Final Notes December 22, 2003
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IMPLEMENTATION TEAM MEETING NOTES

December 4, 2003, 1:00 p.m.-4 p.m.

NOAA FISHERIES OFFICES
PORTLAND, OREGON

I. Greetings, Introductions and Review of the Agenda.

The December 4, 2003 meeting of the Implementation Team, held at the NOAA Fisheries offices in Portland, Oregon, was chaired by Jim Ruff of NOAA Fisheries and facilitated by Donna Silverberg. The meeting agenda and a list of attendees are attached as Enclosures A and B.

The following is a distillation (not a verbatim transcript) of items discussed at the meeting, together with actions taken on those items. Please note that some enclosures referenced in the body of the text may be too lengthy to attach; all enclosures referenced are available upon request from NMFS's Kathy Ceballos at 503/230-5420 or via email at kathy.ceballos@noaa.gov.

Silverberg welcomed everyone to the meeting, led a round of introductions and a review of the agenda.

2. Updates.

A. In-Season Management (TMT). Silverberg noted that a potential issue regarding the transition to zero flow operation of the four Lower Snake projects was discussed at yesterday's TMT meeting; however, it is her understanding that no one has chosen to elevate this issue to the IT. David Wills said he had discussed this issue with the other FPAC members; they had a number of concerns, including the number of adult steelhead still moving past Lower Granite. The FPAC could therefore not support going to the zero flow option, Wills said. We're not comfortable with going to the zero flow operation beginning tonight, Wills said; given the large number of adults still passing Lower Granite (100-250 per day, 90% during the day), we would prefer that BPA wait to implement that operation. After a brief discussion, however, no TMT member chose to formally elevate this issue to the IT.

This being the case, the flexibility to go to zero flow at the Lower Snake projects during the hours of 10 p.m. to 6 a.m. has been restored to Bonneville. That operation will begin tonight and will continue through the end of February. BPA further agreed to implement the zero flow operation during only six of those eight hours, if possible. Silverberg said TMT will have further discussions on this issue, in particular, the effects of zero nighttime flow on adult fish migration.

B. Independent Scientific Advisory Board (ISAB). No report.

C. Water Quality Team (WQT). Mark Schneider said that, about a year ago, the WQT co-chair, Mary Lou Soscia, had announced that she would no longer be able to participate in the group. At the last WQT meeting, the three state water quality agencies, WDOE, IDEQ and ODEQ, had agreed to provide a rotating co-chair each year. Russell Harding from ODEQ will be the first WQT co-chair. However, Harding has been reassigned to the Willamette, so whoever replaces Harding on ODEQ's Columbia River matters will serve as co-chair.

The next WQT meeting is scheduled for next Tuesday, Schneider said; however, that date will be used to discuss the performance of the fixed monitoring stations in 2003, in response to RPA 132. Do you anticipate that this subgroup will come back with recommendations to change the water quality monitoring system? Ruff asked. Undoubtedly, Schneider replied – for example, we have been discussing the fact that the forebay monitors, particularly at the Snake River projects, appear to be unduly influenced by the surface waters approaching those projects. We will be discussing alternative monitoring sites for those FMS, Schneider said. We would then develop a letter with recommendations from the WQT to the action agencies, he added.

Jim Adams of the Corps briefly discussed the proposal to move the Warrendale FMS to Bradford Island; he noted that, while the WQT can make a recommendation on this issue, it's really up to the action agencies and the states to decide how best to meet the applicable water quality requirements.

How soon do you expect the WQT to develop its final recommendations? Scott Bettin asked. Probably within the next month, Schneider replied; it might take as long as two months, but that is unlikely – we are conscious of the need to move this process along as smartly as possible, he said. Any 2004 monitoring recommendations will be included in the 2004 fish passage plan, which will be finalized by early February, Adams added.

D. System Configuration Team (SCT). See Agenda Item IV, below.

E. TMDL Update. No report.

F. Water Quality Plan Work Group. No report.

3. 2003 TMT Lessons Learned Summary.

