

Final Klamath River Basin Fisheries Task Force Minutes  
23-24 April 1997  
Eureka, California

**1. Convene, review agenda, opening remarks.**

Bingham: Good Morning. (A quorum was present, Attachment 1). Tom Hardy will be our facilitator for this meeting and once I take care of some routine business, I will be turning over the conduct of this meeting to him.

The topic of this two day session will be to consider the whole issue of in-stream flow studies. This has been a troubling issue for the Task Force (TF); it's one we basically had before us from the very beginning of our restoration program. What I hope we'll be able to do over the next two days is set aside our own agendas. Our basic mission is to restore the anadromus fisheries of the Klamath River Basin. Let's try to collectively come to grips with that so we can move forward with the studies in such a way that people don't feel like any in particular element is aiming right at them. To set the stage for that it's appropriate to hear what it is that our Long Range Plan (LRP) says to this effect.

Fletcher: Objective 2.E.1.C. states that we need to evaluate the in-stream flow needs using state of the art methods of each salmon and steelhead run and life stage affected by flows released from Iron Gate Dam (IGD). 2.E.2.B. and C states that we need to identify and implement methods to rectify habitat problems identified in #1 above including the following: water quality above and below IGD, in-stream flow and habitat below IGD. It goes on at 2.E.7 to say we need to require water flows adequate to achieve optimal productivity of the basin. 2.E.8. says seek the establishment of law that mandates minimum stream flow standards.

**2. Business**

Bingham: Thank you. Does anyone have any additions to make to the agenda?

**\*\*Motion\*\*** (Wilkinson) Approve the agenda.

**\*\*Second\*\*** (Bulfinch)

**\*\*Motion carries\*\***

Iverson: Mr. Chairman, those minutes [of the meeting of February 20-21, 1997] are drafted but I'm doing a little bit of editing [These minutes were mailed to the TF on May 6, 1997].

**\*\*Motion\*\*** (Bulfinch) Mr. Chairman, I move that we defer the approval of the February 20-21, 1997 minutes June meeting.

**\*\*Second\*\*** (Smith)

**\*\*Motion carries\*\***

**3. Brief review of last meeting actions/general correspondence**

Hamilton: There's correspondence in the package but rather than drawing from your focus here, I suggest that everybody read them (Attachment 3, Informational Handouts) on their own. The handout that is going around contains all the motions that we're aware of that the TF has passed related to a flow study and should help you understand why we are where we are today with the flow study (Handout A). If anybody is aware of any we missed, let us know.

**4. Introduction of Facilitator (Dr. Thomas Hardy, Utah State University)**

Hardy: Good Morning. I'd like to take a few minutes to give you some background on who I am for those who don't know me, then deal with some issues about definitions and concepts that became evident from the list of questions that was attached to the announcement of the meeting. (Handout B) I hope to address many of those questions, and then once that's set up we'll begin to move forward I hope in a progressive manner.

I've been involved with in-stream flow research and application since 1977. I'm a fisheries biologist by training. I also have a degree in Environmental Engineering. Much of my efforts at Utah State University in my institute are on the development, testing and real world applications of multi-disciplinary assessment methods primarily working at the issue of what happens when you modify habitat or modify flows in a river. I'm very active internationally, I'm the president of the

International Aquatic Modeling group, which is a consortium of 11 research institutes primarily in Europe, the United States, and Canada who are in an integrated fashion addressing a variety of research topics oriented at applied in-stream flow assessments. I've probably modeled maybe 1000+ rivers to date.

What I hope to do is bring that experience base to the context of the questions you're asking here. The Klamath Basin issues are complex. There are lots of people represented around the table with different view points of what represents the best allocation of water. However, the Klamath Basin in reality is fundamentally replicated all over the planet on these issues. A large number of people are moving forward in the same type of forum that's being put forward here and they're doing it successfully. The goal is to restore your anadromous stocks, if we had to sum it up in a very simple statement. How you do that it becomes a bit more complicated. You have to deal with the issues of flow, but you have to do that within the context of the complexity of the physical, chemical, and biological environment that is represented by the Klamath River Basin.

Some of the confusion and discomfort level among the various interests may be a misunderstanding of some of the concepts that has its basis in terminology. IFIM is really a conceptual framework for analyzing problems. It is a structure that looks at legal, institutional issues on the front-end. It deals with compartments or elements that address physical, chemical, and biological needs and tries to link them together in a coherent, rational basis. Within that framework it deals with water quantity modeling, it deals with water quality modeling, it deals with micro-habitat modeling of specific species and life stages, it integrates land use changes, it integrates sediment transport, channel maintenance flows and riparian maintenance flows.

The most commonly applied element of the IFIM is a suite of computer tools that integrate field work and life history criteria. That is what the Physical Habitat Simulation System (PHABSIM) component is. I want to make sure that the TF understands that the element to quantify the relationship between flow and habitat quantity and quality historically in practice has centered around the application of PHABSIM. But that is only one of many potential tools that can be used collectively or individually to help answer that question. And so within IFIM in terms of state of the art tools as a framework, PHABSIM is clearly a well developed methodology that addresses that component, but it is the nuances of its application in context that needs to be seriously considered. How are you actually going to do it? Some of the confusion I read into the questions center around a misunderstanding of a conceptual framework to answer your questions of what is important physically, what is important chemically, and what is important biologically and how they integrate together to answer fundamental questions of how are you going to recover your stocks given constraints, legally and institutionally.

The Klamath Basin is fragmented, there's the Upper Basin, there's the Lower Basin, and there are tributaries, the Shasta, the Scott, the Trinity. From the biological, ecological perspective, I would hope that there would be consensus on the TF that at some fundamental level you have to look at the Klamath Basin as an integrated ecological functioning unit. The connected life history requirements of your anadromous stocks cannot be done to the exclusion of the consideration of water movement coming from the Upper Basin, in terms of quantity, timing, duration, water quality, etc. You cannot consider your activities on the mainstem in a vacuum in terms of what is going on in the Shasta, the Trinity, the Scott, as well as other tributaries.

Eco-system management, watershed management is where we have finally come to. We have historically considered a project by project view of the world and suddenly we found ourselves with basins that had 70% of the water allocated (because each project only took 5% and it seemed innocuous). This same view is replicated in Great Britain, in Austria, in France, in Norway, in Italy, in Spain, and the Czech Republic. In all of these countries in-stream flow programs are currently underway, looking at watersheds as functional units and attempting to integrate information both spatially and temporally.

Fletcher: The exercise that we need to go through is to look at some basin wide concerns and issues, then start to hone it down to speak specifically to what will be the flow releases at IGD. But we need to do it in the context of the entire basin.

Hardy: Yes and No. The broader scoping of what the issues are you all have scoped. What I don't see is keeping that view before you in terms of how these incremental pieces are being fit together tactically and in terms of priorities. I don't think it would be prudent in this meeting that we try to revisit all of the issues.

Fletcher: One of the issues we're grappling with is what's the intent of the study; maybe we are looking to target an ESA level of protection, or Tribal trust. Those are things that we've never clarified.

Hardy: The TF needs to understand that at some fundamental level the in-stream flow study should simply be focused on the best scientific methods available, to develop the fundamental understanding between the relationships of habitat quantity and quality as a function of flow. How it's interpreted in terms of trustee responsibility vs. setting yearly operational plans is a whole completely separate issue. The flow study should address a technical issue. What it's able to address is the function of the time and monetary resources, the spacial extent, and other things. Given this, it's going to answer a very narrow set of questions. It's not going to get you any farther because it's narrowly focused over a section of the mainstem. The technical details of how it's going to be done are indeterminate at the moment and will significantly impact the question you actually answer with it.

Fletcher: One of the things we've heard from various Chairs of this group is, that we need to get into the water, we need to get some information and that's going to help solve all of our problems. It's clear from what I'm hearing you say that this is just one step in the process and we need to appreciate that up front.

Hardy: What I hope to accomplish in the next two days is coming to that realization. I would agree with the Chairs that you need to get in the water.

I would agree that you need to come up with information to help in the decision process across all forums, trust responsibilities to set operation plans, to having more determinant certainty on the cost and/or benefit for water diversions for the agriculture (AG) communities so that the implications of the trade-off between leaving water in the system are understood more clearly. Flow dependant characteristics of micro-habitat are not the only piece of knowledge you need to answer the question, but you can't answer the question in my opinion without that. It should be done but it shouldn't be done or accepted out of context, it's not going to give you the definitive answer, it's not going to give the answer basin wide, it will not permit the integrative view of the relationship between magnitude, timing, and duration of flows overlaid with water quality, etc., for the Klamath Basin as an integrated functioning unit. The Trinity, the Shasta, the Scott, smaller tributaries, water allocations, operations of deliveries from the Upper Basin, that all has to be integrated spatially and temporally to begin to clearly understand.

If there is a somebody in the room that doesn't believe that, just conceptually, an in-stream flow study to develop quantitative estimates of the quantity and quality of habitat for each life stage of your target species doesn't need to be done, I would like to hear that, and find out why you have that opinion. If that is in the minds of anybody in the room, I think that needs to be addressed immediately.

Orcutt: I don't necessarily disagree with that, but the bigger question is are there authorities willing to use this information that's developed, the science? You mentioned the Trinity, after 12 years worth of information and all the data and all the information there we're seeing how that is transpiring in terms of a decision on the flow.

Hardy: Applying science to make decisions to affect recovery and annual operations it is central on what the focus should be. All of that scientific information gets elevated to the decision levels and gets into the political arena. If you don't give them fundamental science that's defensible and I mean defensible with a view towards the litigative environment, then you shouldn't even start. Move towards applying the best science for the limited scope and budget currently available to answer the most critical elements. Clearly recognize that this study will not be the end of what you need to do to address the flow dependant needs of the system, but it's a tremendous first step. The first place of attack if it's available will be the science, so drill the science and let the politics fall where they, to me that's a different forum.

Wilkinson: When you speak of the science, would it be a fair statement to say that the science is rapidly changing? You say we can't dispute the science but can we keep up with it?

Hardy: You can keep up with it. Some flow studies need to be done. What's most critical is how it's done and where it's done and that the extent and scale is clearly understood in context. What is the state of the art? That's evolving, I think we

need to be pragmatic. If you get too far out in front, you've pushed the envelope so far that the science gets called into question because it's so innovative. I don't think you want to get totally Buck Rogers sort of science methodology here because there's too much at stake over the long run to head down a path that doesn't have some high degree of certainty.

Wilkinson: Where are we going to make that definition between the established science and the new Buck Rogers science?

Hardy: My understanding is that the TF has empowered the TWG to figure out where that envelope exists. If, at the TWG level, the broader experience or specific experience doesn't exist with the members of the TWG then the TF needs to ensure that the TWG is supported to bring in technical assistance to ensure that at some level the objective rational decisions are being made from non-political positional views.

Wilkinson: It has been said that none of the methods of estimating in-stream flow have any real validity. I wonder if you could speak to that.

Hardy: I can accept that we need to improve the state of the art. Fine, if that's your opinion, then tell me as a practitioner what you would do differently, how would you do it if you didn't do IFIM? And I typically get the thousand yard stare in a ten yard room and I don't know. We have five years, we need to have decisions made, what would you have me do? Nothing? Or would you go forward with what we can and clearly understand where the uncertainty is.

### **Public Comment**

Tom Payne: I'm a fisheries biologist and also a long time in-stream flow modeler. IFIM is interactive, it's interdisciplinary, it's problem-solving, it's not designed to say this is the answer, to set flow standards and that's one of the things that really is very hard to get across in all this, the process doesn't give you an answer.

Hardy: And at some level I agree with Tom. If one looks at the quantitative scientific underpinnings of IFIM it's clearly scientifically based, has biological rationale to support it, and is rooted in ecological understandings of river systems. The one point I do disagree with Tom on is that the IFIM in my mind is appropriate for setting standards because it give you information by which you ultimately make a decision on what that standard is. If you don't use a multi-disciplinary framework like IFIM then what are your other options? IFIM is the best tool for flow studies we have on the planet. It's being used broadly across the developed countries of this world as a basis of most of their in-stream flow programs and project assessment frameworks.

