btnep
Barataria–Terrebonne
NATIONAL ESTUARY PROGRAM

DRAFT FY 2027 Work Plan

Infrastructure Investment and Jobs Act (IIJA), Fiscal Year 2027

The purpose of this document is to transmit the Barataria-Terrebonne National Estuary Program's (BTNEP) draft FY 2027 annual work plan to the U.S. Environmental Protection Agency.

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SECTION 1: OVERVIEW

SECTION 1.1 - THE BARATARIA-TERREBONNE NATIONAL ESTUARY

The Barataria-Terrebonne National Estuary (BTNE) is a 4.2-million-acre region located in South Louisiana, between the Mississippi and Atchafalaya rivers, that encompasses all or part of 16 Louisiana parishes: Ascension, Assumption, Iberia, Iberville, Jefferson, Lafourche, Orleans, Plaquemines, Pointe Coupee, St. Charles, St. James, St. John the Baptist, St. Martin, St. Mary, Terrebonne and West Baton Rouge. The complex is split into two basins by Bayou Lafourche – Barataria Basin to the east and Terrebonne Basin to the west.

SECTION 1.2 - WHO WE ARE

The Barataria-Terrebonne National Estuary Program (BTNEP) is one of the United States' 28 National Estuary Programs. In 1987, Congress established the National Estuary Program (NEP) through section 320 of the Clean Water Act (CWA), and in 1990 BTNEP was formed to address the issues facing this region in recognition of the Estuary's national significance. It is BTNEP's mission to rebuild and protect the Estuary for future generations through the implementation of BTNEP's Comprehensive Conservation and Management Plan (CCMP) – a science-based, consensus-driven plan that utilizes partnerships focused on the Estuary's rich cultural, economic, and natural resources.

SECTION 2: STRATEGIC ACTION PLAN

SECTION 2.1 - STRATEGIC GOALS

BTNEP's Management Conference (MC) encourages and oversees the implementation of the CCMP by coordinating and integrating the CCMP actions among agencies and stakeholders. The MC originally stated the fundamental strategic goals of BTNEP in 1992. These strategic goals were updated in 2019 and provide the basis for all Action Plans found in the CCMP. The strategic goals of BTNEP include:

1. Preserve and restore wetlands and barrier islands
2. Realistically support diverse, natural biological communities
3. Develop and meet water quality standards that adequately protect estuarine resources and human health
4. Implement comprehensive education and awareness programs that enhance public involvement and maintain cultural heritage
5. Support clear, fair, practical, and enforceable regulations
6. Develop and maintain multi-level, long-term, comprehensive watershed planning
7. Be compatible with natural processes
8. Forge common-ground solutions to estuarine problems

SECTION 2.2 - EXPECTED OUTPUT FROM IIJA PROJECTS

1. Review of BTNEP's CCMP;
2. Production of an educational calendar to disseminate to residents of the estuary;
3. Locate derelict crab traps, assess bycatch, and identify with precision "ghost-fished" species in real time;
4. Generate empirically grounded evaluation of how mangroves and saltmarshes, growing both in isolation and together, contribute to soil biophysical resilience to storm surge in created and natural marshes, with particular emphasis on the barrier islands of the BTNE.
5. Create a virtual workshop to instruct students on sources and causes of fish kills, and how fish kills impact natural resource management;
6. Develop interpretive kiosks with multilingual QR-linked audio stories, and a Trail Story Website hosting audio, transcripts, and education materials; and
7. Determine if the relative abundance of native oviparous fishes is reduced or otherwise impacted in habitats where Giant Apple Snails occur versus habitats where they do not occur.

SECTION 3: LIST OF BTNEP STAFF AND RESPONSIBILITIES

Bren Haase, Director: Responsible for the orderly, efficient, and effective administration and operation of the Program Office, including all personnel.

Michelle Felterman, Deputy Director: Serves as an advisor to the Program Director and staff on fiscal, technical, and personnel matters.

Nicole Babin, Office Manager, Assistant to the Director: Responsible for distributing documents, performing administrative functions, maintaining databases, and coordinating meetings for the program.

Emily Knobloch Bonvillain, Communications & Public Relations Coordinator: Responsible for developing outreach material, social media content, and overall BTNEP messaging that will inform and involve the public in BTNEP activities and projects.

Andrew Barron, Senior Research Scientist: Responsible for scientific and technical aspects of Ecological Management action plans of the CCMP.

Nicki Boudreaux, Education and Engagement Coordinator: Responsible for educational outreach of the Sustained Recognition and Citizen Involvement action plans of the CCMP and acts as the liaison with local, state, and federal elected officials and other estuary stakeholders.

Siva Nunna, Water Quality Coordinator: Responsible for coordinating water quality related issues for the BTNEP.

Emily Braud, Volunteer and Marine Debris Coordinator: Responsible for developing and organizing volunteer activities related to marine debris removal.

Natalie Waters, Wildlife Conservation Coordinator: Responsible for managing projects related to the conservation efforts for native birds, plants, and pollinators.

Matt Benoit, Habitat Restoration Manager: Responsible for collecting native seeds and growing material for and implementing coastal restoration projects.

Ashleigh Lambiotte, Native Plant Nursery Coordinator: Responsible for coordinating BTNEP native plant nursery activities.

Michael Massimi, Invasive Species and Marine Programs Coordinator: Responsible for work related to invasive species and representing BTNEP on a variety of environmental issues.

Delaina LeBlanc, Biological Resources Coordinator: Responsible for managing biological resources projects and addressing issues related to both migratory and resident birds.

Part-Time and Student Workers: Responsible for mailouts, updating databases, screening

telephone calls, and farm upkeep and maintenance.

