Project Name:

Dock and Sea Wall Reef Ball® Habitat

Contact Information *(Include at least one name, phone number, email address, and organization name if applicable)***:**

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Reef Innovations / Reef Ball Foundation

Project Location *(Include a map, if possible, and the city, county, longitude/latitude, and watershed)***:**

Multiple project locations in each of the counties on the West Coast of Florida Bay, Charlotte, Citrus, Collier, Dixie, Escambia, Franklin, Gulf, Hernando, Hillsborough, Jefferson, Lee, Levy, Manatee, Monroe, Okaloosa, Pasco, Pinellas, Santa Rosa, Sarasota, Taylor, Wakulla, Walton. This project can be expanded into Coastal Alabama, Mississippi, Louisiana and Texas.

Phase I Public docks / piers/ seawalls.

a. Aquatic Preserves
b. State parks
c. County Parks
d. City Parks

Phase 2 Private Landowners / Homeowners docks and seawalls.

a. Estuary Locations
b. Suitable Channels

We would ask the governing bodies to prioritize the deployment locations on state and federal lands, with Reef Innovations having the authority to re-order the deployment schedule based on build and deployment logistics.

Counties would provide Reef Innovations with a prioritized list docks, piers, seawalls or other habitats that need stabilization or habitat additions.

The logistics and the prioritizing request list would be worked out by Reef Innovations and federal, state and county governing bodies.

This program could become the basis for a larger grant request under the Restore Act

Local Committees.

Project Description *(Describe all aspects of the project)***:**

Docks and seawall have historically been viewed a significant developmental impacts to the coastal environment. These areas generally have a lower overall species diversity and abundance of finfish, invertebrates, and aquatic plants when compared to surrounding natural areas. The general characteristics of seawalls is a high energy zone where water continually scours the bottom restricting natural community formation, while docks have been shown to dramatically reduce the available sunlight and increase sedimentation. These types of environments are not conducive to increasing natural community structures.

The addition of Reef Ball® habitat to approved docks, piers, and seawalls not only provide physical protection in the event of seasonal storms but can increase the recruitment and survivability of juvenile finfish and invertebrate populations. These structures have also been shown to provide ideal settlement substrates bivalves, corals, and macro algae increasing natural nutrient cycling and reducing turbidity. Cleaner less turbid waters have been directly linked to increased species diversity and abundance worldwide and could constitute a significant step to establishing and maintaining a living shoreline.

Starting with Phase I, Reef Innovations would provide a crew to survey public docks and piers determine suitability for the individual areas for enhancement. The criteria for suitability will be developed in conjunction with the regulatory agency ensuring compliance with local, state and federal guidelines. Reef innovations will develop a site plan for each deployment based on the site criteria and deploy the units to maximize structural protection and species recruitment. The addition of the Reef Ball Habitat units will immediately reduce water flows through these areas and provide settlement areas for the finfish and invertebrate community.
The extent and makeup of the community will depend on the area.

Phase 2, expands this program to private property owners following the criteria used for public docks and seawalls. These home owners would finance their own projects thus saving the government money and giving the home owners vested interest in marine conservation and restoration.

Science has shown a need for increased restoration efforts in estuarine habitats. Shareholder involvement is a vital component to establishing a living shoreline and helps to create sustainability along our coastline through habitat restoration.

Reef Innovations and/or their approved contractors can handle all parts of Phase I and Phase II activities. Funding requests grant will be based on size of project, distance of travel, cost of modules, used, and transportation of modules to the deployment site.

These projects can also be run through the Reef Ball Foundation which is a 501(c) 3 publicly supported non-profit and international environmental NGO working to rehabilitate marine reefs. This has proven beneficial where nonprofit organization involvement is desirable. The Reef Ball Foundations mission is to rehabilitate our world's ocean reef

ecosystems and to protect our natural reef systems using Reef Ball artificial reef technologies. NGO groups will be working with another NGO and the homeowners can receive a tax deduction for their individual projects as well.

Estimated Project Costs *(Describe the estimated costs of the project, including any assumptions for contingency and ongoing operations/maintenance. Identify other secured funding sources such as matching funds, in-kind contributions or state/federal dollars. In addition, if possible, complete and submit the Cost Appendix Sheet associated with this Form)***:**

This project scope changes a great deal depending on the size and number of habitats that are created. A basic cost of Reef Ball® units, survey cost and deployment cost combine to make a total cost for each Dock / Seawall Project. The actual cost of a given project will vary, thus one large project may take a larger portion of the money than many smaller ones.

