**III. FY 2020 DRAFT BTNEP PROJECTS**

*All EPA project ideas are vetted through three tiers at BTNEP: the BTNEP Action Plan teams, BTNEP staff, and the BTNEP Management Conference. Projects originate at the Action Plan level and are evaluated based on a variety of parameters including but not limited to: water quality, feasibility of project concept, affordability, partner input, community demands, value to habitat and species of concern, and educational and outreach value.*

**NEW PROJECTS**

**Name: LUMCON INDIRECT (10%)**

 **FY2020 New Project**

**Objective/Description:** Required funding to administer grant.

**Partners:** Louisiana Universities Marine Consortium (LUMCON)

**Estimated Budget:**

Sec. 320 Funding Request: $54,545

**Name: BTNEP PERSONNEL SALARY AND FRINGE**

 **FY2020 New Project**

**Objective/Description:** Provides support to BTNEP personnel category. Personnel funds are also taken from Louisiana State General Fund. These combined funds are used to assist with salaries and fringe.

**Partners:** State of Louisiana; General Fund, Louisiana Universities Marine Consortium (LUMCON) as fiscal agent.

**Estimated Budget:**

Sec. 320 Funding Request: $297,476

**Name: ADMINISTRATIVE OPERATING SERVICES**

 **FY2020 New Project**

**Objective/Description:** Funds items to include but not limited to: building rental ($28,795), automobile maintenance, boat maintenance, trailers, electricity, copiers, educational materials, dues, promotional equipment (including logo hats, towels, mugs, shirts, pencils, etc.), communications, and subscriptions.

**Partners:** Louisiana Universities Marine Consortium (LUMCON) as fiscal agent

**Estimated Budget:**

Sec. 320 Funding Request: $90,399

**Name: ADMINISTRATIVE FUNDS FOR SUPPLIES**

 **FY2020 New Project**

**Objective/Description:** Funds will be used to supplement administrative supplies in the budget for the BTNEP program. Funds items to include but not limited to: general office supplies, computers, computer supplies, educational supplies, vhf radios, auto supplies, and gasoline. Native plant production supplies ($5,000), fertilizer, cone-trainers and cells, potting container, potting soils, herbicides, pesticides, etc. Volunteer program supplies ($2,000) gloves, sunscreen, safety equipment, etc.);

**Partners:** State of Louisiana - General Fund, Louisiana Universities Marine Consortium (LUMCON) as fiscal agent

**Estimated Budget:**

Sec. 320 Funding Request: $40,000

**Name: ADMINISTRATIVE TRAVEL FUNDS**

 **FY2020 New Project**

**Objective/Description:** EPA considers personal, face-to-face contact with peers and colleagues essential for information sharing and technology transfer. Especially important is the need to communicate lessons learned to other NEPs, thereby avoiding pitfalls that NEPs may have encountered. The Agency also considers technology transfer from NEPs to other communities essential for the success of coastal watershed protection.

**Estimated Budget:**

Sec. 320 Funding Request: $10,000

**Name: LAYOUT OF THE 2021 TIDAL GRAPH CALENDAR**

**FY 2020 New Project**

**Objective:** To design a calendar for outdoorsmen that feature the tidal ranges for each day of each month that communicates relevant estuary issues in 12 monthly articles.

**Description:** A calendar will be designed for the Barataria-Terrebonne region that provides information relative to tidal movement with appropriate monthly articles about the BTNEP system for the 2018 calendar year. The numeric portion of the calendar will provide predicted tidal ranges for each day for each of the 12 months. In addition, the textual portion of the calendar will provide summary information on a variety of issues for each month in the form of monthly articles. Text for each of the articles will be accompanied by appropriate photographs and illustrations. In the past, this product has been one of the most popular items that is produced by the program and is in high demand.

This project provides for the layout and content, both text and pictures as a print-ready digital file. Partnering agencies are requested for collaboration in the development of textual information and the use of photographs. Sponsoring organizations are also request to help offset costs associated with printing and distribution.

**Partners:** deGravelles and Associates

**Outputs/Deliverables:** Layout and content of the 2021 Tidal Graph Calendar

**Estimated Milestones:**

* Initiation of contract
* Completion of textual content
* Completion of layout
* Printing of the calendar

**Estimated Budget:**

*Sec. 320 Funding Request: $9,000*

*Other Probable Contributions: Unknown at this time*

*Performing Organization: BTNEP*

*BTNEP Project Coordinator: Seth Moncrief, Public Involvement Coordinator*

*CCMP Action Plans: SR-1*

*Time Line: October 1, 2019 – September 28, 2020*

**Long term Outcomes:** Increase in the awareness of the citizenry about estuary issues related to water quality, habitat, migratory birds, invasive species, BTNEP Projects and culture.

**Name: MEDIA RELATIONS**

**FY 2020 New Project**

**Objective:** Tohelp the public gain a greater understandingof the issues in the BTES in an effort to change behavior. To produce communications tools that provide informational and educational materials about the BTES and activities to implement the CCMP

**Description:** Funds will be used to work with a media specialist team to help advance BTNEP’s print publications and website. As BTNEP advances the efforts to protect and preserve the land and water of the estuary it is vitally important to share these messages via various media outlets.

**Partners:** TBD

**Outputs/Deliverables:** Copies of all print products, summaries of web updates, and related publications will be provided by contractor.

**Estimated Milestones:**

* New Fact Sheets for 2020 projects - To be created as projects are completed and complied at the end of the calendar year
* Annual Report for 2019 – To be delivered in January of 2020
* Layout and Design for Projects – Annual Cleanup and other projects
* Weekly website updates to keep the BTNEP.org website relevant

**Estimated Budget:**

*Sec. 320 Funding Request: $11,000*

*Other Probable Contributions: Unknown at this time*

*Performing Organization: TBD*

*BTNEP Project Coordinator: Seth Moncrief, Public Involvement Coordinator*

*CCMP Action Plans: SR-4 and SR-1*

*Time Line: October 1, 2020 – September 28, 2022*

**Long term Outcomes:** Increase in the awareness of the citizenry about estuary issues related to water quality, habitat, migratory birds, invasive species, BTNEP Projects and culture.