It's really important to understand that while there are nuances on where that envelope is defined in terms of particular tools, the envelope is not in dispute in terms of the framework. You have most of that framework in place here; your scoping documents clearly identify the various problems. You've got a segment that's got a water quality model going, you've got a segment with thermal refuges going, you've got a water quantity model that's being developed that's linking upper basin releases to lower basin releases, you're proposing an in-stream flow assessment study someplace on the mainstem, you're starting to put pieces of the puzzle together into an integrated framework. SIAM represents an attempt to get into one linked integrated framework, quantity, quantity, fisheries, economics, demands, and hydro-power. So that there is a common basis to evaluate feasible scenarios with an idea of the implications, ecologically, economically, etc. It is at it's ethos the framework of IFIM. The nuances of a particular element of this in-stream flow study we're going to talk about is just a piece of that. The in-stream flow study that's proposed isn't the definitive basin wide in-stream flow study. It's not going to address issues for the whole mainstem, it's not going to attempt to integrate the Scott or the Shasta. But the study is intended to begin to answer the question: What are the flow dependent relationships for your target species in life stages. The technical part; how you're going to do it and where still needs to be answered in context of limited time and budget.

Robert Franklin: At some point in time the definitive study will be whatever's in hand in terms of defining what decision makers will use. As soon as it's in-hand, people are going to use it and it *shall be* definitive at that point in terms that the rubber will hit the road and the decision will be made and it's all over.

Hardy: Regardless of what study is done in this basin, once it's public information at some level it will and should be scrutinized. If valid at some fundamental level it should be used for the value of the information gained from that study.

Whatever is done on this in-stream flow study will be used at some level more than the extent of what the study was intended because that's just the way the real world is. That's why it's so critical to clearly articulate the scope and intention of what question is being asked with this study. It's incumbent upon the TWG and the TF that if someone takes that study and misuses it, then that is brought to light and it is explained that you can't use this information because it doesn't answer that question. The fear I hear is that we've got this little pot of money and we want to go down to the river and start this process. And I hear the fear of that's where it will stop. That is problematic because you're not going to answer the full question with the time, budget that you have. You should put down on the table that we're going to go after this specific set of questions, at this location, and that is clearly indicated as the start, only. You need to also state that you must do the following if you're going to answer this question over it.

Farro: We're asking a very complicated question as far as flows and what the effects of different flows are on the fisheries in the Klamath River. What degree of certainty is this going to provide us?

Hardy: Even if the world was perfect and you did this sort of study everywhere you're still not going to have all the answers because biology is just too complex for us to truly model and understand it all. Being intellectually honest in that regard it's still going to require a lot of integrated gray matter second guessing. But at another level in terms of is it worth doing, let's start where we are today where we don't have anything in terms of flow dependent characteristics at the micro habitat level that can be scaled up to reaches and integrative of water quality. To me the level of uncertainty is now extremely high. This effort is intended at some level to reduce that uncertainty. In context, it's not going to eliminate it. There was some discussion that we may not have the resources or the ability to develop suitability criteria for all of the life stages of all of the species. So if we only have the money and time to do one is that the only thing that's going to be used? I would suggest no, it wouldn't be. I personally don't have a problem with putting biologists in a room and saying give us your best estimate from all available curves. Because the alternative is not to do anything. That's unpalatable to me in terms of trying to understand basic relationships.

Bulfinch: We need someone or somehow to coordinate this thing to describe the various studies that are going on which frankly are going on because of funding convenience and time available, not necessarily in the order of the priority that they would be needed for the eventual assessment. We should apply our priorities of time, funding and probable results in order to mitigate or correct the situation. But that is not what we're doing. I think what they're looking for is a restoration blueprint for the in-stream flow needs study. I don't think that's where we ought to be going; we have the in-stream flow needs study so we could establish the blueprint, not vice versa. Am I incorrect?

Hardy: Not from where I sit. That's a very pointed observation of my view of this process you've all have been involved in. When I look at a problem like this, the first thing to understand what does it look like now; what are the life history requirements of particular species in this system? And if I can't get that, find out what does everybody else on the planet say they need and try to factor in the site specific nuances here. Then I would ask the fundamental question that historically it may have looked like this but was that the best, was temperature still a major factor for example during the warm periods of the year, was that just the way the system operated? The structure of what you have, the water rights, those things sort of put some sideboards that realistically are going to constrain where you have operational flexibility once you understand what you have.

Mike Belchik: There's a need to bring various processes together that are happening on the Klamath Basin. And one of those is an environmental impact statement that the Bureau of Reclamation (BOR) is contemplating finishing for the Klamath project operations some time in 1998 or maybe 1999. This flow study that we're talking about doing here needs to be integrated with that time line. There is no connection between what the BOR is planning on doing and what this in-stream flow study is planning on doing and there has to be. The BOR isn't even here today.

Hardy: Let's not confuse the technical assessment of a flow dependent relationships for target species in life stage with the multiple forums over which that information will be used. Mike has indicated that forum needs to be considered. I would put forward to you at this table that even if you did a comprehensive in-stream flow study on every portion of the mainstem, the Scott, the Shasta, integrated the Trinity great stuff, you could put that in an EIS and I would say, so what. There is really no end point to what's being started here, it doesn't end with an EIS. Whatever we do is open-ended in light of continually upgrading our knowledge of the system. We see where the greatest uncertainty is that's going into the

decision process and keep chipping away at that fundamental uncertainty to try to reduce it. But to me this needs to be done within the context that's it operational. It's going to be used year after year to make decisions.

Fletcher: When we do talk about the study in any type forum, whether it be a political forum, a scientific forum, a technical forum that we preface it with "this is one step and one part of the basin and it's just a part of the picture". We need to force ourselves to get into the habit of that.

Hardy: I would like to go through a brief example where this process has worked. I hope this will help you understand that there are examples by which success has been achieved even with varied different competing interests for that water. What's happened in the Weber Basin was we had a water quality problem. Water was being degraded through land use practice and because of the particular nuances of a reservoir where water quality was deteriorating. It was significantly impacting water supply for municipal use, they couldn't meet the standards. It was also causing problems for fisheries. What became evident from day one is that we didn't have the time, the money or the resources to go in and study quantitatively every single reservoir, every single stream reach, every single species in life history but we got started.

The first thing we did was develop a mass balance model, (sound familiar?). The second thing we did is we identified three reservoirs and six stream reaches where water quality was really one of the critical problems. So we developed an integrated water quality and temperature model for the reservoirs and the stream reaches that were linked by whatever hydrology scenario you would run, by accessing historical water quality data. We discovered as part of developing the tool we didn't have enough water quality data at certain key junctures in the system so we bit the bullet with the BOR in Weber Basin, we went out and started collecting data bi-weekly for 21 water quality parameters at those critical junctures for the long term. We then went in to the critical stream reaches and developed fish metrics that were a combination of things like PHABSIM, IFIM, as well as other types of indices of habitat quantity and quality that could be linked to depth, velocities, water surfaces, and water quality.

As we ran scenarios by specific reaches we would get indices out of whether the state of the system was moving in right direction from a fisheries perspective. All of this was integrated into a computer system under Windows. BOR has a copy, Weber Basin has a copy, Utah Divisional Wildlife Resources has a copy, USU has a copy, and several other private entities.

What we're doing now is each year we're running scenarios to kind of define the sideboards. Then we all sit down at the table and we say look I've got a scenario here that only cuts AG by 10%, increases fisheries by 50, and here's the economic cost on hydropower for those kind of flow releases. Then we simply go through various scenarios and then come up with a game plan for operations that year that are dependent upon the conditions. Quarterly as flow conditions change and water availability change, we reconvene, reset the reservoirs to where they are, and evaluate what the trends in the systems are. At the same time we use the monitoring data from our fisheries each year to determine whether we got some flexibility this year to give up a little more water or not. That forum is based on the premise that we don't know answers everywhere on the system, we're not modeling every stream reach for water quality, hydropower, and fisheries indices but we got critical locations that initially we're focusing on.

The Weber Basin decision support system is a forum in which the people are willing to sit down and use a common integrative assessment tool to make decisions. I think that same thing can occur in the Klamath basin. If you can embrace that concept, it makes this in-stream flow study a piece of the puzzle and then you need to simply define what piece are you going to answer; you may not have criteria for every life stage of fish, so what. Go grab one off the shelf and agree that in the interim, we will use it. Maybe you want a very critical review process on what you take off the shelf but it is better in my opinion than not doing anything. Put that strategic goal before you, you have a plan.

Iverson: Did you have anything available to you with this Weber basin situation that is not available to the Klamath?

Hardy: Broadly, the basic elements are replicated here on the Klamath.

Rode: We don't have the eight reservoirs that give you flexibility and options for manipulating water. We also have our large agricultural presence and demand in essentially the headwaters which more than likely, you don't have. Another

question I had was how large a system was this? What kind of flows are we talking about?

Hardy: On the mainstem of the Weber on an average water year, flows are probably 250 to 300 cfs.

Rode: There seems to be a perception among a lot of people involved that PHABSIM works great on small systems, on trout streams. Once you have a large river, the logic breaks down and you wind up with microhabitat flow relationships that to the educated person, just don't make sense. Could you comment on that?

Hardy: I would like to hear Tom's comment for some of the historical stuff that was done on bigger rivers. The problem is that they took their mind frame from working on small rivers and didn't think about the nuances, especially in the spacial scale. They threw it at some larger rivers without tuning into how you did what you did for a big river. Tom, I think you have got some input here.

Payne: I am familiar with that problem. When you take these types of models and apply them to a big river especially with the small fish and the smaller lifestages, there is something missing, probably more than one thing missing. The way the models have been applied in the past is that you take a criteria for little tiny fish that is not a very strong swimmer and when you apply that to a big river, lo and behold it is best for that little tiny fish when the river is almost dry. But what is missing (and this is quite open to speculation) is the fact that they like the margins. The margins are where there might be more leaf litter or more sources of food, it might get them away from where the predators are that might be going after them. There have been a lot of people that gotten into a lot of trouble by just doing it that way without knowing that there is something missing.

I think the problem now is that we don't know for sure what is missing and it becomes problematic if you develop criteria curves and use the PHABSIM approach. Some of the solutions that I have seen, I don't agree with. They may come closer to a conceptual reality of what you think is correct but there is still some mechanistic solutions that really may not answer it. So that gets at what Tom was saying earlier about do you do this type of an approach and just go out and get a physical habitat index for all these species and lifestages and say that is good? You can do that but you could also run the risk of being wrong for some of them.

I think clearly you can identify the relationships between flow and habitat index for something like spawning where you have big fish and they can select the whole river. Then you can have something to work with but for some of the fry and some of the weak swimmers (such as sturgeon, maybe), it is really unknown as to whether you can actually describe those indices.

Hardy: I agree with Tom. That is the point where I was indicating that taking a stock off the shelf check list PHABSIM study is probably not going to work in the Klamath. More of the state of the art work has been done in Austria, work by the group in France, and the Institute of Hydrology in Wallingford where they are dealing with bigger rivers. They are working at things like the Danube which is on the order of the Klamath. The work they have done there is very encouraging. It seems to have addressed in particular the early lifestages from egg incubation, right through to just coming up off of the gravels, to the incremental growth towards juvenile. They have tried to look very specifically at that transition through different swimming capabilities and life history needs, thinking about the mechanics of shore oriented or bank oriented requirements or even looking at the diel differences between day and night. At some level it is still conceptual but you have got hard biology to support it. There are adaptations that can be made on the Klamath beyond the standard approach.

Bulfinch: What's the boundary line between small and large river?

Hardy: I would call the Klamath a big river. I would probably call the Trinity a moderate to big river. It sort of depends on your point of view. When we get down to some of the logistics of how to do this in dealing with the issue of criteria curves, it will be an interesting discussion.

