding quarter.

Monthly/Quarterly Report

- Submittal Date
- Author of Quarterly Report and contact information
- Discussion of progress toward the goals and objectives described in the business plan
- Discussion of any changes to the implementation of the business plan
- Detailed use of grant funds provided
- Change in financial assumptions due to change in scope of project
- Budget update including changes to the original budget, spending against original budget, amount spent by budget category, etc.
- Changes in staff
- Risks and/or problems, and action taken to mitigate situation including delays in project, difficulty in selling product

Final Report

- Final Report which includes all required information listed in Monthly/Quarterly Reports and the following:
    - Plan for future growth
    - Reported sales and profit from any products that may have been produced
    - Detail problems experienced and proposed solutions
    - Methods or processes that proved successful
    - Possible improvements of existing techniques or existing production

APPENDIX B

BUSINESS PLAN

The Applicant will submit a business plan for a two year time period to establish a new marine aquaculture operation in Louisiana. The business plan should follow the format below but can include more information.

1. The Business
    - Description of business
        - Describe the overall business operations.
            - Business contact information
            - Federal Tax ID Number/Business Tax Number (SSN or EIN)
            - List all owners and corporate officer and clarify ownership percentage
            - Description of work that needs to be completed to become operational
            - Project location map
            - Project engineering plans if applicable
            - Project timeline
    - Aquaculture Products
        - Species reared and feasibility justification
            - Must be an already approved Domesticated Aquatic Organism (DAO) species
        - Products produced
        - Production volume and sales projections for the two years following anticipated operation commencement
    - Management/Administration
        - Principles and management staff
        - Jobs created
            - Numbers and description of lead workers and laborers must be identified

2. Budget Narrative:
    - A 2 year projected budget and budget narrative including any assumptions on which the projections are based
    - All examples of available and applicable capital which demonstrates the ability to establish a new marine aquaculture facility

3. The following attachments **MUST** be provided:
    - Resumes for all principles and management staff as detailed in APPENDIX C
    - Copy of Louisiana Driver's License or ID

- Copy of proposed lease or purchase agreement for building space, or current facility lease, or proof of ownership
- Copy of required licenses or other legal documents required to conduct business in the state of Louisiana

APPENDIX C

RESUME

The following information **MUST** be included for each principle and management staff member. Additional information may be included, but is not required.

1. All Individuals

- Name
- Position/Title in Business
- Complete Contact Information
- Role and Responsibility in Business
- Planned Level of Involvement (Full Time, or if Part Time Hrs / Wk)
- Planned number of days per week this staff member will be on-site
- Anticipated Duration of Involvement
- Education
- Applicable Training
- Relevant and Related Experience
- Any Applicable Certifications

2. Project Management Experience

- Years Experience in the following:
    - Aquaculture Production
    - Seafood Processing
    - Seafood Distribution
    - Marketing
- Any additional experience that may contribute to project success

APPENDIX D

Evaluation Criteria

1. **Business Plan (Approach and Methodology)-45 points**

CRITERIA	MAXIMUM SCORE
Business Plan (Approach and Methodology)	**45 points**
Species/Operational Feasibility • Plan shows a feasible aquaculture approach given the proposed species biology and described operation procedures • Project timeline is reasonable for the work detailed in the business plan	20 points
Facility Feasibility • Plans show the facility design is appropriate for the proposed species • Local environmental conditions associated with the facility are appropriate • The facility is already permitted or is expected to have minimal permitting concerns	20 points
Jobs Created	5 points

a. Feasibility will be scored using a ranking system of 1-5, with 1 being the lowest rank and considered the least feasible and 5 being considered the most feasible.
    - Points awarded by rank; 1=4pts, 2=8pts, 3=12pts, 4=15pts, 5=20pts

b. Jobs Created will be evaluated on a percentage basis with consideration of the relationship between planned number of jobs and the maximum number of jobs proposed by all applicants.

$$\frac{\text{Planned Number of Jobs}}{\text{Maximum Proposed Number of Jobs}} \text{x5} = Points\ Awarded$$

2. Available Capital-15 points

CRITERIA	MAXIMUM SCORE
Available Capital	**15**

c. All examples of available and applicable capital which demonstrates the ability to implement the proposed business plan. Examples may include but are not limited to the following:

- Titles of ownership of equipment or property
- Receipts for any applicable equipment purchased
- Loan documents
- Vehicle Titles
- Prepared financial Statement
- Complete Bank Statement showing available funds for two months
- Proof of investments such as 401k, IRA accounts, etc. (Proof of deem-ability required)
- Any type of backed bonds that are deemed cashable if needed (Proof of deem-ability required)

d. Points will be issued based on the relationship between available capital and the award amount.

Example:

$$\frac{\text{Total Available Capital}}{\$1{,}000{,}000} = Points\ Awarded\ (maximum\ of\ 15\ points)$$

3. Project Management Experience-25 points

CRITERIA	MAXIMUM SCORE
Project Management Experience • Qualification level of combined project staff experience in all areas	**25**

a. Qualification level based on submitted resumes will be scored using a ranking system of 1-5, with 1 being the lowest rank and considered the least qualified and 5 being considered the most qualified.

