



October 2008

PARTNERS: The U.S. Army Corps of Engineers, the County of Orange, the California Department of Fish & Game, the California Coastal Conservancy, and the City of Newport Beach are serving as the federal, state and local partners to restore and enhance Upper Newport Bay's ecosystem.

CONSTRUCTION STATUS: The Corps of Engineers' construction contractor, DD-M Crane & Rigging began construction activities April 2006. Areas of construction include sediment basins, restoration channels around islands, wetland restoration areas, and island creation/improvement. Estimated completion of current work is early 2009.

Sediment Basins. In order to meet current TMDL limits, the two sediment basins have been sized for a capacity to capture incoming sediments, such that the need for maintenance dredging will be based upon a 21-year cycle. The access channel to the Unit II Basin was dredged during April 2006. The access channel within the Unit II Basin and the New Least Tern Island Pit has been dredged. The clamshell dredge DB-3 finalized dredging sediments from Unit II Basin in December 2007. Portions of Unit I/III Basin have been incrementally dredged as funding has become available. The 10-inch hydraulic cutter suction dredge removed a portion in March 2007, and the clamshell dredge DB-3 continues to finish the contracted portion of Unit I/III. The sediment basins are being deepened to about -17 feet MLLW and the access channels are about 100 feet wide and about -11 feet MLLW in depth. By October 2008, approximately 390,000 cubic yards have been removed from the Unit I/III Basin. Additional sediment removal will continue to the end of 2008.

Restoration Channels. The islands in the Upper Bay are nesting areas for endangered species. The channels surrounding the islands had shoaled and needed restoration to depths to help isolate the islands from predator access during low tides. The depth of the side channels are about -2 feet MLLW and have varying widths. The side channels around Middle Island, Shellmaker Island, and New Island were dredged from May 2006 to July 2006. The Hotdog Tern Island Restoration Channel was completed in April 2007. Cleanup of areas in Middle Island and Shellmaker Island will be performed in October 2008, with the use of an Amphibious Excavator.

Wetland Restoration Areas. Years ago, prior construction activities disposed of the dredged material on top of mudflat areas. This project includes removal of some of these materials to restore the area to mudflat again. Shellmaker Island and 23rd Street wetland restoration areas have all been restored to mudflat. 23rd Street will have additional work to allow the wetland to drain properly. Additionally, Bullnose West is a restoration area converting salt panne habitat to mudflat in an effort to reduce the overall mudflat loss from the project.

Least Tern Island Creation/Improvement. Hotdog Tern Island required resurfacing in order to become a more viable habitat for the California Least Tern, an endangered species. Clearing the vegetation, grading of on site materials, and placement and grading of coarser-grained sand cap was performed and completed in April 2007. Construction of the New Least Tern Island has been completed April 2008, using materials from the wetland restoration sites. The New Least Tern Island is located adjacent to the main dike next to Basin II.

Material disposal. The majority of dredged sediments are being disposed offshore at LA-3, with the use of towed disposal barges. Two 1,000 cubic yard scows and one 3,000 cubic yard scow are currently being utilized for disposal operations. The disposal barge moorage area previously located immediately south of Harbor Island has been relocated to deeper water west of Harbor Island. The Lower Bay moorage area will continue to be used, but less frequently, to accommodate the disposal barges as they await appropriate tide levels to transit upstream to the Upper Bay work area. By October 2008, about 1,300,000 cubic yards of material have been removed from the Upper Bay by the dredging of the access and side channels, sediment basins, and wetland restoration areas. The dredged material removed from the bay has been placed either at the LA-3 ocean disposal site, located 5-miles southwest of the entrance to Newport Harbor, or nearshore. Nearshore disposal operations are complete and any additional placement outside the bay will be at LA-3. Additional material has been moved from wetland restoration sites and placed in bay for island construction and improvement. Material from Shellmaker Island and 23rd Street Wetland Restoration areas were used to construct the New Least Tern Island.

FEATURE BENEFIT: The dredging of the side channels around Middle Island, Shellmaker Island, New Island, and Hotdog Tern Island will increase habitat for aquatic species, improve tidal circulation and help isolate the islands from terrestrial predators. Some of the predators that we are trying to isolate from the islands are raccoons, dogs, cats, coyotes, foxes, skunks, weasels, opossums, and rats, all of which can be detrimental to nesting birds. These channels were designed to be deepened to minus 2.23-ft MLLW, which is a depth that will provide at least two feet of water in the side channels during average low tide. Dredging of the Unit II Basin will allow for the capture of sediments discharged from San Diego Creek which currently find their way to the Lower Bay, and which settle in other areas within the Upper Bay resulting in unwanted habitat changes. At the beginning of the restoration project, both of the sediment control basins, Unit II Basin and Unit I/III Basin, were at capacity and were no longer functioning as sediment catch basins. To date, Unit II Basin has been dredged to function again as a sediment catch basin.

