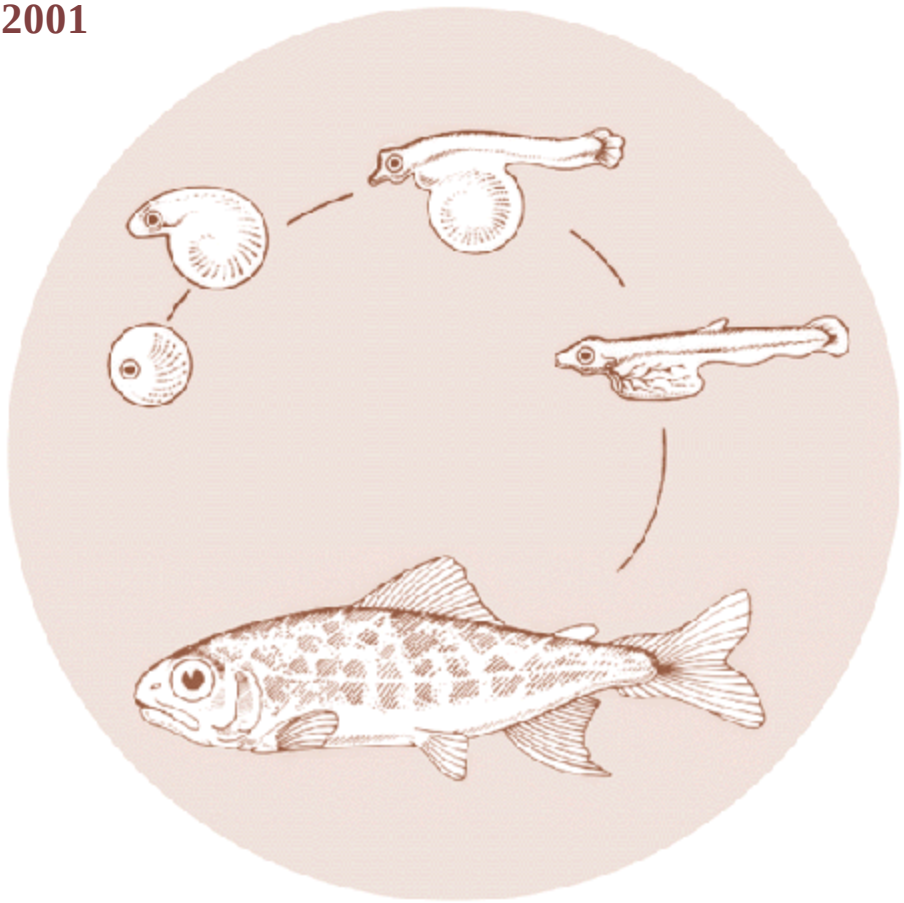
Summary of Findings from Coded Wire Tag Analysis from Spring Chinook Salmon Spawning Surveys in the Clearwater Basin

Technical Report
2001



DOE/BP-00006602-2

May 2002

This Document should be cited as follows:

Cramer, Steven, "Summary of Findings from Coded Wire Tag Analysis from Spring Chinook Salmon Spawning Surveys in the Clearwater Basin", Project No. 2001-05900, 3 electronic pages, (BPA Report DOE/BP-00006602-2)

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

This report was funded by the Bonneville Power Administration (BPA), U.S. Department of Energy, as part of BPA's program to protect, mitigate, and enhance fish and wildlife affected by the development and operation of hydroelectric facilities on the Columbia River and its tributaries. The views in this report are the author's and do not necessarily represent the views of BPA.

S.P. Cramer & Associates
39330 Proctor Blvd.
Sandy, OR 97055
(503-826-9858)
www.spcramer.com

To All Concerned Parties:

We recently received data on the decoded CWT ‘s recovered from spring chinook snouts we collected during spawning surveys in the Clearwater Basin last fall (2001). We were curious about what could be learned from the tags recovered (even though our project is over), so we did some cursory analyses and have described our findings in the attached memo. Snouts were processed and codes determined by Idaho Department of Fish and Game.

Most snouts did not contain CWTs, because most ad-clipped fish were not given a CWT. Further, because adults were outplanted live, we do not know what codes they contained. Each of the hatcheries from which outplanted adults were obtained had several CWT code groups returning. That means that the best we can do with the codes recovered is compare the hatchery of origin for the tag with the hatchery from which outplants were taken.

The results are interesting and not exactly as we would have predicted.

Steve Cramer

Summary of Findings from Coded Wire Tag (CWT) Analysis from Spring Chinook Salmon Spawning Surveys in the Clearwater Basin, 2001

By: S.P. Cramer & Associates, Inc.

A total of 110 spring chinook salmon snouts were collected from ad-clipped adults during spawning surveys conducted by S.P. Cramer & Associates between August 23 and September 13, 2001 in the Clearwater Basin. Of these, 58 were collected in the upper Selway Subbasin, with the remainder collected in the middle Selway, the lower Selway, South Fork Clearwater, and Lochsa subbasins (Table 1). Analysis by the Idaho Department of Fish and Game showed that 12 of these 110 possessed Coded Wire Tags (CWTs) (Table 1).