- Points awarded by rank; 1=5pts, 2=10pts, 3=15pts, 4=20pts, 5=25pts

4. Production Capacity-15 points

CRITERIA	MAXIMUM SCORE
Production Capacity (lbs)	**15**

a. Production Capacity will be evaluated on a percentage basis with consideration of the relationship between planned production capacity (lbs) and maximum capacity proposed by all applicants.

$$\frac{\text{Planned Production Capacity (lbs)}}{\text{Maximum Proposed Capacity (lbs)}} \text{x} 15 = Points\ Awarded$$

APPENDIX E

Statements of Understanding

All Owners and Corporate Officers **MUST** initial and sign all of the following:

_____ **Income Tax Reporting**: The undersigned understands that an IRS 1099G will be issued to grant award recipients. Award recipient understands that all or a portion of the grant funds may be treated as taxable income for U.S. or State income tax purposes.

_____ **Public Announcements:** If the award recipient wishes to issue a public announcement concerning this award, the text of the proposed announcement must be submitted to LDWF for review and approval prior to the release date. The Louisiana Department of Wildlife & Fisheries must be mentioned in any public announcements.

_____ **No Right of Assignment or Delegation:** The award recipient may not assign or otherwise transfer its rights or delegate any of its obligations under this letter unless expressly approved by LDWF.

_____ **Revocation:** LDWF reserves the right to revoke this award if the funds are not used for the stated purpose. The award recipient understands and agrees that revocation of this award will require the return of all funds disbursed. The recipient will be obligated to repay some or all funds received under this program in the event that (a) its application including any information provided therewith or thereafter contains any material misrepresentations; or (b) the award was made in error and the applicant is not entitled to some or all assistance under the Program Guidelines.

_____ **Monitoring & Records**:

a) This award may be used only for the purposes stated herein. Documents providing evidence of the use of the funds from this award shall be retained by award recipient for five years after the close out of the program.

b) LDWF reserves the right to monitor usage of award funds. Such monitoring will include review that the entire amount of the award was used only for the expenses as specified above in accordance with your proposal.

c) LDWF may, during regular business hours and on reasonable notice to award recipient, inspect, audit, or copy records pertaining to this award. It is further agreed that the LDWF and/or the Legislative Auditor of the State of Louisiana shall have the option of auditing all records and accounts of award recipient that relate to this grant at any time during normal business hours, as often as deemed necessary, to audit, examine, and make excerpts or transcripts of all relevant data.

d) Recipients' failure to cooperate in such review will result in forfeiture of the award amount and recipients will be responsible for repaying the full amount of funds disbursed.

_____ **Information Access Authorization**: In the event that additional information not included with the initial application is required to obtain an approval of the application, the undersigned agrees to provide that information in a timely manner in order to complete the processing of the request. The undersigned gives permission to LDWF to use its name in LDWF's mandated reports. No financial details will be released, except possibly the award amount, as this is considered public record. The undersigned authorizes LDWF to exchange and obtain information relevant to the applicant's commerical license and permit status. The undersigned also acknowledges that all information relative to the loan request, including these related documentation checks, becomes the property of LDWF and will not be returned to the applicant.

_____ **Affirmation of Information Provided in Application**: By the applicant's signature below, the applicant represents and warrants that he/she has read this application and Statement of Understanding and attests that all information and documentation furnished in connection with the application is true, accurate and complete to the best of his/her knowledge and that any regulations relative to the grant program will be followed. Individuals and/or businesses found to be willfully providing fraudulent information may be prosecuted.

OWNER NAME: _____

SIGNED: _____

TITLE: _____

DATE: _____

Appendix F

St. Bernard Parish Government
Mississippi River Gulf Outlet
Rock Dam Closure Modification Feasibility Study Proposal

March 2023

Louisiana Department of Wildlife and Fisheries
2019 Federal Fishery Disaster Recovery Spending Plan
Habitat and Hydrologic Improvement Grants

COASTAL DIVISION
ST. BERNARD PARISH

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MRGO Rock Dam Closure

Executive Summary

The Mississippi River Gulf Outlet (MRGO) has destroyed over 20,000 acres of healthy wetlands in St. Bernard Parish (In re Katrina Canal Breaches Consolidated Litigation, 2009). The channel also played a significant role in the storm surge, levee failures, and loss of life and property that occurred during Hurricane Katrina (2005). Congress subsequently de-authorized the MRGO, and despite US Army Corps of Engineers' (USACE, 2007) concerns regarding "uncertainties in forecasting future conditions for economic development, navigation utilization, and environmental quality factors" (p. 33), the channel was permanently closed via rock dam in 2009.

Since construction of the MRGO rock dam closure, St. Bernard Parish Government (SBPG) and other stakeholders have observed the closure adversely impact hydrology, salinity, and water quality throughout the region. Additionally, when the Bonnet Carre' Spillway is open, the MRGO rock dam closure is likely preventing freshwater from passing through the MRGO into the Chandeleur Sound, thereby intensifying and prolonging the adverse impacts associated with spillway openings. Following record precipitation and flooding throughout the Mississippi River basin in 2019, the Bonnet Carre' Spillway was opened twice in one calendar year and remained open for a record number of days (USACE, 2019).

The State of Louisiana estimated that the 2019 Bonnet Carre' Spillway openings caused $258 million in economic damage (Blank, 2019). The National Oceanic and Atmospheric Administration (NOAA) later declared the *Gulf of Mexico Freshwater Flooding* (2019) federal fishery disaster in Louisiana, Mississippi, and Alabama. **In accordance with the NOAA-approved *Louisiana 2019 Federal Fishery Disaster Recovery Spending Plan*, SBPG is hereby requesting $1.7 million in *Habitat and Hydrologic Improvement Grant* funding in order to conduct a feasibility study and determine whether modifying the MRGO rock dam closure would mitigate the impacts of future Bonnet Carre' Spillway openings and provide other related benefits**.

