

FINAL MEETING MINUTES
INSTREAM FLOW MEETING
BLUE LAKE HYDROELECTRIC PROJECT (FERC No. 2230)

December 8, 2003

The meeting was held in the Alaska Department of Fish and Game (ADF&G) office in Douglas, Alaska. The meeting convened at 9:00. In attendance were:

Name	Representing	e-mail
Dean Orbison	City of Sitka	dean@cityofsitka.com
Mike Prewitt	City of Sitka	cmikeprewitt@aol.com
Karl Wolfe	City of Sitka	wildernesswolfe@alaska.com
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Ken Coffin	USFS	kcoffin@fs.fed.us
Martin Becker	USFS-SRD	mbecker@fs.fed.us
Linda Shaw	NMFS	linda.shaw@noaa.gov
Margaret Beilharz	USFS-Regional	mbeilharz@fs.fed.us
Joe Klein	ADF&G	joe.klein@fishgame.state.ak.us
Kevin Brownlee	ADF&G	kevin_brownlee@fishgame.state.ak.us
Ben White	ADNR	ben.white@dnr.state.ak.us

On the conference phone were:

Bob Chadwick	ADF&G, Sitka	bob_chadwick@fishgame.state.ak.us
Keven Kleweno	RCA of Alaska, Anchorage	keven_kleweno@rac.state.ak.us

Mike described the purposes of the meeting as to: 1) discuss target fish species and management objectives for the instream flow work; and 2) discuss the methodology to be used to meet the management objectives. Mike asked if there were further topics to be considered, and Dean said that, if there was time, we could discuss the Powers and Orsborne (P&O) work at the falls on Sawmill Creek. There were no objections.

Mike said that the meeting was being held pursuant to an initial instream flow meeting held in October, at which it was decided to hold more detailed meeting on the topics listed above. He added that the agencies had participated in a conference call to discuss these topics, and asked about the proceedings of that call.

Linda listed the points covered in the call, as follows:

- For target species, she said that the agency group desired to retain all Sawmill Creek fish species except King (Chinook) salmon. She said that it was agreed that all of the king salmon in Sawmill Creek were of hatchery origin, and that their numbers were not affected by conditions in Sawmill Creek.
- Linda said that the group had considered all other species of equal value or emphasis.
- She said that the group had expressed a desire to include the P&O analysis of the falls at SM 0.84 in the instream flow analysis, along with evaluation of the habitat upstream of the falls in terms of habitat enhancement.
- Joe added that the group had discussed further analysis of the wetted perimeter work done for the license amendment by R.W. Beck. He said he wished to know the locations of the cross-sections and proposed doing some additional mathematical work on the data, if they were available. He further suggested expanding the wetted perimeter work to other sites selected to represent habitat such as riffles, gravel bars, etc.;
- Linda said that the group had agreed that, in lieu of Instream Flow Incremental Methodology (IFIM) application, they would accept a “demonstration flow” analysis done in the context of a Level II Expert Habitat Mapping (EHM) application, to be described in more detail by Margaret Beilharz.

Margaret briefly described this method using an application on the Clakamas River in Oregon as an example. She said that teams of 3 to 5 persons would visit the site and observe specifically defined habitats at several known flow levels and use ground and aerial photos plus certain habitat suitability information to determine habitat value across the observed range of flows.

Dean added that the City had recently compiled its aerial photo data base and produced images on which the stream habitats had been transferred. He showed the large aerial map in the meeting room. He added that, to document flows during the field analysis, there were two gages, the bridge staff gage and the continuous gage near the Blue Lake powerhouse. He said that the City could release demonstration flows of 50, 70 and 120 cfs using existing equipment. Kevin added that both Sawmill Creek stream gages were maintained by the USGS, assuring flow data quality.

Linda continued with the list of agreements from the agency conference call, including:

- The group had agreed to use the reservoir operations model which Dean had presented during the October 28 meeting;

- The limiting factor analysis in the Periodicity paper sent by the City to agencies prior to their November 17 conference call was good, but the topic should be given more intensive treatment for use in the EHM;
- The limiting factor analysis should be expanded to define specific sites identified for each species.
- We should explore a variety of enhancement opportunities, including habitat improvement;
- We should consider mitigation measures, and further define how the term “mitigation” should be used; and
- We should consider Blue Lake rainbow trout populations during all evaluations of Sawmill Creek instream flow releases.

