Proj #	Bay PRP 2014 - 001
Project Name	Restoring Bay County's Recreational Fishing Industry through Artificial Reef Construction and Monitoring
Project Proposer, affiliation, web site	Allen Golden, P.E. Bay County BOCC Planning and Zoning Division baycountyfl.gov
Project Description	A series of artificial reefs will be constructed of secondary use materials that are stable and durable, lasting at least 30 years. Reef construction materials were donated to Bay County and will be used to create essential fish habitat benefiting fishing, diving, and other tourism businesses. Reefs will be located in state waters approximately 3nm miles off the MB Miller County Pier and off Panama City Beach's Russell-Fields Pier. Near-shore reef locations also provide fuel and time savings.
Proj. Size (acres)	1271
Economic	Restoration of recreational fishing through artificial reef strategies provides new infrastructure proven through economic studies to benefit businesses and commerce associated with tourism. For every 1$ invested in reef construction, Bay County receives a value of $131.
Environmental	The sea floor in NW Florida consists of sand and shell bottom occasionally interrupted by low-relief limestone ridges. Artificial reef materials create habitat building blocks providing high relief hard structure utilized by a variety of marine invertebrates and important reef fish species.
Social	Fishing and diving activities on the Gulf Coast are family oriented. Multi-generation vacation experiences are enhanced by supporting these types of shared activities. Increasing the number of artificial reefs improves the opportunity to bring home a day's catch.
Other	Artificial reef construction activities were halted during the Gulf Oil Spill, suspending much of the normal business associated with tourism, fishing, diving, and seafood industry. New reef projects were not seen as viable investments during this environmental and economic disaster.
Project Location	Reefs will be located in state waters approximately 3nm miles off the MB Miller County Pier and off Panama City Beach's Russell-Fields Pier.
Est total project cost	475745
Amount requested	370150
Describe what funds will be used for	Pre-Deployment Permitting and Siting; Reef Material Deployment; One Year Post-Deployment Monitoring and Evaluation; Final Report and Website Development for Public
Long term funding needed? Source? Availability?	None anticipated
Est yrs completion	0-2
Matching $ available?	Yes
Match source? Secured?	In-Kind funding associated with: material storage and staging; deployment of materials; and compensation of project coordinators
Amount match secured	$105,595

% proj cost from match	22
Partners anticipated?	Yes
Partner names	Florida State University - PC, University of FL Sea Grant
Funds request other source?	Yes
If yes, name source, decision date	Funding for transportation of donated reef materials to initial staging area funded by BOCC.
Proj fully funded by other source?	
FULL PROPOSAL FORM	
Project number (proposal)	Bay PRP 2014-001
Submittal date proposal	2/5/2015
Project name (proposal)	Restoring Bay County's Recreational Fishing Industry through Reef Construction / Monitoring
Applicant name	Allen Golden
Project description (proposal)	A series of artificial reefs will be constructed of secondary use materials that are stable and durable, lasting at least 30 years. Reef construction materials were donated to Bay County and will be used to create essential fish habitat benefiting fishing, diving, and other tourism businesses. Reefs will be located in state waters approximately 11 nm from the St Andrew's Bay Pass and 7-8 nm miles off the MB Miller County Pier and off Panama City Beach's Russell-Fields Pier. Near-shore reef locations provide fuel and time savings.
Project location description	Reefs will be located in state waters approximately 7 - 8 nm miles off the MB Miller County Pier and off Panama City Beach's Russell-Fields Pier. Please see attached ARCGIS Project Maps.
1. Restore nat res	The sea floor in NW Florida consists of sand and shell bottom occasionally interrupted by low-relief limestone ridges. Artificial reef materials create habitat building blocks providing high relief hard structure utilized by a variety of marine invertebrates and important reef fish species. Deployed reef materials take an estimated 3-5 years for full development. Reef complexity, location, and spacing promotes optimal foraging habitat for reef fish (Lindberg and Loftin 1998, Jordan et al 2005). This project seeks to incorporate research findings into a practical application of building artificial reefs using stable and durable materials. This will create new quality natural resources, ecosystems, fisheries, and marine habitats in the Gulf of Mexico.

