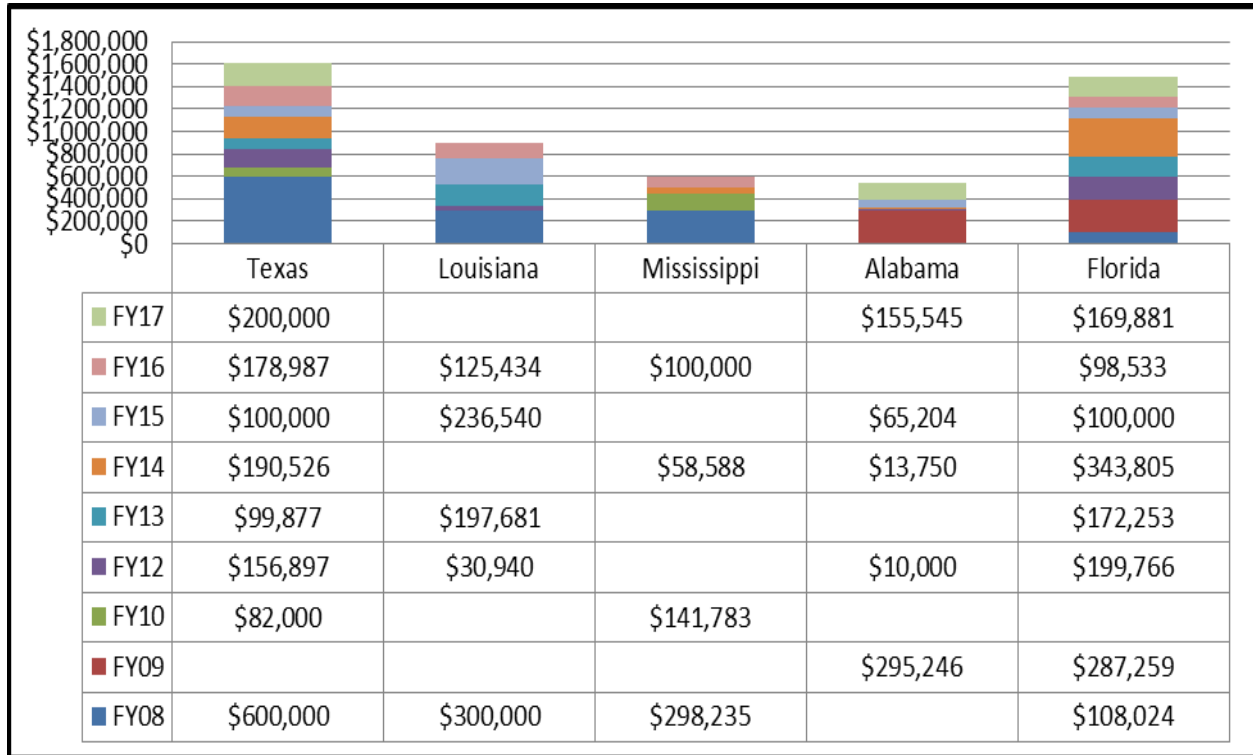


NOAA Gulf of Mexico B-WET Funded Projects

Since its beginning in 2008, the Gulf B-WET Program has funded 46 awards in each of the five Gulf States. The graph below provides a view of funding by state across each federal fiscal year.



The following is an overview of each of the B-WET projects funded in the Gulf.

TEXAS		
Organization	Project Title	Project Summary
University of Houston - Victoria	Gulf Coast Guadalupe River Watershed Teacher and Student Environmental Education	This project will continue to support MWEs accomplished by the 16 teachers who participated in the previous B-WET program receiving an additional 48 hours of professional development by continuing to learn new knowledge and skills on research-based and effective science instruction pedagogy delivered by the educational non-profit Biological Sciences Curriculum Study (BSCS) and the PIs, who will lead the watershed environmental water quality testing and analysis component. The MWE for students will be accomplished through stewardship project at a critical storm water channel and spring break camp; that project will also involve teachers and the community. An estimated 20 high school (9-12 grade) students are expected to participate in the camp with over 2000 students experiencing the stewardship project through classroom experiences and/or in the field. This project has support from the City of Victoria, the Victoria County Groundwater Conservation District (VCGCD), and the Victoria Independent School District (VISD). The data collected by the teachers during the professional development will continue the baseline data record of the watershed ecosystem of the Guadalupe River and the San Antonio Bay on the Texas Gulf Coast.

Texas State Aquarium	Coastal Bend Watershed Resilience Education, a NOAA Gulf of Mexico Bay-Watershed Education and Training Program	40 Coastal Bend middle school teachers will participate in 5 MWEE field investigations focused on coastal resilience between Aug 2017 and Apr 2018. Field guides, maps, sampling equipment, and curricular materials will be available at each site. During the first MWEE, the teachers will design a common methodology to implement during subsequent MWEE investigations; site experts, school district, City and AECOM specialists will be on-hand to answer questions, etc. After the MWEEs, participants will meet in Open Space to reflect and select priorities for student MWEEs. 10 teachers will develop and 10 will pilot 2 student MWEEs that integrate the Texas Coastal Resiliency Master Plan. TSA will pilot one student MWEE adapted from its 7th grade Bay Bytes fieldtrip. Edited student MWEEs will be published with the goals of improving watershed science and enhancing coastal resilience.
Artist Boat	Science + Action=Gulf Coast Literacy (Eco-Art Workshop and Adventure Program, Coastal Waters Institute, and Low Frequency AM Radio Station	Artist Boat – Science + Action = Gulf Coast Literacy will consist of experiential and place-based learning events for: 1) 7th and 8th grade students via in-class Eco-Art Workshops and outdoor, Eco-Art Adventures via kayaks and vessels; 2) professional development training for teachers through the Coastal Waters Institute (one-week long course) that will include training and experiences in the field, training on curriculum designed across the curriculum specific to student events and the local coastal environment; and 3) a media campaign on campuses that is student-driven, in the form of low-frequency AM radio stations broadcasting weekly messages about the coastal environment and distribution posters/postcards designed by students to inform the local community about their radio station. The goal of this proposal is to broaden service of the Eco-Art Workshop and Adventure program to teachers and students from the Galveston Bay region to communities throughout the broader coastal Texas and Louisiana region, serving 16,800 7th and 8th grade students and teachers in Texas and Louisiana over a three year period.
Hidalgo Independent School District, Hidalgo, Texas	Rio Grande to the Texas Bay Ecosystem Studies for K-12 Students and Teachers: An Interdisciplinary Gulf of Mexico B-WET Exemplary Project to build long term capacity	Develop capacity to institutionalize Hidalgo/Pharr school community to be aware, knowledgeable, and active in promoting stewardship of the GOM Bay/Rio Grande area environmental ecosystem. Primary Objectives: (1) Plan and implement an year-long interdisciplinary Senior project that involves student-teacher teams to develop content and strategies for integrating TAKS standards aligned environmental studies concepts and methods into STEM courses/instruction in K-12 grades, (2)Develop the curricular infrastructure (training, materials and schedule plans) for implementing the interdisciplinary strategies (outcome of objective-1) district wide. (3) Implement TAKS standards aligned interdisciplinary Environmental studies content/strategies in K-12 grades.
University of Texas Marine Science Institute, Mission-Aransas National Estuarine Research Reserve	Scientists, Teachers, and Artists in the Texas Gulf Coast (START)	This project builds on past successes and forges new partnerships. Two previously funded B-WET projects: The Artist Boat Coastal Watershed Institute (CWI) in Galveston, Texas, and the New England Teachers on the Estuary (TOTE) will collaborate with Mission-Aransas National Estuarine Research Reserve and the START project. Specifically, Artist Boat will adapt their existing Galveston Bay Watershed teaching module to the Mission-Aransas watershed, provide training to ten 7th-8th grade teachers, and provide kayak trips to those teachers and their students. The New England TOTE training modules and evaluation will serve as models for ten 9th-12th grade teachers and their students. The START Project provides teachers from five surrounding counties within the Mission-Aransas watershed with the opportunity to work with Mission-Aransas NERR scientists and Artist Boat

