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: *(Include project number from DEP's existing list of submitted projects, if applicable.)*

SR-27 Santa Rosa County Nearshore Artificial Reef Pre-Deployment Plan

Contact Information:

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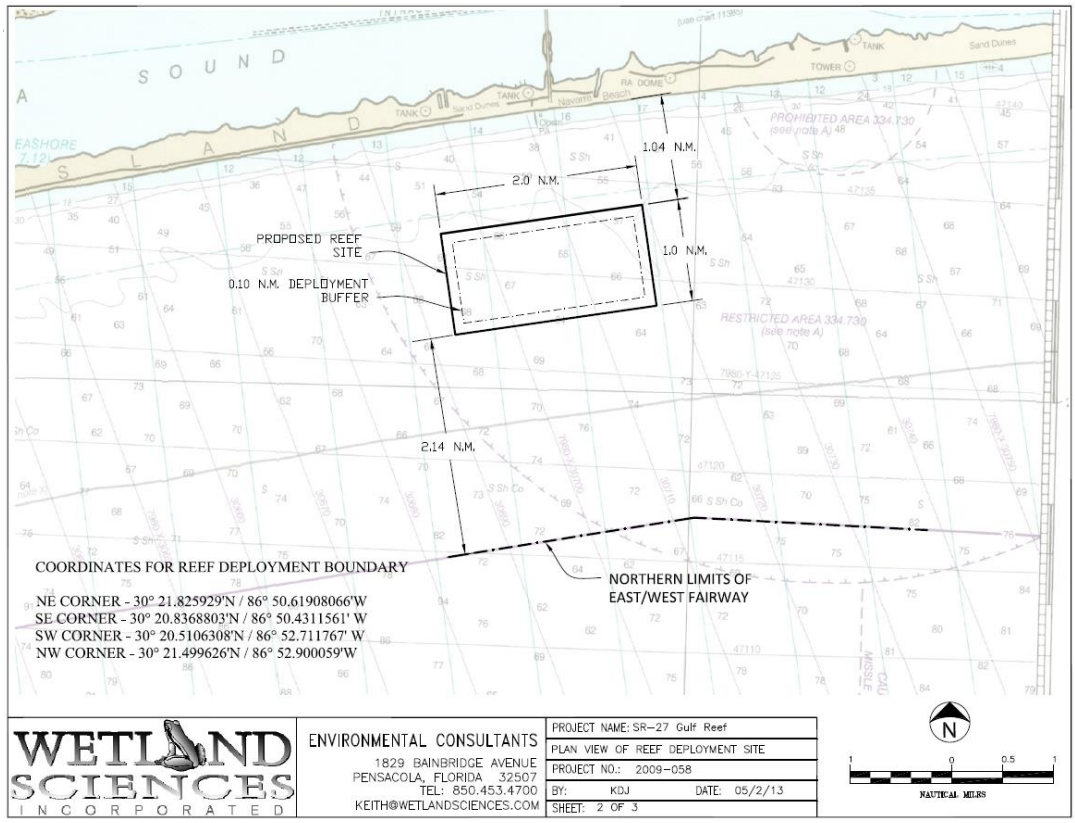
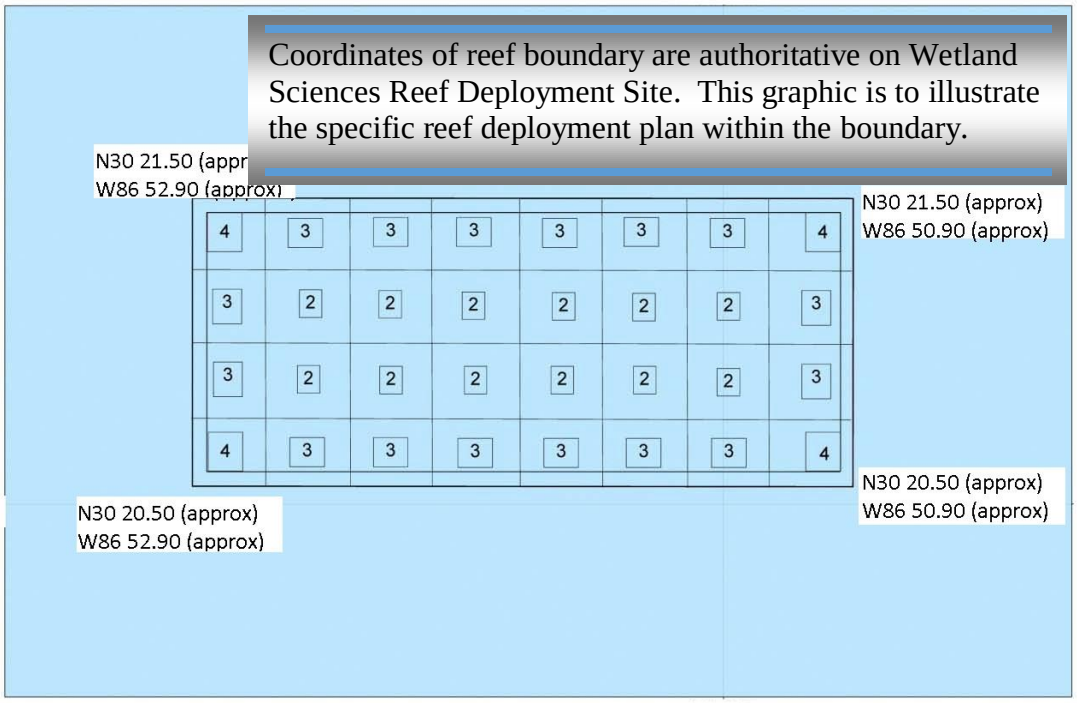
Location for Project Implementation: *(For example, city and county, GIS coordinates if known.)*

