

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM MEETING NOTES

June 6, 2001

**CORPS OF ENGINEERS NORTHWESTERN DIVISION OFFICES – CUSTOM HOUSE
PORTLAND, OREGON**

TMT Internet Homepage: <http://www.nwd-wc.usace.army.mil/TMT/index.html>

FACILITATOR'S NOTES ON FUTURE ACTIONS

Facilitators: Donna Silverberg and Richard Forester

The following notes are a summary of issues that are intended to point out future actions or issues that may need further discussion at upcoming meetings. These notes are not intended to be the “record” of the meeting, only a reminder for TMT members.

Hanford Reach/Vernita Bar Update:

Joe Lukas reported that the operation restrictions are to be lifted June 10 or 11. He will complete a stranding summary report from this season that will be finished in August or September.

System Operations:

- Operations and Water Supply:

Rudd Turner reported on COE operations. Albeni Falls is set to fill by the end of June. Spill is to be discussed at the Regional Executives meeting. Robyn MacKay stated that FERC ruled in favor of the Grant County application for the 300 mw/mos. Swap with BPA for spill that began in May. Regarding Hungry Horse, Pat McGrane said that BOR is beginning operating discussions with USFWS and MDFWP due to lightning in the area and possible operation changes resulting from it.

BOR suggested a website that has been recently opened to the public for water supply information, <http://mac1.pn.usbr.gov/PN6200/esatea.html> , which shows actual hydrographs with hourly data. This data could be useful in conjunction with COE's information. Turner stated that the June Final Water Supply Forecast is due June 8.

- Water Quality: The Oregon Environmental Quality Commission has requested a report from the COE at their June and August meetings. The June report was delivered. Contact Dick Cassidy for more information.

A question was asked to Idaho Power regarding Brownlee, which is now a foot from full. Payette water is passing and IPC plans to keep Brownlee full until there is a need to draft for power. They are unable to rent water for users downstream at Milner as yet. They will continue to try to reach the 200 target flow at Milner. TMT appreciated having an Idaho Power representative at the meeting.

- Power System Status: The system continues to operate according to a power system emergency. A meeting with the Federal Executives Friday will determine spill operations. Discussions will continue at the Regional Executives meeting, which will be held June 15.

- Fish Migration Status: The peak for juvenile spring migration appears to have passed. Fish are still passing but not at the rate they were two weeks ago. Mid-Columbia juvenile steelhead are still a big concern. At Bonneville, 398,565 spring chinook adults were counted, which is the largest return since the dam was completed in 1938. Welcome back!

SOR 2001-6:

All salmon managers support this request, which asks to maintain flows at Priest Rapids at 91 kcfs for the week ending June 10, and a weekly average of 117.5 kcfs for the week of June 11-17. The request also calls for no less than 80% flow over the weekend. The Biological Opinion calls for 135 kcfs minimum at Priest Rapids and the salmon managers observed a stall of migration that was affected by the lower flow average. The request calls for operations to continue only until June 17 and if Grand Coulee isn't meeting the expected target, TMT will discuss the request again next week. The Action Agency response to the request was to keep minimums of 90/70 the week of June 11, remain mindful of the requested target in the following week, and watch the 1280' minimum level at Grand Coulee. A desire was expressed, for both power and fish needs, to end the month of June above 1280 ft. at Grand Coulee, for example 1283.5 ft.

ACTION: TMT will discuss the actions from this SOR on the June 13 conference call.

Operating Plan:

Headwater projects will continue to operate at minimum discharges, Albeni Falls will continue to refill by the end of June, power system needs will be met, spill at the Lower-Columbia will continue, and Mid-Columbia flows requested in the SOR will be considered.

Sunspot Cycles:

Kyle Martin gave a presentation, which can be found on the TMT website. Links have been found between sunspots and drought events and this new information could allow for future predictability of low water years.

Update on Emergency Barged Fish Release at Ice Harbor:

Rudd Turner reported on the results of the COE investigation. The overflow drains may be undersized for the size of the holding compartments in the large barge. As a result, debris and fish can become impinged on the screens that cover the drains. The Walla Walla District Engineering team is studying the barge to determine the feasibility of enlarging the overflow drains. TMT members will receive an update on any new information regarding this matter.

Water Temperature Modeling Results:

Paul Wagner and Dick Cassidy reported on water temperature modeling data. Paul will update TMT when more information is gathered. Dick noted that the previous model had some problems so changes were made and updated on the TMT webpage.