2. Mitigate	Anecdotally, red snapper anglers reported occasionally catching fish with sores approximately 6 months to a year after the Deepwater Horizon Oil Spill. The University Of South Florida College Of Marine Science then documented external skin lesions and correlated oil found in red snapper liver with oil from the Deepwater Horizon Oil Spill. Less numbers of sick fish were documented the following year in 2012. The USF findings were reported in the Transactions of the American Fisheries Society by Murawski et al in 2014. This project will provide habitat that will benefit prized recreational fish species directly impacted by the oil spill. Other marine life and marine ecosystems will benefit and increase as a result of the new artificial reef structures.
3. Implement plan	
4. Workforce/Jobs	
5. Improve state park	
6. Infrastructure	Preliminary results of a recent statewide study conducted by the University of West Florida documented the economic impact of artificial reefs (Huth 2015). Their data ranks Bay County 10th out of Florida's 67 counties for the number of jobs provided to dive charters and diving activities, supporting about 900 positions. Researchers report approximately 1,000 additional jobs in the recreational fishing and charter industry as a result of artificial reefs in Bay County. These 1,900 jobs provide Bay County with over 42 million dollars in personal income and salaries. Additional reef resources will enhance local charter businesses and keep them thriving.
7. Flood protect	
8. Planning	

9. Promote tourism	University of Florida/IFAS Food and Resource Economics Department reported in the Journal of Environmental Management that uncompensated recreational angler losses for the Deepwater Horizon Oil Spill are estimated to be $585 million (Alvarez et al 2014). Artificial reef construction activities were halted during the Gulf Oil Spill, suspending much of the normal business associated with tourism, fishing, and diving. New reef projects were not seen as viable investments during this environmental and economic disaster. This project provides new opportunities for fishing and diving in State of Florida waters which helps disperse pressure on limited fish resources and artificial reef structures. Reducing user conflict and providing better experiences for both tourists and Bay County residents helps to compensate for oil spill losses experienced by recreation anglers and tourism businesses. Establishing new artificial reefs will benefit local tourism and the associated hospitality industry including fishing and diving charters, boat dealers, bait and tackle shops, lodging and restaurants, and many other retail outlets. Earlier economic analysis estimated the return on $1 to be $131 over the life of the reef (Bell et al 1998). Recent economic studies confirm for every $1 invested in artificial reef construction $9 is returned to the Florida economy annually (Huth 2015). Life expectancy of the reefs is a minimum 30 years based on monitoring and experience. Fishing and diving activities on the Gulf Coast are family oriented. Multi-generation vacation experiences are enhanced by supporting these types of shared activities. Increasing the number of artificial reefs improves the opportunity to bring home a day's catch.
10. Promote seafood	
1.1 Diversify	See relevant section 1.9 for details on how this project meets this objective related to tourism development.
1.2 Infrastruc	
1.3 Airport	
1.4 Job train	
1.5 Workforce dev	
1.6 Facil tourism/econ dev	A series of artificial reefs will be constructed of secondary use materials that are stable and durable, lasting at least 30 years. Reef construction materials were donated to Bay County and will be used to create essential fish habitat benefiting fishing, diving, and other tourism businesses. Restoration of recreational fishing through artificial reef strategies provides new infrastructure proven through economic studies to benefit businesses and commerce associated with tourism. See relevant sections 1.7 and 1.9 below.

1.7 Rec, transport, wage	Increasing the number of fishing opportunities and providing better experiences for both tourists and Bay County residents helping to compensate for oil spill losses experienced by recreation anglers and tourism businesses. Preliminary results of a recent statewide study economic conducted by the University of West Florida documented the impact of artificial reefs (Huth 2015). Their data ranks Bay County 10th out of Florida's 67 counties for the number of jobs provided to dive charters and diving activities, supporting about 900 positions. Researchers report approximately 1,000 additional jobs in the recreational fishing and charter industry as a result of artificial reefs in Bay County. These 1,900 jobs provide Bay County with over 42 million dollars in personal income and salaries.
1.8 Protect nat res	Attraction vs. Production Almost as old as the history of artificial reefs is the question of attraction vs. production. Do artificial reefs actually increase the fish population or merely increase the number of fish being caught? Researchers struggled with this question for decades producing seemingly conflicting results. Today's consensus is that the answer to the question is both yes and no – it depends. When fishing pressure and mortality exceed the number of fish produced, artificial reefs can end up as expensive fishing equipment. It's in everyone's interest to avoid this situation create productive resources. Fisheries Management Tools Artificial reefs are best used as a fisheries conservation tool that disperse fishing pressure and promotes healthy fish stocks. The ultimate goal when using artificial reefs is for fish production to exceed any mortality from natural causes or from fishing. Our goal is to deploy variety of reef materials that support fish at varies sizes and ages. Reefs in this project will be deployed so that the exposure to fishing pressure is managed using geographic location, spacing, and the number of patch reefs deployed.

