

Final Notes July 11, 1997

IMPLEMENTATION TEAM/PLAN FOR ANALYZING AND TESTING
HYPOTHESES (PATH) MEETING NOTES

June 18, 1997, 10:00 a.m.-2 p.m.

NATIONAL MARINE FISHERIES SERVICE OFFICES
PORTLAND, OREGON

I. Greeting and Introductions.

The June 18 meeting of the IT/PATH Group, held at the National Marine Fisheries Service's offices in Portland, Oregon, was chaired by NMFS consultant Ed Sheets. The agenda for the June 18 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.

Our goal today is to get an update on a variety of ongoing activities -- PATH, the Corps' Lower Snake River Feasibility Study, and the Transition Board, Sheets began. Our hope is then to spend the majority of the meeting on a discussion of the decision criteria relative to the 1999 Drawdown decision -- a brainstorming session, in essence, on what factors need to be a part of that decision, what information we have now and what items of information we can realistically expect to have before that decision is made. We will also talk about whether or not there may be interim dates by which important pieces of information or analysis may be available, Sheets said. The output of this brainstorming session will fuel a discussion at the July 23 Executive Committee meeting about the decision criteria and process, as well as what information will be available in 1999 to support that decision process, Sheets continued. The EC will also be weighing the information that might be available earlier than 1999, in case the region wants to make the 1999 decision sooner. I also hope to use our discussion today as the basis for a presentation to the Implementation Team on this issue at its July 10 meeting, he added.

II. Status Report on Activities.

A. PATH. PATH facilitator Dave Marmorek said that, since this group last met in April, the PATH participants have been very busy. At a mid-April workshop, PATH developed a long list of tasks, which fall into two basic categories: first, continuing retrospective analyses and data-gathering, primarily for spring/summer chinook; second, completing various analyses related to hydro, climate, harvest, habitat and hatcheries to lay the groundwork for PATH's prospective modeling work. Many of those analyses are being bundled up into a series of packages that will go out to the Scientific Review Panel; some of those packages have already been sent out, and the rest will be sent by the end of June.

On the retrospective side, in addition to the spring/summer chinook work, PATH participants are continuing to pull together information on fall chinook and, to some extent, steelhead, Marmorek continued. As far as the prospective analysis -- that is, developing tools for predicting the range of possible alternative futures -- this effort is ongoing on several fronts. We're putting a lot of effort into trying to come up with consistent assumptions and input data for use in the various

existing tools, Marmorek said. I'm talking about things related to dam mortality, reach survival, transportation studies etc. We're trying to weed out the studies that aren't really appropriate, and concentrate on those that are. We want to develop a single, consistent modeling framework as we move forward, he explained.

So in terms of the prospective analysis, there are currently three main areas of concentrated analysis: data consolidation, model development/calibration/validation, and, third, development of decision analysis tools, Marmorek said. We've made a lot of progress in that latter area as well. Basically, our task is to figure out a way of generating predictions that encompasses the uncertainties in both how the system behaves and the uncertainties associated with past information.

We've been making progress on all of these fronts, but this is a very busy time, because those involved in PATH are not only generating these new work products, but are also engaged in reviewing things other people have written, Marmorek continued. It's going well; it's a challenging time, but I think we're making good progress.

When will you start needing some hydro regulation outputs? asked Bill Hevlin, co-chair of the System Configuration Team. We could use some output in July, to allow us to work up the linkages between the retrospective and prospective models, Marmorek replied -- that would give us the complete chain of hydro model, passage model and lifecycle outputs. The really intensive work will take place in August. Will it be possible to develop those hydro regulations by July? asked Sheets. I think July is a pretty good fit, Hevlin replied. The Corps has completed three runs already, added BPA's Phil Thor -- A1, A3 and A5. They aren't precise in terms of flows and elevations, but if PATH needs output for purposes of setting up processes, those are available. More precise results will be available in July.