SECTION 4: NEW PROJECT INFORMATION

This Workplan includes two projects to be carried out by faculty members at the Louisiana Universities Marine Consortium (LUMCON). The project titles are, "Derelict Crab Traps Detection and Bycatch Assessment in the Terrebonne and Barataria Basins Using Imaging Sonar and Automated Species Identification: Guiding Removal Practices with Advanced Technology" and "Evaluating Marsh and Mangrove Biophysical Resilience to Storm Events in a Created Wetlands." The project budgets are incorporated into the full budget rollup and not as subawards. Project descriptions are described in Section 4.4 – FY 2027 New Projects.

SECTION 4.1 - FY 2027 MAJOR BUDGET AREA COMPONENTS / COSTS

ADMINISTRATIVE OPERATING SERVICES DIRECT SPENDING	IIJA FUNDS
a. Personnel Salary	$396,393
b. Personnel Fringe	$158,557
c. Travel	$2,900
d. Equipment	$0
e. Supplies	$11,071
f. Contractual	$49,242
g. Construction	$0
h. Other	$250,313
Total Direct Charges (sum of a- h)	$868,476
Indirect Charges (5%)	$41,624
TOTAL	**$910,100**

SECTION 4.2 - FY 2027 FUNDING FOR NEW PROJECTS

PROJECT NAME	PERFORMING ORGANIZATION	COST
Update to BTNEP CCMP	TBD	$34,242
2028 BTNEP Calendar Design, Layout, and Printing	TBD	$ 15,000
Understanding Fish Kills in the Barataria-Terrebonne Estuary System: An Education Project	Louisiana State University (LSU) Department of Oceanography and Coastal Sciences (DOCS), Dr. Cassandra Glaspie	$40,000
Heart of Atchafalaya Museum Heritage Trail Kiosks	Pierre Part Belle River Museum, Inc.	$66,000
Assessing Potential Impacts of Invasive Giant Apple Snails on Egg-laying Native Fishes	University of New Orleans Pontchartrain Institute for Environmental Sciences, Dr. Martin O'Connell	$49,263
*Derelict Crab Traps Detection and Bycatch Assessment in the Terrebonne and Barataria Basins Using Imaging Sonar and Automated Species Identification: Guiding Removal Practices with Advanced Technology	LUMCON, Dr. Guillaume Rieucau	$87,437
*Evaluating Marsh and Mangrove Biophysical Resilience to Storm Events in a Created Wetlands	LUMCON, Dr. Havalend Steinmuller	$148,271
TOTAL		**$440,213**

*Project is not a subaward or contract. Project budget is incorporated into Workplan budget rollup.

SECTION 4.3 - BUDGETING SUMMARY

BTNEP IIJA FUNDING BY MAJOR CATEGORIES	IIJA FUNDS
Direct Spending	$868,476
Indirect (5%)	$41,624
TOTAL IIJA BUDGETING:	**$910,100**

SECTION 4.4 - FY 2027 NEW PROJECTS

NAME: REVIEW AND POTENTIAL UPDATE TO BTNEP CCMP

Budget: $34,242

Performing Organization: TBD

Partners: TBD

Project Period: January 1, 2027 – December 31, 2028

Description: Conduct a review of the BTNEP CCMP to determine whether updates are necessary. If updates are necessary, BTNEP will determine if updates will be developed internally or if an external consultant will be utilized.

NAME: 2028 BTNEP CALENDAR DESIGN, LAYOUT, AND PRINTING

Budget: $15,000 for design and layout; $30,000 for printing

Performing Organizations: Design and Layout – TBD
Printing – Office of State Printing

Partners: N/A

Project Period: January 1, 2027 – December 31, 2027

Objective: Produce a unique calendar with a theme that is central to BTNEP's mission and the goals of the CCMP. Each month of the calendar will feature an educational write-up about an estuary issue and will include a daily tidal graph.

Description: BTNEP produces an annual calendar that is used to educate members of the public about a central issue within the Barataria-Terrebonne Estuary System (BTES). The calendar includes both educational content for each month as well as a daily tidal graph.

Outcomes/Final Deliverables: 2028 BTNEP Calendar

YEAR 1

Milestone	*1	2	3	4	5	6	7	8	9	10	11	12
Task #1 – Design and Draft of Calendar	x	x	x	x	x	x						
Task #2 – Final Proof of Calendar, Delivery of Final Print Files						x	x					
Task #3 – Quarterly Monitoring Reports	x	x	x	x	x	x	x	x	x	x		
Task #4 – Final Report	x	x	x	x	x	x	x	x	x	x	x	x

*Year 1, Month 1 indicates date of full execution of the subaward/subcontract and project start date.

How the Project Supports the CWA: BTNEP's annual calendar reinforces CCMP priorities such as nutrient reduction, habitat protection, and water quality improvement in unique and creative ways through its central theme. Rather than one-time outreach, the annual calendar provides continuous messaging that keeps CWA objectives visible and actionable throughout the year, strengthening long-term compliance, stewardship, and CCMP implementation.

How this Project Supports EPA's "Powering the Great American Comeback Initiative":
The annual themed calendar functions as a practical outreach and education tool that connects EPA's national recovery vision to sustained, locally driven progress on CCMP goals—supporting environmental protection as a foundation for economic and community recovery.

