# IMPLEMENTATION TEAM MEETING NOTES

**March 2, 2000, 9:00 a.m.-4 p.m.**

**NATIONAL MARINE FISHERIES SERVICE OFFICES**
**PORTLAND, OREGON**

## I. Greetings, Introductions and Review of the Agenda.

The March 2, 2000 meeting of the Implementation Team, held at the National Marine Fisheries Service's offices in Portland, Oregon, was chaired by Brian Brown of NMFS and facilitated by Donna Silverberg. The agenda for the March 2 meeting 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.

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

## II. Updates.

**A. In-Season Management**. The Corps' Cindy Henriksen said that, in the absence of a March early bird forecast, there isn't a great deal to report on the in-season management front. She noted that the February mid-month forecast showed a reduction of 1% in the water supply at The Dalles, to 99% of average.

Henriksen said the TMT continues to work on its annual planning processes, including the 2000 Water Management Plan and TMT Guidelines; however, none of those work products is yet complete. She added that the TMT has not yet made a decision on the issue of the timing of the release of SORs during the in-season management period.

Henriksen said there are no issues that need to be elevated to the IT at the moment; one that may be coming your way, however, has to do with Lower Snake River operations during the summer – Idaho would like to retain 200 KAF of storage in Dworshak after August 31 for use in September and October, while others would prefer to release all of the available Dworshak storage prior to that date.

**B. Plan for Analyzing and Testing Hypotheses (PATH)**. See Agenda Item VI, below.

**C. Independent Scientific Advisory Board (ISAB)**. No ISAB report was presented at today's meeting.

**D. Water Quality Team (WQT)**. No WQT report was presented at today's meeting.

**E. System Configuration Team (SCT)**. NMFS' Bill Hevlin, chair of the SCT, distributed Enclosure C, the report from the Independent Scientific Advisory Board on their review of The Dalles survival study and appropriate spill levels in 2000.

To be brief, said Hevlin, what the ISAB concluded is that while the survival studies conducted during the 1997-1999 period did not address all of the relevant factors influencing juvenile salmon mortality, as designed, the studies were conducted well, and with as high a level of scientific quality and rigor as can be expected from field studies constrained by fish availability and dam operations. They said that the weight of evidence suggests that it is likely that there are real and significant differences in the survival of spilled smolts between spill levels of 30% and 64%, with 64% spill probably resulting in a lower per capita survival rate. The ISAB said that, rather than conducting further studies of survival at either high or low spill for an entire migration season, their recommendation is that we concentrate on several spill levels in the 30% to 50% range. They also suggested that, this year, test spill levels be maintained for approximately a week, Hevlin said. They concluded that the required fish sample sizes probably limit the researchers to two spill levels per year. In addition, said Hevlin, the ISAB concluded that the results at The Dalles cannot be generalized to other projects because of the unique characteristics of The Dalles.

Hevlin recommended that the IT read the ISAB report, noting that is very well written, and addresses all of the issues that were raised with respect to these studies last year. He added that the ISAB recommends, further, that in addition to evaluating spillway survival, the researchers also evaluate survival through the other two routes of passage – the sluiceway and the turbines – to develop an estimate of total project survival under both the 30% and 50% spill levels (please see Enclosure C for further details).

Hevlin said the SRWG and FFDRWG have taken this report and are in the process of developing a study design for this spring. The SRWG is concerned that there won't be enough study fish available to study survival through the spillways, turbines and sluiceway at two spill levels; therefore, it looks as though they will be recommending a single spill level for the 2000 study, Hevlin said – either

30%, 40% or 50%.

As you can imagine, Hevlin continued, various parties in the region have different ideas about what the spill level should be in 2000. The situation is further complicated by the planned daytime spill study at John Day Dam in 2000; as BPA has informed you, due to transmission system reliability concerns, only limited amounts of simultaneous daytime spill are possible at The Dalles and John Day, Hevlin said. There was a FFDRWG/SRWG meeting last Friday; the recommendation that came out of that meeting, as far as how the issues surrounding the 2000 study might be worked out, is that the Corps will talk to Bonneville about the actual limitations on daytime spill at both projects. At the same time, the SCT is working to develop a study plan for The Dalles. Once we agree on a spill level for the test at The Dalles, said Hevlin, that will inform the decision about what it will be possible to do at John Day.