QUESTIONS AND ANSWERS



Typical sign posted at Restoration Channels and hawk. Note: Birds only past this point. Photo by Andrew Hunt, DD-M, 7 October 2006

Question #1: There are signs posted prohibiting boaters, canoeists and kayakers from proceeding beyond the disposal barge within the Upper Bay (Back Bay). Why is this prohibition in place and will there be opportunities in the future for water craft to visit areas in the Upper Bay upstream of dredge operations?

Answer #1: For safety reasons, water craft in the Upper Bay (Back Bay) need to remain downstream of the disposal barge. The submerged pipeline leading from the dredge platform to the disposal barge can at times unexpectedly surface, potentially causing harm to water craft floating above the pipeline. Prohibiting boaters, canoeists and kayakers from transiting upstream of the disposal barge will eliminate this hazard to water craft. However, restricted boating access to the Upper Bay (Back Bay) is permitted during times the dredge contractor is not scheduled to work, normally on Sundays and holidays. These restrictions generally include: 1) boating is limited to non-motorized water craft and a 5 MPH speed limit; 2) boating is permitted in the main channel up to the Main Dike (Top of Unit II Basin); and, 3) boating is not permitted in side channels or anywhere from the Main Dike to Jamboree Road. Additionally, guided group tours of the Upper Bay (Back Bay) are allowed upstream of the disposal barge during operating hours for the dredge, only if the tour group has obtained a permit from the California Department of Fish & Game for transit, and adheres to the protocol of notifying the dredge platform on Channel 82 upon approach to the dredge and/or disposal barge.



DB-3 dredging Unit II Sediment Control Basin, 29 August 2007



View inside scow being loaded with sediment for disposal at LA-3, 8 June 2007

Question #2: What is the equipment in the Unit II and Unit I/III Basin?

Answer #2: DD-M Crane and Rigging has brought in a clamshell dredge to deepen the Sediment Control Basins. The clamshell dredge began dredging on September 15, 2006. Materials are placed in either a 1000, 1500 or 3000 cubic yard scow, and hauled and disposed of at LA-3 Ocean Disposal Area. The hydraulic cutterhead suction dredge will continue to be utilized for various parts of the construction.

Question #3: What is happening to the open space area off Constellation Drive?

Answer #3: This area is referred to as 23rd Street Wetland Restoration Area. In the 1960's, dredged material from Basin II was placed upon mudflats in this area and the project includes restoring part of this area to original mudflat. The mudflat area has been restored, and additional work is scheduled to construct a water channel which will allow the mudflats to drain completely at low tide.



23rd Street Wetland Restoration, Photo by Andrew Hunt, DD-M, January 2008



23rd Street Wetland Restoration, Photo by Jay Grandon, October 2008

Question #4: What kinds of controls are used to monitor the scows that are hauling material out to the ocean disposal site LA3?

Answer #4: Each scow is inspected and tested before being used for this project to ensure no material is lost during transportation to the disposal site. Each scow is inspected for hull integrity and the proper operation of hydraulic systems that control disposal.

Draft marks located on the side of the hull of the scows are recorded prior to departure from the dredge site and again prior to placement. In order to safeguard against dredge material overflowing into the ocean and bay during transit to the disposal site, the scows are only loaded to 80% of capacity. The towboat operators are provided with charts to and from the disposal areas. Sea conditions are reviewed prior to each placement trip to ensure that scows can safely make the trip without losing any material. Strict guidelines on acceptable weather and sea conditions are prescribed to avoid potential overflow outside of the designated disposal area.

Prior to the start of a disposal run, a scow certification checklist must be filled out and signed by the contractor. No scow is permitted to depart for the disposal site until disposal requirements have been met.

The tug towing the scow (the tow tug) is equipped with a Differential Global Positioning System (DGPS). The DGPS is interfaced with navigational software to create a visual display of the placement site and the position and route to and from the dredge area.

Additionally, there is an automated tracking system present on each scow. This is a “black box” system that operates independently of the tow tug’s systems and cannot be accessed by the tow tug’s crew. A DGPS position is interfaced with Noble Tech & E-Trac Engineering tracking software to create a visual display of the placement site and the position and route to and from the dredge area. The system also includes draft-sensing devices that measure and record the draft of the scow. The tracking system is programmed to monitor the position, draft, and track-line history of the scows from the start of the disposal trip through the disposal episode and back to the dredge area. This information is provided to the construction team. This is a real time tracking system that allows the Corps to monitor the performance of each scow trip as it happens and also keeps a record of each scow trip for further analysis. An example plot from one of the projects disposal events follows this explanation.

E-Trac Engineering is contacted immediately when any problems with the tracking system is noticed for prompt repairs. The system includes alarms for changes in draft that could indicate a leaking scow and for disposal outside the authorized disposal site. These alarms are automatic and trigger email alerts to the Corps and USEPA.