**Name: 2020 BTNEP INDICATOR REPORT**

**FY 2020 New Project**

**Objective:** To create the third updated volume of a report using a small suite of environmental indicators to represent the environmental health of the BTES and, in certain instances, the effect of restoration and enhancement efforts by the BTNEP Partnership. These indicators represent some of the vital signs of the estuary, painting a picture of the overall health of the system and establishing an associational link to how our restoration efforts are working.

**Description:** The BTNEP Indicator report offers a simplified view of representative components of an extremely complex ecosystem. It is important to periodically check and report on these vital signs – and to use this information carefully and in the appropriate context as we try to understand trends in these key environmental indicators. A goal of this report is to help citizens understand how activities in the estuary directly impact the vitality of our regional economy, culture, and way of life.

**Partners:** Center for Bayou Studies

**Outputs/Deliverables:** Digital file of a 30-page report containing text, images, and data that reflect the overall health of the estuary. The indicators will be organized according to CCMP action plans. The file will be suitable for printing, and suitable for distribution on the BTNEP website.

**Estimated Milestones:**

October 2019 Accounts established, solicitations for data submitted

August 2020 Content submitted to Dept. of Art for Graphic Design

June 2021 Preliminary Draft of Indicator Report Printed and Reviewed

August 2021 Final Report Submitted

**Estimated Budget:**

*Sec. 320 Funding Request: $21,000*

*Other Probable Contributions: Unknown at this time*

*Performing Organization: Center for Bayou Studies, Dept. of Art, Nicholls*

*BTNEP Project Coordinator: Seth Moncrief, Public Involvement Coordinator*

*CCMP Action Plans: SR-4 and SR-1*

*Time Line: October 1, 2019 – September 28, 2021*

**Long term Outcomes:**

This Indicator Report will be the third version of this important data, which has been distributed every ten years. The report is meant to contain results based on scientific research, presented in a format that can be easily digested by a wide range of estuary stakeholders. This report will share a recognizable consistency with the past reports, including updates on many of the same indicators. However, this report may include modified indicators or new indicators according to trends identified by the contractors and BTNEP Project Coordinator.

**Name: 2020 FROM H-2-O: A WATER QUALITY WORKSHOP FOR TEACHERS FY 2020 New Project**

**Objective:** To conduct a teacher workshop on water quality that provides teacher with water quality sampling kits, context and information about how to sample, and information about how and where to download and upload data for classroom use.

**Description:** *From H-2-O* is a teacher workshop developed to train participants the methods for using water sampling and educational strategies to educate students about water quality and related issues within the BTES using LUMCON’s Bayouside Classroom (BC) program. Bayouside Classroom is LUMCON’s ongoing student-based water monitoring program. All data collected by students is entered onto the BC database (http://www.lumcon.edu/bayousideclassroom/), which can be viewed and used by anyone with an Internet connection.

*From H-2-O* is designed to allow teachers, informal educators, and scientists to work together to build a community that will foster scientific thinking and environmental stewardship within Louisiana. There are approximately 20 spaces available for the workshop.

The workshop focuses on the following major themes: (1) Why water quality is important, (2) Bayouside Classroom sampling techniques and use of equipment, (3) Collecting accurate data, (4) Entering data into and how to use the BC website, (5) Retrieving data and data use in the classroom, and (6) Using student data to teach others about water quality.

By the end of the workshop teachers should have the quality of understanding about Bayouside Classroom and water quality that they need to comfortably teach their students about water quality using the BC program.

**Partners:** *LUMCON, BTEF*

**Outputs/Deliverables:** Final report including participant evaluations, pre and post-tests, workshop participant binder, digital copy of photographs, digital copy of all presentations including the those made by the teachers on Day 3, and, if applicable, a presentation to the BTNEP Management Conference

**Estimated Milestones:**

1. Initiation of MOU agreement between BTNEP and LUMCON by April 2020
2. Completion of the workshop in Summer of 2020
3. Final report of the workshop to BTNEP by October 2020

**Estimated Budget:**

*Sec. 320 Funding Request: $6,000*

*Other Probable Contributions: Unknown*

*Performing Organization: Louisiana Universities Marine Consortium*

*BTNEP Project Coordinator: Andrew Barron, Water Quality Program Coordinator*

*CCMP Action Plans: SR-1, SR-7*

*Time Line: January 1, 2020 – December 31, 2020*

**Long term Outcomes:**

Increase awareness among educators and students about water quality issues, improve educator access to LUMCON Bayouside classroom database and information, increase educators’ and student’s knowledge about water quality issues, provide educators with tools for measuring water quality

**CWA Core Programs the Project Supports:**

(4) addressing diffuse, nonpoint sources of pollution, (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program, and (7) protecting Large Aquatic Ecosystems

**Name: WATERSHED/NO DUMPING SIGNS FOR BAYOU FOLSE AND BAYOU LAFOURCHE WATERSHEDS**

**FY 2020 New Project**

**Objective:** To increase awareness among the general public about water quality issues, watershed boundaries, and to prevent dumping of waste in the targeted watersheds

**Description:** During field sampling events on Bayou Folse, Site number 3, LEAU 4505, Bayou Cutoff bridge on Lefort Bypass road, BTNEP staff have repeatedly observed the dumping of various waste items. The list of things that have been dumped includes seafood waste, animal carcasses, tires, pipes, and garbage.

BTNEP has made the Bayou Folse and Bayou Lafourche priority watersheds targeted for work with partner agencies to focus on restoration of water ways.

