Natural Resource Damage Assessment (NRDA)
Restoration Project Information Sheet

A General Information

Organization
Gannett Fleming, Inc.

Contact Name (First Last)	*Title*		
John Dougherty	P.E., Senior Vice President		
Address	*City*	*State*	*ZIP*
10751 Deerwood Park Boulevard, Suite 140	Jacksonville	FL	32256

Phone Number	*Email*
904-998-9809 *ext.*	jdougherty@GFNET.com

Organization Website
http://www.gfnet.com/

B Project Information

Type of Project	*If this is a Change to an Existing Project, enter the Project ID Number*
New Project	JV6SJT6E FDEP# B-19

Project Name
Seagrass Restoration and WQ Management in Grand Lagoon Estuary

Location (e.g. John Smith National Wildlife Refuge)
Panama City Beach

State(s) (Use 2-letter abbreviations separated by commas)	*County/Parish*	*Watershed/Basin*
FL	Bay	Florida Panhandle

Latitude (decimal degrees)	*Longitude (decimal degrees)*	*Project Size (Choose one)*	*Affected Area*
30.162564	-85.777388	*miles* 3 *acres* *tons*	800 *acres*

C Project Description

Please provide more information about the proposed project. (Limit 2,500 characters.)

The proposed project consists of installing an ocean inlet pipeline across the barrier island to deliver transparent, high-salinity, low-nutrient seawater into the degraded estuary. An in-line, high-volume pump station is to be operated by remote control as determined by data collected from a variety of in-situ sensors and public data sources within the respective watershed. The objectives include active regulation of residence time, salinity, nutrient concentration and water clarity with the goal of providing optimum conditions for proliferation of seagrasses and increased aquatic species diversity.

The pipeline crossing is to be located near the southwest end of the estuary. Pump operation generally will occur during the ebb tide with shut-off during the flood tide to allow for mixing of seawater and estuarine waters. Benefits accrue over time from the point of delivery to the ocean inlet. During low rainfall periods, no pumping may be required; during high rainfall periods, continuous pumping may be conducted to provide a benthic layer of seawater for protection of seagrass beds.

Installed project cost=$15,000/ac ; Restored Economic Benefit Value=$20,500/ac/yr
Estimated Benefit::Cost Ratio= 1.36

Long term station operation and estuary management will be the responsibility of state and/or local government with a funding mechanism established by NRDA.

Project success will be measured under the quality ranking process cooperatively established by NOAA and IMAR through the ASSETS software – Assessment of Estuarine Trophic State (http://www.eutro.org); and by annual comparison of standing seagrass acreage and blade density with pre-project conditions. These results will ultimately determine the quantity of environmental offsets achieved on behalf of the Deepwater Horizon Oil Spill damage assessment.

Natural Resource Damage Assessment (NRDA)

Restoration Project Information Sheet *(continued)*

D Project Activity(s)

(Check all that apply)

- [x] Restoration
- [x] Protection
- [ ] Debris Removal
- [ ] Land Acquisition
- [x] Maintenance/Management
- [ ] Education

E Project Habitat(s)

(Check all that apply)

- [ ] Upland
- [ ] Riverine
- [x] Marine/Estuarine Wetlands
- [ ] Freshwater Wetlands
- [ ] Beach/Dune
- [ ] Subtidal (Nearshore/Offshore)

F Resource Benefit(s)

(Check all that apply)

- [x] Marine Mammals
- [x] Birds
- [x] Reptiles/Amphibians
- [x] Fish
- [x] Shellfish
- [ ] Terrestrial Wildlife
- [ ] Corals
- [x] Vegetation
- [x] Water Column
- [ ] Sediment/Benthos
- [ ] Shoreline
- [x] Human Use (Recreational, Cultural)

Will the project directly benefit State- or Federally-listed species? If so, please list them. If not, please indicate N/A.