Russell: In all due respect, the Rio Chama lacks a couple of things that is important for us to remember. First of all, the lack of salmonids and certainly the lack of the immediate influence of the Pacific Ocean. You said, I think, that there was a

great deal of uncertainty in some of this.

Hardy: Look at the Rio Chama study as an example of the application of the framework and don't try to apply it rigidly to the Klamath in terms of what they actually measured or what they actually studied. The IFIM framework permits you to integrate the component pieces and is really independent of the system you apply it on. It is a framework for decomposing the problem into bite sized chunks you can tackle and then integrate up. So in that respect, yes, IFIM is appropriate for the Klamath. If I would take exactly what was done on the Rio Chama and throw it at the Klamath, I would be wrong. But the IFIM conceptual framework is appropriate for the Klamath.

Wilkinson: How and what sort of historical perspective there is on the juveniles getting bar bound? What percentage of them are actually getting out into the ocean environment? I know that in some of our other systems, this is a major factor.

Hardy: One of the most challenging aspects that faces this group is the biological side of the equation. You need to understand what is critical and/or controlling at each of your lifestages. You can go out and measure cross section geometries until the cows come home, drilling the hydraulic model into great deals of certainty at some level; but so what if you can't link up the biological science to understand what the implications are. Where those fundamental questions are suspected to be controlling or be important, you must design studies specifically oriented to answer those questions but in the context of developing metrics or indices or relationships that can be utilized within changes of operational flows. Each thing that is done here in the basin should be reasoned within an integrated framework to help reduce uncertainty and understand relationships. But again within that broader context of your LRP. We can make better and informed decisions on water allocations.

Bingham: We need to begin gaining an understanding of do we really understand where those bottlenecks are relative to flow? And, has the dialogue today given us the direction that is needed because that is why we are here today.

Hardy: No one has articulated an opinion that quantifying flow dependent characteristics for your target species in lifestage shouldn't be done. It is an element of a piece of the puzzle that is important and needs to be addressed.

Orcutt: Fish are one attribute of a healthy ecosystem but what of other values?

Hardy: All of those things at some level are important. It is just that in context, you have got to answer Nat's question, what are the critical bottlenecks? And, that is where you start because that is the best available information. Three years from now, through your efforts, you should be able to refine what your perceptions of bottlenecks are but you take what you know today, take your best shot on how you think you need to get there. It is a long term investment that doesn't come to the end probably ever in reality. There is no magic bullet that if you do this today and you spend three years and this amount of money, we are there and we can all go home. That will never happen in the Klamath basin. I would like to just ask the TF collectively and individually, is there any disagreement that there is the need to do an in-stream flow assessment of the flow dependent requirements of your target species in the Klamath River?

Farro: Without knowing what the ultimate price tag is and the level of defensible certainty of the product itself, I cannot make a call like that.

Hardy: But if you don't somehow quantify the flow dependent needs, where can you go towards understanding or implementing recovery?

Farro: We are buying into one phase but this is part of a bigger program. I would like to know before you buy one part of it, what are you subscribing to.

Hardy: At one level, if we can agree conceptually that knowing the flow dependent characteristics for the whole Klamath is a desirable goal, whether it is achievable or not is a completely separate issue. At level two, even how you do it is yet to be resolved.

Farro: I am not opposed in a philosophical sense. I want to see what exactly is going to be required as far as resources and costs.

Hardy: My understanding is that the USGS, NBS/FWS are going to conduct an in-stream flow assessment on the Klamath River whether this TF, at some level likes it or not. Knowing that is going to happen, to me the question becomes, how can this group work with that entity to ensure that what is done is prioritized along a strategic gradient and that it is done in a way that interfaces with and links up the other efforts that are being conducted. Once you do this, then you will have an idea of what cost and time they take.

Smith: It is critical that all flow dependent uses are taken into consideration. We don't want to put everyone in Siskiyou County out of business.

Hardy: Politics are going to fly in terms of what the right levels are, but to me the importance of that framework is to allow everybody to understand at some level the implications of the decision. That is critical and I think it has to be done in that forum. To some degree the in-stream flow study can be cast in the light of not only the flow dependent characteristics of fish but linkages to the water balance model and the water quality model. After that to evaluate the economic hit to agriculture or benefit to agriculture. One of the big questions we need to decide on immediately is what is the focus of that in-stream flow study? Is it the broader IFIM study where you link all of those things together? I don't believe that is what the intent of this particular study. I want to make sure that where we are moving is an understanding that this assessment framework is a very valuable goal in the long term and is being supported by the USGS.

Franklin: I am finding myself confused and disturbed. You are pointing at PHABSIM box and saying "the flow study". I want to see IFIM up there and when we talk about Buck Rogers, that is SIAM. That is the cutting edge at the edge or beyond the edge of the envelope. It is something we don't accept at this point because it doesn't even really substantially exist. IFIM exists at this point and has a certain level of acceptance.

Rohde: Do we believe an in-stream flow assessment is needed? Once we have agreed to that, then we can begin to get into component parts and the critical issues that Nat discussed. What we believe to be the in-stream flow study may not be directly inline with what you believe it is. I would prefer that we just answer that initial question and then go through some kind of a systematic way to determine what we believe that the flow study process ought to be.

Hardy: I wanted it said that there is a broader framework view of this problem and then there are specific components. I wanted to make sure people understood that IFIM is a broader framework. In reality, the SIAM is the implementation level of an IFIM where you are integrating sediment, water quality, economics and all of those things. It is the computer implementation, if you will, of what the framework of IFIM is intended to do. Physical habitat modeling is just one piece of the puzzle and is the in-stream flow study the broader view or is it the narrow view?

Fletcher: We have got to have that initial "what is a flow study?" discussion talk.

Hardy: The IFIM is the same as the SIAM; it is just the on the ground concrete implementation of that. That is your strategic tool, if you will, to get there. How does the TF view the USGS effort?

Fletcher: I am not going to go as far as saying it is out in left field and rammed down our throat, but early on some concern started to develop in the TWG and with some of the linkages at that forum. That in turn has given rise to concern that I have voiced in this forum that they need to be on the same page, the TWG with the USGS.

Rohde: The TWG currently does not endorse the work that the USGS is doing in the Klamath. This is not to say that we won't at some later date. It is just to say that they have their own funding, timelines, goals, and objectives. We want to avoid them creating something that will be used in the basin that doesn't holistically address the TF or the basin's needs. So the TWG has asked the TF to come together and go through this process, endorse the need for an in-stream flow study but identify those critical bottlenecks. Specifically, what the output products are that we are striving for. Then once we know what those are clearly in our heads, then we can look at the various studies that have been begun, take a look at what USGS is doing in its proper context, and design the appropriate assessment work that is needed in order to restore the

anadromous fisheries.

Orcutt: Regarding SIAM, nobody is comfortable or familiar enough with the tool or that product that they want to use to make an informed decision at this point.

Rode: Initially the model sounded really good and it looked like it was all encompassing. What finally came to pass was there is a time deadline of by the end of FY98, it was only a prototype model, it was unproven, and it had never been used anywhere before. Certain subcomponents of that model have failed elsewhere, for instance over on the Sacramento and on the Trinity Rivers. The BOR was expecting some sort of a product in maybe two years time or so on which they could make management decisions, I think that is where all the fear arises from. You have got these needs, the demands, tremendous political pressures that come up with approaches to water allocations in the basin. We are concerned that we are buying into a system that probably will not give us those answers a year and a half down the road.

Russell: I am concerned whether the TF would clearly tell the TWG that you can go this far and that is it. I think that is our job here and I am worried that that could be eroded. I have been run over by the Federal Government and I am going to sit right here so I am going to be careful about that on behalf of Klamath County.

Fletcher: Quite a bit of resources that are going to start to be funneled into this. USGS or those agencies that are going to be doing things anyway, they need to be brought in to the same direction that the TWG will be providing through this process. Right now, you do have this effort, and it is linked somewhat on an informational basis, but there is no real comfort. USGS and others (BOR) are proceeding in an effort that is looking at the same goals.

Hardy: Let me ask a question of AG interest representation on the TF. Has this SIAM development effort at USGS at any point involved contact with your individual technical experts or even you in terms of what it is doing and how it is going to address the economics of water allocation to AG deliveries, etc.?

Russell: Some of the material is certainly slow in coming and you would hope that the agencies would work a little faster. From Ag's perspective, when we hear comments like set aside 10%, well that could be 25,000 AF (acre feet) in the basin. How does that affect us? The agencies haven't told us. Is that just the first year and the second it is 20%? There is a lot of information that hasn't necessarily come forth yet and perhaps it will.

Hardy: Does the TF conceptually agree that if you had (let's just say SIAM just for convenience) an analytical framework based on the best science available (which dealt with fisheries issues, dealt with economics of AG production, water quantity, and water quality) that would help you on an annual basis look at scenarios of flows. Or is it simply to figure out what is wrong and make recommendations on how to fix it and walk away from the table? Or do you look at operationally that recovery is a long, long term process?

Russell: I agree that we need to look at the problems and create livable solutions to those problems. That is our responsibility. Unfortunately in the past, it has become difficult to be a player at times. AG has to be a player as much as everyone else around this table.

Hardy: How does the TF see or view this parallel effort being undertaken by USGS versus a desire to do something similar at a mechanical level to get questions answered in a way you can evaluate trade offs or implications of proposed operational activities and recovery? Are these totally disconnected? Are they integrated?

Bingham: I am really glad that people have come from their interest because that is important. Speaking from my interest, the commercial fisheries, we see an almost total disconnection. The one thing that did hit my desk which was that institutional analysis, I reviewed it and I couldn't recognize my interests.

Orcutt: SIAM is not going to fit on the Klamath.

Fletcher: The TF is already committed to address the flow issue and we have chosen to do an IFIM process. We are really at the initial stages of saying what does that mean to us and how do we get to there. We have to be willing to trudge

through some of these issues and AG is certainly an issue, irrigation is an issue but we are guided by the mandates to restore anadromous populations to optimum levels. If there are interests that are going to be counter to that, then let's have that discussion right now and get that out on the table at the beginning of this process so going into the study we all know what we are expecting.

Unknown: Is it fair then to say that your TF in-stream flow study (as yet unclearly defined) is separate from whatever USGS' SIAM process is at some level?

Hardy: On the subject of the relationship between the USGS effort and the TF effort on the flow study, the USGS folks have been very clear that their mission was to develop some science and some models that could be applied elsewhere and it looks to me like they have been very methodical in meeting their schedules and in carrying out the elements of their program. They are only going to be here until next fiscal year. My impression was that the intent was that they would work hand in glove with the TF. My impression is there are so many unresolved issues on the TF side that the movement of the research and development folks has proceeded, while the TF hasn't and so maybe that is how things have kind of pulled apart.

Orcutt: On Friday, coho are supposed to be listed so that is another consideration that we need to be really focused upon. Other agencies are going to be looking at who is fixing the problem here so that needs to be something that should be discussed and thoroughly discussed.

Hardy: Is the money allocated for the USGS in-stream flow study separate from and in addition to the money allocated by way of the TF for your in-stream flow study?

Bingham: Yes.

Hardy: We have a tremendous opportunity here at a fundamental level. USGS can continue their process of this SIAM development and the TF at a fundamental level can take advantage of what they are doing; take what is right with the picture, change what you don't like or discard the pieces that you know don't work. The TF only has to define the purpose and scope of your component in-stream flow study. What is the vision of the TF? Is your IFIM study trying to develop that broad framework view? Are all of the components being linked together vis-a-vis what SIAM is already starting to do or is your in-stream flow study aimed at going on the ground in particular locations to answer specific in-stream flow dependent characteristics? Which way is it?

Fletcher: We haven't really fully fleshed out those types of discussions.

Hardy: So being blunt then from where I sit, you guys said "We're going to do an in-stream flow study, here is money and then it is like you stepped back and went, okay, now what? What does this even mean?" That is what it sounds like from the outside looking in.