BTNEP is proposing a project to pay for the costs of “No Dumping” and “Entering Bayou Folse Watershed” signs. The “No Dumping” signs would be placed on either side of the bridge on Lefort Bypass that crosses Bayou Cutoff. The watershed signs would be placed at strategic locations on major highways entering the Bayou Folse and Bayou Lafourche Watersheds.

**Partners:** Department of Environmental Quality

**Outputs/Deliverables:** 1) Sign design for the watershed sign and the no dumping sign; 2) Photographs of completed and installed signs

**Estimated Milestones:**

1. Selection of locations to install signs
2. Design of signs
3. Construction of the signs
4. Installation of signs by December 2020

**Estimated Budget:**

*Sec. 320 Funding Request: $2,000 (Operating Service)*

*Other Probable Contributions: Unknown*

*Performing Organization: Barataria-Terrebonne National Estuary Program (BTNEP)*

*BTNEP Project Coordinator: Andrew Barron, Water Quality Program Coordinator*

*Action Plans: SR-11, SR-15, SR-16*

*Time Line: January 1, 2020 – December 31, 2020*

**Long term Outcomes:**

Increase awareness among the general public about water quality issues, watershed boundaries, and to prevent dumping of waste in the targeted watersheds

**CWA Core Programs the Project Supports:**

(4) addressing diffuse, nonpoint sources of pollution, (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program, and (7) protecting Large Aquatic Ecosystems

**Name: BREEDING BIRD SURVEYS WITHIN THE BARATARIA-TERREBONNE ESTUARY**

**FY2020 New Project**

**Objective:** To continue monitoring of beach-nesting bird use within the Barataria-Terrebonne National Estuary.

**Description:**

Surveys conducted every 5 years by BTNEP since 2005 have documented breeding bird use in the Barataria-Terrebonne National Estuary by species such as Wilson’s Plover *(Charadrius wilsonia)*, Snowy Plover *(Charadrius nivosus),* Least Tern (*Sternula antillarum),* American Oystercatcher *(Haematopus palliates)*, Black Skimmer *(Rynchops niger)*, Common Nighthawk *(Chordeiles minor)* and other coastal breeding bird species. The purpose of the program is to identify and prioritize threatened coastal bird species; census and map populations of priority species; monitor and protect important nesting and foraging sites; and establish long-term protection programs for these birds and their critical habitats.

These breeding bird surveys cover over 97 miles of all suitable open habitats (beach, algal flat, wrack line and other intertidal and sub-tidal flats) within the Barataria-Terrebonne Estuary.

Coordinates, number of individuals, color band combinations if applicable and photo documentation if possible are recorded. Data is collected for the following species: Piping Plover, Snowy Plover, Wilson’s Plover, Red Knot, Least Tern, Black Skimmer, Reddish Egret, American Oystercatcher and Common Nighthawk. This biological survey data will be a continuation of existing data collected every five years since 2005.

**Partners:** BTNEP, Louisiana Department of Wildlife and Fisheries, Edward Wisner Donation, Audubon Louisiana

**Outputs, Deliverables:**

Extension of this project allows for the continuation of an existing bird population data time-series.

**Estimated Milestones:**

Surveys will be conducted in spring of 2020. Data will be added to existing database before the end of 2020.

**Estimated Budget:**

*Sec 320 Funding Request: $14,280*

*Other Probable Contributions: Unknown*

*Estimated Budget: $14,280*

*BTNEP Project Coordinator: Delaina LeBlanc, Migratory Birds Coordinator*

*CCMP Action Plans: EM-15*

*Time Line: April 2020 – Dec 2020*

**Long Term Outcomes:**

Contribute to understanding breeding bird population and developing conservation actions for beach nesting shorebirds.

**Name: DEVELOPMENT OF CHIMNEY SWIFT NESTING/ROOSTING TOWERS AND EDUCATIONAL KIOSKS**

**FY2020 New Project**

**Objective:** To develop Chimney Swift (*Chaetura pelagica)* nesting/roosting towers and educational kiosks.

**Description:** Chimney Swifts are a migratory bird species that play an important human service role in managing flying insect pests such as mosquitoes, termites and flies. They can eat up to 12,000 mosquitoes, termites, flies, and other insects each day. Chimney Swifts historically used large, hollow trees for nests and roosts. As the ancient forests were cut down, they learned to use chimneys and other structures instead. Traditional brick chimneys are now deteriorating and modern chimneys tend to be unsuitable for nest sites. Adding to the problem, some homeowners now cap their unused chimneys. This species has been in decline at a rate of 2.5% per year between 1966 and 2015, resulting in a cumulative decline of 72%, according to the North American Breeding Bird Survey. The Chimney Swift towers will provide essential nesting and roosting habitat for the species and they will provide new opportunities for interpretive education and wildlife observation.

**Partners:** BTNEP, BTEF, Thibodaux Recreation/Parks Department, Houma-Area Convention and Visitors Bureau

**Outputs, Deliverables:** Chimney Swift towers and educational kiosks will be installed within the estuary to provide suitable nesting/roosting habitat enhancements for a bird species that is in decline. Educational materials will be developed to promote the conservation of the species. Efforts will be made to assess the usage of the towers and outreach measures will be documented.

**Estimated Milestones:** The chimney swift towers and educational kiosks will be installed by the spring of 2020. BTNEP will develop new educational materials including fact sheets, pamphlets, webpages and social media posts highlighting the project throughout the project timeline.

**Estimated Budget:**

*Sec 320 Funding Request: $12,000*

*Other Probable Contributions: unknown*

*Estimated Budget: $12,000*

*BTNEP Project Coordinator: Natalie Waters, Bird Conservation Coordinator*

*CCMP Action Plans: EM-15*

*Time Line: July. 2019 – Dec 2020*

**Long term Outcomes:** The project will provide nesting and roosting habitat for Chimney Swifts and it will promote the conservation of the species.