In response to an earlier request from the IT, the Corps' Cathy Hlebechuk and Jim Adams led a presentation titled "Implementation Team 2003 Year-End Review." The full text of this presentation is available via hotlink from the IT website. Major topic areas addressed in this presentation included:

- A comparison of 2003 actual flows and objectives -- McNary spring flow objective was 220 Kcfs, and the actual average flow was 231 Kcfs: McNary summer flow objective was 200 Kcfs, and the actual average flow was 135 Kcfs: Lower Granite spring flow objective was 87 Kcfs, and the actual average flow was 90 Kcfs: Lower Granite summer flow objective was 50 Kcfs, and the actual average flow was 32 Kcfs. Priest Rapids spring flow objective was 135 Kcfs, and the actual average was 141 Kcfs.
- Observed 2001, 2002 and 2003 volume runoff, Hungry Horse, Libby, Albeni Falls, Grand Coulee, Dworshak, Lower Granite, McNary (see table)
- Actual Libby elevation and outflow, September 1, 2002 through September 30, 2003 (see graph)
- Actual Grand Coulee elevation and outflow, September 1, 2002 through September 30, 2003 (see graph)
- Actual Dworshak elevation and outflow, September 1, 2002 through September 30, 2003 (see graph)
- Actual Dworshak gate information (see table)
- Actual Dworshak outflow, July 3-September 14 (see table)
- Actual Dworshak outflow temperatures, June 13-September 12 (see table)
- Actual Dworshak temperature profiles, January 3-October 15 (see table)
- Actual Anatone and Lower Granite tailwater hourly temperature data, March 1-October 4 (see graph)
- Actual Anatone, Dworshak and Lower Granite tailwater hourly temperature data, March 1-October 4 (see graph)
- Actual Dworshak outflow and Lower Granite inflow daily data, July 3-September 21 (see graph)

Ruff said that a meeting between the Corps, NOAA Fisheries, and USFWS should be scheduled to review and discuss the new 2003 Libby runoff forecast methodology and planned flood control operations in 2004; it was so agreed. In response to a question, Hlebechuk said Dworshak's 2004 early-bird forecast is 99% of average.

Ruff complemented the action agencies for the job they did in using Dworshak's available cool water to moderate water temperatures in the Lower Snake this past summer; it would appear that you were able to put the cool water on the fish exactly when they needed it and maintain water quality standards at Lower Granite Dam, Ruff said. Hlebechuk praised the operators at Dworshak for their excellent work this summer; it isn't easy to hit and maintain the outflow temperature at Dworshak with such precision, and they did a great job this summer, she said. In response to a question, David Wills said that it is his understanding that there is one period in the early fall, before the heaters are turned on, when Dworshak outflow temperature is a concern for the Dworshak National Fish Hatchery operation downstream. Wills agreed to check on this with the Hatchery manager and report back on his findings to the TMT and IT as

soon as possible.

The group briefly discussed the Dworshak operation in 2003; Bettin noted that one possibility under discussion is starting the Dworshak releases sooner, and continuing them longer, but at a slightly lower rate of outflow, to stay within turbine capacity and avoid spill at that project. Adams added that it may be of interest to investigate a trigger, in terms of a target temperature in the Lower Granite forebay, which will guide the start of the cool water releases from Dworshak in future years. Ruff noted that CEQUAL 2, the Corps' new temperature model, may provide such a predictive tool. Adams added that the Corps hopes to finalize its 2003 water quality report during the week of December 19.