Establishment of an artificial reef deployment site 1- x 2-nautical mile in dimension located 1.04-nautical miles from the shoreline of Santa Rosa Island. Location of reef per permit applications:





0 0.1 0.2 0.4 0.6 0.8 Nautical Miles

Reef Layout and Legend duplicates Escambia County MRD provided drawing of same sized reef site drawing for Escambia County Nearshore West Reef area. GPS coordinates are approximate. Exact GPS coordinates to be determined during permitting process.

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

This plan seeks to permit an additional near shore reef area in the Gulf of Mexico between 1 and 3 miles south of Navarre Beach and populate the area with seven hundred four (704 estimate) artificial reefs of concrete and/or steel construction. The reef area proposed is similar to the permitted Escambia West Near Shore Reef Site and the same in total size. It is being proposed to provide habitat for estuarine and marine life. Many of the species impacted, and presumed to have been impacted, by the Deepwater Horizon Oil Spill will benefit from construction of new artificial reefs. Moreover, existing data documenting the economic benefits of artificial reefs to the local economy strongly validates this proposal to construct new artificial reefs as a means to accelerate ecological and economic recovery from the Deepwater Horizon Oil Spill. This proposal seeks funding to construct 704 (estimate) new artificial reefs to restore damaged fisheries, stimulate increased tourism and mitigate for lost fishing and diving opportunities.

Estimated Project Costs: *(Describe the costs of the project, including any assumptions for contingency and ongoing operations and maintenance. Identify other available funding sources such as matching funds, in kind contributions or state or federal dollars. If possible, attach a schedule of anticipated costs, by year, over the anticipated project life.)*

Santa Rosa County requests approximately $1.053M for deployment of Nearshore Artificial Reefs and $15K in permitting costs for a total of $1.068M. Santa Rosa County acknowledges that procurement regulations will be followed, however for the reasons stated above, this conceptual/planning approach incorporates the FL modules. At a cost of $1,495 for each module, Santa Rosa County estimates deployment of 704 modules. Construction administration and Monitoring costs for 10 years are estimated at $101,000. Total estimated cost is $1,168,480.

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 Escambia County Nearshore Artificial Reef NRDA Proposal includes a conceptual plan for that proposed project which describes artificial reef construction utilizing concrete reef modules. The same construction types and methods apply for the artificial reefs to be used in this Santa Rosa County Nearshore Reef Site proposal. Typically, these reef modules are deployed via crane from a barge of other large vessel. Strict adherence to state and federal permit conditions is mandatory, and conceptual plans are followed to the greatest extent possible when working in the dynamic environment of the Gulf of Mexico. Geographical Information System (GIS) and Global Positioning System (GPS) are used for spatial planning and conformity.

Santa Rosa County plans to seek the assistance of Escambia County in the deployment of the reefs via an existing cooperative agreement between Santa Rosa and Escambia counties. Escambia County MRD vessel is equipped with these and other equipment to ensure permit compliance and adherence to Reef Deployment Plan. A full bottom scan of the Reef Boundary was conducted, MRD conducts hull-mounted fathometer scans before during and after each reef deployment. MRD also conducts underwater visual reef inspections as soon as possible after reefs are constructed. Subsequent artificial reef monitoring is also conducted by various means to provide information used to improve Escambia County Artificial Reef Program. Santa Rosa County plans to adopt a similar program or utilize the existing inter county cooperative agreement to monitor the Santa Rosa County Nearshore Reefs.