Process Discussion:

A time crunch cut this discussion short – again! To help move this agenda item along, the following actions will occur:

ACTION: Donna will send the facilitation services evaluation summary to TMT members.

ACTION: Members will review TMT guidelines and send changes to Rudd by June 15. This will be discussed at the June 20 meeting.

ACTION: Members will also review the Water Management Plan and send any changes to Rudd by June 15.

Conference Call June 13, 9-12: TMT will review the system operation and SOR 2001-6.

Face-to-Face Meeting June 20, 9-12:

The group will discuss the following agenda items:

- Water Management Plan
- TMT guidelines
- Water Temperature Modeling
- Hanford Reach/Vernita Bar
- Current System Conditions
- Develop Recommended Operations

Meeting Minutes

1. Greeting and Introductions

The June 6 Technical Management Team meeting, held at the Customs House in Portland, Oregon, was chaired by Rudd Turner of the Corps and facilitated by Donna Silverberg. The following is a distillation, not a verbatim transcript, of items discussed at the meeting and actions taken. Anyone with questions or comments about these minutes should call Turner at 503/808-3935.

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

2. Hanford Reach Update.

Joe Lukas reported that, for the week of May 28-June 3, average flows at Priest Rapids were 80 Kcfs; the flow fluctuation band was 60 Kcfs. Day-average flows for the week were between 75 Kcfs and 110 Kcfs-120 Kcfs. Field crews monitored two random sites last week, sampling two juvenile chinook. Index seining numbers decreased to 1,110 last week; average fork length of the fish sampled increased 2 mm over the previous week, to 47.5 mm.

We're now nearing the tail end of the stranding susceptibility period, Lukas said. This week, we're on an 80 Kcfs fluctuation band; flows are rising, they're at 88 Kcfs today, the highest Priest Rapids flows of the year. Lukas said the stranding protection operational restrictions will end on June 10 or 11; therefore, this will therefore be the second-to-the last Hanford Reach stranding report of the year. When do you expect that your annual written

Hanford stranding report will be available? Jim Nielsen asked. Within two months of the end of the stranding protection operation, Lukas replied – traditionally, it's out in August or September.

3. Current System Conditions.

Turner said that, over the past two weeks, day-average flows at Bonneville have ranged between 116 Kcfs and 175 Kcfs; they were 154 Kcfs yesterday. Spill at 50 kcfs continues at that project; except for the morning and early afternoon of the 24th of May, that spill has been continuous. Day-average flows last week at McNary ranged between 106 Kcfs and 158 Kcfs. The 158 Kcfs occurred on June 1, and is the highest McNary day-average of the year to date. McNary flows averaged 157 Kcfs yesterday; we're spilling every other night at that project. The day-average flow yesterday at Lower Granite was 43.4 Kcfs; flows have been dropping at that project and should continue to slowly do so. It looks like 91 Kcfs on May 16-17 is the Lower Granite peak flow for the year, Turner said.

Continuing on, Turner said Dworshak continues to fill, and was at elevation 1577.9 feet as of midnight last night. Last week's Dworshak inflows ranged from 7 Kcfs to 13 Kcfs, with outflows of 1.7 Kcfs. Dworshak filled 6 feet last week. Libby was at elevation 2415.4 feet at midnight last night; inflows to the project averaged between 21 Kcfs and 37 Kcfs during the last two weeks, and are now beginning to decline. Turner said the most recent SSARR run shows Libby reaching elevation 2431 feet on June 30, 8 feet below the goal set for that project in the federal operating plan. Albeni Falls was at elevation 2059.76 feet at the Hope gauge as of midnight last night. The project has filled 1.7 feet over the past two weeks, Turner said; inflows yesterday were 31 Kcfs, with outflows of 22 Kcfs. In response to a question, Turner said the Corps still plans to fill Albeni Falls by June 30, but not before.

Turner said spill continues at the four Lower Columbia projects -- 50 Kcfs 24 hours a day at Bonneville, 30% of total river flow 24 hours a day at The Dalles, 30% of total river flow nightly at John Day and 30 Kcfs every other night at McNary. To date, the 2001 spill program has used 388 MW-months of power equivalency; last week, the Executives agreed to go beyond the 300 MW-months limit set earlier. The Executives have been discussing the possibility of extending the 2001 spill program to 600 MW-months, Turner said; that issue will be discussed at the Executives' meeting this Friday. If we get a total of 600 MW-months of spill this year, Turner said, the spill program could continue to about June 15. Jim Litchfield noted that FERC has now approved the Grant County PUD/BPA spill exchange.