In response to a question from Sheets, Thor said A1, A2, A3 and B1 have been identified as the highest-priority hydro regulation runs. Thor distributed Enclosure C, a list of all of the alternatives identified for the Snake River and John Day Drawdown Feasibility Study. Another document, titled "Lower Snake River Feasibility Study Operational Alternatives -- Comparison of Operating Requirements Using Alternative A1 as the Base Case," dated May 9, 1997, presents each alternative in greater detail (this document is attached as Enclosure D).

The high-priority alternatives were described as follows:

- ? A1: The base case as it is today. There is Columbia and Snake River flow augmentation as described in the BiOp.
- ? A2: The future, without Drawdown condition. It assumes that all fish passage is working with the Lower Snake and John Day projects not drawn down. Columbia and Snake River flow augmentation would change to a level which will be identified during the study.
- ? A3: The alternative which shows the Lower Snake projects drawn down to natural river levels. There is no change in flow augmentation from A1.
- ? B1: This alternative shows the Lower Snake and John Day projects drawn down to natural river levels. There is no change in flow augmentation from A1. Or, A3 with John Day drawn down to natural river level.

At the moment, we're focused primarily on A1, said Thor. If we can get A1 done correctly -- both the Corps and Bonneville's versions -- once we get everyone's comments incorporated and the run is stable, we've got to cut it off. Otherwise, iteration and scheduling concerns become a real problem. Once A1 is done, the other alternatives will be done much more quickly, Thor said. Once you get A1 completed to your satisfaction, we would like to see that, said Howard Schaller of ODFW.

One concern, raised by Michael Newsom of NMFS, is the fact that, when the Biological Opinion was signed in 1995, it contained certain requirements, which have evolved over time, Thor said. The way we're doing things this year is different from the way the BiOp specified that things should be done in 1995. The hydro regulators, including Michael and I, would argue that A1 should reflect current operations, rather than the letter of those Biological Opinion requirements, Thor said. In comparing the two, I've identified four main areas of difference between current and BiOp operations, he continued:

- ? Libby operations, particularly with regard to sturgeon flows
- ? Brownlee operations, given the shaping requirements associated with delivery of the 427 KAF of annual Upper Snake flow augmentation water
- ? Dworshak operations, in which TDG concerns have impinged on the spill volumes called for in the BiOp
- ? Spill caps -- the spill caps that were assumed in 1995 are very different from the spill caps actually in place today. For the most part, the spill caps have increased, Thor said.

Any other questions for Dave? asked Sheets. In the past, you've described the PATH schedule by saying that the spring chinook prospective analysis will be complete by the fall of 1997, fall chinook by the spring of 1998 and steelhead by the fall of 1998, said ODFW's Tony Nigro. Are you still on schedule? It's an ambitious schedule, but we're still on target to meet those targets, Marmorek replied.

B. Corps' Feasibility Study. Greg Graham said the Corps' Lower Snake River Feasibility Study also remains on-schedule; the Corps' objective is still to have a draft EIS on the street by April 1999, he said. Just to update this group on our recent activities, on the economic analysis front, we have completed our study plan; the Independent Economic Advisory Board has reviewed this study plan and sent back 20 pages of comments. Points of contention include some minor differences about existence values and on cost effectiveness. On this latter point, we may need to have some discussions with PATH, said Graham -- the IEAB wants to be sure we're consistent with the biological performance objectives or outputs that we use in the cost-effectiveness analysis. Whether we use juvenile survival or adult returns, they want to be sure those are identified, and are consistent in each and every alternative we consider. None of the comments were earth-shattering, however, said Graham -- I think, basically, the IEAB endorsed our study plan. We will be doing some minor tweaking; that process should be complete in about two weeks. Contracts are underway and work will be starting very soon, if it hasn't started already, on many of the economics work areas.