IDFG's Russ Kiefer also provided an overview of the PIT-tag data from the 2001 outmigration year and adult returns through 2003 for Snake River wild/natural spring/summer chinook tagged above Lower Granite Dam. Among the highlights of this presentation:

- PIT-tagged wild spring/summer chinook detected SARs, migratory years 1997-2001 (graph) – SARs for the 2000 outmigration year were excellent, about 2.90, but SARs to date for the 2001 outmigration year are very poor – about 0.20 – not unexpected given the severity of the 2001 drought year. Kiefer emphasized that these figures are for PIT-tagged fish detected at at least one collector project only, not for the run at large.
- Imnaha, McCall and Dworshak Hatchery summer chinook SARs – 1995-2002 (again, SARs were good in 1998, 1999 and 2000, much worse for outmigration year 2001). Is that a trend, and did SARs peak in the late 1990s Jim Litchfield asked. Actually, 2001 was a very poor outmigration year; the indications are that 2002 and 2003 will be much better, Kiefer replied.
- Wild Snake River steelhead SARs, migratory years 1990-2002 (graph) – 1.7% in 2000, much lower (below 0.10%) in migration year 2001. Again, indications are that SARs will be much better for outmigration year 2002, Kiefer said.
- 2001 smolt migration, poor flows but good ocean conditions – fish agencies and tribes' model predicted poor to mediocre returns (graph)

In response to a question, Kiefer said this particular SAR analysis used only juveniles collected at the four main collector dams and adult returns detected at Lower Granite.

Silverberg noted that all of today's presentations are available via hotlink from the agenda for the November 15 meeting on the TMT homepage.

Paul Wagner than provided a presentation on 2003 results from the NOAA Fisheries survival study for Snake River and Upper Columbia yearling chinook. Other information presented touched on:

- Mean estimated survival through various reaches of the Lower Snake and Columbia River hydropower system for yearling chinook salmon and steelhead originating in the Snake River, 2001-2003 (hatchery and wild fish combined) (table). In general, said Wagner, while chinook survival is within predicted levels, reach survival for steelhead

continues to be lower than predicted, particularly for the Lower Monumental-McNary reach.

- Mean estimated survival through reaches of the Lower Columbia River hydropower system for yearling chinook salmon and steelhead originating in the Upper Columbia River, 2002-2003 (hatchery fish only) (table). Ruff noted that migration route (spillway vs. powerhouse) for the Snake River and Upper Columbia steelhead may also help explain the discrepancy between their relative survival rates.
- Estimated survival probabilities for yearling chinook and steelhead, 1993-2002, Lower Granite to Little Goose, Little Goose to Lower Monumental, Lower Monumental to McNary, Lower Granite to McNary (graphs)
- Percentage of Snake River spring/summer chinook smolts transported, 1999-2003 (graph) – significantly lower in 2002 and 2003 than in previous years, 57% in 2003, based on preliminary analysis, compared to 99% in 2001, possibly due to RSW operation, possibly due to methodology in calculating the percentage transported
- Percentage of Snake River steelhead smolts transported, 1999-2003 (graph) – a similar trend to that seen in chinook, although the difference is not quite as dramatic for 2002 and 2003
- Transported spring/summer chinook SARs: 2000 (0.70), 2001 (0.79)
- Transported steelhead SARs: 2000 (3.8), 2001 (2.2)
- Comparative Survival Studies (CSS) study SARs for spring chinook: 2000 (2.2), 2001 (1.0)

The bottom line is that transportation did not make 2001 into a 2000-type year, in terms of SARs, Wagner said. We should probably reserve judgement until we see this information presented in the update to the transport white paper, which will be available early in the new year.

Hlebechuk added that the current elevation at Libby is 2428; we're releasing as much water as possible now and headed toward elevation 2411 by the end of December, she said. During the third week in December, we're planning to reduce Libby outflow to 10 Kcfs and hold that rate of outflow through the end of January, if possible, for burbot spawning. The big wild card will be Libby's flood control elevation, she said. The burbot managers would like us to hold Libby outflow as stable as possible from mid-December through the end of January, Hlebechuk added; whether or not that will be possible will depend on the forecast.

NOAA Fisheries expressed a desire to schedule a meeting with the Corps and USFWS to review the Corps' proposed new Libby runoff forecast methodology and resulting change in flood control operations per the BiOp RPA action. This meeting should occur before the report on changing the Libby forecast methodology and flood control operation is completed so that comments from NOAA Fisheries and the USFWS can be included

4. 2005 Removable Spillway Weir Installation at Ice Harbor.