		<p>artists and marine biologists in both professional development and in providing meaningful watershed educational experiences for their students. Teachers on the Estuary (TOTE), Estuaries 101, and the Coastal Watershed Institute & Eco-Art Workshop and Adventure curriculum as well as locally based curriculum for the Wetlands Education Center (WEC) and the Fennessey Ranch will be used for both teacher professional development and field experiences for students. The project schedule is flexible, but tentatively planned to begin in July 2010 and conclude in June 2011. Project objectives are to provide twenty 7th-12th grade teachers within the five counties surrounding the Mission-Aransas NERR with Exemplary Teacher Professional Development with long-term classroom-integrated Meaningful Watershed Educational Experiences for their students through:</p> <ol style="list-style-type: none"> 1. Field-based experiences and classroom instruction to ten 9th-12 grade teachers using TOTE, E-101 and locally based curriculum for the Wetlands Education Center (WEC) and the Fennessey Ranch. 2. Field-based experiences and classroom instruction to ten 7th-8th grade teachers using the Artist Boat Coastal Watershed Institute curriculum adapted for the Mission-Aransas NERR Watershed. The START project encourages scientists, teachers and artists to spread beyond perceived boundaries so that students may benefit.
<p>University of Texas Marine Science Institute</p>	<p>Elementary Explorers in the Watershed</p>	<p>This project combines exemplary, long-term professional development with extensive meaningful watershed experiences for elementary students. The University of Texas Marine Science Institute will partner with Corpus Christi Independent School District and Lawrence Hall of Science and others to provide training and materials to two elementary schools (grades K-5). Over a two-year period, teachers will be trained to engage their students in inquiry-based, classroom and outdoor investigations to teach students scientific skills and watershed concepts. Utilizing well-established curricula from Lawrence Hall of Science (Great Explorations in Math & Science and Roots of Reading: Seeds of Science) and teaching cross-curricular processes such as journaling and artistic observations to reinforce science concepts, this project seeks to increase the amount of inquiry-based and outdoor-based science lessons that elementary teachers use through the study of watershed ecology. Working with the Corpus Christi Independent School district, we have recruited two elementary schools (William Travis and Los Encinos Special Emphasis) with high populations of under-served, under-represented students. Each fall, teachers will participate in a 2-day professional development workshop, concentrating on inquiry-based science teaching as well as watershed ecology content. This workshop will be led by UTMSI staff and various other experts. Throughout the winter, UTMSI staff will visit both campuses to help teachers conduct hands-on, inquiry-based science lessons based on the Nueces and Aransas River watersheds. Students will conduct outdoor investigations in or near their own schoolyards, both campuses having nearby open areas, suitable for conducting investigations. In the spring, teachers will receive a 1-day professional workshop covering watershed ecology content, and then all classes will travel to a suitable, watershed-based field site with UTMSI and MANERR personnel to implement techniques that they have been studying throughout the year. This sequence will repeat in year two. 36 teachers and over 800 students will directly benefit from this grant for the two year duration. However, because the teachers are receiving intensive instruction in technique and content, students will continue to benefit from this grant</p>

		<p>long after the funding is finished. And because all of the teachers on campus will be part of the program, there will be a cohesive progression from K-5th grade in both teaching techniques and content. The curriculum units chosen center around key watershed concepts, such as “Shoreline Science,” “Aquatic Habitats” and the Ocean Science Sequence. Project goals include: 1) Sustained integrated teacher training for two campuses – 36 teachers total; 2) Provide necessary materials for teacher utilization of curricula and field investigations; 3) Classroom visits by UTMSI staff – 1 per classroom per year; 4) Meaningful watershed field trips for students – 1 per class per year; 5) Pre- and post-assessment of teachers to measure use of inquiry in classroom and field settings.</p>
<p>University of Texas – Pan-America, Coastal Studies Laboratory</p>	<p>Arroyo Colorado Watershed BWET Teacher Professional Development</p>	<p>This project will develop an interdisciplinary elementary school teacher professional development workshop series on the Arroyo Colorado watershed - Lower Laguna Madre system with an emphasis on how human actions impact the watershed. These workshops will be sustainable through Region One, a local education service center. We will also develop associated guides for educational field-trip opportunities supporting the theme and provide classroom support for teachers. The program combines resources of two school districts, a regional education center, a NOAA Sea Grant marine education program, a watershed outreach program, a private eco-tour boat operation, and a wetland-sited nature center. It will serve a predominately Hispanic and economically disadvantaged community and will be based on meaningful watershed educational experiences fundamentals. In all, 132 teachers from twelve campuses will be trained, impacting approximately 2,640 students and their parents in the first year of the program (132 teachers x 20 students/class), 2,640 students in the second year of the program, and future students past program end, with sustained support of the workshops through the Region One Education Service Center. Primary objectives: Conduct seven two-day workshops serving 132 teachers with classroom, laboratory, and field activities that will be sustained after program end through Region One, a local education service center; Provide necessary technical support, resources, and 12 hours of continuing education to teachers; and Expose teachers to Meaningful Watershed Educational Experiences, enabling them to inspire and lead young people toward thoughtful and sustainable stewardship of the natural resources of, and supported by, the Arroyo Colorado Watershed.</p> <ul style="list-style-type: none"> • Gauge attitudinal changes towards the Arroyo Colorado Watershed and related science topics.
<p>University of Houston Downtown</p>	<p>Watershed Wonders: Environmental Camp</p>	<p>Watershed Wonder will determine the effect of training teachers in field and lab research of watersheds at the pre-college level determining program impact on teacher attitudes and behaviors, efficacy of implementation of developed curriculum by pre-college teachers, attitudes toward enrollment in STEM programs by precollege students and enrollment into UHD STEM programs. The project will target pre-college students in hands-on research and 9-12 STEM teachers across grades 10, 11, and 12 in public and charter school districts. The overarching question is to measure the effect of the Watershed Wonder program (offer meaningful watershed educational hands-on experiences for students, related professional development for teachers) in impacting attitudes and actions of participants.</p> <p>Project Objectives: 1) change in attitudes built from first-hand experience, especially in one’s community and culture, is critical to achieving</p>