Pat McGrane reported that Grand Coulee is currently at elevation 1277.7 feet, 12 feet from full, up 5 feet over the past week. Current inflows to the project are about 112 Kcfs, with outflows of 66 Kcfs. McGrane said last week's flow at Priest Rapids Dam averaged in the 90 Kcfs range during the week and 75 Kcfs over the weekend; this week, Priest Rapids flows have been running in the 90s as well. Hungry Horse is now at elevation 3528.5 feet, 31.5 feet from full, up 5 feet in the past week. Inflows to the project averaged 10 Kcfs last week, outflows 500 cfs. There was 1.5 inches of rain in the Flathead last week, McGrane said, so flows in that system have stayed up pretty well.

We're now entering the lightening season at Hungry Horse, said McGrane; when lightening storms are in the area, we need to bring Hungry Horse up to 3 Kcfs to maintain transmission system reliability. McGrane noted that Reclamation is discussing a variance on the ramping rates to accommodate this operation if needed with the Fish and Wildlife Service and the State of Montana; the purpose of the variance would be to save water in Hungry Horse by ramping down more quickly from 3 Kcfs outflow than the rate specified in the BiOp.

Flow augmentation from the Payette will continue through Sunday, McGrane added. What are Idaho Power's planned operations for the remainder of the spring and into the summer? Jim Nielsen asked. John Bowling replied that Brownlee is 1.5 feet from full, so the Payette water is, for all intents and purposes, being passed through; he added that IPC plans to keep Brownlee as full as possible until they have to start drafting for power, as inflows to the project decline. You intend to maintain the minimum flow of 8 Kcfs-9 Kcfs below Hells Canyon? Nielsen asked. That's probably close, Bowling replied, but again, we will draft the project as needed to meet power demand.

Cathy Hlebechuk asked about the delivery of the 237 KAF from Brownlee; Bowling replied that a considerable volume of water will come out of Brownlee just because of water conditions this year. Whether we'll reach 2059 feet by July 31, I don't know, Bowling said; as you know, we don't have a shaping or delivery agreement with BPA this year. Has IPC been able to rent any water from the rental pool? McGrane asked. We have not, although we are continuing to inquire, Bowling replied; our FERC license requires us to inquire about water rentals in order to maintain the 200 cfs minimum at Milner. We have not been able to rent any water to maintain that flow at this time, Bowling said; we will continue to inquire. In the absence of that water, said McGrane, some time soon, the Snake River will go dry at Milner.

Litchfield asked about the most recent Corps volume histograms, noting that, at Libby, the SSARR is showing elevation 2431 feet by June 30 (see document to check), nine feet below the June 30 target elevation at that project. Will that be the maximum elevation for that project this year? Litchfield asked. Not necessarily, Turner replied – even during dry years, July inflows at Libby often exceed the 6 Kcfs the project will be releasing during that period. The SSARR run is currently predicting that Libby will be at elevation 2431 on July 1, but at 2445 feet on August 1, even with 6 Kcfs outflow, Turner said. The SSARR then shows Libby at elevation 2439 feet on August 31, with some additional outflow above 6 Kcfs from that project during August.

Does Reclamation still believe there is a 50-50 chance Hungry Horse will achieve its June 30 target elevation? Litchfield asked. It depends on what the TMT wants to do, McGrane replied; the forecast there looks OK, as far as being able to reach the 20-foot-from-full target on June 30. What we're seeing on our spreadsheet looks pretty good, given the recent rain events in that basin. The lightening situation is the wild-card, McGrane said. Turner added that the most recent SSARR run forecasts that Hungry Horse will be at elevation 3546 on June 30, elevation 3549 by the end of July and elevation 3540 on August 31. Hlebechuk cautioned that the water supply assumptions used to develop the SSARR are potentially somewhat optimistic, compared to the River Forecast Center's water supply forecast, particularly at Libby.

Turner said the June final water supply forecast will be out this Friday; the June early-bird shows little change from the May final. On the water quality front, Dick Cassidy said that, because of the drought, the State of Oregon requested water quality reports from the Corps on June 1 and August 1. We did provide the June 1 report, Cassidy said, but the only significant thing we reported was the May 24-25 TDG exceedance below Bonneville, which persisted for less than a day.

