

Wakulla County Oyster Reef Restoration for Environmental and Economic Stabilization

Project Number:

WCORR2014NFGS

Contact Information:

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Project Location:

See attached map figure 1

The proposed project site location is within the following coordinates:

North 30°4.040'N 84°19.244'W, South 30°2.873'N 84°19.554'W, East 30°3.598'N 84°18.296'W, West 30°3.459'N 84°21.580'W

Project Description:

The project is proposing the restoration of oyster reefs within the project site which will result in eroded oyster reefs receiving the replacement of depleted shell base along with remote set (spat on shell) to build the reefs back up for the habitat, shoreline protection and recreational enjoyment they have lost over the years.

The project will follow the comprehensive scientific research being currently conducted with Wakulla County to derive the appropriate methodology for restoration within the project site. Also included are project design, permitting and post project monitoring for success and continued development of a comprehensive oyster reef restoration plan. The project has minimum pre-restoration monitoring performed under FWC permitting. In order to reach the goals of the project, natural substrate will be utilized to promote successful juvenile recruitment with additional remote set spat deployed under FWC guidelines established under the current pre-restoration research. Enhanced oyster populations will begin to restore the diminished habitats for additional species of finfish and shellfish, increase nesting sites for birds, reduce the energy of wave and surge ultimately reducing shoreline erosion as experienced on the Shell Point beaches located just minutes east of the project site.

Project Objectives:

- Restore natural oyster reefs to promote juvenile oyster recruitment thereby increasing critical habitat for other species and promoting a healthy ecosystem within the reef structures by restoring the natural nitrogen cycle which has been tilted over the past few years.
- Reduce shoreline erosion through creation of a natural break water barrier instead of installing man made seawalls to mitigate reduction of shoreline as current studies show.
- Restore water quality lost to imbalance within the ecosystem.

- Increase population of recreational and commercial finfish and shellfish species within the targeted region.
- Restore marsh habitat which has reduced the habitat area for coastal bird populations.

Project completion date is one and one half years with continued monitoring for an additional three years. Project oversight is brought with corporation from the North Florida Marine Fisheries, The Aquatic Science Association, Florida State University Marine Lab Staff, Florida Fish and Wildlife Conservation Commission and the Florida Department of Aquaculture . The project will provide critical data capture for all partners for continued oyster habitat restoration with the Florida Panhandle Region. The project is fully supported by the Tallahassee Community College Wakulla Environmental Institute and Wakulla County Board of County Commissioners. (currently awaiting a resolution of support letter)

Estimated Project Costs:

The project estimated cost is 2.85 million and includes pre-project research, project design, permitting, implementation and three years post monitoring and data capture with a 10 % contingency. The costs are based on past project costs in reef restoration with estimation for new methodology being implemented under this project.

Other Funding:

Project has not been submitted for funding to date. It has been reviewed by the FWC and DACS as well as members of The Nature Conservancy for advisement of funding sources. This project was discussed in 2014 Florida Legislative sessions as a critical needs project. Wakulla County was listed among several gulf coast counties suffering collapse of the oyster industry when Governor Scott declared the industry a disaster.

Technical Feasibility:

The partnership between North Florida Marine Fisheries and the staff of the FSU Marine Lab will oversee the project as co-managers with support from DACS staff and FWC staff who will insure project compliance with state regulations.

The Aquatic Science Association will provide assistance in gathering volunteers with labor as needed.

Pre and post monitoring will be conducted by North Florida Marine Fisheries (Steve Cushman), FSU Marine Lab (Steven Gossell) and DACS (John Gunter). With assistance from FWC (Lisa Gregg and Jim Estes). Additional support may be recruited from The Big Bend Conservancy (Tony Murray).

Conflicts or Compliments to Existing Efforts:

This project is complementary to the existing aquaculture industry being implemented in Wakulla County. Aquaculture will become the relief need to allow the restoration project to succeed by reducing harvest pressure off the existing reefs.