**Name: 2020 ENVIRONMENTAL EDUCATION STATE SYMPOSIUM**

 **FY2020 New Project**

**Objective:** The objective is to provide an opportunity for formal and non-formal environmental educators to earn needed continuing education credits, learn new environmental education information and techniques, and network with other educators from around Louisiana and surrounding states.

**Description:** The 24th Annual Environmental Education State Symposium is scheduled for Baton Rouge on

**Partners:** Louisiana Environmental Education Commission, Louisiana Environmental Education Association, LDWF, CWPPRA, LUMCON, BTNEP, Shell Exploration and Production Company, Friends of Black Bayou, LA Sea Grant, Louisiana Science Teachers Association, and possibly other partnering agencies.

**Outputs/Deliverables:** Five day-long short courses will be offered in the Baton Rouge area or within a reasonable driving distance from the city. The following day, we will hold a keynote address and concurrent sessions at a Baton Rouge hotel or convention center.

**Estimated Milestones**: A request for proposals to receive bids from local venues is currently being drafted. By November of 2019, Venue, exhibitor and speakers will be booked. The Symposium will occur in March 2020.

**Estimated Budget:**

*Sec. 320 Funding Request: $ 1,000*

*Other Probable Contributions: Up to $24,000 from aforementioned partners*

*Estimated Budget: Total budget is estimated at $25,000*

*BTNEP Project Coordinator: Alma Robichaux, Outreach and Education Coordinator*

*CCMP Action Plans: SR-7*

*Time Line: January 2020-December 2020*

**Long term Outcomes:** Increase awareness among educators about wetland issues, improve educator access to information, increase educator’s knowledge about wetlands value and function, provide educators with tools for improved wetlands education.

**CWA Core Programs Addressed:** (5) protecting wetlands through education

**Name: 2020 SOUTH LOUISIANA WETLANDS DISCOVERY CENTER (SLWDC) SWAMP CAMPS**

 **FY2020 New Project**

**Objective:** To educate students on the basics of Louisiana’s wetlands and the importance of the Coast’s industries using daily field trips and activities.

**Description:** The Wetlands Discovery Center will offer three weeks of summer programs for nine to twelve-year-old students. Our camps will educate students on the basics of Louisiana’s wetlands and the importance of the coast’s industries using daily field trips and activities. Lessons from these activities will include native plant use, land subsidence, water quality, fish anatomy and estuary management to encourage students to preserve our coast. In addition to lessons on our coastal wetlands, the camps will also educate students on the oil and gas, fishing, and agriculture industries that support the economy of Southern Louisiana.

This program lays the foundation for our next generation to be successful and responsible while preserving their way of life into the future.

We can accommodate 25 students per week.

**Partners:** ConocoPhillips, T. Baker Smith, Submar, USDA.

**Outputs/Deliverables:** To measure the effectiveness of the camps’ lessons, students will take a pre-test before participating in any activities and a post-test at the conclusion of the week. We will be able to use these test scores to evaluate the student’s increase in knowledge about their coastal home. With these lessons, we expect our students to gain an appreciation of their coastal home and become good stewards of the estuary so they continue to have a place to live, work and play. We also expect students to gain knowledge about workforce opportunities of coastal Louisiana by visiting various industry offices in the area. We encourage our students to identify careers that interest them and explore educational requirements to pursue those careers.

* Copies of press releases and other publicity
* Camp agendas
* List and contact information for participants and presenters
* Participant evaluations
* Photographs of students in action
* Suggestions for improvement for next year
* Expected goals met? Why or why not?
* Final narrative about the project

**Estimated Milestones**: Register campers and hold 3-1 week camps in the summer of 2020. Photos, reports and test scores will be delivered to BTNEP

**Estimated Budget:**

*Sec. 320 Funding Request: $ 4,000*

*Other Probable Contributions:* ConocoPhillips, T. Baker Smith, Submar, USDA, SLWDC

*Estimated Budget: Total budget is estimated at $36,000*

*BTNEP Project Coordinator: Alma Robichaux, Outreach and Education Coordinator*

*CCMP Action Plans: SR-1, SR-2, SR-6, SR-7*

*Time Line: January 2020-December 2020*

**Long term Outcomes:** The students gain knowledge about importance of our wetlands and our coastal industries. They learn how the two work together and how to have both sustainably.

**CWA Core Programs Addressed:** (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program

**Name: TALKING TRASH TO TEACHERS EDUCATOR WORKSHOPS**

**FY2020 New Project**

**Objective:** To facilitate **educator workshops** throughout Louisiana featuring BTNEP curriculum, *Talking Trash to Teachers: Lesson Plans on Marine Debris.*Provide BTNEP “Oceans of Trash” lesson with professional illustrations.

**Description:** Two educator workshops will be facilitated featuring the BTNEP curriculum,

*Talking Trash to Teachers: Lesson Plans on Marine Debris.* These lessons give teachers and their students the opportunity to learn about marine debris and microplastics, its effects on marine ecosystems, ways to reduce the amount of waste entering oceans, and much more. The lessons are aligned with current Louisiana science standards and support the performance expectation “Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.” The lessons include teacher guides, student activities, and phenomenon exercises that develop issue awareness as student’s design ways to monitor and minimize marine debris.

Each workshop will be open to 20 teachers. Experienced educators will serve as facilitators. Environmental science graduate students from area universities will be invited as guest speakers. The workshops will be hosted at public venues such as libraries and will be advertised through social media, newsletters, websites, and email contacts.