I. MRGO Rock Dam Closure

In the *Integrated Final Report to Congress and Legislative Environmental Impact Statement for the Mississippi River – Gulf Outlet Deep-Draft De-authorization Study*, the USACE (2007) identified three alternative approaches to closing the MRGO:

> **Interim Report Alternative 1** – Maintain a shallow-draft MRGO navigation channel with variations such as no structure, a salinity control weir at Bayou La Loutre, a salinity control gate at Bayou La Loutre (normally closed) and a storm protection gate at Bayou La Loutre (normally open);
>
> **Interim Report Alternative 2** – Close the MRGO channel to deep-draft and shallow-draft vessels by: blocking the channel with a total closure structure across the MRGO at Bayou La Loutre; restoring both banks of Bayou La Loutre across the MRGO at Hopedale, Louisiana; or filling in the entire MRGO channel from the GIWW to the Gulf of Mexico; and

> **Interim Report Alternative 3** – Cease all MRGO operations and maintenance activities (dredging, beneficial use, jetty repairs, and navigation aids). (x & xi)

The USACE later narrowed the agency's MRGO closure approach down to three specific project alternatives:

> **Alternative 1** – Construct a total closure structure across the MRGO near Bayou La Loutre immediately;
>
> **Alternative 2** – Phased construction of a total closure structure across the MRGO near Bayou La Loutre (phased construction would begin with a weir and be completed with a total closure structure); and
>
> **Alternative 3** – Cease All MRGO operations and maintenance dredging activities immediately. (xi & xii)

Alternative 1 (total closure) was ultimately selected due to its perceived cost-effectiveness, environmental benefits, and socio-political feasibility (USACE, 2007). In the USACE's (2007) final analysis of this alternative, the agency concluded that "overall, the potential cumulative impact for Alternative 1 is a slightly beneficial effect" (p. 95). A summary of the evaluation criteria and findings associated with the USACE's assessment of Alternative 1 is provided below.

Impacts to Water Quality

- Reductions in salinity at Martello Castle and Alluvial City north of the closure and adjacent to the MRGO;
- Lower salinity stratification north of the closure (including in Lake Pontchartrain), thereby reducing the size of the hypoxic zone; and
- "Other water quality parameters in MRGO and vicinity might remain unchanged." (USACE, 2007, p. 59)

Impacts to Fisheries

- Reduction in marsh loss;
- Would necessitate alternative fish passageways;
- Areas north and south of the closure would become less saline;

- "Fishery abundance and distribution should increase slightly compared to the future without. It is probable that the six most important sport fish could be present in at least the same numbers as they are now"; and
- *Rangia* clams and other *sessile benthos* would increase in the area. (USACE, 2007, p. 65)

Impacts to Navigation

- All deep-draft and most shallow-draft commercial navigation would cease; and
- Recreational traffic would still occur in some sections of the MRGO. (USACE, 2007)

Impacts to Businesses

- Businesses that depend on deep-draft access to the MRGO may choose to relocate. (USACE, 2007)

II. Project Statement

Need

Residents and businesses in St. Bernard Parish have been expressing concerns regarding the MRGO rock dam closure since its construction. Stakeholders have observed that the closure traps storm surge during tropical weather events and prevents freshwater from flowing through the Pontchartrain Basin during Bonnet Carre' Spillway openings. Additionally, the MRGO rock dam closure poses navigational hazards and is an obstacle to shallow-draft waterborne commerce, including commercial and recreational fishing vessels.

The MRGO is located in the Pontchartrain Basin, one of the most productive seafood harvest areas in Louisiana. Commercial oyster, shrimp, and crab fisheries have a combined annual economic impact of approximately $2 billion and account for over 22,000 jobs (State of Louisiana, 2019). Louisiana's seafood industry is also nationally significant. Over 890 million pounds of seafood were landed in the state during 2017 (National Marine Fisheries Service, 2018). Louisiana produces 70% of all oysters and 40% of all blue crabs in the US (State of Louisiana, 2019), and 25% of all seafood consumed in the country is harvested from Louisiana (Jones, 2015). Commercial and recreational fishing are also

culturally significant in St. Bernard Parish, which is home to some of the most historic fishing communities in the US.

According to the Louisiana Department of Wildlife and Fisheries (LDWF), the referenced Gulf of Mexico Freshwater Flooding disaster had immediate and long-term adverse impacts on fisheries throughout the state, but was particularly devastating to fisheries in eastern Louisiana (LDWF, 2021). "Significant negative impacts were identified in many major fisheries, including crustacean, molluscan and finfish fisheries" (LDWF, 2021, p. 1). The agency also notes significant impacts to the charter fishing and seafood processing industries.

The USACE acknowledged that many uncertainties existed when the MRGO rock dam closure was constructed. Concerns regarding the closure and its observed adverse impacts during Bonnet Carre' Spillway openings and tropical weather events prompted SBPG to submit permit applications for closure modification on several occasions. However, the USACE and other agencies informed SBPG that a feasibility study would be required in order to proceed with any proposed action vis-à-vis the MRGO rock dam closure, which is considered a federal project.

Objectives

SBPG would like to complete the proposed feasibility study and explore options for modifying the MRGO rock dam closure in order to: 1) mitigate the impacts of future spillway openings and storm surge events; 2) establish a small-to-moderate amount of tidal hydrologic exchange in the area and improve water quality; and 3) increase safety for commercial and recreational navigation.