The entire gulf region is experiencing a decline of oyster reef structure due to diminished populations following the Deep Horizon oil spill. This is one of many proposed projects which together will revive the once abundant oyster supply in the Florida Gulf. This statewide effort will begin the process to restore the lost seafood industry which is a large part of the Florida economy.

Complies with Federal, State, Local and Tribal Laws/Regulations: The project is supported by multiple agencies who will insure compliance with all laws and regulations.

Readiness for Implementation:

Project began 16 months ago with research data collection and project plan development. Upon funding, the project is ready to be commenced.

Work conducted to date:

- November 2012 to present water quality baseline data capture
- October through December 2013, site assessment and selection of small research reef completed.
- December 2013 FWC SAL permit was obtained.
- April 2013, FWC diminished exemption application filed with FWC for continuation of research in Dickerson Bay located near Panacea, Florida.
- FWC SAL permit # SAL 13-1532SR
- FWC SAL permit # SAL 13-1535-AB

Environmental Benefits:

Wakulla County is comprised of 129 square miles of water surface consisting of three river systems flowing into the Apalachee Bay. The bay is broken into separate bay areas which are conducive to a wide variety of marine species habitats. The St. Marks and Wakulla Rivers supply 725MGD of fresh water into the bay from the north. The Wakulla River contributes over 1/3 of the total flow arising from the discharge of Wakulla Springs at the head of the river. Wakulla Springs is a first magnitude spring producing up to 154 million gallons of fresh water per day. (North West Florida Water Management District). The Ochlocknee River enters from the west along the Wakulla and Franklin County line adding another 654MGD to Apalachee Bay. (USGS 2013) The entire bay consists of mostly shallow highly tidal estuaries. Average depths range from 2 to 8 feet out to 3 miles where the gulf shelf begins its gradual slope.

Oysters are natural filter feeders capable of filtering up to 3 gallons of water per hour per oyster. Studies have shown significant improvements in water quality where test oyster populations were placed in the Chesapeake Bay Area. Organizations along the Atlantic seaboard have implemented programs encouraging riparian right owners to place remote set oysters in cages within their properties for filtering to improve water quality. Over the past year, the project has caught state agency attention and is now gaining the possibility of state funding.

Filtering would lead to reduction in closed water days around the bays and beaches of Wakulla County. This reduction would increase the tourism in and around the county. Furthermore, it would eventually lead to the opening of other closed areas due to low water quality. With available contained production efforts, sustaining the population of wild oysters through targeted remote setting efforts would insure against ever reaching the current critically low population levels we face.

Restored oyster reefs along with aquaculture farms would increase the populations of other wild species such as crabs and finfish. Recreational fishing would see substantial increase over the next 2-3 years with continued increase in the activity over the next 5 when it would eventually stabilize with no future predicted population decrease. Commercial crabbing which is at a current low state would also benefit by increased population. Crabbing would soon return to its past historical levels within 2 years.

This project provides broad scale environmental benefits. Oyster reefs are the base for species habitat, marsh and shoreline protection. Oyster reefs provide critical habitat for a variety of finfish, shellfish and birds.

Project will reduce shoreline erosion which has caused significant marsh backfill. Shoreline decay has led to water quality issues throughout the region. Loss of critical marsh has seen a reduction in bird species especially migratory species.

Assessment and monitoring of reefs within the project site have concluded an erosion rate of 30mm (1.2 inches) every 45 days or approximately 243mm (9.6 inches) per year. Continued erosion at this rate will result in bare sand bars with the next 2 years.

Project will eliminate erosion and further reduce negative environmental impacts to the area.

Economic and Social Benefits:

Notwithstanding the benefits from the environmental gains, the project will aid in community economic development through job creation, seafood industry restoration, eco tourism related to recreational fishing, beach use and recreational water sport activities.