		<p>environmental stewardship; 2) science, technology, engineering, and mathematics can be offered as multiple focal points through first hand, carefully selected environmental learning experiences; and 3) environmental experiences centered around questions, problems, and issues investigated through pre-post attitude surveys, field data collection, observation, and hands-on activities stimulate critical thinking, problem-solving skill development, and support student achievement, efficacy in teacher pedagogy, and motivation to enter STEM college programs.</p>
<p>University of Texas at Brownsville</p>	<p>Resaca Rangers</p>	<p>This project will employ hands-on activities to teach middle school and high school students in a historically-underserved Gulf Coast county how to monitor the ecosystem health and water quality of the area's only freshwater wetlands (e.g. resacas). Project objectives include: Enhance student awareness and understanding of the importance of healthy resacas and estuaries, by engaging them in meaningful watershed educational experiences; Increase participants' (both educators and students) literacy and awareness of local aquatic habitats and their connections to other components of the regional ecosystem; Enhance each local school's and neighborhood's sense of place and community ownership/stewardship of a nearby wetland; and Help students explore careers in environmental sciences with real-life, ongoing example projects both directly and indirectly associated to their ecosystem monitoring activities. University of Texas at Brownsville (UTB) students and faculty will conduct workshops to train teachers how to collect ecosystem health indicator and water quality data. Resaca Rangers program participants will then collect water quality and habitat data from nearby resacas and connected estuaries to be shared online via an interactive website designed for dissemination of real-time data. UTB faculty and student researchers will guide teachers and students in data interpretation and in the assessment of ecosystem health of monitored resacas and estuaries. In the classroom, teachers will use the Wonders of Wetlands (WOW!) education materials from Environmental Concern to teach students material that is required by state standards and to relate these activities to their nearby resacas.</p>
<p>Galveston Bay Foundation</p>	<p>Get Hip to Habitat</p>	<p>This project includes the Galveston Bay Education for Teachers (GET wet!) program, which provides 30 teachers with classroom training and field experiences related to Galveston Bay and the watershed and teach them how to deliver environmental education lessons in the classroom using the Science of Galveston Bay curriculum; and the Get Hip to Habitat program, which provides 1,500 students with place-based meaningful watershed educational experiences. The Get Hip to Habitat program offers a 3-part project-based learning about coastal habitats: (1) Students harvesting smooth cordgrass or coastal prairie plants from local sources, transplanting single stems to containers, and cultivating the grasses on their campus grounds. (2) Students learn about the Galveston Bay watershed and how they can become Ambassadors of the Bay via hands-on lessons from GBF's Science of Galveston Bay curriculum and Bay Ambassador presentation delivered by GBF staff. (3) Students culminate their project by transplanting their container grasses to designated local marsh or prairie restoration sites selected by GBF. During this year-end event, students participate in several hands-on stations that focus on the purpose and functions of the respective</p>

		habitats the students are working to restore. As a new, pilot component of this program, students at one school will raise red drum eggs to fingerling size in a classroom hatchery for release into the bay at the end of the school year.
Clear Creek Independent School District	Education Village Bay Watershed Education Program	Clear Creek Independent School District (CCISD) will implement an exemplary Watershed Education and Training project that will combine two summer weeks of intensive professional development for over 155 teachers with two years of Meaningful Watershed Educational Experiences for students. The project will feature training from the Texas Coastal Watershed Program and the Environmental Institute of Houston, and will provide Meaningful Watershed Education Experiences (MWEEs) to over 2,800 students from the CCISD community.
University of Houston - Victoria	Texas Coastal Bend Aquatic & Environmental Science Teacher Professional Development with VISTA Plus and Watershed Field Experiences	The project targets and provides Meaningful Watershed Education Experiences as for professional development for a cohort of 16 environmental and aquatic science high school teachers from mostly rural, high-need Local Education Agencies in the Coastal Bend region of Texas. Eight teachers will be recruited from Victoria Independent School District, the largest school district in the area with over 14,000 students. Eight more teachers will be recruited from smaller LEAs in the area. These teachers will receive 136 hours of professional development, including science teaching method instruction and watershed field experiences. The science instructional method will consist of a classroom instruction conducted by Biological Sciences Curriculum Study (BSCS) Videocases for Science Teacher Analysis (ViSTA Plus) with the Student Thinking Lens (STL) and the Science Content Storyline Lens (SCSL). The science teachers will experience laboratory and fieldwork practices using the ViSTA Plus strategies for effective science teaching with watershed data analysis. Also, teachers will be professionally videotaped for video analysis to train other science teachers using the ViSTA Plus science methodology and field work on watershed science. In addition to analyzing existing data, the data collected by the teachers during the professional development will create a baseline record of the watershed ecosystem of the Guadalupe River and the San Antonio Bay on the Texas Gulf Coast. The instructional methodology and knowledge will transfer the skills and knowledge to approximately 1,000 students during the project.
The Artist Boat	STEAM Powered: Blue Carbon Art IQ	This project is designed to foster knowledge and skills of 7 th grade students and teachers on Galveston Island to discuss and visually communicate the essential importance of “blue carbon” habitats to the broader community. Students and teachers need to be empowered to learn about, understand, and share knowledge about difficult concepts (sea level rise, carbon sequestration, blue carbon, carbon cycle, ecosystem services, and climate change) on an island that faces new and old challenges to resiliency. One of largest environmental challenges faced by the scientific and global community is educating the public to be able to discuss the principles of climate science with full knowledge of concepts and vocabulary. Islands are currently experiencing the impacts of climate change and sea level rise. Galveston Island students and teachers can learn about and witness trends and changes in the local ecosystem. This program will assure these students and teachers are fully prepared to discuss these topics and share their knowledge. The project will integrate Science Technology Engineering Art and Mathematics (STEAM) into an extensive series of Eco-Art and Blue Carbon Workshops (2) and Adventures via kayak (2), classroom mini-sessions

		to create “blue carbon” translational artworks that culminate in a student art exhibition. The exhibition will demonstrate knowledge and interpret perceptions about the future. This project will serve the 1,250 - 7th grade students over two years (25 classes and 625 students annually).
LOUISIANA		
Louisiana State University	Integrated Professional Development and Resources to Enhance Educational Goals of Two Environmental Stewardship Programs in Louisiana and Mississippi	<p>The goal of this proposal is to enhance teacher professional development and expand the outreach of two stewardship programs: Coastal Roots (CR) and BayouSide Classroom (BC). In the course of the three years of the proposed grant 88 teachers and 7378 students from 62 schools in these programs will be impacted. Teachers will be introduced to NOAA services and products through materials developed in the LA Sea Grant College Program. The objectives of this grant include:</p> <ul style="list-style-type: none"> • enhance professional development (PD) by strengthening educational components through science-based wetland and restoration content and educationally sound pedagogy in both CR and BC programs. • introduce educators involved in the professional development and outreach opportunities to NOAA services and products • empower teachers and students by providing avenues for outreach opportunities for teachers and students involved in both programs to share the information from their programs with a larger community interested in ecological and environmental stewardship; • provide opportunities for schools in Mississippi to begin the CR Program and participate in the professional development opportunities offered by CR Program and BC Program in Louisiana; and • develop new resources to support and strengthen each program and purposefully integrate appropriate crossover information and materials from both programs.
Audubon Nature Institute	Audubon Youth Volunteer Watershed Experience Project	<p>Audubon Nature Institute will enhance its Junior Keeper, AquaKids and Junior Entomologist youth volunteer programs by offering impactful, hands-on science experiences for the 75 participants in the 2013-14 class and future classes. Program co-investigators are striving to develop citizen scientists who gain understanding of their local watershed and its importance to the local community through inquiry learning and relevant educational experiences within the Lower Mississippi watershed around New Orleans, Louisiana. New Orleans has one of the largest state watersheds in the 10,000 square mile Pontchartrain Basin, with a multitude of environmental problems. At the edge of this and other Louisiana watersheds, the state experiences 90% of the nation’s coastal wetlands loss. Teaching young children about local watershed issues and urging them to become impassioned about watershed conservation is essential for saving our wetlands. The Audubon Youth Volunteer Watershed Experience Project will address Bay Watershed Education and Training Program (B-WET) priorities 1) Meaningful Watershed Educational Experiences for Students and 4) Gulf of Mexico Alliance (GOMA) Regional Priorities including wetland and coastal conservation and restoration and environmental education. The following objectives will develop young teenagers into citizen scientists with increased watershed awareness: 1) Participation in long term projects within the local watershed; 2) Scientific investigation of the watershed; 3) Development of presentation skills; 4) Sharing of information by volunteers</p>

