



March 2010

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 contract "Recovery – Upper Newport Bay Ecosystem Restoration Phase 2" was awarded to RDA Contracting on 25 September 2009, and construction activities began on 22 November 2009. The prior Corps of Engineers' construction contractor, DD-M Crane & Rigging began construction activities April 2006 and continued until July 2009. Areas of construction include sediment basins, restoration channels around islands, wetland restoration areas, and island creation/improvement. Estimated completion of current work is early 2011.

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. Under Phase 1 contract with DD-M, approximately 661,800 cm (865,600 cy) were removed from Unit II Basin and approximately 377,300 cm (493,500 cy) were removed from Unit I/III. January 29, 2010, RDA Contracting began removing sediment from Unit I/III Basin with CB-3 Excavator 2 cubic yard bucket, loading the material into dump scows and hauling the materials out to LA-3. Approximately 196,000 cy have been removed to date.

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 was performed in October 2008, with the use of an Amphibious Excavator. From 6 to 26 January 2010, RDA Contracting dug the New Least Tern Island Channel around the New Least Tern Island with the 10-inch hydraulic dredge "Pelican".

Wetland Restoration Areas. Years ago, prior construction activities disposed of the dredged material on top of mudflat areas. This project includes removal of materials at Shellmaker Island and 23rd Street and mudflats have been restored to these areas. Additionally, Bullnose West is a restoration area which converted salt panne habitat to mudflat in an effort to reduce the overall mudflat loss from the project. In December 2009, with an amphibious excavator, operations began to clear and grub Skimmer Island. Skimmer Island was already replaced by New Least Tern Island, and Skimmer Island will become partly Unit I/III Basin and partly mudflat.

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 was 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 dump scows. The predominate scows utilized for disposal operations are the 2,228 cubic yard scows, the 260 and 261. These scows are 197 feet long and 45 feet wide. The molded deck from the deck to the bottom of the hull is 16 feet. The overall hopper length is 136.7 feet. The width of the hopper is 35 feet. Alternate scows utilized occasionally are the 1500 cy scows Clarence and the Harold. Scows of different sizes may be utilized throughout the project duration. 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, as infrequently as possible, to accommodate the disposal barges as they await appropriate tide levels to transit upstream to the Upper Bay work area. Under the Phase 1 project, about 1,580,000 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. All activities associated with this project that occur near endangered species nesting areas will be monitored daily, as they were during Phase 1.

UPPER NEWPORT BAY ECOSYSTEM RESTORATION PROJECT
 April 2006 to July 2009
 PHASE 1

FEATURE	START	FINISH	Volume Removed CM	Placed LA-3 CM	Placed Nearshore CM	Placed NLTI/Pit CM	Hotdog Tern Island
Access Channel Between PCH and Unit II Basin	Apr-06	May-06	5,800	5,800			
Northstar Beach Wetland Restoration	Feature not built per County request		NA	NA			
Shellmaker Island Wetland Restoration	Feb-07	May-08	39,400	0		33,700	5,700
Shellmaker Island Restoration Channel	May-06	Jun-06	9,700	9,700			
Middle Island Restoration Channel	May-06	May-06	9,600	9,600			
Access Channel to 23rd Street Wetland Restoration			4,600	4,600			
23rd Street Wetland Restoration	Aug-07	Mar-08	98,200	20,000		62,200	
Rev A Nearshore					15,000		
Rev B Nearshore					1,000		
New Island Restoration Channel	Jun-06	Jul-06	16,800	16,800			
Unit II Basin Base + Option + Santa Ana Delhi Channel	Jun-06	Jan-08	661,800	661,800			
Base			114,500				
Option 1			181,800				
Option 2			363,900				
Santa Ana Delhi Channel			1,600				
Access Channel to New Least Tern Island Pit			3,000	3,000			
New Least Tern Island Pit	Jun-06	Feb-07	74,600	74,600			
New Least Tern Island	Feb-07	Mar-08	NA				
Segment Main Dike	Jun-07	Oct-07	900			900	
Access Channel Between Unit II and Unit I/III	Feb-07	Apr-07	0	0			
Bullnose Access	Apr-07	Apr-07	1,800	1,800			
Bullnose West Wetland Restoration	Feb-07	Nov-07	18,100			18,100	
Hotdog Tern Island Restoration Channel	Feb-07	Apr-07	6,400	6,400			
Hotdog Tern Island Sand/Shell Layer	Mar-07	Apr-07		0		NA	
Unit I/III Basin + Modifications	Feb-07	Jul-09	377,300	377,300			
Base			140,500				
Mod Phase 1			153,600				
Mod Phase 2			40,000				
Mod CLIN 42 & 43			43,200				
Cubic Meters			1,328,000	1,191,400	16,000	120,600	<-----
Cubic Yards	0.764555	check	1,328,000				
Cubic Yards, Rounded			1,736,958	1,558,292	20,927	157,739	
			Volume Removed	LA-3	Nearshore	In-Bay	
			1,737,000	1,558,300	20,900	157,700	