CCMP Action Plans:
E-3: Public Awareness and Engagement

NAME: UNDERSTANDING FISH KILLS IN THE BARATARIA-TERREBONNE ESTUARY SYSTEM: AN EDUCATION PROJECT

Budget: $40,000

Performing Organization: LSU DOCS, Dr. Cassandra Glaspie

Partners: Louisiana Department of Wildlife and Fisheries (LDWF), Louisiana Department of Agriculture and Forestry (LDAF), U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), Louisiana Department of Environmental Quality (LDEQ), U.S. EPA Region 6, Louisiana Harmful Algal Bloom (HAB) Working Group (based at LSU), BTNEP Home Sewage Assistance Project, middle schools in Lafourche and Assumption Parishes

Project Period: September 2027-August 2028

Objective:

1. To collate, compile, and distribute resources on fish kills and water quality from a variety of science sources, as well as state and federal partners.
2. To develop and share place-based, interdisciplinary aquatic science lesson plans centered on fish kills.
3. To train 6th- and 7th-grade teachers in implementing curriculum materials related to interdisciplinary aquatic science, data analysis, and aquatic resource management.
4. To facilitate long-term collaboration between LSU scientists and Louisiana teachers.

Description: Fish kills in the BTNEP region and Louisiana have become a significant ecological and economic concern due to their multifaceted causes. Despite the repeated occurrence of fish kills, our understanding of their causes remains limited. Contributing factors include water temperature, currents, precipitation events, weather (especially amount of sunlight), presence of bacterial pathogens, presence of harmful algal blooms (HAB), nutrient loading, and any other environmental conditions that stress fish populations. For example, a few cloudy days in the summer will slow production of oxygen by plants at a time when respiration rates are high due to warm water temperatures. Oxygen becomes depleted and fish sensitive to low oxygen die and then are consumed by bacteria, which are also using oxygen. As oxygen continues to plummet, more fish die and any survivors seek the oxygenated shallows. Survivors congregate and quickly deplete the oxygen in the shallows, and with nowhere else to go, the remaining fish die. This is a very typical sequence of events leading to fish kills in coastal Louisiana which highlights the multidisciplinary nature of this phenomenon.

Addressing fish kills in Louisiana requires innovative problem-solving strategies that improve habitat conditions. This may involve optimizing nutrient management, enhancing water quality monitoring, and restoring wetlands to mitigate nitrate and phosphate runoff. Successful interventions necessitate public involvement and engagement, making environmental education a vital component of any solution. An increase in public awareness and understanding can lead communities to advocate for better management practices and greater environmental stewardship. Since the issue of fish kills is both applied and interdisciplinary, education on this topic is an excellent way to demonstrate the role of aquatic sciences in tackling a real-life issue that will be familiar to many students in Louisiana.

Outcomes/Final Deliverables: The outcome of this project will be at least 15 teachers engaged in a virtual workshop that will prepare them to instruct students on sources and causes of fish kills, and how fish kills impact natural resource management. Although the virtual workshop will be limited to 15 participants, we will ensure the materials are disseminated widely, with a goal of reaching at least 30 teachers with training and materials.

	Month											
Task	1*	2	3	4	5	6	7	8	9	10	11	12
1	x	x	x									
2				x	x	x	x	x				
3									x	x	x	
4				x			x			x		
5												x

*Year 1, Month 1 indicates date of full execution of the subaward/subcontract and project start date.

How the Project Supports the CWA: The CWA was enacted to restore and maintain the integrity of the nation's waters, with a particular focus on protecting aquatic life and ensuring that water bodies are safe for human recreation and wildlife habitats. The educational initiative in this project directly supports the CWA's mission through promotion of water quality education. The project aims to educate middle school teachers on the causes and impacts of fish kills, a critical aspect of achieving water quality goals set forth in the CWA. By training teachers, this initiative will be able to reach many students, fostering a generation of informed citizens who understand the relationship between water management and environmental health. Education is an essential tool in promoting stewardship of water resources, which is a priority under the CWA.

How this Project Supports EPA's "Powering the Great American Comeback Initiative": The project will support Pillar 1, "Clean Air, Land, and Water for Every American" by empowering educators to understand, teach, and communicate the environmental drivers that threaten clean and healthy waterways in coastal Louisiana. Teachers will reach hundreds of students and families each year, expanding public awareness of the importance of cleaner, healthier coastal ecosystems and ensuring that Louisiana communities are better prepared to participate in water-quality protection.

Instructing teachers to use artificial intelligence in their 6th–7th grade lesson plans directly will also support Pillar 4, "Make the United States the Artificial Intelligence Capital of the World", by empowering the next generation with the tools and scientific literacy needed to protect environmental quality. When teachers incorporate AI to analyze local water quality datasets, identify trends in fish kills, or explore human impacts on coastal ecosystems, they cultivate data-driven thinking and environmental problem-solving skills in young students. This builds an informed, tech-capable workforce prepared to tackle the environmental challenges at the heart of the EPA's national recovery and resilience goals.

CCMP Action Plans:
E-5: Implementing Education and Outreach Programs

Workshop Information:

- Who is initiating the conference/workshop? LSU Continuing Education, LSU Department of Oceanography and Coastal Sciences (DOCS), Louisiana Hypoxia Working Group

- How is the conference/workshop/meeting being advertised? The workshop will be distributed via school district communications offices, direct communication with teachers through school visits. We are targeting specific grades and school districts (middle schools in Lafourche and Assumption Parishes), so low-tech and targeted advertising is reasonable. The workshop will be advertised to partners at Louisiana Department of Wildlife and Fisheries (LDWF), Louisiana Department of Agriculture and Forestry (LDAF), U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), Louisiana Department of Environmental Quality (LDEQ), U.S. EPA Region 6, Louisiana Harmful Algal Bloom (HAB) Working Group (based at LSU), BTNEP Home Sewage Assistance Project through the Louisiana Hypoxia Working Group.

- Whose logo will be in the agenda and conference/workshop/meeting materials? Agenda logos will be those of BTNEP, LSU DOCS, LSU Continuing Education, Lafourche Parsh School District,

Assumption Parish School District, LDWF, LDAF, USDA NRCS, LDEQ, U.S. EPA Region 6.

- What is the percentage distribution of the person attending the conference/workshop/meeting (i.e. percent federal government, public participants, state and locals)? The virtual workshop participants will be 100% state/local K-12 teachers.

