# COQUILLE RIVER

[Local Sponsor: Port of Bandon]

## Description

Dredged material from the Coquille River was formerly placed in the U.S. Environmental Protection Agency (EPA) designated interim ocean dredged material disposal site (ODMDS). However, safety concerns arose over the ODMDS's rock substrate and pinnacles as well as its biological value as a site of diverse habitat and cover.

The U.S. Army Corps of Engineers, Portland District (Corps) recommended designation of a new ODMDS and began using it for maintenance dredging in 1989 under its Marine Protection, Research and Sanctuaries Act (MPRSA) Section 103 authority. It is approximately 1,500 feet north-northeast of the interim ODMDS (Figure 1). The Corps' analysis of the adjusted ODMDS is covered in an evaluation report drafted in October 1987. The EPA issued a final Environmental Impact Statement (EIS) and designated the Section 102 site in 1990.

Coordinates: Coquille interim Ocean Dredged Material Disposal Site:
Corner Coordinates (NAD 1927):

43° 07' 54" N, 124° 27' 04" W
43° 07' 30" N, 124° 26' 27" W
43° 07' 20" N, 124° 26' 40" W
43° 07' 44" N, 124° 27' 17" W

Dimensions: 3600' x 1400', Azimuth (long axis): 12° T, Average Depth: 60'

Coordinates: Coquille Section 102 Ocean Dredged Material Disposal Site
Corner Coordinates (NAD 27, 40 CFR 228.12):

43° 08' 26" N, 124° 26' 44" W
43° 08' 03" N, 124° 26' 08" W
43° 08' 13" N, 124° 27' 00" W
43° 07' 50" N, 124° 26' 23" W
43° 08' 08" N, 124° 26' 24" W (Centroid)

Dimensions: 3,500' x 1,750', Azimuth (long axis): 312° T Average Depth: 60'

A shoal typically forms between the ends of the jetties at the Coquille River Federal Navigation Channel's (FNC) entrance. The shoal builds from the north jetty outward to mid-channel. In some years, this shoal reaches clear across the channel. A second shoal forms across the channel between river mile (RM) 0.2 and 0.5. The entrance of the Coquille River is dredged by hopper dredge working intermittently from May through September. The Coquille FNC extends from deep water up to RM 1.3. The Coquille FNC includes a side channel into the Bandon boat basin at RM 1.0. Table 1 provides the Coquille ODMDS disposal history in 1,000's of cubic yards (CY).