Expected Results and Benefits

SBPG believes that completing the proposed feasibility study will allow stakeholders to better understand the impacts of the MRGO rock dam closure and make informed decisions regarding the costs and benefits associated with maintaining or modifying the project. The proposed feasibility study will also inform the requisite congressional authorization, engineering and design, and permitting efforts in the event that the MRGO rock dam closure modification is identified as the preferred course of action. Finally, based on nearly 14 years of observations and anecdotal evidence, SBPG believes that modification of the closure would mitigate the impacts of future spillway openings and storm surge events, improve water quality, and increase navigational safety.

Approach

SBPG is proposing to investigate two MRGO rock dam closure scenarios:

1. Future without modified (gapped) structure (i.e., future with existing structure); and
2. Future with modified (gapped) structure.

A third scenario capturing the impacts of a barge gate structure will be studied using the model outputs from scenario one and two, which would represent the impacts under both open and closed conditions.

Modeling and impact analyses will be conducted across four primary areas: 1) storm surge; 2) dissolved oxygen (DO), hypoxia, scour, and navigational safety; 3) vegetation and land growth/decay; and 4) habitat suitability. A detailed scope of work is provided in *Section III. Proposed Scope of Work*, and an estimated timeline (including significant milestones) is provided below.

Description	Duration (days)
Existing Data Review & Development of Boundary Conditions	30
Mesh Development, Model Components, Calibration, Validation	60
Production Runs	155
Reporting, Discussion of Results, Two Rounds of Comment Revision	45
Total Duration	290

The referenced modeling activities will be supported by an initial data collection effort and ongoing interagency coordination and public outreach. Permitting agencies will require that regional impacts to a multitude of parameters be investigated during the proposed study, including hydrology, DO, salinity, vegetation, oysters, and storm surge. Additionally, local impacts to the stability of the structure itself is also a parameter of interest. There appears to be sufficient data for water surface elevation and salinity due to the multitude of stations that continuously record those parameters. It is also likely that there are sufficient existing data regarding existing vegetation and oyster habitat conditions. However, the existing data regarding currents within the MRGO may be lacking and will likely require additional data collection prior to modeling. Another outstanding data collection need will be forecasting the number of vessels expected to traverse the modified MRGO rock dam closure if a

modification were to occur. Such forecasts will allow for a more refined quantification of project costs and benefits.

SBPG understands the importance of closely coordinating with interagency partners and the public during the proposed study. The Parish has already been coordinating with the USACE, CPRA, and LDWF regarding study parameters, and feedback from each of these agencies is reflected in the scope of work contained herein. SBPG also recognizes that the MRGO and associated rock dam closure are sensitive subjects for parish residents and businesses. The Parish intends on closely coordinating with the St. Bernard Parish Council, Coastal Zone Advisory Committee, and other stakeholder groups on an ongoing basis in order to promote transparency and solicit feedback from those who live and/or work on St. Bernard Parish waterways.

Budget Narrative (please refer to *Section IV. Proposed Budget and Narrative Justification*)

Resolution (please see below)

St. Bernard Parish Council resolution supporting the exploration of MRGO rock dam closure modification alternatives

St. Bernard Parish Council

8201 West Judge Perez Drive Chalmette, Louisiana, 70043
(504) 278-4228 Fax (504) 278-4209
www.sbpg.net

#1

EXTRACT OF THE OFFICIAL PROCEEDINGS OF THE COUNCIL OF THE PARISH OF ST. BERNARD, STATE OF LOUISIANA, TAKEN AT A SPECIAL MEETING HELD IN THE COUNCIL CHAMBERS OF THE ST. BERNARD PARISH GOVERNMENT COMPLEX, 8201 WEST JUDGE PEREZ DRIVE, CHALMETTE, LOUISIANA ON TUESDAY, JANUARY 28, 2020 AT ONE-THIRTY P.M.

On the motion of Mr. Lewis, seconded by Mr. McCloskey,, it was moved to **adopt** the following resolution:

RESOLUTION SBPC #2019-01-20

A RESOLUTION SUPPORTING THE EXPLORATION OF DESIGN ALTERNATIVES FOR THE MODIFICATION OF THE MRGO ROCK DAM.

WHEREAS, it is necessary to explore design alternatives for the modification of the MRGO Rock Dam for the purpose of facilitating navigation for commercial and recreational fishing vessels and improving water quality, and;

WHEREAS, it is in the best interest of St. Bernard Parish for the St. Bernard Parish Council, the governing authority, to support said exploration; and,

WHEREAS, any action regarding this project shall come back before the St. Bernard Parish Council for approval prior to proceeding.

NOW THEREFORE, BE IT RESOLVED, that the St. Bernard Parish Council, the governing authority, does hereby support the exploration of design alternatives for the modification of the MRGO Rock Dam for the purpose of facilitating navigation for commercial and recreational fishing vessels and improving water quality.

The above and foregoing having been submitted to a vote, the vote thereupon resulted as follows:

YEAS: McCloskey, Moran, Luna, Alcon, Everhardt, Lewis

NAYS: None

ABSENT: None

The Council Chair, Ms. Callais, cast her vote as **YEA.**

And the motion was declared **adopted** on the 28th day of January, 2020.