- Is the recipient going to prepare the proceedings or analysis and disseminate this information back to the appropriate (state/local/scientific) community? The recipient will prepare the following deliverables and deliver to BTNEP and project partners as applicable:
    - Digital copy of report summarizing resources from state and federal partners.
    - Digital copies of teacher workshop materials.
    - Digital recording of Zoom workshop.
    - Digital copy of a two-minute, social media-ready video summarizing highlights from the workshops, with relevant permission forms, for BTNEP to share.
    - Digital copy of a one-page handout summarizing assessment results and insights from teacher workshops.
    - Digital copy of "next steps" document developed with workshop participants to continue collaboration between LSU coastal sciences and Louisiana schools.
    - Digital copy of final project report.

  These materials will be hosted on Dr. Glaspie's website and will be made available to the public via the Louisiana Hypoxia Working Group and affiliated websites as applicable.

- Do you anticipate any program income being generated from this conference/workshop/meeting, including registration fees? We do not anticipate any income to be generated from this workshop. There is no registration fee associated with participating in this opportunity.

NAME: HEART OF ATCHAFALAYA MUSEUM HERITAGE TRAIL KIOSKS

Budget: $66,000

Performing Organization: Pierre Part Belle River Museum Inc.

Partners: Recreation Trails Program, Atchafalaya National Heritage Area, Community Volunteers, Sponsorships, Pierre Part Belle River Museum, Fundraisers, LA Office of the Lieutenant Governor, Department of Culture, Recreation and Tourism

Project Period: January 2027-July 2027

Objective:

1. Install nine weather-resistant interpretive kiosks at key narrative points along the trail to teach visitors about the Estuary ecosystem, native species, migratory birds, and wetlands functions.
2. Develop QR-linked audio stories in French, English, and additional languages as feasible to broaden access and support cultural and linguistic relevance. Launch a dedicated Trail Story Website that houses audio content, transcripts, and supplemental learning materials.
3. Collaborate with local French-speaking elders and cultural tradition bearers to develop oral

histories and nature-based stories tied to Acadian, Chitimacha, and Atchafalaya Basin lifeways.
4. Ensure trail content reinforces museum exhibits creating continuity between indoor cultural learning and outdoor education and discovery with onsite demonstrations and workshops.

Description: Heart of Atchafalaya Museum and Heritage Campus is being created to preserve the Acadian story and the traditional knowledge that has sustained families in the Atchafalaya Basin swamps. In this rural community of fewer than 5,000 residents, fishing, crawfishing, and wildlife-based livelihoods still depend on a healthy estuary. As the museum prepares to open in early 2027, new campus features such as the historic barn and open pavilion, completing in 2026, will expand outdoor teaching and demonstration space. To fully activate these assets, the project will add nine interpretive kiosks along the heritage trail, providing multilingual QR-based audio stories. These enhancements will link museum exhibits to real swamp environments, including a borrow pond and active rookery, offering visitors culturally-rooted and place-based learning. By blending oral histories from French speaking elders with hands-on ecological exploration, the project will broaden engagement, attract visitors, and strengthen community stewardship of the Atchafalaya Basin and the BTES.

Outcomes/Final Deliverables: This project will deliver nine interpretive kiosks with multilingual QR-linked audio stories and a Trail Story Website hosting audio, transcripts, and education materials. All kiosks will be fully installed along the Heritage Walking Trail, including swamp, rookery, and native plant zones, creating a cohesive indoor-outdoor learning system. We anticipate annual outcomes to include 200-300 community members engaging in cultural and environmental programs that utilize our Heritage Trail, and 200-300 visitors using the QR audio tours. Visitors and students will gain measurable understanding of wetlands functions, rookery health, migratory birds, native plants, and cultural traditions tied to the Atchafalaya Basin. Hands-on activities such as water quality testing, wildlife and plant ID, and simple restoration tasks will directly support BTNEP goals for education, stewardship, and cultural preservation. Annual reports will track visitor use, data, and feedback for continuous improvement.

	1*	2	3	4	5	6	7
Scope Lock for 9 kiosk locations	x						
Story framework and content	x	x					
Scriptwriting		x	x				
French script translations			x				
Technical architecture and platform setup – hire designer/technology	x						
Website build for Listening Tour Hub		x	x				
QR code system and link strategy(s)			x	x			
Kiosk design and mockups			x	x			
Audio Production (studio)				x			

Integration to museum technology hub					x		
Fabrication package/ procurement					x		
Installation and Punch List						x	
Launch							x
Maintenance & Sustainability plan							x

*Year 1, Month 1 indicates date of full execution of the subaward/subcontract and project start date.

How the Project Supports the CWA: This project directly supports the CWA by expanding public understanding of how wetlands, swamps, and estuarine habitats protect and improve water quality in the Barataria-Terrebonne system. Through interpretive kiosks, multilingual QR-based audio stories, and STEM programming, visitors and students learn about natural filtration processes, sediment retention, nutrient cycling, and the role of healthy vegetation in reducing pollutants. The project teaches the connection between rookery health, biodiversity, and clean water, demonstrating how wildlife present reflects broader ecosystem integrity. Hands-on activities such as water quality demonstrations, field observations, and basic restoration tasks further build community awareness of pollution, and the importance of intact wetlands in meeting CWA goals. By increasing environmental literacy and promoting stewardship behaviors, it strengthens community capacity to support long-term water quality protection, aligning directly with BTNEP's responsibilities under Section 320 of CWA.

