

## SECTION 6. DRAFT ENVIRONMENTAL ASSESSMENT

### 6.1 Introduction

In the early 1930's, the Corps of Engineers recommended flood control improvements be constructed for Columbia Slough. These included levees and drainage systems in the four drainage districts existing at the time. The projects were authorized by Congress in 1936 and subsequently constructed. A 1993 report by the Corps found that these actions were responsible for fish and wildlife degradation. Under Section 1135 of the Water Resources Development Act of 1986, the Corps undertakes restoration of habitats degraded by previous Corps actions. Recent (1995) Corps guidance for ecosystem restoration identifies water quality as an important part of the ecosystem.

### 6.2 Purpose and Need

Corps' actions providing flood control resulted in interference with natural water flow in the Columbia Slough, degrading water quality and causing wetlands to dry out. The purpose of the proposed action is to improve water quality and create and restore wetlands along a segment of Columbia Slough.

### 6.3 Proposed Action and Alternatives

In conjunction with efforts by the project sponsor, the City of Portland, Bureau of Environmental Services (BES), the proposed action is to provide ecosystem restoration in Columbia Slough by improving water quality and creating wetlands. This action involves dredging 44,900 cubic yards (CY) of sediments from the slough between river miles (RM) 8.5 and 16, creating 9 acres of wetland benches within the slough, and creating a total of 1.0 acre of new riparian scrub-shrub habitat, 11.3 acres of emergent wetland habitat, and 1.7 acres of aquatic bottom habitat; restoring 18 acres of adjacent wetland and riparian habitat at Galitzski Springs and Galitzski Flats; and replacing five culverts in Buffalo Slough and Whitaker Slough to facilitate water flow, lower water levels, and create 19.7 acres of emergent wetland habitat (Figures 3a and 3b). Ecosystem restoration criteria include restoring riparian shrub-scrub and emergent wetland vegetation to optimal condition for selected target species, including yellow warbler and invertebrates. Improvements are measured as increased habitat units (HU) rather than acres.

Alternatives include no action, and more extensive restoration. No action would not respond to restoration needs. More extensive restoration is possible, but land values are rapidly escalating in this urban area, making many other options economically infeasible.

### 6.4 Affected Environment

Columbia Slough is about 18.5 miles long and is located just south of and parallel to the Columbia River in a highly developed industrial and residential area of north Portland. Levees constructed in the early 1900's cut off flushing from the Columbia River and divided the slough into two parts. The lower slough does not meet Oregon Department of

Environmental Quality requirements, suffering from stagnation, accumulation of industrial pollutants and toxic chemicals. Sediments are predominantly sand in the lower portions, changing to silt further upstream. Aquatic life consists predominantly of oligochaete worms in the benthos, some aquatic invertebrates, and various fish. Game fish include crappie, sunfishes, and white sturgeon. Juvenile chinook salmon are occasionally found during late spring high water conditions on the Willamette River, but the slough is not considered critical habitat for salmonids. Non-game species include sucker, carp, stickle back, pea mouth and cottids. The Columbia Slough levee is grass-covered: the riverward side is overgrown with reed canary grass and blackberry, the landward side is mowed.

Much of this area was low lying land with sloughs and wetlands prior to construction of the embankments. The water table is shallow and an internal drainage system of sloughs, ditches, culverted drainages and pumps has been installed over the decades. Soils are primarily hydric in origin. The area historically was highly disturbed, drained, filled, put into agricultural production, and built upon.

**6.4.1 Physical Environment.** Sediments in the middle portion of the slough are primarily silts and silty sand. Analysis from 1999 sampling (See Appendix A) indicates that sediments are composed of more than 20 percent fines, and some samples exceeded 5 percent volatile solids. Several samples contained DDT, though only one sample, in the upper reach of the slough near Fairview Lake, exceeded screening levels. Sources of the DDT are probably historic spraying for mosquito control as well as agricultural use. No other contaminants exceeding levels of concern were found.

Soils are silty loam to silty clay loam, very deep and poorly drained. Portions are considered "prime" by the Natural Resource Conservation Service when drained and protected from flooding: Sauvie silty clay loam; Sauvie silt loam; and Rafton silt loam. These soils are not in agricultural production at this time and are located within Portland's urban growth boundary.