Rode: Not really; we had the Phase I report that was prepared by the USGS and so it wasn't a completely scatter gun approach. I think what happened at that point was everybody assumed we were doing an IFIM and that we are going to progress in that direction. The recommendations had been made. We got involved in funding and putting out contracts with NBS taking a role in the water quantity model. We committed to doing some of the water quality work and then we moved the Orlob contract. We started looking at the thermal refugia problems. We discussed and finally got going the stream morphology work. That was the right direction and then what happened was this acceleration took place. There appeared to be a demand for getting in and doing the PHABSIM type microhabitat analysis. At that time, things started breaking down because we were no longer following the original recommendation which suggested that we hold off on the microhabitat work.

##### **5. Review of questions prepared by Technical Work Group (Bienz or designee).**

Bienz: This might be an appropriate place to refer to the questions for the TF.(Handout B) It says the vital question to be ask of each study proposal is "how will the results of that effort be used in the final decision?"

Hardy: This is SIAM at a fundamental level. That is just another name for plugging all these pieces together and what I just heard Mike say is that you have already started this.

Bienz: We need to be very careful here. This is not the SIAM that is being proposed by USGS. The USGS SIAM has six elements. It is not this same conceptual approach. We need to be sure that we know what we are doing before we propose a study. What will that study be used to do? Last year, we started doing a microhabitat study without specifically defining what this executive summary says we need to do first and foremost. What are we trying to accomplish with this IFIM study specifically a microhabitat component? That question has never been answered.

The TF has got to tell us where you want us to go. This is the direction we have been following, it is inconsistent with the direction that BRD is following even though they developed this. They aren't obligated to follow this because they do have a research and development phase like Ron was talking about.

Hardy: That is why I wanted the distinction between what their BRD effort was and where the TF was. You in this diagram, you have got a water quality model, a quantity model at some level is being developed. You have started looking at thermal refugia and you have allocated money to do an in-stream flow. Fundamentally, what we have to address is what is that study intended to do.

Iverson: Troy, a couple of hours ago, read the elements of Chapter Two of the Long Range Plan (LRP) that referred to the policies on the flow study. I have always thought for the six years since then that that was the decision or the guidance from the TF as to what the purpose and intent of an in-stream flow needs assessment would be: To look at the in-stream flow needs of each life stage of anadromous fish. That is a fairly limited purpose. It does not include looking at the water needs of agriculture. It doesn't include a whole lot of other things. It is limited to the mission of this group.

Bulfinch: "At this time" was approximately two years ago. The comment was probably appropriate then, but it may be appropriate to readdress it at this time.

Fletcher: We really need to just go right back to the beginning and hit on what Ron just said, what is the intent here. That intent has been narrowed somewhat. Let's agree on the intent and move forward based on that.

Hardy: Based on that narrow definition from your Chapter Two you are dealing with microhabitat type of analyses. If the TF agrees that is the intent of your in-stream flow study, then it become much easier to address because the whole next issue of their strategic integration with other elements to make decisions is outside the realm of what needs to be decided upon (with the caveat that you must look at what you are doing in light of how it is going to be used in the context of that broader decision making matrix). You have got a water quality model that is beginning to address the temperature regime given flow dependent relationships. I have heard that there are critical elements around thermal refugia at your tributary inflow sites. Is that one of the primary critical areas that should now be addressed in light of broader scale criteria type curve PHABSIM type analysis by reaches? Again I think it is to the point now where you have to say, what do you know, what don't you know and what don't you know is in terms of the biological brain trust; what is the next most important question to answer to be able to make decisions on what you have to do for recovery?

Fletcher: That is where this groups needs to give the TWG that ability to go out there and really start to nail down some of these issues. We also need to talk about channel maintenance flows. The TF says this is the critical issue. The TWG then may be too large to answer that particular question and a smaller empowered subgroup that has the expertise to deal with that particular element may need to go out and get the job done, then bring that back to the table and ask the next question. But the broader view of how the different questions need to be prioritized and laid out to the future, I think is the purpose of this body.

Bingham: One of the reasons that things have been kind of bouncing back and forth between the TF and the TWG is that we haven't until this morning really had a good understanding of what the issues were. We are starting to now and so we are now moving to a position where we can help the TWG resolve some of these issues. How they address the issues, whether they do it with a high powered subcommittee or bring in some outside people, is basically up to them. Then they come to us and ask our permission to do it.

Hardy: Ask yourself if you have got to go on the ground and tackle the question, what is the number one question in each person's mind that you think is limiting the population out there?

Rohde: Although the plan articulates a more narrow focus through an iterative process with NBS, the TWG recognized the need for not only a narrow focus but also a much broader focus which would enable the decision makers to make decisions that could address the needs of the anadromous fish.

Hardy: The TF has embarked upon a process by which you at this point need to address the flow dependent characteristics of individual species and lifestages. The simple part is to identify what species and what is the critical element we don't understand, then try to prioritize a game plan of attack. Let's tackle it with the limited resources of money that is currently allocated. Then in the meantime, ask the next question and begin to incrementally put the pieces together around that desire to address the flow dependent characteristics. That in and of itself will plug into that broader framework at some level, it has to. It may not be a salmod model because of all the problems they have had with that but at least you are moving in that direction.

Pat Higgins: NBS doesn't have sufficient resources to actually plug data in for channel geomorphology. This question of microhabitat use by fish is also beyond the scope of their study, so what they have admitted to is that those things will be theoretical and will demonstrate the capability of their model. They are going to run their model with data from other rivers and it isn't going to give you any valuable adaptive management type of information.

Hardy: Although conceptually the group at some level has committed to do an in-stream flow study, you haven't stepped back and sat down and systematically scoped what an IFIM type of study is in context of the issues that need to be addressed in the Klamath. So to consider whether one wants to do a particular type of microhabitat study versus broader scale reconnaissance level mesocharacterizations, is frankly premature because you haven't scoped it. Without scoping it, you cannot address technical elements of the components because you don't have a road map of where the study is supposed to be going. The TF needs to embark upon is a systematic program of education of what an IFIM is. Until that is clearly done, giving direction to the TWG on what to do is somewhat problematic. Although you have got some elements already started, the connections and what they can or should be used for seem unclear.

Tom Payne: The thing we need to do is have a little bit of interactive discussion, going through the elements of what is involved in an IFIM. In particular, begin coming up with that road map or blueprint. The first thing that you should do is direct the TWG to come back with a very detailed scoping of what should be done, prioritize those efforts, then send it back to the TWG to come up with specific recommendations on the technical basis to approach those priority problems before you ever set foot in the field to do anything else.

Bingham: We don't want to sit here and reinvent the wheel. Do we all collectively agree that this step back is necessary?

Rohde: The step back is necessary. The TWG did go through in initially scoping to identify the types of work that they felt ought to be done and the TF needs to go back to that record. The second step is to figure out what are the methods and procedures that need to be prescribed to implement those specific projects of work. So a little bit of it has already been done but I am not convinced that the TF knows that yet. We still need a blue print.

[Hardy discussed at length Chapter 5 of Handout C (The Instream Flow Incremental Methodology, a Primer for IFIM and reviewed the steps, problem identification, study planning, study implementation, alternatives, analysis and problem resolution).

Hardy: One of the biggest things that has to occur first is problem identification. If you cannot articulate the problem, you cannot develop a game plan to tackle the problem and solve it. Even though at a certain level, the problem is easy to state, recovery anadromous stocks in the Klamath basin, that is not good enough. What are the specific problems facing anadromous stocks in the Klamath basin? I am just going to take some guesses here and I am going to say flow i.e. operations of IGD, is one of the "problems". Whether flow alterations in terms of timing, magnitude and duration are in fact detrimental or beneficial, is likely unknown to some degree. People from their experience or positions will feel that it is

detrimental, others will feel you cannot demonstrate it is. If it is unresolved, it is a problem. I needs to be considered. You obviously have questions about geomorphological issues in the channel. The river does not look the same as it probably historically looked under unregulated conditions. What happens if I go out today and measure geometries upon which I base decisions if that geometry is significantly different from what the river may have looked like? What are the implications? Where is the relationship between flow and alterations in channel in the future under any proposed management decisions? Under natural conditions 1,000 cfs may have been "optimal" but with the channel geometries today, that same condition may be provided at 750 or it may be at 1,500.

I have heard from more than one individual that you have a water quality/temperature problem. I think another problem that needs to be broadly examined and that is your species' life history. I am going to sort of side step the legal institutional analysis phase of this because that is the overlay once you have got the technical quantitative biological physical chemical elements understood. Without that, you cannot move to recovery. How you move to recovery, to me is the legal institution where constraints on water rights and contracts for delivery all have to be put into the mix. People often try to jump through the legal institutional before they understand the problems across the physical, chemical and biological elements of the system. The upper basin has to be examined because that is where water is coming from, that is where temperature effects at Iron Gate may be coming from. You have got to take a broader view initially then decompose it into explicit spacial and temporal concerns, then you can begin to tackle the problem. What I have heard from the group is that this level of problem identification has not occurred here.

Iverson: The LRP does that problem identification step. Whether it is at an adequate level of detail I don't know.

Hardy: Was that plan written from the view, that we've got to go back out on the ground now and take measurements that is going to tier back up to answering that broader problem identified? That I don't know. We will see as we go through as I begin hopefully to lead you through more and more detail. Once you have gone through a very systematic problem identification what I want to do is talk about some of the elements in each of these categories to give you an idea of the level of detail that is required in the next step which is starting planning. In the Klamath, you don't have gauges everywhere and you are going to have to estimate the amount of flow in each reach of this river spatially and temporally. It is a huge process to adequately determine what the flow regime is today; let alone dealing with the scoping issue and problem identification in terms of what did the historical flow regime look like prior to Iron Gate, prior to diversions, prior to development of water for out of stream uses. Is going back even to that "historical or naturalized" baseline important? The water quality/temperature issue is being addressed by Dr. Orlob's study. Is his work and analyses being done in a way that would meet the biological issues that are being put forward by the biologists in terms of degree days, in terms of maximum or minimums, in terms of dissolved oxygen criteria, chronic versus acute exposure to pesticides? How much do you know about your fish species life history? You need to know about bottlenecks or conditions that are limiting your productivity capacity of the system. Are there issues around primary or secondary productivity? All of that goes into simply the problem identification phase of an IFIM before you do study planning.

Rode: To reiterate, all of those items have to be completed and well understood before launching into the next phase?

Hardy: You have to have an idea of what your problems are before we can go to the next stage. You may have some that are well defined that permit you to go on; other that need reconnaissance level work that will lag behind other elements.

You need a road map that will be going along in multiple parallel tracks all converging at some point. Your Phase I may do this at the level of detail you need; if not, it may just be revisiting certain elements that flesh out a little bit more.

Study planning takes on two very distinctly different layers. The first is what I will call system wide and strategic. This is where you have to take a broader longer term view of all of the component problems and issues you have identified and try to prioritize given money, personnel restrictions, different programs and come up with a phased game plan of attack. I guarantee you, you are not going to have the time, the money or the resources to do it all at once. Once you have done the system wide strategic planning, then you are going to go to what I like to call the tactical; where you get into the very specific technical scoping process. This is where you get down to the site specific scoping for your studies. Maybe the criteria curves are one of the things you have identified. Well, how are you going to do it? I don't think you have done this step yet.

The third thing is study implementation. Again, you are going to have a strategic element and you are going to have what I will call a tactical element.

If you did your problem identification and then that strategic level scoping, you could come up with pretty round numbers with a multi-year cut at what that would look like with allocations. Your study implementation is going to be driven both in terms of your strategic goals and then your annual tactical studies. Many studies will require multiple years. Some will be ongoing. You may find in your problem identification that the value of adaptive management and monitoring programs is going to be critical long term. Your technical team should be coming forward with recommendations. It may not be the stock models. It may not be the PHABSIM element of your primer in terms of IFIM for the Klamath. Some of this stuff often requires R&D. So keep in mind that there may be elements of "what if" testing that is out in front of your strategic level implementations. You have got to tailor your science to your system.