How this Project Supports EPA's "Powering the Great American Comeback Initiative": The project supports a rural, economically distressed community within the BTNEP System; an area with limited access to cultural, STEM, and environmental education resources. Residents face ongoing challenges linked to land loss, water quality issues, and declining economic opportunities. By adding interpretive kiosks and outdoor experience programming, the project brings high-quality tools to a community that lacks outdoor hands-on experiences in schools today. These new assets expand opportunities for local students and families, strengthen cultural identity, and build practical knowledge of the wetlands that sustain this region. It also helps close opportunity gaps by ensuring rural residents gain access to environmental learning and stewardship experiences typically available only in more affluent area. In doing so, it advances environmental justice and supports a more resilient, informed community.

CCMP Action Plans:
E-1: Improve Environmental Education
C-1 Enhance Cultural Heritage Preservation
H-3: Protect and Promote Native Species and Habitat

NAME: ASSESSING POTENTIAL IMPACTS OF INVASIVE GIANT APPLE SNAILS ON EGG-LAYING NATIVE FISHES

Budget: $49,263

Performing Organization: University of New Orleans Pontchartrain Institute for Environmental Sciences, Dr. Martin O'Connell

Partners: N/A

Project Period: January 1, 2027 – December 31, 2027

Objective:
1. In 2027, land surveys for Giant Apple Snail shells and eggs along Highway 23 ditches will be conducted to determine where this species currently occurs.
2. Twelve potential sampling sites will be identified (six where Giant Apple Snails occur and six where they do not occur) and then fishes will be sampled in these sites using a standardized cast net sampling method.
3. The relative abundance of native oviparous fishes number and the composition of the fish assemblages will be compared between habitats where Giant Apple Snails occur and do not occur.

Description: The Giant Apple Snail (*Pomacea maculata*) is native to southern South America, but has become established as an invasive species in Europe, Asia, and North America. In Louisiana, *P. maculata* have dispersed through various artificial and natural waterways to become established in multiple parishes. An analysis of historical and recent fish assemblage data collected from waterbodies in Orleans Parish suggested that *P. maculata* impacted native fishes. In particular, native oviparous (i.e., egg-laying) fishes appeared to be less common in habitats where *P. maculata* occurred in high density. Field observations from two recent research projects in Plaquemines Parish confirm that Giant Apple Snails occur in freshwater habitats near Belle Chasse (e.g., Barriere Canal) but do not occur farther south in freshwater habitats near West Pointe a la Hache. We propose to statistically test if the relative abundance of native oviparous (i.e., egg-laying) fishes is significantly lower in habitats where Giant Apple Snails occur by sampling fishes in six sites where Giant Apple Snails occur and six sites where they do not occur. By testing this a priori prediction with such an approach, we will strengthen the certainty that Giant Apple Snails actually threaten native oviparous fishes. That is, if we do find significantly fewer native oviparous fishes in the presence of the invasive snails, this is stronger evidence that the fishes are being impacted as compared to making conclusions based on observational correlations of historical data. Robust results from the proposed research would allow managers to better communicate the fact that Giant Apple Snails are directly reducing populations of native aquatic organisms.

Outcomes/Final Deliverables: There are two possible outcomes of our proposed project: we determine that the relative abundance of native oviparous (i.e., egg-laying) fishes is significantly lower in habitats where Giant Apple Snails occur OR there is no difference in relative abundance of native oviparous fishes between habitats where Giant Apple Snails occur and habitats where Giant Apple Snails do not occur. If we determine that the invasive snails are negatively impacting native fishes, then this evidence provides managers a strong argument to better control populations of Giant Apple Snails. If we determine that the invasive snails do not negatively impact native fishes, we would suggest managers take a cautious 'wait-and-see' approach to potential ecological threats posed by Giant Apple Snails. The final deliverable will be a completed final report for BTNEP.

Milestone	1	2	3	4	5	6	7	8	9	10	11	12
QAPP STARTED AND COMPLETED	X	X	X									
SUPPLIES ORDERED AND RECEIVED	X	X	X	X								
LAND SURVEYS FOR GIANT APPLE SNAIL			X	X								
FIELD SAMPLING AT FOUR SITES					X	X						
FIELD SAMPLING AT FOUR SITES							X	X				
FIELD SAMPLING AT FOUR SITES									X	X		
SAMPLE PROCESSING AND DATA ANALYSIS											X	X
FINAL REPORT AND PRESENTATION											X	X

*Year 1, Month 1 indicates date of full execution of the subaward/subcontract and project start date.

How the Project Supports the CWA: This proposed project supports the CWA by safeguarding and revitalizing communities; cleaning up and restoring land for productive uses and healthy communities; reducing waste and preventing environmental contamination; and preparing for and responding to environmental emergencies. The lifestyle of recreational and consumption fishers of the Plaquemines Parish community is threatened by the introduction of Giant Apple Snails into local aquatic habitats. Our proposed project will help identify and prevent potential impacts and further environmental contamination from this 'bio-pollutant'. Our insights will also help prepare the community for any potential future environmental impacts.

How this Project Supports EPA's "Powering the Great American Comeback Initiative": This proposed project will help Americans have access to clean water, not sullied by non-native organisms (Pillar 1). The information generated by this project help partners at the state and federal levels to ensure projects better safeguard our environment (Pillar 3).

