



May 21, 2002

Ms. Cindy Cranick
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100

RE: SFRPC #02-0512, SAI #FL200205011903C - Request for comments on the General Reevaluation Report with Draft Environmental Impact Statement (DEIS) for the Broward County Shore Protection Project, US Department of the Army, Dania Beach, Fort Lauderdale, Hallandale Beach, Hollywood, Lauderdale-by-the-Sea, Pompano Beach and Sea Ranch Lakes, Broward County.

Dear Ms. Cranick:

We have reviewed the above-referenced project and have the following comments:

- Beaches and dune systems are identified as natural resources of regional significance in the *Strategic Regional Policy Plan for South Florida*. The use of groins and other hard coastal protection structures may adversely impact benthic resources and deprive downdrift shorelines of sand. Staff supports the use of buffer zones to protect these important resources. Sand movement and downdrift erosion should be monitored on a region wide basis to ensure the livelihood of wildlife habitats and the stability of renourished areas. All actions should be consistent with the goals and policies of the Broward County comprehensive plan and the comprehensive plans of the following cities: Dania Beach, Fort Lauderdale, Hallandale Beach, Hollywood, Lauderdale-by-the-Sea, Pompano Beach, and Sea Ranch Lakes.
- Staff recommends that, if the proposed actions are implemented, 1) impacts to the natural systems be minimized to the greatest extent feasible and 2) the permit grantor determine the extent of sensitive marine life and vegetative communities in the vicinity of each project and require protection and or mitigation of disturbed habitat. These guidelines will assist in reducing the cumulative impacts to native plants and animals, wetlands and deep water habitat and fisheries that the goals and policies of the *Strategic Regional Policy Plan for South Florida* seek to protect.
- The goals and policies of the *Strategic Regional Policy Plan for South Florida*, in particular those indicated below, should be observed when making decisions regarding this project.

Strategic Regional Goal

- 3.1 Eliminate the inappropriate uses of land by improving the land use designations and utilize land acquisition where necessary so that the quality and connectedness of Natural Resources of Regional Significance and suitable high quality natural areas is improved.

Regional Policies

- 3.1.1 Natural Resources of Regional Significance and other suitable natural resources shall be preserved and protected. Mitigation for unavoidable impacts will be provided either on-site or in identified regional habitat mitigation areas with the goal of providing the highest level of resource value and function for the regional system. Endangered faunal species habitat and populations documented on-site shall be preserved on-site. Threatened faunal species and populations and species of special concern documented on-site, as well as critically imperiled, imperiled and rare plants shall be preserved on-site unless it is demonstrated that off-site mitigation will not adversely impact the viability or number of individuals of the species.
- 3.1.9 Degradation or destruction of Natural Resources of Regional Significance, including listed species and their habitats will occur as a result of a proposed project only if:
- a) the activity is necessary to prevent or eliminate a public hazard, and
 - b) the activity is in the public interest and no other alternative exists, and
 - c) the activity does not destroy significant natural habitat, or identified natural resource values, and
 - d) the activity does not destroy habitat for threatened or endangered species, and
 - e) the activity does not negatively impact listed species that have been documented to use or rely upon the site.
- 3.1.10 Proposed projects shall include buffer zones between development and existing Natural Resources of Regional Significance and other suitable natural resources. The buffer zones shall provide natural habitat values and functions that compliment Natural Resources of Regional Significance values so that the natural system values of the site are not negatively impacted by adjacent uses. The buffer zones shall be a minimum of 25 feet in width. Alternative widths may be proposed if it is demonstrated that the alternative furthers the viability of the Natural Resource of Regional Significance, effectively separating the development impacts from the natural resource or contributing to reduced fragmentation of identified Natural Resources of Regional Significance.

Strategic Regional Goal

- 3.4 Improve the protection of upland habitat areas and maximize the interrelationships between the wetland and upland components of the natural system.

Regional Policies

- 3.4.4 Require the use of ecological studies and site and species specific surveys in projects that may impact natural habitat areas to ensure that rare and state and federally listed plants and wildlife are identified with respect to temporal and spatial distribution.
- 3.4.5 Identify and protect the habitats of rare and state and federally listed species. For those rare and threatened species that have been scientifically demonstrated by past or site specific studies to be relocated successfully, without resulting in harm to the relocated or receiving populations, and where *in-situ* preservation is neither possible nor desirable from an ecological perspective, identify suitable receptor sites, guaranteed to be preserved and managed in perpetuity for the protection of the relocated species that will be utilized for the relocation of such rare or listed plants and animals made necessary by unavoidable project impacts. Consistent use of the site by endangered species, or documented endangered species habitat on-site shall be preserved on-site.

- 3.4.8 Remove invasive exotics from all Natural Resources of Regional Significance and associated buffer areas. Require the continued regular and periodic maintenance of areas that have had invasive exotics removed.
- 3.4.9 Required maintenance shall insure that re-establishment of the invasive exotic does not occur.

Strategic Regional Goal

- 3.8 Enhance and preserve natural system values of South Florida's shorelines, estuaries, benthic communities, fisheries, and associated habitats, including but not limited to, Florida Bay, Biscayne Bay and the coral reef tract.

Regional Policies

- 3.8.1 Enhance and preserve natural shoreline characteristics through requirements resulting from the review of proposed projects and in the implementation of ICE, including but not limited to, mangroves, beaches and dunes through prohibition of structural shoreline stabilization methods except to protect existing navigation channels, maintain reasonable riparian access, or allow an activity in the public interest as determined by applicable state and federal permitting criteria.
- 3.8.2 Enhance and preserve benthic communities, including but not limited to seagrass and shellfish beds, and coral habitats, by allowing only that dredge and fill activity, artificial shading of habitat areas, or destruction from boats that is the least amount practicable, and by encouraging permanent mooring facilities. Dredge and fill activities may occur on submerged lands in the Florida Keys only as permitted by the Monroe County Land Development Regulations. It must be demonstrated pursuant to the review of the proposed project features that the activities included in the proposed project do not cause permanent, adverse natural system impacts.
- 3.8.3 As a result of proposed project reviews, include conditions that result in a project that enhances and preserves marine and estuarine water quality by:
- a) improving the timing and quality of freshwater inflows;
 - b) reducing turbidity, nutrient loading and bacterial loading from wastewater facilities and vessels;
 - c) reducing the number of improperly maintained stormwater systems; and
 - d) requiring port facilities and marinas to implement hazardous materials spill plans.
- 3.8.4 Enhance and preserve commercial and sports fisheries through monitoring, research, best management practices for fish harvesting and protection of nursery habitat and include the resulting information in educational programs throughout the region. Identified nursery habitat shall be protected through the inclusion of suitable habitat protective features including, but not limited to:
- a) avoidance of project impacts within habitat area;
 - b) replacement of habitat area impacted by proposed project; or
 - c) improvement of remaining habitat area within remainder of proposed project area.

3.8.5 Enhance and preserve habitat for endangered and threatened marine species by the preservation of identified endangered species habitat and populations. For threatened species or species of critical concern, on-site preservation will be required unless it is demonstrated that off-site mitigation will not adversely impact the viability or number of individuals of the species.

- Council staff generally agrees that the proposed project is particularly compatible with the *Strategic Regional Policy Plan for South Florida's (SRPP)* goals and policies listed below:

Strategic Regional Goal

4.1 Achieve a competitive and diversified regional economy, including lower unemployment rate and higher per capita income than the state and national average for Dade, Broward and Monroe Counties through the achievement of cutting edge human resources, economic development infrastructure and other resources to ensure a sustainable regional community.

Regional Policies

4.1.13 Ensure that the conditions of transportation affecting trade opportunities in the region with respect to land, air, ground and shipping are addressed.

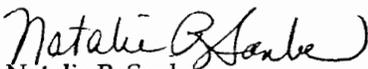
4.1.15 Enhance the roles of airports and seaports in economic development by:

- e) addressing efficient, dependable, cost-effective intermodal movement of goods and people in order to ensure competitive ship-to-rail and ship-to-highway connections.

4.1.28 Encourage the investment in the land and infrastructure needed for sustainable economic growth. Investments should include land for highway and mass transit corridors, stations and public-private joint venture development opportunities.

Thank you for the opportunity to comment. We would appreciate being kept informed on the progress of this project. Please do not hesitate to call if you have any questions or comments.

Sincerely,


Natalie R. Sanbe
Senior Planner

NRS/bg

cc: Col. James G. May, Department of the Army
Steven Somerville, Broward County DPEP
Laurence Leeds, Director, Growth Management, Dania Beach
Cecelia Hollar, Director, Construction Services, Fort Lauderdale
Lorenzo Aghemo, Growth Management Director, Hallandale Beach
Jaye M. Epstein, Community Planning Director, Hollywood
Walter Keller, Town Planner, Lauderdale-by-the Sea
L. James Hudson, Community Development Director, Pompano Beach
Mayor Elliot Sokolow, Sea Ranch Lakes



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAY 22 2002

District Engineer, Jacksonville
P.O. Box 4970
Jacksonville, FL 32232

Attn: Ms. Yvonne Haberer

Subject: **Draft Environmental Impact Statement (DEIS) for Broward County Shore Protection Project (Segments II and III), Broward County, Florida, (dt February, 2002) CEQ # 020127,ERP- COE-E-30042-FL**

Dear Sir:

Pursuant to Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA), EPA, Region 4 has reviewed the subject document, an evaluation of the environmental consequences of placing approximately 2.5 M cubic yards of sand along multiple segments in the county, viz. Pompano Beach, Lauderdale-by-the-Sea, Ft. Lauderdale, Port Everglades, and Hollywood/Hallandale. Five offshore borrow areas in northern Broward County will provide the necessary fill material for the initial fill. This sand will be pumped onshore via a submerged hydraulic pipeline. In addition, three shore stabilizing structures will be placed immediately downdrift of the Port Everglades Entrance in an effort to maintain the northern shore of John U. Lloyd State Park and lessen sand losses into the Port's channel. Approximately 16 acres of hard bottoms/worm rock habitat will be covered during the course of dredging and as a result of redistribution of sediments. These functional losses to area biota will be mitigated via the placement of limestone boulders which are anticipated to replicate the natural structure covered with sand. Monitoring will be necessary to determine the degree to which these "boulder fields" will be successful in reconstituting the structure (hard bottoms) lost to inundation.