Alternative analysis: This is where you are going to begin to elevate your basic science into that broader framework to start looking at what flow regime might work for our fish. What are the implications to water delivery now? What are the implications to hydropower? If I am willing to live at 90% of optimal, it may mean a geometric difference to AG delivery schedules. You are going to have to look for trade offs. Your component analyses if done and scoped correctly, should identify where potential mitigation measures may be useful. In this basin I have no idea whether change required is a small tweaking of the system or major tweaking of the system.

Iverson: How can you be confident when you start all this that when you get to alternatives analysis that you are going to have that information?

Hardy: At some level, you need a parallel process that is different from the focus of this in-stream flow assessment. It is sort of a system analysis assessment that is going on in broader framework. That is why, at a conceptual level, I have no problem with the USGS SIAM. There are still linkages to out-of-stream uses that affect your potential to implement recovery. You can't do this in a vacuum and you have got to look for where there is flexibility.

Mike Belchik (Yurok Tribe): There is a need to coordinate the EIS (that the BOR is in the process of forming right now) and this flow study. When it comes time to do alternatives analysis, Ron is exactly right.

Hardy: I think that is important, Mike, but I would submit to the TF that that framework needs to be put in parallel with a view towards its use on an annual basis to help make decisions. What is not implicit in the IFIM, but is critically important, is monitoring. Once you go through all of this effort and begin using this tool to make decisions, you need to know, how is this system responding? As a static tool, it is not nearly as valuable as the feedback that comes from making those decisions and seeing if we get a return.

Bienz: How significant is LIAM in going all the way through including to monitoring and back around again?

Hardy: Well at the point this stuff gets elevated into the decision process, especially operationally, the legal institutional analysis modeling is very critical because it defines the water rights, the contracts for projected delivery. Any number of factors will affect materially any flexibility in the system for water rights and contracts for AG delivery, hydropower, kilowatt hours that are sold on the market either short term or long term. They also incorporate elements of the ESA, State of California versus State of Oregon regulations or institutional constraints in terms of what may or may not be permitted. It is critically important but often the technical elements of biological responses can be done as a focus and that broader framework legal institutional can be done in parallel.

Payne: I would agree with almost everything Dr. Hardy has said. I disagree with the idea that the legal institutional process can be separated from the technical part of it. Because often there are constraints on what you can do and what you can't do depending on the powers of the parties and how decisions will be made. We talk about a SIAM or some sort of an operational system but that assumes that there is some party with the power to implement that and there are other parties that are agreeing to that being implemented. Participation in IFIM, is different than participation in the KTF. By agreeing to participate or not to participate, you are committing a lot of your own credibility, positions and interest into a big process.

There is often an overriding power that says, you will all get together and make these operational models work because you have to and you don't have any choice. I don't see that here. The one element that really needs to be dealt with here is before you do the IFIM, you are going to commit your own interests to this process because it does go beyond the scope of just the TF. An analysis of where people sit and what they are going to be looking for and how they are expecting some sort of an analysis or decision to be made, directly affects what types of studies that you may do. Then you are looking at going into identifying the problems and going into everything that Dr. Hardy described because then you know where you are going, what the parties might expect, and what they have at risk by participating in this.

Bingham: Thank you for that. I think it really helps us understand where we are.

Fletcher: Dale Hall was a strong supporter and pushed certain components of USGS forward. I would think that implies that their involvement is a pretty important deal to the Secretary. Do you have any indication about this?

Iverson: Your perception is correct; there is an expectation up in Interior and with the Secretary himself that this is an important task that has to move forward. It is a pretty broad priority within Interior so USGS gave it quite a bit of money. It is obvious that some of the IFIM experts feel that the legal and institutional analysis is a real prerequisite. Where do we go from here if this is so important?

Hardy: My comments of doing it in parallel in this process here in the Klamath is predicated on the knowledge that we had completed at some level the legal institutional analysis. However the fundamental science you are going to have to do to come up with answers, to understand what is going on has to be done regardless of whether you have got a tire that is inflated or flat in terms of the LIAM. If you don't know what those things are, all the legal institutional analysis in the world isn't going to get farther towards recovery. This TF job is recovery of the salmon stocks. Your in-stream flow studies should be about moving in that direction of on the ground efforts. The TF needs to be aware of the need to get the LIAM issue resolved but parallel to what is going on. You still have to go out and do basic biology in the system.

Fletcher: We can start with the clarification by Interior about the process that we are embarking on here and how committed Interior is through all its agencies to following this. I feel that Interior is committed but it has been somewhat fragmented. I think that is why we've had concern about what USGS has been doing. A letter would help to address a few of the issues that Tom raised about different motivations and who has got the stick to keep this thing in line.

Hardy: Tom, on the Weber basin, there is no mandate. There is no authority saying you will do this. This was simply a recognition that water allocation and movement in the basin affects all these parties so let's step up to the plate and work together. Of course, we didn't have endangered species which is a huge difference.

Payne: The only thing I would add is that the issue of secretarial decision may have only a partial effect on what goes on in the Klamath. There are the Pacific Fisheries Management Council's decisions that have an effect. There are state water laws that have an effect. The exercise of doing an LIAM is more than academic and I think so far it has been done academically. If it is done academically, then nobody has an interest and you are not really going to progress.

Russell: I would just like to carry on this a bit more than what Mr. Payne has indicated. Everyone here is aware that the Federal government and the State of Oregon are at loggerheads over the issue of authority and appropriations and allocations. There is going to be a lot of pressure there to do a flow study right so we do need to give this some serious thought as far as the legal aspects of it are concerned.

Kilham: It is true that the Federal government and the State of Oregon are at loggerheads but it is also true that all these crises that are coming along have made us all come closer together and certainly the State of Oregon, the State of California (separately and as a part of the Compact) are about to come forward with the BOR on a water supply initiative. What would be really helpful out of this group would be to know the optimal flows, the minimal flows, and as much information as is possible about what we really need to provide or retime so that you can restore the salmon.

Hardy: That is why I suggested that the LIAM process has to go on in parallel. Whatever gets resolved on the adjudication in the upper basin ultimately impacts what you can expect for deliveries in the lower basin. The fleshing out of what work

that Lee Lamb did (even though that document is not received unilaterally as the definitive statement on the legal institutional) is a framework to start with. I would not like to see the in-stream element of the technical work be hung up or impeded while that issue continues to evolve, Without better quantitative estimates you can't tell the people on the Compact Commission or the BOR these are the flows we need and here are the consequences if we don't get them.

Fletcher: Maybe we could make a commitment to pump some air into the tire but at the same time, have that analysis evolving. Things are changing rapidly; we need to recognize that. I would like Craig to come back to the problem identification.

Bienz: We need to apply the best information. Because of the contentious nature of the issues in the basin and the likelihood of litigation, we may need to step back and I think that is what we are doing here today. Stepping back also means that the TF go either to the Secretary or to the states or to the Compact and say, "How do we bring everybody to the table on these issues?" To proceed with an IFIM, I really support what Tom Payne is saying is that you really want to have all the players at the table because there will be a point where we depart from the empirical. We will move away from what we have data on and into a process where we kind of look at each other and say what are we going to rely on here. I guess for Don's benefit and people like that, we don't always have 100% information on these kinds of questions nor do we have 100% information on the answers. So how do we bridge that gap? Klamath County has had expert technical representation when those individuals have participated in the TWG but they are not always there. If we make a decision in the TWG that gets approved by the TF and the technical representatives weren't there from Klamath County that may fall apart at the next meeting. So our ability to work collectively and cooperatively through this process is really incumbent upon the TF having your technical representatives at the TWG meetings. Part of this question though is, how broad a spectrum do we really cover, how many other issues to we bring along, who else do we bring to the participation and how many other experts like the Toms that are here today, do we need to rely on?

Bingham: When it comes to the TF we collectively make a decision. You need to ensure your designee is at the TWG meeting. Once the decision is made, we all move forward. Does anybody disagree with that?

Bienz: That helps.

Hardy: This is a TF activity by the members represented on the TF. If it is felt that there are key players who aren't on the TF but by necessity needs to be represented at the ground level to implement the studies, then that need to be addressed.

Bingham: There are really two things here we that we have to think about. First, how do we involve those other parties of interest that need to be involved in our process. The other thing is how do we make sure there is integration or does there need to be?

Fletcher: BOR is a key player here and every time the BOR gives us a water update, we go through this little talk about it would be nice if you would come and participate in this effort, a letter inviting them. I am concerned because I see the BOR basically embarking on decisions without including other relevant parties including the tribes. They need to get a clear letter identifying that this flow study is on the move, come work with us.

Finigan: As a newcomer what I lack in knowledge, I also lack in the prejudices that have existed. It seems like the political body is worried about more of the technical aspect and the technicians are worried about the politics and it seems if they are putting the cart before the horse here. I look at the technical aspect as a tool that we need and once we have that tool, then we will decide what kind of house to build. Let's get the tool in hand and then discuss who the players are and how to use that tool.

Bingham: We have got to give the initial policy direction and that comes back to the problem identification. We are down to two main points, legal and institutional analysis and how we deal with the question of IFIM representation from other stakeholders. We know they are there, but it is probably at least for the next portion of the meeting, better that we move on. We know those issues will in a sense influence the final outcome of what we do.

Hardy: The most effective way to deal with this is to work our way through these questions (Handout B). What is the

purpose of the IFIM? I have heard from the group the purpose of the IFIM was to determine what the flow dependent needs of the species and lifestages at issue in the Klamath are.

Fletcher: It is necessary that we identify the water necessary to insure a healthy functioning river.

Bingham: The issue here really is whether the investigation would just narrowly consider habitat needs for various stages in the life history of anadromous fish or the larger issue of what are the flow needs relative to meet the river's complete health in terms of geomorphologic change, river channel maintenance, riparian vegetation, etc.

Reck: Starting with the Castleberry et. al. article in "Fisheries" magazine, what I found attractive about that article is it clearly articulated a strategy for the position we find ourselves in. One is that you set a conservative interim flow regime, then you put in place a monitoring program to identify the biological responses to that. Three, it says to have that feedback loop and adaptive management. I would also point out that they say right up front that this is not easy to do in a quantitative fashion for anadromous fish. My experience on the Columbia River would be consistent with that. Another thing that was said today was that IFIM is not the answer; it will not provide answers and in the same way, that process nor any associated reasonably priced monitoring program probably is not going to provide any answers with certainty as to how many fish are you going to get per acre foot of water. So that is why it is attractive to talk about ecosystem health and monitoring, rather than necessarily going down the road of survival studies, salmon life cycle modeling, coastal life cycle modeling, that type of thing.

Hardy: The question that I have heard is what is the purpose of the IFIM. The output of the results should be what we have come to call an ecologically acceptable flow regime. That is intended to cut across things like invertebrates, fisheries, riparian channel maintenance because if the ecosystem corridor of our river is acceptably healthy then the implication (since we can't model population dynamics and stuff at a level that is cost effective) is probably the best we can hope at a pragmatic level. PHABSIM is not the suitable tool for looking at channel maintenance, riparian maintenance type flows. That model is going to tell you to take all the water out of the river. It is the wrong tool for that component of keeping the channel connected to its flood plain and the riparian. You need a different analytical approach to attempt to estimate what those elements are and so it is that ecological acceptable flow regime that is intended to make the system function. What tool you use is different depending upon which particular element you are asking and what is the objective of your in-stream flow study.

Rohde: When I hear words like acceptable flow regime, what we have been fighting over is absolutely acceptable minimum flows and typically that is all we ever hear about. We never hear about anything that we would think would be necessary for restoring the anadromous fisheries in the basin. So although I agree with the goal of focusing on the ecosystem as a whole, I am uneasy about what that terminology implies.

