BACHELOR SLOUGH

Description

Bachelor Slough defines the eastern boundary of Bachelor Island (Columbia River Mile 88 and 92). Bachelor Slough empties into Lake River, which bounds the north end of the Island (see figure 1).

Maintenance

Material within Bachelor Slough is proposed for placement in several upland disposal sites on Bachelor Island. A dredging action, proposed by the U.S. Fish and Wildlife Service, Ridgefield National Wildlife Refuge, entails dredging of Bachelor Slough to increase depth and through flow of Columbia River waters in order to enhance in-stream salmonid habitat. Increased depth and flow should also address water temperatures in Bachelor Slough, which currently exceed temperature tolerance of salmonids from approximately mid-summer until fall.

Work is anticipated to be completed by a small pipeline dredge with dredged material placed in diked upland cells with return water discharge via weirs to the Columbia River, Lake River and/or Bachelor Slough. Potential areas for dredged material disposal include an upland portion of Bachelor Slough immediately downstream of the junction of Bachelor Slough and Lake River and inland of the flood protection dike. A second location is an upland site adjacent to the dike near Wigeon Lake. The third location is an old dredged material disposal location on Washington Department of Natural Resources land that abuts the Columbia River, at approximately the center of the island.

Sediment

Three (3) samples were classified as “poorly graded sand”, three (3) as “poorly graded sand with silt” and four (4) samples as “silty sand.” Mean grain size for all the samples is 0.16 mm, with 0.0% gravel, 88.6% (100%-74.9% range) sand and 11.4% (0%-25.1% range) fines. Mean volatile solids were 1.23% for all the samples, with a 0.57% to 2.07% range.

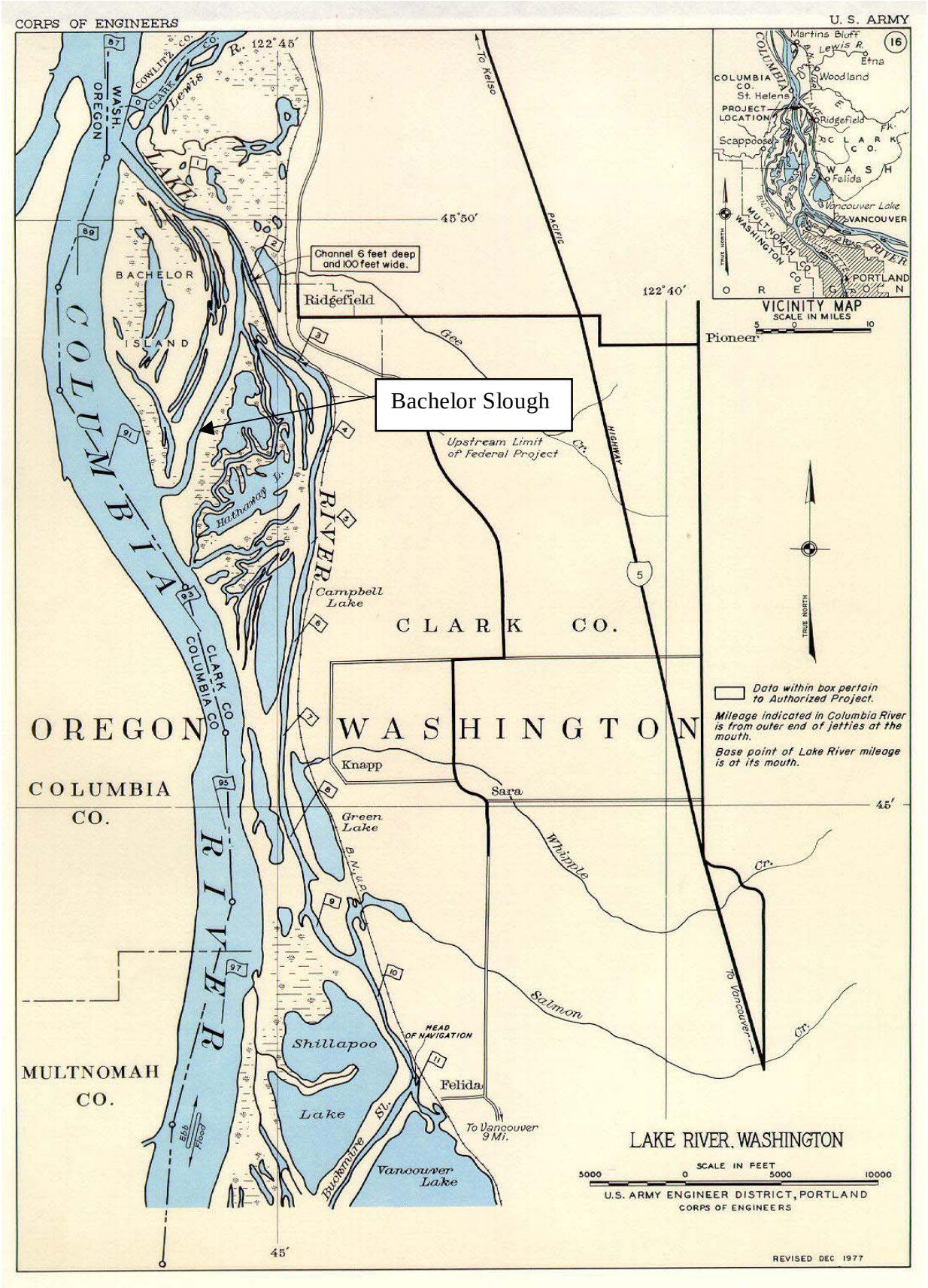

Figure 1: General Site Map Bachelor Slough.

June 2003, The purpose of this sediment evaluation is to determine the suitability of the material within Bachelor Slough for placement in several upland disposal sites on Bachelor Island. A dredging action, proposed by the U.S. Fish and Wildlife Service, Ridgefield National Wildlife Refuge, entails dredging of Bachelor Slough to increase depth and through flow of Columbia River waters in order to enhance in-stream salmonid habitat. Increased depth and flow should also address water temperatures in Bachelor Slough, which currently exceed temperature tolerance of salmonids from approximately mid-summer until fall.

A total of ten (10) sediment samples were collected along the length of Bachelor Slough, June 3, 2003. All samples were submitted for physical analyses, including total volatile solids. Samples were, also, analyzed for metals (10 inorganic), total organic carbon, pesticides and polychlorinated biphenyls, phenols, phthalates, miscellaneous extractables and polynuclear aromatic hydrocarbon, with five (5) samples selected for dioxin/furan analyses. One (1) sample was split in the field and submitted to the lab, as a blind duplicate, for quality control purposes.

Three (3) samples were classified as “poorly graded sand”, three (3) as “poorly graded sand with silt” and four (4) samples as “silty sand.” Mean grain size for all the samples is 0.16 mm, with 0.0% gravel, 88.6% (100%-74.9% range) sand and 11.4% (0%-25.1% range) fines. Mean volatile solids were 1.23% for all the samples, with a 0.57% to 2.07% range.

The chemical analyses indicated low levels of metals, low levels of several phenol & phthalate compounds, very low levels of PAHs & Dioxins/furans. The sediment represented by this sampling event is determined to be suitable for unconfined, in-water or upland placement without further characterization.