If the SCT is unable to reach consensus on what those spill levels should be this spring, then the IT is going to be asked to resolve that issue, Hevlin said – I just wanted to be sure that you are aware of that. We are doing our best to reach agreement at the SCT level, however.

Is the research group looking at the question of whether the 30%, 40% or 50% spill level is most appropriate for the 2000 test at The Dalles, and if so, how do they intend to come to closure on that question? Brown asked. Frankly, Hevlin replied, I think that, from a biological viewpoint, you could argue for any of those three levels. Currently, Oregon is arguing for 50% spill, NMFS is supporting 40% spill, and the Corps would prefer 30% spill.

But what's driving peoples' arguments? Brown asked. I can tell you that, from our perspective, we still don't think there is adequate information to depart from the current BiOp spill level of 64% at The Dalles, said Ron Boyce – based on the information we've seen, Oregon believes that 30% spill will compromise project survival. In response to a question from Brown, Boyce said that Oregon elevated this issue to It last year, and does not plan to do so again this year. He asked which forum is the appropriate one to resolve this issue; Hevlin replied that it will probably be decided at SCT, because, typically, SRWG elevates contentious issues to the SCT for resolution.

Obviously, Hevlin said, this is an issue that holds a great deal of interest for a variety of entities in the region; again, he said, I would encourage all of you to read the ISAB report, and provide your input on the appropriate spill level for the 2000 test at the next SCT meeting on March 16. If the IT has any further thoughts as to a process for resolving this issue today, that would be very helpful, Hevlin said.

Michael Newsom suggested that it would be helpful if ISAB members could attend the next SCT meeting, to discuss their report and the appropriate spill level for the 2000 test. Hevlin replied that he has asked the ISAB to send a representative to the March 16 SCT meeting, but that scheduling conflicts may preclude that from happening.

Brown observed that, given the fact that the issue of the appropriate spill level for the survival test at The Dalles has been extensively debated over the past several years, and has been elevated to IT before, it is unlikely that the SCT will be able to reach consensus on this issue. While detailed discussion of the technical facets of this issue is certainly appropriate at SCT, he said, I would suggest that the SCT not have unrealistic expectations about reaching consensus, but instead, think about packaging it for resolution at the April 5 IT meeting. We'll deal with it, then move on, he said.

**F. Quantitative Analytical Report (QAR**). No Mid-Columbia QAR report was presented at today's meeting.

**G. Federal Caucus and Framework Hydro Developments**. No report was presented at today's meeting.

**III. Briefing on the John Day Drawdown Phase 1 Study**.

John Kranda and Chuck Willis of the Corps briefed the IT on the contents of the Corps' John Day Drawdown Phase 1 report. They distributed Enclosure D, an extract from the report summarizing the potential effects of John Day drawdown on fisheries resources.

Kranda and Willis spent a few minutes going through this document (please see Enclosure D for details). In response to a question from Dan Daley, Willis explained that the purpose of this Phase 1 reconnaissance-level study is to provide Congress with enough information to determine whether or not the study should proceed to Phase 2, a more detailed feasibility-level study. The Corps' intent was to provide an assessment of the maximum biological benefit associated with drawdown, together with the lowest possible cost estimates, Willis said.

Howard Schaller observed that this report, in its current form, doesn't even come close to presenting the maximum possible biological benefits associated with drawdown – in fact, he said, in my view, this report presents exactly the opposite picture, particularly with respect to the expected benefits for fall chinook. In response to a question, Willis said the Corps is in the process of trying to integrate its fall chinook results with the results from the more intensive PATH analysis of stocks located above McNary Dam. We didn't do so at the outset, which was probably an oversight on our part, he said.