Orcutt: We don't necessarily have to reinvent the wheel. There is an analogous situation on the Trinity. There is a flow study that has been in place since 1984, 12 years worth of data. They also have a EIS that addresses the socioeconomic component that isn't an part of an IFIM. There is a tribal trust resources section in the EIS. People wanted the Tribes to be saying what is the number of the fish that you need. We steered clear of that. In fact, one of the things that are not going to fully meet tribal trust responsibility are the attributes of a healthy ecosystem that came out of the geomorphologic work of Bill Trush and Scott McBain. SALMOD, nobody can prove to me that that is acceptable science at present. Finally, litigation is probable when a flow decision comes down. We want to put something on it that will ultimately hold up on court as the best science. I would submit that we are ready to do that, but I don't know if everybody else at the table is ready to do that.

## **6. Flow study scoping/problem identification**

Payne: You may not be able to come up with "the" ecologically appropriate flow regime but you might be able to generate information needed to do that.

Hardy: You are asking the TWG to go ye therefore into the river and give us a technical basis to understand what might be pieced together as an ecologically appropriate flow regime based on science. How that is used is addressed by other questions in that framework and LIAM arena. You have made a decision to do an in-stream flow study, what is that

supposed to do?

Olson: What we are after is an evaluation of flow conditions which optimize habitat conditions for native anadromous stocks. I am leery of trading a rather specific definition with target species for some another definition which becomes less clear.

Hardy: Is it clear to the TF that given the money you currently have allocated, you are going to run out of money before you run out of critical questions. You need to prioritize what you can hope to accomplish for the most bang for the buck. You still have got some issues in terms of who needs to be involved on those critical first several steps on technical issues, what to do, what stakeholders to include.

Bingham: There is still the issue between a narrow purpose tied to the health of anadromous fish versus the broader health of the river. Given the last comment on the narrow amount of funding available, we have to focus in.

Finigan: If you focus, you are going to lose your meaning. As far as the flow studies on the Trinity, learn from the questions that they are coming up with now. No matter what we do, realize that it is going to get politicized and litigated later on down the road. So let's get with the program and get the study going .

Fletcher: I would be happy if we just listed up there what Alan said and then move on to number two.

Iverson: The argument between a broad and a narrow definition is not a real one. If you look at the so called narrow definition that is in Chapter Two of the LRP, it is obvious to you that those other issues like water quality, were very much in the minds of the TF when they wrote Chapter Two. So all of the elements that go into a healthy river ecosystem, were implied in that policy.

Olson: If we get into a definition that is really ecologically nondefined, I think we will be in no better shape next time this issue comes up.

Bingham: Craig, do you feel like this is a direction you can interpret and use?

Bienz: The difficulty rests in the best scientifically desirable method that also was discussed. That, in and of itself, is going to be a point of discussion. "An evaluation of the flow conditions that will optimize habitat for native anadromous stocks", that is where we are and we will have to come back and tell you exactly what that means. You give us a direction. We will come back and say here are four methods we could use. This one is 90% certainty and this one is 10% certainty and this one costs \$10 and that one costs \$100, you make the next choice.

Hardy: Your ability to determine components of an individual lifestage's need will be limited by low population numbers and a variety of other things. You are going to be moving more in broader scale terms in terms of habitat. I don't see them as mutually exclusive. I see them again as a gradient that is dependent upon what you can physically do in your system and again dependent up the cost and time to get there. There will be trade offs that must be made as you move forward.

Bienz: That is all correct and I also think that we need to go back and look at the information that already has been collected.

Rode: Did we come to a conclusion on question number one then?

Bingham: We will come back to it because that is perhaps the key answer we are going to be giving the TWG.

Wilkinson: Here are some other issues here that would affect my consideration of all the other issues and those are questions six and nine. My question then to the TWG Chair is what was the TWG's opinion of what that geographic scope should be?

Bienz: We were curious if the TF had a specific geographic area that they said we should or should not develop this

information within. So if there were limitations, we wanted to know what those are, if there are not, then I would go back to what Dr. Hardy said this morning in that would be that we would look at the whole watershed.

Wilkinson: There is a significant amount of difference between the basin in the original plan and what now is being mentioned by you to be the whole basin approach.

Russell: Are you proposing to expand it to the head of the Sprague River?

Bienz: An IFIM basically includes hydrology, the geology and the factors that are shaping the environment in which we are going to conduct the analysis. In that the fish may only move to one specific location in the watershed doesn't mean that we shouldn't look at the whole watershed because of the significance of effects in contributing water for those downstream reaches, other landscape features, or land management practices.

Hardy: At some level, what comes out of IGD is the function of the allocation and movement of water and storage upstream. And even though IGD may be at some conceptual starting point, you still have to deal with at least the hydrology and water quality above IGD to do the job from there down.

Bienz: That is the point that goes back to Keith. There is also the legal, there is the institutional, there is the policy of the other states. That is where doing the LIAM then sets the stage of what else we are able to do. Regarding hydrology, as Dr. Hardy said, it would be appropriate to look at the whole watershed, but on the other hand, if you say no, we will do something else.

Wilkinson: I would point out to Dr. Hardy that we have been involved for six plus years in what we call the Upper Basin Amendment (UBA) trying to include these into one hydraulic unit. I have some real concerns about venturing out in any positional statements on that.

Hardy: On the TF meeting of June 22 and 23, 1994, a Motion was carried to utilize surplus FY94 funds (\$44,684) as seed money to initiate a scoping effort of in-stream flow needs for the "entire Klamath River watershed." Now when I read that, that says, you draw a boundary around the hydrologic unit of the Klamath basin as a watershed and you at least scope the problems but you may, because of legal institutional constraints and other things, focus on the ground specific efforts below IGD. We are going to need to revisit the motion.

Fletcher: It is my understanding that we are going to look at watershed flow issues and this is just one step.

Wilkinson: I would respond to your comments about the motion. 1994 was a totally different year than 1997. I think we were a little more optimistic at that time on whole basin management. I would have to go back and check all my notes but I would guess that that might have been one of the times we were very, very close to a do pass recommendation on the UBA.

Hardy: I would encourage the TF to think about incrementalism here. You can't tackle the whole with the time, money and budget that you have but can you decompose the problem into workable units that demonstrate cooperation, demonstrate incrementally the ability to work together, and solve an element of where you are trying to get strategically. That may mean you need to ratchet back and think into a well focused area to start the process. So don't take on more than what you think you can achieve within the broader institutional legal arena, but move the whole process forward with a win-win-win-win capability. Incrementally you are taking pieces of the puzzle and you are solving it. Keep the picture broad but focus on achievable goals in segments say (for instance, below Iron Gate) but don't lose track of the broader ecological implications of a basin.

Russell: I can partly agree with that. At this point, we don't have an UBA. There are some pretty important studies that have been done and are taking place in that region that maybe we could benefit from. Thirdly, I think I need to talk to my bosses the Commissioners in Klamath County to make sure that I am doing what I have the right to do.

Bulfinch: That stretch of river from IGD to Seiad where the effect of that particular installation and the conditions of the

river need to be determined would be where you would focus your initial segment of the study with the funds that we have available; as more funds become available, we may extend it to other segments as they become appropriate.

Orcutt: With the LRP and I have heard Ron say numerous times, "We have got to focus back on what the LRP said". Some of the members of the group now weren't even at the table at that time when the LRP was approved so if we need to revisit all of that, I think we are either wasting all of our time. I think and people have a lot of things that they would probably just as valuable they could be doing with their time. In terms of the issue here about hydrology in the upper basin, I think it is ludicrous not to include that component of it. I think the allocation and the adjudication and the KPOP process will take care of that whole issue. Let's get question three on the table and get it answered.

Fletcher: What we are doing is spinning our wheels in issues that I think the TWG can better develop and lay out for us.

Hardy: What I am hearing is that the spinning of the wheels is the disconnect between what is the nature of the spatial and temporal extent. We can't deal with all of it. In order to do it from here down, you still have got to consider allocations and water coming out of IGD, so at some level, we have got to keep connected to that process. But we can do the work here in preparation of knowing what that is going to be and what the implications are.

Rohde: The TWG has already made it clear what the scope is that they had recognized was necessary. They just wanted a stamp of approval.

Belchik: He also extended it to mouth of the river at the same time.

Rohde: Yes, from the headwaters to the mouth but initial studies given constraints from Keno to Seiad.

Bingham: Are we prepared to reach a consensus? This is a question about an in-stream flow modeling study, an in-stream flow study. We have invested a whole day in getting to this point and I think we have had some common understanding. Is there anyone who feels like we are really wasting our time because they know at the end they are going to say no? Or is everybody prepared to continue working together with some trust that we will get there?

Russell: At this point, I am not prepared to say yes.

Bingham: Let me ask you another question, do you think it is worth our working another day tomorrow?

Russell: I think it is always worth the effort that we can put into it. I may see things differently tomorrow.

Fletcher: Don, what are you not prepared to say yes to?

Russell: To going beyond the scope of the LRP which is Iron Gate. I agree that we need to know what the fish need.

Fletcher: So I don't see that as a roadblock to having productive conversation.

Russell: No. By no means.

Hardy: Don, if the TF were to establish a focus below IGD to incrementally go after those critical issues in that reach of the river and leave the broader questions, would that increase your comfort level? Some consideration to the upper basin that must be given because that starts the amount of water you have to expect to deal with for the given year but the focus of the quantitative aspects of the study, you need to start addressing those issues incrementally in the lower river. Is that fair?

Russell: There is a lot here for me to think about and I want to do the right thing, but again I have this fundamental question of the original intent of the LRP. It is not the end of the dialogue, Troy. I am going to be real careful because I am representing other people and I can get my ears cut off as well as anyone else

Orcutt: Is there anybody else in the same dilemma as Don Russell is? There was some discussion about people that aren't

at the table who are also stakeholders.

Smith: I had concerns about that as well.

Dennis Scott (Resighini Rancheria Klamath): We should have a seat on this Council because we are really affected by the Klamath River.

Fletcher: There are other Indian fishing organizations. They have an important voice and certainly are concerned about how this is going to come.

Smith: Nat, earlier, I heard you say that in our TWG or in our subgroups that we have the ability to add concerned people to that. Perhaps that is where we should be looking for that solution?

Bingham: Yes, I would suggest the same.

Orcutt: BOR is committed to doing an EIS under NEPA for the KPOP or the final OCAP for the upper basin. There will be a public review process within that.

Hardy: I still sense there is desire to achieve a common goal; a better understanding of what the needs are so that there is more certainty regarding the needs for recovery. Certainty in terms of what the expectations for out of stream allocations are going to be, and a need to know what the potential is for harm or economic damage. That is incredibly important in this process. Let's ratchet it back down to workable units to achieve commonality in moving it forward and there is a lot of common ground and focus that can be put forward. You only have a finite budget that was allocated for the task, right? Think realistically what can you accomplish with that money. And the objective is to come away tomorrow with the concrete game plan to say to the TWG, this is where we want you to head and this is what we want back from you at a certain date to move the process forward. Is that reasonable?

Russell: It is important for me to reinforce the knowledge here that the adjudication is a legal process. It is a court issue. I am concerned about some parameters that I may or may not have.

Hardy: Maybe one of the decisions is that the principle element of the in-stream flow study should be delayed a year or two years pending resolution of some of these critical decisions, that there may be elements of on the ground work that are independent of any of that process in terms of understanding those basic quantifiable relationships that could be brought and moved forward in context.

Russell: Will the absence of this process that you are asking me to get involved in stall the IFIM?

Fletcher: It does not stall it but it makes it less clear and we won't have the opportunity to really do the scoping that we talked about. Regardless of the adjudication, we still need to move forward and determine what the flow needs are going to be.

Belchik: I just want to add one technical note. Virtually the only aspects of the flow study that are considered for above Iron Gate have to do with the water quantity model and some water quality modeling. Both of those are already going forward.

Bulfinch: As far as the adjudication is concerned, that has not got anything to do with the determination of habitat and other fish needs. It may direct, limit or expand alternatives in the application of the results of the study but not in the study itself. So I don't think that that is really a concern of whether they should proceed with it.

