

Technical Working Group – Fish TWG

Pebble Project

November 19, 2008

Atwood Building Room 1270

Minutes Recorded by Charlotte MacCay/Pebble Partnership (PLP)

I. PRESENT:

Tom Crafford (DNR)
Andrea Meyer (ADNR)
Jason Mouw (ADF&G)
Cecil Rich (ADF&G)
Craig Schwanke (ADF&G)
Jeff Estensen (ADF&G)
Mike Daigneault (ADF&G)
Phil Brna (USFWS)
Doug McBride (USFWS)
Francis Mann (USFWS)
Doug Limpinsel (NOAA)
Jean Zodrow (EPA – via phone)
Phil North (EPA)
Leslie Tose (USACE)
Dan Young (NPS)
Charlotte MacCay (PLP)
Ken Taylor (PLP)
Dudley Reiser (R2)
MaryLouise Keefe (R2)
Randy Bailey (Bailey Env.)
Jim Buell (Buell & Assoc.)

Public

Doug Wachob (The Nature Conservancy)
Tim Troll (The Nature Conservancy)
Carol Ann Woody (FRC)

II. PROPOSED AGENDA

- Clarification of *Characterization of the Affected Environment for NEPA* and *preterm monitoring* and how that relates to studies at Pebble
- Clarification that input at a TWG meeting does not exclude further input or change of direction after data is developed and released
- 2009 Study Plan delivery and comment schedule
- Updated Fish Information Status Report
- Setting the agenda and information packet for a Fish TWG meeting in early December
 - R2 Consultant's issues needing TWG input
 - Agencies' issues to clarify for input in to the 2009 Study Plans
 - Information needs for the next meeting
 - Setting a date for the next meeting

ADMINISTRATIVE

- Jeff Estensen is acting lead for the Freshwater Fish TWG.
- (Agency) The lead decides the agenda for the meeting. In the future the agenda should be prepared and distributed at least one week in advance of the meeting.

CHARACTERIZATION/MONITORING

(PLP) PLP would like to clarify the types of data it is collecting to better facilitate future discussions. The data collected to date has been for site characterization. It is meant to be used to write the Affected Environment Section of the NEPA (EIS) document. Because NEPA calls this "baseline information" PLP has also been referring to this data as baseline data. This has led to some confusion. PLP is trying to avoid any further use of the word 'baseline' to minimize confusion. To scientists, baseline means something quantifiable that can be used for comparison with data collected during operations to see if there have been any impacts. That was not the intent of the data we have collected to date. Although PLP hopes that some of this data will be useful for monitoring purposes as well. PLP is finishing up the characterization data and moving into monitoring data, data to be used for comparison purposes with data collected after operations begin, but this term is causing confusion as well. Some people interpret monitoring data to be the data collected during operations.

(Agency comment provided during review of the minutes) We appreciate the clarity. For the purpose of this discussion, the data that PLP has collected to date is neither "baseline data" as defined by NEPA, nor is it "quantifiable"? So, PLP is about to start collecting data that is "quantifiable", but rather than call it "baseline" they are calling it "monitoring data", to be used for comparisons, pre and post mining? NOAA poses the following question for discussion in the next Steering Committee and/or TWG meeting: Now that we agree in the definition of baseline, that baseline studies need to be quantifiable, can we actually proceed with designing scientifically defensible, "quantifiable", baseline studies.

(Agency) Baseline does equal some characterization studies in some notes and presentations.

(PLP) This is a new change in the use of the terms, and the clarification of use of terms needs to be incorporated by the consultants in the future as well. There are some times when PLP and the consultant are hoping that the characterization data may be useful for monitoring as well and we need to be clearer in stating those objectives.

(Agency) The agencies still need to agree and finalize our ideas on the use of these terms.

(PLP) PLP did not realize that some of the agencies were not in agreement about use of the terms. This is context for the way PLP intends to use the terms in the future.