Silverberg noted that the SCT has been discussing the Ice Harbor RSW issue for its last two meetings; she drew the group's attention to the facilitators' notes from the November 22

SCT meeting, which lists three potential options for resolution of this issue.

Bill Hevlin distributed documents summarizing Lower Granite RSW research results from 2002 and 2003, and an outline of his presentation for today. He noted that, last fall, Bonneville had proposed that RSW installation move forward as soon as possible at both Ice Harbor and Lower Monumental dams. The SCT's response was that this was an interesting proposal, but more information was needed before a decision on accelerated RSW implementation could be made – specifically, we needed the results of the 2003 Lower Granite RSW evaluation and the 2003 Ice Harbor spillway survival study. We promised that, once we had that information, we would be able to make a recommendation to the federal executives about whether to proceed with accelerated RSW implementation at Ice Harbor and Lower Monumental, he said. We need to make a decision very soon if RSW installation is going to happen at Ice Harbor in 2005, Hevlin said; NOAA Fisheries raised the Ice Harbor RSW issue to the IT, because the SCT has gone about as far as we can with it, and asked IT members to comment on three possible implementation operations under consideration.

Noah Adams of USGS provided an overview of the results from the 2002-2003 RSW tests at Lower Granite. He touched on:

- Treatments in 2002 and 2003
- Percent passage by species or rearing type and RSW or spill treatment, 2002 and 2003 (table)
- Passage effectiveness by species or rearing type and RSW or spill treatment, 2002 and 2003 (table)
- Median passage time by species or rearing type and RSW or spill treatment, 2002 and 2003 (table)
- Percent of fish with upriver trips by species or rearing type and RSW or spill treatment, 2002 and 2003 (table)

Adams' presentation is available as Enclosure C. The bottom line, said Adams, is that, in both 2002 and 2003, passage effectiveness was significantly higher under the RSW operation than under RSW + training spill or gas cap spill; median passage times and percent of fish with upriver trips were reduced for all species when the RSW is operating, compared to gas cap spill. Howard Schaller noted that there are no wild chinook included in this study.

Hevlin then distributed a document (Enc. D), titled "2003 Lower Granite RSW Evaluation – Preliminary Results." According to this document, the survival results for radio-tagged hatchery chinook were as follows:

- RSW survival probability: 98.0% (+/- 2.3%, 95% C.I.)
- Spill survival probability: 93.1% (+/- 6.0%, 95% C.I.)
- No significant difference, numbers not adjusted for detection of dead fish

Adams noted that these were run-of-the-river releases upstream as well as tailrace control releases; he added that the survival results were very consistent across the season for the RSW,

hence the lower confidence interval associated with this estimate. In response to a question, Hevlin said training spill + RSW flow totals 22 Kcfs, over 24 hours, while spill to the gas cap was about 40 Kcfs during 12 nighttime hours in 2003.

Hevlin then turned to spillway passage survival data for yearling and subyearling chinook passing Ice Harbor Dam in 2000, 2002 and 2003. The numbers broke down as follows:

Yearling Chinook

2000: 97.8%
2002: 89.2%
2003 BiOp spill: 94.8%
2003 24-hour 50% spill: 92.8%

Subyearling Chinook

2000: 88.5%
2002: 89.4%
2003 bulk spill: 96.4%

Brad Eppard of NOAA Fisheries briefly described the juvenile fish survival studies his agency has conducted at Ice Harbor in conjunction with this issue.

This is all radio-tag, and hence, volitional, data? Howard Schaller asked. No, Hevlin replied, it is both Pit-tag and Radio-tag data. Have you looked into whether some of these survival numbers may be artifacts of your hose releases? Schaller asked. We haven't directly compared the hose and volitional releases, Eppard replied, although vertical distribution data indicates that our hose releases aren't too far off from where the volitional fish pass.

The group devoted a few minutes of discussion to survival through other routes of passage at Ice Harbor, including turbine passage (not significantly different from turbine passage survival numbers at the other Snake River projects).

