WATER QUALITY TEAM MEETING NOTES
August 12, 2003

National Marine Fisheries Service Offices
Portland, Oregon

1.Introductions and Review of the Agenda.

Mark Schneider of NMFS, WQT chair, welcomed everyone to the meeting, held August 12 at the National Marine Fisheries Service's offices in Portland, Oregon. The meeting was facilitated by Robin Harkless. The meeting agenda and a list of attendees are attached as Enclosures A and B. Please note that some of the enclosures referenced in these meeting notes may be too lengthy to routinely attach to the minutes; please contact Kathy Ceballos (503/230-5420) to obtain copies.

2. Update on Mainstem Water Quality Plan Work Group.

Jim Adams said the Water Quality Plan subgroup met here at NOAA Fisheries on July 2 and pulled together the list of action items that could be used to reduce TDG in the Columbia mainstem and watershed. At its July 2 meeting, the subgroup prioritized the list. Adams said he will provide Schneider with copies of the prioritized list for distribution to the WQT membership. Mike Schneider said he had participated in the July 2 meeting; according to his notes, the two highest-rated items on the prioritized list are 1) transboundary gas abatement projects with Canada and 2) system TDG entrainment fixes (divider walls to separate spillway and powerhouse flows).

Were there particular items of interest under the transboundary gas abatement item? Dave Zimmer asked. No, Adams replied – we didn't get into that level of detail. Mark Schneider reminded the group that these items are being coordinated through the Transboundary Gas Group. Harkless noted that the next subgroup meeting is scheduled for August 20; perhaps we'll get a more detailed briefing at the September WQT meeting, she said.

3. Review of RPA 143 Subgroup Recommendations and Report.

Schneider said the purpose of this presentation is to summarize the last year and a half of this subgroup's work, conducted in response to the language in the BiOp's RPA 143, pertaining to the selection of a model that can be used to help make water management decisions in the system. The subgroup has now produced a final draft report, which has been out for review for about a month, Schneider said. Joe Carroll said the report is a lengthy document and is available via CD-ROM; hard copies can be

obtained from Kathy Ceballos (503/230-5420). Comments on the report are due within two weeks (by August 26) with the goal of producing a final report by mid-September.

Zimmer, Carroll and Ben Cope led a presentation titled "Water Temperature Modeling and Data Collection Plan for the Lower Snake River Basin." In the course of this presentation, they touched on the following major topic areas:

- July 30, 2003 – draft plan/report complete
- The contents of the report
- 2002 Data collection and analysis (characterized 2002 thermal patterns in the Lower Snake River system during the summer and fall periods, provided information to evaluate existing water quality monitors in representativeness for both spatial and temporal patterns in temperature and provide guidance of future sampling requirements, provided information that helped to decide on the required model resolution and model; provided calibration and verification data for the selected model)
- 2002 data collection and analysis conclusions -- characterization of Lower Snake River thermal patterns (annual vertical temperature gradient in Dworshak; cold-water releases from Dworshak can result in rapid changes in Lower Clearwater River temperatures; resulting change in Lower Granite forebay temperatures is more subtle; annual thermal cycles are consistent for all study area sampling stations; the Clearwater underflows when mixing in with the Middle Snake, annual vertical thermal gradient in Lower Granite pool of 6 degrees C) exists from July-mid-September; etc.)
- 2002 data collection and analysis conclusions -- evaluation of the representativeness of the fixed water quality monitors (the tailwater monitor was a good measure of tailwater and average forebay water temperature even during periods of significant vertical gradients; the forebay monitors were generally comparable to the 5 m profile instruments; both tailwater and forebay samples are point measures in space but the tailwater reach is generally well mixed; the forebay instrument is positioned at one discreet depth in an area that can experience some significant vertical thermal gradients and will be a biased measure of forebay temperature)
- The model selection process – based on the 2002 data collection/analysis and other model selection criteria, the RPA 143 technical team recommends using the CEQUAL-W2 model for this modeling effort – it is two-dimensional, model code is non-proprietary, it has a long history of successful similar applications, is supported by USACE ERDC, handles other water quality parameters in addition to temperature; computer run times are in the medium range in comparison to other tools.
- The model's geographic boundaries – three phases; the model will ultimately encompass the Dworshak reservoir head down to the mouth of the Snake, including Brownlee reservoir
- Water temperature routine sampling – high priority: continue water temperature monitoring at each project tailwater and forebay (long-term) with the following

recommendations – water temperature monitoring year-'round at all stations, suggest relocating forebay monitor upstream of project to avoid downwelling/upwelling associated with dam face; suggest replacing point monitoring approach with a profiling approach using a real-time temperature string; no changes to tailwater stations)

- Water temperature research sampling – high priority: continue vertical and longitudinal thermal monitoring in the Lower Snake River from spring through the fall period
- Data collection strategy – tributary/boundary sampling (high priority): fixed temperature loggers at (Phase 1) Snake R. at Anatone, Clearwater at Orofino, Toucannon, Palouse; (Phase 2) Grande Ronde R., Salmon R., Snake R. mainstem at Hells Canyon tailrace; (Phase 3) Snake mainstem at head of Brownlee Reservoir
- Data collection strategy – water discharge/project operation (high priority): continue close-interval project operations data, continue routine COE operations data collection
- Data collection strategy – meteorological data (high priotity): continue current weather stations (8 total) monitoring air temperature, dew point temperature, barometric pressure, wind speed and direction, solar radiation, precipitation, cloud cover
- Proposed model implementation: objective (temperature management for habitat, improvement in the Lower Snake basin) and approach (CEQUAL W-2, short and long-term forecasts (hydrological and meterological conditions)
- Proposed model implementation: goals – develop an operational model by the summer of 2004 (domain Phase 1: Clearwater River to the confluence with the Snake, Snake River from Anatone to Lower Granite; Decision support: water control alternatives, temperature control alternatives at Dworshak, fisheries management)
- Model development team under the leadership of COE, in partnership with regulatory agencies: EPA, WDOE, IDEQ, BPA, the Tribes, the Fish and Wildlife Service, consultants, other interested parties
- Initial tasks: data assimilation (flow, stage, velocity, water temperature, channel bathymetry, meteorology, biology, hydraulic structure
- Other tasks: numerical grid generation, boundary conditions, model evaluation, real-time model application

Questions or comments on the implementation phase? Harkless asked. You think you can have this model operational by next summer? Joyce Cohen asked. We hope to have Phase 1 operational, yes, Stu McKenzie replied, although obviously we still have some data needs. The real challenge is going to be making it useful for real-time system management, added Cope.

Schneider suggested that the WQT take a version of today's presentation to the Implementation Team. There was general WQT support for this idea; the next scheduled IT meeting is September 4. Schneider said he will discuss this presentation

with John Palensky and Jim Ruff. Is the Water Quality Team in agreement that the approach laid out at today's meeting the right one? Schneider asked. Yes, was the reply.

Did you identify any weaknesses in the CEQUAL-W2 model? one participant asked. It doesn't do a great job of predicting sediment transport, Carroll replied.

4. Next WQT Meeting Date.

The next meeting of the Water Quality Team was set for September 9. Meeting summary prepared by Jeff Kuechle, BPA contractor.