Proj #	Bay PRP 2014-040
Project Name	Identifying the cause of beach swimming advisories at Carl Gray Park in Bay County, FL
Project Proposer, affiliation, web site	Patrice Couch St. Andrew Bay Resource Management Assoc. (RMA) www.sabrma.org
Project Description	The St. Andrew Bay Resource Management Association will work with multi-agency partners to perform a microbial source tracking study to identify why Carl Gray Park has frequent swimming advisories due to elevated fecal bacteria. Carl Gray Park has the most advisories of any designated swimming beach in Bay County. Results of the study would be disseminated to community leaders and the public to make informed decisions about how to correct the problem and reduce the number of advisories.
Proj. Size (acres)	6600
Economic	Healthy beaches are essential to our economy. Tourists will not want to visit Bay County if they become ill while swimming here. Water-dependent businesses and property values could suffer. RMA wants to identify sources of bacterial contamination in order to reduce the number of swimming advisories.
Environmental	Fecal bacteria come from stormwater runoff, pets, wildlife, and human sewage. Beaches with high bacteria levels are unsafe for swimming and shellfish concentrate bacteria in their body tissues, making them unfit for consumption. Identifying the source and removing fecal bacteria benefits everyone.
Social	Tourists and residents are attracted to this area because of our beautiful beaches and bay. Community leaders will be able to determine how to solve the bacteria problem once its sources are identified. Better water quality will support tourism, recreation, business, property values, and fisheries.
Other	
Project Location	Carl Gray Park is located within the St. Andrew Bay watershed in Bay County, Panama City, Florida.
Est total project cost	$390,088
Amount requested	$320,888
Describe what funds will be used for	Funds will be used to perform a microbial source tracking study that involves completion of a sanitary survey, collecting water samples to measure levels of bacteria, and using this information to determine the sources. A report detailing the results of the study will be provided.
Long term funding needed? Source? Availability?	Long-term funding is not needed to complete this project. The project length is two years.
Est yrs completion	0-2
Matching $ available?	Yes
Match source? Secured?	St. Andrew Bay RMA will provide a boat, insurance, lab space, and utilities ($29,600). Florida DEP has pledged in-kind services worth $27,600 for sample analysis and technical support. DOH has pledged in-kind services worth $12,000 for sample analysis and technical support. Total match = $69,200.
Amount match secured	$69,200

% proj cost from match	18
Partners anticipated?	Yes
Partner names	FL Dept. of Health in Bay Co., FL Dept. Environmental Prot.
Funds request other source?	
If yes, name source, decision date	N/A
Proj fully funded by other source?	
FULL PROPOSAL FORM	
Project number (proposal)	Bay PRP 2014-040
Submittal date proposal	2/7/2015
Project name (proposal)	Identifying sources of fecal pollution at a recreational beach: Carl Gray Park, Bay County, FL
Applicant name	St. Andrew Bay Resource Management Association, Inc. (RMA)
Project description (proposal)	The St. Andrew Bay Resource Management Association will work with the Florida Department of Health in Bay County and the Florida Department of Environmental Protection to perform microbial source tracking to identify why Carl Gray Park has frequent swimming advisories due to elevated fecal bacteria. Carl Gray Park has the most advisories of any designated swimming beach in Bay County. Results of the study would be disseminated to community leaders, state agencies, and the public to make informed decisions about how to correct the problem and reduce the number of advisories.
Project location description	Carl Gray Park and adjacent waters, Panama City, Bay County, Florida. The study area includes waters in close proximity to Carl Gray Park and just offshore. Water samples will also be collected in specific areas north and south of the park and in open waters of St. Andrew Bay in order to determine background levels of fecal bacteria. A map of the study area will be sent as a .pdf file.
1. Restore nat res	Carl Gray park, a popular recreational beach, is considered impaired for bacteria based on frequent swimming advisories issued by the Florida Department of Health in Bay County as a result of elevated levels of fecal bacteria. This project will work to identify the sources of fecal bacteria contaminating this beach by sampling for fecal indicator bacteria and utilizing microbial source tracking techniques to determine if the sources are human. Once we have this information, community leaders will have the information needed to move forward to initiate corrective actions, if needed, that will lead to a reduction in the amount of fecal bacteria polluting this beach. This will result in protection of the beach and adjacent waters.