III. Proposed Scope of Work

SBPG is proposing to investigate two MRGO rock dam closure scenarios:

1. Future without modified (gapped) structure (i.e., future with existing structure); and
2. Future with modified (gapped) structure.

A third scenario capturing the impacts of a barge gate structure will be studied using the model outputs from scenario one and two, which would represent the impacts under both open and closed conditions. Sea Level Rise (SLR) impact is expected to be much larger than the structure impact. However, SBPG will investigate this assumption under 2070 SLR conditions with one historic storm and a low return period event (e.g., Synthetic 10-YR). Below is the breakdown of the phenomena that will be investigated in the modeling study. Unless otherwise stated in this proposal, the phenomena below will be modeled for the two aforementioned scenarios and the results will be used for comparison purposes and to inform decisions.

Storm Surge

Purpose and Model Setup

Since the MRGO has served as a storm surge pathway during hurricanes, it is necessary for storm surge to be a subject of the proposed feasibility study and modeling effort. This includes changes in storm surge elevations upstream to New Orleans (particularly along the Hurricane Storm Damage Risk Reduction System [HSDRRS] system), changes in drainage patterns after storm and cold front events, and hydrodynamic changes in channels. For this purpose, the basin-scale ADCIRC storm surge model will be used. The approximate extent of the basin-scale ADCIRC model will include all of the Gulf of Mexico, the Caribbean Sea, and the northeast part of the Atlantic Ocean.

A numerical analysis is required to evaluate the relative change in water levels around these structures and adjacent communities for up to eight (8) simulated storm events. The list of the proposed simulation events to investigate the impacts of modifying the structure is shown below:

- Synthetic 10-YR, Purpose: Storm Impact Investigation (with and without SLR);
- Synthetic 50-YR, Purpose: Storm Impact Investigation;
- Synthetic 100-YR (Approaching from West), Purpose: Storm Impact Investigation;

- Synthetic 100-YR (Approaching from East), Purpose: Storm Impact Investigation;
- Historic cold front event and/or Synthetic 1-YR, Purpose: Drainage Impact Investigation;
- Historic storm Hurricane Sally, Purpose: Storm Impact Investigation;
- Historic storm Hurricane Katrina, Purpose: Storm Impact Investigation; and
- Historic storm Hurricane Isaac, Purpose: Storm Impact Investigation (with and without SLR).

For each synthetic storm, Oceanweather Inc. (OWI) wind and pressure fields generated for the Flood Insurance Study, Southwestern Parishes, Louisiana (US Army Corps of Engineers, 2008) will be used to create spatially and temporally varying wind and pressure fields. For tidal simulations and non-storm conditions, deep water tidal constituents from the TOPEX/POSEIDON ocean tide solution will be applied at the offshore model boundary.

To address the concerns over the impact of the structure on the drainage of the MRGO and its surrounding waterways and water bodies (e.g., Gulf Intracoastal Waterway, Seabrook Gate Complex on the Inner Harbor Navigation Canal, Lake Pontchartrain, Lake Borgne, Bonnet Carre' Spillway, Rigolets, Chef Menteur Pass, Bayou Dupre, Bayou Bienvenue, etc.), the model meshes will be developed ensuring: a) hydraulic connectivity where needed and b) numerical stability of the ADCIRC basin-scale model. The topography and bathymetry datasets for the model meshes will be leveraged from other current models in the region. These datasets will be updated to reflect the latest elevation datasets made available from various agencies.

Model Calibration and Validation

The ADCIRC model with our refined grid will be checked against two storms (e.g., synthetic 10-YR and synthetic 100-YR) using the ADCIRC results (i.e., water level time series and/or water level peaks) archived in the Coastal Hazards System (CHS) Web Tool (https://chswebtool.erdc.dren.mil/) before pursuing the primary goal of assessing relative change in hydrodynamic conditions when the MRGO closure structure is modified. The simulation period will be defined following testing of the model but will likely be in the range of 5 to 7 days as the hurricanes and synthetic storms may cause flooding and impoundment for several days before/after storms pass. The model will be validated for tides (in 2D) for a one-month period.

Analyses and Total Number of Runs

Using the proposed simulation events, the basin-scale hydrodynamic model will be run 16 times. The results will be compared between the 2 structure scenarios by calculating the difference in water level at each model output timestep. The results will be further processed into 2D maps that show the percent of time that the water level difference exceeded a pre-defined threshold. The modelling will also assess if the flow patterns are significantly altered, specifically in locations such as the Rigolets, Chef Menteur Pass, Bayou Dupre, Bayou Bienvenu, Inner Harbor Navigation Canal, and around the modified MRGO structure.

Total Number of Runs

8 (Simulation events) x 2 (Structure scenarios) + 2 SLR simulation Event x 2 (Structure scenarios)

+ X (Iterative model runs to achieve model calibration) = 20 + X ADCIRC runs

Dissolved Oxygen, Hypoxia, Scour, and Navigational Safety

Purpose and Model Setup

Completion of the MRGO rock dam closure "in the vicinity of mile 35 in July 2009 reduced hydrologic circulation and separated the MRGO into two distinct salinity regimes, with substantially fresher conditions prevailing upstream from the rock barrier" (Swarzenski, & Mize, 2014). This, in turn, contributed to further development of the hypoxic zone that tends to form along the channel bottom during the warmer summer months. The hypoxic zone is generated by increased stratification of the water column as a result of a reduction in vertical mixing due to reduced tidal exchange (following construction of the closure) and the channel depths in the MRGO being 10 to 30 feet deeper than the surrounding surface water bodies. Furthermore, prior to the construction of the MRGO rock dam closure, the MRGO expanded into the surrounding marshlands, which experienced rapid and severe erosion, widening from 650 feet to up to 3,000 feet.

