ROGUE RIVER

Local Sponsor: Port of Gold Beach

Project Description

The authorized project provides for a channel 18 feet deep and 300 feet wide from deep water, running approximately 3500 feet to the entrance to the boat basin access channel. The channel then decreases to 10 feet deep and 150 feet wide into the Gold Beach boat basin. The boat basin access channel, approximately 2000 feet long, can be shifted annually to take advantage of the deepest water available.

Maintenance

A large shoal usually forms during the spring and summer between the north and south jetties at the river's mouth. This shoal migrates up the channel on the south side, towards the boat basin. Winter floods generally flush the shoal from the channel.

Dredging is normally carried out between April and October. To ensure the project depth of 13 feet between dredging operations, the entrance channel is usually dredged to 16 to 17 feet. Ideally, initial dredging is performed early in the season to take advantage of available depth following the spring freshet. Weather and sea conditions frequently limit the ability of dredges to operate safely at this project.

The boat basin access channel is normally dredged to 10 feet plus 2 feet advanced maintenance to ensure adequate depths between dredging operations. To the extent possible, dredging in the boat basin access channel is performed after July 1, to minimize interference with the salmon runs that begins early in April.

The Rogue River entrance channel is maintained by hopper dredge and historically a channel flusher. The channel flusher SANDWICK often cleared the channel when a hopper dredge was unavailable, or to provide adequate depth for the hopper dredge to enter the channel. The SANDWICK has been decommissioned and is no longer active.

The entrance to the boat basin has also historically been maintained by pipeline dredge. Clamshell dredges or backhoes can also be used to maintain the boat basin entrance.

Sediment

The sediment from between the Rogue River entrance and the boat entrance is primarily sand, with an average in-place density of 2,050 grams/liter, and some gravel and cobbles. Some fine sand, silt, and clay are also found in the access channel to the boat basin. The material is suitable for unconfined in-water disposal. Sediment testing was conducted at the project in 1981, 1982, 1992, 1997, 2002, and 2007. ODMDS sediments were tested in 2007.