2. Mitigate	The identification of sources of bacteria will support actions to improve water quality that will benefit the seagrass beds that are located immediately adjacent to Carl Gray Park. The primary species is Turtle Grass (Thalassia testudinum), but Shoal grass (Halodule wrightii) is also present. Seagrasses provide food, shelter, and nursery areas for important finfish and shellfish species, sediment stabilization, nutrient cycling, and maintenance of water clarity and coastal biodiversity (Yarbro & Carlson 2011). More than 70% of Florida's recreational and commercial fish, shellfish and crustacean species spend part of their life cycle in seagrass beds, with a statewide economic benefit of $55.4 billion dollars annually (FWC 2003). Improvements in water quality at the park will also benefit shellfish such as oysters, which are known to concentrate pollutants, including fecal bacteria, in their tissues, making them unfit for consumption.
3. Implement plan	This project implements work concurrent with the federal Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000, which authorizes the Environmental Protection Agency (EPA) to provide grants to coastal states to monitor their coastal beaches for bacteria that indicate the possible presence of disease-causing pathogens and to notify the public when there is a potential risk to public health. The project also complements guidelines of the National Shellfish Sanitation Program (NSSP) which involve enumeration of fecal bacteria in proximity to waters classified for shellfish harvesting. The National Shellfish Sanitation Program (NSSP) is the federal/state cooperative program recognized by the U. S. Food and Drug Administration (FDA) and the Interstate Shellfish Sanitation Conference (ISSC) for the sanitary control of shellfish produced and sold for human consumption. The purpose of the NSSP is to promote and improve the sanitation of shellfish (oysters, clams, mussels and scallops) moving in interstate commerce through federal/state cooperation and uniformity of State shellfish programs. The state of Florida must comply with these guidelines in order to sell shellfish out of state. The state agency that manages shellfish harvesting areas under the NSSP guidelines is the Florida Department of Agriculture and Consumer Services (DACS). The waters directly adjacent to Carl Gray Park are prohibited for shellfish harvesting; however, the boundary of the West Bay Conditionally Approved shellfish harvesting area (#0822) is located approximately 0.56 miles north of the park.
4. Workforce/Jobs	The project will create two full time jobs in the marine science field that will involve managing the project and performing the water sample collection and sanitary survey work that is required. The work will also help sustain jobs in Bay County because we will pay for a portion of our water samples to be processed by a local environmental lab. In the long-term, any work that results in an improvement in water quality will help sustain jobs in our community. Our economy is largely tourist-based and so clean water is critical for sustaining this industry and attracting new businesses to our area.
5. Improve state park	This project is adjacent to Carl Gray Park in Panama City, Florida. The nearest state park is St. Andrews State Park, located approximately four miles south of Carl Gray Park. The state park was affected by tar balls during the oil spill.
6. Infrastructure	N/A

7. Flood protect	N/A
8. Planning	The microbial source tracking data that is generated from this project will be used as a planning tool by local stakeholders to initiate corrective actions, if needed, that will reduce the number of swimming advisories at Carl Gray Park. This will be valuable to direct future restoration actions and funding priorities.
9. Promote tourism	Healthy beaches are essential to our economy. Tourists will not want to visit Bay County if they become ill while swimming here. Water-dependent businesses and property values could suffer if this beach remains impaired, or if the swimming advisories are highlighted in the media. RMA wants to identify the sources of bacterial contamination at Carl Gray Park in order to facilitate actions that will lead to a reduction in the number of swimming advisories and a safer beach. Carl Gray Park was selected for this study because historically, it has had the most numerous swimming advisories issued of any of the beaches monitored by the Florida Department of Health in Bay County. The park is one of the only swimming beaches in Panama City and its central location next to the Hathaway Bridge and Gulf Coast State College means it is attractive to all visitors. Residents and tourists both take advantage of the free boat launch to fish the seagrass flats within the bay, and it is a short ride to Shell Island and the Gulf of Mexico. Carl Gray Park is unique in Bay County because the calm waters offer excellent conditions for windsurfing, kayaking, and kiteboarding. It is very attractive for families with small children because the shoreline is protected from the wind and waves typically found on our Gulf beaches. The picnic area at the north end of the park also attracts many visitors. Swimming beaches are internationally ranked by travel related websites and media companies such as Trip Advisor, Fox News, U.S. News and World Report, and the Travel Channel. So we need to be proactive at trying to reduce the number of swimming advisories so we can maintain our status as the "Worlds Most Beautiful Beaches" even in our urban areas.
