Northwest Power and Conservation Council

February 1, 2007

DISCUSSION MEMORANDUM

TO: Council Members

FROM: Jim Ruff, Manager, Mainstem Passage and River Operations

SUBJECT: Panel discussion on availability of study fish for a 2007 Snake River fall Chinook transportation evaluation

PURPOSE

The purpose of this panel discussion is to provide the Council with more information about the availability of study fish needed for a Snake River fall Chinook inriver-transportation evaluation this summer funded by the Corps of Engineers. Staff expects one or two representative(s) from the following agencies or entities: the Corps of Engineers, NOAA's National Marine Fisheries Service (NMFS), and *U.S. v OR* parties. As of today, staff has confirmation that the following representatives plan to attend the Council meeting and participate on the panel: Witt Anderson and/or Rock Peters of the Corps, and Paul Wagner and/or Bill Muir from NMFS. The *U.S. v OR* parties are still discussing who will represent them at the Council meeting.

For background purposes, last week I prepared and sent you a memo on this issue. It is attached again to this memo for your convenience (Attachment 1). Also included in the packet is a letter to Brigadier General Martin of the Corps on this subject sent on behalf of the *U.S. v OR* parties from Olney Patt, Jr., who is the Executive Director of the Columbia River Inter-Tribal Fish Commission (Attachment 2).

Attachments (2)

w:\jr\ww\2007\2-13-07 npcc sr fall chin study panel.doc

851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348
www.nwcouncil.org

Steve Crow
Executive Director

503-222-5161
800-452-5161
Fax: 503-820-2370

Northwest Power and Conservation Council

January 26, 2007

MEMORANDUM

TO: Council Members

FROM: Jim Ruff, Manager, Mainstem Passage and River Operations

SUBJECT: Update on Status of a 2007 Snake River Fall Chinook Salmon Transport Study

Purpose

On January 18, 2007, I sent an e-mail message to Council and staff about the status of a Snake River (SR) fall Chinook salmon study this summer, based on a discussion that occurred at the January 17, 2007 Implementation Team (IT) meeting. At the IT meeting, this item was on the agenda for discussion and the tribal representative from the Columbia River Inter-Tribal Fish Commission (CRITFC) distributed a letter on behalf of the U.S. v OR parties (attached).

The purpose of this memo is to provide a further update to the Council on the current status of implementing a Snake River (SR) fall Chinook inriver-transport study in 2007, based on recent discussions of this issue with Corps of Engineers' (Corps) staff and various parties[1] to *U.S. v OR* process. In summary, it appears that an evaluation of the survival of transported juvenile SR fall Chinook salmon compared to those that migrate in the river will not occur this summer due to inadequate numbers of juvenile fish available this year.

Background

First, note that the Council's 2003 Mainstem Amendments call for the Corps and other federal Action Agencies to conduct a transportation study targeting SR fall Chinook, as the relative benefits of transporting these listed fish (or leaving them in the river to migrate and/or rear) is a key uncertainty in the region, as well as in NMFS' FCRPS Biological Opinion remand process.

The importance of conducting this study was highlighted during the briefing at the December Council meeting by USGS, USFWS and NMFS researchers concerning the results of ongoing SR fall Chinook life history diversity studies. In summer of 2006, the Corps funded and

[1] The parties to the *U.S. v OR* harvest agreement include the states of Oregon, Idaho and Washington, NMFS, USFWS and the four lower river Treaty tribes, including the Nez Perce, Umatilla, Yakama and Warm Springs tribes.

851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348
www.nwcouncil.org

Steve Crow
Executive Director

503-222-5161
800-452-5161
Fax: 503-820-2370

implemented a pilot fall Chinook inriver-transport study in the Snake River.[2] The Corps expected that a similar, but larger scale study could be implemented in 2007, and continued in future years, to address this key uncertainty.

Status of 2007 Study

Based on the attached *U.S. v OR* parties' letter sent to the Corps on January 10, 2007, it is highly unlikely that a large-scale evaluation of the survival of transported SR fall Chinook salmon compared to those that migrate in the river will occur again this summer for the following reasons.

