

## Coquille River Sediment Evaluation

Introduction

1. The Coquille River enters the Pacific Ocean north of the town of Bandon, Oregon, 226 miles south of the mouth of the Columbia River (figure 1). The estuary is mainly fed by the Coquille River, which drains 1,058 square mile and is 99.1 miles from its mouth to headwaters.

2. The federal project starts in deep water and proceeds to RM 1.3 (figure 1). It is of suitable width and 13 feet deep. Snagging operations to clear the channel are authorized from RM 1.3 to RM 24.

3. Typically, two shoals form in the project; one between the jetty ends at the outlet and the other extends across the channel between RM 0.2 and 0.5. Project sediments are fine to medium sands. Since 1977 the average volume of dredged material has been 59,123 cubic yards (cy), with a range of 2,500 to 115,910 cy placed in the ODMDS each year.

4. Sediment samples were taken from Coquille River federal project and offshore ODMDS in 1981 and 1985 respectively. The grain size of the dredge sediments closely approximated that of the ODMDS. They both ranged from poorly-sorted gravelly sands to well-sorted fine sands. The volatile solids content at both sites was low with the ODMDS having slightly higher values (0.8 to 2.9%) than the federal project (0.54 to 1.48%). No chemical analysis of Coquille sediments has been done because there is no reason to believe contamination exists. The material is mostly gravelly sand and there are few heavy industries located along the estuary.

5. The purpose of the present study was to sample project sediments and subject them to physical analysis in support of operations and maintenance dredging. The analysis included measures of grain size distribution and percent volatile solids as well as a standard dredge test analysis used for contracting purposes.

Methods/Results

6. Samples from four stations were collected by Ponar grab sampler on 19 August 1990 (figure 1). They were taken to U.S. Army Corps of Engineers Materials Lab in Troutdale, Oregon for analysis.

7. All sediment samples were made up of poorly graded, gravelly sands with a mean sand content of 98.6% and fines content of 0.4% (table 1). The mean grain size (0.44 mm) indicated the samples

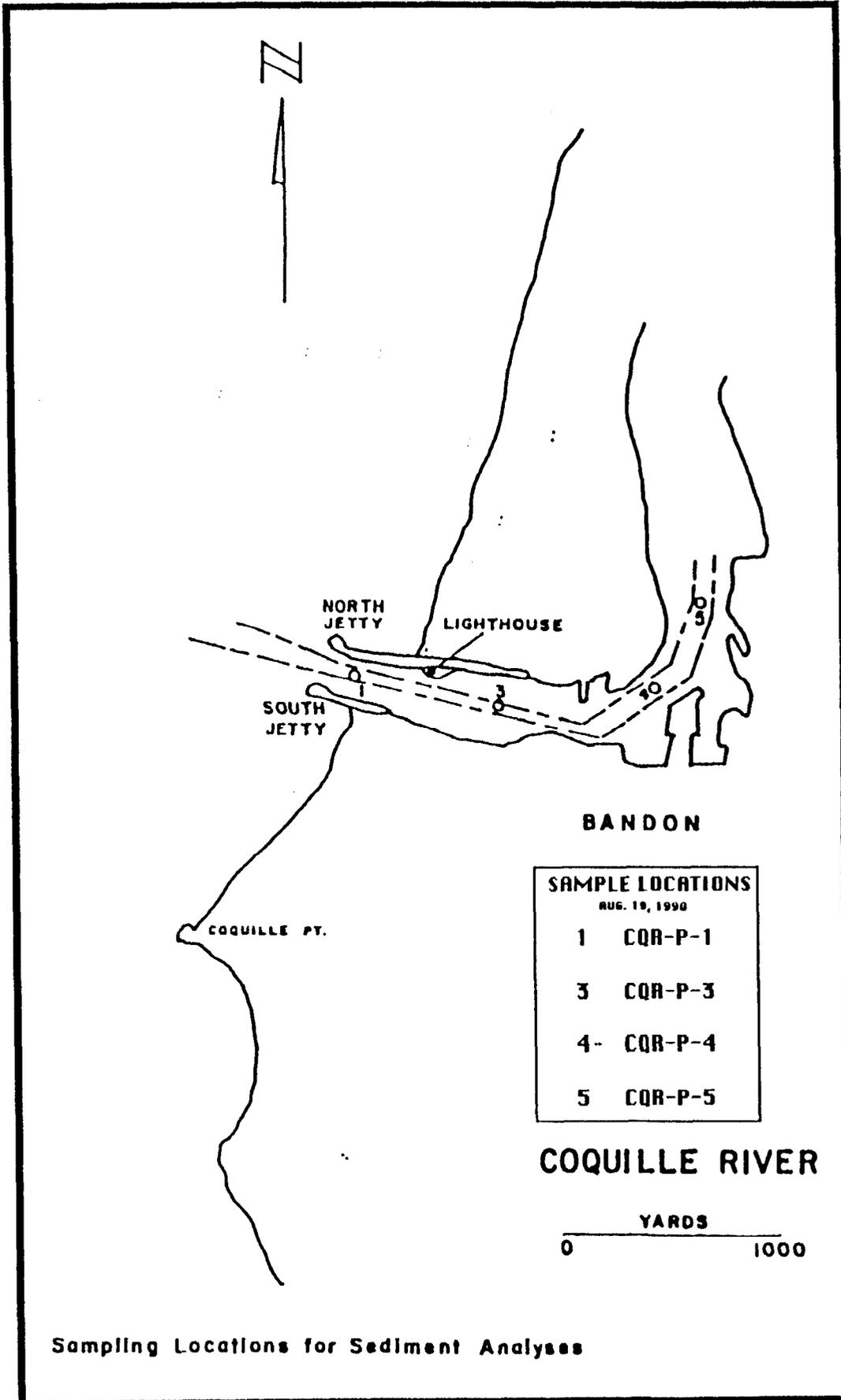
were medium sands. The volatile solids averaged 0.8 percent. The values reported here closely match those of the 1981 samples. The physical properties of the sediment at the Coquille River federal project have not changed over the years. There is continuing reason to believe that the sediments are clean sands free of contamination. According to CENPP tiered testing guidelines they are acceptable for in-water disposal at the offshore ODMDS.