UPPER NEWPORT BAY ECOSYSTEM RESTORATION PROJECT
 September 2009 to March 2010
 PHASE 2

3/31/2010

FEATURE	START	FINISH	Bid Volume CM	Volume Removed To Date CM	Placed LA-3 CM
Access Channel Between PCH and Unit II Basin	TBD	TBD			
Cordgrass Transplant	Nov-10	Nov-10	na	na	na
New Least Tern Island Channel	Jan-10	Jan-10		11,000	11,000
New Least Tern Island Ramp	Jan-10	Jan-10	na	na	na
Top of Skimmer Island	Dec-10	Mar-10	10,600	6,000	6,000
Southern Unit I/III Basin	Jan-10	Jun-10	225,000	133,000	133,000
Northern Unit I/III Basin	Jun-10	Jul-10	50,000		
Access Channel Between Unit II and Unit I/III	TBD	TBD			
Unit II Basin	Jul-10	Oct-10	140,000		
Hotdog Tern Island Ramp	Mar-10	Mar-10	na	na	na
				150,000	150,000
				150,000	
				196,193	196,193
				Volume Removed	LA-3
				196,200	196,200

Cubic Meters

check

Cubic Yards 0.764555

Cubic Yards, Rounded



Recovery - Upper Newport Bay
Ecosystem Restoration Phase 2
Status of Project Features March 2010

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: RDA Contracting has brought in an excavator mounted upon a barge to deepen the Sediment Control Basins. The marine excavator began dredging on January 29, 2010. Materials are placed in either a 2,228 cubic yard scow, and hauled and disposed of at LA-3 Ocean Disposal Area.

Question #3: What happened to the upland space 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.



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.

