

Siuslaw River Sediment Quality Evaluation, 1996

ABSTRACT

According to Clean Water Act (CWA) and Marine Protection, Research and Sanctuaries Act (MPRSA) requirements, Siuslaw River sediments from the federal navigation project were evaluated and determined to be suitable for unconfined in-water or upland disposal. The sediments are medium sands low in organic content and meet exclusionary criteria thereby require no further testing.

INTRODUCTION

1. Sediment characterization of Siuslaw River channel was initially undertaken in the 1960's by the Corps in response to a need for determining the suitability of dredged material for in-water disposal. The current study evaluated only the physical characteristics of the sediment since the sediment has historically met exclusionary criteria.

BACKGROUND

2. The outlet of the Siuslaw River is located about 160 miles south of the mouth of the Columbia River. The river is 118 miles long and drains a watershed of 773 miles. The estuary of the Siuslaw River is narrow and crooked, extending 25 miles up-river from the mouth. The estuary covers about 1,780 acres. Tidelands are few between the mouth and river mile 5.0 then become extensive upstream from there. Annually, an average of 2,300,000 acre-feet of fresh water is flushed through the drainage basin. Normal river flow at the mouth is estimated to be 3,150 cfs. The mean tide range is 5.2 feet with an extreme of 11.0 feet.

3. The federal Project is described as follows: an entrance channel 18 ft deep and 300 ft wide runs from deep water to RM 0.2. From there, the channel is 16 ft deep and 200 ft wide to RM 5.0. At bends in the river the channel widens. Opposite the dock at RM 5.0 a turning basin is 16 ft deep, 400 ft wide and 600 ft long. From Florence the channel is 12 ft and 150 ft wide to RM 16.5. At RM 15.8 the channel widens into a turning basin 12 ft deep, 300 ft wide and 500 ft long. The recent, 5-year average volume of material dredged from the project was 153,000 cubic yards (1). This material was placed in an Ocean Dredged Material Disposal Site.

4. Industrial and commercial activity in the area is mostly related to the forest products industry. Sources of pollutants from industry are few. Sewage from Florence is processed through a sewage treatment plant.

5. Species of recreational or commercial interest found in the Siuslaw River estuary are salmon, redbay seaperch, bay mussels, pile perch, dungeness crab and softshell clams. Less common are shiner perch, staghorn sculpin, piddocks and gaper clams (2).

6. The U. S. Army corps of Engineers conducted sediment studies during the early 1960's and 1970's and again in 1987 and 1991 (2.3). Sediments from the Siuslaw River were fine to medium sands low in fines and organic content (around 1.0% volatile solids).

METHODS

7. Ten samples were collected 25 June 1996 using a ponar grab sampler which takes a sample approximately 9 cm thick that represents the surface sediments. These samples were subjected to physical tests including density, void ratio, volatile solids, specific gravity, particle size classification (ASTM D2487) and particle roundness.

RESULTS / DISCUSSION

8. Table 1 shows the results of physical analyses of the sediment samples. Siuslaw River sediments are 99.9 % poorly graded sand with a low volatile solids content (0.8 %). The mean grain size is that of medium sand (0.294 mm). These values are typically associated with clean sand free of contaminants.

RECOMMENDATIONS

9. Siuslaw sediments meet CQA and MPRSA exclusionary criteria and are acceptable for unconfined in-water and upland disposal with no unacceptable environmental impacts expected.