Sources of the CWT'd fish included Dworshak National Fish Hatchery, Kooskia National Fish Hatchery, Clearwater Anadromous Fish Hatchery and Rapid River Hatchery (Table 2). Of the 12 snouts with CWTs, 4 were recovered in the Upper Selway Subbasin, 3 in Meadow Creek and 1 in O'Hara Creek in the lower Selway Subbasin, and 4 in Colt Killed Creek in the Lochsa Subbasin (Table 2). Only 3 of the 12 fish with recovered CWTs had secondary hatchery marks assigned to outplanted adult fish. All three of these fish were in the upper Selway Subbasin (Table 2).

Not all outplanted fish had CWTs. Only 16.4% of age 4 fish outplanted from Dworshak National Fish Hatchery had CWTs. 18.9% of age 4 fish outplanted from Kooskia National Fish Hatchery had CWTs. Age 4 fish comprised 81.2% and 94.8% of releases by the respective hatcheries (Howard Burge, Dworshak National Fish Hatchery, personal communication 10/2/01). 62.1% of adult outplants in Colt Killed Creek had CWTs (Rene'e Hedrick, Clearwater Anadromous Fish Hatchery, personal communication 11/29/01). Rapid River Hatchery did not scan for CWTs in fish released as adult outplants. 4% is the best estimate of the proportion of adults released with CWTs for adult outplanting in the Selway Subbasin (Nicola Johnson, Assistant Manager, Rapid River Hatchery, personal communication, 5/10/02).

Based on the number of snouts per CWT, our CWT recoveries would have come from 62 snouts of outplantted adult chinook in the upper Selway Subbasin. This was estimated by dividing the 2 CWT recoveries by 16.4% (percentage of outplantted fish with CWTs) from Dworshak National Fish Hatchery and adding it to the 2 CWT recoveries by 4% from Rapid River Hatchery. The key assumptions in these estimates is that CWT'd fish were adult outplants. Since we only collected 58 snouts in the upper Selway Subbasin, we can assume that all ad-clipped fish were outplantted adults (Table 1). Using similar methods, we estimate that 90% of ad-clipped fish in Meadow Creek, and 88% of ad-clipped fish in O'Hara Creek were adult outplants. These estimates should be viewed cautiously because of the low numbers of recovered CWTs (Table 1).

The estimate of 100% of ad-clipped fish in the upper Selway as adult outplants compares to a 53% recovery rate of secondary marks on ad-clipped carcasses in the upper Selway. The high estimates of proportions of adult outplants in Meadow and O'Hara Creeks is surprising because 1) so few secondary marks were recovered in these streams and 2) returns from a release of 300,000 ad-clipped smolts without CWTs in 1999 likely returned to both Meadow and O'Hara Creeks. Again, the estimates may be unreliable because of the small sample size of recovered CWTs.

CWT analysis revealed that all CWTs recovered in Meadow Creek came from Dworshak National Fish Hatchery. The only release of adults into Meadow Creek came from Kooskia National Fish Hatchery (Table 2). However, over 1,200 adults from Dworshak National Fish

Hatchery were outplanted in the mainstem Selway just above Selway falls, near the mouth of Meadow Creek. The only CWT recovery in O'Hara Creek was from a fish from Kooskia National Fish Hatchery. The only release of Kooskia fish in the Selway Subbasin was in Meadow Creek several miles upstream.

In Colt Killed Creek, all four snouts collected had CWTs. The source of these fish was the Powell facility of the Clearwater Anadromous Fish Hatchery. It is difficult to say if these fish were adult outplants or strays from the Powell facility since the source of outplanted adults in Colt Killed Creek was the Powell facility located on Walton Creek, which is less than a half-mile from the mouth of Colt Killed Creek. None of the fish recovered on Colt Killed Creek had secondary hatchery marks.

Table 1. Location and number of spring chinook salmon snouts collected in the fall of 2001 in the Clearwater Basin for CWT analysis. Also included is the number of CWTs recovered, the number of CWTs expanded, and the percentage of ad-clipped adults that were estimated to be from outplanting activities. No estimate was made for Colt Killed Creek because of uncertainty of distinction between adult outplants and strays from the Powell facility.

Stream	# Snouts Collected	CWTs Recovered	CWTs Expanded	% of Ad-Clipped Adults that were Outplants
Upper Selway	55	4	62	100
White Cap	3	0	0	--
Bear	4	0	0	--
Meadow (Selway)	20	3	18	90
O'Hara	6	1	5	88
Meadow S.Fk.	15	0	0	--
Mill	3	0	0	--
Colt Killed	4	4	--	--

Table 2. CWT's recovered from spring chi nook salmon snouts collected in the Clearwater Basin in the fall of 2001.

Tag Code	Source Hatchery	Recovery Location	Secondary Mark
103523	Rapid River	Upper Selway	Y
054212	Dworshak	Upper Selway	Y
103524	Rapid River	Upper Selway	Y
054211	Dworshak	Upper Selway	N
054211	Dworshak	Meadow Cr. (Selway)	N
054211	Dworshak	Meadow Cr. (Selway)	N
054211	Dworshak	Meadow Cr. (Selway)	N
053914	Kooskia	O'Hara Cr.	N
105141	Clearwater (Powell)	Colt Killed Cr.	N
105142	Clearwater (Powell)	Colt Killed Cr.	N
105141	Clearwater (Powell)	Colt Killed Cr.	N
105142	Clearwater (Powell)	Colt Killed Cr.	N