(Agency) Agencies were not in disagreement with each other regarding PLP's new terms. The agencies may disagree with PLP on the use of their new terms. The agencies are in discussion as to what objectives and methods would provide the best, most useful results in the future. The Agencies do not fully understand, nor did they concur with PLP's "new change in the use of the terms".

(PLP) The Steering Committee discussed and agreed to these definitions.

(Agency comment provided during review of the minutes) At the beginning of the Fish TWG, PLP stated that the Steering Committee had discussed and agreed to these definitions. That is not the case. PLP simply stated what they their views regarding these terms and definitions. Agency Reps did not agree with PLP regarding the use of these terms definitions.

(Agency) the Agencies (NOAA/USFWS) do not agree to the use of these definitions, but they did however hear PLP present their interpretations or "new change in the use of the terms.

(Agency) There are four years data of collection in front of this. **(Agency comment provided during review of the minutes) PLP made this statement, not the agencies.**

(Agency) The Agencies concur, 4 years of data have been collected by PLP consultants, but the agencies do not know the quality of the data, methods and effort used, or the accuracy or precision of the associated results? We know very little at this point.

NON-BINDING INPUT

(PLP) PLP would also like to clarify that we are asking for speculative input at this time. We are aware that you do not have the data from the studies done to date to learn from them how the studies are working. We fully expect that as that data becomes available, and the agencies review it, that the agencies may have new input or want to change their mind about previous recommendations. There is nothing binding about any of the recommendations you make, you can always refine your input based on data as it becomes available. PLP is just trying to establish open dialogue and set studies up as best as possible.

(Agency) A lot of people in the different agencies need to meet separate from the TWG and bring back a list of what studies and data they think they need and why.

(Agency) Our agency feels it is irresponsible to move forward with the suggestion to address monitoring studies. There is not enough information to have any constructive dialogue regarding the difference between monitoring and characterization until we have more details on the objectives. R2 provided some good information in their agency presentation – transects and methodology, and statistical design - that is the kind of information we need. We would like information on: what's been done, how the studies have adapted, what information is available related to what

information has been requested, information on the linear mileage studied, raw estimates for percentage of area sampled, statistical design, level of precision and accuracy. We feel right now we only have little pieces of the puzzle.

(Agency/NOAA) Our agency feels it is irresponsible and premature to move forward with discussions or suggestions on monitoring studies or methods, given the fact that we have been provided very little or limited information and details regarding studies conducted over the last 4 years of studies. R2 did provide some good and relevant information in their agency presentation regarding the questions raised, specifically what methods were used to select transects to be sampled within the tributary reach presented? **(Agency comment provided during review of the minutes) This is “some of the information” we need, and have been requesting, “in report form” to participate in a science based dialogue. This type and level of information should be provided to the agencies to support a science based discussion.**

(Agency) This is the kind of information that would be useful if we are to participate. We would like information on: What are the study objectives? What is the statistical design to achieve those objectives? What is your sample area, size of the sample area, tributaries in linear miles? What where the associated sampling methods and level of sampling efforts used, to provide what desired level of precision and accuracy? What is the margin or error in the results?

(PLP) That is a good list – we will see what information we can provide to discuss. Keep in mind, we are asking the agencies to work with us as if we were at the beginning of a study. You would have input prior to initiation of a study that would be helpful. That is what we are asking for at this time. Consider it speculative input. Your input can change after there is data to review. There is nothing binding, this is an iterative process.

STUDY PLANS

(PLP) In response to the comments from the agencies that study plans were not available for review until too late in the season, PLP has scheduled its budget review process earlier in the year allowing consultants opportunity to develop their study plans earlier. We expect study plans to be ready sometime in January. At the Steering Committee it was discussed that the agencies should have one month to review the study plans prior to having a TWG meeting to discuss them. It would be helpful if the agencies put their requests for changes to the study plans in writing with their rationale for the change. PLP will respond in writing to comments on the study plans within approximately 2 weeks of the TWG meeting explaining which revisions are being incorporated, and where revisions are not incorporated, the reason why that suggestion was not incorporated. There can be further discussion on the study plans and proposed revisions at subsequent TWG meetings.