**Partners:** Dottie Hartman, Stephen Porter, Environmental Science/Oceanography students from area universities, TBD

**Outputs/Deliverables:** Pre- and post- tests will be used to measure knowledge gained from the workshops. Also, an evaluation will be given to determine concepts learned, benefit of the training, lesson reflections, and possible classroom implementation of workshop ideas. Test and evaluation results will be included in a project report. Deliverables include:

* Pre- and post- test results
* Workshop evaluation results
* Publicity copies
* Workshop agendas
* Contact information for participants, guest speakers, facilitators, and illustrator
* Professionally illustrated “Oceans of Trash” lesson map
* Workshop photographs
* Suggestions for improvement
* Final project narrative

**Estimated Milestones:** January 2020 – December 2020 – 2 educator workshops will be hosted in the BTNEP area.

**Estimated Budget:**

 *Sec. 320 Funding Request: $ 4,000*

*Other Probable Contributions: Unknown at this time*

*Estimated Budget: Total budget is estimated at $9,000*

*BTNEP Project Coordinator: Alma Robichaux, Education Coordinator*

*CCMP Action Plan: SR-6, SR-7*

*Time Line: January 2020 – December 2020*

**Long-term Outcomes:** The project aims for participants to show an increase in marine debris and microplastic pollution knowledge and to reflect positive evaluation comments.

**CWA core programs the project supports:** (5) protecting wetlands through education, (6) protecting coastal waters throughout the National Estuary Program through education and stewardship building.

**Name: 2020 WETSHOP - LOUISIANA WETLAND EDUCATION TEACHER WORKSHOP**

 **FY2020 New Project**

**Objective:** To provide teachers with an intense look at wetland issues related to wetland habitats, botany, ecosystems, birding, history, coastal land loss and restoration, water quality, oil and gas exploration, fishing, seining, trawling, and fisheries management

**Description:** This project will provide teachers with one week of training on the above-mentioned topics. Teachers will be required to participate in a variety of activities that will improve their content information on wetland related issues. Content knowledge will be assessed by pre/post testing.

**Partners:** The Louisiana Department of Wildlife and Fisheries, LA Sea Grant, BTNEP, CWPPRA

**Outputs/Deliverables:** The deliverable will be a project summary document to include: workshops summary report, workshop agenda, images, list of participants, evaluations, pre and post test results with report

**Estimated Milestones**: By May of 2020, the Louisiana Department of Wildlife & Fisheries (LDWF) will provide an agenda and list of locations that teachers will visit during WETSHOP 2020. In June/July 2020, the Louisiana Wildlife & Fisheries Foundation in partnership with LDWF will host a 6-day wetland workshop for teachers. In the AY 2020/20, WETSHOP veteran teachers will provide in-service teacher trainings and/or wetland community service learning projects for their students or community on the values, issues and history of the Louisiana coastal ecosystem and the values of wetlands in general. LDWF will show this by workshop sign-in sheets, evaluation forms and pictures of events and teacher portfolios.

**Estimated Budget:**

*Sec. 320 Funding Request: $ 7,500.00*

*Other Probable Contributions: ≈ $26,000.00 (In kind and fees)*

*Estimated Budget: Total budget is estimated at $31,000*

*BTNEP Project Coordinator: Alma Robichaux, Outreach and Education Coordinator*

*CCMP Action Plans: SR-6, SR-7*

*Time Line: January 2020-December 2020*

**Long term Outcomes:** Increase awareness among educators about wetland issues, improve educator access to information, increase educators’ knowledge about wetlands, provide educators with tools for improved wetlands education. The most valuable long term outcome is that students will be educated by trained teachers who have had field experience.

**CWA Core Programs Addressed:** (2) identifying polluted waters and developing plans to restore them, (4) addressing diffuse, nonpoint sources of pollution, (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program, and (7) protecting large aquatic ecosystems.

**Name: IMPACT OF CUBAN SEDGE ON GIANT SALVINIA BIOCONTROL AND EVALUATION OF HERBICIDE OPTIONS**

**FY2020 New Project**

**Objective:** The objectives of the research are: 1) determine how the invasive emergent species Cuban sedge (*Oxycaryum cubense*) affects the growth and spread of giant salvinia (*Salvinia molesta*) and the salvinia weevil in the Barataria-Terrebonne National Estuary Program (BTNEP) and 2) screen for aquatic herbicides that selectively control Cuban sedge without negatively impacting the salvinia weevil nor its host. Collected data will provide insight into the impact of Cuban sedge on the dispersal of giant salvinia and its biological control agent, salvinia weevil (*Cyrtobagous salviniae*) in field sites. In addition, herbicide efficacy data may provide improve Cuban sedge management in locations where salvinia weevils are used alone or in an integrated pest management (IPM) approach.

**Description:**

Giant salvinia is a floating aquatic fern that is native to South America (Harley and Mitchell 1981). In Louisiana and Texas, giant salvinia forms dense mats that displace native vegetation, alter water quality, increase mosquito breeding, and impede waterways and recreational activities (Tipping 2004). Since 2001, the biological control agent salvinia weevil has been mass released throughout Louisiana and Texas to control giant salvinia (Johnson et al. 2010). Both adults and larvae impact the growth of *S. molesta*, but larval tunneling is the most detrimental to the plant causing destruction to the vascular tissue and nutrient flow (Thomas and Room 1986, Julien et al. 1987). Other than chemical control (i.e. aquatic herbicides), biological control is one of the most cost effective technologies used to control this invasive species in the Southeastern U.S.