10. Promote seafood	Although the project does not directly promote consumption of seafood, actions that lead to long-term improvements in water quality in St. Andrew Bay will benefit estuarine habitat that sustains the commercial and recreational fisheries that are the source of seafood along the Gulf of Mexico.
1.1 Diversify	N/A
1.2 Infrastruc	N/A
1.3 Airport	N/A
1.4 Job train	N/A
1.5 Workforce dev	N/A
1.6 Facil tourism/econ dev	N/A
1.7 Rec, transport, wage	The information gathered in this study will be used to improve beach and water access through the identification of the sources of fecal bacteria that are triggering the issuance of beach swimming advisories by the Florida Department of Health in Bay County. Results of the study will allow community stakeholders to make informed decisions to correct the problem, which will result in fewer beach advisories and increased recreational opportunities at Carl Gray Park.

1.8 Protect nat res	Maintaining the health of our local waterways, especially public swimming beaches, is essential to continue our thriving tourist industry. The health of swimming beaches is ranked and advertised on a national level, and one factor evaluated is the number of swimming advisories, which are issued when fecal bacteria levels exceed the level for safe swimming. In the Natural Resources Defense Council's 2014 "Guide to Water Quality at Vacation Beaches", Florida is ranked 13th in beach water quality compared to 30 states. Based on beach monitoring data from 2013, this guide ranked Carl Gray Park as the 4th worst beach in Florida with a 72% exceedance rate for bacteria levels (http://www.nrdc.org/water/oceans/ttw/). We need to be proactive at ensuring that the water quality of swimming beaches in Bay County remains free of pollution sources, especially fecal bacteria, which can cause illness.
1.9 Promote fishing	N/A
1.10 Commun resil	N/A
2.1 Protect SAB	This project supports the Florida Department of Environmental Protection's (FDEP) new initiative to protect beaches and other recreational waters. New laboratory tools and assessment methods are being developed to identify and reduce the sources of pathogens in recreational waters to make beach and recreational waters safer. The federal Clean Water Act provides the statutory basis for state water quality standards programs. The regulatory requirements governing these programs (Water Quality Standards Regulation) are published in 40 CFR 131. States are responsible for reviewing, establishing, and revising water quality standards. Florida's surface water quality standards system is published in 62-302 (and 62-302.530) of the Florida Administrative Code (F.A.C.). FDEP considers Carl Gray Park (WBID 1061BB), impaired for bacteria based on the number of beach advisories issued by the Florida Department of Health. A water body is considered impaired if swimming advisories remain in effect for more than 21 days of the year on a consistent basis. Carl Gray park was placed on FDEP's impaired waters list based on data from 2001 to 2003 (http://www.dep.state.fl.us/water/watersheds/assessment/a-lists.htm). It has a medium priority for TMDL development that was projected for 2009. According to data from the Environmental Protection Agency, during the 12 year period from 2002 to 2013, Carl Gray Park has been under a swimming beach advisory for a total of 924 days, which is equivalent to 2.5 years (http://watersgeo.epa.gov/beacon2/). Identifying the sources of fecal bacteria that are causing the swimming advisories is the first step needed to maintain its recreational use. The St. Andrew Bay Stormwater Management Plan recognizes Carl Gray Park as impaired and in proximity to large concentrations of septic tanks to the north. Figure ES-3, shows the park in red in hydrologic unit PC03, which is ranked #1 in the prioritization of subbasins for restoration.
2.2 Improv wtr qual	Data generated by this project will be used as a tool to direct upland restoration projects that might be needed to reduce the amount of fecal bacteria polluting the water.