		<p>to the greater community; and 5) Demonstration of improved scientific knowledge. The project will improve the existing Audubon Youth Volunteer program by increasing practical, evidence-based activities available to the trainees. The trainees will engage in Lake Pontchartrain Basin Foundation's Water Watch, collecting and analyzing water samples and data to measure water quality, and in Louisiana State University's Coastal Roots program, through which they will grow, and then plant native Louisiana species along the coastline to slow coastal erosion. These new activities are an integral part of the improved instructional program because Audubon's current youth volunteer program budget can only sustain a base level of operations. The project field trips will guide an ongoing watershed theme that will become the backbone of the year-long training program. Funding these encounters will give each student a deeper perspective into real science and local watershed conservation issues affecting them and future generations.</p>
<p>University of Louisiana at Lafayette</p>	<p>A Watershed Education: Water Quality Monitoring and FIS Analysis on Bayou Vermillion</p>	<p>Our goal is to educate 2 middle school teachers, 200 middle school students, 4 high school teachers, and 400 high school students on the importance of water quality and the watershed processes affecting water quality along Bayou Vermillion in south Louisiana. We will accomplish this goal using two in-field water quality monitoring experiences per year coupled with in-class GIS analysis of the Bayou Vermillion watershed. The core theme of this educational experience will be how land use practices affect nutrient inputs to Bayou Vermillion and the Louisiana coastal zone. Project Objectives: To train two (2) middle school teachers and four (4) high school teachers at 3 workshops on water quality monitoring and GIS technology. To facilitate two (2) scientific field experiences sampling and analyzing water quality parameters for 200 middle school and 400 high school students. To integrate this field experience into a year-long course curriculum using GIS technology to teach students about water quality issues in their local watershed and its impact on nutrient and sediment transport to the Louisiana coastal zone.</p>
<p>Advocates for Academic Excellence in Education (Ben Franklin High School)</p>	<p>Rx for the Coast</p>	<p>350 students from Benjamin Franklin High School, Patrick Taylor Science and Technology Academy, and Holy Cross High School will take field trips to the Coastal Education and Research Facility in East Orleans Parish, located at Chef Menteur Pass in the brackish marshes of eastern Orleans Parish, where they will participate in introductory learning activities in the wetlands, and will be introduced to the technology used to collect the data necessary to analyze the health of our wetlands. UNO Coastal Education staff will make presentation in the classroom prior to each field trip. In the second phase of this project, particularly motivated students will embark on an in-depth project, coached by their subject teachers in AP environmental science, biology, geography, and physics. This project will enable high school students to use cutting-edge technology in a field setting and to learn how remote sensing applies to coastal restoration science in Louisiana. The project will culminate in the presentation of the students' Independent Research Project at the school science fair, and in the regional and state competitions.</p>

Louisiana Department of Wildlife and Fisheries	Watershed Webs (Watersheds)	The Louisiana Environmental Education Commission (LEEC), under the direction of the Louisiana Department of Wildlife and Fisheries (LDWF) will implement <i>Watersheds</i> . This project will expand the concepts related to the dynamics of marine debris to include not only how debris affects our marine environments, but also how other watershed factors impact them. Emphasis will be placed on Gulf State interaction and understanding among participants via the establishment of an interactive website entitled Watershed Experience Tracker (WET) to be used for data collection, strengthening EE programming. This project will provide Meaningful Watershed Educational Experience (MWEE) exemplary programs combining teacher professional development with long-term classroom-integrated MWEEs for their students. The project will advance the understanding of approximately 50 teachers and 320 students regarding watersheds and how the choices we all make can have a substantial impact on neighboring communities and habitats, including marine environments. Watersheds will encourage the implementation of programs that engage participants in exploratory learning processes that will result in behavior changes and it will encourage stewardship initiatives in the classroom.
McNeese State University	Calcasieu-Cameron Environmental Explorers - C ² E ²	This project will select 16 environmental science teachers from Calcasieu and Cameron Parishes who will be trained in Meaningful Watershed Education Experiences (MWEE) at Naturelab. Naturelab is an outdoor education center in Westlake, LA, administered by McNeese State University. This 3 day, 15 hour summer professional development workshop will provide the participating teachers with content as well as the technology to return to their schools and provide standards-based, experiential learning for students in their environmental science classes. Follow up workshops will be offered to teachers starting in the fall of 2015 ending in the spring of 2017. After being trained, participating teachers will teach their students how to use the available technology to periodically conduct a variety of tests at an estuary in close proximity of the school. The students will collect data, analyze it and submit it to the GLOBE website. Under the leadership of their teachers, student volunteers from participating schools will take part in a coastal restoration project by planting native coastal grasses along a strip of beach in Cameron Parish.
ReNEW Schools	Wetland Warriors Environmental Education Program	ReNEW Schools will implement a coordinated program of (1) meaningful watershed experiences for 250 students and (2) related professional development for 10 teachers utilizing existing curricula and data from NOAA, LUMCON, and the UNO CERF. All lessons and activities are tied to Louisiana GLEs and/or CCSS/NGSS. Professional development for teachers will consist of (1) 10 hours of instruction and exercises in water quality testing and analysis and (2) 4 hours of field orientation using GIS at LUMCON. MWEEs will consist of (1) training in water quality testing and analysis with on-going water quality monitoring and analysis, including data-sharing, (2) field orientation and monitoring using GIS, and (3) habitat restoration. Field experiences will happen in coordination with classroom instructional content. 8-12th graders will have the opportunity to apply for a summer camp at LUMCON and high school students will be introduced to both a local coastal restoration job training program and a university environmental science program.

<p>University of New Orleans, Pontchartrain Institute for Environmental Sciences</p>	<p>Youth Environmental Science Stewards</p>	<p>The two-year project will involve collaboration among five established programs in Louisiana to develop and sustain a community of teachers trained in watershed science at schools in metro areas located in the Lake Pontchartrain watershed (including New Orleans and Baton Rouge) by providing professional development workshops to encourage participants to incorporate lessons about the importance of healthy watersheds and water resources into their curricula. This will provide a robust and sustainable framework and support materials on which teachers can build their program into the future. The project aims to provide professional development for at least 75 teachers (grades 4-12) via seven workshop events over two years. Although open to any teacher, many will be from schools that serve high needs students, based on the demographics of the target region. The project goals will be accomplished by providing professional development training and follow-up resources and support for teachers to ensure incorporation of watershed concepts in classroom teaching and facilitating field-based “Meaningful Watershed Educational Experiences” (MWEEs) for the students of participating teachers. An integral component of the project will be the use of Global Learning and Observations to Benefit the Environment (GLOBE) Project protocols. The MWEEs will also include stewardship experiences for the students. These will include investigative research on specific topics related to watershed health, taking action to contribute to solving local watershed issues, and communicating the results of this work to a variety of audiences. The partners, University of New Orleans, Southeastern Louisiana University, Sewerage and Water Board of New Orleans, and Louisiana Environmental Education Commission, and Louisiana Sea Grant all contribute a wealth of experience and unique perspective to the project and allow us to expand our reach to cover a larger geographic area as well as encompass considerations of both surface water and groundwater stewardship.</p>
<p>St. Tammany Parish Government</p>	<p>Camp Salmen Education Program</p>	<p>Camp Salmen Education Program addresses Meaningful Watershed Educational Experiences that will help students develop critical thinking and problem-solving skills via hands-on activities, such as nature observation, water testing, data recording, and specimen collection. Workshops will consist of three phases: learning, application, and discussion. This project offers instructive indoor and outdoor sessions to middle school students in Louisiana, thus developing environmental literacy and promoting stewardship among youth in the Gulf of Mexico region. The Camp Salmen Education Program will consist of up to five four-hour sessions in the fall and up to five four-hour sessions in the spring of the 2016-17 school year for 4th and 5th grade students from Slidell Area schools. Additionally, two summer camp sessions will take place during June and July. Programming will consist of classroom lessons and outdoor observations, demonstration and data collection.</p>
MISSISSIPPI		
<p>Mississippi Department of Marine Resources (Grand Bay National Estuarine Research</p>	<p>Connecting Kids to Coast Watersheds</p>	<p>This Exemplary Program is designed to address the Gulf of Mexico Alliance’s Priority Areas for the Identification and Characterization of Gulf Habitats through Environmental Education by establishing unforgettable, meaningful, personal connections between each fourth grade student and teacher in the Moss Point, Mississippi school district and several coastal habitats found within Mississippi’s coastal watersheds and experientially reinforce the science standards that the students will be tested on in the following year. This program consists of a five-phased approach that incorporates</p>