1.9 Promote fishing	This project seeks to enhance Bay County's tourism and tourism businesses through the construction of series of artificial reefs in state of Florida waters. Fishing continues to be a popular activity for Florida and Bay County. Fourteen percent of the nation's population 16 years old and older fished in 2011 (Source US Fish and Wildlife). Expenditures by 16 year olds and older for Florida Fishing and Hunting Recreation in 2011 totaled over 6 billion dollars (Source US Fish and Wildlife). Recreational and Commercial Saltwater fishing impacts Florida's economy annually with over $10.4 billion and over 150,000 jobs (Source Florida Fish and Wildlife 2008) The Northwest Florida counties of Escambia, Santa Rosa, Okaloosa, Walton, and Bay attract 5–13 million overnight visitors annually (Bell et al. 1998; J. Klein, University of West Florida Haas Center for Business Research and Economic Development 2007, personal communication). Approximately 10% of all visitors engage in recreational boating activities, including fishing and diving (Bell et al. 1998). Details for economic benefits of artificial reefs to Bay County see section 1.7 above.
1.10 Commun resil	
2.1 Protect SAB	Bay County works closely with Florida Fish and Wildlife Conservation Commission (FWC), Division of Marine Fisheries Management Artificial Reef Program. The FWC provides the following guidance which Bay County incorporates in local artificial reef projects and activities: 1. Enhance private recreational and charter fishing and diving opportunities; 2. Provide a socio-economic benefit to local coastal communities; 3. Increase reef fish habitat; 4. Reduce user conflicts; 5. Facilitate reef related research; and, 6. While accomplishing objectives 1-5, do no harm to fishery resources, Essential Fish Habitat (EFH) or human health. Additionally Bay County maintains and administers appropriate permits and permit conditions provided by the Florida Department of Environmental Protection and the United States Army Corps of Engineers. Bay County continues to seek and apply the best research information in deployment and monitoring activities. Bay County Planning and Zoning partners with the Bay County - University of Florida / IFAS Cooperative Extension Sea Grant Program, Florida State University – Panama City Underwater Crime Scene Investigation Program, and community volunteers that share their resources and expertise.
2.2 Improv wtr qual	

2.3 Protect seagrass	
2.4 Wildl hab	As part of this project, we will expand our website for artificial reefs which provides opportunity to educate the public regarding coastal resources stewardship, increasing the awareness of critical near-shore habitat and essential fisheries habitat. Ongoing complementary projects will enhance these outreach efforts by providing observation areas with kiosks which are envisioned to have visitor information. For example, visitors to the MB Miller Pier would have opportunity to learn about Bay County's Artificial Reefs and conservation goals. Visitors will be able to learn about opportunities to going fishing and how to access the reefs.
2.5 Acq lands	
2.6 Preserve dunes, shore	
2.7 Protected spp	Reef project managers are keenly aware of the protected and endanger species found in the marine environment. Special conditions of artificial reef permits require that marine mammals, sea turtles, and other endangered species are not impacted or harmed by artificial reef construction or siting. Reef development objectives strive to exceed this minimum requirement and provide quality habitat that can be used by a variety of imperiled marine species. One example is Goliath grouper which have recovered significantly in recent years and are now found on artificial reef structures along our coast. http://myfwc.com/fishing/saltwater/recreational/goliath-grouper
2.8 Water data	Bay County's Artificial Reef Program includes routine monitoring efforts which provides local information that guides future activities. Monitoring includes biological assessment, physical assessment, and geographical verification. Routine monitoring helps make the best decision regarding stability and durability of reef materials. It also helps maintain accurate records of the location of reefs, making them accessible to the public and provides managers with future analysis of fishing pressure.
3.1 Deer Pt Lk wtr qual	
3.2 Stabil roads	
3.3 Sewer AWT	
3.4 Septic to central	
3.5 Stormwtr	
3.6 LID	
3.7 Coast resil	
3.8 Support port	