2.3 Protect seagrass	The St. Andrew Bay Resource Management Association (RMA) partners with Gulf Coast State College to host a Citizen Science Lecture Series. The Citizen Science Lecture Series is a great way for individuals in the community to share the work they are doing to conserve our natural resources. There are nine of these talks each year and they last about an hour. They are free and open to the general public. As part of this project, we will host local seagrass experts to communicate the why it is essential to maintain healthy seagrass beds in St. Andrew Bay. We now have a new Aquatic Preserve Manager for St. Andrew Bay, so we will invite her to share her progress as she updates the management plan for the St. Andrews Aquatic Preserve. Dr. Linda Fitzhugh, RMA's President and Professor of Natural Science at Gulf Coast State College, leads RMA's seagrass monitoring program, so we already have resources developed that compliment this work. Although attendance varies from topic to topic, we typically have 40-50 individuals in attendance. We have had several talks that were standing room only with over 80 individuals present. These lectures are advertised through local media outlets.
2.4 Wildl hab	As mentioned above, we will integrate the awareness of the beach and near-shore areas as wildlife habitat through our Citizen Science Lecture Series. The seagrass beds, beach, and near-shore areas are all integrated and are essential to maintain our wildlife, fisheries, recreation, and quality of life. RMA has an established partnership with the Florida Fish and Wildlife Conservation Commission (FWC) to assist in re-establishing scallops to our bay system. FWC brings us scallops from St. Petersburg, Florida that citizens grow in protective cages until they are large enough to be released in areas where seagrasses thrive in St. Andrew Bay. So this is an exciting topic we will discuss at our lecture series.
2.5 Acq lands	N/A
2.6 Preserve dunes, shore	N/A

2.7 Protected spp	There are several federally protected species that are known to occur in St. Andrew Bay including, but not limited to, the endangered Loggerhead sea turtle (Caretta caretta), Green Sea Turtle (Chelonia mydas), and West Indian Manatee (Trichechus manatus), and the threatened Atlantic Sturgeon (Gulf subspecies - Acipenser oxyrinchus). A long-term benefit of this project is that can be used to improve water quality by identifying the sources of bacterial contamination that are polluting the water at Carl Gray Park. This will benefit all aquatic life, including these protected species. Funds and staff are not currently available from the city, county, state, or federal stakeholders to conduct this study on their own. This microbial source tracking study is the next step towards improving the water quality at Carl Gray Park. Additional data are needed in order to make informed decisions about how to address the problem. This project and the multi-agency partnerships it involves will allow us to leverage funds and resources to do a project that otherwise would not move forward. We will provide the information the city, county, and state needs to work to address and reduce the public health risks associated with swimming at Carl Gray Park. Data from the study may be used to leverage additional resources, such as grant funding, if needed to address water quality improvements. This diverse community partnership of local, state, and a non-governmental organization represents a flexible approach to work towards solving a problem that impacts all of us. Everyone has a vested interest in ensuring that our beaches are safe for swimming.
2.8 Water data	This project complements the work already being done by the the St. Andrew Bay Resource Management Association (RMA) and the Florida Department of Health in Bay County (DOH). RMA's St. Andrew Bay Watch program has been monitoring water quality in the St. Andrew Bay watershed for 25 years to determine long-term trends in water quality, but we have not been able to afford to add bacteriological sampling as a regular parameter. DOH operates the Healthy Beaches program to monitor water quality at ten beaches in Bay County. In 2011, budget cuts forced DOH to cut the number of beaches monitored from 13 to 10, and reduce the sample frequency from weekly year-round to every other week during March through October. DOH monitors one site at Carl Gray Park for the presence of enterococci bacteria. One station is not sufficient to identify all of the potential sources of the bacteria at the park. This project leverages resources and will provide valuable information that is needed to properly manage the park to work towards its removal from the impaired waters list.
3.1 Deer Pt Lk wtr qual	N/A
3.2 Stabil roads	N/A
3.3 Sewer AWT	N/A

3.4 Septic to central	Depending on the results of this study, the data could indicate the need for replacement of septic tanks in locations adjacent to Carl Gray Park, such as Posten Bayou. The data could be used to support grant proposals for the county and municipalities to request funding to help pay for infrastructure improvements. So, in the long-term, this project could facilitate the replacement of septic tanks and would help prioritize the need in an area that otherwise might be overlooked.
