

Memorandum for: FPOM

Subject: Bradford Island Clean-up

From: Mark Dasso, NWP-PM and Carolyn Schneider, NWP-PM

Date: 28 June 2007

The U.S. Army Corps of Engineers (Corps) is proposing an Interim Action to remove contaminated sediments from the forebay of Bonneville Dam near the historic landfill on Bradford Island, Cascade Locks, Oregon. Bradford Island is part of the Bonneville Dam complex, which spans the Columbia River between Oregon and Washington approximately 40 miles east of Portland, Oregon (Figure 1). The project is designed to remove PCB-contaminated sediment from the north side of Bradford Island. The authority for this non-time-critical removal action is the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

In discussions with NMFS (Jeff Lockwood), USFWS (Greg Smith), and ODFW (Wayne Vandernaald) a decision was made that the work could be done outside of the standard In-water Work Window (IWWW) for reasons indicated below. However, at the time of the discussions with these agencies, it was unknown that, for dive safety reasons, spillbay 18, which is open approximately 6 inches for attraction spill for the BI fish ladder, and two AWS valves would have to be closed. It is only in recent discussions with the Corps' Dive Safety Officer that closing of the spillbay and the AWS valves has been identified as a necessity. In order to satisfy the safety concerns for diver-assisted suction dredging of the contaminated sediment in the removal area nearest the spillway, it will be necessary to close spillgate 18 and the F3-4 and F4-4 intake valves for up to 10 days beginning sometime after October 20th.

The removal of contaminated sediment from the 3 "hot spots" on the north side of Bradford Island is scheduled to begin in October 2007, which is outside the Oregon Department of Fish and Wildlife (ODFW) established in-water work window for the Columbia River above Bonneville Dam (November 15 to March 15). And outside of the project (Bonneville Dam) operations and maintenance work window of 1 December through February. However, an October time period for sediment removal was proposed by the Corps and approved by the clean-up project's multi-agency Technical Advisory Group and ODFW for the following reasons:

- Reduce transport of sediment. A key concern is that the removal action will spread some fraction of contaminants downcurrent. Although difficult to quantify, reduced flows and corresponding river currents during October in the removal areas would decrease the likelihood that resuspended contaminants would be transported downcurrent. (Note that in the 2002 equipment removal action, several attempts were made to place silt curtains around the three removal sites. The final attempt included using 200-pound anchors, placed every 5 feet along the bottom of the net and using a large boulder and a 3,000-pound anchor for the end of the net. In the final attempt at deployment, the screen unfurled like a sail and dragging the boulder off the shore. The fabric is not porous enough to pass water, and thus is caught by the river currents

and pulled downcurrent. A more porous screen would not trap sediments and would not serve the intended purpose.) Because of a lack of barrier technology, the work is scheduled when velocity is lowest and there is less chance of dispersing the contaminated material.

- **Quality of work.** It is imperative that the removal work be done as thoroughly as possible. In October to early November, the removal areas will be as much as 7 feet shallower, the water temperature will be 10 to 15 degrees warmer, and visibility will be much better than during the established in-water work window (November 15 to March 15). These improved conditions will result in a more thorough removal effort.
- **Biological Impacts.** Existing fish radio telemetry and tag data show that juvenile and adult salmonids pass the area on their downstream or upstream journeys in a matter of hours. The exposure concentration and exposure time to salmonids would be small and the fish, if present, would only be in the area for a very short period of time.

Juvenile salmonids’ downstream migration season occurs from March 1 through November 30. However, the primary passage season, when 90% of all juveniles have passed through Bonneville Dam, occurs before the end of July (Corps data 1938-2005 at Bonneville Dam) or mid-August (Corps data 1996-2005). Upstream adult migrants are present at Bonneville Dam throughout the year and adult passage facilities are operated year-round. Annual winter maintenance of adult fish facilities at Bonneville is scheduled from December 1 through February to minimize the impact to upstream migration. Adult fish migration timing has been calculated from count data collected by the Corps since 1938 at Bonneville Dam (Table 1).

Table 1. Fish Migration Timing at Bonneville Dam

Species	Passage Period	Latest Peak
Spring Chinook	3/14 – 5/31	5/27
Summer Chinook	6/1 – 7/31	7/31
Fall Chinook	8/1 – 11/15	9/17
Steelhead	year-round	9/22
Winter Steelhead	11/16 – 3/31	3/28
Coho Salmon	7/15 – 11/15	9/22
Sockeye Salmon	6/1 – 8/15	7/13

An October work period would have no impact on the September upstream migration peak period for fall Chinook, steelhead, and coho salmon. Fish may be present in low numbers both during the proposed October 1 to November 15 work window and the established winter in-water work window (November 15 to March 15). On 13 July 2006, the ODFW concurred with the Corps’ request to work outside the established in-water work window for the reasons described above.

