FINAL REPORT

THE MONITORING AND MITIGATION OF IMPACTS TO PROTECTED SPECIES DURING BEACH RESTORATION DREDGING AT CAPTIVA AND SANIBEL ISLANDS, FLORIDA

Submitted To:

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INTRODUCTION

Coastwise Consulting, Incorporated (CCI) assisted Great Lakes Dredge and Dock Company (GLDD) in the formulation and implementation of all measures necessary to protect wildlife resources, especially endangered and threatened species, during dredging operations for beach restoration at Captiva and Sanibel Islands, Florida. The most commonly encountered endangered or protected species in this area are the loggerhead sea turtle (*Caretta caretta*) and West Indian manatee (*Trichechus manatus*). Several other protected species that may be encountered include the Kemp's ridley (*Lepidochelys kempi*), green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*) and leatherback (*Dermochelys coriacea*) sea turtles, as well as the recently listed small-tooth sawfish (*Pristis pectinata*).

While several cetacean species may be found in this area encountered, principally the bottlenose dolphin (*Tursiops truncatus*), none of the activities undertaken by Great Lakes Dredge and Dock Company had an adverse effect on marine mammals, although precautions weretaken regarding manatees. The hopper dredges *Manhattan Island* and *Dodge Island* were closely monitored for indications that any of the listed species had been impacted. The operators of all dredges and support vessels were thoroughly briefed on manatee behavior and biology, as well as, the mandated modes of vessel/dredge operation in manatee habitat.

The *Dodge Island* worked from 09/03/05 – 01/30/06, 143 days*
The *Manhattan Island* worked from 10/02/05 – 01/31/06, 115 days *
No turtles were taken during the course of this project.
No other impacts to protected species were observed.

*Total dredge days do not include 10/20/05 – 10/26/05 when both dredges were docked for a hurricane. A total of 258 days were dredged without a turtle take.

MONITORING

The hopper dredges *Manhattan Island* and *Dodge Island* were used for dredging and placing sand on beaches at Captiva and Sanibel Islands. During dredging operations, endangered species observers, approved by the National Marine Fisheries Service, lived aboard the dredges, providing 24-hour monitoring of impacts to endangered and protected species, particularly sea turtles. Observers provided the crew with educational information on turtles, manatees and small-tooth sawfish.

Rigid turtle deflectors were installed on the dragheads before work began and all points of inflow were screened before the observers board the dredges. Inflow occurs on the *Manhattan Island* and *Dodge Island* 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. These dredges are equipped with some of the most effective screening systems in the industry.

Observers cleaned and inspected this screening after each load, around-the-clock, in order to document any evidence of turtle take. Before cleaning and inspecting the screens, the observer 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 will kept a logbook of all sightings of turtles and marine mammals. The bridge watch logbook noted 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 GLDD.

In the event of a turtle take or suspected take, the observers would have measured and photographed the samples involved. Samples not positively identified would be frozen in the ship's freezer for later analyses. Positively identified samples are usually sent ashore to be disposed of at the direction of members of the local Sea Turtle Stranding and Salvage Network. Injured but living turtles are driven to Sea World or such a facility that can provide rehabilitation to injured turtles. The turtle are secured in a cooler, which will be lined with moistened padding. Every effort is made to maintain a relatively constant temperature in the cooler during transport. That temperature approximates the columnar water temperature where the turtle was taken. All turtles taken by dredges are sampled for genetic analyses.

No turtle takes were documented on this project.

RESULTS

The hopper dredges and *Dodge Island* and *Manhattan Island* worked on this project for 258 days, excluding days at the dock for weather. A total of 756 loads were placed on the beaches at Captiva / Sanibel (*Dodge* 415; *Manhattan* 341). The water temperature was approximately 30° C when the *Dodge* began digging on 09/03/06. It dropped steadily to a low of approximately 17.7° C on 01/08/06 and rose to 18.8° C when the project ended on 01/31/06.

No turtles were taken during this project. By-catch collected by the screening was light, consisting of whelk and conch shells, an occasional live whelk, a few flounder, various crabs, sea stars and skates. Bottlenose dolphins (*Tursiops truncatus*) were the only marine mammal species seen from the bridge of the ships and only one turtle, a leatherback (*Dermochelys coriacea*), was documented. It was seen from the *Manhattan Island* on 01/30/06.

Bottom-line: 258 “dredge days”, 756 loads placed, no turtles taken.

DISCUSSION

Monitoring for the Captiva / Sanibel project went smoothly, owing to the responsive nature of GLDD shore-side personnel and the dredge crews. Observers were always provided with the resources and support they needed. The dredge captains, mates and dragtenders deserve mention. They diligently maintained dredging protocols that ensured draghead and dredge pump operation were unlikely to entrain sea turtles (i.e., dragheads firm on the bottom whenever pumps were cycled up). This was important to our success on this project.