Budget justification	Our budget was constructed around these major categories for which we are requesting funds: 1. Marine Contractor: A marine contractor will be selected to accept and load artificial reef materials from trucks and transport them to reef deployment sites. The contractor will work with Bay County Planning and Zoning Staff to deploy materials in targeted permit sites using GIS and GPS technology. $288,000 2. Overland Transportation: A trucking contractor will load and move materials to from the storage area to deployment vessel. $49,800 3. Communications and Website Development: A contractor will be hired to update our artificial reef website and social media efforts to provide quality experiences for tourists and residents. $12,500 4. Reef Monitoring: Florida State University – Panama City Underwater Crime Scene Investigation Program will be contracted to help with pre-deployment surveying of reef sites. They will also provide a 1 year post-deployment evaluation of the reefs. $10,575 5. Permitting Fees: Permits are required from the Florida Department of Environmental Protection and US Army Corps of Engineers. Securing 9 permits cost $2,250. 6. Reports: Reports provides a complete picture of the project. Provides transparency and accountability to stakeholders. Analysis of report data will be used to improve future projects. $1,500. Our budget was constructed around these major categories for which we have already secured internal or in-kind funding: 1. Reef Materials: 1,000 tons of concrete material donated to Bay County by Hanson Pipe. Approximate value = $90,000. 2. Contributed Personnel Salaries and Fringe: County employees in Planning and Zoning and Cooperative Extension. $37,000. 3. Unloading and Storage: provided by Bay County Public Works to accept and unload reef materials into storage area. $11,440. 4. Transportation of donated Materials: Bay County paid for transporting donated materials totaling $10,000. 5. Project Equipment: GPS, Computers, Cameras, Software, Webhosting. $2,300.
Ongoing costs	There are no ongoing cost beyond the 2 year project. This project includes a 1 year follow-up monitoring survey to be completed using divers and sonar technology. Reef sites will be added to Bay County's artificial reef program and be routinely monitored.

Objective and measures	Project Objectives: • Construct a series of artificial reefs from secondary use materials that are stable and durable, lasting at least 30 years. • Create essential fish habitat benefiting fishing, diving, and other tourism businesses. • Deploy in state waters to expand fishing opportunities for prized reef fish while saving fuel and time to anglers and divers. ECONOMIC and ENVIRONMENTAL CRITERIA / MEASURES: o Immediate evaluation of location using GPS and GIS technology to provide coordinates to public on our website and NOAA navigational charts. o As built dive survey of reef areas to characterize site conditions and produce initial deployment report. o One year post-deployment monitoring of material performance and biological assessment using roving diver technique. o Routine assessments through the lifespan of the reef. o Discussion with stakeholders at the Bay County Artificial Reef Association meetings regarding use of reefs by charter industry. o Website survey forms will be made available for public comment and to gauge use and performance of reefs. o Educate and encourage community stewardship of reefs to prevent overfishing and manage any
Nat Res Proj	Yes

Best Avail Science	• Utilize latest edition of Guideline for Marine Artificial Reef Materials from the Atlantic and Gulf States Marine Fisheries Commissions that has been developed using two decades of research from fisheries scientists and the experience of artificial reef program managers throughout the Atlantic, Gulf of Mexico, and the world. • Utilize peer reviewed studies that provide results specific to artificial reef construction and fisheries management published in professional journals. • Communicate with artificial reef and fisheries resource experts at academic institutions, Florida Fish and Wildlife Conservation Commission, and with other Artificial Reef Program managers at professional development conferences and trade-shows. • Monitor existing local reefs for performance measures including durability, stability, and biological productivity. • Use adaptive strategies fully incorporating monitoring results and new research or technology. • Only use low risk materials proven to provide stable marine habitat, endure coastal storms, and resist deterioration.
Env issues	2.5 E.O. 13112 – INVASIVE SPECIES This Executive Order requires agencies to prevent the introduction of invasive species and provide for their control. 1) Will the proposed activity have the potential to introduce or cause the spread of an invasive species? For more information on invasive species, see http://www.invasivespeciesinfo.gov/index.shtml. Lionfish have become commonplace occupying both natural and artificial reefs. Fisheries and artificial reef managers report sightings of lionfish from the Atlantic Coast, into the Bahamas, on both coasts of Florida, and across the Gulf of Mexico. (http://nas.er.usgs.gov//queries/SpeciesAnimatedMap.aspx?speciesID=963) In 2011, Mexico Beach Artificial Association documented the first lionfish in Bay County. The numbers of lionfish sightings have continued to increase. In July of 2014, thirty-three divers collected 452 lionfish during a fishing derby. There are also reports of catching lionfish on hook and line in St Andrew's Bay. Lionfish have been sighted by snorkelers and divers at St Andrew's State Park. Our proposed reef sites are isolated which provides a distance barrier. Mark recapture studies suggest adult lionfish range is limited with high site fidelity (Jud et al 2012, Tamburello and Cote 2014). These studies show lionfish generally don't move far, making them easy targets for divers. One of the best methods of control is diver harvest of lionfish. The proximity of these reef sites should provide opportunity for a larger number of recreational divers to easily visit and remove observed lionfish as necessary. Bay County will be monitoring these sites for biological performance, including surveying for invasive species.