3.5 Stormwtr	N/A
3.6 LID	N/A
3.7 Coast resil	N/A
3.8 Support port	N/A
Budget justification	The total cost of the project is $390,088.00. $320,888.00 is being requested from the Bay County RESTORE fund. Partners have pledged a total of $69,200 as in-kind match for the project, representing an 18% match: 1. St. Andrew Bay Resource Managment Association (RMA) = $29,600 Administrative costs of the project including insurance, use of boat, portion of rent and utilities. 2. Florida Department of Environmental Protection (FDEP) = $27,600 Technical support and costs of sample analyses for identification of human molecular and chemical markers. 3. Florida Department of Health in Bay County (DOH) = $12,000 Technical support and sharing of data obtained from sampling for Enterococci bacteria at Carl Gray Park every other week from March - October. Letters of support from FDEP and DOH will be submitted in .pdf format by e-mail.
Ongoing costs	The project has a discrete beginning and end date, so no ongoing costs will be borne by Bay County.

Objective and measures	The overall objective is to identify the sources of Enterococci, the fecal indicator bacteria (FIB) that are causing the issuance of swimming advisories at Carl Gray Park. In this study a tiered approach will be used. First, a sanitary survey will be completed to document conditions at the park, including, for example, the locations of stormwater outfalls, lift stations, sewer lines, beach condition, and what activities are happening at the park. Historical data from the DOH will be examined for temporal trends. Community stakeholders with a knowledge of the area will be asked to share their expertise. This information will be used to determine the sample station locations. Multiple stations will be established along the beach and offshore in proximity to the park. Water samples will be collected and analyzed for the presence of Enterococci bacteria. This will allow us to determine where the bacteria levels are the highest spatially. Sampling frequency will be performed with careful consideration of temporal factors such as water flow (rainfall), tidal cycle, and seasonality. After we are able to characterize the levels of FIB over a range of spatial and temporal scales, we will select a subset of stations that are indicated as having the highest levels of Enterococci and we will collect water samples for molecular and chemical analyses. This will help us identify whether or not the bacteria are from human sewage or from nonhuman sources such as bird feces. METRICS: Progress reports will be completed as dictated by the Treasury and/or Bay County to document work on the project. Project metrics will include: # of samples collected; # of public education/outreach events, # of people reached through public education/outreach events; # of jobs created; # of partnerships sustained; # of new stakeholders engaged in the project; # of acres protected or improved; # of FIB sources identified; production of the data report and distribution to # of community leaders.
Nat Res Proj	Yes

Best Avail Science	Microbial source tracking (MST), also referred to as bacterial or fecal source tracking, is a set of techniques used to determine the sources of fecal bacteria in the environment. MST techniques attempt to determine sources of fecal bacteria introduced into water bodies by humans, wildlife, or domestic animal sources. MST techniques can be divided into two categories: 1) Molecular and biochemical techniques assume that there are characteristics unique to the fecal bacteria from a particular host and that these characteristics allow scientists to identify the source of the contamination. Most of these techniques target key genes that can be tied to a specific host; 2) Chemical methods generally rely on the detection of chemicals associated with human-associated activities, such as acetaminophen (Tylenol) and sucralose (Splenda). Chemical methods are based on the detection of a chemical directly related to a specific source but not typically found in unpolluted waters. At this time MST techniques are evolving rapidly. These techniques can be valuable long as care is taken with interpretation of the results. The state of California has invested in a large effort to investigate the effectiveness of these techniques in order to better understand the complexities associated with FIB source tracking. FDEP is using molecular and chemical markers to assess waters that are impaired for fecal bacteria. FDEP has initiated rule development in Chapters 62-302, 62-303, and 62-304, F.A.C., to develop rules that refine water quality standards to take advantage of this new technology and the data that will be available to make beach and recreational waters safer. FDEP has also prepared a Bacteria Criteria Development web page and has convened a Technical Advisory Committee to assist in criteria development. FDEP and DOH have agreed to provide the technical support needed to ensure a scientifically valid study design. In addition, similar studies have been conducted recently that will assist us with the final study design to ensure we are using the best available science. An example of recent field case studies: 1. Griffith, John F., et al., 2013. The California Microbial Source Identification Manual:A Tiered Approach to Identifying Fecal Pollution Sources to Beaches. 2. Tetra Tech, Inc. and Herrera Environmental Consultants, 2011. Using Microbial Source Tracking to Support TMDL Development and Implementation. Prepared for U.S. E.P.A. 3. Boehm, A.B., Fuhrman, J.A., Mrše, R.D., Grant, S.B., 2003. Tiered Approach for Identification of a Human Fecal Pollution Source at a Recreational Beach: Case Study at Avalon Bay, Catalina Island, California. Environmental Science and Technology 37: 673–680. 4. Santoro, A.E., Boehm, A.B., 2007. Frequent occurrence of the human-specific Bacteroides fecal marker at an open coast marine beach:Relationship to waves, tides and traditional indicators. Environmental Microbiology 9: 2038–2049.