CCMP Action Plans:
EM-15: Protection and Enhancement of Native Biological Resources
EM-16: Reduction of Impacts from Invasive Species

NAME: DERELICT CRAB TRAPS DETECTION AND BYCATCH ASSESSMENT IN THE TERREBONNE AND BARATARIA BASINS USING IMAGING SONAR AND AUTOMATED SPECIES IDENTIFICATION: GUIDING REMOVAL PRACTICES WITH ADVANCED TECHNOLOGY

Budget: $87,437

Salary	$	47,773
Fringe	$	12,664
Travel	$	-
Supplies	$	6,000
Equipment		-
Other	$	21,000
Total	$	87,437

Performing Organization: LUMCON, Dr. Guillaume Rieucau

Partners: Konner Lockfield, Louisiana Department of Wildlife and Fisheries; Pointe-au-Chien Indian Tribe; Dr. Jose Castillo (University of Madrid, Spain)

Project Period: January 2027 – December 2028

Objective: The main objective of this proposed project is to apply a reliable method to precisely locate derelict crab traps in the Terrebonne and Barataria Basins and to determine the extent of the by-catch prior to removal to enhance efficiency of management actions. Our real-time monitoring will allow us to focus removal efforts during regulatory commercial crab fishery closures on traps occupied by "ghost-fished" targeted (blue crabs) and untargeted species (e.g., diamondback terrapin). In collaboration with active partners (LDWF), commercial fishermen and local communities (Pointe-Au-Chien Indian Tribe), the approach will guide removal practices by providing unprecedented information about the exact location (GPS coordinates, depth, presence of debris/hazard that may interfere with traps removal), bycatch rate, species identification of "ghost-fished" individuals and their behavior/health status (active, injured or deceased). Overall, this project aims to 1) map the derelict crab trap locations prior to closure and removal effort, and 2) target the derelict traps of high priority in case of bycatch of endangered species in the Terrebonne and Barataria basins to improve conservation efforts for threatened and commercially valuable bycatch species.

Description: In Louisiana, abandoned or lost crab traps, so-called derelict or "ghost" traps, pose a significant environmental threat and hazard in coastal waters and are considered as important marine debris. These traps continue to catch marine life indiscriminately long after being discarded or lost (i.e. "ghost fishing"). The current number of derelict traps in the Terrebonne and Barataria Basins is currently unknown as commercial fishermen are not limited to a number of traps. Concerns due to ghost fishing have been raised for several species including blue crabs, fishes, and the diamondback terrapin listed as a "species-of-concern" in Louisiana. Beyond ecological damages, abandoned crab traps also have economic consequences for Louisiana's fishing industry, leading to long-term declines in harvestable crab stock. In response, LDWF has led the annual Derelict Crab Trap Removal program since 2004, with the recent participation of BTNEP, totaling over 58,000 ghost traps removed with 1,102 in 2025. However, the remaining number of derelict traps cannot be accurately assessed. *As the successful removal of ALL derelict crab traps in a considered area is currently unrealistic, it becomes*

economically and ecologically urgent to develop means to prioritize removal of occupied ghost traps in order to reduce the detrimental effects of bycatch of targeted and untargeted organisms. Until now, it was not possible to determine whether traps were occupied until completely removed from the water, imposing important time and cost constraints.

By using a high-resolution imaging sonar (ARIS Explorer 3000) available in Dr. Rieucau's lab, this project will offer a unique way to enhance pre-closure mapping by providing unprecedented information to LDWF to plan their removal effort by targeting zones of high occurrence of bycatch, while prioritizing traps occupied by critical species such as the diamondback terrapin.

Outcomes/Final Deliverables: Using a high-resolution imaging sonar, coupled with an automated detection algorithm, this project aims to *i)* locate derelict crab traps, *ii)* assess bycatch, and *iii)* identify with precision "ghost-fished" species in real-time.

	Months																							
Milestones/Months	**1***	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Task 1- QAPP																								
Training data processing and storage	X	X				X						X						X						
Student training	X	X				X	X					X	X					X	X					
Task 2 - Parametrizing the algorithm	X	X									X	X												
Task 3 - Sonar detection of derelict traps		X	X	X	X								X	X	X	X								
Tsk 4 - "Ghost traps" mapping					X	X	X	X									X	X	X	X				
Task 5 -Quartely Reports				X			X			X			X			X			X			X		
Task 6 - Final Report																							X	X

*Year 1, Month 1 indicates project start date.

How the Project Supports the CWA: This project will help mitigate the detrimental impacts of derelict crab traps, promoting a healthier marine environment and sustaining the valuable fishery industry in the Terrebonne and Barataria Basins. Marine debris are considered pollutants as they introduce harmful materials into waterways, causing negative impacts on the environment, wildlife, and human health. The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States in order to protect the U.S.'s water resources, conserve fish and wildlife population, and protect the public health and environment. Therefore, this project clearly supports the scope and missions of the CWA.

How this Project Supports EPA's "Powering the Great American Comeback Initiative": This project aligns with the Pillar 1 - Clean Air, Land, and Water for Every American - of the EPA's "Powering the Great American Comeback Initiative" as it aims at "[…] *protecting the environment and to clean up hazardous sites, while fostering economic growth for families across the country" and to ensure that "[…] every American should have access to clean air, land, and water".* In addition, a local commercial crab fisherman will be hired to follow Dr. Rieucau's team with his vessel during sonar survey to retrieve the identified traps ensuring revenue during the mandatory fishery closure period. This project also follows the objectives of Pillar 3 - Permitting Reform, Cooperative Federalism, and Cross-Agency Partnership - as our partnership with LDWF and their prior approval of the project ensures that "[*...]*

partners at the state and federal levels to ensure projects are being approved". Dr. Rieucau has regularly exchanged with LDWF to ensure that the project will follow LDWF's guidance and policies. LDWF's personnel and legal team reviewed and approved this proposal prior submission. Our innovative project that incorporates the development of an automated species identification will be performed through the implementation of an advanced Machine Learning (ML) and Computer Vision (CV) approach fits nicely with Pillar 4 - Make the United States the Artificial Intelligence Capital of the World - by uniquely using AI technology for coastal conservation effort and to protect the public health and environment. For all these mentioned reasons, this project clearly supports "[…] *agency's mission while energizing the greatness of the American economy*".