(Agency) It would be helpful if the proposed studies could be put in context with a list of what studies have already been done.

STRAW MAN AQUATIC MONITORING PLAN

(Buell/Agency) The Straw Man Aquatic Monitoring Plan is being distributed as a groundbreaker for discussion. This is not a plan that is currently endorsed by PLP or any agency, but it is a concept in development based on various conversations over the years between Jim Buell and some individuals within ADF&G on what type of aquatic monitoring might be considered for proposed projects in general. It is only a discussion piece. The document was written by Jim Buell, but reflects the thought of some ADF&G individuals as well

(Buell) It is not the intent to discuss or work through this straw man document today. It is a suggestion of something we could talk about at a subsequent meeting if members so choose.

(Agency) The idea is that we need a plan of somekind. We could start to create a plan ourselves or work off of this one and maybe save some time. These are just ideas to start with. ADF&G as an agency has not reviewed this document.

(Agency) If our agency provides any comments they will be distributed to the whole group.

(Agency/Lead) It is proposed for the next meeting that the TWG review the document and come to the next meeting prepared with comments on the document. Prior to the meeting it may also be helpful to send comments/new ideas on aquatic monitoring to Jeff to compile for discussion at the next meeting.

TOWER COUNTS FOR ESCAPEMENT MONITORING

(R2) R2 and PLP are considering installing fish counting towers to quantify escapement monitoring in 2009. ADF&G had stated some interest in a cooperative effort to install towers. We would like more input on this topic at the next meeting.

(Agency) Wasn't there a lot of discussion provided on the utility of towers at the January 9, 2008 meeting?

(R2) Yes, and we are looking to move forward in that direction. There is a graduate student (Ben Nelson) we have brought on board to do a literature search on the comparison of tower counts results vs. aerial survey results and the results elsewhere. We are looking to write up a study plan along these lines. R2 can write the study plans and have ADF&G review it or we could talk about it first at the next meeting. But we need to move ahead on this soon.

(Agency) Would similar papers and information be available and be included in the review for each of the fish study methods? For example, comparisons in precision, accuracy, resolution in results between aerial surveys, fish traps, fish weirs, counting towers and sonar equipment.

(Agency) There are probably several people in this room that could provide the graduate student with more information than he will find in the literature. Doug McBride or Jeff Estensen would be good contact points for him.

(Agency) Would similar papers be available for each of the fish study methods?

(Agency) PLP needs a clearly stated objective for the tower study. We can comment more intelligently if we have a clearer understanding of what the data is intended to be used for.

(PLP) At previous TWG meetings we heard lots of agency frustration about wanting information from tower counts and some discussion about collaborating on an effort to install towers. R2 came forward with this idea. The Nature Conservancy and ADF&G's Commissioner have been discussing partnering possibilities associated with this monitoring

study, but discussions have not progressed to any commitments yet. An additional meeting to further this discussion will occur soon. The Upper Talarik is the main area the studies would focus on, additional sites could be considered. We are still not certain how we would staff the towers – whether we would maintain a field camp at the tower or fly observers in every day.

(Agency) We concur that towers were suggested. Sonar and radio monitoring were also suggested. There were a bunch of suggestions that we could develop rather than aerial surveys.

(R2) We talked about the towers at the January meeting. We want to understand the relationship between tower counts and aerial surveys so we can develop a relationship between the data.

(Agency) You could get a lot of data for several years of aerial and then several more years of tower data.

(Agency) We certainly need to discuss this when the agencies get together separate from the TWG later this month and then bring those thoughts to the table at the next TWG meeting.

(Agency) If I were a consultant how many towers would I need and where to make the inferences to be able to jump from aerial survey data to tower counts?