Cuban sedge is an invasive emergent aquatic plant that makes transient floating mats (Tur 1971, Mallison et al. 2001) and relies on other aquatic plants, such as giant salvinia and water hyacinth (*Pontederia* *crassipes*), for establishment (Tur 1971), structure and support. This cohabitation of invasive species further restricts water use, impedes the growth of other aquatic vegetation (Bryson et al. 1996). In addition, this may limit the spread of salvinia weevils to other target giant salvinia populations, restrict herbicide contact/uptake for the control of giant salvinia, and Cuban sedge is likely detrimental to the weevils since their host plant is deprived of light, nutrients, etc. Although a substantial amount of small-scale research has been conducted to investigate efficacy of herbicide against giant salvinia (Nelson et al. 2001, Netherland 2014, Mudge et al. 2016, Sartain and Mudge 2018), limited efforts have been conducted to find suitable products for Cuban sedge control (Watson and Madsen 2014).

Swamps and bayous in the BTNEP are invaded by giant salvinia and Cuban sedge (Barataria-Terrebonne National Estuary Program 2010). Further spread of Cuban sedge into this area will be detrimental to the native aquatic flora and fauna that are already negatively impacted by other aquatic weeds such as water hyacinth, alligatorweed (*Alternanthera philoxeroides*), and hydrilla (*Hydrilla verticillata*). It is critical to better understand the impacts of Cuban sedge on salvinia weevils and giant salvinia, as well as determine if herbicide applications are possible without impacting the biological control of giant salvinia. Therefore, field sites within the BTNEP will be scouted for mixed populations of Cuban sedge and giant salvinia to determine salvinia weevil counts and ratio of Cuban sedge:giant salvinia. In addition, replicated trials will be conducted to investigate the impact of Cuban sedge on weevil-infested giant salvinia.

**Partners:**

Ms. Rachel Watson, Research Associate, Louisiana State University Agricultural Center (LSU AgCenter), Department of Entomology

Dr. Christopher R. Mudge, Research Biologist U.S. Army Engineer Research & Development Center/Adjunct Professor, LSU School of Plant, Environmental & Soils Soil Sciences (SPESS)

Dr. Rodrigo Diaz, Assistant Professor, Louisiana State University, Department of Entomology.

**Outputs/Deliverables and Estimated Milestones:**

**Task 1**: Within the BTNEP, field sites will be scouted for mixed populations of Cuban sedge and giant salvinia and plant samples will be collected and processed to determine salvinia weevil densities and ratio of Cuban sedge: giant salvinia. In addition, both species will be established in outdoor mesocosms at the LSU Aquaculture Research Facility in Baton Rouge. To investigate the impact of Cuban sedge on weevil-infested giant salvinia, replicated trials will be conducted upon establishment of the plants. Tanks containing giant salvinia plus Cuban sedge or giant salvinia alone will be inoculated with the same number of weevils. Plant biomass and weevil densities will be monitored periodically (weekly to monthly). **Deliverable**: We will provide BTNEP with a summary report containing GPS locations and description of scouted sites and salvinia weevil population numbers. **Estimated Completion**: June 2020. **Cost**: $2500. Cost includes salary for student worker to assist with field plant collection and mesocosm trials (process samples and maintain cultures), as well as fuel for vehicle and boats.

**Task 2**: A selectivity trial will be conducted to determine the phytotoxic and toxic effects of aquatic herbicides [Section 3 U.S. Environmental Protection Agency (USEPA) registered products] on Cuban sedge, giant salvinia, and salvinia weevils, respectively. The outcome of this research will be used to determine if Cuban sedge can be controlled with herbicides without negatively hindering biological control efforts for management of giant salvinia. **Estimated Completion**: September 2020. **Cost**: $2000. Cost includes salary for student worker to assist with mesocosm work as well as tanks, fertilizer, and other mesocosm supplies.

**Task 3**: Conduct data analysis and report findings of Tasks 1 and 2. **Deliverable**: A summary report of the field findings and herbicide screening trial will be provided to BTNEP and the results will also be submitted to a peer-reviewed journal. In addition, the data will be presented at an upcoming scientific conference such as The Aquatic Plant Management Society (APMS) or MidSouth APMS. **Estimated Completion**: Winter 2020. **Cost**: $800. Cost includes travel expenses to conferences (per diem, airfare, registration, etc.) and publication fees.

**Estimated Budget:**

*Sec. 320 Funding Request: $* 5,300

*Other Probable Contributions:* In-kindassistance (guidance, boats, labor, facilities, etc.) from the Louisiana Department of Wildlife and Fisheries & U.S. Army Engineer Research & Development Center. In addition, we will solicit herbicide manufacturers to supply courtesy product for research trials.

*Estimated Budget: $* 5,300

*BTNEP Project Coordinator: Seth Moncrief, BTNEP Public Involvement Coordinator*

*CCMP Action Plans: EM-16*

*Time Line:* March 2020 – September 2020.

**Long term Outcomes:** Invasive floating plants, such as giant salvinia and Cuban sedge, impact natural ecosystems, block waterways used for navigation and recreational use, and create poor fisheries habitat due to low dissolved oxygen and high levels of organic matter in the water, along with causing economic impacts and public health concerns. With the ongoing spread of Cuban sedge, the biological control of giant salvinia might be restricted, thus potentially hindering the distribution of the salvinia weevil. By investigating the impacts of Cuban sedge on the salvinia weevil and herbicide options for Cuban sedge without affecting the biological control agent, these findings will provide native aquatic vegetation within the BTNEP an opportunity to recover from these invasions.

**Name: IMPACTS OF GIANT SALVINIA ON AQUATIC INSECT COMMUNITY AND SUBMERGED AQUATIC VEGETATION IN THE BARATARIA-TERREBONNE ESTUARINE SYSTEM**

**FY2020 New Project**

**Objective:** The goal of the proposed research is to understand how giant salvinia impacts aquatic insect life history and alters community structure. The specific objectives are 1) determine if aquatic insect aerial dispersal is impacted by giant salvinia and fish presence; 2) determine how aquatic insect communities respond to giant salvinia invasion, and how they differ from communities in SAV habitat.