CCMP Action Plans:
EM 17: Improvement of Water Quality through the Reduction of Inshore and Marine Debris
EM 15: Protection and Enhancement of Native Biological Resources

NAME: EVALUATING MARSH AND MANGROVE BIOPHYSICAL RESILIENCE TO STORM EVENTS IN A CREATED WETLANDS

Budget: $148,271

Salary	$	68,750
Fringe	$	27,500
Travel	$	2,900
Supplies	$	5,071
Equipment	$	-
Other	$	44,050
Total	$	148,271

Performing Organization: LUMCON, Dr. Havalend Steinmuller

Partners: Dr. Brian Roberts, LUMCON

Project Period: 2 years (Fall 2026 – Summer 2028)

Objective:
1. Evaluate the relationship between dominant vegetation type (i.e., mangrove vs. saltmarsh), root characteristics, soil physicochemical properties, and soil shear strength within each created marsh to address the hypothesis that mangrove soil biophysical resilience to storm events will exceed that of marshes.
2. Quantify how biophysical resilience to storm events within mangroves and marsh soils differs across the landscape to address the importance of environmental heterogeneity.
3. Informed by previous results, conduct sampling across a transect of mangrove encroachment to understand how encroachment mediates resilience.
4. Ensure adoption of 'best practices' determined through research results by coastal restoration practitioners and managers.

Description: Marsh creation using dredge spoil, distinct from the organic-rich soils of natural wetlands, followed by planting with wetland vegetation, generally the native marsh grass *Spartina alterniflora*, is one strategy for coastal restoration. Created marshes are expected to evolve functional equivalence with 'natural' marshes, particularly in their capacity to buffer storm surge. In saltmarshes, wave attenuation increases with aboveground biomass, as vegetation increases surface roughness and breaks wave momentum. Yet, vegetation requires sufficient mechanical strength to anchor them during storm events. Without adequate strength, soils and plants are displaced and the habitat can convert back to open water. Soil physicochemistry and root-soil interactions contribute to shear strength, but their development in created marshes is poorly understood. Understanding the resilience of created marshes to storm events is a critical knowledge gap, rendered pressing by ongoing marsh creation work within the BTES.

A growing number of creation projects now incorporate black mangroves (*Avicennia germinans*) in response to mangrove expansion across the northern Gulf Coast. The encroachment of mangroves into saltmarshes has cascading implications for ecosystem structure and function. Mangroves are assumed to have deep, woody root systems that may enhance soil stability and storm-surge resilience compared to marshes. This hypothesis lacks empirical evidence. While some studies have evaluated how natural mangroves in tropical zones impact soil mechanical stability, the role of mangroves in mediating biophysical resistance of created marshes to storm events has yet to be evaluated within the distinct morphologies of mangroves that occupy the northern Gulf Coast.

This research will compare soil shear strength, a key proxy for soil biophysical resistance to storm surge, between *Spartina alterniflora* marshes and *Avicennia germinans* mangroves colonizing the same dredge-created platforms in Isle Dernieres to address the fundamental, but unanswered, question: How do mangroves compare to saltmarsh at enhancing biophysical resilience to storm surge in both dredge-based marsh creation projects and adjacent 'natural' marshes? Results from this work will be directly integrated into current marsh creation projects within the BTNE and along the northern Gulf Coast, ultimately increasing coastal resilience and sustaining critical ecosystem services.

Outcomes/Final Deliverables: This proposed work will generate the first empirically grounded evaluation of how mangroves and saltmarshes, growing both in isolation and together, contribute to soil biophysical resilience to storm surge in created and natural marshes, with particular emphasis on the barrier islands of the BTNE. Final outcomes will include a spatially explicit, multi-site dataset that captures vegetation structure, belowground biomass, soil physicochemistry, and soil shear strength and a high-resolution dataset that describes resilience of soils across mangrove-marsh transition zones. These data will support two peer-reviewed publications; the dataset and publications will both be made publicly accessible. Results will be integrated into LUMCON coursework to inform the next generation of Louisiana coastal end-users, managers, restoration practitioners, and scientists. In addition, results will be presented at regional scientific conferences. To directly implement our results into current and future management of the BTES and Louisiana coastline, the project will also produce a practitioner-focused white paper and seminar that detail best practices for maximizing soil biophysical resilience in marsh creation projects.

YEAR 1

Milestone	1*	2	3	4	5	6	7	8	9	10	11	12
Completion of EPA-approved QAPP	☒	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
Identify and scout sites, apply for permits	☐	☐	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐
Site sampling, data gathering	☐	☐	☐	☐	☐	☒	☒	☒	☒	☐	☐	☐
Data analysis and hypothesis testing for O1	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☒	☒
Data analysis and hypothesis testing for O2	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☒	☒
Quarterly monitoring reports and final report	☐	☐	☐	☒	☐	☐	☐	☒	☐	☐	☐	☒

*Year 1, Month 1 indicates project start date.

YEAR 2

Milestone	1	2	3	4	5	6	7	8	9	10	11	12
Targeted, high-resolution sampling across transects	☒	☒	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐
Dissemination of research results through peer reviewed journals	☐	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☒
Outreach campaign to directly implement results	☐	☐	☐	☐	☐	☐	☐	☐	☒	☒	☒	☒
Quarterly monitoring reports and final report	☐	☐	☐	☒	☐	☐	☐	☒	☐	☐	☐	☒

How the Project Supports the CWA: The proposed work will strengthen the chemical, physical, and biological integrity of coastal waters through improving restoration techniques via scientific research. The project will provide empirical data on soil stability, nutrient dynamics, and the effects of mangrove encroachment that directly inform §404 dredge-and-fill projects and permitting, specifically in evaluating how dredge spoil marsh creation can maintain wetland function and local water quality and enhance long-term ecological resilience. The project further improves best management practices under multiple CWA programs that promote science-based implementation of restoration actions, and advances the goals of the BTES program (§320).