With respect to the status of the power system, Scott Bettin reported that nothing has changed – the power system emergency continues, and on Friday, the Federal Executives will decide how long the 2001 spill program will continue. If they agree to extend the spill program to 600 MW-months, said Bettin, the program will continue through approximately June 15. He added that the BPA rate case information will be out later today; it is expected to show a 155% increase in power rates for this year.

With respect to the status of the fish migration, Paul Wagner reported that for yearling chinook, the peak has passed, but fish are still present in the system. At Lower Granite, he said, we're well past the peak of the outmigration, with 4,700 yearling chinook passing the project yesterday. At McNary, said Wagner, we're in a bouncing mode to some extent, but the bounces aren't as high as they were. The peak at McNary was 195,000 yearlings about two weeks ago; those fish are now arriving at John Day and Bonneville. Subyearling chinook are beginning to pass Lower Granite in small numbers, he added; these are mainly hatchery fish, and we don't expect to see these numbers climb significantly for another week or two. At McNary, subyearling numbers are on the rise, and include some Mid-Columbia fish.

With respect to steelhead, the peak, again, is well past at Lower Granite, Wagner said; at McNary, we never really saw a steelhead peak this year. That is quite disturbing, said Howard Schaller; the numbers look very bad for Mid-Columbia steelhead this year. This is really the last chance for the Mid-Columbia steelhead to get out, said Wagner; if they don't outmigrate by the second week in June, historically, they don't outmigrate at all.

Referring to the passage index graph information on the FPC homepage, Wagner said that, for yearling chinook at Lower Granite, we actually got pretty close to the number of fish that were expected for the year – we got a couple of natural rain events at just the right time to send these fish downstream. For steelhead at Lower Granite, the picture is much the same – we came close to expectations, and things are now tailing off. At McNary, the yearling chinook graph is now near the 95% historic confidence interval, and has increased here of late, so the picture, for this species at least, may continue to improve. With respect to steelhead passage at McNary, Wagner said, the situation is very poor -- less than half of the expected number of steelhead have passed McNary to date.

So even though flows increased significantly at Priest Rapids this past week, we didn't really see an increase in passage in response? McGrane asked. There is a slight upward trend, but the response hasn't been tremendous, Wagner replied. Is there a chance these fish aren't there, and just never made it out of the gravel? Bettin asked. These are mainly hatchery fish, Wagner replied; more than 2 million of these fish were released this year, but only about 600,000 have

passed McNary to date. Schaller said the increase in flow may or may not produce an immediate biological response.

Wagner also touched briefly on adult passage; 398,000 adult chinook have passed Bonneville to date, the highest total since the dam was completed in 1938, and about 10 times the 10-year average. In response to a question from Turner, Schaller said the 2001 jack count is about seven times the 10-year average, an indication that 2002 adult returns should also be well above average. At Lower Granite, 157,000 adult chinook have passed to date; again, more than 10 times the 10-year average of 11,178 fish for this date.

4. New System Operational Requests.

On June 5, the Corps received SOR 2001-6. This SOR, supported by ODFW, USFWS, WDFW, NMFS, CRITFC and IDFG, requests the following specific operations:

- For the week ending June 10, 2001, maintain Priest Rapids flows at a weekly average of 91 Kcfs. For the week of June 11 to June 17, maintain Priest Rapids flows at a weekly average of 117.5 Kcfs. Weekend flows should not be less than 80% of the previous five-day average. The attached spreadsheet describes the expected operations under this request. This operation would still fill Grand Coulee Reservoir to at least 1280 feet and probably higher by the end of June.

Mallette spent a few minutes going through the specifics of and justification for this request, the full text of which is available through the TMT's Internet homepage. Martin noted that, according to the most recent SSARR results, this operation is expected to result in a Grand Coulee elevation of 1283.5 feet on June 30. Mallette added that the intent of this SOR is to increase Mid-Columbia flows during the extremely critical next two weeks of the outmigration.

The group briefly discussed the assumptions underlying the salmon managers' analysis; Nielsen noted that it appears that even if this SOR is implemented as requested, Grand Coulee could be above elevation 1280 on June 30. Are we really seeing a corresponding increase in juvenile passage in response to the recent increase in flow at Priest Rapids? Litchfield asked. The group spent a few minutes going through the DART smolt index data; Wagner said that, in NMFS' view, there is a clear positive correlation between increased flow at Priest Rapids and increased passage at McNary.