Env issues	None of the Executive Orders apply to this project. No federal consultations or permits are needed for this project. Please refer to the checklist that will be included with this proposal by e-mail.
Econ Dev proj?	
Econ Dev description	N/A
Job Creation?	Yes
Describe how jobs created	Two full time jobs will be created, a Project Manager and a Research Assistant. Work required will also serve to sustain jobs at a local environmental laboratory that will pay to process a portion of the water samples.
No. jobs created	2
No. jobs created Yr 1	2
No. jobs created Yr 2	0
No. jobs created Yr 3	0
Avg wage	$49,920
Total proj cost	$390,088

Complement. proj descr.	1. Florida Department of Health in Bay County, Healthy Beaches program: Healthy Beaches is a state-wide program that is funded by a grant administered by the State from the E.P.A. by authority of the Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000. It pays for monitoring of coastal beaches for bacteria that indicate the possible presence of disease-causing pathogens and to notify the public when there is a potential risk to public health. Budget unknown. 2. City of Panama City: Carl Gray Boat Ramp Improvement. Proposal to Bay County RESTORE Advisory Committee # Bay PRP 2014-041. Funding requested in pre-proposal = $500,000.00. 3. FDEP: Work being done by FDEP by the Division of Environmental Assessment and Restoration for assessment of impaired waters according to the Clean Water Act. Funding source and budget not known. 4. St. Andrew Bay Resource Management Association (RMA), Water Quality Report Card: Proposal to Bay County RESTORE Advisory Committee # Bay PRP 2014-035.
Proj readiness descr	As soon as funds are available to RMA we will proceed with ordering supplies and hiring staff. No permits are needed, so we expect the major work would begin within 45 days of the award date. If the County or Treasury has other requirements, we will do our best to work within that time frame.
Permits required?	
Permits status	
Land acq?	
Acquire fee simple?	
Acquire easement?	
Fee and easement descri	
Terms of easement	
Entity to hold title	
Easement acres	
Fee simple acres	
Appraisal avail?	
Appraised value	
Title opinon avail?	
Material risks	We do not anticipate any material risks. The project involves upland pollution source survey work and collection of water samples, so we do not require any permits. RMA carries a 1 million dollar General Liability insurance policy with Peoples First in Panama City, FL. We also have comprehensive coverage for our boat.