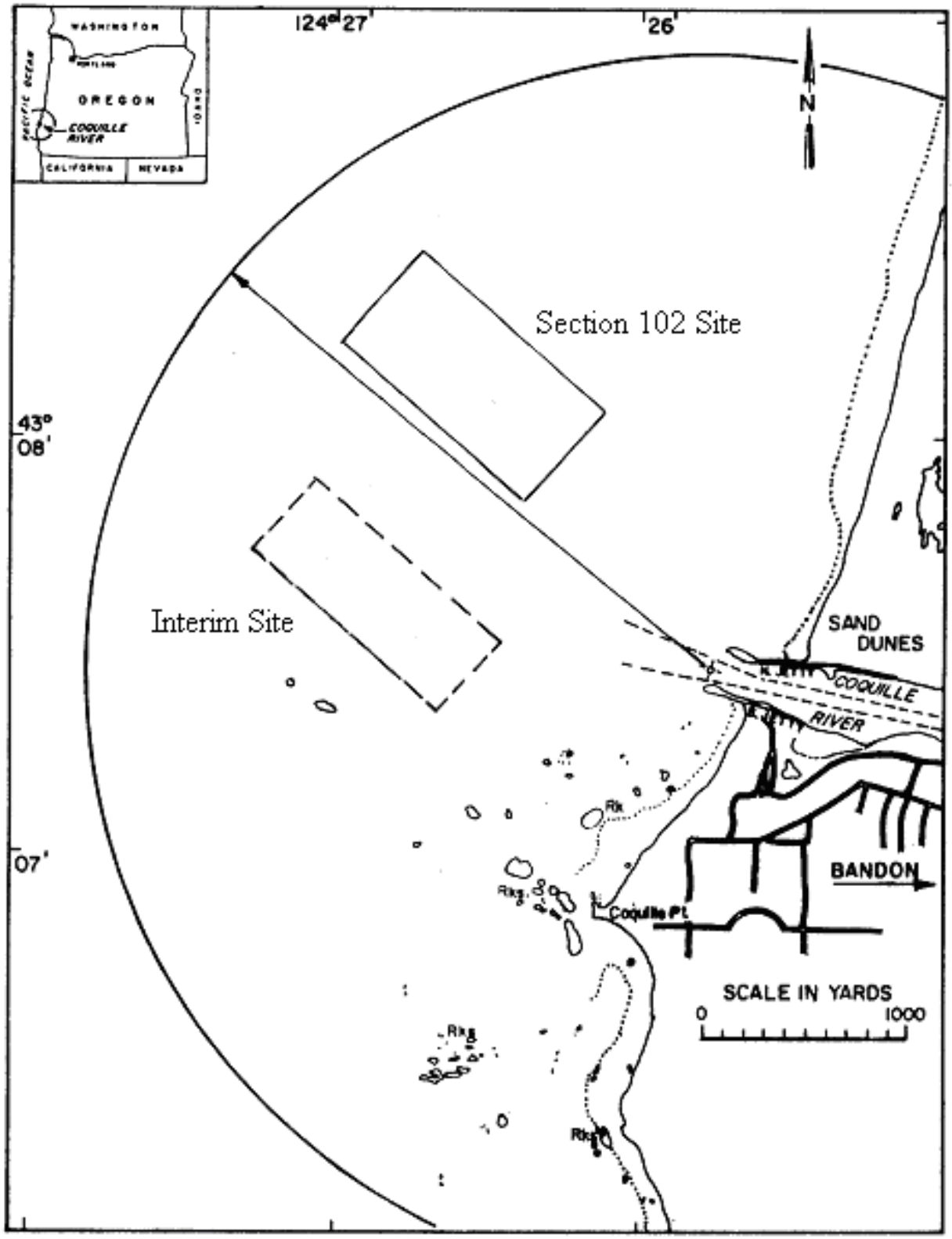



**Figure 1: Coquille River ODMDS.**

**Sediment Evaluations**

**1981 February, FEDERAL PORJECT**. Sediment samples were collected from the Coquille FNC project by the Corps.

**1990 August, FEDERAL PROJECT**. Sediment samples were collected from the Coquille FNC project by the Corps. All samples were made up of poorly graded, gravelly sands with mean sand content of 98.6% and fines content of 0.4%. Mean grain size was 0.44 mm and volatile solids averaged 0.8%. These values closely match those of the 1981 samples. The material meets exclusionary criteria of the therefore no further chemical or biological testing is required.

**1996 June, FEDERAL PROJECT**. Nine samples were collected using a Ponar grab sampler. Samples CQR-P-1 and -2 are from the Bandon boat basin side channel and CQR-P-6 through -9 which were collected from the mainstem Coquille FNC. Samples CQR-P-3 through CQR-P-5, taken from the non-federal boat basin, were subjected to chemical analysis because of their fine grained organic nature. The FNC project sediments CQR-P-6 through -9 from the Coquille River consisted of sands and gravels with the sand fraction having around 60 percent medium-grained sands retained on the 5 to 2.5 mm sieve. This material meets exclusionary criteria and requires no further testing. The sediments in the boat basin were silt with an organic content ranging from 6.0 to 8.0%. Metals were below established screening levels (SL). No pesticides or polychlorinated biphenyls (PCBs) were detected in the FNC project sediments. All sediment samples analyzed contained polynuclear aromatic hydrocarbons (PAHs) with fluoranthene, pyrene and phenanthrene showing the highest concentration levels in each of the samples. Individual and total PAH content of all samples was far below established SLs for PAH. Organotins were found in four of the five boat basin samples tested. However, they fell between the method reporting limit (MRL) of 3 ppb and the method detection level (MDL) of 0.2 ppb which are well below the established concern level of 73ppb for tributyltin (TBT). All material from the Federal project was determined to be suitable of unconfined in-water disposal without further evaluations.

**1996 June, NON-FEDERAL PROJECT**. Funded by EPA, 3 samples(CQR-P-3 to P-5) were collected from the non-federal boat basin, outside of the federal side channel and subjected to chemical analyses. Metals were below established SLs. The only pesticides detected were Alpha-BHC (0.2 ppb) and 4,4'DDD (0.6 ppb) in sample CQR-P-5. These levels are below the MRL of 2 ppb for these compounds, but above the MDL of 0.2 ppb. No pesticides or PCBs were detected. All 3 non-federal sediment samples analyzed contained PAH's with fluoranthene, pyrene, and phenanthrene showing the highest concentration levels in each of the samples. Individual and total PAH concentrations were far below SLs for PAH for all samples. Organotins were found in all 3 of the non-federal samples tested. However, they fell between the MRL of 3 ppb and the MDL of 0.2 ppb well below the established screening level of 73 ppb for TBT. All material tested was determined to be suitable of unconfined in-water disposal without further evaluations.