Reserve) and The University of Southern Mississippi (JL Scott Marine Education Center)		<p>experiential learning for both teachers and students. Based on a successful project that was piloted on a subset of fourth graders from this same school district during the 2008-2009 school year, this project proposes to expand the field components of the original program farther up the students' watershed in order to give them a better understanding of the watershed concept. Moss Point, a community consisting primarily of underserved and underrepresented citizens, is located at the convergence of two tidally influenced rivers, the Escatawpa River and the Pascagoula River. Although many of the students in this town have grown up viewing the water, only a few of them have ever been out on a river or to a beach (based on conversations with the pilot group). This project includes three days of Experiential Professional Teacher Development activities for up to 10 teachers/administrators. Approximately 250 fourth grade students will attend an introductory Participatory Puppet Show entitled "Watershed Harmony", three days of Field Investigations (including a water quality sampling boat trip) in three different coastal aquatic or wetland habitats, and a closing Watershed Education Celebration presented by the fourth graders for their families and the fifth graders from their school. Finally, an online elementary curriculum packet addressing watershed issues associated with the Pascagoula River will be developed by the Land Trust for the Mississippi Coastal Plain and the other partners including the Mississippi Department of Environmental Quality and hosted on their website for use by local and regional teachers and home school instructors.</p>
J.L. Scott Marine Education Center, Gulf Coast Research Laboratory, Center for Science and Mathematics Education, College of Science and Technology, The University of Southern Mississippi	Coastal Watershed Connections: Student Impact, Stewardship and Reflections (CWC)	<p>The project is designed to provide students and teachers of coastal and non coastal schools of Mississippi with experiential learning activities to emphasize connections between their local watershed and coastal habitats of the Gulf of Mexico. Formal and informal educational strategies will be utilized. The regional priorities addressed by the project are the Gulf of Mexico Alliance priorities of environmental education and water quality for healthy beaches and shellfish beds. Students and teachers will establish a sampling site within their watershed/community to perform water quality analyses for a full academic year, share data with other schools working on the project, and post data generated to the GLOBE (Global Learning and Observations to Benefit the Environment) website. Additionally, students of each participating school will visit coastal habitats of the Mississippi Sound and the Gulf of Mexico, collect water quality data for comparison with local data. All data from all locations will be archived for future reference. Crucial components of the project will be photographic documentation of activities and the development and implementation of a service learning project related to the Mississippi Coastal Watershed by each participating school.</p>
J.L. Scott Marine Education Center, Gulf Coast Research Laboratory, The University of Southern Mississippi	Shifting Baselines: Watershed Connections to Landscape Change	<p>Middle school teachers in Mississippi and Alabama will work with marine science educators to implement a Meaningful Watershed Educational Experience (MWEE) around the concept of shifting baselines. The work will compare landscape changes through the watershed using oral history descriptions and aerial photo documentation. Investigators will build a learning community among marine educators, classroom teachers (18), and students (900), by sustaining the teachers through three years of MWE planning and implementation to incorporate existing resources into state education standards. The proposed project includes a four-day summer field institute for teachers, a one-day field experience for students, an advisory group of regional environmental educators and scientists, and a conference in Years Two and Three to provide a congenial atmosphere in which</p>

		participants continue to learn while sharing obstacles and successes.
Mississippi State University's Gulf Coast Community Design Studio	Elementary Education for Rotten Bayou Watershed	Mississippi State University's Gulf Coast Community Design Studio (GCCDS), in partnership with East Hancock Elementary School, Mississippi Wildlife Federation's Adopt-a-Stream Program, NOAA's National Coastal Data Development Center (NCCDC), and Land Trust for the Mississippi Coastal Plain will work in the Rotten Bayou Watershed with the 150 fifth grade students, under the guidance of five teachers, at East Hancock Elementary during the 2014-2015 academic year. Programming will include a four-day, in-class workshop with the students based on curriculum developed by the GCCDS in 2012 for sixth graders at Biloxi Junior High School and will focus on how the built environment, human activity and storm-water runoff affect the health of their waterways and watershed. Students will also go on two field trips – one to collect water quality data with assistance from the MWF Adopt-a-Stream Program and another to collect geospatial data with assistance from NCCDC. Students will work with GCCDS and partnering organization to analyze, present and share their data both within the school and larger community. This project will enhance the current science curriculum at East Hancock Elementary; assist with the transition to Common Core standards by encouraging critical thinking, subject integration and information sharing; and support the efforts of the Rotten Bayou Watershed Implementation Planning Effort funded by the Mississippi Department of Environmental Quality.
The University of Southern Mississippi	Meaningful Watershed Education Experience for Resilience to Accelerated Sea Level Rise and Flooding Risk	This project will assemble and implement a Meaningful Watershed Educational Experience (MWEE) for students that will engage high school Marine Biology students of the Pascagoula School District in sustained study and investigation of accelerated sea level rise and its impacts on both coastal marshes and human communities. The project will include robust classroom preparations that use diverse resources (many developed by NOAA) to remind the students of watershed concepts introduced in past classes, introduce change detection analysis to illustrate how the marshes have changed in recent decades, and introduce modeling to predict future marsh changes. Students will practice skills they learn in the classroom during a field excursion at the NOAA Grand Bay National Estuarine Research Reserve. Upon their return to the classroom, students will observe documented and predicted changes to human communities, in which many of the students live. They will use work in groups that address the question, "What is the best way to make Pascagoula resilient to rising sea level?" They will present their solutions to families and neighbors during a stewardship outreach event.
ALABAMA		
Mobile Baykeeper, Inc.	Strategic Watershed Awareness and Monitoring Program (SWAMP)	The Strategic Watershed Awareness and Monitoring Program (SWAMP) is an education and monitoring program designed to broaden students' understanding of watersheds, water quality, and how citizens impact the two. SWAMP promotes Meaningful Watershed Educational Experiences (MWEEs) by incorporating classroom educational presentations and place-based experiential monitoring to connect participants directly to the environment to encourage lifelong learning and stewardship. Mobile Baykeeper staff will educate and engage 200 Fairhope High School students enrolled in Aquascience and Life Science classes on watersheds and human impacts on watersheds. After classroom training, approximately 25 students each year will be recruited to receive training to monitor water chemistry