**Description:**

Freshwater marshes are critical habitat for numerous species and provide essential ecosystem services, which benefits human populations (Costanza et al. 1997, Engelhardt & Ritchie 2001). However, invasion from free-floating plants, such as giant salvinia (*Salvinia molesta*), alters and limits services provided by the ecosystem (McFarland et al. 2004). Native submerged aquatic vegetation (SAV) provide oxygen, habitat, shelter and nutritional resources for numerous organisms (Carpenter and Lodge 1986, Castellanos and Rozas 2001). Invasion of giant salvinia results in a floating mat which forms a barrier between the aquatic and terrestrial environments. This limits light transmission, gas exchange and terrestrial inputs to the aquatic environment, thus reducing SAV abundance and altering ecosystem function (Rommens et al. 2003). In addition to impacting SAV, other organisms, such as fish and aquatic insects, are impacted through the rapid loss of habitat. The habitat loss will alter aquatic insect communities, and as the structure of the community changes there may be consequences for adjacent trophic levels and the rest of the ecosystem (Diehl and Kornijów 1998). Changing the aquatic insect community composition will alter the diets of higher trophic levels, such as fish, and could lead to reduction in abundance or biomass for those organisms. Aquatic insects are critical to the function of the marsh and serve as a link between plants, fish and waterfowl in marsh ecosystems. Yet despite their importance to the flow of energy in aquatic ecosystem, no research has been conducted examining how aquatic insect communities are impacted by giant salvinia invasion. Understanding how aquatic insects, and in turn other organisms, are affected by giant salvinia altering the aquatic ecosystem will result in greater knowledge about ecosystem dynamics, recovery and management practices.

To examine the interaction between giant salvinia and aquatic insects, we propose two mesocosm experiments and a field surveys. As a floating plant, giant salvinia can impede access to open water, and aquatic insects rely on open water to complete their life cycle and colonize habitat (Merritt and Cummins 2008). The first mesocosm experiment will examine how aerial dispersal of aquatic insects is impeded by giant salvinia. Treatments with varying percentages of giant salvinia coverage, ranging from 0-100%, will be tested to examine the effect on aquatic insect colonization. The second mesocosm study will examine how giant salvinia impacts SAV production and biomass. We will also determine the impacts on environmental conditions, such as dissolved oxygen, light availability, and water nutrients. In addition to the mesocosm study, field surveys in the Barataria-Terrebonne system will be conducted to examine how aquatic insect communities adapt to giant salvinia invasion. Quarterly surveys will take place in non-infested sites containing native SAV and sites infested with giant salvinia. Sampling between SAV and giant salvinia habitats will illustrate how aquatic insect communities differ between habitat types, and long-term change in community composition and structure.

**Partners:** Charles Wahl (PhD student, Louisiana State University), Rodrigo Diaz (Assistant Professor, Louisiana State University)

**Output/Deliverables:** Aquatic insect community data will provide data on how these organisms are impacted by giant salvinia invasion. Mesocosm studies will determine if giant salvinia presence disrupts colonization of aquatic insects and to what extent the community may be hindered by giant salvinia. Field sampling will determine how aquatic insect communities in the Barataria-Terrebonne system are impacted when giant salvinia invades and persists in a location. Peer-reviewed publications and presentations at professional conferences will be delivered.

**Estimated Milestones:** Mesocosm studies will take place from March – October 2020. Field sites will be established and sampled in November 2019, and will be sampled again in February, May, August 2020. Data will be analyzed after the completion of each study.

**Estimated Budget:**

Sec. 320 Funding:$8,000

*Other Probable Contributions:* $38,000 (Research Assistantship for C. Wahl, LSU)

*Estimated Budget $46,000*

*BTNEP Project Coordinator: Seth Moncrief, BTNEP Public Involvement Coordinator CCMP Action Plans: EM16*

*Time Line:* November 2019- August 2020

**Long Term Outcomes:** Giant salvinia has been impacting Louisiana and the Barataria-Terrebonne system for the past 20 years. Due to its rapid growth and ability to form mats, salvinia can alter the flow of energy in aquatic ecosystems by limiting primary production and degrading environmental conditions. SAV and aquatic insect communities are important to the function of the Barataria-Terrebonne system, and understanding how giant salvinia impacts these communities will provide land managers knowledge about how to best manage infestations to limit the impact on the ecosystem. In addition, knowing how these communities are altered by giant salvinia can provide insight on how energy flow to higher tropic levels, such as fish, are potentially hindered through resource limitation. This can be valuable to resource managers who are interested in long-term, large scale impacts from giant salvinia invasion.

**Name: 2020-2021 BAYOU CULTURE COLLABORATIVE STORIES**

**FY2020 New Project**

**Objective:** The objective of this project is tocommission narratives from researchers and community scholars about life and culture in the Estuary, as part of the Bayou Cultural Collaborative.

**Description:** At least 3 community scholars or researchers who have conducted projects or done field work in Estuary will produce at least 4 articles or narratives based on their observations, data, and lived experience. Anticipated topics could include Traditional Gardening Down the Bayou; Roadside Stands and Home-Based Selling; Passing on Hunting and Fishing Traditions; Hunting and Fishing Camps; Crab Boils and Family Gatherings; Packing Our Cultural Suitcases: Heritage Survival in the Face of Relocation. These articles will be part of the larger collection of narratives about the Coastal Region as part of the Bayou Culture Collaborative (see partners).

**Partners:** The Bayou Cultural Collaborative consists of the Louisiana Folklore Society, the South Louisiana Wetlands Discovery Center, the Nicholls State University Bayou Studies Center, the Louisiana Lt. Governor’s Office, and the Louisiana Division of the Arts.