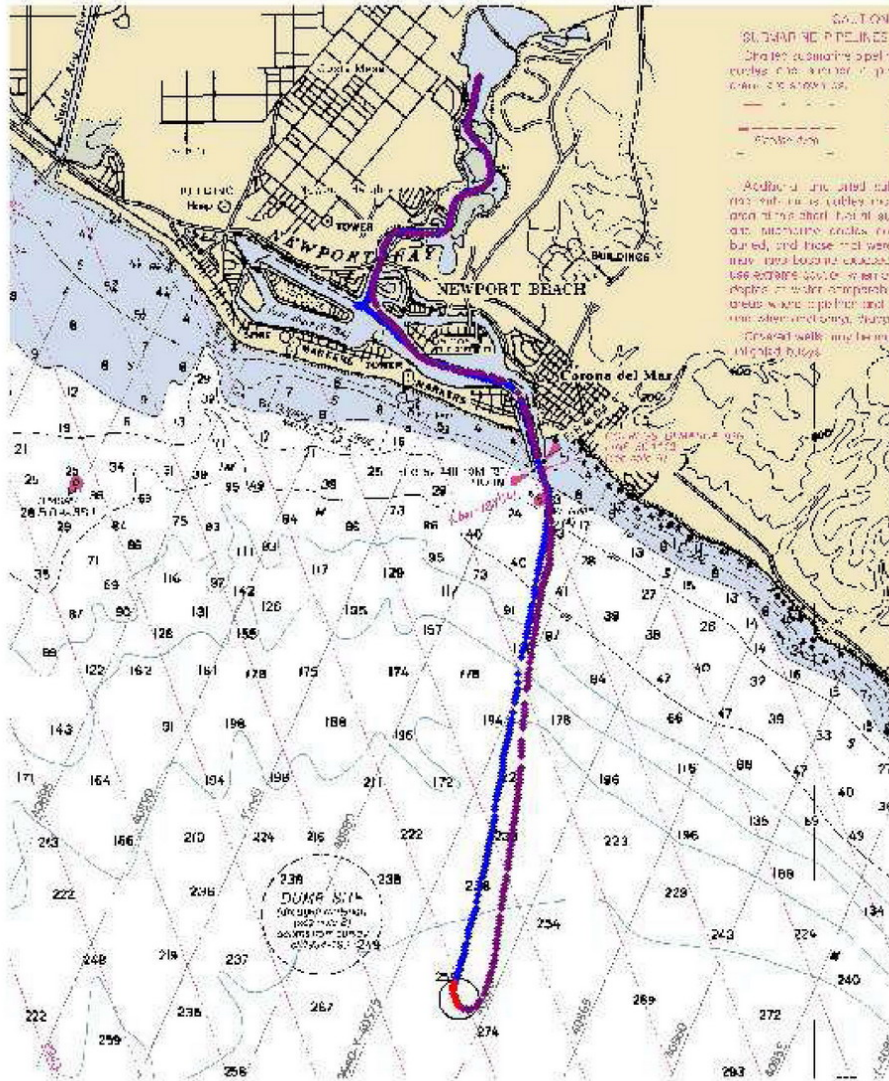
Three figures follow, showing plots of the tracking system from one scow trip, the 3000 Cubic Yard DS6 on the date of September 16, 2006. The first plot shows the track from the bay to the LA-3 disposal site (note that there are two circles, the larger circle depicts the location of LA-3 that is no longer 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.