**6.4.2 Biological Environment.** Several waterfowl species use the Columbia Slough habitat. Raptors such as red-tailed hawk, bald eagle and peregrine falcon are occasional visitors to the area. Columbia Slough receives limited recreational use, including canoeing, wildlife viewing and fishing. State and local authorities recently issued a warning against eating fish caught in Columbia Slough, due to high levels of PCB's and other toxic substances.

The unmowed portions of the embankments support some vegetation, including grasses, blackberry, nettles, black locust, ash, and cottonwood. Remaining habitat supports insects, frogs, snakes, voles, nutria, beaver, and a variety of birds including yellow warbler, downy woodpecker, black-capped chickadee, ducks and great blue heron. Various waterfowl species use the sloughs and ponds. No threatened or endangered species are known to inhabit the area; migrant peregrine falcon (de-listed) and wintering bald eagle may occasionally be seen in the general vicinity.

Predicted (with-project) values for yellow warbler were based on measurements of existing high quality riparian scrub shrub vegetation in the upper slough. Existing values for benthic invertebrates were based on extensive sampling of the sloughs; predicted values were based on published literature, unpublished reports, and personal communications.

**6.4.3 Cultural Environment.** The cultural environment of the watershed is previously discussed in this document in Sections 3.9 and 3.10.

## **6.5 Environmental Effects**

**6.5.1 Physical Environment.** The physical environment of present-day Columbia Slough between RM 8.5 - 16 would be altered. About 44,900 cubic yards (cy) of sediment would be excavated, deepening the channel from elevation 6'CRD (Columbia River Datum) down to elevation 3' CRD in the upper slough (upstream of the mid-dike levee), and from elevation 5' CRD down to elevation 2'CRD in the middle slough. Most of this material would be placed on the bank side of the channel to form wetland benches. The material would be dredged in two lifts, with a barge-mounted bucket dredge skimming off the top 12"-18", placing it on the side of the channel. Material would then be dredged from a lower level and carefully placed on top of this material. These benches would be about 20 feet wide, with varying lengths on each side of the slough channel. The estimated total surface coverage is about 9 acres. Deepening and narrowing the channel would accelerate water flow, reducing stagnation. During the excavation and placement of material, short-term turbidity is expected to occur. Water management techniques would be employed to temporarily stop or reduce flow until the sediments settled out.

Sediments within the slough will be handled so that "top" material dredged from undisturbed channel will be on the bottom of the piled material creating the bench. The excavation will be done with shallow cuts to get the top material on the bottom of the disposal site. Material will be placed rather than dumped. Placing excavated material top down would reduce the probability that sediments containing DDT would enter the water system. Placement of material on top of existing sediments with DDT also keeps those sediments from contributing DDT to the system in the future. DDT in the sediments to be excavated does not exceed screening levels; however, it is beneficial to cover these sediments so that any DDT is less likely to become available in the ecosystem.

An estimated 3,600 cy of excess dredged material would be placed in 4-inch to 6-inch layers on the landward side of the main Columbia River levee along NE Marine Drive between NE 42<sup>nd</sup> Street and the I-205 bridge. The material will not have any direct contact or possibilities of running back into a waterway without first draining through several bio-swale systems, in order to filter out any sediments.

Replacement of four corrugated metal pipe (CMP) culverts with reinforced concrete pipe culverts on Buffalo Slough at Broadmoor and on Whitaker Slough at Colwood Golf Courses, together with installation of a 48" HDPE (high-density polyethylene) Spirolite

culvert beneath NE 33<sup>rd</sup> Avenue, would involve excavation of 785 cy of material and placement of about 865 cy of material. About 185 cy of Class 100 rip rap per culvert , covering about 200 sq.ft. of surface area per culvert (1,000 sq. ft. total) would be placed to prevent erosion. The replacement culverts would allow for faster flow at lower elevations, a factor in water level management (see below).

**6.5.2 Biological Environment.** Faster water flow would reduce stagnation and algae blooms, and reduce water temperature. Non-productive aquatic bottom habitat would be replaced with emergent and shrub-scrub habitat.