Manatees, sea turtles, Gulf & shortnose sturgeon, largetooth sawfish, bald eagles

G Project Status

Property/Resource Acquisition	Not Started
Project Planning/Design	In Progress
Project Permitting.	Not Started

Time to Implementation: 0-3 months

Time to Project Completion: 1-5 years

Is this project included under a regional or statewide plan? If so, please list: No

H Project Costs

Estimated Cost	*Funding Available*
$12,000,000.00	$0.00

I Project Partners

Partner 1 Organization: Bay County, Florida

Partner 1 Contact:

Partner 1 Involvement:

Partner 2 Organization: Florida Department of Environmental Protection, C.A.M.A.

Partner 2 Contact:

Partner 2 Involvement:

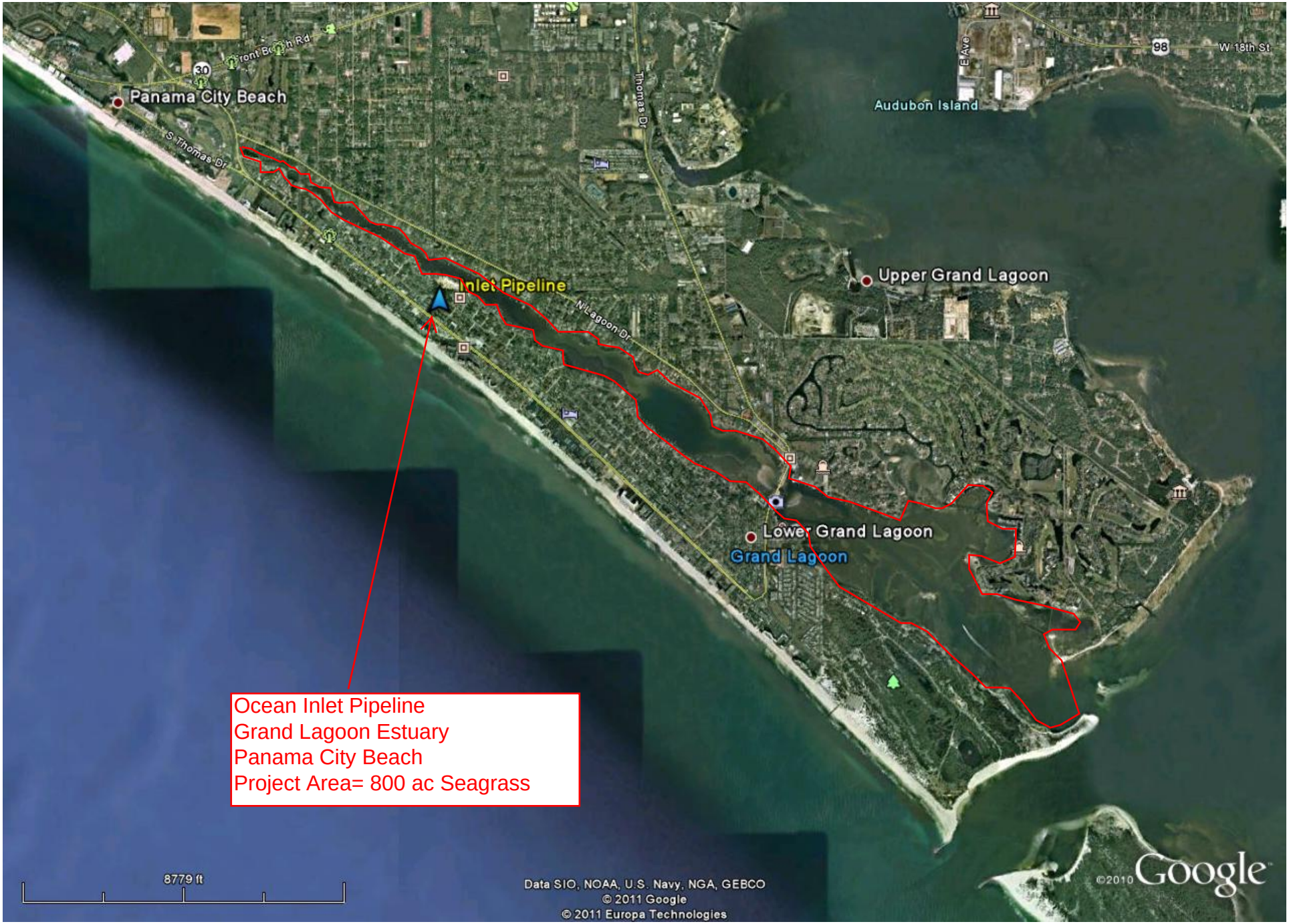
Partner 3 Organization:

Partner 3 Contact:

Partner 3 Involvement:

Disclaimer:

The submission of project information **does not** guarantee project funding. Projects will be evaluated using criteria identified in OPA, NEPA, implementing regulations, and related laws. Selection and funding determinations will be made by the Trustee Council.


Panama City Beach
S Thomas Dr
Thomas Dr
Audubon Island
W 18th St
98
Inlet Pipeline
N Lagoon Dr
Upper Grand Lagoon
Lower Grand Lagoon
Grand Lagoon
Ocean Inlet Pipeline
Grand Lagoon Estuary
Panama City Beach
Project Area= 800 ac Seagrass
8779 ft
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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Friends of Grand Lagoon

Ken Karr, CEO/President
PO Box 18155
Panama City Beach, Fl. 32417
850-596-6091 cell

August 5, 2011

Bay County
Board of County Commissioners
840 West 11th Street
Panama City, Fl 32401

RE: NRDA-NOAA project Confirmation Number: JV6SJT6E
Sea grass Restoration and WQ Management in Grand Lagoon Estuary

To Whom it May Concern:

The Friends of the Grand Lagoon are in support of the above mention project.

We have a mailing list of over 800 homes and families who live around or near the Grand Lagoon who are interested in improving the water quality in the Lagoon.

The Friends of the Grand Lagoon is a 501(c)(3) public non-profit organization, located in Panama City Beach, Bay County, Fl. 32408. The mission of the Friends of the Grand Lagoon is to renew and maintain the Grand Lagoon for a sustainable environment and economic growth in and around the areas of the Grand Lagoon, resulting in better quality of life for the residents and improved environment for the general public.

If there are any questions or any other information required from the Friends of the Grand Lagoon, please contact me.

Sincerely,

Kenneth L. Karr
CEO/President

POTENTIAL DEEPWATER HORIZON OIL SPILL RESTORATION PROJECTS: PROVIDING INFORMATION TO ASSIST WITH PROJECT ASSESSMENT

To help you propose projects to the State of Florida's Department of Environmental Protection (DEP), we developed this project submission form. You are not required to complete this form to submit a project. However, completion of the form will help DEP gather the information required to completely and accurately evaluate a project against the selection and evaluation criteria. Where appropriate in the form, please provide references to any additional supporting information.

Project Name:

Seagrass Restoration and WQ Management in Grand Lagoon Estuary

NRDA-NOAA Project Confirmation Number: JV6SJT6E

This project was originally submitted by Gannett Fleming and has been coordinated and accepted as a Bay County project.

Location for Project Implementation: *(For example, city and county, GIS coordinates if known.)*

Panama City Beach, FL Latitude: 30.162564 Longitude: -85.777388

Brief Project Narrative: *(Describe what the project will do.)*

Grand Lagoon is an 800 acre estuary within a fully-developed (commercial and residential) watershed. Much of the seagrass beds have been lost and remaining sparse seagrasses exhibit stress due to degraded water quality.

The County, City and Friends of Grand Lagoon propose the installation of a horizontal directional drilled pipeline under the barrier island to provide low-nutrient, high-quality seawater near the tidal node of the estuary. A high-volume electric pump station will operate mainly during ebb tide and be off during flood tide to allow mixing of Gulf and lagoon waters. The objective is to improve water quality and decrease residence time so seagrass beds can re-establish.