Ultimately, sand or the lack thereof may be the most important factor affecting this project. All of the societal/economic factors cited in DEIS as compelling reasons for its implementation will remain operative into the indefinite future. Therefore, it should be made clear that the commitment to renourish the subject beach now is irrevocably linked to sufficient sand to offset the inevitable erosional losses which will occur in the future. Moreover, it is important to remember that this is just one of many similar projects in south Florida competing for this resource. Even though some limited amounts of sand are available from inlet sources (and could be managed via a mechanical sand bypassing facility), these sediments are often not acceptable (silt content too high) or of insufficient

quantity. Taking all of these factors into account, the final document should outline the consequences (societal/economic) to development/recreation interests at that future time when all practicable sources of sand within Segments II and III have been expended.

On the basis of our review a rating of LO has been assigned. That is, we have no significant objections regarding the immediate effects of the project on both the natural and cultural environment. However, the final document would be improved if the issues noted in the attached detailed comments were addressed. Thank you for the opportunity to comment. If we can be of further assistance in this matter, Dr. Gerald Miller (404-562-9626) will serve as initial point of contact.

Sincerely,

A handwritten signature in cursive script, appearing to read "H. Mueller".

Heinz J. Mueller, Chief
Office of Environmental Assessment

Attachment

Detailed Comment

It was noted (pages 17 - 20, EIS) that the project is planned for construction in 2002, with renourishment necessary every 6 years. The renourishment schedule for Segment III assumes that a sand bypass facility at Port Everglades would be available by 2008. There needs to be more information in the final document that this facility will be on-line at/before that time. The recommended plan for Segment II does not provide enough information to determine future sand sources for the project. The final EIS needs to address this matter in more detail and incorporate the operation of sand bypassing stations at all Broward County inlets into an overall management plan. As the matter now stands, this proposal only provides a short-term solution to the erosion being experienced along the Broward County shoreline. This was highlighted by EPA staff in discussions with the applicant, i.e., it was emphasized that acceptable offshore borrow areas in Broward County are limited.

It was noted (page 24, EIS) that the proposed project would cause a temporary increase in turbidity adjacent to both the borrow sites and the renourishment zones, but no migration is required. We would only agree with this proposition if post-project monitoring revealed that no significant damage occurred to adjacent nearshore and/or offshore hardbottom habitat.

Buffer zones will range from 200-400+ feet from the hardbottom communities (page 36, EIS). In order to protect hardbottom reefs, EPA requests a minimum 400-foot buffer be established around all borrow areas.

The results (page 129 and 130, EIS) of interim monitoring obtained from the nearshore mitigation reef for the Jupiter/Carlin area revealed rapid colonization of the limestone boulders by benthic invertebrates and algae as well as key nearshore reef species such as wormrock and hairy bleeny (Palm Beach County ERM, 2000). These initial results are heartening, but we request that this mitigation monitoring be updated to reflect present site conditions. It is our understanding that the long-term results at Jupiter/Carlin have not been as successful as stated in the EIS.

The hardbottom impacts (page 144, EIS) resulting from pipeline placement have been estimated at 90 square feet per corridor. Mitigation for pipeline impacts should be addressed and incorporated into the project's mitigation plan. The pipelines will be surveyed weekly during operation to check for sand leakage. As a result of our experience with similar projects in south Florida, we urge that this monitoring be conducted daily.

In our comments to the April 26, 2000 public notice for permit application number 199905545, we made a number of observation about the rock and shell (greater than 1

inch diameter) which will be dredged from the borrow areas and disposed at two artificial reef areas. Disposal of dredged material in the ocean requires a permit pursuant to the Marine Protection Research and Sanctuaries Act of 1972 and its implementing regulations (40 CFR part 225) and must be evaluated by the Corps of Engineers and EPA in accordance with criteria set forth in 40 CFR part 227. Additionally, selection of appropriate disposal areas must be conducted in accordance with 40 CFR part 228. Although the regulations do not require a permit for placement of materials for developing fisheries resources, the subject material does not appear to meet pertinent criteria because of its size (1 inch). "Guidelines for Marine Artificial reef Materials" (Gulf States Marine Fisheries Commission, 1997), cite that "shell is small, light weight material and consequently would have a tendency to be silted over in moderate to high energy situations...it is doubtful that shell would be of any value in offshore areas because the deeper water and currents would tend to scatter the shell over a wide area, offering little relief or continuous hard bottom habitat." If you have any questions regarding this comment, please contact Mr. Chris McArthur at (404) 562-9391.

Section 309 Measures

EIS CEQ # CEQ # 020127, ERP # COE-Ed30042-FL

**EIS Draft Environmental Impact Statement (DEIS) for Broward County Shore Protection Project (Segments II and III), Broward County, Florida
Significant Environmental Issues Highlighted in Comment Letter**

(specify # of comments in each blank)

Draft / Final	Draft / Final
Air Issues:	NEPA Issues:
Air (General Issues)	Alternatives/Modify Proposed Action
Air Toxics	Cumulative Impacts
General Conformity	Mitigation 1
Transportation Conformity	Purpose/Need
Radiation	Indirect Impacts
Water Issues:	Impact Assessment Methodology
Contaminated Sediment	Monitoring 1
Estuarine	Conclusions Not Supported
Ground/Drinking Water	Other Media/Multimedia:
Marine 1	Biodiversity
Riverine	Endangered Species
Water Quality)	Environmental Justice
Wetlands	Historic Preservation
Waste Issues:	Noise
Solid Waste	Pesticides
Hazardous Waste	Toxics
Terrestrial Habitat Issues:	Other muck disposal(please specify)

Performance Measures

- Aquatic Habitat Impacted (number of acres):at EPA's Initial Involvement:

16 acres of hard bottom habitat

Draft:

Final:

• Terrestrial Habitat Impacted (number of acres): at EPA's Initial Involvement:

Draft:

Final:

• Other Quantifiable Impact (specify): at EPA's Initial Involvement:

Draft:

Final:

Success story/Explain significance of habitat or other measure above/ROD improvement:



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

June 3, 2002

Mr. James C. Duck
Chief, Planning Division
Environmental Branch, Jacksonville District
Department of the Army, Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Mr. Duck:

This responds to your March 29, 2002, request for comments on the **Draft Environmental Impact Statement (DEIS) for the proposed Broward County Shore Protection Project** in Broward County, Florida. By letter, dated June 26, 2000, the National Marine Fisheries Service (NMFS) provided previous comments in response to a public notice for the proposed project from the Jacksonville District, Regulatory Division, dated April 26, 2000. This supplements our previous letter on the project. Our initial letter contained Essential Fish Habitat (EFH) Conservation Recommendations that addressed direct, indirect, and cumulative impacts to the marine water column (including pelagic waters), live/hard bottom, coral, coral reef, and artificial/manmade reef EFH. Several of these categories of EFH have also been designated as Habitat Areas of Particular Concern (HAPC) by the South Atlantic Fishery Management Council. Based on significant and unacceptable impacts to NMFS-trust resources, we advised that Department of the Army (DA) authorization should not be granted pursuant to Part IV, paragraph 3(a) of our Clean Water Act 404(q) Memorandum of Agreement (MOA). The Regional Administrator for the NMFS Southeast Region reinforced this position on July 6, 2000, pursuant to Part IV paragraph 3(b) of the MOA.

By Federal Register Notice, dated October 29, 1999, the Corps of Engineers (COE) stated its intent to prepare a Draft Environmental Impact Statement (DEIS) for construction of the Broward County Beach Erosion Control and Hurricane Protection Project (Federal Project). The Federal Project involved placement of 3.5 million cubic yards of material along 17.35 miles of Broward County's beaches. According to the Federal Register Notice, the Federal Project would impact approximately 25 acres of nearshore hard bottom habitat, construct 13 shore stabilization groins, and require dredging of material from seven borrow areas. Estimates of nearshore marine resource impacts from the Federal Project was based upon hard bottom reef mapping completed for the Coast of Florida Study (USACE 1996). Subsequent reevaluation of the Federal Project



and nearshore marine resource within Broward County increased the expected impacts of hard bottom communities to 37.1 acres (COE Public Notice, dated April 26, 2000). As a result of considerable involvement by Federal and state resource agencies, the Federal Project was revised to minimize impacts to nearshore hard bottom communities by reducing the volume and placement of fill on the beach. To further minimize impacts to hard bottom reefs, the number of proposed borrow areas was reduced to five, and the sizes and configurations of the remaining borrow areas were modified. The revised project, sponsored by Broward County Board of Commissioners (County), is being proposed as the Recommended Plan for the Broward County Beach Erosion Control and Hurricane Protection Project.

According to the DEIS, the Recommended Plan involves dredging five offshore borrow areas and placing approximately 2.5 million cubic yards of sand on 11.8 miles of ocean shoreline in Broward County, Florida. Under the current plan, nourishment would occur on two of the original three beach segments that were studied. Segment II involves sand placement from Hillsboro Inlet to Port Everglades. Segment III would encompass the area from Port Everglades south to the county line. The proposed project also includes construction of three rock groins in Segment III, south of the Port Everglades entrance. Project construction would require two years, with Segment II beginning in August of 2002, and Segment III beginning approximately 12 months later.

The Recommended Plan reflects considerable effort on the part of the County to avoid and minimize impacts to EFH and other NMFS-trust resources. Expected nearshore hard bottom impacts for Segment II have been reduced from 12.1 acres in the Federal Project to 6.0 acres in the Recommended Plan. All impacts to nearshore hard bottom habitats for Segment II are expected to result from "secondary" impacts. These secondary impacts would result from subsequent burial of bottom habitat by offshore movement and equilibration of sand, known as the "equilibrium toe of the fill" (ETOF). The County estimates the secondary impacts to occur gradually over a one to three year period. Expected nearshore hard bottom/worm rock reef impacts for Segment III has been reduced from 16.4 acres with the Federal Project to 7.6 acres with the Recommended Plan. Direct impacts to nearshore hard bottom and worm rock habitat for Segment III are expected to be approximately 0.9 acre and 1.1 acres, respectively. The remaining loss of 6.5 acres of hard bottom habitat is expected to result from "secondary" impacts of the ETOF. Due to the high concentrations of calcium carbonate and fine sand and silt/clay in two proposed borrow areas (Borrow Areas VI and VII), they have been eliminated from the Recommended Plan. Revisions to the size and boundaries of the remaining five borrow areas were based upon additional resource mapping of the area that revealed previously unidentified hard bottom habitat and seagrass beds within, and adjacent to, the borrow areas. To avoid direct and secondary impacts to the adjacent benthic resources, the NMFS had previously recommended establishment of 500-foot-wide buffers between the borrow areas and well developed hard bottom communities. Generally, the hard bottom communities located seaward of the borrow areas (i.e. eastern boundaries) contain higher relief structure and higher percentage of hard and soft corals than the hard bottom communities located landward of the borrow areas. The average buffer distance for the western boundaries of the five proposed borrow areas are: 357 feet for Borrow Area 1; 285 feet for Borrow Area 2; 375 feet for Borrow Area 3; 361 feet for Borrow Area 4; and 235 feet for Borrow Area 6. The average buffer distance for the eastern

boundaries of the five proposed borrow areas are: 513 feet for Borrow Area 1; 1,718 feet for Borrow Area 2; 671 feet for Borrow Area 3; 512 feet for Borrow Area 4; and 680 feet for Borrow Area 6.

