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November 10, 2009

Steve Andrews, Jr.  
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Jacksonville District Corps of Engineers  
Pensacola Regulatory Office  
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Pensacola, FL 32502  
Stephen.w.andrews@usace.army.mil

Re: USACOE Permit Application No. 20091019-SAJ-2008-03187; Santa Rosa  
County Board of County Commissioners; Navarre Beach Nearshore Gulf  
Snorkeling Artificial Reef

Dear Mr. Andrews:

The Division of Marine Fisheries Management of the Florida Fish and Wildlife  
Conservation Commission (FWC) has coordinated agency review of the referenced  
document. The FWC provides the following comments pursuant to the Fish and  
Wildlife Coordination Act.

### **Project Description**

The proposed project involves placing thirty artificial reef modules known as "Walter Eco-reef" units in the nearshore environment in the littoral zone of the Gulf of Mexico, immediately seaward of the surf zone. Based upon the engineering drawings provided, these fabricated units are proposed to be placed in three parallel rows of ten units each with the most shoreward units about 340 feet from Santa Rosa Island's shoreline at Mean Lower Low Water (MLLW). The most seaward units would be placed about 550 feet offshore. The reported long axis of each ten-unit row is in a north-south direction, approximately perpendicular to the shore line of Navarre Beach, southern Santa Rosa County. Each five-foot diameter, circular, three-tiered reef module unit in the row would be 20 feet from its nearest neighbor, with the rows similarly 20 feet from the edge of the units in the adjacent row. The units would be placed on 25-foot centers. Minimum navigational clearance over the units would be at least six feet at MLLW and the approximate vertical relief of the units would be four feet. The seafloor depth at proposed placement locations is described as ranging from about -10 to -11 feet at MLLW. The permit area in which these 30 units would be placed is reported to be 82.0 feet wide (east-west) by 275.0 feet long (north-south). The proposed project is reported to be about 2000 feet east of the new Navarre Beach Fishing Pier.

A heavy-duty polypropylene rope with high-visibility floats is proposed to be strung east-west between two dolphin pilings for a distance of 170.5 feet. It would lie at the surface, eighty-five feet seaward of the seaward (south) end of the permit zone for the rectangular reef module. The floats and line are intended to provide a visible barrier to entry into the snorkeling area. The emergent dolphins are proposed to serve as platforms for an encased, solar, rechargeable 12-volt deep-cycle marine

battery placed on a four-foot by four-foot fiberglass grate bolted with stainless steel fasteners to the pilings and powering a continuous red warning light. An eight-foot by four-foot aluminum warning sign bolted to the dolphin pilings would face seaward. The sign is proposed to state in six-inch reflective lettering: "Warning - Swimming Area - No Watercraft Beyond this Point." The total height of the dolphin and lighting system above the water is proposed to be eleven feet. Each of three concrete pilings comprising each dolphin is 12 inches by 12 inches. The two dolphins with warning signs are proposed to be placed about 700 feet seaward of the shoreline at an approximate MLLW depth of -11.0 to -11.5 feet.

Local residents voiced interest in a Navarre Beach Gulf of Mexico snorkeling reef, protected from watercraft intrusion, as long ago as 2003. In response to local snorkeling reef interest, the Florida Park Service, which managed the beach area at the time, evaluated a conceptual snorkeling-reef project. The conceptual engineering design proposed a field of several dozen evenly spaced subsurface concrete pilings. The Florida Park Service then subsequently proposed a seaward shift of the area to 1000-1500 feet offshore to a depth of 30 feet. They elected not to pursue the project in 2004 due to lack of funding and liability concerns. The uplands title of the adjacent beach was later turned over to Santa Rosa County, the current applicant.

### **Potentially Affected Resources**

Potentially affected resources include approximately 0.52 acres of nearshore Gulf of Mexico seafloor reported to be devoid of submerged aquatic vegetation and exposed hard bottom. The substrate is reported to be medium to coarse-grained sands with a surficial layer of microalgae/cyanobacteria.

### **Potential Effects of the Proposal**

Effects of the proposal include possible localized changes in alongshore sand transport in the vicinity of the artificial reef module field, slight changes in bottom contour and depth at the immediate location of the individual modules where sand may accumulate on one side of the units and localized scouring around the base of the units may occur.

Physical placement of pilings to secure the 30 individual modules is expected to result in very localized direct mortality to the benthic invertebrates and possibly short-term sediment suspension. Secondary impacts include very minimal reduced open-sand bottom forage opportunities for benthic fish and invertebrates.

The modules are expected to attract primarily juvenile, reef-dependent and reef-transient fishes, including belted sandfish, blennies, damsel fish, juvenile angel fish, triggerfish, wrasses, lizardfish, and smaller individuals in the grouper snapper complex. Highest species and individual numbers of fishes are expected to be chiefly present during warmer, calmer water months with declines in species and biomass in winter colder, rougher water periods. Invertebrate fouling on upper portions of the

modules, not subject to continuous scouring, can be expected to proceed in a successional manner similar to that found on pilings on the nearby Navarre Beach pier.

