

KISSIMMEE RIVER RESTORATION - 13B

CLIENT	USACE, Jacksonville District
LOCATION	Okeechobee County, FL
VALUE	\$18.2 M
DATE	August 2008 - February 2010
SAFETY	Zero OSHA Recordables



Historically the Kissimmee River meandered approximately 103 miles from Lake Kissimmee to Lake Okeechobee through a 1-2 mile wide floodplain. The river and its flanking floodplain consisted of a mosaic of wetland plant communities and supported a diverse group of waterfowl, wading birds, fish, and other wildlife. The historic Kissimmee River was hydrologically unique among North American river systems in that it had prolonged periods of extended floodplain inundation.

Between 1962 and 1971, the river was channelized and two-thirds of the historical floodplain was drained. Excavation of the canal and placement of the spoil material destroyed one-third of the river channel. Implementation of the Kissimmee Flood Control project led to drastic declines in wintering waterfowl, wading bird and game fish populations, and the loss of ecosystem functions.

The project area covers 3,000 square miles, stretching from the southern Orlando area south to Lake Okeechobee. Restoration is divided into the Upper Basin (referred to as the Kissimmee Headwaters Revitalization Project) and the Lower Basin (referred to as the Kissimmee Restoration Project). The river's upper basin includes the Upper Chain of Lakes and extends south through Lake Kissimmee to State Road 60. The lower basin includes the area from Lake Kissimmee to Lake Okeechobee.



The Kissimmee River Restoration project is intended to restore over 40 square miles of river and floodplain ecosystem including 43 miles of meandering river channel and 27,000 acres of wetlands. Restoration efforts will re-establish an environment conducive to the fauna and flora that existed there prior to the channeling efforts in the

1960s. The following are the Corps's goals and objectives to restore the ecological integrity of the damaged ecosystem:

- re-establish historic hydrologic conditions
- recreate the historical river/floodplain connectivity
- recreate the historic mosaic of wetland plant communities
- restore the historic biological diversity and functionality

In August 2008, NorthStar Infrastructure & Environment, Inc. (NorthStar) was awarded a contract with the U.S. Army Corps of Engineers, Jacksonville District for the Contract 13b, Reach 4 Backfill. This project consists of backfilling 19,300 feet of the C-38 canal from the southern end of Avon Park Bombing Range (station 19800+00) to station 2173+00. Approximately 21,000 feet of new and existing river oxbows are being dredged. An earthen plug is being placed at station 2156+00 where an existing oxbow connects with the C-38 canal. Access to the site required the construction of a temporary road with a minimum crest width of 30 feet and a minimum embankment height of 3.5 feet with 1 to 4 side slopes.



Our general scope of work includes: Clearing and grubbing, Gopher Tortoise relocation, Turbidity monitoring, Access road construction, Construction of a temporary culvert crossing, Fence installation, Excavation - Oxbow excavation/dredging involving 640,000 cubic yards through wetlands in order to construct 28,000 feet of new oxbows. In addition a spoil mound was degrading and used to backfill the C-38 canal and degrading and transportation of 850,000 cubic yards of material.

Dredging and excavation tasks - Construction of the new oxbow through the Kissimmee River Flood Plan involved dredging and degrading a 112 feet wide with side slopes at 3H:1V and the bottom of the oxbow was constructed 40 foot wide. The primary depth of this new river oxbow was approximately 12 feet deep. The oxbow was constructed to a length of 27,620 lf with excavation quantity roughly 640,000 cubic yards.

To facilitate these operations the following construction sequence was followed:

- Construct a 500 feet wide by-pass sufficient to handle dry season flow in canal C-38 (Kissimmee River).
- Plug C-38 canal and divert flow through by-pass, C-38 is 300 feet wide.
- Install crossing plugs in C-38
- Clearing and grubbing oxbow foot print
- Oxbow excavation by Mechanical excavation and hydraulic dredging
- Remove oxbow plugs to accept flow through the new oxbow

NorthStar utilized the following equipment during mechanical dredging operations, as well as excavation and degrading material: 3 Cat 745 excavators and 1 Cat 330 excavator, 15 Cat 730 off road dump trucks, and 5 Cat D-6 N LGP dozers along with support equipment and maintenance/fuel trucks.

During hydraulic dredging activities, which occurred simultaneously during mechanical dredging, the following equipment was utilized: DMC dredge with cutter suction with swinging ladder and spud carriage, 475 HP Caterpillar 3408 power unit to operate dredge, 32" impeller, cutter is a elongated basket cutter with six vane blades equipped with removable cutter teeth and pitch sheath powered by a 45 hp gear hydraulic motor, 3,500 feet of discharge hoses with floats, and Fuel barge/Work boat. In total approximately 115,000 cubic yards of material was dredged to create the oxbow.