A scow that is found to be losing material during transit shall be removed from the project and repaired before it is allowed to return.

Three figures follow, showing plots of the tracking system from one scow trip, the 3000 Cubic Yard DS6 on the date of September 16, 2006. The first plot shows the track from the bay to the LA-3 disposal site (note that there are two circles, the larger circle depicts the location of LA-3 that is no longer used, and the smaller circle is the current target). The second plot shows a detail of the LA-3 target disposal zone (the circle) and the dots indicate where the scow was located when materials were being bottom dumped out of the scow. The third plot shows the draft of the scow as it transits out of the bay to the disposal zone. The measurement fluctuates due to motion upon the water, but shows the same draft at the beginning of disposal as at the beginning of transit. This implies that the scow is not leaking material. When disposal occurs, the graph documents the 7 to 8 feet of change in scow draft.



Trip:	73			
Scow:	DS6			
Transit Start:	16-Sep-2006 11:18:19	AFT DRAFT (ft) =	11.4	
Begin Disposal:	16-Sep-2006 13:20:10	AFT DRAFT (ft) =	11.4	
Post Disposal:	16-Sep-2006 13:23:22	AFT DRAFT (ft) =	3.7	

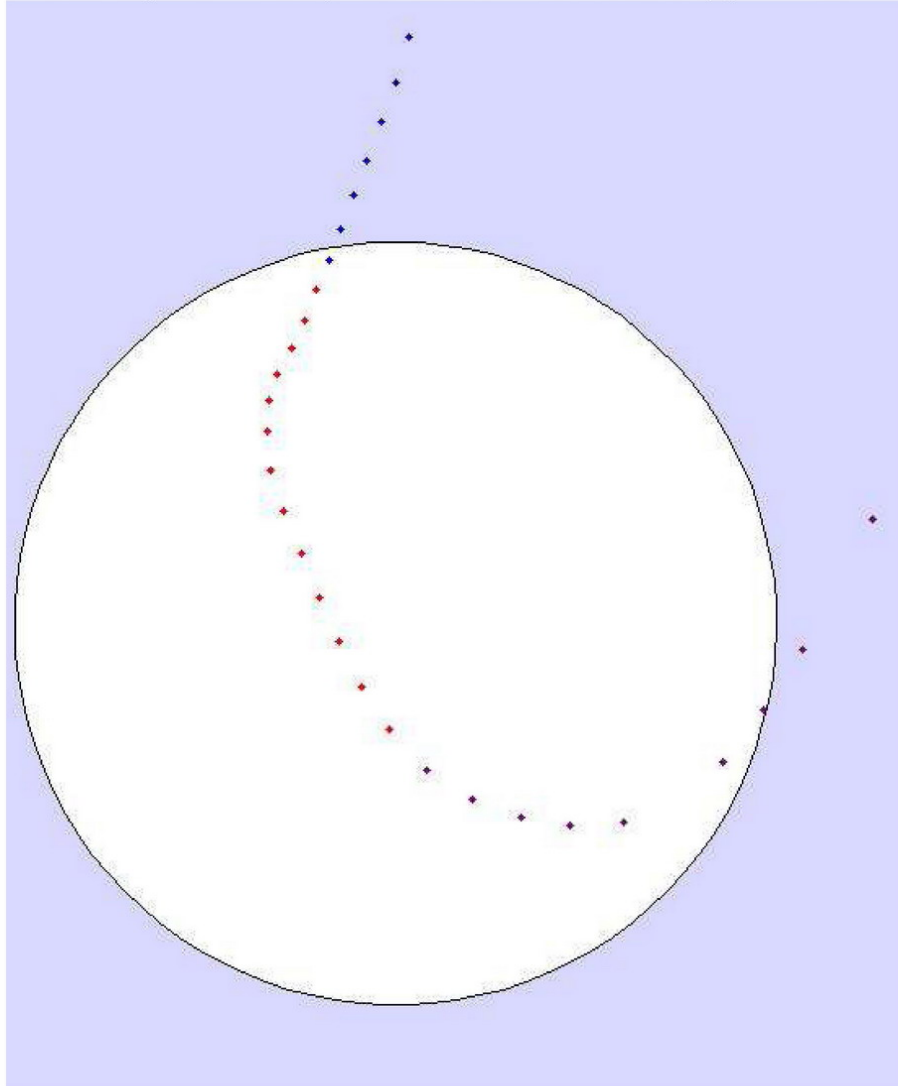




Upper Newport Bay Ecosystem Restoration Project

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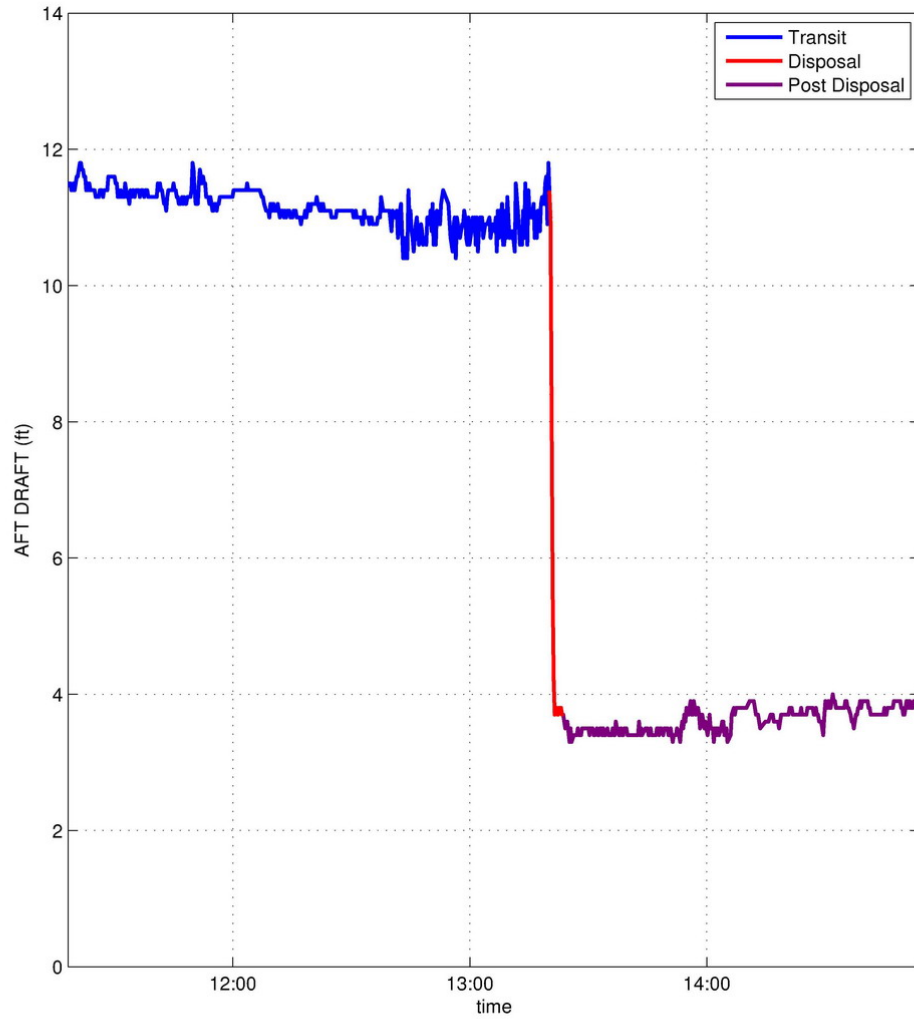




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Question #5: What is that unusual piece of equipment seen sometimes in Middle Island and Shellmaker Island Restoration Channel, and in the future, at 23rd Street Wetland Restoration Area?

