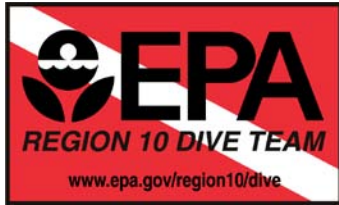


US EPA ARCHIVE DOCUMENT



[EPA Region 10 Dive Team](http://www.epa.gov/region10/dive)

EPA Dive Surveys to Support Superfund pre- and post-Dredging Data Needs, 2004-2011

What: The EPA Region 10 Dive Team often assists Superfund by conducting both pre and post dredging and capping surveys to assist in defining the project as well as evaluating the degree of project success.

Why: Pre-dredging surveys typically require the diver to: 1) describe the physical nature of the bottom, 2) document any obstacles found, and 3) evaluate the depth of unconsolidated material. Post dredging surveys typically required the dive survey to: 1) describe the physical nature of the bottom, 2) document any obstacles found, and 3) note the approximate type and quantity of organisms found. Once the area had been capped, divers were asked to determine cap depth in various locations, the degree of mixing with native material, and to note the occurrence of any cap sloughing in sloped areas, such as near the “mound.”

Where: Various sites in Puget Sound, including: Lockheed site on Harbor Island, approximately N. 47° 35.1' W. 122° 21.6', T117 within the Duwamish Superfund Site, N47 31.720 W122 18.756 near the Southpark Marina, and the Harbor Island Superfund Site, East Waterway, approximately N47 34.791 W122 20.571.

When: Dredging in the area surveyed was completed at Lockheed in early 2004. Dive surveys were conducted on February 10, 2004. T117 dive surveys were conducted on April 13, 2006. East Waterway dive surveys were conducted on April 15, 2004, July 15, 2004, June 15, 2005, and December 2006.

How: At Lockheed, diver investigations included videotaping 250' feet from 5 known locations on compass headings. Due to contaminants in sediment and the water column, diver decon was necessary to accomplish the scientific diving mission.

For the Harbor Island East Waterway, investigations included videotaping two 1000' transects from East to West across the waterway near pier 27 and 28 (start) to Berths 4, 5, and 6 (end) and searches for submerged objects. Post capping work included 4 transects in various locations across the cap up to 500 feet in length. Due to contaminants in the water column and in sediments, diver decon was required.

At T117, diver investigations included surveying transects pictured below and relaying objects found to the project manager.

See the [safety / sop](#) page for more information on diver decon and polluted water scientific diving.

Results: At Lockheed, divers found the bottom to have at least one foot of unconsolidated material in most areas (likely non-native material). Debris encountered included concrete, pipes, rebar, and other miscellaneous material. Material was mounded several feet high between many of the holes created by the dredge bucket. Much of the bottom material was white and had a cake-like consistency. The dive

video was used by the responsible party and the Agency to determine what follow-on actions were necessary in the area.

At the Harbor Island East Waterway site, divers found “bucket holes” in several areas approximately 3’ deep and more than 6’ across. Divers found an abundance of life on the “mound” near pier 27, such as anenomes particularly on substrate such as partial pilings and algal growth on the bottom. Mid-channel, bivalve siphons were observed in addition to some species of flatfish. Object locations were determined. A narrated video was produced from the dives for the Superfund Project Manager and Aquatic Resource Unit staff.

Post capping work included a narrated video of 4 transects conducted with observations made every 50 to 100 feet. Generally, the cap was found to be 3-4 inches thick in many places with a high degree of variability (some areas no cap seemed present, in other areas, the cap was 12 inches thick). Armoring of the mound area did not seem to have any evidence of sloughing.

At T117, divers found very little debris except at the toe of the bank slope in the marina.

More Details: [http://yosemite.epa.gov/R10/CLEANUP.NSF/webpage/Harbor+Island+\(Lead\)](http://yosemite.epa.gov/R10/CLEANUP.NSF/webpage/Harbor+Island+(Lead))

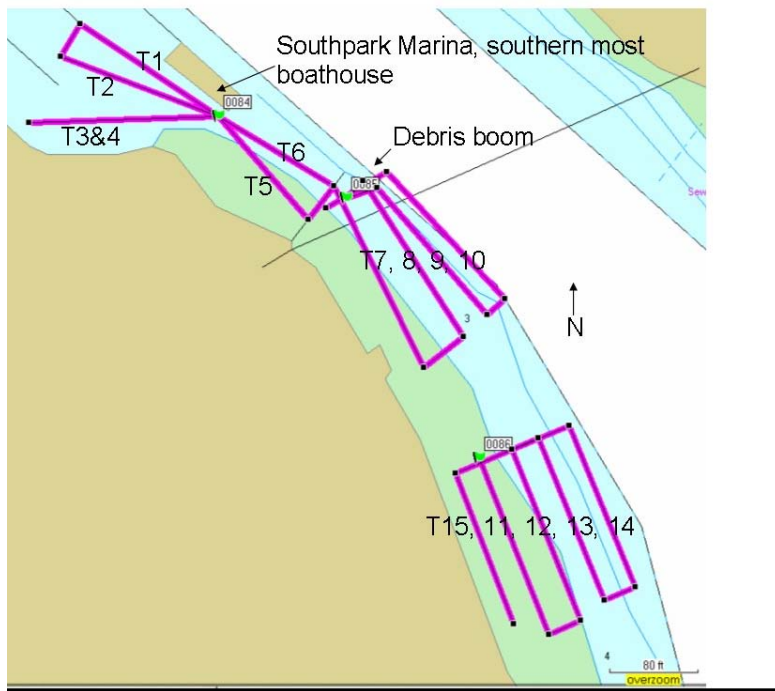
<http://yosemite.epa.gov/R10/CLEANUP.NSF/LDW/Terminal+117>

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Photos:



Divers preparing to conduct a video survey in the Duwamish East Waterway.



T117 Survey area

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