We are planning additional radio-tag survival studies at Ice Harbor in both the spring and summer of 2004, Hevlin said, because we're seeing very inconsistent survival results at that project to date. The BiOp spill plan targets 98% survival at Ice Harbor, he said, so it is very important that we bring spillway survival up at that project. Schaller noted that one problem is the different methodologies that are being used at that project; he suggested that NOAA Fisheries needs to directly study whether there is a difference between hose releases vs. volitional radio-tag releases. Good point, said Hevlin.

Hevlin then touched on the three alternative options for this issue discussed at the November 22 SCT meeting:

- The Corps' current plan, to install the Ice Harbor RSW in 2005, Lower Monumental in

2006 and Little Goose in 2007

- The salmon managers would like to install the RSW at Little Goose first (2006 is the soonest this could occur) because more fish are available to pass through the RSW at Little Goose than they are at Ice Harbor – it would protect more fish. Also, Little Goose is more similar to Lower Granite, in terms of the BiOp spill program at the two projects (12-hour spill vs. 24-hour spill at Ice Harbor).
- The "middle ground" plan, supported by NOAA Fisheries and IDFG: install the Ice Harbor RSW in 2005, then at Little Goose in 2006, with the understanding that the operational emphasis would be on increasing survival at Ice Harbor, rather than on reducing spill and cost savings.

Jim Litchfield observed that it is his understanding that this is the goal of the Lower Granite RSW test as well; isn't it true that we should be testing the RSW under a range of operational conditions that includes more spill, rather than less? he asked. Schaller agreed, noting that the studies to date include survival past one project only, not on overall survival through the system, at least down to Bonneville. That's the kind of thing we need to look at, he said. Schaller added that 2002 and 2003 were very similar water years. The bottom line is that there are some in the region who are pushing very hard to implement the RSW technology at multiple projects as soon as possible, but the data we actually have to look at is limited, to date. Once we have RSWs installed and operating at all four Lower Snake projects, we could do the kind of study Howard is suggesting, said Hevlin; he added that the RSWs are removable. They are removable, but they are also very expensive, Schaller replied – there is a wide array of data I'd like to see before agreeing to support the accelerated RSW construction concept.

Bill Tweit asked what would need to be dropped in SCT priority in order for Ice Harbor RSW construction to proceed in 2004. What are we losing in order to implement this in 2005? he asked. The Corps has said that the money needed to start construction in 2004 -- about $3 million -- would be there, and would not adversely impact other CRFM funding priorities, Hevlin replied. Eric Braun said it should be possible for the Corps to find the $3 million for FY'04 from its national budget; however; out-year funding would need to come out of future CRFM appropriations. Tweit reiterated that WDFW would prefer that the next RSW be constructed at Little Goose or Lower Monumental, rather than Ice Harbor.

In response to a question, Ruff said the purpose of today's discussion, and the previous discussions at SCT, is to gather the input from the states and tribes on this issue before it is discussed by the federal executives on December 17.

Steve Rainey then provided an overview of the technical reasons NOAA Fisheries supports RSW construction at Ice Harbor. This presentation touched on the following major points:

- The Lower Granite RSW is the most successful Corps fish passage prototype to date
- Ice Harbor's spill bay profile and hydraulics are nearly identical to Lower Granite's
- NOAA Fisheries expects similar RSW performance at Ice Harbor, in terms of survival
- There are two current synergistic programs at Ice Harbor: spillway survival improvement

(in the second year of assessing causal mechanisms, expect to identify through 2004 testing, objective to improve spillway survival to 98%, needed with or without the RSW) and RSW implementation (with RSW installed by 2005, and with improvements from #1, above, expect optimized performance by 2005; any residual survival problems are expected to be due to #1, above, not to the RSW, and to be correctable).

The group offered a few clarifying questions and comments in the course of this presentation. Braun noted that the Corps has some concern about erosion due to bulk spill operation at Ice Harbor. Tom Lorz said CRITFC believes a delay in RSW implementation at Ice Harbor may be prudent, because researchers still do not have a solid hypothesis about the causal mechanism of lower spill survival at Ice Harbor.