As illustrated by the attached graphs, an October work window would not impact the September upstream migration peak period of fall chinook, steelhead, and coho salmon. As noted above, fish may be present in low numbers in both the proposed fall and winter work windows. However, because of the low probability of significant exposure of fish

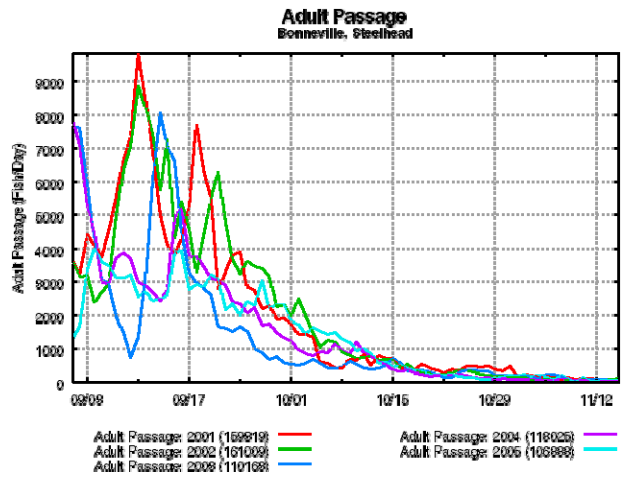
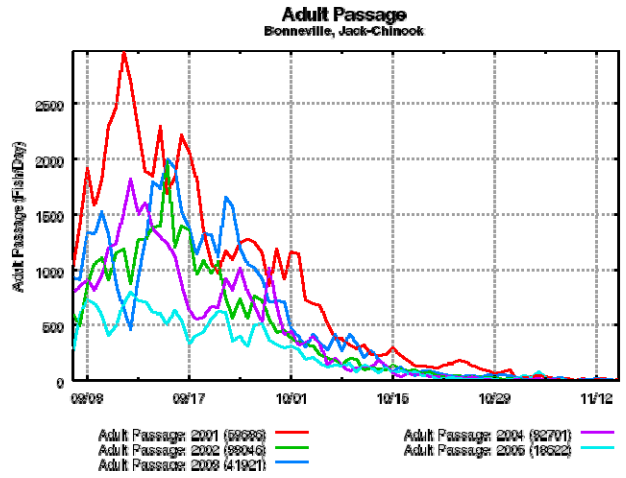
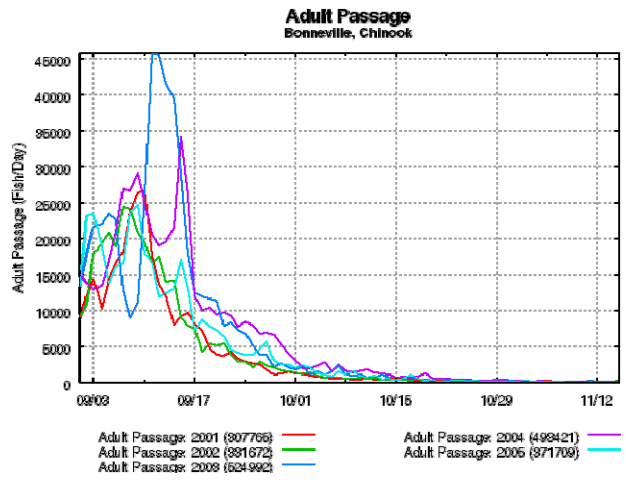
in either time, we believe that the fall work window would have comparably low impact to endangered salmonids.

It is not known exactly how quickly the dredging can be accomplished. If the work progresses quickly, it is expected that 20 October is the earliest that the spillgate and AWS valves would need to be closed. If the dredging process goes more slowly, the removal in that area would more likely be done in the first or second week of November.

Originally the plan was to work in the most westerly area beginning on 1 October, because it is the most up-current of the 3 areas (eddy currents in the area drive water from downstream to upstream on the north side of Bradford Island when there is very little or no flow across the spillway). The idea was to work from upcurrent to downcurrent to reduce the chance that recontamination of already cleaned areas could occur. However, based on comments at the June 2007 FPOM meeting, the order of clean-up for the 3 “hot-spot areas” was changed so that the area closest to the spillway would be the last area dredged.

The possibility of working at night when fish are not moving through the fish ladder was also considered. This idea was rejected because it would be difficult to monitor the effectiveness of the water filtration system and because of dive safety concerns.

## Adult Fish Passage at Bonneville Dam



### Adult Passage Bonneville, CoHo