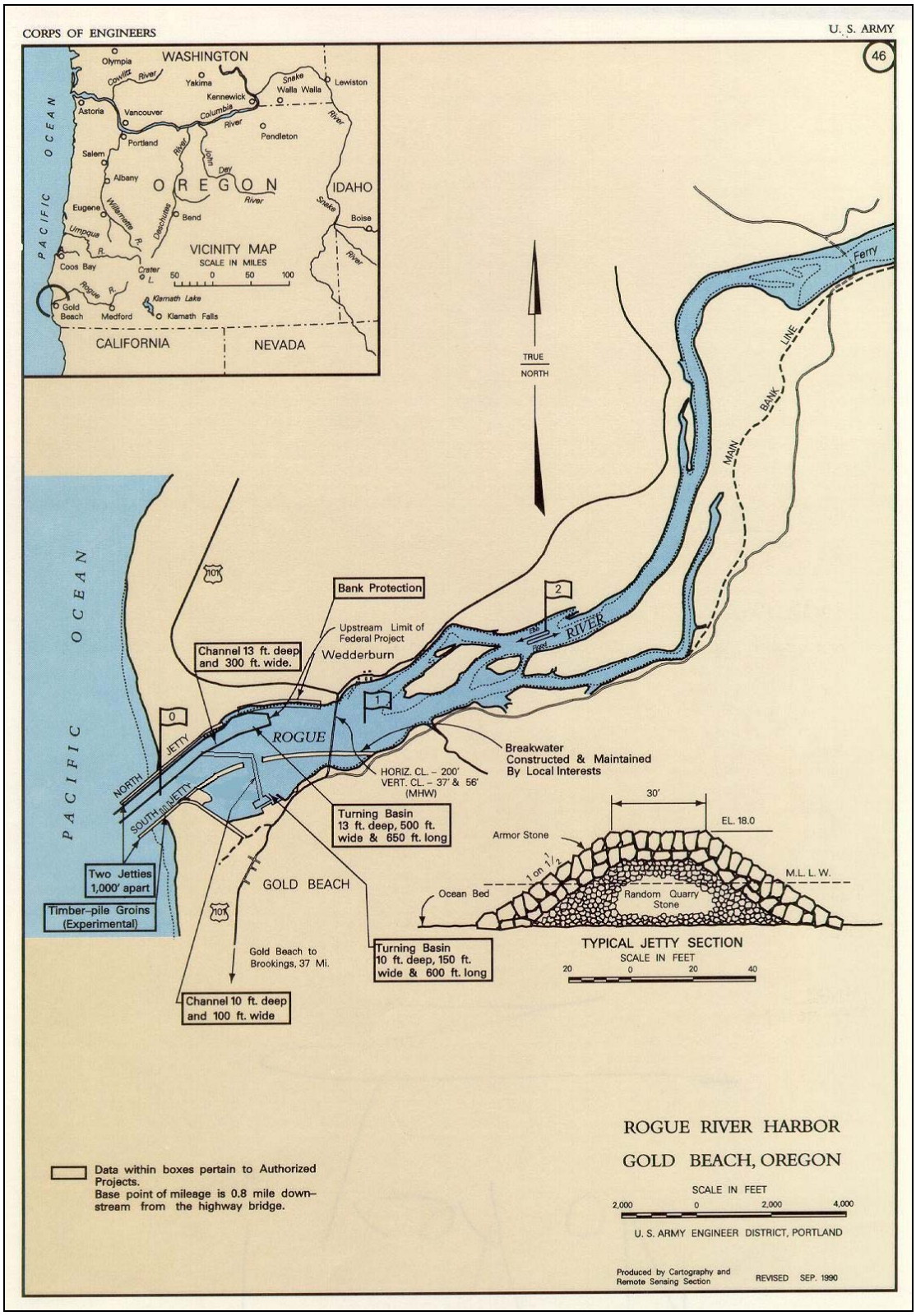


Figure 1: Project and Vicinity.

Sediment Evaluation (Project Sediments)

1981 February, Sampling efforts within the navigation channel indicated that sediments in the river consisted of sand, whereas material within the mooring area and at the upland disposal site consisted of sandy-silt. In addition, sediment within the river contained relatively low volatile solids (less than 2 percent), whereas sediments in the boat basin and disposal site contained 5 percent volatile solids.

1982 April, Sediment analyses included elutriate and bulk chemistry as well as physical characterizations of the Rogue River Navigation Project and within Port of Gold Beach's mooring area. Cl1emical analyses were conducted only on the finer grained mooring area sediments. The sediments were found to contain no significant levels of the contaminants which were measured. No significant chemical impacts were expected from placement of sediments into the ODMDS.

1992 April, Sediment samples were collected from the navigation channel and boat basin and subjected to physical and chemical analyses. Sediments from the navigation channel were gravely coarse sand suitable for unconfined in-water disposal without further evaluation. Sediments collected outside the navigation channel, for EPA, Region 10, were sandy, clayey silt. They were high in chromium and nickel, probably of natural origin. Copper and zinc were slightly enriched in the area of the western dock. Pesticides and PCBs were undetected, phenols were detected in one sample, and several PAHs exceeded EPA, Region 10 screening levels. TBT levels were low. Further evaluation of the non-navigation channel samples would be required prior to ODMDS disposal.

1997 July, Nine sediment samples were taken from the Rogue River shoals and analyzed for both chemical (5) and physical parameters. Physical analysis indicated the material is primarily gravelly coarse sand low in organic content. Chemical samples were analyzed for metals, including tributyltin (TBT), polynuclear aromatic hydrocarbons (PAHs), total organic carbon (TOC), acid volatile sulfide (A VS), pesticides/polychlorobiphenyls (PCBs). All chemical and physical analysis for this material indicate that the bulk of the material is similar to material at the offshore ODMDS and the beach disposal site and is suitable for disposal at either with no adverse environmental impact expected. Sediments were collected from the federal navigation project which included the entrance channel between the jetties, the boat basin access channel and the marina turning basin. In addition samples were collected along a transect of a new proposed boat basin access channel. The new channel would run from the turning basin to a point approximately 900 feet east of the present cut in the rock breakwater. A new cut in the breakwater would be required. While the material is suitable for unconfined in-water disposal during sampling it was noted that a zone of fine grained material along the transect contained numerous plant and aquatic life.

2002 August, Seven surface grab sediment samples were collected and were submitted for physical analyses including total volatile solids. Four (4) of seven (7) sediment samples were analyzed for metals (9 inorganic), total organic carbon, pesticides and polychlorinated biphenyls, phenols, phthalates, miscellaneous extractables, TBT, and PAHs. The samples were found to have a mean grain size of 0.10 mm, with 16.53% gravel, 58.48% sand, and 24.99% fines, with 3.67% volatile solids.