		and bacteria levels on specific, local waterways. Up to four teachers will be involved in the SWAMP program at FHS, and eight teachers will be involved in the bi-county conference with 80 students attending. Through critical thinking and problem solving exercises, students will develop potential solutions to make a difference in preserving and protecting their quality of life, the local economy, and our rich natural resources.
Alma Bryant High School (aka Board of School Commissioners of Mobile County)	Oyster Reef and Saltmarsh Restoration in Coastal Alabama	The objectives of this project are to teach students about the entire life cycle of oysters and their importance in the estuarine ecosystems along the Gulf Coast, to increase the potential success of oyster restoration projects in coastal Alabama by the addition of intertidal adult breeding oysters, to teach students about the ecological value of saltmarshes along the Gulf Coast, to increase the available supply of locally acclimated marsh plants for future restoration projects. Work to be done regarding oysters: Local brood stock oysters will be spawned and the resulting larvae will be set on whole oyster shells. The spat on shell will be grown in off-bottom oyster farming gear in order to maximize survival and growth. Once the oysters reach 50mm in length, they will be transplanted along the western shoreline of the Point aux Pins peninsula in an effort to establish an intertidal oyster reef. Work to be done regarding saltmarsh plants: A saltmarsh nursery will be constructed at our on-shore oyster nursery site. The plant species to be cultured is smooth cordgrass <i>Spartina alterniflora</i> . Rhizome plugs will be harvested from the Point aux Pins marsh and transplanted to 2-inch growing pots. Lined plant beds will be constructed to contain the plant pots and water from the oyster nursery (Sandy Bay) will be intermittently flowed through the plant beds. The resulting marsh plants will be used for future saltmarsh mitigation projects in coastal Alabama.
Dauphin Island Sea Lab	Watershed Education using Bivalves (WEB)	The project proposes using suspension feeding bivalves, water quality and habitat restoration as the tools to improve watershed education among Alabama's teachers and students. During an annual Teacher Workshop, 18 middle school math and science teachers will work with investigators and experts in water quality, habitat restoration, marine and freshwater suspension feeding bivalves and Alabama's aquatic habitats (Advisory Team) to develop, implement and later, evaluate and refine a Meaningful Watershed Educational Experience (MWEE) for their students incorporating ocean and climate literacy principles and aligned to Alabama Course of Study Standards. Approximately 1500 students (~500 annually) will participate in MWEEs that include classroom content, laboratory activities, basic modeling and electronic journaling as well as field excursions to coastal and local watersheds that incorporate water quality measurements and a habitat restoration activity. An annual Student Summit via videoconference will strengthen students' geographical understanding, appreciation of the interconnectedness of waters in a watershed, sense of community and pride in Alabama's unique and rich aquatic heritage. The sustained interaction with 18 teachers over the course of the project will improve teacher understanding, confidence, laboratory competence and technological proficiency as well as project sustainability.
Wolf Bay Watershed Watch	Our Wonderful Wetlands III	Our Wonderful Wetlands III is a project that focuses on the importance of wetland conservation and the importance of estuarine habitats. This mini-grant piloted the process of providing B-WET support for the education goals of the Gulf of Mexico Alliance. Students in elementary grades and middle grades are introduced to wetland components and the vital role wetlands

		<p>play in the coastal habitat. Students will use digital and print resources from NOAA and EPA for classroom instruction. Students will participate in experiential learning in the classroom and in a natural wetland habitat at Graham Creek Nature Preserve in Foley, AL. For example, students will create habitat by building and placing bird houses at the preserve. learn about the flora and fauna of the wetlands by participating in a wetlands scavenger hunt, participate in water quality monitoring, touring a waste water treatment plant that utilizes a constructed wetland during the water treatment process, participate in an assessment of macroinvertebrates, and understand their role in water quality. High school component of instruction and collaboration will be a part this new program as mentors to the younger student. High school students will also participate in classroom instruction and a field trip to Dauphin Island Sea Lab to study a salt marsh habitat. Students will also display what they've learned in the community.</p>
<p>Alma Bryant High School (Board of School Commissioners of Mobile County)</p>	<p>Development and Testing of Oyster Drill Control Methods in Coastal Alabama</p>	<p>Alma Bryant High School will assist teachers and students in designing and testing the effectiveness of various oyster drill traps. We will start off by testing a trap designed for use along the upper Atlantic seaboard. We will collect a number of oyster drills and observe the trap effectiveness in a small tank. We will also make observations as to their ability to escape after having entered the trap. We will then make modifications to improve the trapping effectiveness of traps followed by field testing. We will also explore methods of oyster drill control by making observations of other animals that feed on oyster drills and their eggs. We will design, construct, and test the effectiveness of drill egg collectors. After testing the various trap designs and egg collectors, we will conduct an intensive control/eradication effort during year two of the project. We will also collect data regarding oyster drill population densities, seasonal variations, and how it relates to water quality, especially salinity. Both the Aquaculture and Marine Biology teachers and their 350+ students will actively participate in the MWEE annually. The objectives of this project are: To teach students how to investigate an issue, make observations, come up with possible solutions to the problem, and determine the effectiveness of the solution through data collection (applied research); To stimulate observation, motivate critical thinking, develop problem-solving skills, and instill confidence; To increase the potential success of oyster restoration projects in coastal Alabama and share the information with others along the northern Gulf coast; To enhance the Coastal Studies Signature Career Academy program by adding additional "hands-on" environmental activities.</p>
FLORIDA		
<p>University of Florida</p>	<p>Nature Coast Adventure: Connecting Grade School Students with an Undeveloped Coastline</p>	<p>The UF/IFAS Nature Coast Biological Station (NCBS) and the Seahorse Key Marine Lab (SKML) are designing a project to provide 5th grade students with Meaningful Watershed Experiences in the Nature Coast, Gulf of Mexico. This project will include 989 students from 12 schools from Taylor, Dixie, Gilchrist, and Levy Counties. The project aims to connect students with the Nature Coast, one of the most pristine coastal regions of the United States. This region offers a living laboratory with an expansive and unique estuarine system, tidal creeks, semi-continuous oyster reefs, the second largest seagrass meadow in North America, and salt marshes where physical and ecological dynamics are strongly influenced by the Suwannee River discharge. This project comprises of a one-day, multi-stage activities where students are expected to develop understanding of basic watershed concepts and complexity of the ecosystem using a scientific approach. Multi-</p>