**6.5.3 Environmental Outputs.** The construction of wetland benches will create or enhance three habitat types: riparian scrub-shrub, emergent wetland, and aquatic bottom. Table 5.1 includes the number of acres that would be affected by the project and the HUs and design elevations for each habitat type. Riparian scrub-shrub will be planted above the summer low water elevation, which is 5.5 feet in the middle slough and 8.5 feet in the upper slough. The maximum HUs would be obtained by establishing a dense cover of deciduous hydrophytic shrubs in this zone.

Emergent wetland will be created in the zone between the riparian scrub-shrub and approximately 3 feet below the mean summer water elevation. Although the maximum HUs for emergent wetland will be obtained in permanently flooded areas, water levels are anticipated to fluctuate slightly, alternately exposing and flooding habitat.

Aquatic bottom habitat is permanently flooded and occurs more than 3 feet below the low summer water elevation. This is generally the maximum depth at which emergent plants can grow. The emergent wetland and riparian scrub-shrub zones will enhance habitat for benthic invertebrates that occupy aquatic bottom habitat by providing organic plant material and structure. However, this improvement in aquatic bottom habitat will be slight because this zone is permanently flooded and sediments are generally unstable.

Existing bottom habitat is rated "poor" and supports few aquatic life forms. Approximately 13.7 acres of this poor habitat would be replaced by improved habitat for emergent and shrub-scrub species.

Water level management, such as a slow drawdown in late May or early June and taking 4-6 weeks to occur, will help create a more diverse vegetative cover. Maintaining high water levels (over 18") through June in some years will help suppress reed canary grass.

Riparian shrubs should dominate wetland bench vegetation at elevations above the mean low water level. Shading exceeding 80 percent has been shown to suppress reed canary grass biomass. Riparian shrubs such as willows, spiraea, and red-osier dogwood are hydrophytic shrubs, which can withstand flooding and perform well in environments with fluctuating water levels.

**6.5.4 Wetland Restoration, Galitzki Springs.** The subject parcel, with its hydric soils, historical wetland, and perennial springs, offers unique restoration opportunities. The

well-shaded springs provide a year-round source of cool water to the riparian area. The juxtaposition of the cottonwood-ash, mixed hardwood, and wet meadow habitats makes this one of the most valuable restoration opportunities in the project area.

Restoration would focus on re-creating wetland and open-water habitat in the Galitzki Flats, and increasing forest cover, improving age-distribution, and snag recruitment in Galitzki Springs. This would be accomplished primarily through wetland construction, invasive plant control and revegetation. Wetland construction would provide 3.4 acres of open water and 5.0 acres of emergent wetland, for a total of 6.7 new HUs. Restoration in forested areas would provide 5.5 acres of cottonwood-ash and 2.4 acres of mixed hardwood-conifer, for a total of 2.8 new HUs. The 2.7 acres of riparian scrub-shrub would be enhanced to provide 1.1 new HUs. Thus, the proposed restoration of the Galitzki Springs and Flats would provide 10.6 new HUs.

The proposed restoration would result in 9.7 AAHUs over the 50-year life of the project. Maximum habitat values would be achieved at 5 years in the wetlands and at 20 years in the forest habitats. The longer period for forested habitats is due to the time required for snag recruitment and to achieve proper stocking levels.

TABLE 6.1. Summary of environmental outputs.

PROPOSED ALTERNATIVE	ACRES	HABITAT UNITS			
		EXISTING	W/ ALT.	NEW	AAHU
Wetland Bench	36.5	4.1	18.1	14.0	13.5
Galitzki Spring & Flats	19.1	6.7	17.3	10.6	9.7
Buffalo Slough Culverts	16.7	1.1	7.4	6.3	6.1
Whitaker Slough Culverts	51.7	4.3	18.4	14.1	13.6
TOTAL	162.5	26.3	96.2	69.9	64.2

**6.5.5 Cultural Environment.** Due to the environmental overlays, land use is restricted in most of the project area. Most of the proposed action would occur within the banks of Columbia Slough and would not affect land use. The 9 acres of Galitski Flats are zoned IG2p, industrial sanctuary with preservation overlay. Use of this land for industry is very limited due to the overlay and access problems. Adjacent lands, also zoned for industrial sanctuary, are available for industrial development. The loss of 4 acres of industrial land, converted back to wetland, is insignificant.

With improvement in water quality in this section of the slough, recreational activities would be expected to increase.