According to the DEIS, impacts to hard bottom communities are also expected in connection with placement of the eight proposed pipelines. Impacts to hard bottom habitats are typically caused by direct placement of the pipeline and scraping by pipes during installation and removal and by movement caused by wave energy. The County proposes to minimize hard bottom impacts by locating the pipeline corridor within areas having low diversity and density of soft and hard coral and through use of tires or H-frame supports to elevate the pipe over the reef. Total impacts to hard bottom communities from the pipeline corridor have been estimated at 0.03 acre.

The Recommended Plan incorporates project modifications that would avoid and minimize impacts to EFH and HAPC. However, the proposed project would result in the burial of 13.6 acres of nearshore hard bottom and worm reefs, which are designated as EFH and HAPC. In addition, given the considerable size and construction time required to complete the proposed project (approximately 18 months of dredging over a two year total construction period) there is a relatively high potential for secondary and cumulative effects to these marine habitats. In connection with these concerns, we have noted a number of deficiencies in the DEIS, including a lack of adequate analyses regarding the monitoring program, mitigation, and cumulative effects. Our comments pertaining to these and other issues are provided below.

Monitoring Program As noted above, information regarding the nearshore and offshore monitoring plans provided in the DEIS are cursory in nature. The County has recently provided copies of the draft monitoring program for our review and it is evident that coral and hard bottom reefs are in close proximity to the proposed borrow areas and seaward of the ETOF. Several areas of significant coral resources, such as large patches of staghorn and large reef building corals, are located less than 1,000 feet seaward of the ETOF for the project. Based on the presence of these sensitive and irreplaceable categories of EFH and HAPC, the NMFS considers development of an effective monitoring program to be one of the most critical components of this project. However, several sections of both the nearshore and offshore monitoring plans appear insufficient to adequately identify potential impacts. For example, the draft offshore monitoring plan and the DEIS discuss monitoring of particularly sensitive or large coral formations, such as the staghorn coral patches mentioned above, with existing County monitoring stations (i.e. stations FTL-1 and FTL-4); however, these stations are located approximately 2,000 feet away from these staghorn patches. Monitoring stations should be located within close proximity to the staghorn patches and other areas identified as having high coral density and containing large and irreplaceable coral colonies. The DEIS also states that the sediment monitoring plan for the reefs adjacent to the borrow areas will incorporate "real-time" measurements of accumulated sediments and observations of biological stress indicators. However, the draft offshore monitoring plan indicates that the consultant performing the field sediment monitoring will notify the County within a 24-hour period, should the weekly monitoring stations indicate the sediment accumulation thresholds are exceeded. Then, if the average threshold is exceeded in any two accumulation plates, that borrow area will be excluded

from use until the sediment level drops below the threshold. This implies that adjacent reefs could experience excessive sedimentation for seven days or more before dredging at a particular borrow area is halted. If the sediment monitoring plan is truly designed to utilize "real-time" measurements, sediment monitoring should occur on a daily basis for borrow areas that are actively being dredged. Likewise, observations of coral stress indicators should be conducted daily, rather than weekly, for borrow areas that are actively being dredged.

Excessive sedimentation for prolonged periods of time has been documented to cause physiological stress and mortality of soft and hard corals (Dodge and Vaisnys 1977; Bak 1978; Marszalek 1981; Goldberg 1989; Nelson 1989). The NMFS is concerned that acute and chronic sedimentation from repeated beach nourishment projects along the southeast Florida coast may have indirect, cumulative, and synergistic adverse effects on EFH and HAPC. Rogers (1990) states that sedimentation rates of less than 10 mg/cm²/day do not typically produce stress responses in most hard corals, and that chronic rates above this value are considered high. The DEIS correctly points out that this standard is based upon studies conducted in the Caribbean, not southeast Florida, and may not universally apply to all reef communities. However, the sedimentation threshold standard proposed by the County (1.5 mm sediment depth on collectors per day) is based upon a study conducted in Puerto Rico (Kolemainen 1978) and may also have limitations due to geographic differences in natural sedimentation rates. The NMFS believes that the County should proceed with a risk adverse approach and use both Rogers and Kolemainen sediment monitoring methods, as well as various physiological stress indicators, to assess sediment thresholds for soft and hard corals. In this regard, we recommend that coral bleaching and the incidence of coral disease be included as indicators of physiological stress in both nearshore and offshore monitoring plans. Furthermore, there should be triggers incorporated within the construction plan to halt or modify dredging and beach fill placement when these thresholds have been exceeded.

The draft offshore monitoring plan also includes fish population analysis at each of the reef monitoring sites. Although assessment of long-term effects to fish populations from the Broward County Shore Protection Project is needed, the usefulness of fish survey data collected during construction is questionable. Effects of the project on fish populations will likely be more evident after project completion. Therefore, we recommend that emphasis be placed on the assessment of sedimentation and siltation impacts on sessile benthic communities during construction.

Similar deficiencies were noted in the draft nearshore monitoring plan. For example, the draft plan states that monitoring stations parallel to the shore will be surveyed weekly, approximately 300 feet seaward of the ETOF during placement of sand on the beach. It is not apparent why these surveys are proposed this far seaward of the ETOF. In order to evaluate reef impacts seaward of the predicted ETOF, it is necessary for the monitoring plan include areas adjacent to the ETOF. In addition, the draft plan indicates that if excessive sedimentation is observed on benthic organisms seaward of the ETOF, the consultant conducting the survey will recommend immediate appropriate corrective action. The plan does not mention how excessive sedimentation will be assessed or what type of corrective actions would be employed. As discussed above, triggers should be incorporated into the construction plan that would require

specific measures to halt or modify dredging and prevent further damage to the reef system.

The draft nearshore monitoring plan indicates that the hard bottom reef edge will be mapped at one year, two years, and four years after construction. In order to compare actual versus predicted construction toe of fill and to assess additional hard bottom impacts, we recommend that surveys should also be conducted immediately following completion of the project. In addition, it appears that the annual survey at year-three is missing, and should be included in the plan.

In connection with the preceding, we understand the complexities of developing an effective monitoring program for a project of this magnitude. Accordingly, the NMFS would welcome an opportunity to discuss the monitoring program with interested state, county, and Federal agencies.

Mitigation To compensate for adverse impacts to hard bottom communities, the County proposes to construct a 13.6-acre artificial reef using 4-foot-wide or larger limestone boulders. The proposed artificial reefs are expected to provide a 3-foot-vertical relief capable of colonizing and supporting hard bottom communities. To compensate for loss of productivity and habitat availability incurred during the period between elimination and establishment of a replacement hard bottom community, the County proposes to construct 6.0 acres of artificial reef during the spring and/or summer of 2002. The remaining 7.5 acres of artificial reef would be constructed within two to three years following project completion. According to the DEIS, this proposal is expected to provide substrate for colonization of marine organisms approximately six months prior to the start of construction and over a year prior to realization of direct impacts to two acres of hard bottom communities, and approximately one to three years prior to impact to "secondary" impacts to 11.6 acres of hard bottom communities.

Although the proposed mitigation plan may provide substrate for colonization by marine organisms, we do not agree that it adequately offsets expected temporal losses involving hard bottom communities. According to Table 3 of the Mitigation Plan, as provided in the DEIS, 13.5 acres of artificial reefs, described as "Area of Functioning Mitigation," would be deployed prior to any nearshore reef impacts. Page 3 of the Mitigation Plan states "Observations on artificial reefs constructed in Broward County indicate that juvenile fishes begin to settle on reefs within days after construction." In our opinion, this information is misleading and suggests that, because artificial reefs begin to attract fish several days after deployment, it effectively replaces a fully-functioning natural hard bottom reef with an entire flora and fauna composition in just days. Furthermore, Page 171 of the DEIS states that "Replacement habitat will be provided prior to the completion of equilibrium profile transition to compensate for productivity loss associated with reduced growth and settlement rates of stony corals and other epibenthic invertebrate species." Jaap (2000) states that after one or two years coralline algae, sponges, octocorals, zooanthids, and pioneering stony corals begin to settle on barren surfaces; after eight to ten years, a high density of sponges and octocorals with a moderate density of pioneering stony corals will establish. Clearly, this suggests that a replacement hard bottom community will not be fully-functional within days after deployment of limestone boulders, and only a fraction of the full complement of hard bottom organisms would be present after one year. The NMFS recommends that the County

conduct a functional assessment of temporal losses of the hard bottom communities impacted by the proposed project. Calculation of a temporal lag factor should be conducted using appropriate methods, such as the Habitat Equivalency Analysis (NOAA 1995), and included in the mitigation requirements for the proposed project.

Cumulative Effects The cumulative and synergistic effects that may result on a ecosystem level from repeated coastal dredge and fill projects are not well understood. Coral and coral reefs have been identified as EFH-Habitat Areas of Particular Concern by the NMFS and the South Atlantic Fishery Management Council. Pursuant to rules promulgated under the Magnuson-Stevens Fishery Conservation and Management Act to conserve EFH and fishery resources, projects that may adversely impact EFH should be redesigned or relocated to avoid those impacts when alternatives exist. In addition, Executive Order 13089, issued in June 1998, establishes the interagency U.S. Coral Reef Task Force, co-chaired by the Secretary of the Interior and the Secretary of Commerce through the Administrator of National Oceanic and Atmospheric Administration (NOAA). The Executive Order requires Federal agencies to protect coral reef ecosystems to the extent feasible and instructs particular agencies to develop coordinated, science-based plans to restore damaged reefs as well as mitigate current and future impacts on reefs in the United States and around the globe. Examples of coral reef impacts identified in the Executive Order include sedimentation and direct destruction.