		<p>stage activities include: 1) background research and definition of problems, 2) outdoor field experience to learn sampling techniques (e.g., trawling, seining), observe and collect data, 3) group discussion at SKML.</p> <p>Students will learn the main issues that watersheds are facing including alterations to freshwater flows, sea level rise, increases in invasive species, and how human activities influence these ecosystems. The experience will conclude with an activity where participants show how they can contribute to preserving the natural resources in the Gulf of Mexico in their community.</p>
School Board of Sarasota County, FL	Sarasota Watershed Educator Learning Lab (SWELL)	<p>The Sarasota Watershed Educator Learning Lab (SWELL) will provide professional development by offering Sarasota County, FL middle and high school teachers experiential learning opportunities. The three-day Summer Institute for 35 middle and high school science teachers will focus on the watershed, shoreline and estuary and includes field experiences in local parks and Sarasota Bay to model environmental educational pedagogy. Three follow-up sessions during the school year will offer adequate instructional time and ongoing teacher support, and participation in the Scallop Search and Seagrass Survey will allow stewardship and citizen science participation. Overall, teachers will receive 62 hours of professional training as well as stipends for some of their time. To ensure this learning is shared with students, participating teachers will use existing NOAA standards-based lesson plans, activities and materials and adapt them to the local environment so they create place-based, meaningful watershed educational experiences for on-level students. The lessons and materials will utilize other NOAA assets and make a direct connection to the Gulf of Mexico and Sarasota Bay marine ecosystems. Implementing these lessons will impact over 3,500 students annually. For broader and lasting impact, participating teachers will share their lesson plans through the district's powerful digital Instructional Focus Guides (IFGs). IFGs are instructional guideposts which pace instruction and ensure teachers have digitally linked resources at their fingertips. Rather than prescriptive pacing maps, they instead focus on deeper explorations of topics, themes and units, and link to exemplary curricula, resources, lessons, assessments and strategies. The project will take place in Sarasota County (51% free/reduced price lunch and 35% minority) as a collaboration between the school district and local organizations, including Sarasota Bay Estuary Program (SBEP), Around the Bend Nature Tours, Sarasota County Government, Sarasota Audubon Society, Institute of Food & Agricultural Extension Sarasota County (UF/IFAS), and Sarasota Bay Watch.</p>
Lee County Florida School District	Wolf on the Watershed	<p>Throughout this project students will work co-operatively in their academy based courses to design and fabricate changes to a donated pontoon boat enabling it to serve as a floating classroom for the exploration of the surrounding watershed and its subsequent ecosystems. Student will complete project based presentations to increase students' understanding and appreciation for the surrounding watershed. Over the three year period of this project three hundred students and five teachers will have directly participated. An additional 200 students will benefit from the project indirectly by utilizing the floating classroom during the 3rd year of the program utilizing the floating classroom as an access point to the local watershed.</p>

<p>The Florida Department of Environmental Protection and the Collier County School District</p>	<p>Big Cypress Watershed Project, Learning in Florida's Environment (LIFE)</p>	<p>Approximately 450 seventh grade students and 15 teachers will enrich their learning and instruction in life science by conducting three place-based field experiences that connect them to the watershed they live in: the Big Cypress Basin. Teachers will participate in multiple in-service training activities including a four-day curriculum integration workshop addressing pedagogy, content development, alignment with standards, subject area integration, student assessment, technology, and field safety. Students will conduct inquiry-based field labs during three field experiences at the Florida Panther National Wildlife Refuge, Rookery Bay National Estuarine Research Reserve, and in or around their school. Students will summarize and communicate their findings to the public at the annual Dive Into Oceans event. The project has four main goals: 1) increased student achievement in science; 2) increased teacher knowledge of inquiry-based instruction in the field and classroom; 3) increased stewardship of the Big Cypress Watershed; and, 4) increased exposure to STEM careers for underrepresented students.</p>
<p>The Florida Department of Environmental Protection</p>	<p>Learning in Florida's Environment: Gulf to Bay Project</p>	<p>The Learning in Florida's Environment: Gulf to Bay Project will provide Meaningful Watershed Educational Experiences (MWEEs) for 1,744 students and professional development for a minimum of six (6) teachers that are directly connected to the watersheds of Florida's most densely populated region of Florida's Gulf Coast: Pinellas County. Through a combination of teacher professional development and a series of student field experiences at freshwater, estuarine and gulf locations the project will strengthen the vertical articulation of science strands from elementary to middle and into high school and engage students in real-world conservation efforts. The primary audiences of the project include teachers and students from Campbell Park Elementary School, Bay Point Middle School and Lakewood High School. These schools were selected by the Co-Principal Investigator, Pinellas County School Board Science Specialist Selena Kupfner, based on need, interest, location, and student feeder patterns. Teachers from each of the target schools will receive 16 days of professional development. Professional development activities will ensure that all project activities and materials align to teachers' classroom curricula and pacing guides; orient teachers to anticipated project outputs and outcomes; provide teachers with the background technological, pedagogical, and content knowledge necessary to facilitate MWEEs; and support vertical articulation of watershed concepts and principles throughout the participating grade levels. Lakewood High School Academy of Marine Science and Technology (AMSET) students will engage in MWEEs through training from project partners to prepare them to co-facilitate field experiences for middle school students and mentor them in the development of outreach programs for elementary students. High school students will co-facilitate labs with project partners at each of the three (3) middle school field experiences each year, as well as communicate watershed concepts to elementary school students during annual outreach events. MWEEs for the Bay Point Middle School students will be modeled after the Florida Department of Environmental Protection's "Learning in Florida's Environment (LIFE) Program". Following this model, students will complete three field experiences each year, one each at Sawgrass Lake Park (freshwater), Weedon Island Preserve (estuarine), and Tierra Verde Island (gulf coast barrier island). Both middle and high school students will conduct restoration and conservation activities together with Tampa Bay Watch during the third and final field experience of the year. Middle and high school students will translate lessons learned from their</p>

		<p>field experiences into an elementary school outreach event at Campbell Park Elementary School toward the end of the school year. At this student-led outreach event, middle and high school students will guide elementary school students through a MWEE using interactive displays, hands-on demonstrations, and other activities chosen by the students. The evaluation component of LIFE: Gulf to Bay is to be conducted consistently for each target audience throughout the project. Pre and post assessments will be administered to quantify learning gains from teacher professional development, high school mentorship training, middle school field experiences, and elementary outreach activities. Post-only online assessments will also be given to teachers and students at the end of each year to quantify affective (attitude, interest, motivational) changes as a result of project activities. In addition, the project will design a long-term post-impact evaluation element to be carried out by the school district. Data gathered from these assessments, as well as project activities and methodologies, will be shared at conference events each year.</p>
<p>University of South Florida, College of Marine Science</p>	<p>Tampa Bay Coastal Watershed Inquiries, Stewardship & Education (TB C-WISE)</p>	<p>The Tampa Bay Coastal Watershed Inquiries, Stewardship and Education (TB C-WISE) program provides hands-on watershed education to students and teachers to foster experiential learning and stewardship of Tampa Bay. The Tampa Bay Sustained Professional Development program brings 20 teachers to the bay via direct, field-based inquiries; and, watershed dynamics and education to 60 teachers' classrooms via teacher professional development using GLOBE environmental sciences protocols. The program includes a series of environmental stewardship activities for participating schools within their region of the Southwest Florida watershed. The program will directly benefit 60 science teachers via extended professional development that includes outdoor, field inquiries within Tampa Bay's watershed and GLOBE environmental science training; and, 3000 students in grades 5-9 via classroom and outdoor inquiries; and, 12 graduate level scientists in the classroom. A total of 3072 participants will have engaged firsthand in meaningful watershed educational experiences. Primary objectives are to provide: 1) 20 teachers in the Tampa Bay watershed with meaningful outdoor learning experiences; 2) 60 Tampa Bay teachers with extended professional development using GLOBE environmental science protocols; 3) 3000 Tampa Bay students with inquiry-based field and classroom activities that bring the dynamic watershed into the classroom; and 4) students and families with multiple opportunities to engage in environmental stewardship activities within their region of the Tampa Bay watershed.</p>
<p>Florida A&M University</p>	<p>From the Sky to the Sea: Investigating the Hydrologic Cycle in a Coastal Watershed, an Exemplary Pilot Program for K-12 Environmental Literacy</p>	<p>This project combines Teacher Professional Development with long-term classroom-integrated Meaningful Watershed Educational Experiences for their students. The project will develop a hands-on, inquiry-based program designed to increase student understanding of the hydrologic cycle as it relates to the journey of water within a coastal watershed to the Gulf of Mexico. Emphasis will be places on the importance of water as a natural resource, its role in terrestrial and coastal ecosystems, its vulnerability to contamination as it travels through the watershed, and on the importance of the scientific method for inquiry-based investigations. The project will focus on teaching students through hands-on, field-based collection of hydrologic data and applying those skills to inquiry-based field studies. The field setting for this project is Leon and Wakulla counties in the Florida Panhandle. The first component of the project will focus on providing professional development to teachers focusing on hydrologic data collection. This</p>