The project will complement the on-going efforts of local government to reduce nutrient loading by enhanced stormwater management and to eliminate septic tanks adjacent to Grand Lagoon.

Estimated Project Costs: *(Describe the costs of the project, including any assumptions for contingency and ongoing operations and maintenance. If possible, attach a schedule of anticipated costs, by year, over the anticipated project life.)*

*Total Installed Cost.....$12,000,000

Permitting..... $65,000

Public Hearings.....$45,000

Environmental Baseline.....$200,000

Hydrodynamic Modeling... .....$75,000

Geotechnical Analysis.....$250,000

Design Engineering.....$2,400,000

HDD Pipeline Installation.....$7,750,000

Pump Station Construction.....$900,000

Operation Start-up.....$175,000

Reporting & Miscellaneous.....$140,000

Annual Recurring Operating Cost.....$150,000

Part time employee.....$25,000

Shared Pick-up truck.....$5,000

Electricity.....$60,000

Repairs.....$25,000

Operating Permit Compliance...$35,000

Annual Contract for Verification of

NRDA-BP Environmental Offset Credits..$350,000

Annual Engineering Services Contract

for Facility Performance Monitoring.....$250,000

Internal Pipe Inspection/Cleaning.....$110,000

*Note: Property acquisition costs are contingent upon the option to lease or to purchase land at the current fair market price of approximately one to two acres at the west end of the lagoon. Additionally, it may be feasible to locate the pump station within the lagoon waters, which would require a long-term lease of submerged, sovereign state lands.

Property Contingency Allowance.....$2,500,000 (to be determined during the design engineering task)

Anticipated Project Outcome with Respect to Screening Criteria

S1. Technically and administratively feasible: *(Briefly describe the critical technologies involved and any relevant past experience with similar projects.)*

The proposed project intends to advance the basic technology utilized for constructing the Old Pass Lagoon Flushing Station at Destin, FL in 1994. Pipeline installation will be performed by horizontal directional drilling to minimize environmental impacts at small footprints at the Depth of Closure in the Gulf and at the delivery exit in the lagoon, eliminating surface disturbance and impacts. The pump facility will feature intelligent systems management with real-time data collection from in situ sensors in the lagoon and collected from other public sources in the watershed, which facilitates remote controlled operation and performance monitoring.

The global engineering firm of Gannett and Fleming is the preferred prime contractor and they received the Honor Award and Grand Conceptor Award from the American Consulting Engineers Council for having completed the longest directional drilled installation of a 48-inch pipeline. The firm has over 95 years experience as a full-service engineering company including transportation, hydrology, water and wastewater infrastructure, and environmental management.

The County and City Public Works Departments routinely engage engineers and contractors for civil works projects and marine activities similar to the proposed project.

S2. Provides environmental benefits: *(Briefly describe the nature, magnitude, and timing of any environmental benefits attributable to the project and any potential environmental costs associated with implementing or maintaining the project, e.g., loss of a habitat or conversion of habitat from one type to another during implementation.)*

The nature of the project is centered on providing optimum estuarine water quality required for healthy establishment of seagrasses. The objectives are to stabilize a suitable range of salinity, nutrient concentrations (N and P), sediment and PAR value as recommended in NOAA Decision Analysis Series No. 12. With the capacity to provide long-term supply of high-quality Gulf seawater to the lagoon, the goal of re-establishing seagrasses throughout the lagoon can be assured.

The magnitude and timing of the environmental benefits is directly related to achieving the maximum amount of environmental offsets for the anticipated long-term (+20 years) loss of the deep seafloor habitat impacted by the BP-Deepwater Horizon oil spill of 2010. To that end, the project has a maximum capacity to generate up to 800 acres of healthy seagrass beds to support a diverse biological community essential to delivering optimum recruitment of juvenile species into the greater Gulf of Mexico ecosystem. The Florida Department of Environmental Protection determined the annual economic benefit value (EBV) of healthy seagrasses to be approximately $20,500 per acre. Therefore the potential maximum annual EBV for the proposed 800 acre seagrass restoration project is $16,400,000 or $328 million over the 20-year loss period for the deep seafloor habitat.