Econ Dev proj?	Yes
Econ Dev description	This project seeks to enhance Bay County's tourism and tourism businesses through the construction of series of artificial reefs in state of Florida waters. Fishing continues to be a popular activity for Florida and Bay County. Fourteen percent of the nation's population 16 years old and older fished in 2011 (Source US Fish and Wildlife). Expenditures by 16 year olds and older for Florida Fishing and Hunting Recreation in 2011 totaled over 6 billion dollars (Source US Fish and Wildlife). Recreational and Commercial Saltwater fishing impacts Florida's economy annually with over $10.4 billion and over 150,000 jobs (Source Florida Fish and Wildlife 2008) The Northwest Florida counties of Escambia, Santa Rosa, Okaloosa, Walton, and Bay attract 5–13 million overnight visitors annually (Bell et al. 1998; J. Klein, University of West Florida Haas Center for Business Research and Economic Development 2007, personal communication). Approximately 10% of all visitors engage in recreational boating activities, including fishing and diving (Bell et al. 1998). Preliminary results of a recent statewide study economic conducted by the University of West Florida documented the impact of artificial reefs (Huth 2015). Their data ranks Bay County 10th out of Florida's 67 counties for the number of jobs provided to dive charters and diving activities, supporting about 900 positions. Researchers report approximately 1,000 additional jobs in the recreational fishing and charter industry as a result of artificial reefs in Bay County. These 1,900 jobs provide Bay County with over 42 million dollars in personal income and salaries.
Job Creation?	
Describe how jobs created	While there may be a modest increase in number of jobs, this project will result in keeping Bay County's fishing and diving industry strong. Artificial reef construction supports jobs that were impacted during the oil spill.
No. jobs created	
No. jobs created Yr 1	
No. jobs created Yr 2	
No. jobs created Yr 3	
Avg wage	
Total proj cost	
Complement. proj descr.	

Proj readiness descr	As soon as funding is available major work would be initiated and completed within one year. Any additional permitting activities would be immediately initiated. Permitting is an ongoing activity for artificial reef construction and some permits may be available already at the time of grant approval. Next, the initial steps to select and hire subcontractors will begin using Bay County's purchasing and contracts procedures. Once contracts are approved then a notice to proceed will be provided to the subcontractors along with a schedule of deployment activities.
Permits required?	Yes
Permits status	This project requires a Joint Artificial Reef Permit from the Florida Department of Environmental Protection and United States Army Corps of Engineers. Currently we have nine proposed permit locations for this reef project.
Land acq?	
Acquire fee simple?	
Acquire easement?	
Fee and easement descri	n/a
Terms of easement	n/a
Entity to hold title	n/a
Easement acres	
Fee simple acres	
Appraisal avail?	
Appraised value	
Title opinon avail?	

Material risks	Operational / Logistics / Budgetary • Contingency funds will be set aside to mitigate potential weather delays or other unforeseen circumstances. • Bay County's Purchasing Department will post public notice for a request for proposals for any subcontracted work. • The department will process and all vendor or contracts for hired work and the county manager approves pay once work is performed, inspected, and a sworn statement of completion is received. Legal • Artificial reef deployments are routinely done by Bay County utilizing vetted contractors with proper experience and insurance / bonded coverage. Approved contractors shall guarantee all reef materials are deployed within permit boundaries. • Bay County Board of County Commissioner's Risk Management Department reviews and evaluates all artificial reef projects. • Securing proper permits allows the opportunity for interaction with commercial fishing and maritime transportation industries. This eliminates future conflict, assuring permit compliance before any reef construction begins. Regulatory (including permits) Florida Department of Environment Protection and United States Army Corps of Engineers will provide a joint Artificial Reef Permit with comments and input from the Coast Guard, National Marine Fisheries Service, and Florida Fish and Wildlife Conservation Commission. This approved permit will provide Bay County Authorization to construct artificial reefs within the designated areas. Ecological Special conditions of artificial reef permits require that marine mammals, sea turtles, and other endangered species are not impacted or harmed by artificial reef construction or siting. The project manager / observer will be on-site along with marine contractor assuring activities are conducted to our permit specifications.
Likelihood of success	Bay County has over 20 years of experience in permitting, deploying, and managing artificial reef sites. Currently, the county has 300 public artificial reef sites. Our experience shows that diving and fishing related businesses start using new artificial reef resources immediately. Scientists calculate the marine ecosystem associated with newly deployed structures takes between 3 - 5 years to fully develop. Using data from researchers and based on observation from our historic reefs, we estimated reef project lifespan to be greater than 30 years.
Contract out work?	Yes