Table 1.

Physical Characteristics of Coquille River  
Federal Project Sediments

Sample	gravel %	sand %	finer %	grain size mm	vol. solids %
1	2.1	97.8	0.0	0.41	0.7
2	0.4	99.3	0.2	0.38	0.6
3	0.0	99.4	0.6	0.48	0.8
4	1.2	98.1	0.7	0.50	1.2
mean	0.9	98.6	0.4	0.44	0.8

Figure 1.



Sampling Locations for Sediment Analyses

COQUILLE RIVER D & M

Results of Dredge Test Analysis

<u>CENPD</u> <u>Sample No.</u>	<u>Resuspended</u> <u>Density, gms/L</u>	<u>Void</u> <u>Ratio</u>	<u>Volatile</u> <u>Solids, %</u>	<u>Specific</u> <u>Gravity</u>	<u>Particle</u> <u>Roundness Grading</u>
CQR-F-1	1933	0.178	0.7	2.67	subround to round
CQR-F-3	1945	0.765	0.6	2.67	subround to round
CQR-F-4	1947	0.779	0.8	2.68	subangular to subround
CQR-F-5	1917	0.839	1.2	2.69	subangular to subround

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Pm 0.0

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COQUILLE RIVER O & M (90-SH-173)

Boring: -- Sample: CQR-P-1 Depth: SURFACE Lab No.: 17301

----- Sieve Analysis -----  
Cumulative

No hydrometer analysis.

Sieve	Grams Retained	Percent Passing
5 In.	0.00	100.0
2.5 In.	0.00	100.0
1.25 In.	0.00	100.0
5/8 In.	0.00	100.0
5/16 In.	0.00	100.0
No. 5	29.10	96.9
No. 10	81.00	91.5
Pan	948.60	0.0
No. 18	6.00	86.0
No. 35	14.50	78.2
No. 60	53.60	42.3
No. 120	99.70	0.1
No. 230	99.80	0.0
Pan	99.81	0.0