Our review of the DEIS indicates a need for a comprehensive cumulative assessment of large-scale dredge and fill projects along the southeast coast of Florida. The subject DEIS does not fully assess the cumulative and synergistic effects that these projects may have on the marine environment. The Cumulative Impacts section of the DEIS discusses anticipated and potential impacts to marine resources due to the proposed project, as well as past and future actions. However, we find that many of the assumptions are poorly supported by the County's data or other science-based information. For example, Page 168 of the DEIS states that "healthy corals are relatively resilient and able to withstand acute pulses of turbidity and sedimentation..." and "...most of the effects of sedimentation upon stony corals should be sublethal." However, information in the DEIS suggests that several nearshore hard bottom areas sampled showed signs of stony coral stresses, including bleaching, disease, bioerosion, and dead coral colonies. In addition, approximately 18 months of dredging proposed within the five offshore borrow areas indicate that turbidity and sedimentation may be characterized as chronic, rather than acute. These contradictions need to be resolved.

Several sections of the DEIS also discuss past beach nourishment projects in Broward County and state that statistically significant effects from turbidity and sedimentation on adjacent reefs were not found (i.e., the 1991, J. U. Lloyd Park and 1995, Hollywood/Hallandale projects). However, turbidity and sedimentation impacts have been reported in several past beach nourishment projects and these should be included in the cumulative effects section of the DEIS. For example, mechanical damage to coral heads within and adjacent to borrow areas has been documented at Hallandale Beach in 1971-1972 and 1979 (Courtenay *et al.* 1974, 1980); seven years after completion of the 1971 Hallandale project, persistent turbidity resulted in visibility of less than two meters in nearshore areas (Courtenay *et al.* 1980); and sediment damage to corals off J.U. Lloyd Park in 1977, resulted from sea conditions and improper loading operations with a

hopper dredge (Britt and Associates 1979). Omission of impacts to marine resources from past projects, particularly those documented within Broward County, indicates that the cumulative effects assessment may be inadequate and the impacts could be substantially greater than predicted.

The DEIS mentions three other proposed beach renourishment projects in southeast Florida that are proposed for construction during the winter of 2003 (i.e. Delray Beach, South Boca Raton, and Mid-Town Beach). The DEIS does not mention other recently completed or proposed projects in the area, such as Diplomat Resort (Broward County); Phipps Ocean Park, Jupiter-Carlin Beach, Juno Beach, North and Central Boca Raton (Palm Beach County); and Haulover Beach, 63rd Street Beach, and Sunny Isles (Dade County). These projects may also contribute to adverse cumulative and synergistic effects to the marine ecosystem of southeast Florida and should be included in the cumulative impact assessment.

Page 174 of the DEIS further discusses cumulative effects and adjacent dredge and fill projects. The DEIS states that "No areas of nearshore hard bottom exist within the Delray Beach project area, therefore no direct or cumulative impacts are expected." It is stated later in that section that "Provided the mitigative reefs function as designed and create suitable replacement habitat, no significant cumulative impacts are anticipated from project construction." The possible cumulative effects of large-scale dredge and fill projects are not limited to burial of hard bottom reefs, and may include such factors as chronic elevated turbidity, disruption of turtle nesting habitats, changes in macro-invertebrate fauna on the beach and borrow areas, and effects on larval recruitment due to chronic turbidity and sedimentation in the water column. An effective assessment of cumulative impacts must include all potential and known significant impacts.

The Cumulative Impacts section also discusses fish assemblages on hard bottom reefs and the use of artificial reefs to compensate for loss of those habitats. Page 180 states from Spieler (2000) that "...reef fish assemblages are recruitment limited..." and "...since the hard bottom in Broward County may be refuge limited, the placement of artificial reefs aimed at increasing juvenile refuge could increase the forage base for game fish..." and "...may also increase the number of game fish." These statements imply that artificial reefs may increase the survival and abundance of juvenile recruits and, consequently, game fish populations. Eklund (1996) found that experimental manipulation of artificial habitat complexity influenced predation rates on juvenile grunts. Consequently, changes in the structural dynamics of nearshore habitats by replacing natural reefs with artificial reefs could increase predation rates of juvenile fish and have significant cumulative impacts on reef fish population dynamics.

Cumulative effects from dredging within sand borrow areas and their associated macro-invertebrate communities may be more extensive and prolonged than has been suggested in assessments for previous beach nourishment projects (USACE 1996). The DEIS states that recolonization of the borrow areas by macro-invertebrates will occur within one to two years after completion of the project. This conclusion contradicts findings by Wilber and Stern (1992), which is also cited in this section of the DEIS. As noted by Wilber and Stern (1992), reexamination of data from borrow areas and reference areas of four beach renourishment projects on the southeast Florida coast (including Hillsboro Beach and Lauderdale-by-the-Sea)

found that changes to the infaunal community structure may persist for 2-3 years or more. Other studies show that decreases in diversity and abundance of the infaunal community in borrow areas were realized for several years following dredging (Turbeville and Marsh 1982; Goldberg 1989). Although the DEIS cites several studies that suggest beach and surf invertebrates recover to pre-nourishment levels within one year after completion of beach fill, a recent study in North Carolina found significant adverse effects on dominant species of beach macro-invertebrates for at least one year following completion of the project (Peterson *et al.* 2000). The cumulative effect of these impacts may be expanded throughout the ecosystem involved since organisms that comprise the affected macro-invertebrate communities are either directly or indirectly consumed by many species of fish and macrocrustaceans (Baird and Ulanowicz 1989).

The cumulative effect from burying large areas of nearshore reef habitat are not well understood. Nearshore hard bottom reefs appear to serve as settlement habitats for immigrating larvae of fish and invertebrates or as intermediate nursery habitats for juveniles emigrating out of nearby inlets (Vare 1991; Lindeman and Snyder 1999). At least eighty-six taxa of fish have been quantified among nearshore hard bottom habitats along southeast mainland Florida, including at least 34 species of juvenile reef fish that may utilize these habitats as nursery areas (Lindeman and Snyder 1999). In fact, the DEIS cites Spieler (2001) as stating that with rare exception, juvenile grunts are not found on the offshore reef tract or the eastern edge of the middle reef in Broward County. In addition, data from Spieler (2001) indicates that 169 species were reported from the nearshore hard bottom reefs and more than 85 percent were juveniles. These and other data support the view that nearshore reefs are important, and perhaps unique, intermediate nursery habitats for juvenile fish and invertebrates.

Based upon the lack of a comprehensive cumulative impacts assessment in this DEIS, and in consideration of the direct and indirect impacts to coral and other hard bottom habitat involving this and other previously authorized activities, a Programmatic Environmental Impact Statement (PEIS) should be prepared for the east coast of Florida. The PEIS should evaluate the cumulative effects of repeated burial of nearshore habitats, and acute and chronic sedimentation and elevated turbidity resulting from offshore dredging and beach nourishment in the Florida east coast region.

Additional Comments:

Cost/Benefits Analysis-Information regarding economic evaluation of the proposed Broward County Shore Protection Project was provided in the General Reevaluation Report (GRR). The GRR indicates that annual costs of the Recommended Plan for Segments II and III are \$4.2 million and \$3.2 million, respectively. The total annual benefits of the Recommended Plan for Segments II and III are \$34.7 million and \$26.0 million, respectively. Included in the project benefits category are recreational improvements provided to the beaches from the Recommended Plan (\$9.1 million and \$12.7 million for Segments II and III, respectively). However, it appears that economic losses resulting from short-term and long-term impacts to marine resources are not included in the project costs category. Direct and indirect impacts to 13.6 acres of hard bottom reefs in Broward County will likely result in economic losses to businesses and individuals who depend upon these resources for income. Residents and visitors of Broward County who fish, snorkel, and dive the nearshore reefs from the shore would not be able to do so during portions of the two year construction period. Following completion of the project, 13.6 acres of the nearshore reefs would be buried and unavailable to these user groups. Likewise, dredges will be

operating during most of the construction period at one or more of the five borrow areas. Considerable turbidity and sedimentation generated from the dredges will likely prevent or restrict fishing, diving, and snorkeling activities on reefs located adjacent to the borrow areas. Broward County participated in and helped fund a socioeconomic study of reefs in southeast Florida (Broward County 2001). The study investigated the net economic value of southeast Florida's natural and artificial reef resources to the local economies and the reef users. The study found a total of 9.4 million person-days of natural and artificial reef use in one year (June 2000 to May 2001) for Broward County. Furthermore, the study determined that reef related expenditures generated \$2.1 billion in sales, \$1.1 billion in income, and provided 35,500 jobs in Broward County in that one year. Although the proposed project would result in short- and long-term impacts to only a portion of the total reefs in Broward County, it is apparent that economic losses will be realized. We acknowledge that the County intends to provide limestone boulders to create artificial reefs as mitigation for burying 13.6 acres of hard bottom. However, it is doubtful that the artificial reefs would provide comparable ecological functions or aesthetic value as the natural hard bottom reefs for several years. Therefore, the NMFS recommends these economic losses be included in the cost and benefits analysis for the proposed project.

Worm reef impacts Approximately one acre of worm reef would be impacted from the beach fill near monument R-103. Worm reef has been designated as EFH and HAPC by the South Atlantic Fishery Management Council. The DEIS does not address compensation for the loss of this important resource in the Mitigation Plan. Although limestone boulders are being proposed to create artificial reefs, we are uncertain if the County predicts worm reefs to form on the artificial reefs or how impacts to this category of EFH and HAPC will be offset.

Coral relocation Page 135 of the DEIS states that some stony corals of "significant" size were observed within the predicted nearshore impact areas and that "very large" colonies of *Montastrea cavernosa* were observed approximately 100 feet seaward of the predicted ETOF. For coral colonies larger than about 5 cm within the ETOF, the Mitigation Plan should include a relocation plan for as many of these corals as possible. Coral colonies that are "very large", but are just outside the ETOF, should be monitored during and after construction to determine whether or not they should be relocated.