On the engineering side, we've completed a 30% report on Drawdown engineering studies, Graham continued. A couple of things to point out: the criteria we're using for the engineering analysis have all been laid out and agreed to; we'll be designing our facilities and modifications to reflect those criteria. We've also completed a preliminary evaluation of the embankment

removal option at Lower Granite, Graham said. Another option we will be investigating is the cost of complete removal of the dam structures -- we just want everyone to have a clear understanding of the numbers that would be involved in that option.

In terms of the preliminary evaluation of embankment removal at Lower Granite and Little Goose, we have not identified any fatal flaws to date, he continued. I think those are projects that will be doable. One thing to give you a heads-up on, however: embankment removal at those two projects will probably require an extension of the in-water work window, such that work would need to start as early as September or October.

That's basically it, in a nutshell, said Graham -- the study plan will go forward as drafted, with some fairly minor changes. One important variable in PATH's prospective modeling work is how long it will take the river to return to its pre-dam state under a Drawdown option, said Marmorek. What's the timeline for the portion of the engineering study that will focus on that question? That's a pretty tough thing to model, replied Graham, but I would say that, by March or April 1998, we'll have at least some helpful information on that question. There would be a lot of sediment coming out right after the dams are breached, but how much would depend on the level of flow. One estimate I've heard is that there are 30 million to 50 million cubic yards of sediment behind Lower Granite alone, Graham said, and another big question is, where will all that material wind up?

Sheets touched on the criticality of adhering to the outlined schedules for both the Lower Snake Feasibility Study and the PATH process, and of good information exchange between the two ongoing processes. Graham agreed, saying there is virtually no room for slippage in the Corps study schedule. Marmorek suggested that, as the Corps' design for the use of the information generated by PATH firms up, it would be helpful to schedule a meeting between the participants in the two processes -- that way, said Marmorek, perhaps we can avoid trying to fit a three-pronged plug into a two-pronged outlet. I think that would be very helpful, Graham replied, and we'll be ready to have that discussion within a couple of weeks, once the economic work group finalizes its study plan. Graham suggested that the next Drawdown Regional Economic Workgroup (DREW) meeting on July 15 might be the best forum for this discussion.

C. Transition Board. The Transition Board was been appointed by the Governors of Montana, Idaho, Washington and Oregon to follow through on the recommendations of the Comprehensive Review Steering Committee, Sheets explained. That Steering Committee was looking at the effects of restructuring the electric energy industry, and how that will effect the Northwest energy system (no further discussion of the Transition Board's activities was presented at today's meeting).

III. Discussion of Decision Criteria Relative to the 1999 Drawdown Decision.

A. What Factors are Part of the 1999 Decision?

1. Decision by Federal Operators on Drawdown vs. Transportation.

This group needs to put together a presentation for the July 10 IT and July 23 Executive Committee meetings, said Sheets. That presentation is supposed to address two separate issues. First, we're getting closer to the 1999 Drawdown/transportation decision, he explained. The question we need to try to answer is, is there some consensus in the region as to what that

decision process should be, what the decision criteria should be and, in general, how the decision should be made by the region? A related issue, very important to some sovereigns in the basin, is, is it possible to make that decision earlier than 1999?

What the IT and EC have asked this group to do is to provide a report on what information we're expected to have, under the current schedule, to support that 1999 decision, as well as what information we will have if we try to make the decision sooner, Sheets continued. It may also be possible for us to suggest what that potential earlier decision date might be. Those are the two areas I'd like to focus on for the remainder of this meeting, he said.

Part of what's driving this issue is a recognition that 1999 is coming pretty fast, and it's important to check with the regional policy makers about the kind of information we're developing, Sheets said -- we need to see how that fits with the kind of information they think they'll need. We need to find out sooner, rather than later, if all of the technical information that is being developed by the Corps and by PATH is really going to be a good fit with decision maker expectations.