**2001 August 21, FEDERAL PROJECT**. Six (6) surface grab sediment samples were collected from the Coquille River. All samples were submitted for physical analyses (mean 0.39 mm, with an average of 72.99% sand and 25.92% fines), with 2 samples analyzed for metals (9 inorganic), total organic carbon (TOC), pesticides and PCBs, phenols, phthalates, miscellaneous extractables, PAHs and organotin (TBT) pore water analysis.

The level for silver in sample COQR-P-05 was initially found to be above the SL; reanalysis of the sample found the level to be substantially below the SL. None of the other contaminants tested were found to be at or above their SL. Therefore, all sediment is determined to be suitable for unconfined, in-water placement without further characterization.

**2006 September, FEDERAL PROJECT**. Six (6) surface grab samples were collected in the Coquille River from the entrance to RM 1.0. All samples were submitted for physical analyses, with grain-size in the channel ranging from 98.6% to 93.9% (mean 97.2%) poorly graded sand (includes shell hash), with volatile solids content ranging from 1.29% to 3.15% (mean 1.92 %). Grain-size within the boat basin side channel ranged from 92.3% to 88.1% (mean 90.2%) silt and clay, with volatile solids content ranging from 9.07% to 8.54% (mean 8.8 %). Two (2) fine-grained samples collected within the boat basin were submitted for chemical analyzes to include: metals, TOC, pesticides, PCBs, phenols, phthalates, miscellaneous extractables, PAHs and organotin (TBT) (total) analysis.

Sediment represented by samples collected during this sampling event meet the Tier II guidelines established in the Dredged Material Evaluation Framework (DMEF) and Sediment Evaluation Framework for the Pacific Northwest (SEF) SLs for unconfined in-water placement without further characterization.

**2011 August 30, FEDERAL PROJECT**. A total of six (6) surface grab samples were collected, four (4) from the Coquille River from the entrance to RM 1+04, one (1) from near the boat basin inner channel, and one (1) from within the boat basin. All six (6) samples were submitted for physical testing. Material in the channel ranged from 98.1% poorly graded sand to well graded sand with gravel (48.2 % gravel and 50.1% sand). The material within the boat basin side channel ranged from 69.1% to 90.1% silt and clay, with total solids content ranging from 60.27% to 44.7%. Two (2) fine-grained samples collected within the boat basin side channel were submitted for chemical analysis to include: metals, TOC, pesticides/ PCBs, phenols, phthalates, miscellaneous extractables, PAHs and organotin (TBT) (total) analysis. Data results indicated no contaminants of concern were present at levels that approached the SEF marine SL guidelines.

Sediment represented by samples collected during this sampling event are consistent with historical sampling results and meet the Level 2 sediment quality guidelines established in the SEF for unconfined in-water placement without further characterization.

**2014 April 24, FEDERAL PROJECT**. One composite sample (01A-COMP) was collected from three ponar grab locations in the navigation channel and two discrete samples (06A & 07A) were collected from the Bandon boat basin access channel. All three samples were analyzed for dioxins and furans (EPA method 8290) because a potential source (Moore Mill and

Lumber Company) of dioxins and furans was documented adjacent to the boat basin access channel. The results for all three samples indicate that dioxins and furans are well below the Grays Harbor dioxin guidelines of 5 ppt for 2,3,7,8-TCDD and 15 ppt for total dioxins/furans toxicity equivalent (TEQ).

## ODMDS History

**1977**, the Coquille ODMDS received interim designation from the EPA.

### Evaluation

**1984 May**, information on the Coquille ODMDS's aquatic resources and sediment physical characteristics were obtained from a field sampling program conducted by the Corps.

During **August and September 1984**, site specific geologic information and geophysical investigations by sidescan sonar and sub-bottom acoustic reflection profiling was performed. In addition, existing geologic and oceanographic data pertinent to the Coquille River interim ODMDS was compiled.

**1985 July**, information on the Coquille ODMDS's sediment physical characteristics was obtained from field sampling program by the Corps.

**1987 October**, the draft *Coquille Ocean Dredged Material Disposal Site Evaluation* report was published by the Corps. No changes were made to the document after review and the document became the final report.