Is it fair to say that perhaps 15% of the fish are left? McGrane asked. That may be true of chinook, said Silverberg, but what we heard earlier is that the steelhead are MIA. Bettin noted that some steelhead, at least, will residualize if passage conditions are poor; Schaller replied that the survival rate for residualized steelhead in the Mid-Columbia is very poor.

The goal of this request is to reach elevation 1283 at Grand Coulee by June 30? Henriksen asked. That's one objective, Kyle Martin replied; the interim objective is the requested flow level at Priest Rapids. Henriksen noted that the current SSARR run shows an average flow of 104 Kcfs next week; do the salmon managers want us to reduce Grand Coulee outflow to meet the requested weekly average of 91 Kcfs? Schaller replied that the objective is as stated in the SOR – a week-average flow of 91 Kcfs at Priest Rapids for the week ending June 10, and a week-average flow of 117.5 Kcfs at Priest Rapids for the week ending June 17.

What do you want us to do if we're not at elevation 1286 feet this Sunday? Bettin asked. We would like to see you meet the requested flow objective at Priest Rapids Dam, Mallette replied. How likely is it that we will achieve 1286 by that date? she asked. Not likely, in my view, Bettin replied – Grand Coulee inflows are on the decline, from 125 Kcfs on May 30 to 100 Kcfs on June 4.

Turner displayed an overhead showing various operational scenarios at Grand Coulee, based on the most recent SSARR run, and the effects of these operations on flows at Priest Rapids – Scenario 0, Scenario 1 and Scenario 2. Scenario 0 takes Grand Coulee to elevation 1280 on June 30; under this scenario, day-average flows would stay above 80 Kcfs at Priest Rapids through Mid-July. Scenario 1 shows what would occur if the elevation target is full – 1290 feet – at Grand Coulee on June 30; under this scenario, flows would fall steadily, from 85

Kcfs in mid-June to about 60 Kcfs by mid-July, after which they would increase dramatically, to over 100 Kcfs, as the project begins to draft to elevation 1280 by August 31.

Scenario 2 shows the Corps' estimate of what will happen if the SOR is implemented as requested; Priest Rapids flows would still be nearly 80 Kcfs on July 1, at which point Grand Coulee would be at the requested elevation of 1283.5 feet. In order to meet the requested parameters, he said, there would be a significant drop in flow at Priest Rapids during the second half of June, from 117 Kcfs to just under 80 Kcfs. Essentially, compared to Scenario 0, the peak in Scenario 2 would be higher in mid-June, but flows would then be lower during the remainder of the month.

So it's a question of where we want to concentrate the water? Nielsen asked. Exactly, Turner replied – the action agencies' goal is to achieve elevation 1280 at Grand Coulee by June 30; given the fact that it looks like we have a volume to work with in excess of that needed to achieve that refill target, there is some flexibility for the TMT to tell us how that water should best be used. So the question is, do we want to store as much water as possible for use later in the summer, or provide more water now, to help move the last of the Mid-Columbia migrants out? Litchfield asked. Correct, was the reply.

We're primarily concerned, again, with keeping flows up to move as many of the Mid-Columbia steelhead migrants out as possible in the next two weeks, with the understanding that Priest Rapids outflow would then drop off during the last two weeks in June, Nielsen said. He continued by stating that the next 10 days, for the spring migrants, are critical, and in the salmon managers' view, this is the best we can do with the water we have available this year. That was the essence of our discussion yesterday, he said, and the reason for this SOR.

Once we get past the next 10 days, said MacKay, is there a lower limit on flow at Priest Rapids, or on Grand Coulee elevation, if it looks as though we can't meet elevation 1280 on June 30? We know there is uncertainty, Schaller replied; this SOR is intended to provide some guidance, from the salmon managers' perspective. If Grand Coulee isn't filling as fast as anticipated, we will need to reconvene to discuss the operation next Wednesday, at which point we would only be two days into the 117.5 Kcfs flow period. In other words, said Silverberg, it sounds as though there is some flexibility here, if Grand Coulee doesn't refill as quickly as anticipated, to revisit this operation. That flexibility always exists, Schaller replied; there is no reason to spell that out in an SOR. To be clear, he said, this is the salmon managers' recommendation, but we will revisit the operation, if conditions warrant, next Wednesday.