First, insufficient brood stock was collected this past fall 2006 at Lyons Ferry Hatchery and in the adult trap at Lower Granite Dam on the Snake River to meet all the *U.S. v OR* production priorities (Table 1). According to the Corps, about 380,000 "surrogate" fish[3] were needed by the researchers to conduct this study, as well as a similar number of production fish. However, the "surrogate" fish needed for the study were identified by the U.S. v OR parties as priorities #12 and #14 (out of a total of 17 production priorities) on the regional production agreement (Table 1). Note the fish needed for the Corps' transportation study are the only non-production use of fish identified on the *U.S. v OR* production priority list. Last summer the *U.S. v OR* parties discussed the need for fish for a fall Chinook transport study this year and incorporated that need into a modified production priority list shown in Table 1.

According to *U.S. v OR* biologists, the limited SR fall Chinook egg take this past fall resulted in being able to fulfill only up to priority #9 (partially met) of the production agreement. Thus, adequate numbers of test fish are unavailable for the "surrogate" portion of the transportation study in 2007, and not even all the production needs for these listed fish will be met this year. For example, the *U.S. v OR* parties noted there were also several other programs of importance that will also go unmet this year due to the lack of fall Chinook eggs. Specifically, neither the Lyons Ferry supplementation program via the acclimation pond rearing in Grande Ronde River nor the Idaho Power Company mitigation program for Hells Canyon complex could be fulfilled this year (Table 1).

Second, the tribes are "troubled by the fact that there is no agreed to long term study design" for this transport study. The Corps has been working with all parties to develop a regionally agreed upon long-term study design, but has been unsuccessful to date. The development and conduct of this long-term study are also under discussion in the NMFS FCRPS Biological Opinion remand settlement process.

The tribes' letter did indicate that they would support PIT-tagging 185,000 of the general production fish for this summer. But the Corps representative stated at the IT meeting that if adequate numbers of surrogate fish are unavailable, the Corps likely would not proceed with this study in 2007. The Corps indicated it would review and consider the tribes' *U.S. v OR* letter and make a decision shortly whether to mark any fish for a smaller scale evaluation this summer, as

---

[2] The *U.S. v OR* parties agreed to a pilot-scale SR fall Chinook transport study in 2006 and reallocated their production priorities to provide about 338,500 surrogate fish and another 185,000 production fish for the study. The *U.S. v OR* parties sent a letter on March 9, 2006 to Brigadier General Martin, agreeing to the fall Chinook transportation study in 2006 with the specific condition that "any future commitments would be conditioned upon agreement by the *U.S. v OR* parties on a long-term [transportation] evaluation plan."

[3] Surrogates are fish that are reared to a smaller size than hatchery production fish to more closely represent the wild fish population.

adequate numbers of fish are needed to ensure the study results are meaningful, i.e., reducing the numbers of test fish significantly affects the power of the test. It is clear, however, that there are insufficient fish available to conduct an inriver-transport study this summer, even at the pilot scale that was implemented in 2006. After consulting with the researchers, the Corps will inform the region of its decision at the March 1st IT meeting.

In addition, and also due to lack of adequate brood stock collection, a second, smaller study proposed by the Corps comparing wild SR fall Chinook behavior and survival to that of surrogate fish will not be conducted this year. The Corps had requested about 30,000 fish in two study groups (surrogate and wild groups) to test the validity of using smaller production fish reared in a hatchery as "surrogates" for wild fish. The use of surrogate fish in a large scale SR fall Chinook inriver-transport study is one of the reasons why the parties could not agree on a long-term study design last year, as some have argued using surrogates for wild fish in a comparison with production fish is inappropriate.

Why Weren't Sufficient Numbers of SR Fall Chinook Collected in 2006?