		<p>component will be developed using environmental data collection protocols of the Global Learning and Observations to Benefit the Environment (GLOBE) program. The second component will focus on working with teachers and students in the classroom setting during the school year to develop watershed curriculum components aligned with science standards. The third component is a major focus of the project and will involve developing a two-week summer hydrology program for middle and high school students. The summer program will be designed around daily field and classroom activities that progressively build students' knowledge and understanding of the hydrologic cycle, and awareness of how their actions can impact the watershed. The program will involve numerous field trips that collectively trace the flow of water through the watershed to the Gulf of Mexico. 12 teachers and 20 students will be reached in total over the 2 year period.</p>
Citrus County School Board	Springs Coast Watershed Project: From the Springs to the Gulf	<p>Approximately 6,200 fourth grade, seventh grade, and high school students and 148 teachers will enrich their learning and instruction in life science by conducting place-based field experiences within their local Springs Coast watershed, spring systems, coastal rivers, estuaries, and the Gulf of Mexico. Ninety (90) Teachers will participate in multiple in-service training activities including a two-day curriculum integration workshop addressing pedagogy, content development, alignment with standards, subject area integration, student assessment, technology, and boating/snorkeling/field safety. Students will conduct grade-level specific, inquiry-based field labs during their annual Marine Science Station field experience within the Crystal River National Wildlife Refuge (4th grade), the St. Martins Marsh Aquatic Preserve (7th grade), and the Gulf of Mexico (9th-12th grade), and in or around their school. Students will summarize and communicate their findings to the public during Science Nights at their schools and/or at the Marine Science Station's open house and Explore Your Estuary events. The project has four main goals: 1) increased student achievement in science; 2) increased teacher knowledge of inquiry-based instruction in the field and classroom; 3) increased stewardship of the Springs Coast Watershed, local spring systems, rivers, estuaries, and the Gulf of Mexico; and, 4) increased exposure to STEM careers for all students participating in the project.</p>
Partnership for Community Programs (West Florida Regional Planning Council)	Watershed Vanguard Education for Students (WAVES)	<p>The West Florida Regional Planning Council will host a two day teacher in-service training workshop for schoolteachers from Escambia and Santa Rosa counties in Florida. This workshop will provide the teachers with the intellectual and technological tools needed to provide their students with the information to make informed decisions in matters leading to watershed preservation. The WAVES program is designed to provide approximately 700 students and 26 science teachers with experiential learning through the use of field trips, classroom learning, and field study throughout the school year in order to provide a better understanding of the factors that contribute to the degradation of the Pensacola Bay Watershed. This will be accomplished by establishing meaningful and personal connections between the 11th grade students and faculty of Escambia and Santa Rosa County Florida public schools and the watershed in which they inhabit. This program is designed to engage students in examining the environment they are a part of and determine solutions to the complex problem of storm-water runoff. Students will take a balanced approach when determining solutions to this problem by accounting for the realistic needs of the environment balanced by the fiscal concerns caused by implementing solutions. Students will also be able to determine cost effective mitigation strategies to improve the overall health</p>

		of the watershed and present information regarding the type of pollutant entering the watershed to community leaders and other interested parties. Additionally, students will learn about environment-related professions through research or by presentations from environmental professionals.
The Florida Aquarium, Inc.	Watershed Investigations	Providing hands-on, minds-on exploration of the health of Tampa Bay and Gulf of Mexico, Watershed Investigations introduces students to local watersheds, climate change and the role students can play in protecting our water resources. Students gather data to capture a snapshot of current conditions of diverse watershed habitats in their area. Then, they use critical thinking skills to predict how climate change will impact their region in five years as well as 50 years from now. 660 5th grade students from Title I schools will participate each year (1,320 underserved students total). The yearlong program includes: outreach programs for each class to prepare students and to conclude the program; two field experiences to gather data and observe ecosystems in different seasons; supplemental classroom activities that support investigation and build critical thinking; adding student data to an online database; and communicating findings and conclusions on a page on the Aquarium's website. Participating students will demonstrate an understanding of: the workings of a watershed; features of their regional and Gulf watersheds; essential principles of Earth's climate system; how to assess scientifically credible information about climate; how humans impact climate, and simple steps they can take to reduce their impact on the rate of climate change.
Science and Discovery Center of Northwest Florida	Children as Watershed Stewards (Project CAWS)	Project CAWS will assemble a course of study (CAWS Curriculum) to introduce young children to the wonders of their northwest Florida watershed system based on the most current earth science, climate and ocean studies and using the most appropriate technology; field test, gather feedback and revise CAWS Curriculum; and produce and disseminate (digitally when possible) CAWS Curriculum, assisted by the Panhandle Area Educational Consortium, throughout the 19 counties within our watershed and throughout the Gulf of Mexico Alliance as appropriate. Number Students and Teachers to be Reached Initial Year: 380 Students; 20 Teachers
Friends of Rookery Bay	Gulf of Mexico Teachers on the Estuary Workshops	This project will increase the capacity of teachers to use Gulf of Mexico research and data in inquiry-driven, experiential instruction related to estuaries and watersheds. Education Coordinators from all Gulf of Mexico National Estuarine Research Reserves will design and develop Gulf Teachers on the Estuary workshops, engage 89 teachers, and evaluate the program. Project workshops will be presented at the Mission-Aransas, Grand Bay, Weeks Bay, Apalachicola, and Rookery Bay reserves.
University of South Florida, College of Marine Science	Tampa Bay to Gulf: Coastal Field-based Inquiries for Teachers	The Tampa Bay to Gulf: Coastal Field-based Inquiries for Teachers program provides Sustained Professional Development for teacher within Tampa Bay watershed. The program will bring 20 teachers to the Bay and Gulf via direct, field-based coastal research and inquiries; and, provide 60 teachers watershed monitoring training via professional development using GLOBE environmental sciences protocols. As an extension of teacher professional development, teachers can train their students in the classroom as Citizen Scientists monitoring their regions hydrology, atmosphere and soils. The program will directly benefit 60 science teachers and 3000 students in grades 5-12 via classroom and outdoor watershed monitoring and inquiries. A total of 3060 participants will have engaged in meaningful watershed educational experiences.

Florida State University	Preserving our Underwater Pastures (PUP): Researching human impact on local historic artificial reef structures	Sixteen high school students, 15 years or older, and two teachers will spend three weeks each of two summers gaining science dive certification while studying three historical artificial reef sites in local waters. Both students and teachers will gain the knowledge and experience that allows them to enter the underwater world safely and competently and to successfully employ data gathering strategies to study the reefs for degradation by human factors as well as to catalog the kinds of fauna that inhabits the reefs. During the school year this group will meet one Saturday a month to continue to hone their research skills and to gather and interpret data. Students and teachers will utilize state-of-the-art monitoring and data gathering equipment that FSU Panama City already uses, and will analyze data to identify kinds of degradation and causes of degradation as well as rates of degradation. Once all data is gathered, formal analyses will be completed and presented to NOAA and other interested organizations with suggestions based on research that might mitigate the identified challenges to these reefs. Teachers involved in this program will return to their classrooms to develop their own MWEs based on their experience and will be able to utilize their new network of FSU Panama City experts and the student experts with whom they have worked.
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