

Habitat Enhancement and Protection

Anadromous salmonids utilize several areas downstream of Merwin dam for spawning and rearing. The majority of the spawning occurs upstream of the Lewis River Salmon Hatchery. Juvenile rearing occurs in many areas between the uppermost spawning sites and the lower river adjacent to the city of Woodland. The primary rearing site downstream of Merwin dam is Eagle Island, which is approximately seven miles downstream of Merwin dam and is considered to be prime fall chinook juvenile rearing habitat.

Eagle Island is a 259-acre parcel with an associated 20-acre mainland piece. Over 75 percent of the present day wild fall chinook rearing habitat is associated with the island. The island also provides critical habitat for adult and juvenile steelhead, coho, chum and cutthroat (WDFW 1998). Until this year, a developer owned the island with plans for residential development. The WDFW has made many attempts to purchase the island for protection of the habitat. In June 1999, Clark County obtained monies to match State funding for purchase of the island. PacifiCorp, through agreement with Clark County, has paid the county's portion of the funding to purchase the island and deed the property to the State. The funding obtained by Clark County will be used to protect and restore salmon and steelhead rearing areas through their Conservation Futures program to improve the habitat on the island for wildlife and set up a fund for continued preservation of Eagle Island.

Ramping Rates—Evaluation/Review/Modify

PacifiCorp proposes to modify the current Merwin down-ramping rates to meet a new standard of 0.5 feet per three-hour period (with the intent to meet 2 inch/hour as best as possible). This down-ramping rate protects juveniles and fry using shallow stream margin habitat. Up-ramping will be increased from 1 ft/hr to 1.5 ft/hr. The up-ramping limitations focus on safety for those using the river below the project. A Standard Operating Procedure (SOP) will be developed that describes how ramping requirements will be accomplished. The SOP will be subject to NMFS and USFWS approval.

Hatchery Evaluation

PacifiCorp currently funds WDFW to evaluate effects of hatchery outplanting from Merwin and North Fork Lewis River hatcheries on Columbia and Snake river listed species. With the addition of listed species within the basin,

PacifiCorp proposes to expand efforts to evaluate hatchery effects on in-basin species.

5.1.2 Bull Trout and Cutthroat Trout (Upstream From Merwin Dam)

Continue Yale Net and Haul

The USFWS commented on the Yale application for a new license and suggested that PacifiCorp begin engineering studies concerning fish passage facilities at the projects. However, since the ALP will address basin-wide fish passage issues, PacifiCorp believes it is premature to propose specific passage measures at this time. PacifiCorp proposes to continue net and haul activities in cooperation with WDFW as directed by USFWS (letter from N. Gloman—USFWS, dated Nov. 12, 1998) and to expand efforts to the Swift No. 2 tailrace if needed. PacifiCorp initiated a pilot net and haul program at Swift No. 2 tailrace in 1999. According to the bull trout monitoring report (Lesko 2000 page 4), two bull trout were captured at the Swift 2 tailrace on October 2, 1999. However, PacifiCorp will continue its involvement in monitoring the presence of bull trout at the Swift No. 2 tailrace if USFWS and WDFW determine it to be necessary.

Entrainment Reduction

PacifiCorp proposes to evaluate a strobe light system to prevent bull trout entrainment at the Yale and Swift No. 1 spill and turbine intakes (see 6.2 Biological Justification). However, effectiveness for bull trout is unknown and the system would need to be adequately evaluated. PacifiCorp believes that available scientific information suggests that strobes may prove successful in substantially reducing salmonid entrainment at the projects. Such evaluation will also provide the Aquatics Workgroup with a scientific basis for determining whether PacifiCorp should explore other measures to address entrainment concerns. In terms of the Yale spillway, PacifiCorp proposes to conduct preliminary engineering design studies to address modifications of the spillway configuration in order to reduce any potential for fish injury or mortality.

Habitat Protection

Habitat does not appear to be a limiting factor for cutthroat trout in the upper basin. In contrast, the primary limiting factor for Yale and Swift bull trout production is the availability of adequate spawning and rearing habitat. The fact that only 1¾ miles of spawning and rearing habitat (Cougar Creek) exists

for the Yale population may explain the chronically low numbers of spawning adults observed each fall since records have been kept. With the exception of possible rearing habitat in Ole and Rain creeks, there are limited opportunities for expanding or improving habitat for the Yale bull trout population. While Graves (1982) observed bull trout spawning in the Swift bypass reach in 1981 and 1982, the potential for permanent spawning areas in this reach is limited. The bypass reach serves as a spill channel and has passed flows as high as 44,700 cfs in the 1996 flood. Flows of this magnitude completely scour the channel of any potential spawning gravels and, since flows of this magnitude usually occur in winter, would potentially eliminate bull trout redds.

For spawning and rearing habitat protection, action could be taken to protect the existing habitat around Cougar Creek. Therefore, PacifiCorp has purchased land from Weyerhaeuser Corporation in the Cougar Creek riparian corridor to protect the bull trout spawning and rearing habitat and proposes a conservation easement that will be approximately a 500-foot buffer on Cougar Creek and a 200-foot buffer on Panamaker Creek. No other known spawning habitat for bull trout residing in Yale reservoir is known. Therefore, the protection of this habitat is very desirable. PacifiCorp shall maintain the property consistent with the conservation easement and BO and incidental take statement. Such maintenance may include, but is not limited to, planting of vegetation, removal of non-native or invasive plant species, other vegetation management and installation of boundary markers or fences. PacifiCorp will coordinate with USFWS and NMFS on maintenance and management of lands subject to the conservation easement. Management of the lands outside the easement will include road and culvert maintenance in the short term and may eventually be included in the Lewis River wildlife management plan at the completion of ALP settlement discussions. PacifiCorp and PUD recognize and intend that the conservation easement along Cougar and Panamaker creek riparian corridors are measures under the ESA for the benefit of the species in the entire range of all four projects.

Water Quality in Tailraces

PacifiCorp has implemented modifications to the Yale turbine intakes to resolve total dissolved gases (TDG) levels in the Yale tailrace. Temperature fluctuation in the Yale tailrace is currently being addressed