(Agency) The agencies need to think about our objective for data – none of us have a clear idea of what we need or why we need the data. **(Agency comment provided during review of the minutes) This statement was taken out of context. The various agency representatives have a very clear understanding of what they need to see in study objectives, supporting statistical designs, and the methods and effort needed to achieve those objectives within desired levels of precision, accuracy and a defined level of certainty in the values of the final results.**

They are also very keenly aware, and have a very clear understanding of why we need this level of certainty (decreased uncertainty) in the results of these studies. The results of these discussions will be released to PLP in draft form for the next fish and instream flow TWG's. What was implied to PLP here, the agencies are discussing what objectives and methods, levels of precision, accuracy and certainty, will provide the most reliable results to assess the direct and indirect impacts of the proposed project as well as yield the most reliable results to be used for future monitoring for impacts, in perpetuity. The results of these discussions (objectives, methods, and level of certainty) will be released to PLP in draft form for the next fish and instream flow TWG's.

THERMAL INFRARED IMAGERY STUDIES

(PLP/R2) We would also like to begin thermal infrared imagery studies in 2009 to look at water temperature differentials at low flow. We intended to do this in 2008, but the weather prohibited any progress last year. These need to be done during low flow periods. Thermal imagery generates surface water temperature profiles (longitude continuum for the river) indicating seepage and groundwater input to the system. This is an attempt at moving towards incorporating temperature into fish habitat. We are looking for input into how we could layer this data with fish distribution other than GIS. We don't have a clear objective in mind for using this data, but expect it could be helpful to focus on this as a possible future activity.

(Agency) What are the limits of the technology a ½ degree could mean a habitat difference.

(R2) The method can detect temperature change down to 2 degrees Celsius. A differential of 4 degrees Celsius would be preferred as an indicator of a seep or groundwater input. Surveying at maximum temperatures would provide the best differentials. During fall, rain has too much of an effect on the temperature.

(R2) This method will not “see” temperature at depth, it picks up the temperature of the upper couple of inches, not feet, but it will pick up the temperature ‘signal’ where it surfaces. We can take that data to determine a footprint of general areas where there is likely some groundwater inflow.

(Agency) It could be combined with Lidar to look at corresponding vertical undulations under the bed maybe.

(R2) We have not yet looked into using green Lidar to see how it might be combined with this potential study.

(Buell) If its not buoyant than you can’t “see” it.

(R2) The infrared imagery sees the mixing zone where the groundwater and surface water are mixing.

(R2) The objectives are multiple.

(Agency) The influence of ground and surface water exchange is a type of instream flow parameter. There is concern that this imagery won’t see down-wellings because that is the same temperature. Can groundwater modeling show where change is taking place? If they can, I want to see that in relation to fish habitat. Upwellings in some areas of the state are places where salmon focus in on spawning. This topic will be discussed further at the Instream Flow TWG in December.

OTHER DATA ISSUES

HYDROLOGY

(Agency) We would like to discuss how far downstream you expect the project would impact stream flow.

(Agency) The influence of the mine will be imperceptible at some point. PLP has stated in the past that they aren’t considering it an impact until it is +/- 10% difference in hydrology.

(Agency) We should discuss a suggestion to expand the boundary of influence and subsequent surveys.

(Agency) The Fish TWG might want to attend the Hydrology TWG meeting or have the hydrologist consultant give the Fish TWG a presentation.

(Agency) The water budget model has utility for all of us, including how it is affected by climate change.

RAINBOW TROUT

(Agency) Is R2 confident that they rainbow trout they are tracking were Upper Talarik Fish?

(R2) We were not right at the mouth when we tagged them, but upstream a little ways. We had people fishing ahead of time and they saw them upstream of the mouth.

(Agency) Is there any talk of doing a study on rainbow trout in The Kaktuli rivers [North and South forks] to see if there is interaction with the Nushagak and Mulchatna Rivers? Field biologists in Bristol Bay are interested in this.