Dean said the City had no initial disputes with the conclusions of the agency conference call. Mike said that, with continued studies, it would be easy to add to the limiting factor analysis, and that we welcomed any input from agencies on the Periodicity paper in general. He said that we would appreciate written comments on the paper, and that the instream flow-related topics should be in all successive reports.

There was some discussion of the reservoir model. Dean said that he was continuing to work on the model and would be happy to send sample output to the group members on request.

Mike asked if it would be acceptable to develop a “reservoir model sub-group” with which Dean could work to assure that everyone understood the model logic and capabilities. There was general agreement on this point, and Dean said he would e-mail sample output for dry, average, and wet years, for current and future loads, as soon as possible.

Joe mentioned that the model could help determine when water was available and when it was limited, to help optimize flows in terms of water availability.

Karl passed out maps of steelhead spawning distribution for discussion. He showed three areas which had been utilized consistently over the two years of observation. There was considerable discussion of the microhabitats used by steelhead and the time periods during which they spawned and reared. Generally, Karl said that steelhead entered the stream in April and spawned in May through June.

Kevin said that, because of the good observational data base on steelhead life stages, the preference curve development would be facilitated.

Bob asked how Karl was distinguishing steelhead smolts from resident rainbow. There was considerable discussion on the differences and general agreement that it was not possible to distinguish fish less than 200 mm.

Bob asked if Karl had identified steelhead redds. Karl said that redds were easy to see, and that he had recorded their locations. **Karl stated that he has observed redds and recorded locations but has not counted them.**

Kevin asked if, during snorkel surveys, Karl was recording size classes of steelhead. Karl said yes, and that if he saw a lot of fish in an area of a single size, he would often set a fish trap and measure the captured fish.

Ken asked if we needed a convention for distinguishing steelhead from rainbow.

Mike agreed and said that the City needed to have some convention for the resident rainbow from steelhead terminology in the reports and the FERC Applications.

Kevin said that this was an agency “to do” item, and that the agency members would get back to the City with some guidance.

Karl discussed spawning and rearing for steelhead based on the wall map. There was some discussion about conditions upstream of the falls, and the potential for habitat enhancement, particularly in the reach directly below the FVU.

Dean said that, during construction of the flood channel in 1992 ADF&G had requested emplacement of some boulders in this reach, which had been denied by the Corps. He added that anything placed in the stream in this reach would likely wash away unless it was well out of the main channel, or was very well “tied down”.

Karl said that areas woody debris emplacement would be limited along the river because of the stresses during high flow, and would need to be secured.

Karl said that woody debris emplacement would be difficult anywhere along the river because of the stresses during high flow.

Margaret asked about the condition of the collapsed dam in the lower reach. Dean said that the dam had collapsed in the ‘30’s and was essentially embedded in the stream sediment at this time. He said it did not move under high flows, and did not serve as a sediment barrier.

Linda asked about the potential for constructing side channels or other enhancement habitats. Karl said he felt the only potential was on the stream channel opposite the campground and Reach 4. He added that he hadn’t caught many fish in Reach 4, and said that he couldn’t think of other likely areas in the lower (below the falls) reaches, because the channel is so incised there, and the lack of lateral space to work.

The topic turned to the falls and the Powers and Orsborne (P&O) surveys Dean had done. He said that based on his preliminary work, it didn't appear that the falls met any of the P&O passage criteria, at least at the flow he had measured.

Margaret said that the Forest Service had looked at improving barrier passage at several locations in the Lower 48. Kevin asked about the "Alaska Fish Pass" system, describing a "portable" fish passage device which could be installed at the falls. He added that the idea had worked in some areas and not in others and that the equipment had to be installed correctly.

There was some discussion about blasting or other structural modifications of the falls to allow passage.

Dean asked if it was worth it to open upstream habitats, given that there were only a few hundred yards upstream of the falls which could be accessed, below the "slot". Dean said he thought conditions in the Slot would preclude passage at most flows.

Karl added that it was extremely difficult to access the Slot to do measurements of any kind.

Margaret asked about the schedule for instream flow negotiations.