Pipeline damage assessment Page 144 of the DEIS indicates that an assessment of hard bottom habitat impacts will be conducted by surveying the corridor prior to placement of the pipeline and following placement of the pipeline. However, a survey also should be conducted following removal of the pipeline to assess damage during dredging operations and removal of the pipeline.

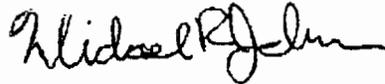
EFH Assessment The Magnuson-Stevens Fishery Conservation and Management Act requires that EFH assessments for projects include direct, indirect, cumulative, and synergistic effects to EFH. We find that the EFH Assessment section of the DEIS does not adequately address potential cumulative and synergistic effects of this and other coastal dredge and fill projects in the southeast Florida coastal area (See comments in the Cumulative Effects section above).

Based on the preceding, we conclude that the DEIS does not adequately address adverse secondary, cumulative, and synergistic effects to EFH, HAPC, and other NOAA-trust resources. This conclusion is primarily based upon incomplete analyses regarding the monitoring program, mitigation, and cumulative effects. These issues should be addressed/resolved through the

National Environmental Policy Act review process and in the Final EIS for the project. In the interim, the NMFS continues to recommend against Department of the Army (DA) authorization of the project as currently proposed. We also retain our option to elevate this matter pursuant to Part IV, paragraph 3(a) and 3(b) of our Clean Water Act 404(q) Memorandum of Agreement (MOA).

We appreciate the opportunity to provide these comments. Related correspondence should be addressed to the attention of Mr. Mike Johnson at our Miami Office. He may be reached at 11420 North Kendall Drive, Suite #103, Miami, Florida 33176, or by telephone at (305) 595-8352.

Sincerely,



FOR Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

cc:
COE, WPB
EPA, WPB & Marathon
FWS, Vero
DEP, Tallahassee & WPB
SAFMC, Charleston
FFWCC, Tallahassee
FSER4
FSER43-Johnson
FSER3

cc:
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FSER3

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FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION



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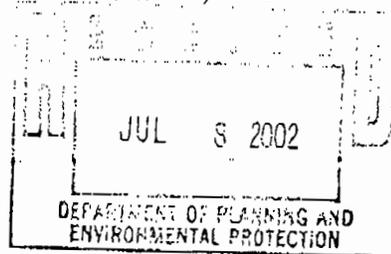
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OFFICE OF ENVIRONMENTAL SERVICES
(850)488-6661 TDD (850)488-9542
FAX (850)822-5679

June 28, 2002



Ms. Cindy Cranick
Florida Coastal Management Program
Department of Environmental Protection
3900 Commonwealth Boulevard
Douglas Building, Mail Station 47
Tallahassee, Florida 32399-3000

Re: INCONSISTENCY DETERMINATION
SAI #FL200205011903C, USACE- Draft
Environmental Impact Statement for the
Broward County Shore Protection Project

Dear Ms. Cranick:

The Office of Environmental Services of the Florida Fish and Wildlife Conservation Commission has reviewed the referenced project, and determined that the proposal addressed on the draft Environmental Impact Statement (EIS) is not consistent with Florida laws on protection of threatened and endangered sea turtles and their foraging habitat.

This project involves the placement of approximately 2.5 million cubic yards of sand along 11.8 miles of Broward County beach in Pompano Beach, Deerfield Beach, John U. Lloyd State Park, Lauderdale-by-the-Sea, Fort Lauderdale, Hollywood, and Hallandale. The berm width varies from approximately 25 feet in Fort Lauderdale to 100 feet in Pompano Beach and Lauderdale-by-the-Sea. Approximately 9 acres of nearshore hard bottom will be lost through direct cover or movement of fill after placement.

The draft Environmental Impact Statement does not consider the impacts of the project on juvenile green turtles that utilize this nearshore hard bottom for foraging. Recent research suggests that the nearshore hard bottom communities along Florida's east coast provide crucial developmental and foraging habitat for juvenile green turtles. Survey work done during the summer of 2001 documented juvenile green turtles utilizing the nearshore reefs in Broward County. Preliminary analyses suggest a positive relationship between the distribution of these small turtles and the algae-covered hard bottom, with up to 95 percent of the juvenile green turtles sighted over hard bottom areas with macroalgae. Other sea turtle species, including juvenile and adult loggerheads, Kemp's ridleys, and hawksbills, also forage in these areas.

As the only primarily herbivorous sea turtle species, the distribution and abundance of green turtles is inextricably tied to the occurrence of their food, marine plants. In addition to inshore seagrass beds, nearshore hard bottom provides one of few foraging areas with an abundance of

Ms. Cindy Cranick
June 28, 2002
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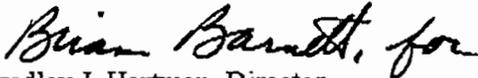
macroalgae, versus the invertebrates such as corals, sponges, and other anthozoans that predominate on deeper reefs. Loss of this important foraging area, and the attached plant species, could have significant negative impacts to the juvenile green sea turtle populations that occur here.

The Florida Marine Turtle Protection Act, Florida Statute 370.12 (1)(c), states that "Take" includes "an act which actually kills or injures marine turtles, and includes significant habitat modification or degradation that kills or injures marine turtles by significantly impairing essential behavioral patterns, such as breeding, feeding, or sheltering." Loss of significant feeding areas for juvenile green turtles could result in the take of these animals. This take must be addressed through a Section 7 consultation with the National Marine Fisheries Service, and appropriate minimization measures, terms, and conditions developed as part of the incidental take authorization for this project. The EIS, as currently drafted, is inconsistent with this provision of Florida Law in that it does not adequately consider or address the loss of up to 9 acres of important green turtle foraging habitat due to the proposed project.

At present, the proposed Broward County Shore Protection Project is not consistent with Florida laws requiring protection of threatened and endangered sea turtles and their foraging habitat. To address this inconsistency, the loss of nearshore hard bottom must be avoided. Alternatively, incidental take of sea turtles due to loss of these foraging areas should be authorized under the Endangered Species Act through a Section 7 consultation with the National Marine Fisheries Commission.

Thank you for the opportunity to comment on this project. If you have any questions regarding these comments, please contact me, or Dr. Robbin Trindell at (850)922-4330.

Sincerely,


Bradley J. Hartman, Director
Office of Environmental Services

BJH/RNT
ENV 7-3

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cc: Mr. Michael Sole, DEP
Ms. Barbara Schroeder, NMFS
Mr. Erik Hawk, NMFS
Mr. Lou Fisher, Broward County
Mr. Jim Antista, General Counsel, FWC



City of
**DEERFIELD
BEACH**

July 23, 2002

Colonel James G. May
District Engineer
U.S. Department of the Army
Jacksonville District Corps of Engineers
PO Box 4970
Jacksonville, Florida 32232-0019

RE: Broward County, Florida Shore Protection Project

Dear Colonel May:

Please forward a copy of this correspondence to all concerned with the above-captioned project to include Mr. Richard Bonner, Mr. James Duck, and Yvonne Haberer and enter it as part of the official record as well.

Several items have been brought to our attention that raises great concern regarding the above-captioned project. On behalf of the City of Deerfield Beach, I request a meeting with you to discuss these issues at your earliest convenience.

1. Requisite Wave Action Study for Borrow Area One has not been completed.

It appears that the local sponsor for this project (Broward County) is moving forward on three simultaneous tracks to accomplish this project (i.e., (1) funding, (2) permitting, and (3) plans and specifications.) This is of great concern to us as we believe the "cart is being put before the horse." As we wrote to Mr. Bonner back in July 2000 and again in August of 2000 and to Mr. Duck again as recently as May 2002, the wave action study associated with Borrow Area One has not been done. We expect that this study will not be completed until September 2002.

Action on this project prior to the completion of this study is inappropriate. Among other things, it may prejudice the EIS and violate the National Environmental Policy Act (NEPA) process.

2. The City of Deerfield Beach should be provided an opportunity to comment on the General Reevaluation Report (GRR) and the Draft Environmental Impact Statement (DEIS).

We have been advised that these two documents (the GRR and the DEIS) were issued in March 2002. However, we do not have a copy. Our keen interest in this project is well known and documented (as indicated by the correspondence noted above). We expected a copy would have been provided directly to us.

We also understand that a public meeting was held to receive comments on the DEIS in the southern portion of Broward County (Hollywood) in April 2002. We were not aware of this meeting. Additionally, we do not believe a meeting in

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Vice Mayor

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Larry R. Deetjen

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Deerfield Beach
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Colonel James G. May
July 23, 2002
Page 2

Hollywood afforded an adequate opportunity for comment from those impacted in the northern end of Broward County (in Hillsboro Beach and Deerfield Beach).

For the record, we believe the issuance of these reports (particularly the DEIS) without the completion of the requisite study on Borrow Area One may prejudice the outcome of the EIS which may be a violation of the NEPA process.

At this time, we are request:

- a) copies of these documents be provided directly to us and we be provided an opportunity to comment on them; and
- b) an official public hearing be held to solicit comments on the DEIS in the northern end of the county (in either Deerfield Beach or Hillsboro Beach).

3. Mitigation efforts may prejudice the EIS and the NEPA process as well.

It has come to our attention that a mitigation document has been prepared and comments on such were due July 12, 2002. For the record, while we have clearly indicated a keen interest in this project, we did not receive a copy of this document.

We request a copy of this document be forwarded to us, and that we be given an opportunity to provide comments.

Again, we submit that action on this project prior to the completion of the EIS may very well jeopardize the NEPA process.

4. The segmented process makes it very difficult to participate and provide meaningful, educated and helpful comments.

It has also come to our attention that there is an extensive file underway with the State of Florida, Department of Environmental Protection (DEP) Bureau of Beaches and Wetlands Systems regarding this project. We note the recently released document entitled "Broward County Segments II and III Shore Protection Project, FDEP File No. JCP 0163435-0001-JCPP, Responses to Request for Additional Information #3, dated June 2002." We are told that this document discusses issues related to the Borrow Areas, yet the City of Deerfield Beach was not included in the distribution of this report.

We are requesting a copy of this specific document from the Florida DEP and request that you not act on this project before we have received this document and have an opportunity to comment on it as well.