There are also a number of factors driving the decision timing question, said Sheets. There is a variety of federal and state legislation under consideration, designed to help the region make the transition from the current Northwest electric industry to one that is more competitive under deregulation. Also, BPA's current power sales contracts expire in the third quarter of 2001. BPA's current published schedule says that BPA will begin negotiating new power sales contracts in the third quarter of 1999, will conclude those negotiations in the third quarter of 2000, with the new contracts signed and in place by 2001.

However, based on conversations with its customers, BPA would very much like to conclude that process sooner, said Sheets. Under this revised schedule, BPA would begin offering contracts in the middle of 1998 -- a significant acceleration, which is being driven by the realities of the deregulated marketplace. BPA customers are getting offers almost daily from other energy providers, offering them very specific deals; those customers, in turn, are calling Bonneville, asking whether or not BPA can meet or beat the deals these other suppliers are offering. BPA needs to be able to give them an answer, the sooner, the better, Sheets said.

From a fish and wildlife point of view, he continued, this is important because, if BPA can sign contracts with those customers and guarantee its revenue stream, it will be in much better shape than if it waits until its current contracts expire, and it becomes necessary to sell much of the federal hydropower on the spot market. What BPA has said to Will Stelle and others in the fish and wildlife community is, if BPA is to start negotiating contracts in mid-1998, it's very important to know what their future fish costs will be by early 1998.

Other factors complicating this scenario include potential follow-up litigation to American Rivers, upcoming listings and recovery plans for steelhead and bull trout, the Snake River Adjudication process in Idaho, in which the Nez Perce Tribe has filed claims for rights to about 80% of the Snake River Basin water under their Treaty of 1855, Sheets said.

The bottom line, from a fish and wildlife standpoint, is that, if we adhere to the current 1999 decision schedule, we won't actually have a final document ready for signature until January 2000, he continued. That's a pretty significant disconnect from BPA's scheduling needs. If BPA

signs contracts prior to that decision that somehow foreclose implementation of whatever option is chosen in 1999, we might have to wait to implement that option until new contracts are negotiated in 2007. It appears that the later BPA concludes its contract negotiation process, the less revenue it will be able to generate, and the less money, potentially it will be able to provide for fish and wildlife recovery efforts, Sheets said. Therefore, it probably makes more sense to see if we can make the 1999 decision sooner, hence this discussion today.

A third option, raised by Randy Hardy during his testimony last Thursday, is that, if BPA has to sign contracts in 1998, but the salmon recovery decision can't be made until 1999 or later, there may be a need for what Mr. Hardy called a "contingent stranded cost recovery mechanism --" some mechanism to raise additional revenues, presumably on transmission or to BPA's current customers, in order to keep BPA's books balanced, Sheets said.

One other component of this issue is the fact that BPA has proposed continuing with current the level of fish and wildlife funding as a way to deal with this uncertainty, he continued -- \$252 million per year, the current fish cap on capital expenditures and reimbursables. However, under either of the recovery alternatives laid out in the Multi-Year Implementation Plan (transportation or Drawdown), we will exceed that \$252 million annual figure by about 2001, Sheets said. We need to refine our numbers further, but that's part of what's creating this pressure for BPA.

In graphic form, the schedule lays out as follows:

1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007

Fed/State leg. Sign contracts Power Contracts in effect-----
Amer. Rivers
Steelhead/Bull Trout
Recovery Plans-----
SRBA-----
Drawdown Admin/Congressional
Recommendations-- Budget-----

In essence, if, through the PATH process and the Corps' Lower Snake Feasibility Study, we could make this decision earlier, say by early 1998, that would give BPA's customers more information and, potentially, more comfort, Sheets said. If that's not possible, I'm hopeful that we can refine our cost estimates to the point that the customers looking at this information know what to expect. The concern, of course, is that, if the market continues to be tight through the turn of the century, if BPA tries to add either the cost of expanded transportation, or the cost of Drawdown, to its rates, BPA will not be competitive, and no one will sign up for their power.