Bettin observed that the forecast isn't that precise; it may be that we can only deliver 116 Kcfs at Priest Rapids next week, or may not quite achieve elevation 1286 by this Sunday. The salmon managers understand that these recommendations are based on estimates, and actual operations will doubtless be slightly different, even under the best circumstances, Nielsen replied. If we miss the target by 1.5 Kcfs next week, he said, we're not going to make the action agencies' life miserable.

The group devoted a few minutes of discussion to tradeoffs and contingency operations in the event that it isn't possible to meet all of the recommended target flows, elevations and

dates contained in the SOR. Ultimately, Turner stated, none of the Federal Action Agencies would support an operation that would result in a Grand Coulee elevation of less than 1280 on June 30. Robyn MacKay added the observation that, if Grand Coulee is indeed at elevation 1280 on June 30, flow augmentation from that project is done for the year – Grand Coulee will essentially be passing inflow until August 31.

It was agreed to take a brief Action Agency caucus break. When the meeting resumed, McGrane said that what the operators have decided to do is, through Monday, June 11, to provide at least 90 Kcfs at Priest Rapids during the week and 70 Kcfs on the weekend, possibly higher. Next week, flows will be higher still, being mindful of the 117.5 Kcfs flow target – in other words, he said, you can grade us on Wednesday. Our Grand Coulee target elevation is 1280 feet by the end of June, but the 1283.5-foot target mentioned today is in the back of our minds.

Again, said McGrane, see how we do next week, and we will revisit this topic on Wednesday. In other words, he said, I can't say for sure that we'll be able to provide exactly 117.5 Kcfs next week; if we are to provide the flow levels requested in this SOR through the end of June, it appears likely, to Reclamation, that Grand Coulee will be lower than elevation 1283.5 feet on June 30. So it's a definite maybe? Nielsen asked. Essentially, yes, McGrane replied.

Ralph Sletager asked how the action agencies plan to fill Albeni Falls the rest of the way, given the fact that the snowmelt in that basin is now gone. Cathy Hlebechuk reiterated the Corps' intent to fill Albeni Falls by June 30; she said other projects upstream are continuing to release water, and there is still water coming downstream. In other words, she said, don't worry – the Corps is confident that Albeni Falls will refill by June 30.

5. Recommended Operations.

Turner added that the headwater projects will continue at minimum outflow, and Albeni Falls will continue on a refill curve to reach full by June 30. Other than that, spill will continue until decided otherwise by the Federal Executives, and in general, the system will be operated to meet power system demand, Turner said.

6. Update on Emergency Barged Fish Release at Ice Harbor.

Turner said the Corps has identified overflow drains as the issue with the two large barges that were built three years ago, including the barge in which the recent problem occurred at Ice Harbor; basically, the systems work OK as long as there isn't too much debris impinging on the single drain in each compartment. Walla Walla District engineers are going to go through one of the barges in the next two weeks to see whether it will be possible to add some additional drains to these barges without a major overhaul. This is the first time in three years that we've seen this problem, Bettin observed. It was noted that these barges were not in operation in 1997, the last high-debris year. The intent is to get this problem fixed prior to next spring, Bettin added.

7. Sunspot Cycles and Effects on 2001-2002 Climate.

Martin provided a presentation on “Sunspot Cycles and the Drought of 2001;” he noted that the full text of this presentation is available via the TMT website. Please refer to this document for full details of Martin’s presentation. Martin touched on the background and magnitude of the current drought, possible causes of the drought (sunspot cycles triggering El Niño events), whether or not another El Niño is on the way, expected impacts to Pacific Northwest rivers and salmon, and the following summary:

- Sunspot maxima occur 1-3 years before an El Niño event. Droughts may occur then.
- Solar cycle analyses could help the federal managers better utilize Columbia Basin water resources on a 1-2-year time scale.
- Sea-surface temperature forecasts suggest a “near-normal” winter for 2001-2002.
- Expect precipitation to be 60%-70% of normal through October, then 80%-90% of normal in the winter of 2001-2002. Analogy: 1992-1993.