### **Issues and Recommendations**

Issue #1: There is no unique name provided for this specific project, and it is difficult to differentiate all of the artificial reefs in Santa Rosa County without unique names.

Recommendation #1: We have temporarily called this particular project "Navarre Beach Nearshore Gulf Snorkeling Artificial Reef," but we prefer that unique names be attached to this and future artificial reef projects to facilitate the public notice, application review, permitting, and potential future reauthorization processes.

Issue #2: No unit was provided for the project coordinates in the public notice.

Recommendation #2: Please confirm that the format of the latitude and longitude coordinates in the public notice is in decimal degrees (DD.dddd). We would request that the final permit include coordinates that are formatted in both decimal degrees (DD.dddd), and degrees, decimal minutes (DD MM.mmm). This will facilitate correct interpretation by marine contractors and observers, and be consistent with other U.S. Army Corps of Engineers' permits.

Issue #3: Although use of a specific, possibly patented module design, the Walter Eco-Reef, is proposed, detailed engineering specifications of this unit have not been provided.

Recommendation #3: Please provide a scale engineering diagram of the Walter Eco-Reef. Please include in the diagram information on the number of the circular tiers or layers in each module, their thickness, composition of the layers, including any materials added to increase surface rugosity; whether or not the layers are reinforced with steel or fiberglass, how the layers are mounted or fitted on the pilings, the separation distance between the layers, the composition and diameter of the piling, whether the piling is hollow (if so specify piling wall thickness) or solid, and the depth below the substrate the piling will extend as well as how far above the top circular tier the piling will extend.

Issue #4: The permitted area of 22,550 square feet (82 feet by 275.0 feet) is a relatively small, discrete area encompassing a very specific design pattern of 30 units placed on 25-foot centers. There is minimal room for placement error with less than twenty feet from the edge of the easterly and westerly rows from the nearest permit boundary. One engineering drawing shows precise module placement to the nearest tenth of a foot in three precisely laid out rows. Another engineering drawing, however, makes a disclaimer that "Reef materials may be deployed in a **different configuration** [emphasis added] than shown on the drawing." We have concerns that the drawings as shown does not correctly depict the anticipated actual outcome of the as built installation and that the necessary level of engineering expertise and

associated technology will not be available for the installation of this project to properly place the modules as described in the application, nor keep the modules within the permit area.

Recommendation #4: Please provide a detailed explanation of the specific installation technique to secure the units to the seafloor, how the vessel deploying platform would maintain position to deploy the modules, how the individual module locations would be marked to guide the contractor, and how the permit boundaries would be accurately delineated during the deployment to enable the contractor to ensure he is operating within the permitted area.

Issue #5: Structural durability and stability are key components of a successful artificial reef. Exposed open northwestern Florida Gulf beaches have had a history of hurricane/major storm caused structural damage or movement inflicted on piers, other inshore reefs (e.g., Pensacola Beach snorkeling reef), and other structures placed in a shallow water marine environment. The proposed modules have historically previously used in calmer-water bay environments and under docks, and have not been used in an open Gulf environment at the depth proposed (10 to 11 feet) just outside a high-energy surf zone whose width can be expected to expand seaward in a hurricane/major tropical storm event.

Recommendation #5: Please provide engineering data that these units can survive a 30-year return interval storm event at the depth placed.

Issue #6: We are concerned that construction of the artificial reef may precede the placement of appropriate Private Aids to Navigation (PATN), and that the described PATN may not be appropriate for this type of project. We are concerned that the permit holder may not be prepared to maintain, repair, or periodically replace in perpetuity the aids to navigation devices and signage described in the public notice. Loss of permanent lighting on concrete pilings jutting nine feet out of the water in water depths often traversed by water craft running parallel to the beach is a potentially serious safety hazard.

Recommendation #6: We request that the applicant provide confirmation that all applicable U.S. Coast Guard and FWC permits have been/will be obtained for the installation of PATNs, and also provide confirmation that PATNs will be in place prior to any artificial reef construction where the intent is to draw surface swimmers from shore to the structures. Please request that the applicant contact the FWC Boating and Waterways Section to consult on permitting requirements: [anchoring.mooring@myfwc.com](mailto:anchoring.mooring@myfwc.com) (850) 410-0656, ext. 17169

Issue #7: The physical structures of two emergent three pile concrete dolphins appear to be 87.5 feet south of the identified southeast and southwest artificial reef construction area corners and entirely outside the delineated permitted area.

Recommendation #7: We recommend that the permit area be expanded to include these permanent three dimensional dolphin structures.