Russell: You want enough water to grow fish effectively. We want enough water to grow a crop effectively. But how do we get there? I read in some of these latter questions here in this issues of expanding beyond the mainstem or should we or the tributaries. You are getting agriculture's attention because that is what we live by is enough water to grow a crop. At this time, I am going to do a little phone calling and ask a few questions tonight or in the morning.

Bingham: The charge that Tom gave us is appropriate because if we can come to consensus incrementally it will be a building block towards getting us towards achieving our mission which is the restoring of fisheries of the Klamath basin. We have already taken some first steps so the real question is here, how do we continue and I ask you all to think hard tonight.

Recess

#### **April 24, 1997**

Present: Bulfinch, Russell, Fletcher, Rohde, Iverson, Bingham, Orcutt, Olson, Rode, Reck, Smith, and Wilkinson.

Bingham: We are now at a point where we can return to question number one from the TWG. The TWG wasn't expecting answers to the entire list of questions as much as to get those questions before us so that we understood what their concerns were. If we could leave with having given them clear direction whether we are going to move ahead with an in-stream flow study, a little bit of direction about the shape of it, and the scope, then we have accomplished our job.

Hardy: Don, I don't know if you were able to get back to your respective constituency, but I wanted to find out if you had anything to add in this morning in terms of what the study might be and where we are likely to head with it?

Russell: No, I have not talked to my folks. I have not changed my concern about the geographic scope. Perhaps that will come and I think the TF has time. The TWG has time to look at this document and come back and say, this is what we are really saying, do you agree? So there are some of those pieces in here that don't have any sideboards on, so to speak such as number six (geographic scope). I had concerns with the LIAM. However, I think we are on the right course, it is just a matter of timing now.

Bingham: Don, would you feel comfortable with a limitation that set a side board at IGD?

Russell: That answers a lot of my concern. I honestly thought that was our intent to begin with in this process, however, it appears that the scope of that work is far beyond IGD. That involves Oregon, and therefore I have a concern.

Bingham: Can we understand that what we are going to be involved in is a part of the whole and not the whole? And the issue that you raised relative to the LIAM is how one begins to get at the whole. Perhaps we can discuss that today and get everybody on the record and let the agencies present know how we feel about it. In terms of giving direction to the TWG, could we reach agreement that a scope was stopped at IGD?

Fletcher: We need to make a distinction. We are looking at what are the flows necessary below IGD and we need to appreciate that there are others that have already embarked on studies that are going to be focused above IGD, I don't feel we should divorce ourselves from these other efforts. What I am asking you, is it okay to use information from those other studies?

Russell: Troy, there is not a problem there. The work that the TWG has done is a lot and they have thought of a lot of things in here, I don't have a problem at all with the process going forward for now as long as that imaginary line for now is drawn at IGD.

Bingham: We have that understanding that what we are going to do will be a part of a whole, a greater whole which we are uncertain about. Some of us have definite concern about it. The in-stream environment downstream of IGD is affected by what happens above the dam. We all understand that but this investigation looks at the river, stayed focused on the river, and what the effects on the fish in that area are. As long as it is done with the understanding that other investigations may key into it, then we haven't replicated work or done work that can't be integrated later on. Do people feel that as a direction that they can live with?

Russell: Troy mentions flows; certainly essential for a river and for its health. However Oregon is going to have something

to say about the flows and that is an issue that I need to touch base with my people on. I have asked the question, what authority does the IFIM have?

Hardy: The IFIM itself, has no authority at all. The information can be used in a variety of forums whether it is to set an operational plan for IGD, understanding the trade offs for deliveries versus AG versus down the river. It can be used as a building block around what is coming up in the future for FERC relicensing issues.

Fletcher: Everybody here pretty much has acknowledged we need to find out how much water fish need below IGD. We also need to recognize that there is going to be other decision processes that go on. This TF needs to look at what are the needs of anadromous fish. Knowing that these other forums are going to occur and having them explained better in the LIAM will help. This is just a piece of information we can use.

Wilkinson: To comment on Dr. Hardy's comment on building blocks, one of the building blocks that we have here is Oregon's support for the IFIM. To ask Oregon to revisit that as to scope area, the intent, and things like that is a hazardous question. We don't want to get forced into a position.

Orcutt: Oregon has a plan for coho recovery and they are over on the other side of the thing on the water adjudication. How does that play a role in the recovery plan?

Wilkinson: My response to that, Mike, is the Governor's recovery plan up there, of course, is targeted at the ESU and stops at Cape Blanco. We don't know what is going to happen but I think the answer to your question, Mike, is that the voluntary recovery efforts at this point are focused in on the essentially Central Oregon stocks which would exclude the Klamath at this point.

Reck: It is anticipated that the NMFS will be making an announcement relative to the transboundary unit tomorrow.

Hardy: The whole evolving political legal institutional framework around this is very volatile. The reality of the situation is very favorable to give the TWG clear direction to begin putting the building blocks together and widen it to the playing field in other studies. That is not mutually exclusive and shouldn't be in my opinion.

Russell: The IFIM is going to be an important component and if we are willing to limit that activity now below IGD as Tom is suggesting, I think that covers one of my concerns. In a few days, the coho will be listed and things will change, but for now if we are saying that we are going to carry this work IGD down, I don't oppose that.

Bingham: Thank you, Don, that is very helpful. I would like to ask the other TF members if they feel comfortable to where we could actually frame that in a form of a motion.

**\*\*Motion\*\***(Bulfinch): That the TWG provide a study plan for or regime for the Klamath River for anadromous species in their various lifestages from IGD conceptually to the mouth. The work is to be performed in increments to be decided by the TF (upon the TWG recommendations) for increments starting at IGD to the mouth depending upon available funding.

Iverson: Second.

### Discussion

Smith: Yesterday, I expressed concerns that all flow dependent resources be taken into consideration in this study and if it isn't done that I would feel very uncomfortable with it.

Bingham: We understood your concerns from yesterday. Those concerned the economics of irrigated agriculture.

Fletcher: It is hard to look at what fish flow needs are and dump this other stuff on top of it in that same study. I think that as we move forward in this LIAM, those will come out. There is going to be an EIS eventually that will start to evaluate alternatives and economic impacts to the various communities, agricultural, fishermen in the ocean, in-river, and

others.

Smith: Concerns are that once this study is completed, and as Dr. Hardy said it is just a tool, it is one of the things that we use. My concern is that it will be considered "the tool" and that other needs will not be taken into consideration. Coupled with the possible listing that will happen tomorrow, this tool could be crippling to some of the people that are dependent upon the use of the resource.

Hardy: Is there any strategy that has been put in place in your strategic documents that is intended to assess the multi-objective issues around flow dependent resources and broader trade off issues? The IFIM is really oriented towards the in-stream aquatic resources as a technical element but outside of that, what are the AG delivery demands and other things? Does the TF have a plan in place to try to put that broader piece of the puzzle together because you know you are going to have to address those issues as part of making decisions about how to get to recovery given certain legal institutional constraints on water delivery schedules or volumes?

Fletcher: I hear a little two different things. On one hand, I hear Don saying let's not jump into that because there are things happening in Oregon; but then I hear you saying, let's make sure we drag AG considerations into the process.

Smith: Maybe keeping it in consideration.

Iverson: I would just like to point out, Joan, if you get a chance to review the 1991 LRP, the genius of that plan is that it is written in the context of existing uses, especially focusing on forestry and agriculture. Policy is in there including the policy that calls for an in-stream flow needs assessment put in that context. So I really do feel that everything has been done here has taken the other resource needs into consideration.

Russell: I agree that, yes, that plan was written with enough persistent focus toward agriculture and timber. We hear consistent remarks about land use planning or whatever. We seem to be the targets so I recognize her concern. The TF should not forget what she is saying that; let's carry a written record that in this strange waltz we are doing here that we don't forget one of the members of the family, agriculture or anyone else and devastate them in pursuit of something that we think is right.

Bingham: Let me offer something from the world of fisheries management. I am not sure it will exactly apply to this incremental step but certainly in giving us some guidance as to where we want to go, it is something to think about. When PFMC develops our alternative management options to send out to the public, one of the things we do is estimate loss of income in an option. We always have a page that says "Okay, this is what it is going to cost the fishing community in terms of expected impacts@and it would seem to me that when we get to the alternative development stage we must do that.

**\*\*Motion revised\*\***

(Bulfinch): The implementation of the in-stream flow study provided by the TWG when approved by the TF will be subject to the input of all interested water users.

Fletcher: Subject to the what? We are really getting into a can of worms here and let me tell you why. If we are going to bring that aspect along with this technical study to look at in-stream flows then I am, of course, going to say there is a Trust responsibility that the Federal Government has to the Tribe. That Trust responsibility and the protection and restoration of resources for the Tribe have been severely ignored. Tribal fisheries and the economies have suffered. We cannot even harvest enough fish to even meet what we consider minimal needs. That is to me just as valid and just as important as some of the concerns that you are raising. Those concerns are better dealt with in a different forum and there are going to be legal implications.

Smith: What I heard him say is once that study is done, and then it comes back to the TF, then all of us at the table review it as far as implementation goes. I want to make sure that up front that we agree we are going to do that before this study is officially whatever adopted or condoned by this committee.

Rohde: I would prefer to have two motions rather than one that combines those two subjects together. The motion that Kent originally proposed dealt with our technical body's focus on the needs of the fish which is what their responsibility is. To add anything else to that diverts their attention to that responsibility. The second motion would be that this TF has a jurisdictional responsibility to take the information that is provided by the technical body and make sure that all the interests that are represented by this TF have a forum for adequate concern before that technical information is used.

Belchik: You said the wording is "implementation of a flow study will be subject to consideration of all user groups". I am not sure whether that means doing the study itself or whether it means implementing the results of that study.

Bulfinch: Implementing results of study is my intent.

Hardy: Joan, what you are asking for is our assessment framework. For example, when we go to use the results of the in-stream flow study, those results must be coupled with the information that has been developed that says, here is the implication of the given allocation to AG and what the economic consequences of any change in flow to AG. The same sort of study is needed to assess impacts to fisheries. You need a separate process that is going again in parallel. The in-stream flow study again is a building block and only a piece of information that has to be plugged in some place. But it is not the study itself that everything else is plugged in. It is just the opposite.

Bulfinch: That is exactly what I was trying to articulate here.

Smith: The motions handed out to us yesterday (Handout A) are what goes forward in history. I would have a problem in that the motion wouldn't include my concerns.

Fletcher: Since the TF has already approved proceeding in the IFIM process, it is also explicit in the broader definition of what IFIM is that these things be considered. We need to give the TWG an assignment. They need to come back with a recommendation for approval. Once they do the study though, they need to bring it back to us and say here is what we found. I don't want to get in the position where we have to approve their study. It puts us into a position where we are going to argue about the results of their study and we are not the best ones to argue.

Smith: No, that is certainly not what I meant. I don't think that we are here to question the scientific study. No, my concern was then the use of the study. It is up to us to make recommendations. My concern is what our recommendations would be on that use.

Reck: Don't we just need to focus on whether we are going to take that specific data below IGD and pursue a PHABSIM?

Fletcher: What we need to do is just say TWG, here you go. Then if they recommend, we do a PHABSIM, we do a PHABSIM. If they recommend water quality is the most important thing and we are not going to get to where we need to go by doing a PHABSIM, let's do that.

Orcutt: We need to give the TWG that direction and the latitude to do science the scientists need to do. Burdening them with all this other stuff that is not where we need to go. The TF spent their money in dollars and people spent a lot of time on the UBA. It still hasn't been adopted. I would hate to see analogous situation with the flow study.

**\*\*Motion seconded \*\***(Iverson)

Bingham: I think the key word in the amendment is the word "implementation". There wasn't any intent that this body review the results of the investigation and approve those.

Bulfinch: The results would stand on their technical merit.