Attached is a price sheet for Reef Balls FOB, Sarasota, FL. In another proposal we suggest the funding of a Reef Ball Production Site in Wakulla County and Panama City to reduce the cost of Reef Materials for this and many other projects.

The cost on each deployment will consist of any permit costs, survey costs, Reef Ball® modules used, and deployment cost and man hours. We anticipate the creation of a 4 to 5 man crew for the deployment process and 3 to 4 man crew for construction.

Example of **Barge Deployment**
Daily / Weekly Coast of Under Pier / Dock Reef Ball Habitats
Deployed by Reef Innovations

			Day		Week
Planning / Coordinating			$100		$300
		Man Power	$360		$1,800
		3 men PerDM	$1,440		$4,320
100		Crew Travel	$240		$240
Oyster Balls	$40	10	$400	*3days	$1,200
Low Pro	$75	4	$300	*3days	$900
Mini Bay	$85	4	$340	*3days	$1,020
Bay Ball	$100	4	$400	*3days	$1,200
		Miles			

Barge Base Charge		per day	$1,000		$3,000
Barge Mileage Road		$1/Mile	$200		$200
Barge mileage Water		30@$0 15@$50	$0		$0
		Totals	$4,780		$14,180
		50 weeks	3 crew 40 hr week =		$709,000

Example of an average Shore Deployment
Daily / Weekly Coast of Under Pier / Dock Reef Ball Habitats

Deployed by Reef Innovations

			Day		Week
Planning / Coordinating			$100		$300
		Man Power	$360		$1,800
		3 men PerDM	$1,440		$4,320
100		Crew Travel	$240		$240
Oyster Balls	$40	10	$400	*3days	$1,200
Low Pro	$75	4	$300	*3days	$900
Mini Bay	$85	4	$340	*3days	$1,020
Bay Ball	$100	4	$400	*3days	$1,200
Shore Deployment			$800		
		Totals	$4,380		$10,980
		50 weeks	3 crew 40 hr week =		$549,000

In the above example you see the basic cost involved in deployment. The Transportation of Material and Housing on a Crew would insure additional cost for each deployment. In addition to %2 administrative cost being added to the project. So, we are asking for funding of $1million per year continuing for 10 years.

Other Funding *(Indicate if the project is submitted for any potential funding or if it may be used to*

*leverage additional funding, if so please describe the funding source [e.g. State/Federal Grants])***:**

Phase 2 is funded 100% buy the property owner.

There is a possibility of NGO with property or projects they wish to see developed could provide additional funding.

County Government could provide additional funding, for larger or additional projects they would like to have in their counties.

Technical Feasibility *(Describe the technologies involved and any relevant past experience or proven success with similar projects)***:**

The feasibility of Dock and Seawall Reef Ball® Habitats has been proven over the past 20 years in projects throughout the world.

Recently it has been approved as mitigation technique by the Army Corps of Engineers, Alafia River Bird Island Stabilization Project for the Audubon Society, Tampa Bay Watch Shoreline Restoration Projects in Tampa Bay, and Florida Department of Environmental Protection projects throughout Southwest Florida.

Environmental Benefits *(Describe the nature, magnitude, and timing of any environmental benefits attributable to the project. If possible, describe potential environmental performance measures [e.g. pollutant reduction]. Please address any potential environmental impacts associated with implementing or maintaining the project [e.g. loss of a habitat or conversion of habitat from one type to another during implementation])***:**

This project will provide immediate benefit, to area by providing settlement habitat and structural reinforcement. Finfish and invertebrate recruitment to the sites begin within days and increase overtime to produce a viable community within 12 months.

Structural reinforcement begins immediately once the units are in place. The passage of water through the structure is slowed and the wave energy is dispersed over a broader area reducing site erosion. Reduced erosion decreases the overall turbidity of the water column increasing sunlight penetration of the water column to promote aquatic plant growth.