Nickel (Ni) was detected at levels in excess of the 140 mg/kg DMEF screening level, however these levels are consistent with historical levels detected within Rogue River Federal Navigational Project. The levels of nickel detected at the Rogue River Project are determined to be from natural sources and are considered background levels; in-water disposal will not create significant additional risk to the environment, beyond what naturally exists in the area. All sediment is determined to be suitable for unconfined, in-water placement without further characterization.

August 2007. Six (6) surface grab sediment samples were collected from the Rogue River Project federal channel and the inner channel leading to the Gold Beach boat basin. All 6 samples were submitted for physical analyses including total volatile solids. Select sample samples containing higher percent of fine-grained material were analyzed for metals 10 (inorganic), total organic carbon, pesticides and polychlorinated biphenyls, phenols, phthalates, miscellaneous extractables and polynuclear aromatic hydrocarbons.

Physical analyses for material within the outer river channel consisted of 82.5% sand, with shell hash (range 94.1% to 70.9%) and 17.5% fine-grained material (range 29.1% to 5.9%); volatile solids on the one sample analyzed from this area were 4.53 %. Material from the inner channel, leading to the boat basin, was 64.9% sand, with shell hash (range 79.3% to 50.2%) and 35.1% fine-grained material (range 49.8% to 20.7%) with volatile solids content ranging from 10.5% to 5.8% (mean 7.5 %). The TOC ranged from 0.73% to 2.5% in these samples.

The chemical analyses indicated only very low levels of contamination in any of the samples, with all levels below their respective SEF screening levels (SLs), with the exception of phenol, which was detected above the 420 ug/kg SEF screening level at 1200 ug/kg, in the sample closest to the boat basin. It is suspected that phenol is a possible laboratory cross-contamination, but without being able to verify that with the lab, the dredge material represented by that sample (080607RRFP-P-06) should not be dredged until further characterization or re-sampling, to provide a weight of evidence, can be accomplished.

Nickel (Ni) has historically been detected at levels higher than most Oregon coastal rivers. The levels of nickel detected at the Rogue River Project are determined to be from natural sources and are considered background levels; in-water disposal will not create significant additional risk to the environment, beyond what naturally exists in the area. Samples where nickel exceeded 200 mg/kg have supported a diverse population of benthic organisms (sample collected in 2007 to verify diverse benthic population).

Chemical analyses and historical data were used to evaluate material within the proposed dredging prism. Data represented by samples collected during this sampling event are consistent with historical sampling results and meet the guidelines established in the SEF for unconfined in-water placement without further characterization, with the exception of sediment represented by sample 080607RRFP-P-06 (as described previously).

Sediment Evaluation (ODMDS Sediments)

June 2007, Five (5) surface-grab sediment samples were collected at the existing Rogue River Section 103 ODMDS site with a 0.96 m^2 modified Gray-O'Hara boxcore. Three (3) samples (01, 02 and 03) were collected from east to west on the centerline of the site. One (1) sample was collected north of the site (04) and 1 sample was collected south of the site (05) (see figure). All samples were subjected to physical and chemical analysis.

Physical and Volatile Solids (ASTM methods)
Five (5) samples were submitted for testing. The mean value for a grain-size of sand or greater (sample 03 was 88.3 % gravel sized material) was 96.5%, with a mean value of 3.5% fine-grained material (less than 200 sieve); mean value for volatile solids was 2.2 %.

