CHETCO RIVER

Local Sponsor: Port of Brookings Harbor

Project Description

An entrance channel 14 feet deep and 120 feet wide runs from the ocean to a turning basin at RM 0.0. The turning basin is 14 feet deep, 250 feet wide, and 650 feet long. A small boat access channel, 12 feet deep and 100 feet wide, parallels the south side of the dike into the north, or recreational, boat basin, but this channel is no longer being maintained by the Corps. The access channel into the south commercial boat basin is approximately 200 feet long, 100 feet wide and 12 feet deep. This channel is maintained by the Corps.

Maintenance

Shoaling generally occurs between RM -0.2 and RM 0.0 off the end of the north jetty and between RM 0.1 and RM 0.8 at the entrance to the boat basins.

The project is usually maintained by hopper dredge and the channel flusher SANDWICK from late April to October. The harbor entrance faces south and is one of the first areas on the coast that hopper dredges can work in the spring. Chetco River is often dredged in conjunction with the Rogue River Project, as foul weather backup work.

The SANDWICK is used during outgoing tides to sweep sediment from the turning basin, the small boat access channel, and the edges of the entrance channel (especially beside the rock ledge near Day Beacon 9) into the main channel for ready removal by a hopper dredge.

Clamshell dredges have been used to remove rocks which accumulate in the channel and limit the hopper dredge's ability to maintain the channel. Resulting materials have traditionally been placed on upland sites made available by the port.

Sediment

The sediment at the Chetco River entrance is primarily sand, with an average density of 2,100 grams/liter. Gravel and cobbles are frequently found. **The material from the areas currently being dredged have been found to be suitable for unconfined in-water disposal.** Samples collected and evaluated outside the Federal contain contaminants above levels of concern and additional testing will be required if dredging and unconfined in-water disposal of these sediments are considered in the future.

SEDIMENT EVALUATION

1974 June and 1981 February, Sediment samples from the channel of the Chetco Federal navigation project were collected by the USACE, Portland District.

1982 April, Sediment analyses included elutriate and bulk chemistry as well as physical characterizations of the Chetco River Navigation Project. Material from the mouth of the turning basin outward met exculsionary criteria and was suitable for unconfined in-water disposal. Material from the turning basin and small boat access channel had moderate levels of arsenic, cadmium, copper, and iron in the bulk sediment analyses indicating slight anthropogenic contamination. However, it was concluded that ocean disposal would be unlikely to cause significant biological or chemical impacts.

1991 May, Sediments analyses included bulk chemistry and physical characterization of channel, turning basin, and both the public and commercial turning basins. EPA funded this study which included analysis of material outside of the Federal channel. Physical analyses were similar to 1982. The small boat basin sediments contained PAHs (total 231-601 ppb) and pesticides (3-20 ppb). One sample had PCBs at 277 ppb. Metal concentrations were comparative to concentration found in 1982. Sediments from the upper ends of each of the two boat basins would require additional evaluations including biological analyses prior to ocean disposal. Material within the Federal portion of the project was considered suitable for unconfined in-water disposal.

1996 June, FEDERAL PROJECT. On June 24, 1996 nine samples were collected using a Ponar grab sampler from the Federal project area. Four samples were selected for chemical analysis. Three samples were from the turning basin (CHR-P-6, 7, & 8) and one (CHR-P-11) was from the entrance channel near the seaward end of the south jetty. The fine grained character of the material represented by CHR-P-11, 13, and 14 was unexpected. Shoreward and seaward of this location the material is sand and gravel typical of material collected during previous evaluations. It is believed that the high flows experienced in February 1996 scoured a depression in this area. Subsequently fine grained material and organic debris filled this area during lower flow conditions. Sediment from the entrance channel is gray-colored sand and gravel except for the fine grained material located near the seaward end of the jetties. Material from the turning basin consisted of silty sand. Total organic carbon (TOC) in the turning basin ranged from 1.33% to 2.12% while CHR-P-11 from the end of the jetties was 6.42%. No metals from the Federal project exceeded screening levels (SL). Pesticides and PCBs were undetected. Maximum TBT was 13 ppb (CHR-P-8) well below the established 73 ppb SL. PAHs were all below SLs in the Federal channel. All material from the Federal project was determined to be suitable for unconfined in-water disposal.