This project will present minimal environmental impact limited to the deployment operation. Placement of the units will convert a mud, and and silt based bottom to a hard biologically available habitat. Impacts to the benthic mud community will be minimized by allowing exposed bottom spacing between the units. Increased biological loading in the area will provide nutrients to support the native benthic community.

Economic and Social Benefits *(Describe the economic and social benefits including those*

*related to the project's improved ecosystem services and any estimates on jobs created or preserved)***:**

Direct Economic Benefits include the physical employment of regional work crews. The added income from workers in the area could produce a ripple effect with a continual infusion of funds throughout the regional area.

Indirect Economic Benefits include increased water quality, increased biological diversity, increased property values and structural safety. Homes with living habitats will increase in value. The ripple effect will provide a steady infusion to the local and regional communities.

Having these types of habitats will increase user group interaction and feelings of ownership in publically owned parks, use area and the coastal marine systems. These habitats are a great place for kids to learn to fish and enjoy the marine environment.

A social benefit will be improved health of the various bays that the habitats and provide visible evidence of ongoing restoration and mitigation efforts throughout the effected region. This project has a long term implications and will continue to provide environmental and social benefits for generations.

Community Resilience *(Describe if the project assists Florida's ability to anticipate, withstand, or recover from hazards or threats [e.g. hurricane preparedness, establishing living shorelines])***:**

The project will provide additional surface area to current living shoreline habitats, thereby increasing the effectiveness of these efforts for generations. These habitats also provide substantial physical support of shorelines and associated structures. Physical support of the shore line will decrease the effects of seasonal storm events and reduced the overall cost to storm related restorations

These structures have been extensively tested and evaluated in all forms of weather and seasonal storms and have successfully provided structural support from small scale disturbances to upper category hurricanes.

Conflicts or Complements to Existing Efforts *(Describe any ongoing activities in the project implementation area, if the project is part of another plan, and why the project does or does not interfere with that work. Please consider how the project may complement existing local, regional, and state efforts/plans/objectives)***:**

This project fits within the scope and objectives of established artificial reef programs within the state of Florida, Alabama, Mississippi, Louisiana, and Texas. This proposal would further augment current living shore line and restoration efforts throughout the Gulf of Mexico and will not detract with any ongoing plans or restoration efforts. This operation will provide added value as more habitats and jobs are created.

Complies with Federal, State, Local, and Tribal Laws/Regulations *(Describe any concerns or potential conflicts)***:**

There are no known conflicts with any aspect of this project.

Readiness for Implementation *(Describe if the project has had any design or permitting work started or completed attach permits or design work]. Please address any issues that may delay start or finish of the project)***:**

This is a shovel ready program that can be implemented with minimal start up time following funding approval. Initial surveys and deployment criteria should be minimal and will follow previously used methods from other similar projects. Production of base criteria would further reduce the permitting approval process required by the US Army Corps of Engineers and FLDEP and eliminate duplicative paperwork for each of the proposed jobs.

The permitting process for homes with living habitats will increase in value.
is currently being used in several counties around Florida for these types of deployments. Streamlining this process is needed so we can expedite deployment after a survey approves the criteria are within standards for the location.

Public Acceptance *(Describe any known or potential public approval or opposition to the project)***:**

On April 9 2013 Wakulla County Restore Act Committee Meeting voted support for this projects concept.

Other county have expressed verbal support for the project, as well as state and federal officials and departments.

Many businesses, individual homeowners and government agencies have requested, required and supported this process in Florida for many years.

I have seen or heard no opposition from anyone.

Additional Information you wish to provide *(Please include any maps, designs, drawings, photos, or background resources that may assist in completely and accurately understanding the project)***:**

Cost Appendix Sheet

Cost Item	Cost Estimate	
Planning	**$100,000 / year**	
Planning Subtotal:		
Construction	**$800,000 / year**	
Construction Subtotal:		
Monitoring	**$250,000 / year**	
Monitoring Subtotal:		
Project Cost	**$750,000 / year**	
Subtotal:		
TOTAL:	**$1,000,000 per year,**	**(10,000,000 10 years)**

Estimated Costs by Year

Year 1 1,000,000

Year 2 1,000,000

Year 3 1,000,000

Year 4 1,000,000

Year 5 1,000,000

Year 6 1,000,000

http://www.dep.state.fl.us/deepwaterhorizon/files/Project_Submittal_Form_distributed.pdf