The culvert replacements would occur in areas of previous disturbance and should not require additional cultural resource investigations, since all of this work would be in ground that was previously disturbed. The Galitzki Flats restoration is located in a high

probability area for prehistoric cultural resources as discussed in the Description of the Environment.

Prior to restoration activities, Galitzki Flats area would be surveyed for cultural resources by a professional archaeologist who is familiar with the cultural resources of the South shore area and who meets professional qualifications as provided in Appendix A to 36CFR 61. Based on the results of this survey additional cultural resource efforts may be necessary to preserve or mitigate project impacts to important cultural resources within the project area. With survey and any necessary mitigation, impacts to cultural resources are expected to be minor.

## **6.6 Project Coordination**

The proposed action has been coordinated with the sponsors, the City of Portland and Multnomah County Drainage District. Through the sponsors' efforts, the project has been coordinated with State and Federal resource agencies, local interest groups, and members of the public. Once the proposed action is approved and in the plans and specifications stage, the City of Portland will conduct Environmental Reviews under Title 33.515.280 of the Planning and Zoning code.

This Environmental Assessment will be distributed for 30-day public review. Review comments are requested from Federal, State, and local agencies and groups, including:

- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Federal Emergency Management Agency
- Oregon Department of Environmental Quality
- Oregon Division of State Lands
- Oregon State Historic Preservation Office
- Portland Bureau of Planning
- Portland Bureau of Parks
- Multnomah County Drainage District No. 1
- Kenton Neighborhood
- North Portland Neighborhood

## **6.7 Consultation Requirements**

- Clean Water Act of 1977: Section 402 of the Clean Water Act will be complied with. Construction/stormwater permits under the National Pollutant Discharge Elimination System (NPDES) would be required due to the size of the area disturbed by construction (more than 1 acre). A Section 404 (b)(1) water quality evaluation has been prepared (Appendix C). Water quality certification under Section 401 of this act will be requested from the Oregon Department of Environmental Quality.
- Coastal Zone Management Act: The proposed action is outside the coastal zone. A Coastal Zone Consistency Determination is not required.

- Endangered Species Act of 1973, as amended: No listed threatened or endangered species would be affected by the proposed action. Critical habitat for listed salmonids does not include Columbia Slough. The threatened bald eagle may winter in the vicinity of the project. A biological assessment, concluding no effect, was submitted to the U.S. Fish and Wildlife Service. (\*See Exhibit 7 in the main report.)
- Fish and Wildlife Coordination Act: The proposed action is in compliance with the requirements of this act. A Coordination Act review has been requested from the USFWS.
- Marine Protection, Research, and Sanctuaries Act of 1972, as amended: No marine resources would be affected by the proposed action.
- Cultural Resources Acts: A cultural resources investigation determined that no cultural resources would be affected by activity at culvert replacement, dredging locations and bench creation sites due to the extent of past disturbance. Galitzki Flats requires survey. The Oregon State Historic Preservation Office will be consulted and is expected to concur in this finding.
- Executive Order 11988, Flood Plain Management, 24 May 1977: The proposed restoration would have no effect on the existing flood plain nor encourage further development in the flood plain. Restoration of Galitzki Flats would prevent industrial development on that acreage.
- Executive Order 11990, Protection of Wetlands: No wetlands would be adversely affected by the proposed action. 38 acres of wetlands would be restored.
- Analysis of Impacts on Prime and Unique Farmlands: Project lands are determined to be Prime Farmlands when drained based on three soil series: Chehalis silty clay loam, occasionally flooded; Newberg fine sandy loam; and Cloquato silt loam. The proposed action would restore wetlands that had previously been drained and farmed, rendering them no longer prime farmlands. These lands are, however, all within the Portland metropolitan area Urban Growth Boundary, and are thus no longer subject to the Farmland Protection Policy Act.
- Comprehensive and Environmental Response, Compensation and Liability Act (CERCLA). The location of the proposed project is not within the boundaries of a site designated by the EPA or a State for a response action under CERCLA, nor is it a part of a National Priority List site under CERCLA. DDT, below screening levels, has been found in the dredge sediments at several locations. These sediments would be placed on the bottom of created wetland benches and covered with cleaner material. One location, where screening levels were exceeded, would not be disturbed. Should any other hazardous, toxic or radioactive material be discovered during construction, its presence will be responded to within the requirements of the law and USACE regulations and guidance.