How this Project Supports EPA's "Powering the Great American Comeback Initiative": The Great American Comeback Initiative prioritizes clean water, climate resilience, and healthy communities, as well as environmental action rooted in scientific evidence. This proposed project will generate data that strengthen each of these goals. Specifically, the project supports priorities to safeguard water resources and protect vulnerable coastal communities from climate-driven hazards, including storm events. This work will further improve the effectiveness of marsh creation projects that utilize dredge spoil, which aligns with the Initiative's focus on rebuilding natural systems and securing long-term environmental resilience across the Gulf Coast.

CCMP Action Plans:
EM-4: Beneficial Use of Dredged Material and Dedicated Dredging
EM-7: Flood Risk Reduction and Coastal Resiliency
EM-12: Improvement of Water Quality through Stormwater Management

SECTION 5: FY 2024 – FY 2026 ONGOING AND COMPLETED PROJECTS

FY23 IIJA Work Plan Projects	Performing Organization	Budget	Leveraged Funds	Total Project Cost	Status
Bayou Lafourche and Bayou Folse Watershed Home Sewage Assistance Program	South Central Planning and Development Council	$200,000	$225,966	$445,966	Ongoing
Canal Backfill Restoration	Lowlanders	$195,100	$358,365	$553,465	Ongoing
Barataria Terrebonne Basin Monitoring	Nicholls State University	$124,621	$92,621	$217,242	Ongoing
St. Charles Community Bayou Park and Launch	Bayou Lafourche Fresh Water District	$115,102.00	$980,000	$1,095,102	Ongoing
NSU Coastal Center Interactive Estuary Exhibit	Nicholls State University	$88,500.00	$70,000	$158,500	Ongoing
“The Precipice”	Louisiana Public Broadcasting	$50,000	$0	$50,000	Completed on 6/24/2024

FY24 IIJA Work Plan Projects	Performing Organization	Budget	Leveraged Funds	Total Project Cost	Status
Marguerite Moffett Sanctuary Boardwalk Decking Replacement and Extension, Signage, Waysides, Eagle-Osprey Nest Platforms and Parking Improvements	Orleans Audubon Society	$178,246	$19,805	$198,050	Ongoing
Outreach and Environmental Stewardship through Head-Starting Diamondback Terrapin	Nicholls State University	$146,451	$0	$146,451	Ongoing
Using Satellite Imagery and a Web-based Application for Early Detection and Management of Giant Salvinia in the BTNEP Region	LSU Ag Center, Department of Entomology	$81,000	$30,000	$111,000	Ongoing
Coastal Forest Recovery in the Barataria Basin	Woodlands Conservancy	$50,000	$0	$50,000	Ongoing
Protection and Restoration of Grand Isle's Maritime Forest	The Nature Conservancy	$32,175	$0	$32,175	Subaward pending with Board of Regents (BoR)
Strengthening the Barataria-Terrebonne Cultural, Linguistic, Economic, and Environmental Fabric through Heritage Education and Cultural Production	Télé-Louisiane	$105,997	$264,000	$369,997	Subaward pending with BoR
Sponges as Passive Samplers for Heavy Metals in Freshwater and Brackish Systems	Louisiana Universities Marine Consortium (LUMCON)	$107,414	$187,586	$295,000	Ongoing

BTNEP Website Redesign	Ann Laure Kasovich	$12,500	$0	$12,500	Contract pending with BoR
BTNEP Outreach and Educational Videos	Kyle Crosby, Dreadful Productions	$55,000	$0	$55,000	Contract pending with BoR
BTNEP Management Conference Support	White Car, LLC	$14,000	$0	$14,000	Contract pending with BoR

FY25 Work Plan Projects	Performing Organization	Budget	Leveraged Funds	Total Project Cost	Status
Phase I: Home Sewage Assistance Program in the Upper Bayou Terrebonne Watershed	SCPDC	$238,425	$0	$238,425	Ongoing
Evaluation of Long-Term Impacts of Stormwater Diversion on Water Quality and Wetlands	Comite Resources	$74,324	$0	$74,324	Ongoing
Journeys to Action	South Louisiana Wetlands Discovery Center	$65,000	$50,000	$115,000	Ongoing
Building a Barataria-Terrebonne Ecological-Cultural Economy	Télé- Louisiane	$50,000	$60,000	$110,000	Subaward pending with BoR
Native/Invasive, the podcast and radio show highlighting the work of BTNEP	Eve Abrams in conjunction with New Orleans/Baton Rouge Public Radio/ WWNO/KTLN /WRKF	$199,962	$0	$199,962	Ongoing

Identification of critical attractants to improve monitoring of classical biological control agents of the emerald ash borer within the Barataria-Terrebonne National Estuary	LSU Ag Center, Department of Entomology	$123,629	$0	$123,629	Ongoing

FY26 IIJA Work Plan Projects	Performing Organization	Budget	Leveraged Funds	Total Project Cost	Status
Water Quality Monitoring and A Home Sewage Assistance Program in the Upper Bayou Terrebonne Watershed	South Central Planning and Development Council	$200,000	$225,966	$445,966	Subaward pending with BoR
Population and Movement Ecology of Gulf Coast Box Turtles (*Terrapene carolina major*) in Southeast Louisiana	USGS	$199,150	$0	$199,150	Subaward pending with BoR
Seek and Destroy: Removal of Feral Hogs from the Barataria Basin via Helicopter and Ground-based Operations	U.S. Dept. of Agriculture, Wildlife Services	$270,000	$0	$270,000	Subaward pending with BoR
Water Hyacinth Biocontrol	LSU Ag Center, Dept. of Entomology	$144,886	$0	$144,886	Subaward pending with BoR