City of
**DEERFIELD
BEACH**

Colonel James G. May
July 23, 2002
Page 3

In conclusion, Colonel May, we look forward to the opportunity to meet with you at your earliest convenience to discuss the issues we have raised above. It is our assumption that no portion of this project will be initiated until the above matters have been satisfactorily resolved. Please contact me immediately if you intend to proceed without input from the City of Deerfield Beach.

Sincerely,

A handwritten signature in cursive script, appearing to read "Larry R. Deetjen".

Larry R. Deetjen
City Manager

LRD/ts

cc: David Struhs, Secretary, State of Florida Department of Environmental
Protection
Charles Seaman, Assistant City Attorney

cm/letters/bchnourcorpsmay

July 23, 2002



David Struhs, Secretary
State of Florida
Department of Environmental Protection
3900 Commonwealth Avenue
Mail Station #300
Tallahassee, Florida 32399-3000

RE: Broward County, Florida Shore Protection Project and Any Associated Permit Applications and Documents

Dear Secretary Struhs:

Please forward a copy of this correspondence to all concerned with the above captioned project to include Mr. Mike Sole, Chief, Bureau of Beaches and Wetland Systems.

Several items have been brought to our attention that raises great concern regarding the above captioned project. On behalf of the City of Deerfield Beach, I request a meeting with you to discuss these issues at your earliest convenience.

We refer you to the attached letter to Colonel James May of the U.S. Army Corps of Engineers. To the extent that you can help with the issues raised in items #1 through 3, we would welcome a discussion.

More specifically, however, we request inclusion in the permitting process your Department is pursuing related to this project.

Item #4 of the attached letter to Colonel May refers to a specific FDEP document and file number that discusses issues related to the Borrow Areas for this project. Borrow Area One is directly off our coastline and "borrowing" will surely affect our beaches.

Unfortunately, we do not have a copy of this report or any associated documents or information. We respectfully request a copy of this report and any other documents your Department has prepared in preparation for this project. We would appreciate the opportunity to comment on them.

Secretary Struhs, we look forward to the opportunity to meet with you at your earliest convenience to discuss the issues we have raised about this project.

Sincerely,

Larry R. Deetjen
City Manager

LRD/ts

cc: Colonel James G. May, U.S. Army Corps of Engineers
Charles Seaman, Assistant City Attorney
cm/letters/bchnourfdepstruhs

Mayor
Albert R. Capellini, P.E.

Vice Mayor
Gwyndolen A. Clarke-Reed

Commissioners
Steve Conot
Peggy Noland
Arnadeo Trinchitella

City Manager
Larry R. Deetjen



FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION



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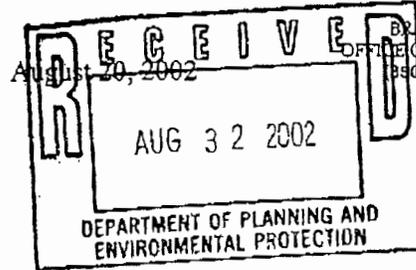
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BRADLEY J. HARTMAN, DIRECTOR
OFFICE OF ENVIRONMENTAL SERVICES
(850) 488-6661 TDD (850) 488-9542
FAX (850) 922-5679

Representative Sobel
Florida House of Representatives
3365 Sheridan Street
Hollywood, Florida 33021

Dear Representative Sobel:

In your 26 July letter to Mr. Haddad, you expressed concern that our letter on turtle issues would hold up the Broward County beach restoration project. I enjoyed talking to you last week about these issues and how I think we have resolved them.

Our concern was that approximately 13 acres of "hard bottom" would be lost as a result of sand drifting seaward from the freshly restored beach. This hard bottom supports large clumps of algae that are eaten by green sea turtles, an endangered species. Surveys by the applicant's consultants confirmed green sea turtles in the near shore area, which further heightened our concerns. The loss of this much habitat could be important to the behavior of sea turtles and we concluded that it would constitute a "take."

We met with representatives of Broward County, their consultants, and DEP staff last Thursday to try to resolve this problem. I think we were successful. Broward County agreed to monitor algae in future surveys and to specifically monitor algae colonization and growth on the mitigation area. In addition, Broward County agreed to conduct a limited study to see if there are ways of enhancing algae colonization of the bare rock being placed in the area and to develop a study on juvenile sea turtles relationship to the near shore community.

We still have some concerns about the impacts of this project on near shore habitat and turtles; however, the proposed mitigation and the specific inclusion of macroalgae as a consideration in the mitigation will reduce the probability of take and allow us to withdraw our finding of "take." This would make the project consistent with state laws.

Please call me (850-488-6661) if I can be of any further assistance.

Sincerely,

Bradley J. Hartman, Director
Office of Environmental Services

BJH/pc
ENV

cc: Mr. Ken Haddad
Mr. Steve Somerville

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION



QUINTON L. HEDGEPEETH, DDS
Miami

EDWIN P. ROBERTS, DC
Pensacola

RODNEY BARRETO
Miami

SANDRA T. KAUPE
Palm Beach

H.A. "HERKY" HUFFMAN
Enterprise

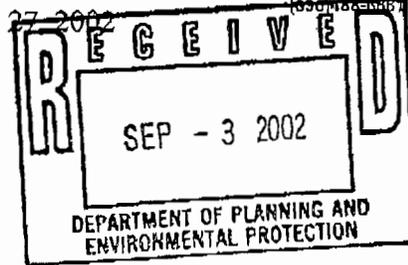
DAVID K. MEEHAN
St. Petersburg

JOHN D. ROOD
Jacksonville

KENNETH D. HADDAD, Executive Director
VICTOR J. HELLER, Assistant Executive Director

BRADLEY J. HARTMAN, DIRECTOR
OFFICE OF ENVIRONMENTAL SERVICES
TDD (850)488-9542
FAX (850)922-5679

August 27, 2002



Mr. Steve Somerville, Director
Broward County
Department of Planning and Environmental Protection
218 SW 1st Avenue
Fort Lauderdale, FL 33301

RE: File Number 0163435-001-JC
Broward County, Segments II and
III, Shore Protection Project

Dear Mr. Somerville:

I enjoyed meeting with you, Broward County staff, and other entities involved in the proposed Segment II and III shore protection project earlier this month. At this meeting, we discussed ways to ensure that no unauthorized take of marine turtles occurs during project implementation. In particular, we discussed ways to eliminate or minimize loss of macroalgal communities on nearshore hard bottom, important foraging habitat for certain marine turtles, due to direct, indirect, and secondary impacts, such as burial by sand during and after construction.

Juvenile green sea turtles are herbivores or plant-eaters and thus require marine plants, such as macroalgae or sea grasses, to survive. Sand placement for the Broward County beach restoration project will result in the loss of nearshore hard bottom areas with dense coverage of marine macroalgae. To ensure that no negative impacts, including take, occur during and after project construction due to loss of these foraging sites, Broward County has proposed to incorporate certain items into their mitigation and monitoring plan, including the following:

1. In your August 19, 2002 letter, you committed to increase the scope of the nearshore hard bottom monitoring plan to include additional parameters for the assessment of algal communities. We recommend that quarterly surveys be conducted on hard bottom areas adjacent to the project and on the mitigation site, as well as on adjacent hard bottom communities that will not be impacted by the proposed nourishment ("control" communities). Such surveys should include a quantitative assessment of percent cover by species, assessment of algal height per quadrat and per species, and amount of sediment within the quadrat prior to sampling. As the basis for most marine food chains in this area, the amount, or biomass, of different algal species present at different times of the year should also be assessed. While long-term

monitoring should be done in replicate quadrats, additional plots should be identified (~ 10 cm X 10 cm) and all material, invertebrate, algae, and sediment, scraped from the surface. This sample should then be sorted to the highest taxonomic level possible and dried to constant weight.

2. Measuring recruitment of macroalgal species can become very complicated. Marine macroalgae occupy space by colonization of propagules from the water column and by asexual spreading of constituent plants. After colonization, the cover observed for any species will be based on that species' ability to colonize and then hold space. This depends both on intrinsic growth rates for the species involved and the impact of key physical (e.g., light, scour, wave action, competition, and predation) factors on that species. For example, numerous studies have determined that, typically, the first macroscopic colonizers on any newly exposed substrate in the marine environment will be short filamentous algae. These plants will then preempt colonization by other plant and invertebrate species, including those that serve as primary food items for marine turtles, unless these initial colonizers are removed by physical or biological factors, such as scour or grazing. The presence of the small grazers, such as mollusks or urchins, that are most likely to feed on these small plants may be limited on newly exposed substrates, thus prolonging the time before other algae (or invertebrates) can successfully colonize the mitigation sites. Our staff will work with Broward County's biologists to further refine the specific questions to be answered concerning recruitment of macroalgae and the appropriate experimental and monitoring methods to address these questions.
3. We expect that the rate at which algal species likely to provide food for juvenile green turtles colonize the mitigation sites can be accelerated by transplanting key species directly onto the mitigation boulders. We discussed this as one option for improving the quality of the mitigation site as a potential foraging habitat. Ideally, this would involve designating experimental areas or sets of boulders that would receive transplanted macroalgae and "control" sites without transplants. Such sites should be monitored fairly frequently immediately after transplanting, perhaps daily for the first 5 to 7 days, then weekly, then less frequently once it is clear the plants are established on the boulders.
4. Documenting algal colonization and abundance on the mitigation boulders will provide some reasonable assurance that important foraging habitats for juvenile green turtles remain in the area after project construction. However, it is also important to determine if these sites are actually utilized for foraging by marine turtles. Thus, the nearshore hard bottom monitoring plan must include the methodology that will be used to assess the distribution and abundance of marine turtles in the mitigation areas both before and after construction. We would not expect incidental observations collected during other monitoring work to be sufficient to address this important item. Visual observations, either from an

elevated station on shore such as the top of a tall building or from surface vessels such as kayaks, might provide the most expedient, least costly method for collecting such information. Dr. Blair Witherington of the FWC Marine Research Institute, who recently conducted a similar set of observations in Indian River County, should be able to assist in the development of these methods.

5. I think everyone in our meeting agreed that more information is needed on the value of these nearshore hard bottom communities for juvenile green turtles. While more detailed scientific assessments of foraging behavior in these habitats may be beyond the monitoring required for this project, in your letter you indicated that Broward County will develop proposals for a research study on the behavior of, and food availability for, juvenile green turtles in the nearshore zone in Broward County. Such studies could include sonic tracking of specific individuals, periodic netting or other census methods. I recommend that Broward County request funding through our Marine Turtle Grants program for such a project. I have enclosed an application form for this program; information and forms are also available at our web site, <http://floridaconservation.org/psm/turtles/grantapp.htm>. While I cannot guarantee that the Marine Turtle Grants Committee will award funding, this does seem like an appropriate use of these grant funds.