Staff of Wetland Sciences, Inc. and the Marine Division of Risk Management Compass completed bottom surveys of the entire reef deployment area to identify the potential presence of any biological resources of significance (i.e. coral reefs and/or live-bottom). The bottom surveys were initiated by the Marine Division of Risk Management Compass with an entire side scan survey of the reef deployment site. Imaging the sea floor was accomplished by towing a side scan-sonar "tow-fish" over the study area. The acoustic energy received by the side scan-sonar tow vehicle (backscatter) provides information as to the general distribution and characteristics of the surficial sediment and outcropping strata. In general, if all other parameters are constant, a rougher or harder surface will backscatter more energy than a smooth or soft surface and therefore, return higher amplitude signals. Shadows result from areas of no energy return, such as shadows from natural bottom outcroppings or artificial reefs, and aid in interpretation of the sonogram. The side-scan survey data was collected in early June 2013 using a 100/600 kHz dual frequency system. The raw sonar backscatter data was subsequently processed with various custom and commercial software packages to correct for slant-range offsets in the across-track direction and for sonar fish layback in the along-track direction. Geo-referenced mosaic images where then created for use with the Google Earth application figures from permit applications included, 2 & 3.

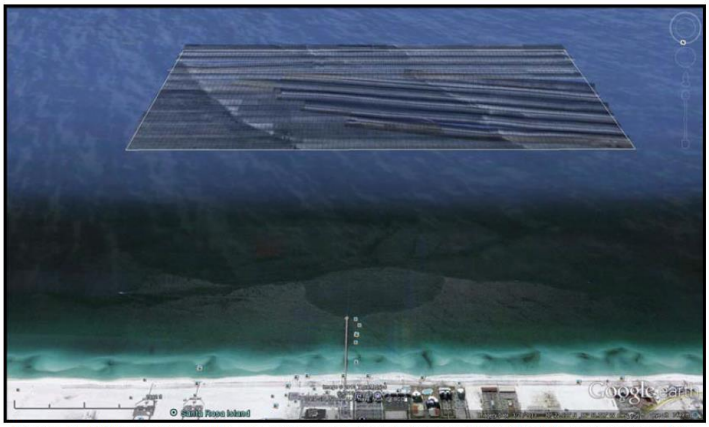


Figure 2. Oblique view of the geo-referenced mosaic images from the side scan survey data.

Figure 3. Over head view of the geo-referenced mosaic images from the side scan survey data.

For the purposes of conceptual planning and responding to questions from FDEP and FWC, Santa Rosa County will utilize a concrete prefabricated tetrahedral artificial reef module commonly deployed in the northeastern Gulf of Mexico. The "Florida Limestone" (FL) module measures 10ft along each base, and is 8ft in height, yielding a total volume (per module) of approx. 116cu.ft. Each module covers approx. 43.3sq.ft. of seafloor area. According to the manufacturer's website, the price is $1495 per module (deployment included). More than 150 FL reef modules have been deployed in Escambia County reef sites.

The comprehensive survey undertaken by Navarre Marine Sanctuary with Wetland Sciences, Inc. and Risk Management Compass did not identify any hard bottom resources within the reef deployment site. Our survey confirmed that the sea floor conditions within the deployment site are predominately unvegetated sand bottom with a surficial layer of microalgae/cyanobacteria. The other targets identified in the deployment area were all unauthorized man-made structures and mainly comprised of chicken coops in varying forms of decomposition. Categories of affected Essential Fish Habitat within the project area include marine water column and unvegetated sand bottom. There are no seagrasses located within the vicinity of the deployment sites. There are no natural rock outcrops or hard bottom formations within the deployment sties.

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 proposed Santa Rosa County's Nearshore Artificial Reef Site will be subdivided into Patch Reef Deployment Areas (PRDA) of approximately 1/4sq.nmi. (See Figure 3). Forage area within adjacent seafloor has been hypothesized by Bortone and others to be an important factor for artificial reef design, placement and function. Although no quantitative guidance exists to calculate optimal relationship between reef size and adjacent seafloor, Santa Rosa County notes the Escambia County MRD considers forage area to be of significant importance. Therefore the proposed reef design incorporates a quantitative relationship of reef modules to available forage area. Because reef site 'corner' PRDAs have the greatest potential forage area, these are assigned the highest reef quantity factor of 4 (RQF=4). Other 'perimeter' PRDAs are assigned RQF=3. "Interior" PRDAs are assigned RQF=2.