Schaller noted that the Corps' Phase 1 report concludes that, under John Day drawdown, natural spawning of Upriver Bright fall chinook could increase by as much as ten-fold. Despite the fact that fall chinook spawning in the John Day reach might increase dramatically, Willis replied, whether or not that would result in any additional production is unknown at this time – if rearing habitat, rather than spawning habitat, is limiting productivity in that reach, production may not increase. NMFS' Jim Ruff asked how the Corps can justify the conclusion that no further study of drawdown is needed, given this key uncertainty about the effects of drawdown on the productivity of fall chinook habitat in the John Day reach. Upriver Bright fall chinook are the strongest stock above Bonneville Dam, Willis replied – I

would suggest that Congress is unlikely to vote to remove John Day Dam based on the effects of that action on Upriver Bright fall chinook, rather than on the listed stocks.

Various IT participants offered comments and suggestions on the Corps' Phase 1 report; Jim Litchfield observed that there needs to be a more specific emphasis on the effects of John Day drawdown on listed species and stocks, in particular, on the incidental effects on listed stocks if Upriver Bright production, and the subsequent harvest of that stock, increase.

Boyce said that, in his view, there are still a lot of holes in the Corps' Phase 1 report, which need to be filled before the report is submitted to Congress. In particular, he said, I'm bothered by your assumptions about transport, and the benefits that would accrue to Mid-Columbia fall chinook. That assumption alone would make or break any of the benefits that stock is expected to enjoy, said Boyce; it needs a lot more discussion. I also don't agree that the report should concentrate only on the impacts to ESA-listed stocks, he said – there are other stocks of concern to the fishery managers in the basin, and we shouldn't downplay the importance of this project to those stocks. We need to have a lot more discussion about this report before it is submitted to Congress, said Boyce – there are a lot of issues that need to be addressed.

Daley asked about the appropriate next steps in this process – do we just need some additional discussion of the analytical results, he asked, or do we need to ask the Corps to do some additional analysis? If so, is the Corps going to need to ask Congress for an extension, as well as an additional appropriation? The Corps' feeling is that, no matter what analysis is done, it will be subject to scrutiny and disagreement, Willis replied. Our intent was to use an analytical approach that would be the least-controversial, he said, and would have the widest acceptance by the region. I see two possibilities, said Willis – first, although we have tried to communicate closely with PATH to ensure that the approach we were taking was appropriate, maybe there's something we overlooked, or did inappropriately. If so, said Willis, that needs to be corrected. A second alternative would be for the Corps to re-run this analysis, using an entirely different analytical approach. That would certainly require extensive discussion within the region, to reach consensus on an alternative approach that people will feel more comfortable with, Willis said – personally, I doubt that can happen anytime soon.

In response to a question from Daley, Willis said the Corps is scheduled to make its final John Day Phase 1 report to Congress in July. Can we tweak the study so that everyone is happy with it between now and July? Daley asked. I don't think so, Willis replied. So where does that leave us? Daley asked. With what we've done, Willis replied. The alternative is for the Corps to tell Congress that, given this regional disagreement with the results of the study, a one-year extension is needed, Daley observed.

Jim Athearn replied that the Corps is still in the process of distributing the full Phase 1 study for detailed regional review, and would prefer to wait until comments are received before concluding that the analysis is fundamentally flawed. Ultimately, it was agreed that the IT and others in the region will

review the Phase 1 report as soon as the Corps makes it available, and provide any comments they may have to the Corps. Boyce said that, given the fact that delivery of the draft report has been delayed, Oregon will be requesting a one-month extension to the comment period.

And after those comments are received, what, exactly, is the Corps' intent? Boyce asked. Ideally, we will resolve any concerns that are raised, revise the report as needed, and deliver it to Congress on schedule, Athearn replied.

**IV. Overview of Harvest and Hatchery Issues and their Potential Relationship to FCRPS Operations**.

NMFS' Steve H. Smith said the intent of his presentation today is to brief the IT on what's happening with hatcheries and, to a certain extent, harvest, in the non-hydro arenas. He distributed Enclosure E, a handout describing the problems with, needed reforms to and future role of salmon and steelhead hatcheries in the Columbia Basin, then provided an overview of its contents (please refer to Enclosure E for details of Smith's presentation).