The evaluation report recommended an adjusted site 1,500 feet north-northeast of the interim ODMDS for final site designation. Field data collected to support designation of the interim site and interviews with vessel operators revealed safety and environmental concerns with its location. This was due to its proximity to rocky substrate and pinnacles associated with Coquille Point and the Oregon Island National Wildlife Refuge to the south.

### Designation

**1990 March**. The EPA, Region 10, published the Coquille, Oregon Dredged Material Disposal Site Designation Final EIS. The final rule was published in the **May 21, 1990** Federal Register with final site designation effective as of **June 20, 1990**.

### Management/Monitoring

The Coquille River **Site Management/Monitoring Plan** was completed and coordinated for public review in **April 1997**. No comments were received. The management/monitoring plan for this site calls for conducting bathymetric surveys annually as a Tier I monitoring activity. A new Site Management/Monitoring Plan was prepared for the Coquille ODMDS by the Corps in **2014** and is undergoing EPA review.

**Bathymetric surveys** were conducted in **July 1982, July 1985, August 1988,** and **June**

**1989** of the interim ODMDS. Bathymetric surveys were conducted **June 1989**, **October 1992**, **June 1996**, **September 2000**, **July 2002**, **May 2003**, **April 2005, May 2006**, **April 2007**, **May 2008**, **May 2009**, **June 2010**, **April 2011, April 2012, June 2013, and June 2015** of the EPA final designated ODMDS. Copies of bathymetry and bathymetry difference plots for the Coquille River interim and final ODMDS are attached to the end of the report. Due to rough weather no **2004** bathymetric survey was completed. Historically no significant alteration to the bottom contours due to mounding of dredged material is evident, however, in the **2011** survey mounding up to 4-5 feet is evident in several areas. The **2012** surveys showed mounding of 4 to 5 feet in a very small area at the southeast corner of the site and an average of 1 to 2 feet increase over most of the site compared to 2011. The comparison of the **2012** condition survey and **1989** baseline survey shows between 1 and 4 feet of accumulation over most of the site. The Coquille project was not dredged in **2013**. Comparison of the 2012 and **June 2013** condition surveys show a decrease in sediment height over most of the site, with the greatest decrease being a -5 foot difference on the northern end of the site. Overall, the soundings indicate that site's bottom is gently sloping from northeast to southwest from -43 to -84 feet MLLW. Approximately 28,000 CY of material was placed at the Coquille ODMDS in 2014. Difference plots comparing 2013 to **2015** surveys show an overall increase of 1 foot of material across the site.

**Special Studies**

In **September 2013**, Anamar Environmental Consulting, Inc. (Anamar) and Marine Taxonomic Services (MTS) conducted physical, chemical, and biological monitoring of the Coquille ODMDS in accordance with the scope of work prepared by the Corps and EPA (Figure 2). A total of eighteen station locations were sampled. Nine stations within the boundaries of the ODMDS were selected in a grid pattern across the site. Nine stations outside of the boundaries of the ODMDS (5 north and 4 south) were selected at similar depths. All eighteen samples were submitted for physical (ARI lab) and benthic analyses (MTS). The samples located within the ODMDS were also submitted for chemical analysis for pesticides, TBTs (ALS lab), metals, TOC, total solids, SVOCs, TPH, and PCBs (EPA-Manchester lab). Samples within the site were over 90% sand. No chemicals of concern were detected of the SEF marine SLs. Additionally, three otter trawls were completed. The trawls returned Dungeness crab, hermit crab, octopus, jelly fish, shrimp, and isopod invertebrates. Sanddab, smelt and sole were the dominant fish species captured.