Upper Newport Bay Ecosystem Restoration Project

Contractor: DD-M Crane and Rigging

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

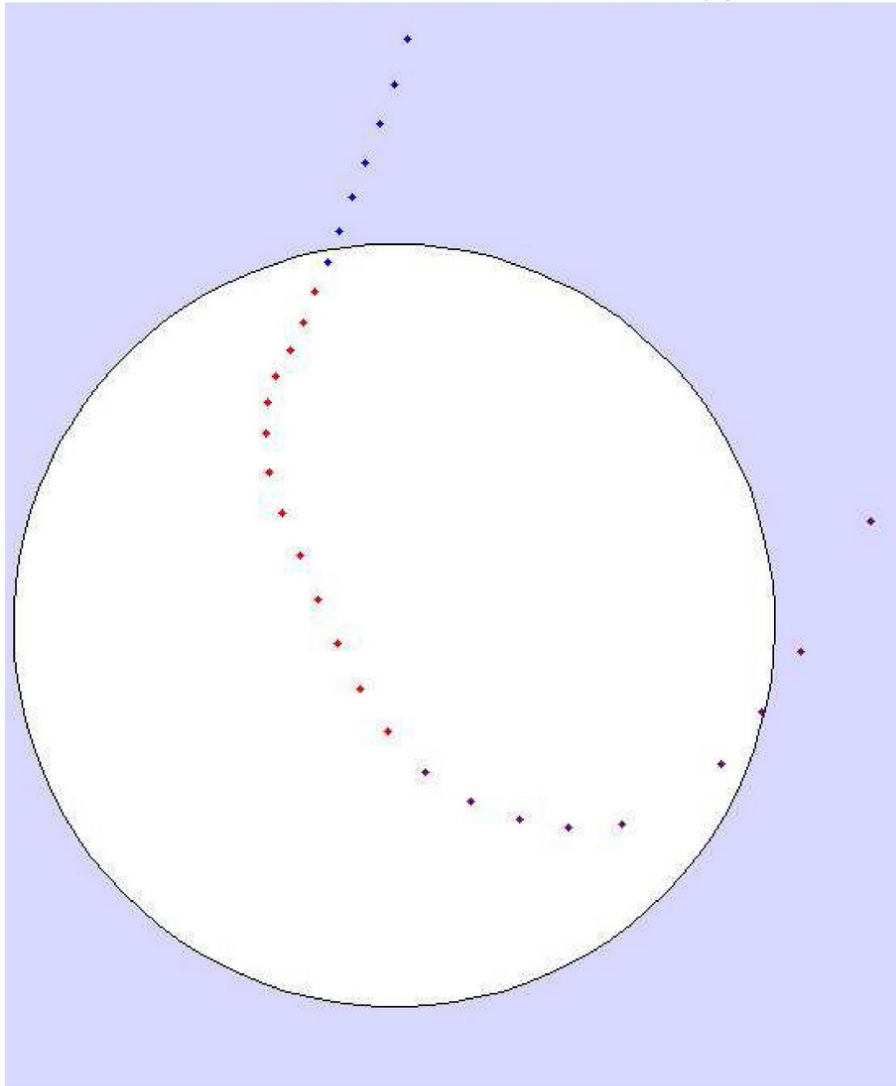




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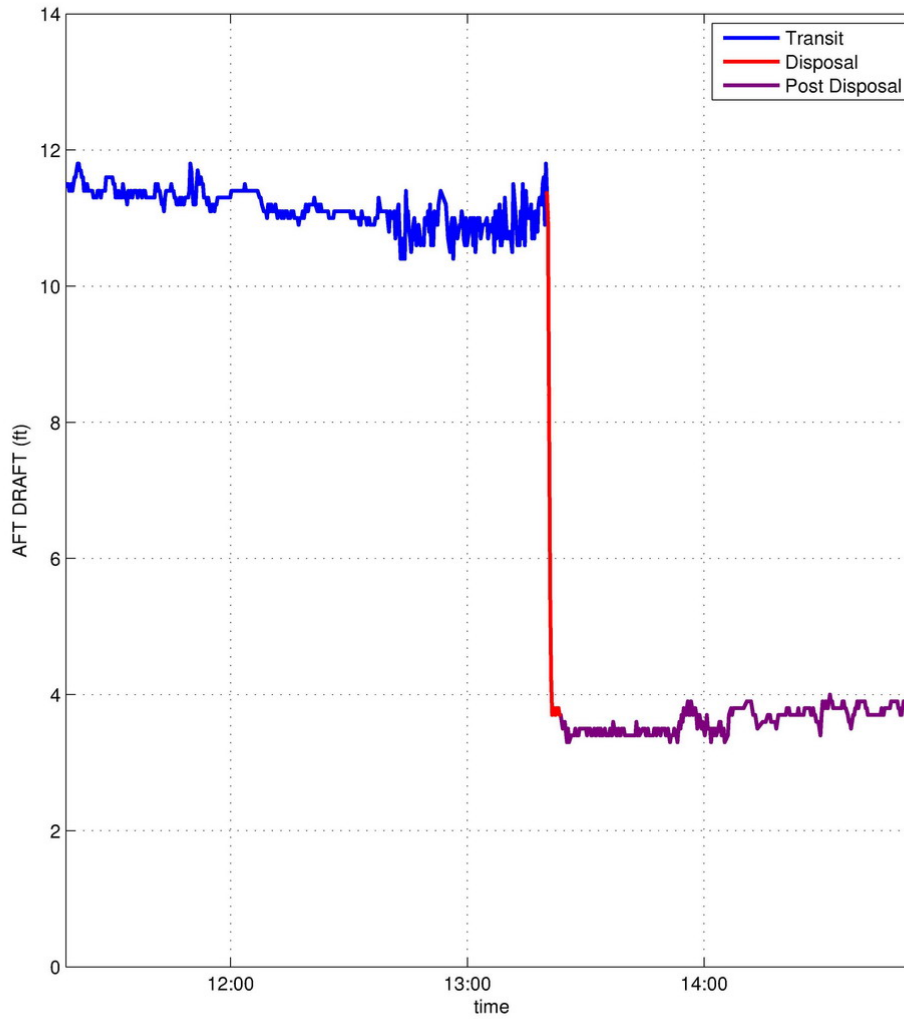




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Post Disposal:	16-Sep-2006 13:23:22	AFT DRAFT (ft) =	3.7



Question #5: What is that unusual piece of equipment upon Skimmer Island?

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



Hotdog Tern Island Ramp Construction, Removal of Skimmer Island and Unit I/III Sediment Basin Dredging, March 2010, Photo by Greg Fuderer



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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