To fulfill the agreed upon *U.S. v OR* production priorities shown in Table 1, brood stock collection of SR fall Chinook salmon occurs primarily at Lyons Ferry Hatchery on the lower Snake River and from the adult trap at Lower Granite Dam. The sampling rate for the trap at Lower Granite Dam has been set at 13% of the SR fall Chinook population for the last 3 years. The sampling rate was established to: a) obtain needed brood stock from a representative sample of the entire SR fall Chinook population; and b) to protect adult SR steelhead collected in the trap, which are also ESA-listed and which are returning in larger numbers compared to fall Chinook.[4]

For perspective, similar numbers of adult fall Chinook returned to the Snake River in the past two years, i.e., 13,985 fall Chinook returned in 2005 and roughly 14,000 returned in 2006. The 2006 count was also close to the pre-season estimate of fall Chinook run size. However, many more SR steelhead return to the Snake River by an order of magnitude. In 2005, 144,365 steelhead returned and 137,176, or slightly fewer, fish returned in 2006. Thus consideration is given to setting the sampling rate of the Lower Granite adult trap to avoid inundating the trap with fish and affecting large numbers of steelhead. This is why the trap is being modified (expanded) by the Corps this winter.

In order to collect adequate brood stock of SR fall Chinook, a balance of females to males must be collected. In 2006, greater numbers of adult males and jacks[5] were collected than in previous years, affecting the overall egg take. Moreover, fewer adult SR fall Chinook were collected at Lyons Ferry Hatchery in 2006 compared to 2005. For example, the combined brood stock collection from both Lyons Ferry Hatchery in Washington and the Snake River trap in 2005 totaled 4065 adult fall Chinook salmon, of which about 420-470 were jacks, while in 2006 a total of only 3742 adults were collected and 1427 of those were jacks.

Thus the reduced egg take from insufficient brood stock collection of SR fall Chinook during the fall of 2006 affected the ability to fill all the production priorities under *U.S. v OR*, including the number of fish needed for the fall Chinook inriver-transport evaluation. As noted above, out of a

[4] There is a limited holding area for all the adult fish collected at the Snake River trap and the fish managers do not want to hold or handle too many migrating SR steelhead.

[5] Jacks are one-ocean precocious male fish.

total of 17 approved production priorities for 2007, sufficient brood stock was collected to supply only up to priority #9, or just over half of the production priority needs.

Description of Corps Research Proposed for 2007

The Corps research is intended to better understand the relationship of either transporting or returning fish to the river once collection occurs at a dam, to determine the efficacy of transportation for SR fall Chinook salmon. Surrogate fish (fish raised to a smaller size to mimic wild fish) were proposed for tagging due to the inability to capture sufficient numbers of wild fish for an adequate evaluation, and because of the differences in behavior and run timing between wild and larger hatchery fish.

The Corps had wanted up to 380,000 production fish and a similar number of surrogate fish to PIT-tag and release for the 2007 evaluation. Two groups of fish would have been released, one group would have been designated as a transport group, while the other designated as an inriver or bypassed group. The strategies of either bypassing or transporting fish would then be compared, as well as to the undetected group of migrants. For the purposes of the evaluation, each entire "group" would be analyzed (number of returning adults/number of juveniles released). The focus of the study would not be on how many fish went into the barges or were bypassed; rather the efficacy of the strategy itself would be analyzed.

The research effort would calculate and compare smolt-to-adult return rates (SARs) for fish detected at Lower Granite Dam that were either transported or returned to the river, as well as other groups defined by detection history (never detected, detected once, twice, etc.). This would respond to the management question, "Do fish survive better in a barge or in the river?"

In addition, the performance of natural and hatchery fish during downstream migration would be compared (timing, survival, detection probability) to determine the adequacy of using hatchery fish as surrogates for wild or natural fish. Scales would also be examined from all returning adults to determine whether the fish migrated as a subyearling or yearling.

Table 1.