Answer #5: This piece of equipment is an amphibious excavator, an excavator mounted on two pontoons with tracks. The equipment is useful for working in areas subject to tide. It will float; however, operation is expected to be when the tide is no higher than 3 or 4 feet, when the pontoons will still have some contact with the existing surface.



Amphibious Excavator, photo courtesy of DD-M and Cooper's Crane.

Amphibious Cat 322BL Long Reach Excavator with: The machine is 34' long, 18' wide, 13' tall and the ground pressure is 2 psi; 60' of reach; 3/4 cubic yard bucket; 5'x5'x31' pontoons



Amphibious Excavator working in Middle Island Channel, photo by Jay Grandon, October 2008



Amphibious Excavator working in Shellmaker Island, October 2008

OTHER CONSTRUCTION PICTURES



Dredging Hotdog Tern Island Restoration Channel and resurfacing Hotdog Island, Photo by Keane Biological, March 2007



Construction Equipment and temporary bridge, Hotdog Island, Photo by Keane Biological, 15 March 2007



Hotdog Island with beginning of sand capping, Photo by Keane Biological, 3 April 2007



Hotdog Island with sand capping completed, Photo by Keane Biological, 28 April 2007



Hotdog Island chick shelter tiles placed, Photo by Keane Biological, 28 April 2007



Aerial View Bullnose West Wetland Restoration, August 2007



Hydraulic Dredge "Pelican" dredging Middle Island Restoration Channel, May 2006



New Least Tern Island, Photo by Jay Grandon, October 2008

WEB SITE: For additional information on the Upper Newport Bay Ecosystem Restoration project please go to one of the following web sites:

<http://www.city.newport-beach.ca.us/UpperBayProject.html>

<http://www.spl.usace.army.mil/uppernewport.htm>

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