A modification to the closure could influence nearby hydraulics and lead to increased impact on the surrounding marshlands and create scouring problems. Also, there is potential for flow through the MRGO rock dam closure as the downstream section of the MRGO is a tidal channel; modifying the closure structure could lead to tidal exchanges of water flowing through a small opening posing a navigational risk. Modelling to inform the navigational safety assessment would focus on the impact of the modified closure on velocity and

currents from the modelled hydrodynamics at output points within the MRGO channel, the immediate vicinity, and within the modified opening. Navigation is assumed to only occur during ambient conditions.

To adequately capture the hydrodynamic changes to investigate the scour potential, navigational risk, and the water column stratification in the vicinity of the MRGO, the Delft 3D (D3D) HD model will be run in 3D mode (with vertical layers) under ambient/tidal conditions for a year-long simulation, with both salinity (as a constituent) and temperature (via the heat flux model) included as key processes. Salinity and temperature data, sourced from the hourly records at nearby water quality monitoring stations (CPRA, 2021) would be used to characterize a representative year for the simulations.

To fully capture development of a DO depleted bottom layer requires the implementation of Delft's full process water quality module (DELWAQ), which significantly increases the model complexity, measured data requirements and associated labor. DO is not an input to the fisheries HSIs. SBPG recommends the project team evaluate DO changes via interpretation of the salinity and temperature modelling (vs. detailed DO modeling using DELWAQ), whereby changes to DO are inferred from the modelled changes in water column stratification due to the modification of the MRGO rock dam closure. This will use the year-long ambient simulations (described above) to infer DO changes with reference made to the concurrent salinity and DO data presented in Swarzenski and Mize (2014). It is also noted that full process modelling to determine DO changes would require a significant amount of measured data to inform the boundary conditions and validate the water quality processes. From a review of published information and literature, no continuous data collection of DO exists and hence the full process modelling exercise would require a field measurement campaign. At this time, full nutrient cycle modeling and DO development is not recommended. We expect any changes to DO by the proposed project to be limited.

Model Calibration and Validation

The model will be calibrated and validated for salinity and temperature (in 3D). Validation data for the models will be obtained from the Coastwide Reference Monitoring System (CRMS) (CPRA, 2021), which has collected over 16 years of data measuring wetland health indicators to determine the effectiveness of restoration. Data includes salinity, temperature, and water level and will be obtained from the four CRMS sites close to the MRGO rock dam closure. Also, Swarzenski and Mize (2014) provide data for calibration and validation purposes.

Analyses and Total Number of Runs

The results of the year-long 3D D3D HD run will be used to investigate the DO, Hypoxia, Scour, and Navigational risk associated with the proposed scenarios. It will also be used to calibrate/validate the D3D HD matrix runs.

Total Number of Runs

2+X (1-Year long continuous simulation x 2 Structure Scenarios)

+ X (Iterative model runs to achieve model calibration under existing conditions)

Vegetation and Land Growth/Decay

Purpose and Model Setup

Predicting the vegetation impact is important to appropriately evaluate the potential land and habitat change in the vicinity of the MRGO rock dam closure. Vegetation change, growth, and loss will alter the bottom roughness and will also result in vertical accumulation of organic matter. These processes ultimately will reveal the impacts of the closure on vegetation, land, and habitat.

The tentative model extent for the regional-scale model will include a geographic area spanning from Lake Pontchartrain on the northwest to the Mississippi River levees bordering the Breton Basin on the southwest. The bayside of the Chandeleur Islands will serve as the eastern boundary. The northern and southern boundaries will be bounded by the Mississippi Coast and Birdsfoot Delta, respectively. The mesh will be refined along the main inlets and channels around the MRGO closure structure, Hopedale, Shell Beach, the HSDRRS, as well as the Gulf Intracoastal Waterway, Seabrook Gate Complex on the Inner Harbor Navigation Canal, Lake Pontchartrain, Bonnet Carre' Spillway, Rigolets, Chef Menteur Pass, Bayou Dupre, Bayou Bienvenue, etc.

The team will develop a computational framework (that will be called MRGO-LV) that will consist of D3D HD model, D3D ST/Morpho model, and the vegetation growth/wetland morphological growth model (LaVegMod.DM). Baird has developed and is currently applying this model (called OM-LV) to evaluate 50-yr changes to landform, water levels, salinity, and wetland vegetation for Mid-Breton Sound as part of the Mid-Breton Sediment Diversion design project for CPRA.

The models that will be used in the proposed framework are:

- *D3D HD model*: this model is mainly used to simulate water levels, currents, and salinity driven by the diverted flow, tides, winds, and SLR. The HD model is used to generate input data for the LaVegMod.DM model such as inundation state and salinity during vegetation growth seasons. Note that the HD component does not directly affect the ST/Morpho component of the model. The HD component indirectly feeds into the ST/Mopho part by influencing the vegetation growth and coverage, which in turn changes the flow resistance and energy loss in the ST/Morpho model;

- *D3D ST/Morpho model*: this model is used to simulate sediment transport and bed change in the model domain. The morphological acceleration technique will be applied to speed up the simulation time. The output of bed change will be used to update the bathymetry in the model domain in the next modeling cycle; and

- *LaVegMod.DM model*: this model will be used to simulate the growth and decay of seven representative fresh, intermediate, brackish, and salt marsh species of vegetation. The LaVegMod.DM requires annual hydro-statistics as inputs (e.g., inundation state, salinity thresholds over time), which are generated from the results of the D3D HD component (see Figure 3). The LaVegMod.DM output will be used as inputs to the associated processes.