Contracting strategy	Performance of Contracted Services: There will be a total of three major subcontracts; overland transportation, marine deployment, and monitoring services. The project manager will be on-site along with other experts to insure activities are conducted to our project specifications. The Bay County Artificial Reef Coordinator will provide a list of the following items for all subcontractors in the initial report to the public and to any requesting authority: Certification Regarding Debarments, Suspensions Copy of Bid Specifications List of Vendors that were Sent Notice and Copies of Bid Specification Copy of Bid Responses Copy of Contracts Copy of Vendor Invoices Proof of Payment Copy of Certificate of Insurance from Vendor Materials Placement Report Written Field Report, with deployment chronology Photographic Documentation of Deployment Newspaper / Magazine Articles Post-Construction SCUBA Site Assessment Sworn Certificate of Completion A Summary of Invoices
Applic manage proj?	Yes
L 1. Proposed mgr	The Bay County Artificial Reef Coordinator will provide leadership and project oversight. Bay County Purchasing Department will manage project funding and accounting.
L 2. Mgr agreed?	Yes
L 3.Mgr experience	Bay County routinely maintains records and compliance for a variety of Federal and State grants. Bay County has one of Florida's most active artificial reef programs. In the past year Bay County deployed and administered: $65,000 artificial project using surplus concrete funded by Naval Support Activity - Panama City. (Feb 2014) $70,000 artificial reef construction and monitoring grant from Florida Fish and Wildlife Conservation Commission (FWC). (June 2014) $30,000 from the Bay County Tourist Development Council to deploy two F101 Voodoo Jets obtained from US General Services Administration / United States Air Force. (June 2014)

L 4. Post proj maint	These new reef assets will be a great addition to Bay County's public reefs. The program currently has over 300 reefs. Bay County works with the diving and fishing community to monitor reefs. Monitoring is an important part artificial reef management. Funding to monitor is much less than deployment costs and in the past come from a variety of sources including state (grants) and local government (boating improvement funds).
L 5. Mgmt approach	1. Upon funding date, determine time-line according to the following tasks: 2. Permitting 3. RFP for Reef Deployment Contractor 4. Review Bids and Evaluate Potential Vendors 5. Award Subcontracts 6. Initiate and Execute Material Transport Plan 7. Transport Materials from Storage Site to Loading Site 8. Deploy Materials in Permitted Areas 9. As Built Monitoring Dive Survey 10. As Built Confirmation of Coordinates, Depth, and Navigational Clearance 11. Website Enhance and Outreach Development 12. Initial Report 13. Monitoring Dive - 1 Year Post-Deployment 14. Final Report
Outreach descr	A key component of this project is public outreach and improvement of our artificial reef website and social media efforts https://twitter.com/flseagrant_bay The website has information regarding the proper use of artificial reefs as fisheries management tools. http://bay.ifas.ufl.edu/seagrant/artificial-reefs Our website also contains historic deployment information and maps for the public to use in planning fishing and diving trips. http://bay.ifas.ufl.edu/seagrant/reefs Additionally there is an underutilized form for reporting activities and observations made during excursions. We envision using outreach funds to promote and correct this issue. http://bay.ifas.ufl.edu/seagrant/reef-information-form We will publish updates and specific maps for this RESTORE project. This will be included alongside our popular content documenting county reef coordinates and blog posts. As part of this project we intend to update and provide the same information for the proposed project. The following link is an example of the Red Sea Tug outreach efforts we would like to model for all Bay County reef sites. http://bay.ifas.ufl.edu/seagrant/reef_32