My understanding is that capital improvements is the primary reason fish and wildlife costs are expected to go up so dramatically after 2001, said Mike Field. That's correct, Sheets replied. I guess my question is, can any of those capital improvements be eliminated? said Field. The System Configuration Team and others are currently looking at a CRITFC proposal that would defer some of the capital spending on the Lower Snake projects that are candidates for removal, as well as at Bonneville's second powerhouse, Sheets replied. In my opinion, however, CRITFC's recommended improvements at Bonneville are just as costly in the long term as what the SCT is recommending, said Hevlin. Also, their recommendation is that we provide more

spill at all the dams, which also has associated costs. So while capital costs would be lower under the CRITFC proposal, he explained, operational costs would increase.

Another point, related to Mike's, said Sheets -- one advantage of making the decision sooner is the fact that that may allow us to terminate some of the capital improvement work that is already going on, and to focus the available funding more effectively.

With that, Sheets distributed a pair of documents -- the first (Enclosure E) a list of goals and decision criteria related to the 1999 decision, the second (Enclosure F) a document titled "Lower Snake Feasibility Study Decision Factors and Timing," dated June 17, 1997. The purpose of these documents is to stimulate discussion, Sheets explained -- can we identify, for the IT and the EC, some alternative goals and decision criteria? I think it would be useful to try to put ourselves in the shoes of the various governors and senior managers in the region, to try and figure out what they need to know in order to make the 1999 decision.

Sheets went through these documents at some length (see enclosures for details). The group spent a few minutes discussing the philosophical underpinnings of this effort without reaching any definite conclusions.

After a break for lunch, Marmorek briefed the group on both current and planned PATH analytical work, as well as the implications of an accelerated decision schedule for the PATH analyses and possible acceleration opportunities. This presentation is reproduced below:

Current PATH Analyses

Current Approach

- ? assess level of support for alternative retrospective hypotheses
- ? rely on existing data, develop alternative hypotheses about future effects
- ? recognize that existing/future data will not eliminate uncertainties
- ? develop new tools to incorporate uncertainties/hypotheses into decision making e.g. decision analysis, data synthesis, prospective models
- ? design adaptive management experiments/research/monitoring to reduce uncertainties and test key hypotheses

Output of Planned PATH Analyses by 1999

1. For spring/summer chinook, fall chinook, steelhead:

- ? range of possible futures, reflecting alternative hypotheses
- ? quantitative estimates of jeopardy standards and other performance measures
- ? weight of evidence/synthesis of support for alternative hypotheses and management actions
- ? recognizes that if different hypotheses are true, different actions may be preferred
- ? quantification of:
 - a) what happens if hypothesis A is true, but action taken as if hypothesis B is true?
 - b) what are the effects of delays in making/implementing a decision on survival/recovery of listed stocks?

2. Integration across three stock groupings

- ? tradeoffs for different actions

Implications of Accelerated Decision Schedule for PATH Analyses (i.e. analyses complete by September 1997)

- ? only preliminary analysis for spring/summer chinook (no peer review, no iterative improvement)
- ? data synthesis and analysis far from complete for fall chinook, steelhead; ranking of decisions may differ among species
- ? decision tools not developed for fall chinook, steelhead; will not be able to provide outputs listed above
- ? analyses for all species not integrated
- ? analysis of value of research, adaptive management experiments in reducing uncertainty not possible

At this point in Marmorek's presentation, COE's Witt Anderson observed that it may make more sense to consider what information might be available in February or March of 1998, rather than September or March of 1997. The reason I suggest that, he said, is if you look at [Enclosure F], which lists dates when by which the Lower Snake Feasibility Study will produce some fairly substantive engineering, cost and economic analyses, the convergence is in early 1998. Perhaps that would be a more useful date at which to weigh the value of information vs. the lack of information for the 1999 decision, Anderson said. Certainly early 1998 would be better from our standpoint in terms of the data we expect to have on fall chinook, Marmorek said.