Hevlin said Ron Boyce and FPAC had said they might be more comfortable with the "middle ground" RSW implementation option discussed at the November SCT meeting if performance objectives were included – residence time, spill passage efficiency, survival. We are not opposed to the development of such performance objectives, Hevlin said, although the performance standards we currently have in place have to do with system, rather than project-specific, survival. Silverberg noted that there is some time between now and January, when the Corps needs to award the contract for the Ice Harbor RSW, which could be used to develop the kinds of performance objectives the salmon managers would like to see. Tom Lorz added that CRITFC is preparing a letter outlining its position on this issue and will submit it to NOAA Fisheries for distribution to the IT and SCT memberships as soon as it is available.

Tony Nigro said that, in his view, the IT may want to consider convening a small group to frame this issue from a policy perspective — BiOp survival objectives, the role of RSWs in meeting those objectives, etc., separate from the cost savings discussion. He said that, in his view, the three options discussed at the November SCT meeting may not be complete; there may be other options the region ought to consider, he said. Nigro said he will communicate directly with Jim Ruff to explore how Oregon can best provide input on this issue.

So will the federal executives make a decision on this issue on December 17? Jim Litchfield asked. That is unknown at this point, Silverberg replied, although they have indicated that they are leaning toward implementation, based primarily on the cost savings the RSW technology may deliver.

Braun added one final clarification: the Corps may not want to wait until late January to make the implementation decision. He suggested that any additional deliberations or input be provided to NOAA Fisheries prior to December 17. The Corps also needs to know by early January whether or not Little Goose will be moved ahead of Lower Monumental, in terms of RSW implementation priority, Hevlin said. Wills noted that, in terms of sequence, FPAC unanimously concurs that Little Goose should be the next priority, with installation occurring at that project in 2006.

5. Northwest Power & Conservation Council's Spill Evaluation Update.

Ruff said there is a full Council spill group meeting scheduled for this afternoon; in a nutshell, we have been working, with different subcommittees addressing offset and spill science. The spill science group met yesterday to discuss ways to evaluate differences in summer spill treatments, using a project-by-project radio tag approach or a reach survival approach. There is general agreement that the reach survival studies would be very difficult to conduct, would take many years, a lot of funding, and considerable regional resolve to stick to a multi-year spill treatment schedule, Ruff said. The question then arose: can we measure project-by-project survival; the answer to that question is yes, said Ruff, but the question is whether we would get the same result by multiplying project-by-project survival numbers as we would through a system survival approach, or whether there would be latent effects that would cause the overall survival numbers to be different. We also identified data gaps, particularly with respect to Snake River fall chinook, and I think this exercise will be very helpful from that perspective, said Ruff.

Kiefer noted that CBFWA is developing a proposal, which the subgroup has not yet seen, that may fall outside the box the Council work groups have considered so far. Also, said Kiefer, the Corps believes it could test some of the assumptions necessary to extrapolate from a project-by-project survival analysis to a system survival analysis – truthing the hypothesis, in other words.

Ruff invited any interested parties to attend this afternoon's meeting. He added that the federal agencies will be providing a progress report at next week's Council meeting.

The offset subgroup met last Friday and will meet again tomorrow, said John Palensky; I believe we now have agreement on the list of offset principals. We have been discussing the feasibility of some of the offset measures identified to date, as well as the adequacy of the offset matrix. In response to a question from Suzanne Cooper, Palensky said the group will be discussing qualitative vq. quantitative assessment of the merits and detriments of each potential offset. Again, he said, any interested parties are invited to attend tomorrow's meeting.

6. Spill Management -- Next Steps.

Ruff asked whether the other IT members have had an opportunity to discuss the two spill management alternatives (start and end spill based on planning dates or a percentage of the migration passed) the IT has been discussing at recent meetings. After a brief discussion, it was agreed to postpone this discussion until the next SCT meeting. In the interim, please make an effort to discuss this issue with your executives, said Silverberg.

7. Next IT Meeting Date.

The next meeting of the Implementation Team was set for Thursday, January 8. Meeting summary prepared by Jeff Kuechle.