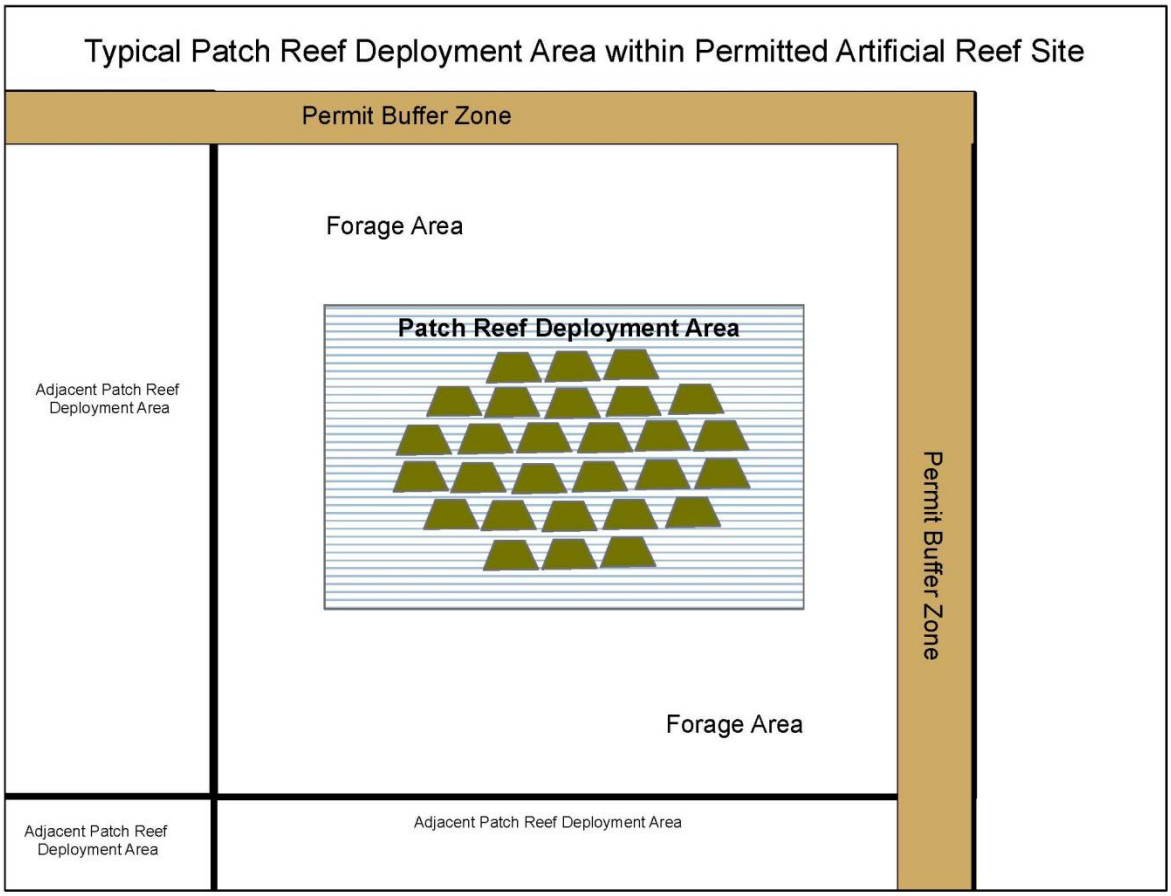


Figure 3

Typical Patch Reef Deployment Area

Using this approach, it is possible to calculate the number of reef modules to be deployed in each PRDA. The proposed design provides the opportunity for future studies to investigate the relationship between reef size and adjacent forage area. To maintain consistent reef density, the actual seafloor deployment area (within each PRDA) will be quantified by the same ratios as RQF. Using GIS technology and equipment, Santa Rosa County will calculate geospatial data and deploy buoys at the precise locations of each PRDA.