***U.S. v OR* SR Fall Chinook Salmon Production Priorities for Lyons Ferry Hatchery**

Priority	Rearing Facility	Number of Juveniles	Age at Release	Release Location(s)	Marking
1	Lyons Ferry	450,000	1+	On station	225K AdCWT+VIE 225K CWT+VIE
2	Lyons Ferry	150,000	1+	Pittsburgh Landing	70K AdCWT 80K CWT only
3	Lyons Ferry	150,000	1+	Big Canyon	70K AdCWT 80K CWT only

4	Lyons Ferry	150,000	1+	Captain John Rapids	70K AdCWT 80K CWT only
5	Lyons Ferry	200,000	0+	On station	200K AdCWT
6	Lyons Ferry	500,000	0+	Captain John Rapids	100K AdCWT 100K CWT only 300K Unmarked
7	Lyons Ferry	500,000	0+	Big Canyon	100K AdCWT 100K CWT only 300K Unmarked
8	Lyons Ferry	200,000	0+	Pittsburgh Landing	100K AdCWT 100K CWT only
9	Oxbow	200,000[c]	0+	Hells Canyon Dam	200K AdCWT
10	Lyons Ferry	200,000	0+	Pittsburgh Landing	200K Unmarked
11	Lyons Ferry	200,000	0+	Direct stream evaluation Near Capt. John Rapids	200K AdCWT
12	DNFH/Irrigon	250,000	0+	Transportation Study[a]	250K PIT tag only
13	Lyons Ferry[b]	200,000	0+	Grande Ronde River	200K AdCWT
14	DNFH/Irrigon	78,000	0+	Transportation Study[a]	78K PIT tag only
15	Umatilla	200,000	0+	Hells Canyon Dam	200K AdCWT
16	Lyons Ferry[b]	200,000	0+	Grande Ronde River	200K Unmarked
17	Umatilla	600,000	0+	Hells Canyon Dam	600K Ad only
TOTAL	**Yearlings**	900,000			
	Subyearlings	3,528,000[d]			

a/ USACOE Transportation Study wild surrogate groups direct stream released into the Clearwater River and mainstem Snake River.

b/ For logistical purposes, fish may be potentially reared at Irrigon (LSRCP).

c/ Priority #9 only partially fulfilled; expect only 127,000 juveniles.

d/ Of which 328,000 are for USACOE Transportation Study.

Note: The shaded *U.S. v OR* SR Fall Chinook Salmon Production Priorities are unmet in 2007.

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION
729 NE Oregon, Suite 200, Portland, Oregon 97232 503 238 0667

January 10, 2007

Brigadier General Gregg Martin
Division Commander
Northwestern Division
Corps of Engineers
P.O. Box 2870
Portland, Oregon 97208-2870

Dear General Martin:

The Columbia River Treaty Tribes have discussed the options for producing juvenile Snake River fall Chinook for the 2007 Snake River Transportation Study. While the tribes support conducting a long-term study that will provide results helpful to gain a better understanding of the effects of transportation versus in-river migration for Snake River fall Chinook, we have specific concerns about the study proposed for this year.

First, the tribes are troubled by the fact that there is still no agreed to long term study design. This is critical to reaching common understanding of the results. As specified in the March 9, 2006 letter to you, the U.S. vs. Oregon parties agreed to the fall Chinook transportation study in 2006 with the specific condition that, "any future commitments would be conditioned upon agreement by the U.S. vs. Oregon parties on a long-term evaluation plan."

Second, the tribes weighed a number of factors in considering Snake River fall Chinook production priorities. The tribes worked hard to agree to an approach and priority production plan for Lyons Ferry Hatchery which was adopted by consensus of the U.S. vs. Oregon parties in the summer of 2006. The U.S. vs. Oregon parties made significant compromises to include fish for "surrogate" production into a production priority agreement. The "surrogate" groups were identified as priority 12 and 14 on this production agreement out of a total of 17 priority groups. Unfortunately, insufficient broodstock was collected in the fall of 2006 to meet all of the production priorities. The egg take at Lyons Ferry will only result in partially filling up to priority 9 of the production agreement. Based on the production priorities agreed to in 2006, there are not enough eggs to produce the "surrogate" group for the proposed 2007 transportation study. Unfortunately, it will not possible to meet all parties' objectives for Snake River fall Chinook production in 2007. The tribes do not believe it is appropriate to again modify

the agreed to production priorities for Snake River fall Chinook, for the sake of the 2007 study especially when there is no agreed to long term study design.