1996 JUNE, NON-FEDERAL PROJECT. Funded by EPA, 5 samples were collected from the 2 boat basins, outside of the Federal project and subjected to chemical analyses. Generally, grain size decreased while organic content increased towards the

back of each basin. Sediment in the boat basins is dark gray and black silt with sand. Cadmium was slightly over the screening level (1.05 vs. 0.96 ppb SL) in one sample (CHR-P-1). The pesticides DDE and DDT were found at 0.8 ppb and 1.0 ppb respectively at one location in the commercial boat basin (CHR-P-4). This is below the method reporting level (MRL) but above the method detection level (MDL). The SL for total DDT's is 6.9 ppb. There were no PCB's found in any of the samples tested in 1996, however, the 1991 investigation disclosed a PCB level of 277 ppb in the upstream portion of the sport basin near the dock. That same site, (CHR-P-2) was sampled during this study. The SLs for individual and total PAHs were exceeded in sample CHR-P-4 and CHR-P-5. Analytical results for TBT were below established level of concern, 73ppb (TBT). The highest concentration, sample CHR-P-5 (56ppb), was taken in the closed end of the commercial basin. CHR-P-4 was specifically collected to address the concerns expressed by DEQ with respect to the reported sandblasting of the FV Miss Sarah in 1994. Their concern over TBT contamination delayed Water Quality Certification for the placement of material dredged from the Federal project into the nearshore berm for the purpose of beach nourishment. TBT levels at CHR-P-4 was 13 ppb. While TBT is below concern levels, PAHs exceed concern levels in several areas. Further testing would be required prior to unconfined in-water disposal of material dredged in these Non-Federal areas.

2001 August, Six (6) sediment surface grab samples were collected from the Chetco River. All samples were submitted for physical analyses (mean 0.098 mm, with an average of 69.48 % sand and 30.19 % fines), with 3 samples analyzed for metals (9 inorganic), total organic carbon (TOC), pesticides/polychlorinated biphenyls (PCBs), phenols, phthalates, miscellaneous extractables, polynuclear aromatic hydrocarbons (PAHs) and organotin (TBT) pore water analysis.

Sediment represented by samples CHET-P-01 & CHET-P-02 collected during this sampling event exceeded DMEF screening levels (SL) for silver (Ag) nickel (Ni) and for 3 & 4 Methylphenol. The re-analysis of Ag does not indicate Ag to exceed SL. Re-analysis of Ni indicates levels to be at the 140 mg/kg SL. Three (3) analyses of 3 & 4 Methylphenol have varied results, with 2 of 3 analyses under the SL. The sediment represented by samples CHET-P-01 & CHET-P-02 is not suitable for unconfined in-water placement; further characterization will be necessary.

2002 August, Five (5) surface grab sediment samples were collected from the Chetco Federal Project and submitted for physical analyses including total volatile solids. All five (5) sediment samples were submitted for analyses of only the chemicals in question, nickel (Ni) and phenols, plus total organic carbon (TOC).

Mean grain size for all the samples is 0.07 mm, with 0.00% gravel, 56.35% sand and 43.72% fines, with 5.03% volatile solids. None of the contaminants tested were found to be at or above the DMEF screening level (SL) upon re-sampling. Some low levels of phenols was detected, but not at levels of concern. Nickel (Ni) was, also, detected, but at levels sufficiently below the SLs to determined all sediment suitable for unconfined, in-water placement without further characterization.

August 2007: A total of six (6) sediment samples were collected from the Chetco River Federal channel and boat basin entrance channel. The samples were collected using a Ponar sampling device, with all samples submitted to the lab for physical analyses including Total Volatile Solids. Four (4) sediment samples were analyzed for metals (9 inorganic), TOC, pesticides, PCBs, organotin, phenols, phthalates, miscellaneous extractables, and PAHs.

The physical analyses varied widely, with the two (2) samples, located closest to the mouth, being 100% gravel with 0% volatile solids. The other four (4) samples were all less than 5% gravel. Samples CHET-P-03 and CHET-P-06 are classified as silty sand with 78% and 64% sand, respectively. Samples CHET-P-04 and CHET-P-05, furthest into the boat and turning basins, are classified as sandy silt with 55% and 61% silt, respectively. Volatile solids for these four (4) samples ranged from 6.13% to 8.17 %.

Chemical analyses and historical data were used to evaluate material within the proposed dredging prism and determine it suitable for unconfined, in-water placement without further characterization.