At our meeting, we agreed that a combination of these different approaches should adequately address the potential for take of marine turtles in important foraging habitats in the project area. Therefore, by copy of this letter, we hereby notify the Florida State Clearinghouse that, given Broward County's proposed enhancements to the mitigation and monitoring plan as outlined, we have determined this project to be consistent with state laws regarding marine turtle protection.

Thank you for your efforts on this project. Please contact me, or Dr. Robbin Trindell at (850)922-4330, to coordinate on the proposed research, monitoring, and mitigation proposals.

Sincerely,


Bradley J. Hartman, Director
Office of Environmental Services

BJH/RNT
ENV 7-3
a:\broward 8-23-02.doc
Enclosure

cc: Ms. Cindy Cranick, Florida State Clearinghouse
Mr. Mike Sole, DEP-BBWR

Mr. Steve Somerville

August 27, 2002

Page 4

Mr. Steve Higgins, Broward County

Dr. Blair Witherington, FWC

Mr. Gary Appleson, STSL

Mr. Lou Fisher, Marine Turtle Permit Holder



Jeb Bush
Governor

Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard, MS 47
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

September 4, 2002

Department of the Army
Jacksonville District Corps of Engineers
P. O. Box 4970
Jacksonville, FL 32232-0019

Attn: Ms. Yvonne Haberer

RE: U.S. Dept. of the Army, District Corps of Engineers, Draft Environmental Impact Statement Broward County Shore Protection Project, Broward County, Florida
SAI FL200205011903C

Dear Ms. Haberer:

The Florida State Clearinghouse, pursuant to the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. et seq., has coordinated the review of the referenced draft Environmental Impact Statement (DEIS).

In response to the DEIS, the Florida Fish and Wildlife Conservation Commission (FWC) stated that the proposal was not consistent with Florida laws requiring protection of threatened and endangered sea turtles and their foraging habitat. Loss of significant feeding areas for juvenile green turtles could result in the "take" of these animals as defined in Section 370.12(1)(c), Florida Statutes, the Florida Marine Turtle Protection Act. The FWC further stated that the loss of near shore hard bottom should be avoided.

The South Florida Regional Planning Council (SFRPC) recommends the use of buffer zones to protect important benthic resources. The SFRPC further recommends that 1) impacts to natural systems be minimized to the greatest extent feasible and, 2) the permit grantor determine the extent of sensitive marine life and vegetative communities in the vicinity of each project and require protection or mitigation of disturbed habitat. Please refer to the attached SFRPC comments for further information.

At this time, the Department of Environmental Protection (DEP) is also assessing the potential environmental impacts of the project as part of its review of an application for a Joint Coastal Permit (JCP), pursuant to Section 161.041 and Part IV of Chapter 373, Florida Statutes, and Rule 62B-41, Florida Administrative Code. In recent negotiations between DEP, FWC and Broward County, the County agreed to enhance monitoring and mitigation programs with respect to near shore algal communities. Although the nearshore hardbottom monitoring plan in the DEIS includes the determination of percent cover of macroalgae, the County will expand its investigations and reports to include additional parameters. Further, the County will examine the feasibility of transplanting certain algal species onto mitigation boulders and develop proposals for a research study regarding the behavior of juvenile green turtles and the availability of food in nearshore zones in Broward County. For further information, please refer to the attached Broward County comments.

"More Protection, Less Process"

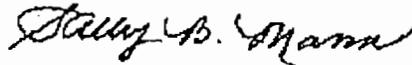
Ms. Yvonne Haberer
SAI FL20020501903C
Page 2

Based on the changes to the monitoring and mitigation plans, the FWC has agreed to withdraw its inconsistency determination. The FWC will provide DEP with the wording of a recommended sea turtle permit condition that reflects the consensus reached on the issues of concern. Please see the attached FWC comments for further information.

The draft EIS should be modified to incorporate the changes in project plans resulting from the state permit negotiations. Although the state has no objections to the project at this time, a federal consistency determination under the Florida Coastal Management Program cannot be finalized until the permit process is complete. Final agency action on the Joint Coastal Permit application will constitute the State of Florida's final consistency decision.

Thank you for the opportunity to review the project. If you have any questions regarding this letter, please contact Ms. Lindy McDowell at (850) 922-5438.

Sincerely,



Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/lm

Enclosures

CC: Roxane Dow, FDEP, Beaches and Wetland Systems
Bradley J. Hartman, FWC
Steven Somerville, Broward County
Natalie R. Sanbe, South Florida Regional Planning Council

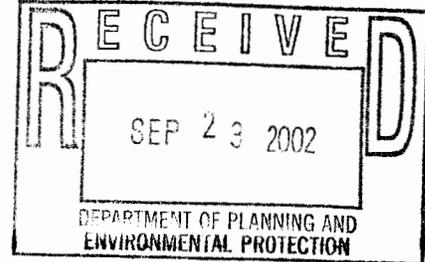


DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

SEP 17 2002

Programs and Project Management Division
Coastal and Navigation Branch



Mr. Larry R. Deetjen
City Manager
City of Deerfield Beach
150 NE. Second Avenue
Deerfield Beach, Florida 33441-3598

Dear Mr. Deetjen:

This is in regard to your letter dated July 23, 2002 concerning future renourishment of the Broward County Shore Protection Project along Segments II and III. The city of Deerfield Beach is located in Segment I.

As you know, this is a reimbursable project that was initially authorized in the River and Harbor Act of 1965. To date, the Federal project has been initially constructed and renourished along Segments II and III by Broward County.

At present, ongoing work consists of review and coordination of the General Reevaluation Report (GRR) and the draft Environmental Impact Statement (DEIS) for renourishment of Segments II and III. The GRR and DEIS were prepared by Broward County. Our Regulatory Division is currently reviewing the Department of the Army permit application from Broward County for renourishment of these segments.

In regard to the issues identified in your letter, the first concerns a wave action study. Our understanding is that this study is being conducted by a consultant to the city and is being underwritten by Broward County. The purpose of the study is to determine if dredging sand from the offshore borrow area fronting Segment I would be expected to cause unacceptable impacts to the adjacent shorefront. Our office will require that the EIS indicate that the city of Deerfield Beach has provided a letter informing our office about the ongoing wave action study. Our office will examine the results of the study when they are made available to us. If the study indicates, and our technical staff confirms, a potential for unacceptable impacts to Segment I, our office will consider appropriate measures to address this.

The second issue identified in your letter concerns the opportunity for the city to comment on the GRR and DEIS. Our office provided a mailing list of addresses for public coordination of the draft GRR and DEIS by Broward County. The address of the Mayor and the City Manager of Deerfield Beach was included in the mailing lists we provided to the county for the distribution of the DEIS. In addition, Mr. Steve Higgins with the Department of Planning and Environmental Protection for Broward County has confirmed that the Mayor and City Manager were provided via the mail, copies of the draft GRR and DEIS on CD's. Mr. Higgins has also indicated that a third copy of the draft GRR and DEIS was hand delivered to Mr. Brad Kane, of the city's Public Works Department on April 9, 2002. Our office sent the draft GRR and DEIS for coordination with Federal and state agencies on April 5, 2002. Our office also sent out the invitations for the public meeting held on April 30, 2002. The Mayor's address was included in the mailing list utilized for the public meeting. Discussion with the county indicates that several city commissioners were personally informed about the public meeting by county officials during the meeting of coastal cities on April 26, 2002.

Our office has requested two additional copies of the draft GRR and the DEIS be provided in order that we can send the copies to you at the address indicated in this letter. The copies will be provided as soon as they are available from the county.

A public hearing is not deemed necessary for the renourishments of Segments II and III at this time. This is because of the public meeting that was held on April 30, 2002. The public was provided notice of the meeting and the opportunity to provide comments at that meeting. County officials have indicated that notice of the public meeting, that was held on April 30, 2002, were published in the South Florida Sun-Sentinel and the Miami Herald on April 20, 2002 and in the Broward Review on April 22, 2002.

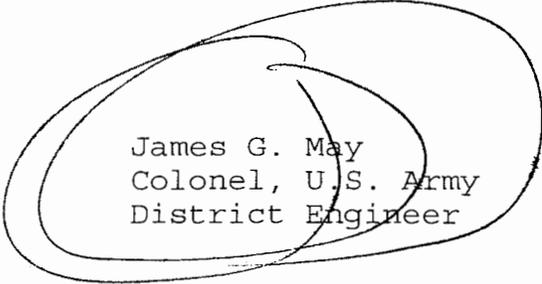
The fourth issue relates to the state of Florida Water Quality Certificate application. It would only be appropriate for the state to provide information regarding this application.

The draft GRR and DEIS are currently scheduled to be forwarded to our higher authority for review and approval on October 11, 2002. The current schedule indicates that the EIS would be filed for inclusion in the Federal Register on, or about, November 29, 2002. Completion of the coordination period for the final EIS would be scheduled for December 30, 2002. Following completion of a Record of Decision for the final EIS in January 2003 and approval of the GRR, a cost sharing agreement would be required to be executed to allow reimbursement of the Federal share of the renourishment costs.

In response to your request for a meeting, we would be glad to hold a meeting either here in our office or, at mutually agreed upon date and location.

If you have any further questions or need additional information, please contact Mr. Charles Stevens, at 904-232-2113.

Sincerely,



James G. May
Colonel, U.S. Army
District Engineer

Copy Furnished:

✓ Mr. Stephen Higgins, Beach Erosion Administrator, Department of Planning and Environmental Protection, Broward County, 218 SW. 1st Avenue, Fort Lauderdale, Florida 33301



DEPARTMENT OF PLANNING AND ENVIRONMENTAL PROTECTION - Biological Resources Division
218 S.W. 1st Avenue • Fort Lauderdale, Florida 33301 • 954-519-1230 • FAX 954-519-1412

September 17, 2002

MEMORANDUM

To: Mayor, Commissioners, and City Manager of the City of Deerfield Beach

From:  Stephen Higgins, Broward County Department of Planning & Environmental Protection

Subject: Presentation Item No. 4, Commission Agenda of September 17, 2002
Deerfield Beach/Borrow Area Wave Impact Study

Broward County and our consultants have completed preliminary reviews of the subject study by Applied Technology and Management. It is our conclusion that the study contains serious flaws. Please reference the attached letter from our team of coastal engineering consultants.