Mike described that the Final License Application was due in March, 2006, and that it would be good to submit the Draft Application at least a year prior to that to allow review and development of Terms and Conditions for the Final. He said that backed the Draft up to early 2005, a time when the first instream flow study year was just finishing up. Mike said that it was very important to complete the instream flow field work in the summer of 2004 and not have anything hanging over which might have to be done in 2005.

The group broke for lunch at about 11:45, to return by 1:00.

After lunch, Margaret had placed the steps of the EHM on the board (Figure 1) and directed the group to follow along on the "Lower Oak Grove" handout she had copied and distributed. (Also on the board was a matrix showing increasing velocities and depths; this matrix was not filled in during the meeting, and is not included in these notes).

Figure 1. Preliminary Species/Life Stage Prioritization Chart, Sawmill Creek Instream Flow Study.

Species	Lifestage	Velocity Range	Depth Range	Mgmt. Priority
Steelhead/Rainbow	Spawning Incubation Emergence Rearing			High High High High

Coho Salmon	Spawning Incubation Rearing Emergence			High High High High
Pink Salmon				Medium
Chum Salmon				Low
Dolly Varden				Low

Margaret began to describe the EHM steps which were listed on the board, as follows:

1. Identify species
2. Identify life stage of interest
3. Agree on HSI curve for each species and life stage
4. Define reach boundaries for mapping (riffle, glide, etc.)
5. Create scaled base map onto which habitat can be mapped;
6. Have preliminary field session to calibrate mapping teams and refine mapping areas; agree on frequency of measurements.
7. Release controlled flows, 50, 70, 120 cfs, no later than July
8. Digitize and compute habitat
9. Construct Streamflow vs. Habitat area by mesohabitat.

Margaret said that the reach boundary definitions and much of the mapping appeared to have already been completed.

Dean said that he would like to revisit the species discussion from the morning.

Mike began by saying that, in addition to the lower priority already suggested by the agencies for King Salmon, he thought the group should discuss management objectives for chum salmon as well. He said that it was the City's understanding from Karl's studies and discussions with area professionals that some of the Sawmill Creek chum salmon population consisted of strays from two nearby hatcheries.

Linda said that, unlike king salmon, however, that chum salmon were native to the river and that we didn't know exactly how many were from the hatchery. She added that, over the period of the new license, the hatchery might be removed, changing the basis for the prioritization.

Bob said that the hatchery had done some work with chum otoliths which might give insights into the relative abundance of the wild and hatchery chum in Sawmill Creek. Kevin suggested that the City contact the hatchery to see if they might develop a cost-sharing program to examine otoliths. Dean said he would look into it.

Mike said that, if chum were a key evaluation species and it was found that a majority of their numbers were from hatchery strays, it would be difficult, during monitoring, to evaluate the effects of instream flow or habitat enhancement. He said that variation in

run strength or escapement would be due to hatchery conditions and not to the relicensing-related improvements.

Kevin said that, in lieu of eliminating chum salmon from the list of species, we might place a lower priority on them. Margaret added a column on the fish species and life stage list to indicate priority of the various species.

Mike asked if the same might be done for pink salmon. There was some discussion about the management objectives for pinks. Mike said that pinks were currently very abundant in the river, and that, instead of using them as a target species, we should check to be sure we had not harmed pinks or chums with measures developed for the target species.

Kevin generally agree with this approach. Margaret placed pink and chum in the low to medium priority category on the species list on the board.

Margaret asked about Dolly Varden. Karl said that there was a small DV population in Sawmill Creek which behaved similar to others in the area, that is, they “come and go”. It was decided to place DV in a “low” priority category in the list on the board.

Mike then said the City thought that the high priority target species should be steelhead, rainbow trout and coho salmon. He said that steelhead in particular spawned during a period prior to spill in most years, and therefore had the least water. He said that flows which might be provided during this period would represent a large percentage of existing flows.

Mike said that for the species which spawned later in the summer and fall, the City was less able to control flows (because of spill) and that amounts which could be controlled would only represent a small percentage of normal flows during that period.

Margaret placed steelhead and coho in the “high” priority category on the board.

Linda asked about rearing habitat, specifically, if rearing was the limiting factor for steelhead and coho, why were we putting so much priority on spawning?

Joe mentioned that we should look at “effective” habitat, that is we should check in successive seasons to be sure that incubation and rearing were not reduced after having expended water for spawning.