Martin noted that one thing that has been missing, in the meteorological realm, is what actually triggers an El Niño event; this research suggests that El Niño events follow 1-3 years after the cyclical peak of sunspot activity. The most recent peak in solar activity occurred in March 2000, so if this theory is correct, the peak of the next El Niño will occur in the fall of 2002. In other words, said Martin, it now appears that 2002 will be a near-normal water year, but 2003 will likely be a drought year.

Martin added that CRITFC advocates using water now to assist the record number of returning salmon adults, knowing that reservoir levels will be impacted. Winter rain in 2001-2001 beginning in November 2001, will help regional refill.

8. Water Temperature Modeling Results.

Wagner reported that the Corps has done some modeling work using the Battelle model to examine various proposed Dworshak and Brownlee summer operational scenarios; the expectation is that Brownlee will release about 10 Kcfs through the remainder of the season, resulting in a draft at that project to approximately 2040 by August 31. Under Scenario 1, Dworshak would release 14 Kcfs, starting July 1, for three weeks, then reduce outflow to 10 Kcfs, then to 6 Kcfs, to reach elevation 1520 by about August 25. Under Scenario 2, Dworshak would release 10 Kcfs from July 1 to September 1. Scenario 3 is CRITFC’s proposed operation, under which, beginning July 1, Dworshak would release 7 Kcfs for two weeks, then 8 Kcfs for two weeks, then 10 Kcfs for two weeks, then a rampdown to elevation 1537 by August 31 followed by two additional weeks of augmentation from Dworshak.

Dick Cassidy provided some preliminary Battelle modeling results for these scenarios. In essence, what these runs show is that, under worst-case conditions (1977 water year, 1994 meteorological conditions), Scenario 2 provides the coolest Lower Granite forebay temperatures during July and August. The CRITFC alternative (Scenario 3) falls in between the worst-case scenario and Scenario 2 in terms of cumulative degree-days, Cassidy said -- under Scenario 3, the model predicts about 28 days of temperatures in excess of 20 degrees C, compared to 18 days for Scenario 2 and 38 days for the worst-case flow scenario. At McNary, there is virtually no difference in the temperature impacts between the three scenarios, he added. He noted that, to

date, Lower Granite forebay water temperatures in 2001 are running in between the temperatures recorded in 1977 and 1994. The 14 Kcfs scenario was not modeled.

9. TMT Process Discussion.

Discussion of this agenda item was deferred until the June 20 TMT meeting; Silverberg asked that the other TMT participants look over the TMT Guidelines and the most recent draft of the 2001 Water Management Plan with an eye to what is working and what is not, and to provide any comments they may have to Turner by Friday, June 15. It was so agreed.

10. Other.

A. Lower Granite Forebay Exceedence. The Corps needs to fill Lower Granite forebay by a foot or so outside of MOP for a few hours to move a bulkhead, said Turner; does the TMT have a recommendation as to when that should occur? After June 20, Mallette replied.

11. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, June 13 beginning at 9 a.m.; it was agreed that this meeting will be a conference call. The next face-to-face meeting of the TMT was set for Wednesday, June 20. Meeting notes prepared by Jeff Kuechle, BPA contractor.

TMT ATTENDANCE LIST

JUNE 6, 2001

Name	Affiliation
Ruth Abney	COE
Scott Bettin	BPA
John Bowling	IdaCorp Power Co.
Scott Boyd	COE
Dick Cassidy	COE
Richard Forester	Facilitation Team
Richelle Harding	D. Rohr & Associates
Robin Harkless	Facilitation Team
Cindy Henriksen	COE
Cathy Hlebechuk	COE

Jim Litchfield	Montana Consultant
Robyn MacKay	BPA
Christine Mallette	ODFW
Kyle Martin	CRITFC
Pat McGrane	USBR
Jim Nielsen	WDFW
Tony Norris	USBR
Howard Schaller	USFWS
Shane Scott	WDFW
Donna Silverberg	Facilitation Team
Rudd Turner	COE
Paul Wagner	NMFS

On Phone

Mike Butchko	Power X
Chip Coursey	IDFG
George Eskridge	
Russ George	Water Management Consultants Inc.
Mike Gerald	Sand Point (ID) <i>Daily Bee</i>
Tim Heizenrater	ENRON
Jeff Laufle	COE
Joe Lukas	Grant County PUD
Milo Maioli	IDFG
Doug Marx	Attorney, Lake Pend Oreille Idaho Club
Craig Sprankle	Reclamation
Maria Van Houten	ENRON
Steve Wallace	PacifiCorp