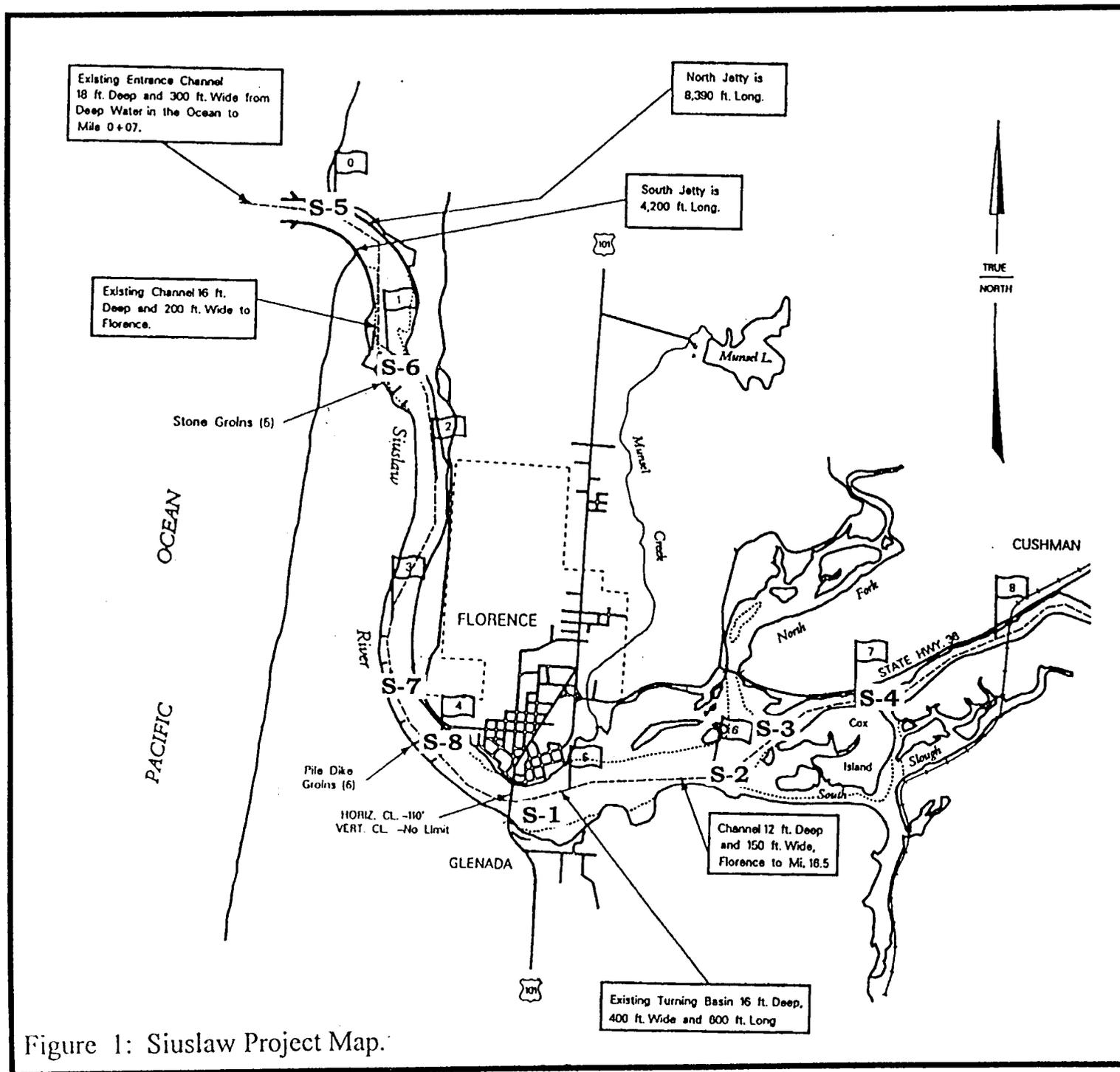


Figure 1: Siuslaw Project Map.

Table 1. Results of physical analyses of the Siuslaw River sediment samples, 1996

sample	mean gr. size mm	sand	silt	clay %	volatile solids
BC-1	0.300	100.0	0.0	0.0	0.9
BC-2	0.300	94.0	5.3	0.7	1.4
BC-3	0.340	92.7	6.1	1.2	1.4
BC-4	0.380	99.8	0.2	0.0	1.1
BC-5	0.360	100.0	0.0	0.0	0.7
BC-6	0.330	99.9	0.1	0.0	0.7
BC-7	0.190	100.0	0.0	0.0	0.5
BC-8	0.220	100.0	0.0	0.0	0.3
BC-9	0.310	99.7	0.3	0.0	0.3
BC-10	0.210	99.9	0.1	0.0	0.7
mean	0.294	98.600	1.210	0.190	0.800