We would be happy to meet with you regarding the subject study at your convenience.

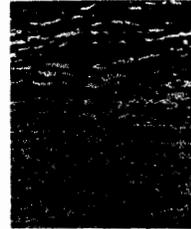
attachment

c: Steve Somerville, Director, DPEP
Eric Myers, Director, Biological Resources Division

Broward County Board of County Commissioners

Josephus Eggleston, Jr. • Ben Graber • Sue Gunzburger • Kristin D. Jacobs • Ilene Lieberman • Lori Nance Parrish • John E. Rodstrom, Jr. • James A. Scott • Diana Wasserman-Rubin
www.broward.org/dpep

MEMORANDUM



Coastal Engineering

TO: Mr. Stephen H. Higgins
CC: Mr. Norman Beumel, CPE
FROM: Christopher G. Creed, P.E.
DATE: September 16, 2002
RE: ATM Borrow Area Wave Impact Study Review

Based upon our preliminary review of the ATM report "Broward County Borrow Area Wave Impact Study" we have concerns with respect to the methodologies, findings, and conclusions presented therein.

Our most significant concern is in regard to the application and interpretation of the REFDIF-1 wave model results. It is widely known in the coastal engineering community that the monochromatic wave model REFDIF-1 is overly sensitive to abrupt seafloor perturbations. This sensitivity is most pronounced when waves propagate near-parallel to the depth contours (such as the shore perpendicular boundary of a borrow site) and where there are sharp discontinuities in the seabed bathymetry (such as at the corners of square or rectangular borrow sites). This numerical sensitivity manifests as an exaggeration of the wave heights and angles downwave of the seafloor disturbance. This commonly results in banding or streaking of the computed wave conditions across the grid. These un-natural banded results require significant smoothing by the modeler to allow meaningful interpretation of the computations. The use of any type of smoothing that does not accurately simulate conditions which occurs naturally can produce uncertain and misleading results. The smoothing method employed in the ATM investigation is not discussed in the report. It is only mentioned that the results were smoothed.

It is likewise known that the US Atlantic Coast wave climate is rarely monochromatic in nature. Rather, it consists of a wide range of various frequencies and directions. This broad spectrum of wave conditions at any give time tends to minimize the downwave effects of a seafloor perturbation compared to the monochromatic wave conditions modeled in the subject study. The REFDIF-1 model does not well represent the diffusive effects of the broad spectrum wave climate typical to the Broward County area.

olsen
associates, inc.

4438 Herschel Street
Jacksonville, FL 32210
(904) 387-6114

Page Two of Three
Mr. Stephen H. Higgins
September 16, 2002

In practice, these problems have been addressed, in part, through the development of spectral wave models. These models simulate the broader spectrum of waves of various frequencies and directions that constitute the offshore wave climate. It is widely acknowledged that the state of the art in nearshore wave modeling, especially along the East Coast of the US, should include the use of a model that considers the spectral nature of the wave climate. If such methodology is not used, the limitations of the model employed should be discussed thoroughly, particularly in the context of the predictions made.

We also have concerns in regard to the reported effect a potential change in the alongshore transport gradient will have upon shoreline change rates. As presented in the report, the computed change in the transport gradient would result in a change in the erosion rate at one point of up to 30 cy/ft/yr. *This would be equivalent to a shoreline change rate of about 40 feet of erosion per year.* It is highly unlikely that in reality such an extreme erosion rate could occur due to the excavation. It is noted that the erosion rate immediately south of Port Everglades (where 100 percent of the littoral transport is interrupted by the inlet) averages about 30 ft/yr at its most severe location.

In their report, the investigators compare the computed transport gradient, from existing and post-dredge conditions, on a point-by-point basis alongshore. A more physically appropriate and meaningful approach is to compare the computed, average transport gradients along greater reaches of shoreline. This is more consistent with prototype scale behavior of the beach. Consideration of this demonstrates that the author's predictions of shoreline changes are significantly over-estimated.

It is our opinion that regardless of the numerical model and computational approaches used in this investigation, a detailed discussion of the limitations of the model and the methods used to post-process and interpret the results is necessary. The absence of such a discussion leads a reader and/or decision maker not familiar with the model and analyses with the impression that the results are *absolute*. They are not.

The report should also acknowledge the shoreline stabilizing effects of the Deerfield Beach groin field which lies landward of the proposed borrow area. Any predictions regarding an increase in shoreline erosion due to the excavation of a borrow area could likewise be misleading if the groin field is ignored. The Deerfield Beach structures would serve to protect that portion of shoreline along which they influence regardless of any modifications to the incident wave climate.

Page Three of Three
Mr. Stephen H. Higgins
September 16, 2002

The present study is the second of two very similar investigations of wave refraction and excavation of Borrow Area I. The 1998 study by Coastal Systems International (CSI) used the same numerical wave model (REFDIF-1) and reached essentially the same conclusions regarding changes in the wave climate. Interestingly however, CSI did not overreach the capabilities of the model by speculating on erosion/accretion rates, instead concluding that the changes in wave climate would not be significant. Monitoring conducted since the 1998 excavation of the borrow site has confirmed CSI's predictions.

In summary, we view the ATM report as inadequate and misleading. The wrong model was chosen to predict the consequences of excavation of the borrow area. The limitations of the model were not discussed, and the conclusions reached by the reporting officers are not supportable by the methodologies. Significant factors which influence the erosion or accretion of Deerfield's beach were not considered. A similar study giving similar results was used in 1998 to justify using the borrow site, and this study was not mentioned in the current report. The conclusions, interpretations, and predictions in the ATM report should be viewed with great caution.

I hope these initial observations in regard to the findings of the borrow area wave modeling will be useful in your discussions with the City of Deerfield Beach and their consultant.

1210 Hillsboro Mile
Hillsboro Beach, FL 33062



Phone (305) 427-4011
Fax (305) 427-4834

January 5, 1998

Ms. Kathryn Cartier
Wetlands Resource Manager
Broward County
Department of Natural Resource Protection
218 SW 1st Avenue
Fort Lauderdale, Florida 33301

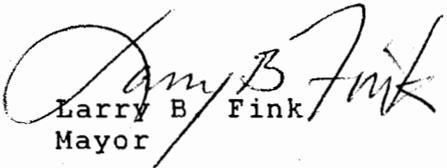
Re: "CONSENT OF USE" FOR BORROW AREA #1

Dear Ms. Cartier:

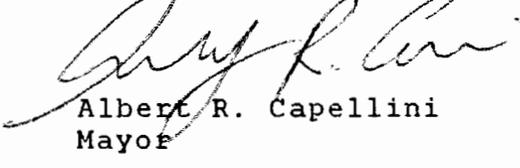
Pursuant to our interlocal agreement dated December 24, 1997 (copy attached), this is to formally provide Broward County with a "Consent of Use" to access Borrow Area #1 for the County's future beach renourishment projects. We understand that you will need this "Consent of Use" toward securing a Department of Environmental Protection submerged lands easement for Borrow Area #1.

Please accept this "Consent of Use" toward securing the necessary Broward County Department of Natural Resource Protection Permit for the Hillsboro Beach/Deerfield Beach Nourishment project. Should you have any questions, please do not hesitate to contact us.

Sincerely,


Larry B. Fink
Mayor

Sincerely,


Albert R. Capellini
Mayor

AMM:jc
cc: Coastal Systems International, Inc.



CITY of HOLLYWOOD, FLORIDA

MARA GIULIANTI
Mayor

October 3, 2002

City Commission
City of Deerfield Beach
150 NE 2nd Avenue
Deerfield Beach, FL 33441

Honorable Mayor and Members of the Deerfield Beach City Commission:

We are very concerned to learn that the Broward County Shore Protection Project may be delayed once again. This project is critical for cities along the Broward coast line. In Hollywood, beach erosion threatens the safety of our visitors as well as the livelihood of our businesses. In fact it is vital, not only to Hollywood but all Broward County that the project moves forward.

A recent study by the Travel Industry Association of America emphasizes the importance of beaches to local economies. They report that nearly 110 million person-trips were made by U.S. households to the beach last year and that families visiting the beach spend an average of \$850 per trip, excluding transportation to their destination. More than one-third (35%) of beach trips last seven nights or more with an average trip lasting 5.9 nights. In addition, beach travelers benefit the local economy by shopping (46% of person-trips), by participating in a variety of outdoor activities (29%), by visiting historical places or museums (23%), and by going to national or state parks (20%).

We certainly understand your concerns regarding the use Borrow Site #1 and we applaud your desire to safeguard Deerfield Beach's resources. However, we must also consider the results of the County's review of the Applied Technology & Management, Inc. Wave Impact Study. Broward's consultant found that significant factors which influence the erosion or accretion of Deerfield's beach were not considered. They also referenced a similar study giving similar results that was used in 1998 to justify using the borrow site (to do beach renourishment in Deerfield Beach and Hillsboro Beach). We urge you to re-evaluate the Wave Impact Study conducted by ATM in order to resolve these issues with Broward County and expedite the beach renourishment project.

2600 Hollywood Boulevard • P.O. Box 229045 • Hollywood, FL 33022-9045

www.hollywoodfl.org

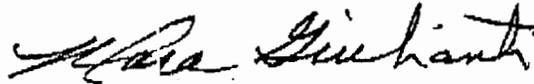
Mayor & Commissioners: (954) 921-3321 FAX (954) 921-3386 • Citizens' Assistance: (954) 921-3239 FAX (954) 921-3268

"An Equal Opportunity and Service Provider"

Deerfield Beach -- Wave Impact Study
October 3, 2002
Page - 2 -

Our cities cannot afford a delay and are anxious to work together for our mutual benefit. We thank you for your consideration. If you have any questions, please contact me at 954-921-3321 or Lorie Mertens, Senior Policy Analyst, at 954-921-3599.

Sincerely,



Mara Giulianti
Mayor

cc: Hollywood City Commission
City Manager
Broward County Board of Commissioners
Broward County Administrator
Beach Erosion Administrator