The total sum of RQFs for the Nearshore site yields a value of 88. Dividing the total number of reef modules (704) by the total RQFs (88), the number of FL modules deployed in each PRDA is calculated:
PRDAs with RQF=1: 8 FL modules (total reef "footprint" = 346sqft; total reef "volume" = 928cuft) PRDAs with RQF=2: 16 FL modules (total reef "footprint" = 692sqft; total reef "volume" = 1856cuft)
PRDAs with RQF=3: 24 FL modules (total reef "footprint" = 1038sqft; total reef "volume" = 2784cuft)
PRDAs with RQF=4: 32 FL modules (total reef "footprint" = 1384sqft; total reef "volume" = 3712cuft)

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.)*

There is no known other response or remediation work in the project implementation 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.)*

New artificial reefs will provide additional habitat for marine life, and open new areas of seafloor as reef habitat and biomass creation. By focusing primarily on nearshore waters (within 3 miles of Navarre Beach Shoreline), new reef habitat will be established upon seafloor areas generally devoid of reef habitat. Because waters in these sites is relatively shallow (50-75 feet deep), bycatch/discard mortality will be minimized to negligible levels. Thus, fishery catch/conservation objectives will be maximized. Reducing the distance traveled by fishers and divers will provide environmental and economic benefits via reducing fuel consumption or eliminating it in the case of non- motorized based recreation, fishing and diving.

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 area was directly impacted by the Gulf Oil Spill as it is in an area of the Gulf that experienced direct contact with the leaking oil.

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.)*

Permit applications have been submitted, the permitting application and approval process took approximately 14 months. The expected time frame for permitting of these reefs is expected to take the same amount of time and no obstacles are forecast for issuing permits as the same type of permit has been issued due to the extensive preparation work accomplished by Navarre Marine Sanctuary and Santa Rosa county within the last 12 months. Deployment of the reefs should occur within one to three months of permits being issued by the Army Corps of Engineers. Florida DEP general permits are also required and are generally obtainable within 30 days of application.

[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).

E4. Is cost effective: *(Briefly describe why you think the project is cost effective. Discuss whether this project is more cost effective than alternative projects which would provide similar resource or service benefits.)*

Escambia County's artificial reef program was analyzed in 1998 by Florida State University economists (Bell, et al. 1999), and annual economic benefits of artificial reefs was estimated to be more than $90M, with a 130:1 return on investment. Scuba, Snorkeling, Fishing and other beach based activity related businesses have sustained substantial hardships from the oil spill, and will greatly benefit from the construction of new reefs and the myriad opportunities that the increased marine life will create. It is anticipated Santa Rosa's artificial reef program will be vital to local education activities via the Navarre Marine Science Center, recreational econ friendly marine activities, local non- motorized snorkeling, fishing and diving due to the paucity of natural reefs in the northeastern Gulf of Mexico. Navarre Beach reefs will be 21 and 23 miles from the respective passes of Pensacola and Destin making this area ideal to economic development of local beach launched activities to utilize these resources. As well as a huge potential to become a multi-use adventure marketing opportunity for Aquathon (running & offshore swimming), Spearfishing, Kayak Fishing tournaments, etc.

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.)*

Important factors to consider in selecting artificial reef materials/contractor include: demonstrated performance of proposed materials (including stability, durability, and tendency for subsidence); quantitative and qualitative reef material factors; previous performance of deployment (including precision); adequate resources (vessels, barges, equipment, personnel, etc.).

Santa Rosa County has experience in this area as do several reefing contractors. The model being followed is the one successfully employed by Escambia County Marine Resources Division and with their input and assistance.

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

Typically, adult reef fish (snapper, groupers, jacks, etc.) begin to aggregate around new artificial reefs within days of deployment. Recruitment of larval forms of other fish and various other phyla (Arthropods, Mollusks, Echinoderms, etc.) follow seasonal spawning patterns. Use patterns by recreational anglers and divers may also vary substantially. Many anglers will wait one or more years before fishing a new reef. Non-consumptive recreational divers may desire to dive "interesting" new artificial reefs (e.g., vessels) as soon as possible after deployment. Reef "maturity" is variable, subjective, and dependent upon multiple factors. Generally, reef maturity is accomplished within 3-5 years after deployment.

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.)*

Recent positive response and virtually no public opposition was encountered by the recent establishment of the Navarre Beach Marine Sanctuary reef system and it's expansion. The system is three reef sites, two in Santa Rosa Sound and one in the Gulf of Mexico and all accessible from the beach. The proposed site is in the same general area (approximately 1 mile south of the newly established gulf snorkeling reefs. Endorsements of support from area businesses were evident as the local community has raised funds of nearly $25,000 to support the reef system and the Tourist Development Committee and Board of Commissioners each funded almost $100,000 a piece to permit, construct, and deploy the reefs.

WE WANT YOUR INPUT!

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

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Eastpoint, FL 32328

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*").