

4.7. Wetlands, Riparian, and Littoral Habitat

4.7.1. Introduction

Researchers for Bechtel did not specifically map wetlands, riparian, or littoral habitats during the 1981 study (Bechtel, 1983). Wetlands mapping and vegetation habitat mapping that will distinguish critical habitats is planned as part of licensing studies. However, based on mapping from the Bechtel studies, roughly 95 percent of the low elevation portion of the Project area is composed of floodplain, wetlands, riparian habitats, and littoral zones. The percentage of wetlands is substantially less at higher elevations immediately surrounding the upper Chakachatna and McArthur rivers, Chakachamna Lake, and lake tributaries. About 40 percent of the area just downstream of where the Chakachatna River exits the mountains and about 8 percent of the canyon and higher elevation habitats were considered to be floodplain, wetlands, riparian habitats, or littoral zones. Of the eight habitat types described in the Bechtel studies, seven would fall under the categories of wetlands and riparian habitats. These habitats, described in detail under Section 4.6.3.1, Vegetation Cover Types, are:

- Coastal Marsh Riparian (CMR),
- Black Spruce Riparian (BSR),
- Resin Birch Bog (RBB),
- Black Cottonwood Riparian (BCR),
- Black Spruce Transitional (BST),
- Willow Thicket Riparian (WTR), and
- High Altitude Riparian (HAR)

Since the 1981 studies were conducted, the USFWS has mapped some wetlands in the Project area as part of the National Wetlands Inventory (NWI). Available digital mapping covers some of the Project area around Chakachamna Lake and areas near Big River, Nikolai Creek, and the Beluga River that contain wetlands similar to those in the Project area. The wetlands around Kenibuna Lake and Chakachamna Lake and their tributaries, the Neacola, Igitna, and Chilligan Rivers, fall under the general types of palustrine emergent, palustrine scrub shrub, riverine, and lacustrine. Wetlands surrounding Chakachamna Lake and its tributaries are confined by the steep topography to river floodplains, deltas, and glacial outwash and moraines.

NWI mapping from areas similar to lower elevations of the Project area (Big River, Nicolai Creek, Beluga River) indicates that wetlands likely fall into the general types of palustrine forested, palustrine scrub shrub, palustrine emergent, palustrine open water, riverine, lacustrine, estuarine scrub shrub, estuarine emergent, and estuarine. These would comprise the muskeg (resin birch bogs), black spruce bogs, riparian areas, and coastal marshes described in the vegetation section above.

Because such a large proportion of the Project area, and especially the area studied by Bechtel, falls into the categories of floodplain, wetlands, riparian, and littoral habitats, the majority of the animals and plants discussed in Sections 4.6.2.1 and 4.6.3.1 and listed in tables 4.6-1 (wildlife), 4.6-2 (birds), and 4.6-6 (Plants) and appendices 4-3, 4-4, and 4-5 can be considered residents of these habitats. Figure 4.6-3 shows the quadrats sampled for the habitat studies in 1981. For the most part, they are located in floodplains, wetlands, riparian, and littoral habitats.

Figures 4.6-4 through 4.6-9 (Bechtel, 1983) show the habitats as they occurred in 1981. Reconnaissance of the Project area in 2008 shows that the Chakachatna River and channels flowing through Noaukta Slough and across the lowlands of Trading Bay State Game Refuge have changed course (HDR 2008). Vegetation and wetlands studies planned as part of Project licensing will re-classify habitats and map wetlands for the first time. This information will also be used to document the changes that have occurred in habitats as a result of hydrologic changes to date.

4.7.2. Potential Adverse Impacts

Hydrologic ties to the Chakachatna and McArthur rivers appear to be important in supporting the lower elevation wetlands in the Project area, mainly in Noaukta Slough and the Trading Bay State Game Refuge. Changes in the hydrology of these two rivers could affect floodplains, wetlands, and riparian habitats. Decreased flow in the Chakachatna River may reduce the amount of water available to support habitats adjacent to and down-gradient (along losing reaches) of the river. Conversely, increased flow in the McArthur River could inundate some habitats or cause changes in the channel that would affect adjacent habitats. There are littoral, riparian, and wetland habitats around the shores of Chakachamna Lake that could be affected by increased fluctuation in the water surface elevation of the lake. Table 4.6-9 above describes potential impacts to wetlands and other terrestrial resources that may result from Project construction and operation.

4.7.3. Proposed Protection, Mitigation, and Enhancement Measures

The PME measures described in Section 4.6.5 for vegetation in general apply also to floodplains, wetlands, riparian, and littoral habitats.

The hydrology of the Project area will be studied to describe the role of hydrologic connections between the Chakachatna and McArthur rivers and their surrounding habitats. Information on natural historical changes in area hydrology may be used to predict the effects of the Project and help design PME measures. Wetlands will be mapped so that Project facilities can be constructed to avoid them to the extent practicable or minimize impacts in wetlands that cannot be avoided.