Moving on, Marmorek presented the following information:

Approaches for Accelerating PATH Analyses

- ? Use existing passage/life cycle models to forecast effects of management actions; forego development of new tools (PROBLEM: back to 1995 Biological Opinion stalemate)
- ? do preliminary quantitative decision analysis for spring/summer chinook; brief qualitative discussion of differences with fall chinook and steelhead
- ? key questions:

a) What information do we have now that we didn't have in 1995 that could reduce some uncertainties in 1995 modeling results?

- ? major changes in analytical tools
- ? few more brood years of data on adults
- ? PIT-tag information and other juvenile survival studies
- ? expanded set of index streams
- ? number of new analyses on retrospective hypotheses for 4 Hs and climate
- ? jointly developed Bayesian prospective modeling tool
- ? SAR estimates

b) What information will become available to reduce uncertainties? When will this information be available?

- ? decision analysis will clarify effect of uncertainties
- ? transportation studies -- new data in next 1-2 years

- ? Drawdown -- Corps engineering studies/Batelle modeling work in the next year on time to reach new hydrological/sediment equilibrium
- ? predator/prey information being studied during Drawdown

c) How much will this new information reduce uncertainty?

- ? transportation: only 1-2 more data points, although this will be very helpful in determining both transportation-to-control ratios and smolt-to-adult return rates (SARs)
- ? Drawdown: significant scoping of time lag issue
- ? remaining uncertainties:
 - future ocean conditions
 - ocean distribution of Snake River spring/summer chinook
 - Drawdown effects
- ? more years with full complement of data.

Is PATH looking at all at the biological benefits we might expect to see from dam removal? asked Field. Yes, Marmorek replied -- that's what the Drawdown option is. Chapter six of the report we put out last fall made some preliminary estimates of what that benefit would be based on per-mile survivals -- measured survivals -- prior to the existence of the Snake River dams. There has already been some work done on that, and we're doing a lot more.

Anderson spent a few minutes going through the contents of Enclosure F, the draft "Lower Snake Feasibility Study -- Decision Factors and Timing" document. Basically, what I concluded, in looking at our existing schedule, was that, to get through all of the substantive work and procedural hoops needed to reach a formal decision, and to get Congress to appropriate funds, the schedule listed in this document is about as optimistic as we can realistically be, Anderson said. Under this schedule, the bottom line is, the year 2000 is probably the best we can do in terms of completing this process. The Corps does not believe that it will be possible to complete the process in a legally-defensible form prior to that date, Anderson said.

Moving on to key decision elements (p. 2 of Enclosure F), Anderson noted that most of the Corps' substantive analytical work -- on engineering, biological performance, economic effects, economic mitigation, cultural resource impacts and cost allocation and financial options -- will be complete by February 1998. At that point, it might be possible to have some intensive regional deliberation about what that substance means, he said. This information may be very helpful to the discussion of BPA's future costs and, perhaps, may help to develop some conclusions about Bonneville's subscription process.

Bear in mind that what we will have in February 1998 is hard data -- it won't be in report form, said Graham. Meeting this schedule will also require rescoping the work items we have laid out right now. That means we need to make a decision very soon about whether to move out on this, so that we can start the rescoping effort -- get contracts modified etc. It's a quicker, less-detailed analysis than we had originally envisioned, Graham said.

One key question is, could the Coordination Act Report (CAR) be accelerated such that it was delivered at about the same time as these other elements -- in February 1998? asked Sheets. I don't know, at this point, Anderson said -- we haven't had a chance to discuss that.

Any reaction? asked Sheets. Would February 1998 seem to be a reasonable alternative decision date to present to the Executive Committee? That would help the spring/summer component of PATH's analysis, replied Marmorek; frankly, I'm skeptical that we'll have everything together for fall chinook by that date. In terms of the tradeoffs between things like John Day Drawdown and Snake River Drawdown, between fall chinook and spring/summer chinook, it wouldn't be a quantitative analysis, although there could certainly be some qualitative discussion. Would March make a big difference to the quality of your fall chinook information? asked Sheets. Having until the end of March would probably be very helpful, Marmorek replied.