Smith noted that NMFS is in the process of developing eight additional Biological Opinions up and down the West Coast; all eight will address hatchery issues, including the development of hatchery genetic management plans (HGMPs). Those genetic management plans will then be plugged into the Council's subbasin planning process, he said. If that subbasin planning process mandates changes to a given propagation program in an individual basin, said Smith, then these plans will be modified to reflect that policy guidance.

In response to a question from Schaller, Smith said that, as part of the hatchery genetic management plan, each hatchery will be required to produce a monitoring and evaluation plan, which will be structured around a set of performance indicators. At the moment, he said, outside the Lower Snake River Basin, most of our hatcheries aren't very well-monitored, part of our goal is to remedy that situation.

So it is NMFS' intent to integrate its Biological Opinion hatchery planning process with the Council's subbasin planning and Artificial Production Review processes? Boyce asked. Our intent is to finish these Biological Opinions by the end of this month, before the major releases come out of the hatcheries, Smith replied. I'm hoping that these will be the last Biological Opinions we do on hatcheries, he said – once we have the HGMPs in place, that should eliminate the need to address hatcheries through the BiOp process. Basically, our intent is to do the best job possible of integrating ESA needs and Artificial Production Review needs in our current programs, said Smith.

Smith added that, based on NMFS' review of the status of certain steelhead and spring/summer chinook populations, the agency will likely be recommending additional conservation

initiatives – hopefully supplementation, rather than captive brood, programs. Before we do any of those programs, however, they will have to produce an HGMP, said Smith. The thinking right now is that there may be as many as 15 populations that need supplementation help right away, he said. Obviously, there is a great deal of ongoing research in the conservation arena; these techniques are all experimental, and there is no way to know, at the present time, whether or not they will help restore self-sustaining natural populations.

With respect to harvest, Smith observed that many of these issues are worked out through the U.S./Canada treaty process. Then there's the Pacific Fisheries Management Council, which works with NMFS to produce an annual Biological Assessment and Biological Opinion on the ocean fisheries, said Smith. For 2000, that process begins with a weeklong meeting next week in Sacramento. Smith touched on some of the other harvest management processes in the mainstem and tributaries; in the future, he said, many of these issues will be handled through the development of fishery management evaluation plans.

**V. Overview of NMFS-Related Work in the Columbia River Estuary and Plume**.

NMFS' Ed Casillas provided an extensive overview of the Northwest Fisheries Science Center's research into the role of the Columbia River estuary and plume in the salmonid life-cycle. Casillas worked from a series of overheads, which are Enclosure G. Please refer to this document for details of Casillas' presentation.

Casillas touched on freshwater vs. marine mortality, salmonid survivorship at particular life stages, the differential contribution of freshwater and marine habitats to salmon survival, the Columbia River estuary study plan, salmonid growth in the estuary, physical changes to the estuarine habitat, yearly fluctuations in Columbia River flow from 1878-1996, the estuary study approach, salinity data, the role of the Columbia River plume in the salmon life-cycle, the status of coastal Oregon and Washington salmonid populations, salmon distribution in the ocean, Columbia plume nutrient and zooplankton production data, chinook diet composition, predation estimates and the impact of ocean conditions on coho success. His briefing culminated in the following "findings relevant to management:"

**Estuary**

- Estuaries historically provide services to juvenile salmon – affected by flow (on habitat availability)
- Hatchery fish are unable to fully exploit estuarine-provided services.

**Plume**

- Juvenile salmon exhibit a preference to select the plume-influenced environment
- Salmon survival is linked in part to the magnitude of the plume environment, but needs to be considered in the context of other oceanographic features.
- The plume offers enhanced prey resources and predator sheltering, providing, in an ecosystem context, plausible, mechanistic underpinning.
- Spatial scale is appropriate to relate oceanic features to Columbia Basin stocks.

I know this research to quantify the importance of the estuary and plume for ocean survival is important, said Boyce, but we can't divorce that from what's happening in the freshwater environment, in terms of fish size, fish condition and other factors. Obviously, he said, you can't just look at one and ignore the other. And we certainly recognize that the condition of the fish as they enter the estuarine environment does have an effect on their eventual survival, Casillas replied. There are multiple impacts and developmental windows in the salmon life-cycle, which are differentially impacting various stocks at various times. There is an integrated link between actions in the freshwater, estuarine and ocean environments, and they have to be evaluated as a continuum, Casillas said.