No environmental costs (loss or conversion) are expected to occur from the implementation of the proposed seagrass restoration project.

S3. Does not conflict with any ongoing or planned response or remediation work: *(Briefly describe ongoing response activities in the project implementation area, if any, and why the project does or does not interfere with that work.)*

During the Response phase of the DWH incident, protective booms were placed in environmentally sensitive areas of the St. Andrews Bay system. These structures have since been removed. Because Grand Lagoon was protected from oil damage, no response activities are anticipated to be scheduled in the project area.

S4. Complies with applicable and relevant federal, state, local, and tribal laws and regulations: *(No information is needed for this screening criteria.)*

Anticipated Project Outcome with Respect to Evaluation Criteria

E1. Will restore, rehabilitate, or replace a natural resource or service[1] believed/demonstrated to have been injured as a result of the Deepwater Horizon oil spill or associated response activities: *(Briefly describe the nature of any relationship between the new/improved resources or services and those adversely impacted by the oil spill.)*

Grand Lagoon historically supported a healthy seagrass-based estuarine ecosystem. As human development progressed in the watershed, increased stormwater runoff and septic tank systems resulted in excessive nutrient loading to this receiving body of water. Much of the seagrass was lost with only stressed and sparse beds remaining. Although not directly damaged by the DWH incident, Grand Lagoon seagrass restoration affords one of the best opportunities to achieve valuable environmental offsets to benefit the efforts to restore the greater Gulf of Mexico ecosystem of which the St. Andrews Bay system provides an important nursery function.

E2. Is located in, or nearby, resources or services injured by the deepwater horizon spill: *(Briefly describe where the project would be implemented with respect to past/ongoing remediation work.)*

The DWH period of oil release from the MC252 well coincided with the peak spawning and larval development cycles of numerous Gulf species. Due to the lengthy larval phase of many species, Gulf currents transport them eastward around the Big Bend coastline of Florida. Recruitment into the adult populations of fish, shellfish and other organisms was severely impacted by surface oil slicks and dissolved pollutants. The proposed project for Grand Lagoon intends to directly restore a degraded aquatic nursery within the resource area damaged by the DWH incident.

The proposed HDD pipeline crossing will be located approximately 1,000 feet seaward of MHW from Panama City Beach and exit into the west end of Grand Lagoon. All offshore response activities have ended in the project area. The working space for project construction activities in the Gulf are minimal and of short duration (<6 months). No interference with response activities is anticipated from the project's limited Gulf-side construction work.

[1] In this form, "Services" (or "natural resource services") refers to the functions performed by a natural resource for the benefit of another natural resource and/or the public. Services can be "ecological services" – physical, chemical or biological functions that one natural resource provides for another (such as provision of food) – or "human services" – the use of natural resources used by humans that provide value to the public (such as hunting and fishing).

E3. Is ready for implementation, e.g., design, permitting, and necessary impacts assessments have been completed: *(Briefly describe where in the permitting process the project stands along with an estimated date of when the project can be implemented if it is not currently ready.)*

Because the proposed project is similar to the Old Pass Lagoon Flushing Station in Destin, FL, the County intends to facilitate the environmental permitting process by using the construction and operating permit applications prepared for Destin as templates.

Additionally, Gannett Fleming has performed design work essential to obtaining U.S. Patent award for the proposed T.A.W.E.S. facility in 2003. This work will be augmented by geotechnical analysis of the HDD pathway to deliver a site-specific design-build package.

With a significant portion of the up-front effort completed, permitting and design could conceivably be accomplished within 12 months. Construction activities would conclude after an additional 12 months; 24 months total duration.

