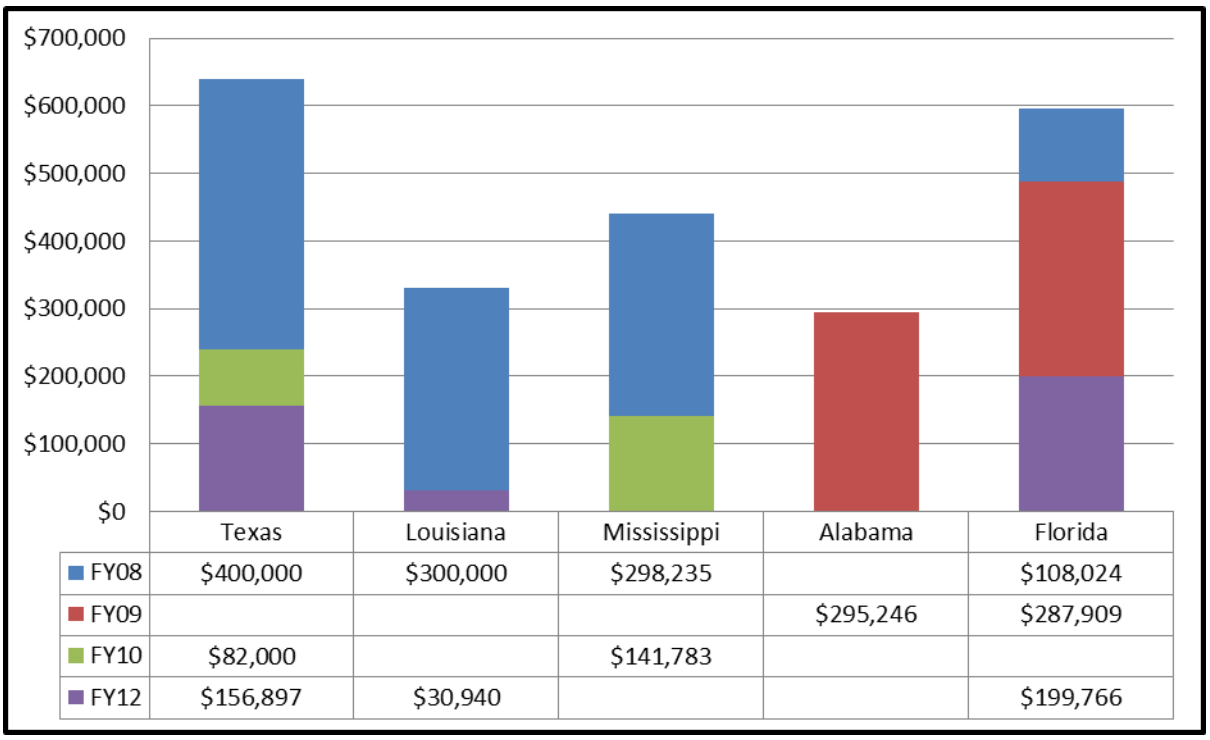
Gulf B-WET Projects

Since its beginning in 2008, the Gulf B-WET Program has funded 15 awards in each of the five Gulf States. The graph below provides a view of funding by state.



	Texas	Louisiana	Mississippi	Alabama	Florida
FY08	$400,000	$300,000	$298,235		$108,024
FY09				$295,246	$287,909
FY10	$82,000		$141,783		
FY12	$156,897	$30,940			$199,766

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

TEXAS		
Organization	**Project Title**	**Project Summary**
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 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: 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.

University of Texas Marine Science Institute	Elementary Explorers in the Watershed	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 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.

University of Texas – Pan-America, Coastal Studies Laboratory	Arroyo Colorado Watershed BWET Teacher Professional Development	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. • 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. • Gauge attitudinal changes towards the Arroyo Colorado Watershed and related science topics.
LOUISIANA		
Louisiana State University	Integrated Professional Development and Resources to Enhance Educational Goals of Two Environmental Stewardship Programs in Louisiana and Mississippi	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: • 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	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 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.
MISSISSIPPI		
Mississippi Department of Marine Resources (Grand Bay National Estuarine	Connecting Kids to Coast Watersheds	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.

Research Reserve) and The University of Southern Mississippi (JL Scott Marine Education Center)		This program consists of a five-phased approach that incorporates 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.
J.L. Scott Marine Education Center, Gulf Coast Research Laboratory, The University of Southern Mississippi and 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)	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.
J.L. Scott Marine Education Center, Gulf Coast Research Laboratory, The University of Southern Mississippi	Shifting Baselines: Watershed Connections to Landscape Change	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 participants continue to learn while sharing obstacles and successes.
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.
FLORIDA		
Lee County Florida School District	Wolf on the Watershed	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.
The Florida Department of Environmental Protection and the Collier County School District	Big Cypress Watershed Project, Learning in Florida's Environment (LIFE)	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.
The Florida Department of Environmental Protection	Learning in Florida's Environment: Gulf to Bay Project	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 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.
University of South Florida, College of Marine Science	Tampa Bay Coastal Watershed Inquiries, Stewardship & Education (TB C-WISE)	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.