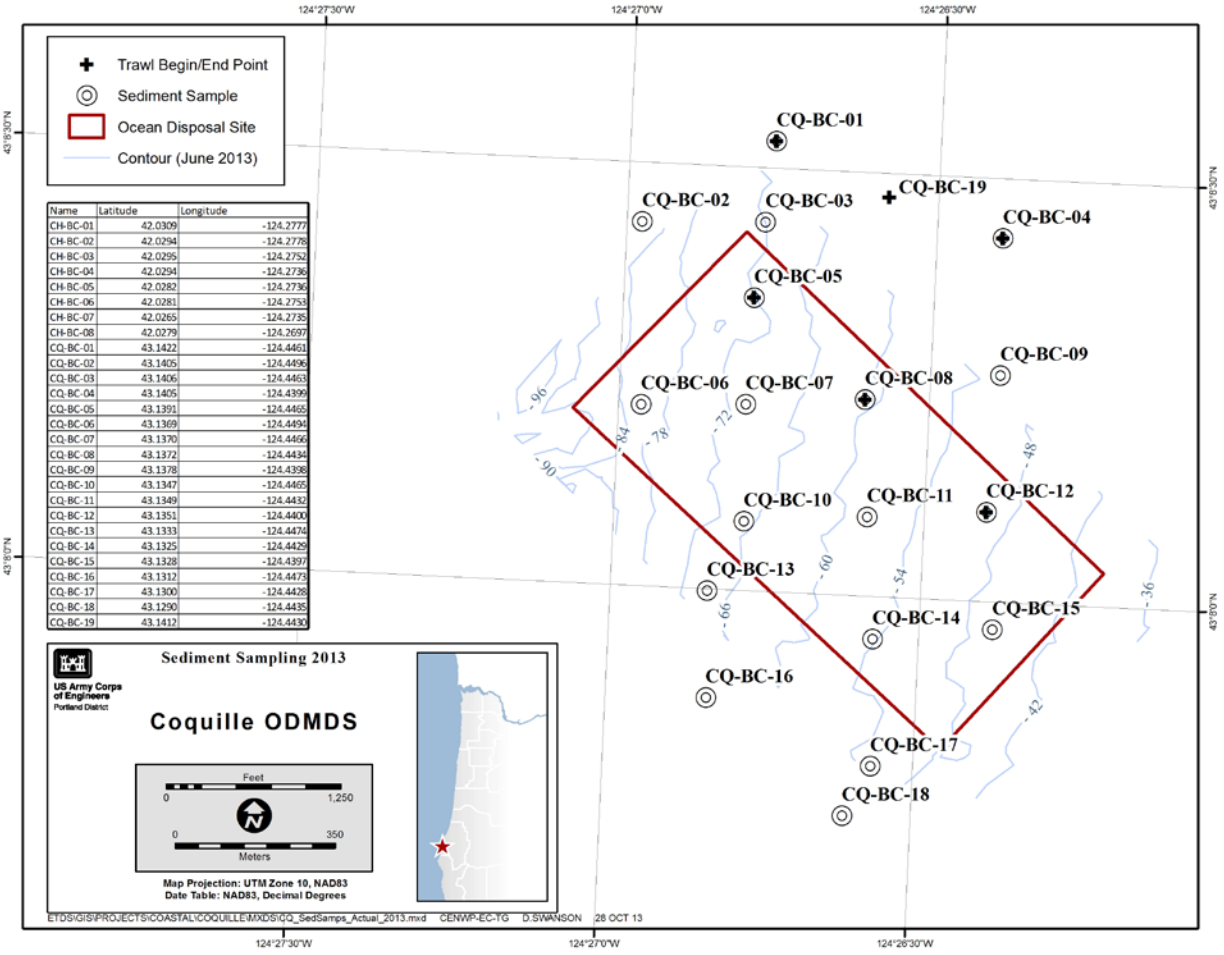



**Figure 2. Coquille ODMDS sampling stations (2013).**

## Management/Monitoring Actions and Recommendations

Beginning in **1992**, the Corps was notified of requirements for annual bathymetric surveys of all ODMDSs as a Tier I monitoring requirement. Monitoring has indicated no mounding or other reasons to modify present management practices at this location. Continuation of present management and monitoring practices is recommended to meet project and regulatory obligations. Special studies such as sidescan sonar surveys or benthic infauna and sediment characterization should be conducted as needed.

In **2012**, a generic dump plan (Figure 3) was developed for the Coquille ODMDS. Previous to the generic dump plans, directions were given to evenly distribute material evenly over the site or to restrict certain areas of the site due to mounding. Dump plans are adjusted according to annual bathymetric monitoring, and the development of a generic dump plan formalized this process.