If the question BPA is trying to answer is, can we offer our customers some certainty as to what our fish and wildlife costs are going to be, the decision will already be made by the time we've done our decision analysis on fall chinook, Marmorek continued. Another point, said Graham -- not only do we need to decide if we're going to make an early decision, but we need to focus in on what the alternatives really are -- to do some pre-screening based on what we know right now, to get the number of alternatives down to a manageable number. That would really help us get the analysis done in a timely fashion.

Realistically, it pretty much boils down to two decisions, said Earl Weber of CRITFC -- some type of Drawdown, or transportation. I would say that, given the fact that we know nothing now and aren't going to find out anything more about the transportation of fall chinook, and the fact that we will have as much information as we're going to get on spring chinook transportation SARs and transport control ratios by the end of this summer, from the standpoint of making an either/or decision on transportation vs. Drawdown, we'll have all of the information we're going to get on which to base that decision by the end of this summer.

However, there are some key components -- economic factors, delayed mortality -- that we're continuing to try to resolve, said Schaller. That's the time-frame we've set to try to resolve those things, and I'm not sure it's quite as black and white as simply transportation vs. Drawdown -- it may be that some sort of hybrid scenario makes the most sense. The heart of the whole analytical problem is what we do know and don't know, said Marmorek.

What I'm hearing is that PATH's schedule isn't really being driven by the generation of new empirical data -- it's being driven by the need to complete the analysis of the data we already have in hand, with an eye toward incorporating new data as it comes in, said Nigro. That's correct, Marmorek replied.

I think our assignment here is to come up with an alternative, earlier date by which it may be possible to make the 1999 decision, said Sheets. Once we choose that date, we need to be able to tell the Executive Committee what information we will and won't have. If policy makers conclude that there is still a lot of biological information that we won't have in early 1998, but that we could have some solid economic estimates by early 1998, that might be a big help to Bonneville's process. If they could factor that range of costs either into their rates, or into some contingent, stranded cost provisions, that might be extremely helpful to BPA. I would suggest that that is an alternative that we may want to put forward, Sheets said.

I think that makes a lot of sense, Marmorek said. As Greg has explained, the Corps' existing schedule is quite ambitious, as is PATH's. I honestly don't think the deliverables I've laid out can be accelerated any further. So shall we put forward March 1998 as a potential interim date, with

the caveat that people have some reservations about it? asked Sheets. After some minutes of further discussion, no objections were raised to Sheets' proposed date.

In terms of the BPA subscription process, we don't need to know what is going to be done technically, said Thor -- we just need to know what the upper end of the costs are going to be. That's what goes into the revenue requirements.

In terms of next steps, said Sheets, we've had some discussion of the decision criteria, and some discussion of the schedule tradeoffs. I would like to propose that a subgroup, consisting of any members of this group who would be interested in participating, sit down and attempt to articulate what we've discussed today in written form, he said. I would also suggest that the IT/PATH group re-convene prior to the July 10 Implementation Team meeting, to ensure that we're all on the same wavelength, and that everyone is comfortable with what we intend to say to IT and EC. It was agreed that the subgroup document will be circulated for IT/PATH review in advance of the July 10 IT meeting, with comments to be submitted to Sheets. Schaller suggested that Anderson's Enclosure F might be a good starting-point for this document.

In response to a question from Field, Sheets said that the DREW analysis assumes that any replacement power needed to offset lost generating capacity resulting from the 1999 decision would be purchased from the West Coast market, at least in the near-term. There will also be new resources coming on-line in the coming years, added Thor.

With that, the meeting was adjourned. Meeting notes prepared by Jeff Kuechle, BPA Contractor.