The processes (in the form of algorithms from the Integrated Compartment Model - ICM) included in the proposed framework are:

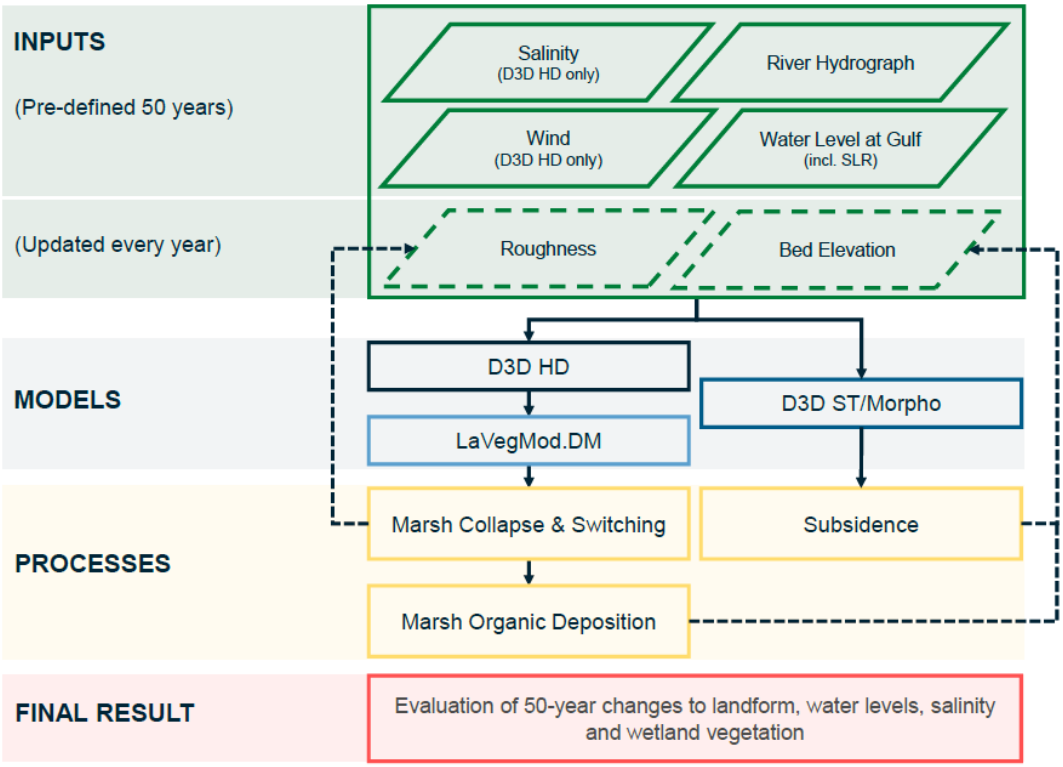
- Marsh Collapse: Depending on the type of marsh (Fresh, Intermediate, and Brackish), the vegetation types may not survive under inundation and salinity conditions. This process takes the vegetation coverage generated from the LaVegMod.DM model and adjusts it for inundation and salinity;

- Marsh Organic Deposition: The annual senescence of vegetation results in the deposition of organic matter where vegetation exists. This process uses the relationships between organic matter deposition and vegetation coverage for each type of vegetation and adds it to the results of the Organic Matter model; and

- Subsidence: This process uses annual subsidence rates to adjust the bathymetry.

LaVegMod.DM model in combination with the Marsh Collapse and Marsh Organic Deposition algorithms will be referred to as Vegetation Growth and Wetland Morphology Model.

MRGO-LV 50-year Model Framework



Model Calibration and Validation

The matrix approach will be validated by comparing the results from the matrix approach to the results from the year-long 3D D3D HD run. The water levels and salinities will be compared, and the matrix approach will be modified to effectively represent the conditions present in the continuous model run in terms of statistical information required by LaVegMod.DM model.

Analyses and Total Number of Runs

The output of the LaVegMod.DM model is used to modify the bed roughness for the D3D HD and ST models for the following cycle (i.e., year). Similarly, the output from the Marsh Organic Deposition and D3D ST/Morpho model is used to update the bed elevation of the D3D HD and ST models for the following cycle. Note that the D3D HD model simulation is separated from the D3D ST/Morpho model in this modeling framework. The ST model does include the simulation of hydrodynamics, which drives sediment transport and morphological evolution. However, it is not possible to complete a 50-year morphodynamic model simulation without using the morphological acceleration technique due to the extremely large computational time. Therefore, a morphological acceleration technique (i.e., with morfac) will be used for the ST model in this system. Similarly, the D3D HD model runs representative of each year are "accelerated" using a matrix of runs (i.e., 25 short HD runs per year).