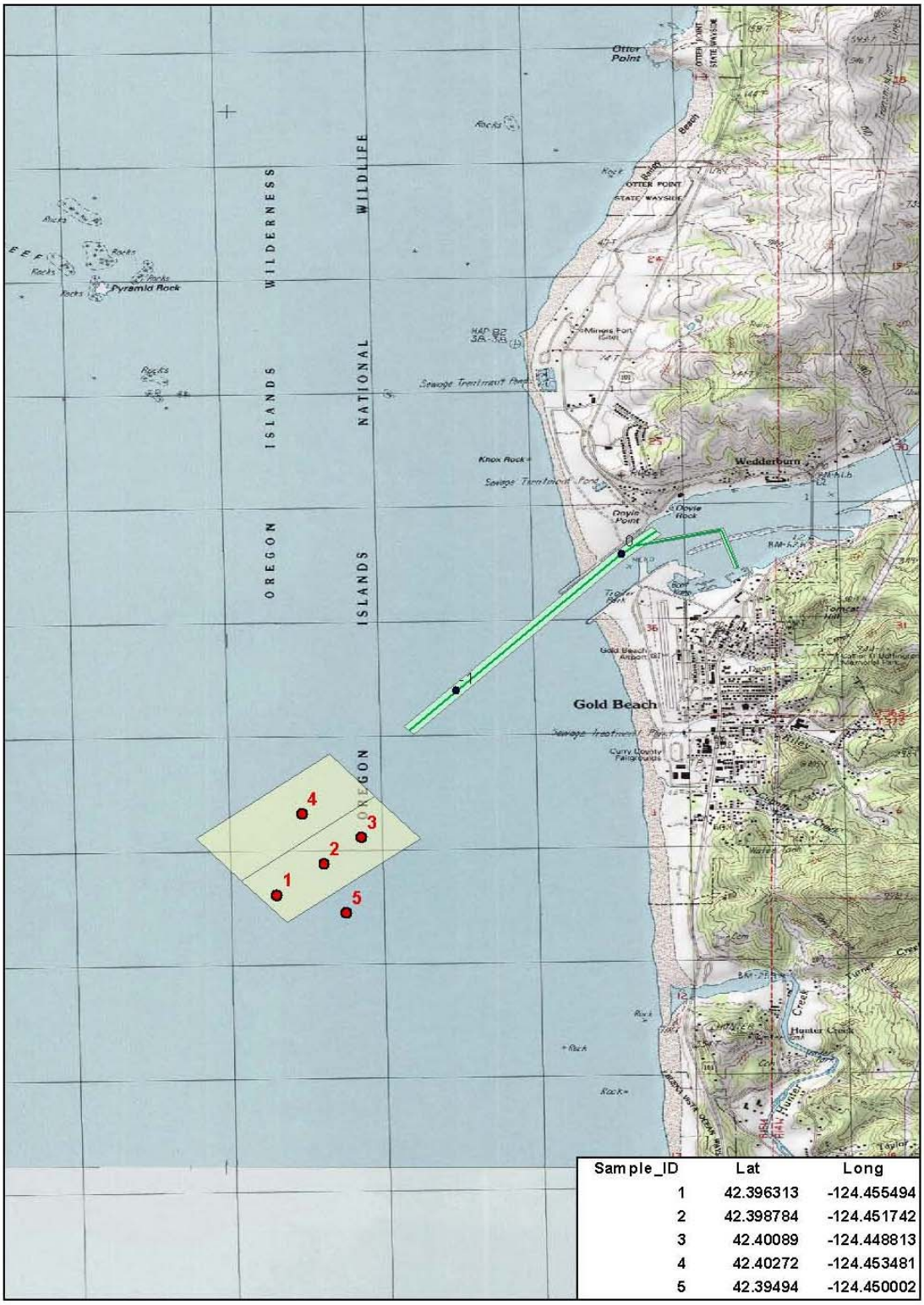
Metals (EPA method 6010/7471), Total Organic Carbon (EPA method 9060)
Five (5) samples were submitted for testing. Sediments were analyzed for ten (10) heavy metals. Of the 10 metals, all but silver (Ag) and mercury (Hg) were present in all of the samples (Hg was not present in sample 03). No detected metal values approached their respective SEF SL.

Nickel (Ni) no longer has a marine screening level in the SEF; it has historically been detected in the Rogue River sediment at levels higher than most Oregon coastal rivers. The levels of nickel detected at the Rogue River Project are determined to be from natural sources and are consistent with historical background levels. The samples collected both inside and outside of the ODMDS site reflect this elevated Ni level.

Pesticides/PCBs (EPA method 8081/8082)
Five (5) samples were submitted for testing. DDT was detected in one sample between the MRL and the MDL and the value stated is considered an estimate. Chlordane was not detected (reported as technical chlordane), but detection levels were elevated due to matrix interference during the analysis. The laboratory provided additional information for alpha and gamma chlordane (alpha and gamma are the primary isomers in technical chlordane), with sufficiently low detection limits individually, to evaluate chlordane as not present at levels of concern. No PCBs were detected in these sediments at sufficiently low MDLs.

Chlorinated Hydrocarbons, Phenols, Phthalates and Extractables (EPA method 8270C)
Five (5) samples were submitted for testing. No chlorinated hydrocarbons were detected. Low levels of several phthalates, extractables and phenol were detected, but at very low levels, well below their respective screening levels.

Polynuclear Aromatic Hydrocarbons (EPA method 8270C)
Five (5) samples were submitted for testing. No "low molecular weight" PAHs or "High molecular weight" PAHs were detected in any of the samples. All detection levels were sufficient to adequately characterize sediment.



Sample_ID	Lat	Long
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2	42.398784	-124.451742
3	42.40089	-124.448813
4	42.40272	-124.453481
5	42.39494	-124.450002