



## FISH PASSAGE CENTER

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### MEMORANDUM

TO: Tom Lorz, CRITFC

FROM: Michele DeHart

DATE: August 1, 2006

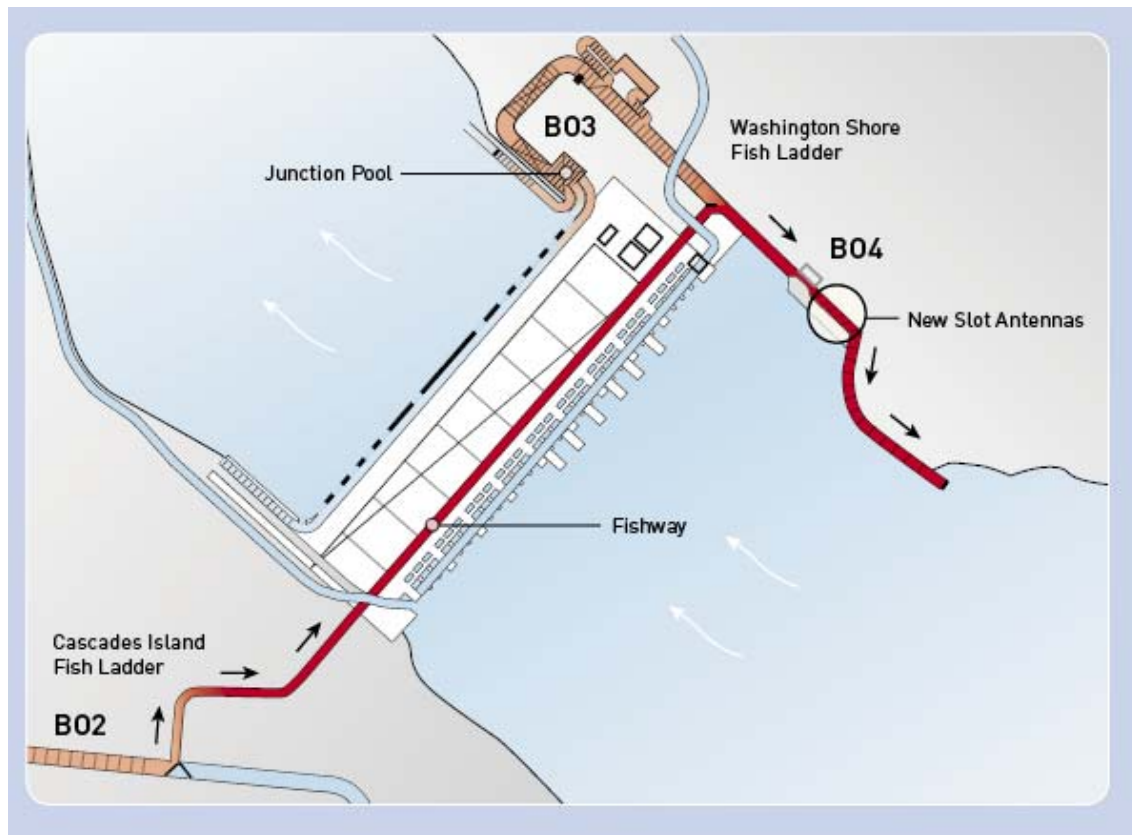
RE: Bonneville Detections and the Adult Fish Facility

In response to your request regarding adult Chinook detections and subsequent catches at the adult fish facility (AFF) on the Washington Shore Ladder at Bonneville Dam, I analyzed adult PIT-tag detections for the two-week period encompassing 10 July – 24 July 2006. In order to quantify AFF bypass via the Upstream Migrant Transport Channel (UMT), I queried adult Chinook salmon (of spring, summer, fall, or unknown run; and of wild, hatchery, or unknown origin) detections for the Cascades Island Ladder (BO2), the Washington Shore Ladder/AFF (BO3), and Washington Shore Ladder-Upstream Vertical Slots (BO4) interrogation sites (**Figure 1**). Using these data, I assigned entry points (BO2, BO3, Unknown) to each PIT-tagged fish that ultimately ascended Bonneville Dam via BO4. My query yielded a total of 267 PIT-tagged adult Chinook salmon for the time period and sites in question. Approximately half of these records were hatchery summer-run fish ( $n = 126$ ), with the remainder being comprised of summer-run/unknown-origin ( $n = 26$ ) and unknown-run/unknown-origin ( $n = 110$ ) fish; additionally, a few wild spring- and wild unknown-run fish were included in the sample.

The resulting coil interrogation summary indicated that the majority of PIT-tagged salmon queried entered BO4 via BO3 ( $n = 168$  or 63%; **Table 1**). Ten percent ( $n = 26$ ) of BO4 detections were due to adults that entered via the UMT (i.e., BO2 to BO4). An additional 13% of BO4 detections were due to previously untagged fish collected, PIT-tagged, and released at the AFF this year. Due to the ability of adults to bypass orifices equipped with detectors at BO2 and BO3, I could not determine which route the remaining 14% of adults entered BO4; however, assuming these fish would have been detected if they had ascended via BO1 (i.e., Bradford Island and Oregon Shore), fallback from Bonneville Pool does not account for their appearance in BO4. In sum, 10% (known detections only) to possibly as many as 24% (known + unknown) of marked adults are bypassing the AFF via a BO2 to BO4 passage route.

**Table 1.** Frequency of PIT-tagged adults passing Bonneville Dam via BO4 (Washington Shore Ladder-Upstream Vertical Slots) that entered via BO2 (and UMT) or BO3 entry points.

Entry Point	Description	<i>n</i>	%	Comments
Cascades Island (via BO2 and the UMT)	Confirmed via coil interrogation details	26	10	
Washington Shore Ladder (BO3)	Confirmed via coil interrogation details	168	63	
Washington Shore Ladder (BO3)	Tagged at AFF	36	13	Untagged prior to BO3 entry.
Unknown BO2 or BO3 entry	Not detected on BO2 or BO3 coils	37	14	May be possible to partition further based on AFF sampling effort assumptions (i.e., 6-hours per day and estimated capture efficiency).



**Figure 1.** Schematic of the BO2-BO3-BO4 complex of adult detection facilities near Cascades Island and the Washington Shore of the Columbia River at Bonneville Dam. Image Credit: PTAGIS, Pacific States Marine Fisheries Commission.