Total Number of Runs

5 (Seasons per year) x 5 (LMR Discharges) x 50 (Years) x 2 (Structure Scenarios) = 2500 D3D HD runs

50 (Years) x 2 (Structure Scenarios) = 100 D3D ST/Morpho runs

50 (Years) x 2 (Structure Scenarios) = 100 Vegetation Growth and Wetland Morphology Model runs

Habitat Suitability Index (HSI)

Purpose and Model Setup

CPRA provides HSI models in the 2017 and 2023 Coastal Master Plans. For the key fisheries outlined below, the HSI determines the driving environmental and abiotic factors that can be used to model the likelihood of a species inhabiting a given area. CPRA defines the upper estuary as comprised of shallow creeks and ponds with the greatest freshwater input, lowest salinities, and densest marsh vegetation; mid estuary is comprised of fragmented and brackish marsh with salinities between 5-20 ppt; and the lower estuary is comprised of open water habitats with very little marsh, and salinities above 20 ppt. The following HSI information is sourced from the 2017 and 2023 Coastal Master Plans (Hijuelos et al., 2017; O'Connell et al., 2017a, b, c; Lindquist et al., 2020).

- Brown Shrimp – The HSI models for small and large juvenile Brown Shrimp are based on average salinity and temperature between April and July and the percent marsh;

- White Shrimp – The small juvenile White Shrimp HSI is based on average salinity and temperature between June and December and the percent marsh. The large juvenile White Shrimp HSI is based on average salinity and temperature over the entire year;
- Eastern Oyster – The Eastern Oyster distribution is governed predominantly by salinity; however, turbidity, temperature, substrate, food availability and intertidal exposure are also important. The HSI is based on sufficient hard bottom substrate, the mean salinity during spawning season, minimum monthly mean salinity, mean annual salinity, percent land, and cumulative sediment deposition; and
- Blue Crab – The juvenile habitat of Blue Crabs is varied throughout the lifecycle, and includes marsh, seagrass, mud and sandy bottoms, and off the shelf of the Gulf of Mexico. The HSI for juvenile Blue Crab uses the average salinity and water temperature over the entire year, and the percent marsh. Results of the MRGO-LV framework will provide 50-years of input data to drive the HSI models. The HSI inputs generated by the MRGO-LV modelling framework will be averaged by month/season (as required by the specific HSI) for defined regions across the study area and calculated over 5 x 10-year periods to provide temporal definition to the change in HSI results. It is envisaged that the study area could be described by up to 20 aggregated areas for which HSI outputs would be reported.

Total Number of Runs

50 (Years) x 2 (Structure Scenarios) = 100 HSI model run

IV. Proposed Budget and Narrative Justification

St. Bernard Parish Government

MRGO Rock Dam Closure Modification Feasibility Study

LDWF Habitat and Hydrologic Improvement Grant Program

Task	Budget	Duration (Days)
Task 1: Initial Data Collection and Analysis	$400,000	60
Task 2: Modeling	$1,100,000	290
Task 3: Interagency Coordination and Public Outreach	$100,000	Ongoing
Task 4: Feasibility Study Final Report	$100,000	30
TOTAL:	**$1,700,000**	**320**

Task 1: Initial Data Collection and Analysis

As described in *Section II. Project Statement* (*Approach*), agency stakeholders will require that regional impacts to a multitude of parameters be investigated during the proposed study, including hydrology, DO, salinity, vegetation, oysters, and storm surge. Additionally, local impacts to the stability of the structure itself is also a parameter of interest. Existing data regarding currents within the MRGO may be lacking and will likely require additional data collection prior to modeling. Another outstanding data collection need will be forecasting the number of vessels expected to traverse the modified MRGO rock dam closure if a modification were to occur. Such forecasts will allow for a more refined quantification of project costs and benefits. The initial data collection and analysis task will include a combination of field investigation, desktop investigation, and data analysis in support of the modeling effort.

Task 2: Modeling

As described in *Section II. Project Statement* (*Approach*) and *Section III. Proposed Scope of Work*, SBPG is proposing to investigate two MRGO rock dam closure scenarios:

1. Future without modified (gapped) structure (i.e., future with existing structure); and
2. Future with modified (gapped) structure.

A third scenario capturing the impacts of a barge gate structure will be studied using the model outputs from scenario one and two, which would represent the impacts under both open and closed conditions.

Modeling and impact analyses will be conducted across four primary areas: 1) storm surge; 2) DO, hypoxia, scour, and navigational safety; 3) vegetation and land growth/decay; and 4) habitat suitability. The modeling task will require the most significant level of effort, budget, and duration during the proposed feasibility study, and will yield the new data necessary to proceed with the development of a final report that will allow stakeholders to better understand the impacts of the MRGO rock dam closure and make informed decisions regarding the costs and benefits associated with maintaining or modifying the project.

Task 3: Interagency Coordination and Public Outreach

As stated in *Section II. Project Statement* (*Approach*), SBPG understands the importance of closely coordinating with interagency partners and the public during the proposed study. The Parish and its team will coordinate with federal and state agency stakeholders on an ongoing basis and conduct bi-weekly meetings throughout the life of the proposed feasibility study. Additionally, SBPG and its team will coordinate with other local officials and report to both the St. Bernard Parish Council and Coastal Zone Advisory Committee on a quarterly basis and upon request during the effort. Finally, the Parish and its team will promptly report study findings to all stakeholder groups upon completion.

Task 4: Feasibility Study Final Report

SBPG and its team will develop a final report based on feasibility study findings and recommendations from federal, state, and local stakeholder groups. The final report will include a summary of all findings from initial data collection through the completion of the modeling effort. A final draft of the report and summary of conclusions will be made available to the public at www.sbpg.net

and in hard copy at the SBPG Complex at 8201 W. Judge Perez Dr. in Chalmette, Louisiana 70043.

References

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