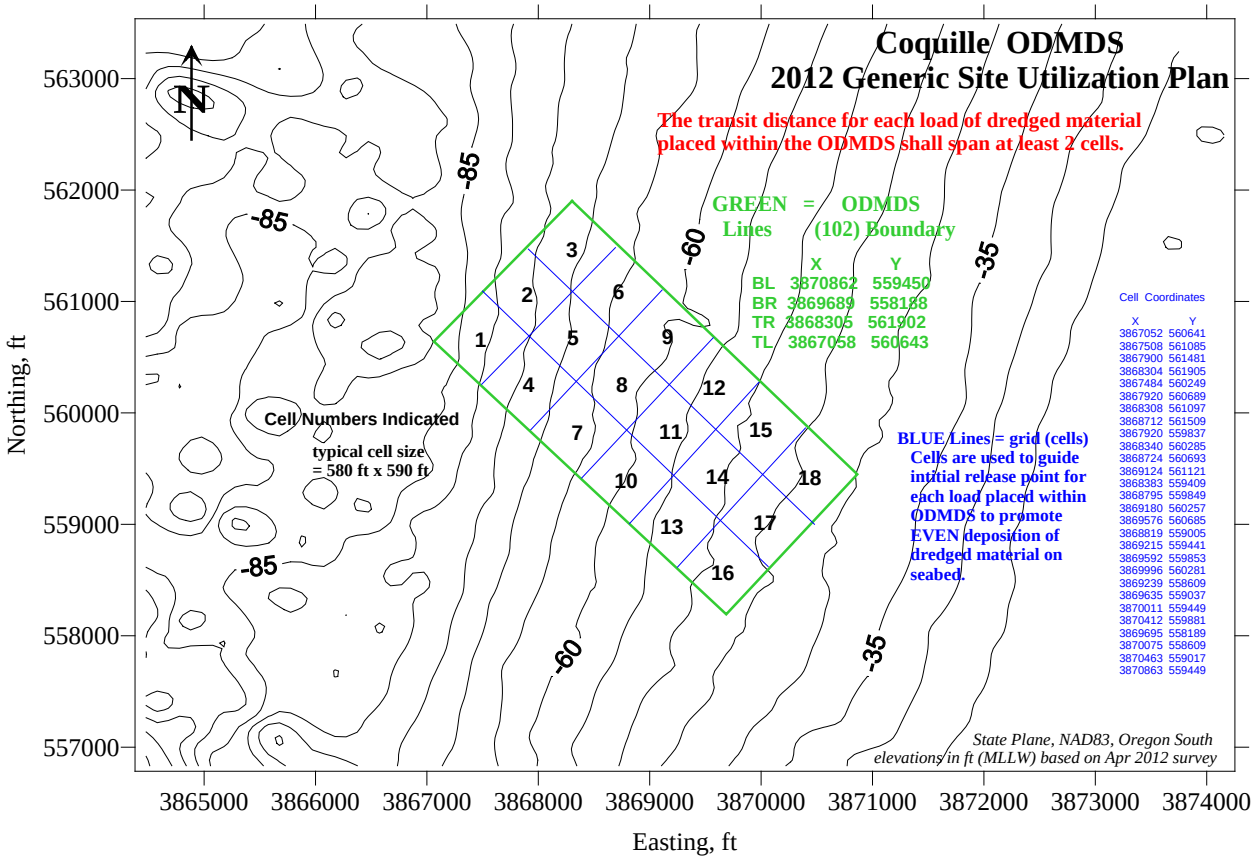