From a management perspective, there are a couple of take-home messages here, said Lynn Krasnow. The first is that the "black boxes" are no longer black – they are now more dark grey, and we have some emerging research that will allow us, over time, to talk about FCRPS water management in a very functional way further downstream. Second, she said, what this research demonstrates is that there is more to a normative hydrograph than just the mainstem flow/survival relationship.

**VI. PATH – Quantitative Exploration of Experimental Management Options**.

PATH coordinator Dave Marmorek began this agenda item by updating the IT on current PATH activities; he said he had received an email from the ISAB regarding their model synthesis project, requesting that PATH describe the modeling they have done by March 15. That's simply not going to happen, said Marmorek, given all of the other tasks we currently have on our plate.

The main thing I wanted to present to you today is a preliminary evaluation of experimental management actions, Marmorek said. As you'll recall, he said, I laid out our plan for addressing experimental management last fall; the goal of this activity was to identify actions that maximize the ability to achieve conservation and recovery objectives, which might, concurrently, tell us something about various key uncertainties, allowing us to select better long-term management actions. He noted that PATH's final experimental management report is expected to be completed by about March 15.

Marmorek used a series of overheads to brief the IT on the current status and results of this analysis; these overheads are Enclosure H. He touched on the specific tasks the PATH researchers have undertaken in the course of this assignment, the actions evaluated (modify transportation/measure D, transport/no transport, carcass introductions/stream fertilization, manipulate hatchery production,

base case – 1978-1994 conditions continue into the future, and four-dam drawdown), the purposes of this report, the experimental management model outputs, the model's structure, process and inputs, an approach to generic actions, approaches to the various actions under evaluation, results from the modeling of these actions, and the following general conclusions:

**Biological**

- More than a 7.5-fold improvement in life-cycle survival is needed to meet the 24-year survival standard of 0.7
- A 2.7-fold increase in life-cycle survival is needed to meet the 48-year recovery standard of 0.5
- Survival and recovery probabilities are lower than previous PATH results because they assume that poor 1978-1994 ocean conditions will continue, that extra mortality is here to stay, and use updated spawner-recruit data
- Using the hypothesized survival effects of the actions, all actions except transport on/off provide some survival improvement, but none meet the survival standard of 0.7. Only drawdown can meet the recovery standard, but whether or not it will actually do so depends on D-value and extra mortality assumptions.
- Survival and recovery probabilities for actions other than drawdown and status quo assume that actions are implemented as on/off experiments for the 100-year simulation period.

**Learning**

- Most survival experiments have >0.9 probability of estimating some survival improvement (i.e. $^{a}M > 0$) within 5-10 years
- Actions that generate >4-fold survival improvement (some hypothesized responses to four-dam drawdown and reductions in hatchery output) .0.8 probability of estimating $^{a}m$ of at least 80% of true value after 20 years
- Roughly the same power for actions with smaller survival improvements but have spatial controls (carcass introductions)
- Actions that generate - 2-fold survival improvements with no spatial controls (transport/no transport, some hypothesized responses to drawdown and hatchery reductions) . 0.6 probability of estimating $^{a}m$ of at least 80% of true value after 20 years.
- More complex designs/expanded monitoring of life-stage specific survival data needed to improve ability to detect effects (S-R data inherently noisy, affected by other factors)
- Using within-year comparisons (control for between-year variability) can improve the power of the experiment
- For the status quo and modify transport options, large numbers of PIT-tagged fish may be required to detect effects (depends on assumptions about SARs, reference groups).

Please refer to Enclosure H for further details of Marmorek's presentation.

Finally, Marmorek identified the following next steps in this analysis:

- Complete the assessment of the feasibility of implementing actions (involve regional groups)
- Assess evidence in support/against the hypothesized effects of actions
- Use the model to explore alternative experimental designs/combinations of actions
- Explore other monitoring to detect effects (e.g. expanded PIT-tagging).