Wakulla County oyster (*Crassostrea virginica*) populations have been indirectly impacted by the Macondo (Deepwater Horizon) oil spill incident which led to resource depletion to currently critical levels. There has been an 80% reduction in wild oyster populations since the spill. Relay efforts over the past three years have resulted in further depletion of oyster population densities within Wakulla County with no significant return. Recent harvesting efforts have resulted in 75% less harvest than in years prior to the spill. Furthermore, significant decreases in habitat has resulted in the decline of additional species such as Blue Crab (*Callinectes sapidus*), Stone Crab (*Menippe adina*), Flounder (*Paralichthys albigutta*) and many other species indigenous to the bay systems of the bay. Oyster relays have become completely ineffective over the past 12 months. The only viable method for returning Wakulla County back to its once abundance of oyster production is shelling coupled with remote setting and extensive aquaculture efforts. Shelling will provide additional substrate as well as more surface area for increased juvenile recruitment. As remote set spat on shell is introduced to these new shell beds, it will aid in the increase of natural spat production. These two steps along with voluntary bay closure for a minimum of 2 years, will insure the wild oysters reach significant numbers to overcome the higher mortality rates associated with on bottom natural oyster reefs which are being experienced.

Oyster losses over the past 5 years due to indirect influence of the BP oil spill have caused the complete collapse of the oyster industry in many gulf coast counties. However, Wakulla County has also experienced loss of its commercial and recreational fishing industry coupled with a decline in recreational activities beach closures.

The return of the habitats will see the rise of the seafood industry along with returning commercial and recreational fishing. Increased opportunities will rise to recreational water way users.

Wakulla County has always had a significant ecotourism industry which saw a decline since the oil spill. The decline is directly attributed to the loss of the seafood industry. 2013 saw the lowest attendance of the Stone Crab Festival in history. (City of St. Marks) With even lower attendance at the Mighty Mullet Bay Day (Big Bend Maritime Museum 2013) and prediction the Blue Crab Festival in May 2014 will follow the pattern. Restoration will see the return of the events to historic levels over the next 5 years.

Community Resilience:

Wakulla County has lost its long standing pride following the collapse of the seafood industry. This once thriving community has been left scraping to find its way back to prosperity. At one time, Wakulla County had an abundance of seafood houses and every house was not without its boat. Now many houses are empty and only one seafood house survives. The loss of jobs has been devastating to the citizens of this once booming fishing community. This project will return this lost pride by providing increased opportunities in commercial and recreational activities. The prospects of jobs are already on the horizon through the recent implementation of an oyster aquaculture industry. Viewed now as a way to aid in the restoration project, many are directly supporting this new industry as a way to overcome the losses of the past.

Wakulla County is currently struggling with wetlands protection issues. The project will help mitigate some of those issues with the protection of shorelines which provide a buffer zone for the essential wetlands of Wakulla County.

Public Acceptance:

There are no known oppositions to this project. The community support has been overwhelming. As stated, many want to see the return of the seafood industry of 50 years ago. Although we may never see the return of numbers that high, we can see a stable industry if proper management is initiated and alternative methods of production are continually implemented.

On April 17, 2014, Wakulla County unveiled the Wakulla Working Waterfronts project. This photographic presentation of the history of the seafood industry in Wakulla County highlighted the many families who have earned a hard living working within the industry. The project drew a large following with high community support and a desire to see the industry return. One of the main topics of discussion was supporting projects to restore the bays and bring back the lost industry that has supported so many for generation after generation.

Additional Information you wish to provide:

Wakulla County has and is conducting research in order to develop and comprehensive plan for restoration of existing decimated oyster reefs. With research data gathered over the past 16 months by the various agencies listed in this proposal, we close to a scientific based workable solution for successful restoration. With local monitoring capabilities, a shellfish hatchery with supporting lab, the FSU Marine lab and local labor, Wakulla County has the infrastructure to implement this project and see it to its goals.