Likelihood of success	Established in 1987, the St. Andrew Bay Resource Management Association (RMA), Inc., is a private, nonprofit 501(c)(3) organization whose members are committed to the proper management of St. Andrew Bay and adjoining bays, lakes, tributaries and wetlands. Our goal is to maintain and improve the quality of surface waters and critical fishery habitats within the watershed. RMA operates several monitoring and research programs in this endeavor including St.Andrew Bay Watch, Turtle Watch, Seagrass and Scallop Monitoring and Restoration, and Shoreline Restoration. Data are published and distributed to local, state, and federal agencies. In addition to monitoring and research, we perform education and outreach to keep the public and watershed stakeholders informed of any changes in water quality and aquatic resources. We rely on grants and member donations to support our work. Activities are accomplished in cooperation with multi-agency partners. We promote sound management of the bay and its watershed to ensure it remains healthy. RMA has the scientific and technical expertise to complete this project because we have been in operation for nearly 30 years running various programs that have contributed to the proper management of the St. Andrew Bay system. St. Andrew Bay Watch has been going strong for 25 years using QA/QC protocols that have been praised by established entities such as the University of Florida LAKEWATCH program. Bay Watch staff members have over 32 years of experience in water quality, fisheries, and environmental health work. Our Board of Directors includes professionals with a background in the biological and natural sciences. Multi-agency partnerships ensure we have the expertise required to meet our goals, whether it be by providing guidance in project design and implementation or the donation of in-kind services. RMA is respected for its quality work and for its commitment to protecting the physical and biological resources of our bay.
Contract out work?	Yes
Contracting strategy	In Year 1, we will contract with a local lab to process water samples to determine the presence of Enterococci bacteria. We have not selected a lab yet. With the guidance of FDEP, we will contract with a lab to perform molecular analysis of samples to determine the presence of human and avian (bird & gull) markers to see if they are a potential source of the bacterial contamination at Carl Gray Park. The FDEP lab can perform the molecular analysis to determine presence of the human marker Bacteroidales (HF-183). FDEP can also perform the test for the chemical markers acetaminophen and sucralose. But in order to obtain confirmation of a human source, we need to contract with another lab to analyze for another human molecular marker under development by E.P.A. called HUM-M2. These genetic markers are essential to be able to distinguish between human and non-human sources. The contract lab will also run tests to determine the possible presence of avian feces (bird and gull). The schedule of services is not defined at this time, but we expect these services would be needed in Year 2. Due diligence will be taken in regards to verifying the performance of any contracted services and related documentation.
Applic manage proj?	Yes

L 1. Proposed mgr	Patrice Couch, Director, St. Andrew Bay Watch. Eight years experience managing federal and state grants with performance metrics, invoicing, and reporting requirements. With RMA Board of Directors.
L 2. Mgr agreed?	Yes
L 3.Mgr experience	1. Northwest Florida Water Management District. $500,000 (2007-2014). Water quality and seagrass monitoring in the St. Andrew Bay watershed. 2. U.S. Fish and Wildlife Service: Several small grants that totaled ~$35,000 (2007-2012). Water Quality Monitoring in the St. Andrew Bay Watershed, Bay County, Florida. 3. National Fish and Wildlife Foundation: $142,000 (2013 - present). Restoring shorelines, wetlands, seagrasses in St. Andrew Bay. Members of the RMA Board of Directors have extensive experience managing grants prior to 2007.
L 4. Post proj maint	RMA has the scientific and technical expertise to complete this project because we have been in operation for nearly 30 years running various programs that have contributed to the proper management of the St. Andrew Bay system. The RMA Board of Directors and current staff have experience managing grants as large as $500,000 and meeting the performance requirements of each granting agency according to contract specifications.
L 5. Mgmt approach	Project management would be dictated by the performance requirements of the Treasury and/or Bay County. RMA would expect to document performance metrics according to a schedule and document all work and project expenses.
Outreach descr	The St. Andrew Bay Resource Management Association (RMA) partners with Gulf Coast State College to host a Citizen Science Lecture Series. The Citizen Science Lecture Series is a great way for individuals in the community to share the work they are doing to conserve our natural resources. There are nine of these talks each year and they last about an hour. They are free and open to the general public. As part of this project, we will host local seagrass experts to communicate the why it is essential to maintain healthy seagrass beds in St. Andrew Bay. We now have a new Aquatic Preserve Manager for St. Andrew Bay, so we will invite her to share her progress as she updates the management plan for the St. Andrews Aquatic Preserve. Dr. Linda Fitzhugh, RMA's President and Professor of Natural Science at Gulf Coast State College, leads RMA's seagrass monitoring program, so we already have resources developed that compliment this work. Although attendance varies from topic to topic, we typically have 40-50 individuals in attendance. We have had several talks that were standing room only with over 80 individuals present. These lectures are advertised through local media outlets.