E4. Is cost effective: *(Briefly describe why you think the project is cost effective.)*

The installed cost of the T.A.W.E.S. facility is estimated to be $12 million. When compared to the potential maximum annual EBV for 800 acres of restored, health seagrass beds of $16.4 million, the Benefit::Cost Ratio is 1.36 for the first year of full restoration. This benefit accrues over the 20-year operation-monitoring period with a life project cost of $28.34 million compared to a life EBV of $328 million resulting in a Benefit::Cost Ratio of 11.57.

Presently, the annual EBV of Grand Lagoon is only a fraction of that as a functioning nursery.

E5. Has a high potential for long-term success as demonstrated by incorporating established/reliable methods and technologies: *(Briefly describe if/how critical methods and technologies that will be used to implement the project could be considered reliable or proven.)*

First, the Destin, Fl facility was installed to eliminate fish kills from hypoxia in the degraded Old Pass Lagoon, which has been in successful operation for over 15 years.

Second, the USFWS and all State fish and wildlife management agencies operate a suite of tide gates and pumps to routinely manage water quality and other physical parameters within coastal impoundments to provide optimum conditions necessary to support a diverse aquatic-marsh ecosystem.

Third, virtually all marine aquariums and marine research laboratories rely on high-quality seawater to provide a stable aquatic environment for their marine species and intended activities.

Fourth, mariculture nurseries and production farms could not exist without the ability to obtain high-quality seawater by the use of pumps and tide gates.

Therefore, with the installation of the Grand Lagoon T.A.W.E.S. facility the probability for successful establishment of good water quality and re-establishment of healthy seagrass beds is high.

E6. Is likely to provide benefits rapidly following implementation: *(Briefly describe the anticipated change in benefits anticipated over time.)*

At the onset of pumping operations, there will be a noticeable decline in the lagoon's concentrations of both nitrogen and phosphorus. With the addition of Gulf seawater at the tidal node, flocculation of suspended solids will occur down-gradient and continue to the east end confluence with the bay inlet. Light penetration (PAR value) will increase as a result of a decline in turbidity from suspended solids and phytoplankton. Within the first six months, sessile populations of filter feeders will begin to proliferate and contribute to water quality improvement and long-term stability of aquatic conditions. In the course of twelve months, seagrasses will bloom and disperse throughout the lagoon. Other aquatic organisms will arrive to successfully take up refuge in the seagrass beds. Within two to three years, a robust, fully-diversified estuarine ecosystem will cover a significant portion of the lagoon. Seagrass habitat will continue to improve over the next five years and is anticipated to remain healthy, supported by a stable range of optimum water quality conditions.

Routine verification of the DWH environmental offset credits will be performed by employing the widely-accepted Braun-Blanquet Seagrass Survey Method and NOAA's-SWaPS digital photography/positioning method. General environmental quality of Grand Lagoon will be determined annually using the standardized method, A.S.S.E.T.S, established by NOAA and IMAR for the "National Estuarine Eutrophication Assessment".

E7. Has a high likelihood of public acceptance: *(Briefly describe evidence to support the given answer based on surveys or results and assessments from past projects. Known or likely opposition to a project should be recognized.)*

Survey results that substantiate the public's desire to preserve and restore coastal environments, including estuaries are numerous and published results reside in the libraries of the Florida Department of Environmental Protection, Florida universities, the National Marine Fisheries Service and within the USEPA-National Estuary Program (Clean Water Act Section 320).

More specifically, Friends of Grand Lagoon (a private non-profit 501c organization) was formed for the sole purpose of restoring this estuary and improving the overall quality of life within the watershed.

WE WANT YOUR INPUT!

Submit this form via email to Rebecca Wintering at Rebecca.Wintering@dep.state.fl.us . If you have any questions or concerns about the process for submitting a project, please contact Rebecca Wintering at:

Rebecca Wintering
Environmental Specialist III
3900 Commonwealth Boulevard, MS 235
Tallahassee, FL 32399
Rebecca.Wintering@dep.state.fl.us

A current summary of projects is accessible through the Florida DEP's website at http://www.dep.state.fl.us/deepwaterhorizon/projects.htm (click on "*View the list of restoration project ideas*").