Based on broodstock collection and the priority list, fish are not available for the "surrogate" portion of the transportation study in 2007. The tribes recognize, however, that planned hydropower operations and potentially good water conditions in 2007 may provide an opportunity for further data collection. The tribes would support PIT tagging 185,000 of the "general production" fish - as was agreed to in 2006. Moving forward with this component of the study would carry the same condition that the U.S. vs. Oregon parties identified in the March 9, 2006 letter, "The evaluation in 2006 will not include a "bypass treatment" group for Snake River "general production" hatchery fish, except as necessary to estimate reservoir-reach in-river survival of juvenile salmon. Except as mandated by existing agreements, fall Chinook collected at Snake River projects will be transported and not returned to the river." In addition, it is important to note that we believe it is critical to continue with collecting and PIT tagging the juvenile progeny of as many naturally spawned fish as possible in both the Clearwater and Snake Rivers. Regardless of concerns with sample size representation, these fish do provide a true indication of migratory and return behavior of the natural component of the run.

The tribes do want reaffirm our desire to reach agreement on a long term study design so that this evaluation can occur in future years.

Yours Truly,

Olney Patt, Jr.
Executive Director

cc list:

US v. Oregon Parties/Attorneys
Bob Lohn, NOAA
Colonel R. Fofi, NWD Corps
Colonel Hofmann, Walla Walla District, Corps
Colonel O'Donovan, Portland District, Corps
W. Anderson, NWD Corps
D. Calica, NWD Corps Tribal Liaison
M. Handlin, Walla Walla Distict Tribal Liaison
B. Creel, Portland District, Corps Tribal Liaison

Northwest Power and Conservation Council

February 2007

Draft Letter
To (particular) US v. OR parties

We are writing to you in regard to the Corps of Engineers' study that measures the relative survival of endangered fall Chinook of both transported and inriver migrants. To put it simply, the failure to conduct this experiment will negatively impact our ability to recover Snake River fall Chinook.

The relative survival of both transported and inriver migrants is a key uncertainty in the Council's Fish and Wildlife Program and an essential piece of information that is needed to inform future policy decisions. The Corps of Engineers' study began last year, and will need several more years of results before it can reach valid conclusions. We are asking you to support the implementation of this study and ensure that sufficient numbers of fish are provided so that the study can go forward this year.

In the 2003 amendments to the Program the Council concluded, "Therefore, the Council…will give priority to the funding of research that more accurately measures the effect of improved inriver migration compared to transportation and the comparative rate of adult returns to the spawning grounds of transported and in-river migrants." The Council went on to identify the three highest priorities for juvenile transportation studies. The second action on the list was to, "conduct a transportation study that targets Snake River fall Chinook…." [p. 18] The same study is identified as an important action in the 2000 and 2004 Biological Opinions.

The region has made a significant investment in attempts to recover Snake River fall Chinook. In January 2005, the Council approved $1.8 million to make improvements to the Lower Granite Dam Adult Trap (#200500200), and in 2006 the Council supported three years of funding for the Pittsburg Landing Fall Chinook Acclimation Project (#199801005) at a cost of $2.1 million. Through these efforts, the region is making progress toward the recovery of Snake River Fall Chinook. But if this progress is to continue, there exists the very real need to determine under varying river conditions whether transportation or inriver migration is most beneficial to fish survival.

851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348
www.nwcouncil.org

Steve Crow
Executive Director

503-222-5161
800-452-5161
Fax: 503-820-2370

It would be an unfortunate setback to our mutual efforts to recover endangered fall Chinook if this scientific study is stopped. It is understood that fish for the transport study is not a priority in *U.S. v. Oregon* proceedings supervised by the U.S. District Court of Oregon. But this can be remedied by the participants, and we encourage you to take a leadership role in resolving this issue. Please contact this office if the Council can be of any assistance.

Sincerely,

Tom Karier
Chair

x:\jh\ww\council members\ltr re transport study draft 20907.doc