FINAL REPORT

THE MONITORING AND MITIGATION OF IMPACTS TO PROTECTED SPECIES DURING DREDGING WITH THE HOPPER DREDGE "Northerly Island" AT THE PORT OF MIAMI, FLORIDA.

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Submitted To:

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INTRODUCTION

Coastwise Consulting, Incorporated (CCI) provided monitoring of endangered and threatened species during the dredging operations conducted by Great Lakes Dredge and Dock Company at the Port of Miami, Florida. The most commonly encountered protected species in this area are the loggerhead sea turtle (*Caretta caretta*) and West Indian manatee (*Trichechus manatus*). Several other species less likely to be encountered include the sea turtle species Kemp's ridley (*Lepidochelys kempi*), green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*) and leatherback (*Dermochelys coriacea*). While several cetacean species may be encountered, principally the bottlenose dolphin (*Tursiops truncatus*), none of the activities undertaken by Great Lakes Dredge and Dock Company was expected to have nor did have an adverse effect on cetacean species.

Hopper dredging was closely monitored for indications that any of the listed species has been impacted. This was aided by the fact that GLDD dredges are equipped with some of the most effective screening systems in the industry. The operators of the dredge and the support vessels were thoroughly briefed on manatee behavior and biology, as well as, the mandated modes of vessel/dredge operation in manatee habitat.

Resident manatees in the Miami River population are likely to be joined by migrating manatees during the colder months. Special attention was given to areas where manatees may congregate. Manatees are often found in areas of confluence, where rivers and canals intersect and are often encountered in and around impoundment basins, wharves, sea walls hydro-control gates, etc., where macro-algae proliferates. Concentrations of manatees are attracted to grassbeds and sources of fresh water, such as creeks but which can include water hoses at marinas. GLDD support vessel operators were especially diligent when moving through these areas.

The dredge *Northerly Island* worked at the Port of Miami from 03/23/06 – 04/13/06. During the course of this 20 day project (dredge was at the dock on 04/11 – 04/12), all 71 loads were monitored and no impacts to protected species were documented.

METHODS

The Great Lakes Hopper dredge *Northerly Island* was used for dredging at the Port of Miami. During dredging operations endangered species observers, approved by the National Marine Fisheries Service, provided twenty-four hour monitoring of impacts to endangered and protected species, particularly sea turtles.

Rigid turtle deflectors were installed on the dragheads before work began and all points of inflow were screened before the observers board the dredge. Inflow occurs on the Great Lakes *Island* dredges at the end of four pipes, two of which empty into the forward section of the hopper, port and starboard, and two of which discharge at the aft end of the hopper, port and starboard. Cages are attached directly to the ends of the discharge pipes and are constructed of steel bar-stock, welded in a grid pattern, with openings of approximately 4" x 4". Observers gain access into the top of these cages through hinged trap doors. The aft walls of the cages are hinged and can be opened by hydraulic rams in order to clear the cages of debris after inspection by observers.

Observers cleaned and inspected this screening, around-the-clock, in order to document any evidence of turtle take. Before cleaning and inspecting the screens, the observers checked the dragheads and turtle deflectors. Load sheets were completed at the end of each load cycle, detailing everything found in the screening or the dragheads, as well as the condition of the screens and the deflectors. Also recorded was the start, end and pump times for each load, the specific location of the dredging area, the type of material being dredged, weather, tide and water temperature data (surface and mid-depth), and any other pertinent information.

Observers maintained a bridge watch for protected species and noted all sightings of turtles and marine mammals. All sightings were summarized on the Daily Reports. Sightings data included date, time, location, species, number of animals, distance and bearing from dredge, direction of travel and any other information available. Daily Reports and Weekly Summaries were filed with Great Lakes.

Had there been a turtle take or suspected take, observers follow the following protocol: Photograph and measure samples. Samples which are not positively identified are frozen in the ship's freezer for later analyses. Samples are then sent ashore to be handled by the local Sea Turtle Salvage and Stranding Network (STSSN). A small piece of tissue from all turtles taken will be preserved in DMSO for later genetic analyses (see Appendix 1). Injured but living turtles are delivered to a facility that can provide rehabilitation to injured turtles.

RESULTS

The *Northerly Island* was on site from the beginning of the project on 03/23/06, to the end of the project, 04/13/06, a total of 20 days (dredge was at the dock on 04/11 – 04/12). Over the course of these 20 days the water temperature ranged from 20.0° C – 23.3° C. No evidence of turtle take, or any other impact to protected species, was documented. We are confident that this result is accurate. The screening was well constructed and maintained and the GLDD personnel on the *Northerly Island* and shore-side were always cooperative and proactive regarding the work of the observers.