



FISH PASSAGE CENTER

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MEMORANDUM

TO: Mart Young

FROM: Michele DeHart

DATE: September 22, 2008

RE: Chinook jack passage at Priest Rapids Dam

In response to your request, the FPC has looked into the high Chinook jack counts at Priest Rapids Dam (PRD) in 2008 compared to recent years and the 10-year average. Below is a brief summary of our findings, followed by a more detailed discussion.

- Due to difficulties in distinguishing among smaller Chinook, Priest Rapids and Wanapum Dam have been including mini-jacks in their daily jack counts since 2006. At this time, PRD and WAN are the only projects that include mini-jacks in their jack counts.
- The high jack counts at PRD in 2008 are mostly due to increased numbers of mini-jacks in 2008. Therefore, extreme caution should be used when trying to use these jack counts to predict adult returns in future years.
- The mini-jacks being observed in the Mid-Columbia River in 2008 are likely late arriving hatchery summer Chinook that were released as yearlings above PRD and WAN in the spring of 2008.

As of September 18th, the fall Chinook jack count at PRD was 10,681, which is 625% of the 10-year average. Although other Mid-Columbia projects are seeing increased returns of fall Chinook jacks, the increased returns of jacks at other projects are not nearly as high as those seen at PRD. For example, as of September 20th, the fall Chinook jack count at Rock Island Dam (RIS) was 2,379, which is 192% of the 10-year average. One reason for the large discrepancy between the two projects is the fact that RIS considers a jack to be an adult Chinook

between 12 and 24 inches in length, where as PRD is counting all Chinook adults that are less than 22 inches in length as being jacks. Therefore, the jack counts for PRD include adult Chinook that are less than 12 inches in length, which are typically referred to as “mini-jacks”. The RIS Chinook jack counts do not include mini-jacks. Grant County PUD began including mini-jacks into their jack counts when they switched to a video-based fish-counting system in 2006. This is mostly due to difficulty in determining sizes among these smaller Chinook adults. At this time, PRD and WAN are the only projects that include mini-jacks in their jack counts.

As you pointed out in your Sept. 15th e-mail, the Grant County PUD website allows users to download daily adult passage data for PRD in spreadsheet format (<http://www.gcpud.org/resources/resFish/fishCounts.htm>). Although these files include columns for tallies of Chinook mini-jacks, these data are incomplete, as most Chinook mini-jacks that are seen at PRD are included in the column for jacks.

Based on conversations with the Grant County PUD biologists, most of the small Chinook adults being counted at PRD in 2008 are likely mini-jacks. Compared to past years, Rock Island Dam (RIS) has also seen increased returns of Chinook mini-jacks in 2008 (Table 1). In fact, as of September 20th, the total Chinook mini-jack count for 2008 is the highest seen at RIS since 2000. By the time counting at RIS ends in November, the total Chinook mini-jack count in 2008 could exceed that for 2000.

Table 1. Annual totals of Chinook jacks and mini-jacks at Rock Island Dam (2000-2008).

Migration Year	Chinook Jacks	Chinook Mini-jacks
2000	16,627	13,339
2001	21,141	3,636
2002	5,133	1,486
2003	11,981	6,511
2004	7,855	3,557
2005	3,746	3,425
2006	4,176	5,669
2007	9,974	4,642
2008 ^A	6,686	12,637

^A Chinook jack and mini-jack counts for 2008 counts are only through September 20, 2008

According to the biologists at Grant County PUD, the vast majority of the mini-jacks being seen at PRD are adipose clipped. A clipped adipose fin is an indication that these individuals are of hatchery origin. This is important to note because high returns of mini-jacks are sometimes related to hatchery practices, such as large release sizes or late release timing. For example, Snake River fall Chinook juveniles typically out-migrate as subyearlings. However, some hatcheries release fall Chinook juveniles to the Snake River as yearlings. Analyses of PIT-tagged Snake River fall Chinook indicate that juveniles released as yearlings return as mini-jacks much more frequently than do juveniles that are released as subyearlings (Table 2).

Table 2. Percent of PIT-tagged Snake River fall Chinook juveniles returning as mini-jacks, based on whether they are released as subyearlings or yearlings. Only those release sites where both yearlings and subyearlings are released were used in this analysis.

Migration Year	Subyearling Releases	Yearling Releases
2000	0.00	0.00
2001	0.00	0.00
2002	0.00	0.05
2003	0.00	0.05
2004	0.00	0.06
2005	0.00	0.01
2006	0.00	0.70
2007	0.00	0.08

This is important to note because, like Snake River fall Chinook, Mid-Columbia River summer Chinook juveniles typically out-migrate as subyearlings. However, many hatcheries in the Mid-Columbia release summer Chinook juveniles as yearlings (Table 3). Releases of yearling summer Chinook to the Mid-Columbia River all occur above PRD. Unfortunately, hatchery summer Chinook yearlings are not PIT-tagged so we have no way of investigating whether they return as mini-jacks at a higher rate than subyearling summer Chinook.

Table 3. Hatchery releases of yearling summer Chinook to the Mid-Columbia River and its tributaries in 2008.

Hatchery	Release Site	Release River	Release Date(s)	Fish/Pound	Number Released
Eastbank	Dryden Acclim Pond	Wenatchee	4/28	15.5	899,107
Eastbank	Similkameen Acclim Pd	Okanogan	4/16-5/7	21	604,335
Eastbank	Wenatchee River	Wenatchee	4/21	12.2	51,550
Methow	Carlton Acclim Pond	Methow	4/16-5/2	12	419,734
Turtle Rock	Chelan Falls	Mid-Columbia	5/9	12	99,271
Turtle Rock	Chelan Falls	Mid-Columbia	5/9-5/14	7.62	143,358
Wells	Wells Hatchery	Mid-Columbia	4/6-5/9	11	311,880

Finally, the transition from summer Chinook counting to fall Chinook counting at PRD is based on a particular date (August 14th). Therefore, it is possible to count late-returning summer Chinook as fall Chinook at these projects. Approximately 89% of the hatchery yearling summer Chinook released in the Mid-Columbia in 2008 were adipose clipped, whereas only about 5% of subyearling hatchery fall Chinook released to the Mid-Columbia River were clipped. Given that most of the mini-jacks returning to PRD and WAN are clipped, it is highly likely that they are summer Chinook and not fall Chinook. This is further supported by the fact that all of the subyearling hatchery fall Chinook that were released to the Mid-Columbia River in 2008 were released below PRD and, thus, should not be passing the project as adults.

Cc: Bill Tweit, WDFW
Cindy LaFleur, WFDW



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DATA REQUEST FORM

Request Taken By: Michelle DeHart Date: 11-Sept-08

Data Requested By:

Name: Mart Young (citizen) Phone: _____

Address: _____ Fax: _____

_____ Email: mwyoung@verizon.net

Data Requested:

Requested information regarding high jack counts @
PRD and WAN compared to 2007 and 10yr average