$\gamma = 0.41$

D85: 0.78    D60: 0.34    D50: 0.28    D30: 0.21    D15: 0.17    D10: 0.15 mm

Cu: 2.23    Cc: 0.86

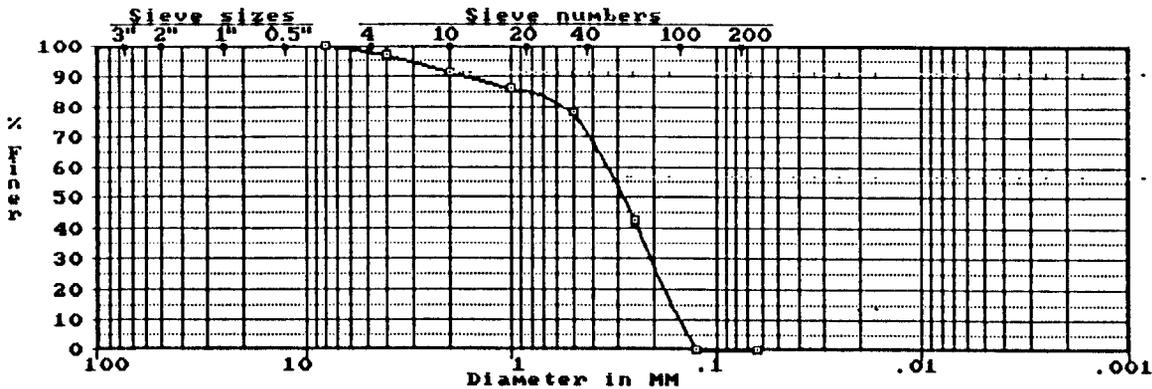
Gravel: 2.1%    Sand: 97.8%    Fines: 0.0%

----- ASTM D 2487 Classification -----

SP Poorly graded SAND

----- Comments -----

- SAMPLED ON 18 AUG 90
- PONAR GRAB SAMPLE
- BOTTOM SEDIMENTS
- VOLATILE SOLIDS - 0.7%



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 COQUILLE RIVER O & M (90-SH-173)

Boring: -- Sample: CQR-P-3 Depth: SURFACE Lab No.: 17302

----- Sieve Analysis -----  
 Cumulative

Sieve	Grams Retained	Percent Passing
5 In.	0.00	100.0
2.5 In.	0.00	100.0
1.25 In.	0.00	100.0
5/8 In.	0.00	100.0
5/16 In.	0.00	100.0
No. 5	5.80	99.4
No. 10	10.70	98.9
Pan	966.50	0.0
No. 18	1.00	98.1
No. 35	14.40	87.0
No. 60	112.90	5.9
No. 120	119.60	0.3
No. 230	119.80	0.2
Pan	120.00	0.0

No hydrometer analysis.

*F = 0.38*

D85: 0.49 D60: 0.40 D50: 0.37 D30: 0.31 D15: 0.27 D10: 0.26 mm

Cu: 1.54 Cc: 0.92

Gravel: 0.4%

Sand: 99.3%

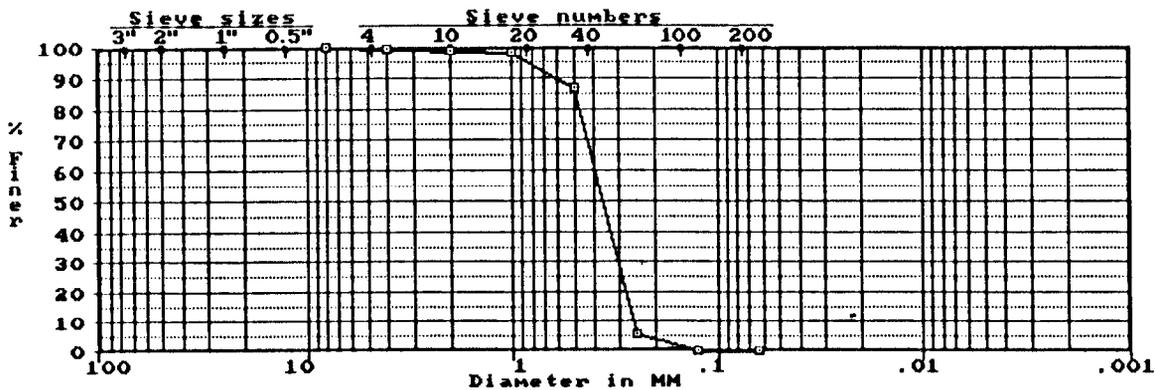
Fines: 0.2%

----- ASTM D 2487 Classification -----

SP Poorly graded SAND

----- Comments -----

- SAMPLED ON 18 AUG 90
- PONAR GRAB SAMPLE
- BOTTOM SEDIMENTS
- VOLATILE SOLIDS = 0.6%



1.0

\*\*\* Corps of Engineers - North Pacific Division Materials Laboratory \*\*\*  
 COQUILLE RIVER O & M (90-SH-173)

Boring: -- Sample: CQR-P-4 Depth: SURFACE Lab No.: 17303

----- Sieve Analysis -----  
 Cumulative

No hydrometer analysis.