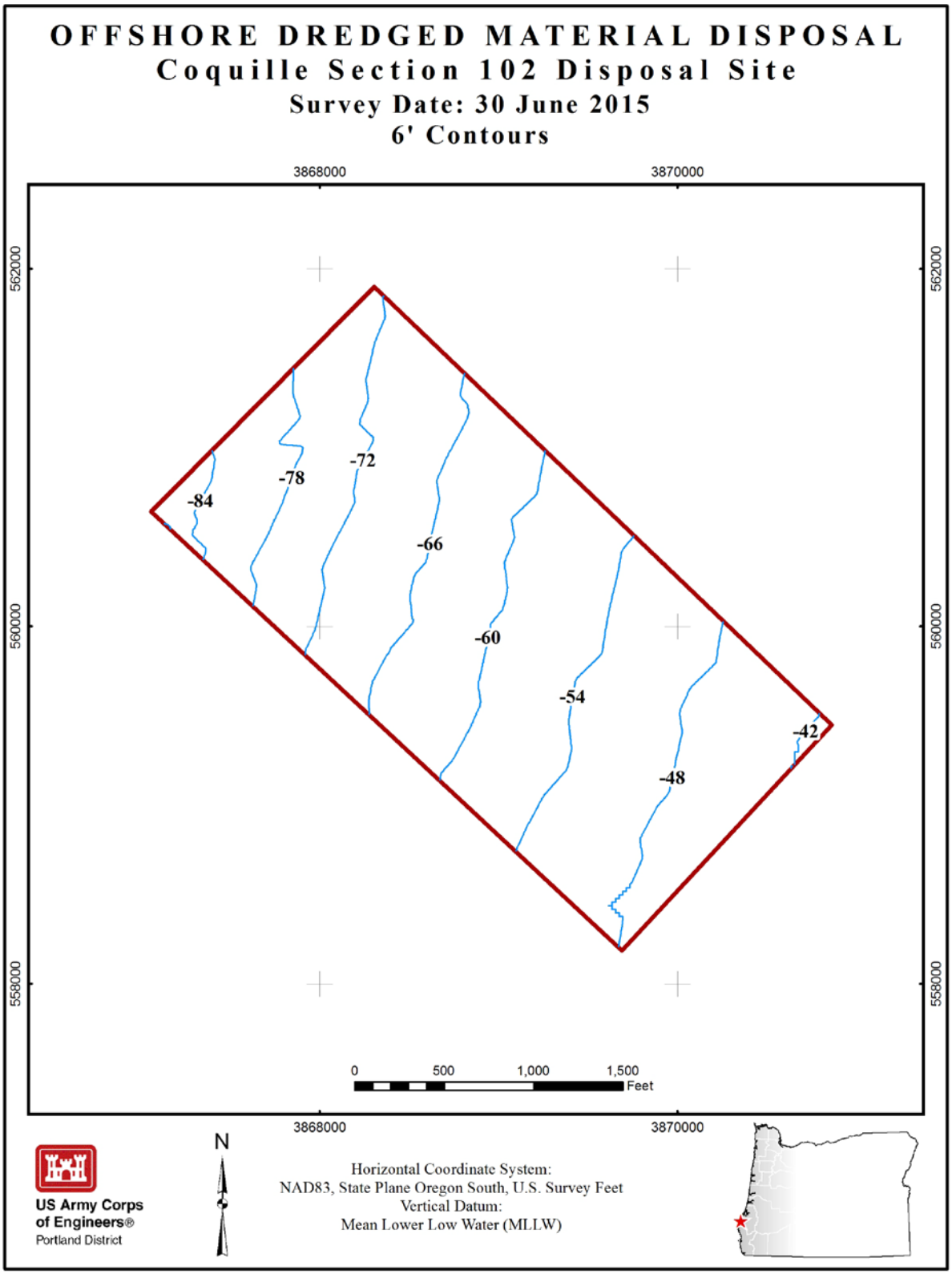