There was considerable discussion about the ability to improve rearing habitat within the Sawmill Creek canyon. Karl reemphasized that it was very difficult to improve areas on the margins of the stream because of the tight bedrock and cliff conditions. Dean again said that anything placed in the stream, such as woody debris or boulders, would likely wash out in the next flood.

Kevin said that, even though emplaced structures might be moved, we should consider placing cover objects in the stream and replacing them periodically if they were washed out.

Margaret asked about habitat improvement potential above the Slot. Karl said that, in at least one area, the channel opened up in that area, and that there was potential for side-channel work.

There was considerable discussion about whether certain species were fully- or under-seeded. Mike said that it was his impression that, for steelhead and coho the stream was under-seeded, based on the availability of spawnable habitat compared to the amount actually used. He said that pink and chum, however, were much better seeded. He attributed this potentially to rearing habitat, since pink and chum don't rear in the stream while steelhead and coho do, sometimes for as much as two years.

It was concluded that there should be more work done on rearing habitat potential, and that all instream flow analyses should look not just at spawning, but also at incubation and rearing.

Margaret proceeded down the list of things to do for the EHM study plan.

There was considerable discussion about HSI curves. Linda said that it was very important to do site-specific curves by actually observing fish in the stream and measuring depth, velocity and substrate at the observation locations. She said that, although this was a very expensive operation, it was the only way to assure a reliable output.

Kevin said that he agreed on the need for precise, stream-specific curves if we were doing a PHABSIM study, but the EHM method we were discussing could use more conceptually-based curves, perhaps like those described in a paper Margaret had distributed discussing physical habitat "guilds". It was not concluded how the HSI work would be done. Mike suggested beginning with literature curves and validating them with velocity measurements at heavily utilized areas in Sawmill Creek.

Margaret presented the further steps in the EHM approach. She said that the reach boundary descriptions were probably already done in Karl's work. There was some discussion about "calibrating teams" and Margaret explained that the study teams should practice categorizing habitats prior to the actual demonstration flow period to assure consistency. Mike agreed, and said that it would be good if the teams could convene prior to the demonstration flow period to work out the bugs and have a chance, without any time pressure, to discuss how the method would be done in detail.

Mike said that the City was generally in accord with use of the EHM plan, but that we hadn't read it in detail, and would get back with the group after reading the material and perhaps talking with some of the researchers who had done the Oregon study.

Mike said that the City would prepare a draft instream flow study plan and distribute it to the instream flow sub-group for review shortly after the first of the year, 2004. He emphasized that we needed to have the plan approved and people selected prior to spring, 2004. He added that the City would prepare draft minutes for the instream flow meeting for review.

Dean said that it looked as though the City was finished spilling this year, and that the stream should be accessible throughout the winter depending on snow conditions.

Karl said that he could do the US Forest Service Tier III Habitat Analysis this winter instead of next summer, and that the results would feed into the initial habitat evaluation steps in the EHM.

Dean then described his P&O work on the falls. He said that he had measured the falls with a surveying instrument in May, 2003, and had measured depths and velocities of water during a November field trip. He passed out a report on these measurements for agency review of methods and results. He said that, based on his early use of the method and according to the criteria in the P&O paper, it did not appear that fish of any species could ascend the falls. He added that he had wished to do the velocity and depth measurements at a higher flow this fall, but that it didn't appear that there would be sufficient spill.

Mike asked about the emphasis of the falls evaluation. Kevin said that it was not so much an exercise to determine whether fish could pass, because it was already confirmed through capture of a coho in the plunge pool that they could. He said that it was more to determine at which flows the falls would be more likely to afford passage.

Margaret asked Linda to check with NMFS's fish passage specialists to review the P&O work and to further explore potential passage mitigation measures.

The following action items were summarized:

- Agencies to review Karl's Periodicity paper and provide comment;
- Karl to advance the Limiting Factor analysis in time for 2003 season report;
- Dean to send sample generation model output to agency sub-group for review;
- Agencies to provide guidance on steelhead/rainbow terminology;
- City to talk to Hatchery about otolith work;
- Agencies to review Dean's P&O paper and provide review;
- City to further review EHM papers and contact those experienced with application;
- City to prepare draft instream flow study plan by early 2004;
- Dean to measure the Slot for fish passage potential.

The meeting adjourned about 4:35.