Sieve	Grams Retained	Percent Passing
5 In.	0.00	100.0
2.5 In.	0.00	100.0
1.25 In.	0.00	100.0
5/8 In.	0.00	100.0
5/16 In.	0.00	100.0
No. 5	0.00	100.0
No. 10	4.00	99.6
Pan	936.70	0.0
No. 18	2.70	97.4
No. 35	44.50	63.8
No. 60	120.50	2.8
No. 120	122.60	1.1
No. 230	123.40	0.5
Pan	124.00	0.0

$X = 0.86$

D85: 0.72 D60: 0.48 D50: 0.43 D30: 0.35 D15: 0.29 D10: 0.27 mm

Cu: 1.75 Cc: 0.92

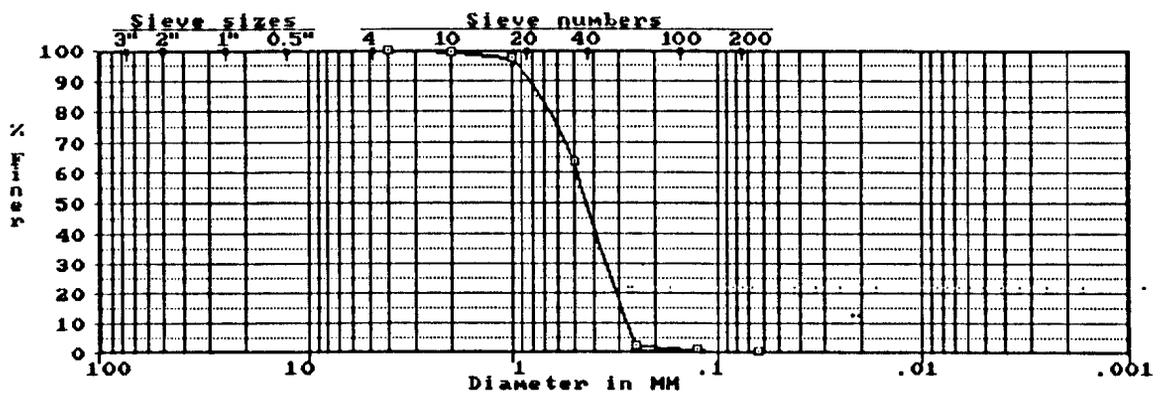
Gravel: 0.0% Sand: 99.4% Fines: 0.6%

----- ASTM D 2487 Classification -----

**SP Poorly graded SAND**

----- Comments -----

- SAMPLED ON 19 AUG 90
- PONAR GRAB SAMPLE
- BOTTOM SEDIMENTS
- VOLATILE SOLIDS - 0.8%



Rm 113

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COQUILLE RIVER O & M (90-SH-173)

Boring: -- Sample: CQR-P-5 Depth: SURFACE Lab No.: 17304

----- Sieve Analysis -----  
Cumulative

Sieve	Grams Retained	Percent Passing
5 In.	0.00	100.0
2.5 In.	0.00	100.0
1.25 In.	0.00	100.0
5/8 In.	0.00	100.0
5/16 In.	0.00	100.0
No. 5	13.50	98.3
No. 10	37.80	95.3
Pan	803.70	0.0
No. 18	11.20	89.2
No. 35	54.30	65.6
No. 60	165.10	5.0
No. 120	169.90	2.4
No. 230	173.90	0.2
Pan	174.30	0.0

No hydrometer analysis.

7.0.50

D85: 0.81 D60: 0.47 D50: 0.42 D30: 0.34 D15: 0.28 D10: 0.27 mm

Cu: 1.77 Cc: 0.91

Gravel: 1.2% Sand: 98.1% Fines: 0.7%

----- ASTM D 2487 Classification -----

SP Poorly graded SAND

----- Comments -----

- SAMPLED ON 19 AUG 90
- PONAR GRAB SAMPLE
- BOTTOM SEDIMENTS
- VOLATILE SOLIDS - 1.2%