**Outputs/Deliverables:** The Bayou Stories Project will collect 4 narratives, between 3,000 and 5,000 words, along with photographs. Some narratives will be more factually focused; however, all articles will be written for the general public. The narratives will be edited by the project director and then submitted to the BCC for publication in print and electronically. In addition, BTNEP, as a partner, will have access to the narratives to communicate information about vital cultural lifeways to the larger public. This Project will be one part of the larger region-wide collection of narratives and professional articles.

**Estimated Milestones:** January–April 2020: Project director selects contributors in collaboration with the BCC members. May-August 2020: All contributors complete and submit narratives/articles and photos. September–November 2020: Editor reviews materials, asking for revisions where necessary. December 2020–February 2021: Revised narratives submitted to BCC, and collaborators (with BTNEP) meet to decide on usage of materials. March-June: Materials are uploaded and made available to the public. July 2020: Final report.

**Estimated Budget:**

*Sec. 320 Funding Request: $ 1,200 (4 articles @ $300)*

*Other Probable Contributions: The Louisiana Folklore Society and Division of the Arts*

*Estimated Budget: Total budget for this portion of the project is $1,200*

*BTNEP Project Coordinator: Seth Moncrief, BTNEP Public Involvement Coordinator*

*CCMP Action Plan: SR6, SR8*

*Time Line: January 2020- July 2021*

**Long-term Outcomes:** A permanent resource for public education and documentation of rapidly changing lifeways. In addition, the project provides an opportunity to partner on a region-wide effort to document, preserve, and present life in the Estuary.

**CWA core programs the project supports:** (5) protecting wetlands through education, (6) protecting coastal waters throughout the National Estuary Program through education and stewardship building.

**Name: ZERO WASTE AT THE 2019 ROUGAROU FEST IN SUPPORT OF THE SOUTH LOUISIANA WETLANDS DISCOVERY CENTER**

**FY 2020 New Project**

**Objective:** To make the Rougarou Fest a Zero Waste Event within the next four years.  With careful planning, all materials used and disposed of at the Rougarou Fest will be reusable, recyclable or compostable.  The festival currently hosts 5 stations for those recyclable and compostable materials. In addition to reducing the amount of trash produced by the event, we are proud to offer a Recycling Center where you can use the bottles and cans collected at the festival to buy festival merchandise. We are requesting $1,500 to: add 5 recycle/compost bins at the festival; to support outreach marketing teaching the community the importance of recycling and composting; and to support outreach teaching how to help the Rougarou Fest reduce waste

**Description:** The Rougarou Fest addresses several Action Plan Goals. By reducing waste at the festival which is held along Bayou Terrebonne, we will reduce debris from being blown into the bayou. The Rougarou Fest is a large, community-wide event run mostly by volunteers. Finally, the Rougarou Fest is a family-friendly festival with a spooky flair that celebrates the rich folklore that exists along the bayous of Southeast Louisiana. This cultural celebration is based on the idea that we must celebrate the habitat of the Rougarou.

**Partners:** *Terrebonne Parish Consolidated Government*

**Outputs/Deliverables:** Deliverables will include a final report with the outcomes of the Rougarou Fest such as pictures and videos of the event, print marketing pieces, 5 additional recycling/compost bins, social media posts and a comparison of the weight of total trash and recycling from the previous year.

**Estimated Budget:**

*Sec. 320 Funding Request: $1,500*

*Other Probable Contributions: Corporate Event Sponsors*

*Performing Organization: South Louisiana Wetlands Discovery Center*

*BTNEP Project Coordinator: Seth Moncrief, Public Involvement Coordinator*

*CCMP Action Plans: EM-17 Improvement of Water Quality through the*

 *Reduction of Inshore and Marine Debris*

 *SR-1 Community Engagement*

 *SR-8 Cultural Heritage and Lifeways*

 *EG-4 Marketing Sustainable Products and Practices*

*Time Line: January 1, 2019 – December 31, 2019*

**Long term Outcomes:** Public will have an increased knowledge and awareness about the unique folklore of Louisiana and the importance of reducing the amount of trash produced by large events.

## **FY 2020 PROJECT SUMMARY SHEET BY PROJECT NAME**

|  |  |  |
| --- | --- | --- |
| **Project Summary Sheet -Project Name** | **Cost** | **Subtotals** |
| LUMCON Indirect (10%) | $54,545 |  |
| Personnel Salary and Fringe | $297,476 |  |
| Administrative Operating Services – Rental Building  | $28,795 |  |
| Administrative Operating Services - (Ex: postage, freight, auto main., dues, subscriptions, communications) | $61,604 |  |
| Administrative Travel Funds  | $10,000 |  |
| Administrative Funds - Supplies for BTNEP Office | $33,000 |  |
| Farm Supplies/Plant Materials | $5,000 |  |
| Volunteer Program Supplies | $2,000 |  |
| Layout Of The 2019 Tidal Graph Calendar | $9,000 |  |
| Media Relations | $11,000 |  |
| BTNEP Indicator Report | $21,000 | $533,420 |
| H-2-O Teacher Workshops (Kits, teacher stipends) | $6,000 |  |
| Watershed/no dumping signs for watersheds | $2,000 |  |
| Development Of Chimney Swift Nesting/Roosting Towers And Educational Kiosks | $12,000 |  |
| Breeding Bird Surveys Within The Barataria-Terrebonne Estuary | $14,280 |  |
| Environmental Education State Symposium | $1,000 |  |
| SLWDC Swamp Camps | $4,000  |  |
| Talking Trash to Teachers | $4,000 |  |
| 2020 WETSHOP | $7,500 |  |
| Impact of Cuban Sedge on Salvinia Biocontrol | $5,300 |  |
| Giant Salvinia Impacts on Insects and SAV | $8,000 |  |
| Bayou Culture Collaborative | $1,000 |  |
| Zero Waste at Rougarou Fest | $1,500 | $66,580 |
| **TOTAL** | **$600,000.00** | **$600,000.00** |
|  |  |  |