**Figure 3. Coquille ODMDS, generic dump plan (2012).**

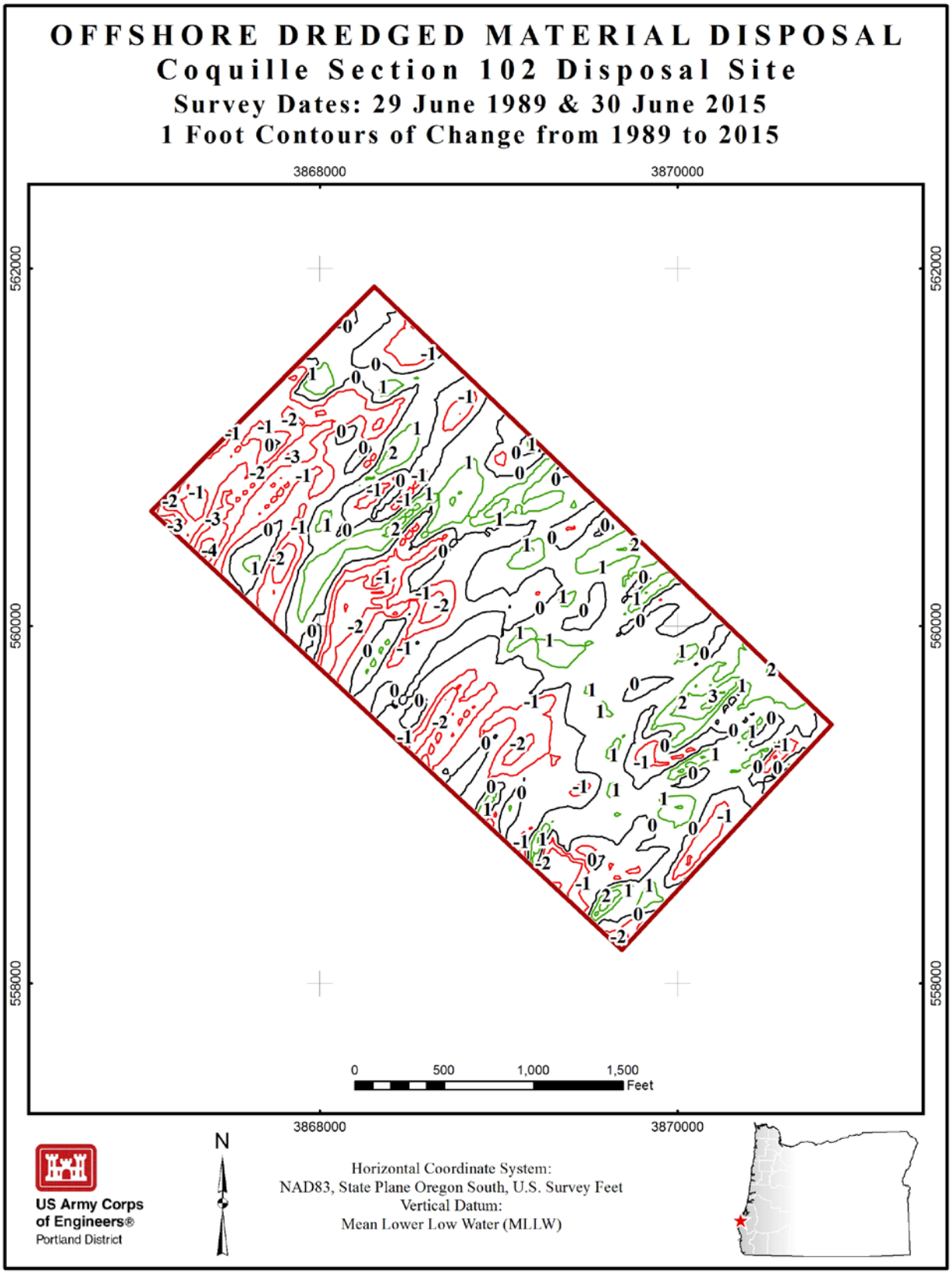
**Table 1**

Volumes Dredged at Coquille River FNC
Disposal at Coquille ODMDS
[in thousands of cy]

| Fiscal Year | Hopper Dredge |
|---|---|
| 1986 | 61.3 |
| 1987 | 38.0 |
| 1988 | 15.4 |
| 1989 | 13.2 |
| 1990 | 31.8 |
| 1991 | 29.0 |
| 1992 | 78.3 |
| 1993 | 56.7 |
| 1994 | 71.9 |
| 1995 | 21.8 |
| 1996 | 9.7 |
| 1997 | 24.5 |
| 1998 | 5.9 |
| 1999 | 18.4 |
| 2000 | 14.4 |
| 2001 | 23.7 |
| 2002 | 30.3 |
| 2003 | 37.5 |
| 2004 | 20.3 |
| 2005 | 22.3 |
| 2006 | 19.4 |
| 2007 | 16.1 |
| 2008 | 20.9 |
| 2009 | 24.3 |
| 2010 | 19.9 |
| 2011 | 22.2 |
| 2012 | 15.4 |
| 2013 | 0 |
| 2014 | 28.2 |


OFFSHORE DREDGED MATERIAL DISPOSAL
Coquille Section 102 Disposal Site
Survey Date: 30 June 2015
6' Contours
3868000
3870000
562000
560000
558000
-84
-78
-72
-66
-60
-54
-48
-42
0
500
1,000
1,500
Feet
US Army Corps
of Engineers®
Portland District
N
Horizontal Coordinate System:
NAD83, State Plane Oregon South, U.S. Survey Feet
Vertical Datum:
Mean Lower Low Water (MLLW)


OFFSHORE DREDGED MATERIAL DISPOSAL
Coquille Section 102 Disposal Site
Survey Dates: 12 June 2013 & 30 June 2015
1 Foot Contours of Change from 2013 to 2015
3868000
3870000
562000
560000
558000
0
500
1,000
1,500
Feet
US Army Corps
of Engineers®
Portland District
N
Horizontal Coordinate System:
NAD83, State Plane Oregon South, U.S. Survey Feet
Vertical Datum:
Mean Lower Low Water (MLLW)


OFFSHORE DREDGED MATERIAL DISPOSAL
Coquille Section 102 Disposal Site
Survey Dates: 29 June 1989 & 30 June 2015
1 Foot Contours of Change from 1989 to 2015
3868000
3870000
562000
560000
558000
0
500
1,000
1,500
Feet
N
US Army Corps
of Engineers®
Portland District
Horizontal Coordinate System:
NAD83, State Plane Oregon South, U.S. Survey Feet
Vertical Datum:
Mean Lower Low Water (MLLW)