In your Biological Conclusions, you assume poor ocean conditions continuing into the future, and say this is different from your earlier reports, said Brown. Why did you do that? A number of reasons, Marmorek replied – for one thing, we wanted a simple, useful model that could be developed quickly. He referred the IT to Page 11 of Enclosure H, the description of the experimental management model process, for a more detailed explanation, but said that, basically, what PATH was attempting to develop was a simple model to estimate common year effects across all stocks. We then add onto that the changes in survival – the ^a ms – that we're simulating, he said. If we were to use the "ms" from earlier years as a base and include those, he said, there are all sorts of other things that have gone on during this period, including the construction of the Snake River dams. It is more hypothesis-neutral to take the more recent information, and add the survival changes on top of it, under this assumption, Marmorek said. Basically, we would need a much more complex model if we want to incorporate year effects from the earlier years, he said.

Really, to characterize this as good or bad ocean years isn't fair, Howard Schaller observed – you simply took the most recent information, and didn't want to have to tease out the difference between the hydrosystem and the ocean. You just wanted to use an overall mortality factor, and used the most recent years to represent it, Schaller said. The influence of low spawner abundance will have just as large an effect, he added – it's not so much ocean conditions as the fact that you have used the most recent mortality years.

In the evaluation of actions, said Brown, I guess what I heard, with respect to transportation and "D" is that, if we continue the base-case into the future, it's going to be a long time before we know anything about the value of D. I also heard that, at least within the range of transport experimental actions, there doesn't seem to be a better way to get at D. Is that a fair assessment? Brown asked. How long it takes to get at that value depends on how high D actually is, Marmorek replied. I guess my point is that this analysis doesn't suggest that there is a smarter alternative than the transport status quo, from the perspective of either conservation or learning, Brown said. That would be my conclusion, Marmorek agreed.

All of these runs were done using the new hydro extra mortality hypothesis? Chris Toole asked. That's correct, Marmorek replied. Where is the best place to find a description of that hypothesis? Toole asked. In Appendix H of the Weight of Evidence report, Marmorek replied. There is also a description in the December Experimental Management report.

Brown thanked PATH for the five years of presentations they have provided to the IT, and thanked Marmorek personally for all his hard work in shepherding the PATH process. I don't know where the discussion is currently, with respect to the future of PATH, said Brown, and I'm reluctant to give you a sendoff, or to conclude that this is PATH's last presentation before IT, while that is still up in the air. I want to acknowledge all of your contributions over the years, he said – they've been very informative.

**VII. Review of the Scope of the Regional Forum in the Post-2000 Period**.

Silverberg said this agenda item will be discussed at the IT's April 5 meeting, and asked the IT participants to re-read the interim procedures for the Regional Implementation Forum, so that they can come to the meeting prepared to discuss them. If you don't have a copy, she said, please contact Kathy Ceballos at 503/230-5420.

**VIII. Other**.

**A. Schedule for 2000 FCRPS Biological Opinion**. Brown said that, as he mentioned last meeting, there are a number of hydroregulation studies underway in connection with the 2000 FCRPS Biological Opinion. Those are now nearly complete, he said, and together with some of the biological effects analyses that are being done in support of the 2000 BiOp, as well as the NMFS Science Center's CRI analysis of the 12 ESUs, are now almost ready to be distributed for review. As soon as those three pieces are ready to go, said Brown, we intend to get them out to folks, probably by mid-March. We will also be talking directly to the tribes and the states of Montana and Idaho about issues of concern to them, he said.

The current projection for release of the draft Biological Opinion is mid- to late May, said Brown. That won't be the inception of the public comment period, however, he added – we want to first share the draft BiOp with our co-managers, to see whether there is additional science that needs to be considered.

Brown noted that, originally, it was NMFS' intent to implement any new operational provisions at the start of the 2000 migration season; I'm not sure where we are on that, at this point, or whether or not we will have those new operations defined in time for implementation at the start of the season, he said.

**IX. Next IT Meeting Date and Agenda Items**.

The next meeting of the Implementation Team was scheduled for Wednesday, April 5, from 9 a.m. to 4 p.m. in NMFS' Portland offices (please note change of meeting day from Thursday to Wednesday). Meeting notes prepared by Jeff Kuechle, BPA contractor.