(R2) Data does not suggest a large rainbow population in the North or South forks. There are some juveniles, few if any big rainbows. HDR did some spring aerial surveys but didn’t see any rainbows there.

(Agency) they could have missed the run.

(Agency) Agree the rainbows are more around the confluence downstream of the potential area of mine impact. Not many above the confluence of the North and South Fork Koktuli.

ARCTIC GRAYLING

(Agency) Have you considered tagging a limited number of Arctic Grayling?

(R2) HDR attempted to do so in the Koktuli in 2005/2006, but it was hard for them to follow the fish. The data did show some moving down to the Swan River and one was plotted in the Mulchatna.

(Agency) Are you thinking of continuing that study?

(R2) Not until we look at the data we already have.

SUMMARY REPORT

(Agency) Do you have any summary reports coming?

(R2) We are not writing progress reports, we are still focusing on writing the Environmental Baseline Document (EBD) .

(Bailey) There is an ADF&G Fish Resources Collection Permit Report working its way through the process for all the fish collections, (it does not cover habitat studies, snorkeling, and/or aerial surveys) It should be ready in the next couple of weeks. It contains yearly summaries of methodologies, objectives, information generated. There is some supplemental information, but it's pretty succinct.

(Agency) How can it be accessed?

(Agency) Contact Bob Piorkowski at ADF&G.

PUBLIC COMMENT

- (Carol Ann Woody) Will snorkeling information be part of the ADF&G Fish Resources Collection Permit Report?
- (Bailey) No, it's not part of the permit requirements.
- Carol Ann Woody raised several issues about the Annual Agency Presentation Meetings, but those comments were not pertinent to the TWG.
- (Carol Ann Woody) All the Study Plans that are available are marked draft, are their final versions?
- (PLP) No they are not finalized as they are open to change throughout the season.
- (Carol Ann Woody) You mentioned that the fish collection permit reports are coming out soon, is there a way to put all of the fish reports in one place to access them more easily.
- (PLP) The information that we have released to the public is on our website, the ADF&G Fish Resources Collection Permit Report are available at ADF&G.
- (Carol Ann Woody) Does R2 have a technical report this year?
- (PLP) No.

NEXT MEETING

(Agency Lead) Suggested one month review of study plans before we have more meetings.

(R2) Writing the Study Plan depends somewhat on how the TWG wants to proceed with the tower counts.

(Agency) The agencies will:

1. Meet separate of the TWGs on December 9th to discuss what they want to come out of the TWG meetings. The meeting will result in a matrix of information needs and the objective of the request. **(Agency comment provided during review of the minutes) The minutes do not explain any of the discussion that lead to agencies agreeing to meet to develop a list of objectives.**
2. Meet on December 18th as a TWG to discuss the agency list and input on the counting towers for R2s Study Plan.

ACTION ITEMS

- Send an electronic copy of a map showing the fish study stations where data has been collected. The map to be accompanied with the matrix of sites and the kinds of data collected over the last 4 years. Update the map to include 2008 stations. **PLP/CONSULTANTS 12/18/08**
- Review the Straw Man Aquatic Monitoring Plan, prepare comments, send comments to Jeff prior to the next meeting. **Jeff Estensen prior to the February Meeting**
- Compile all comments on the Straw Man Aquatic Monitoring Plan **Jeff Estensen, by February Meeting**
- Write a clearly stated objective for the tower study **PLP 12/18/08**
- Put Ben Nelson in contact with Doug McBride and Jeff Estensen for background information on tower counts vs. aerial surveys. **PLP/R2**
- Send out Watershed Sciences document on the Thermal Infrared Imagery **R2 12/10/08**
- Request the ADF&G Fish Resources Collection Permit Report for Pebble from Bob Piorkowski and post on DNR web site for Fish TWG **Andrea Meyer**