**\*\*Motion amended\*\***(Bulfinch): Change "to include" to "any" and "water users" to "users of the water resource".

Rode: I have a high level of discomfort with the whole arena of implementation. This is information that we are providing. There will be other implementers out there that can use this.

Russell: I need to talk to my folks here for a few minutes to make sure that we understand the amendment.

Fletcher: I can tell right now, I am going to vote no. So that will help your discussion.

Bingham: I don't think there is any disagreement with the original motion. There is just a concern that somehow this thing is going to slip out of here and the socio-economic considerations will be disregarded.

Orcutt: The appropriate area for the socio-economic component is an EIS. My concern is, the EIS is a lot of money. Can this group make such a commitment?

Bingham: That point is very well taken. We should recognize, that we are a restoration TF and our primary function is to do things on the ground, I hope people did not interpret my remarks to the commitment towards a full scale, full blown socio-economic study of entire Klamath/Trinity basin. That was far from my intent. It was simply that there be recognition in the implementation phase and that we would play a role in that. We want to frame the language carefully so that somebody doesn't read it later and interpret the TF committing to fund a full blown socio-economic study out of that.

Rode: One suggestion, replace "implementation phase" with "alternatives analysis phase".

CAUCUS

**\*\*Motion withdrawn\*\***(Bulfinch)

**\*\*Motion\*\*** (Bulfinch) The TWG provides to the TF a flow study plan for anadromous species at various life stages from IGD to the mouth of the Klamath River in increments upon TF direction. The results of the flow study will be integrated with other water resource needs and considerations during the IFIM alternative analysis development process.

**\*\*Second\*\***(Fletcher)

## **7. Discussion**

Fletcher: The second sentence implies a large commitment by the TF. It is important to know that the TF won't be able to absorb all the costs to fund that type of effort. We will have to integrate our activities with BOR or other people. So for the record, we are not implying anything that is meant, that we would assume all of the fiscal liabilities here to develop that.

Smith: I agree with Troy that it is probably going to be very expensive however, I do feel more comfortable with this motion.

Hardy: All you are going to do is provide a study plan in increments, but it never says you are actually going to do the work.

Bingham: Let me respond to that by saying that we have an annual budget process and within that budget process we will be making implementing decisions.

## **8. Public Comment.**

[None] Bingham: Hearing no public comment, then the opportunity for public comment is closed. We now have a proposed action before us. Is there any further discussion from the TF?

**\*\*Motion carries\*\*** (Orcutt and Rohde abstain)

Bingham: Before we move ahead on our agenda to deal with final housekeeping matters, please return to Agendum 5 (Handout B), the list of questions. I heard from several people that they felt with the basic motion as we just passed, this

list of questions becomes some what moot and we need to send it back with the motion to the TWG for further work. Are any of the issues that are raised here that any of the members would care to take up?

Russell: I think you hit it square on the button. Send that package back and let the TWG look at that.

Bingham: Any other member-s comments at this point on that? The direction then will be to return the list of questions.

Public Comment:

Xochitl Zamora: Please forward the people a budget for the local stations, local papers, and the Sierra Club (including Congress) so they can start collecting funds from the regular peoples to save the hatcheries. Everybody likes fish. All the fish eat fish and if they don't there is going to be no Mother Earth.

Bingham: We have taken an action here now and the record has been opened and closed so that is noted. We will certainly inform the public as to what we have done. Craig, do you feel at this point there are any unresolved issues?

Bienz: What I have been able to understand from the last day and a half or so is the intent of the TF to have the TWG more clearly define the study plan then we will bring that plan back before you. I don't believe at this point we have any additional questions. We will be meeting before your meeting in June and I may have an opportunity to have all that clarified before your next TF meeting. The information that is as valuable as the motion itself is the information that is in the discussion. We bring that back into our process when we try to figure out where this is all going.

Iverson: Before leaving this subject, I wonder if there would be any value in putting some more energy into the draft LIAM which has been submitted in draft for TF review and has never gotten any response to my knowledge. I know a lot of work went into that. It seems to me that we owe them at least some kind of a response whether thanking them for their efforts or making some effort to improve the quality of the draft

Bingham: Would there be willingness on the part of members of the TF to get that out of the file cabinet and review that component of the LIAM? I am asking for a little commitment of work here from you, if you feel that would be worth doing as a way of moving us forward?

Bulfinch: I read that quite carefully. Some of the questions I had, I submitted to Dr. Lamb. My comment was that I thought some evaluations of certain things were not accurate. Upon the comment, in writing back, he agreed. I think we should acknowledge and pursue it. However, in certain advocate and guardian positions, if we take them as that way, there are several places where there are not opportunities to negotiate at this time because the base on which they are negotiating from has not been established. Until the Oregon adjudication is final. The exercise will eventually be valuable but at this time, it is premature.

Bingham: It may be premature but could we at least respond somehow as a collective entity.

Fletcher: I like what Tom said earlier about this needs to proceed on a parallel track. Things are evolving almost weekly. Oregon is moving forward. The Federal Government is moving forward. There are Tribal trust issues out there that are evolving. All these things are going to mean that Dr. Lamb-s analysis will have to be a living analysis and it is going to be updated with each court decision and each Federal action.

Bulfinch: Improving institutional analysis is the purpose of the LIAM exercise. We certainly should reply.

Bingham: Do we want to put some of our individual time and energy into developing some comments and forwarding them either individually to Dr. Lamb or through the field office?

Franklin: You could certainly choose to allow the TWG as a part of its study plan at this point to recognize the need or no need for further work on the LIAM. In reading the description of the Hoopa Valley Tribe, I see a characterization that illuminates the state of ignorance of who was polled.

Rohde: I think Robert brought out a point that I felt when I read through it. That is the LIAM process felt like it was being conducted without interaction with the parties within the basins so it is a hard thing to provide comment on. I just want to use my time wisely.

Bingham: In view of the concerns that I have just heard about investment of energy in commenting on something that may have already passed its relevance in terms of time, the real question is, would he be interested in doing a reality check? And if so, and if we get that message back through Ron, that can go out by mail and everybody can go to work.

Hardy: I am a little bit concerned about the hypothetical nature of the work that USGS is engaged in because fundamentally, that is information that will be in the public forum and it will be utilized by people with varying levels of understanding about how hypothetical it is. It is important that you strongly encourage them to understand that the mischaracterizations even in the hypothetical sense can be very misleading and that at some point in the future a more accurate representation will need to be brought forward.

Fletcher: This just highlights some of the concern that we have in general with some of the efforts by USGS. There needs to be close interaction with the TWG. Maybe the TWG is the place to look at that and identify some of the shortcomings.

Rode: I also concur with the concerns that have been expressed. My personal opinion was that that was one of the worst products I have reviewed in a long time. It was extremely naive, it was incomplete, and erroneous in a lot of view points. Where did this information come from, who was interviewed? I am worried that the document in its present state will continue to live and somehow be used in the future. I think it either needs to be killed or dramatically revised. The issues transcend the level of the TWG. Perhaps we can take some input from them but definitely it involves issues and policy and things that are at the TF level.

Orcutt: I felt, after a limited look, I took at it that it was somewhat derogatory in nature. One of the things that I saw was "quasi-government" in reference to tribal government. A tribal government is a fully functioning government just like a state and the Federal governments are. We need to do something about this thing because, obviously they weren't talking to the right people when they gathered their information.

Bingham: Do you have any suggestions as to what it is we should do on the first?

Orcutt: Do we have an opportunity to comment at this time? If there is, there are real policy implications that need to be addressed individually by all of the TF members, but if the answer is no, then I think we need to head it off at the pass before it is used.

Bingham: So just to summarize: Mike has suggested a sort of a two step course of action. First we find out what the status is (probably an inquiry from staff would do that) and then we decide to set a formal comment period back in place or we write a letter saying you guys can do whatever with this but it does describe us or what we are doing.

Russell: Certainly there is nothing wrong with sending a letter and saying it kind of stinks and we will get their response.

Smith: I agree. I know that the people that I represent expressed concerns about that.

Bingham: Maybe what we need to do is respond and say, we don't feel that we can move forward with the session until we get the characterizations more accurate. Does everybody agree with that approach? If anybody has serious concern over the letter, get your comments revisions into staff. If there seems to be a big problem, I will work with staff to try to finalize it because I think we want to get this done before the next meeting.

Orcutt: Based on that, we will defer the decision to make individual comments on the draft just to see what materializes?

Bingham: Yes, because at this point, we need to know whether they are willing to re-engage in terms of correcting the original document. If they get that letter from us as a collective entity, Ron, do you think that will take care of moving us

in the direction we need to go?

Iverson: I would think so but I defer to Dr. Hardy. This is a service that USGS has provided it with their own funding. They are in the picture until next fiscal year. If nothing comes of this LIAM exercise, if it just kind of dies with just a bad product, then how would we get an improved version that is needed as part of IFIM?

Hardy: First of all, it is critically important in light of what I heard that concern about the document is in the record so that this can't be used outside of that specialized exercise that USGS has undertaken. This parallel process of the legal institutional analysis and the assessment frameworks that integrate the other socio-economic factors is something that this TF has to look at in light of efforts for the upcoming EIS. What is the intent of this LIAM document? Is it only for this specialized exercise? Is it going to be revisited by them? If not, then I think you need to find out through your intelligence sources, is the BOR going to replicate this. If not, then the TF has to decide, is this an important component of our restoration efforts and should we fund on our own this type of exercise.

Bingham: A letter is really the next step. It will let them know where we are and find out whether they are willing to reengage, get our comments and the move forward with the exercise.

Hardy: This is where I depart from some of my colleagues in the ethos of the IFIM in particular in the LIAM arena. My sense is that the players around this table can by their and knowledge the interests that they represent know what decisions are being made and understand those implications. You can deal with most of what a form of LIAM is going to do just by who is here at the table interpreting your data. You don't have to have somebody hold your hand through that element and you take your resources like you say, Nat, to the ground and get information that helps make decisions in light of your own respective view points.

Rode: That reflection probably helps explain somewhat our disappointment in the product that came out. These were the acknowledged experts that were working on this LIAM. To get back what we got was extremely disappointing. It didn't gel with what we understood and quite frankly, you wonder, can we get anything better anywhere else.

Bingham: Let me ask one further comment. Tom, you have been with us now a day and a half. You have seen how we do business and you have seen how we, you have just been through watching how we achieve consensus, do you think it is a viable process?

Hardy: Absolutely. The tough part is down the road a ways and that is when you start drawing lines in the sand in terms of how much water you think you need. But you develop upon the relationships and the trust that has to come out of a process like this. I will make one suggestion or comment that also became really apparent to me after about an hour and a half yesterday. The TF has to be willing to continually invest in their own education regarding IFIM. I am impressed with what you are doing and am very supportive of that but I think there is education that needs to continue here to really be able to achieve your goals. I don't think anybody here is dumb. There is a willingness to learn.

Bingham: I think we have learned a lot in the last day and a half. Just so everybody here knows, it has been a long time since we as a collective entity have done what we just went through which was step to the side from our routine business and take enough time to get into an issue the right way. So are we ready to reach a conclusion? We have direction to send the letter. Are there any further comments from the TF?

Orcutt: We need something from the Secretary's office that asks where we are going with this whole thing. We have got numerous endeavors (USGS, BOR, ERO). We need to have a clear direction and specifically the commitment that has been made for the federal action on stream flows.

Bingham: What would you see the time line on such a letter to be, like perhaps the draft ready for our consideration at the next meeting?

Orcutt: It is necessary to get something out sooner. The Secretary needs to know that this is an issue and provide some direction. June is probably not soon enough so we could do it just like we are doing the other letter.

Bingham: We are a little less clear on exactly what the letter is going to say. I am going to suggest a process. I want to appoint a drafting committee and ask for volunteers to get a letter in to staff which could then go out for everybody to look at. So Mike, would you take the lead in that drafting subcommittee?

Orcutt: Yes.

Bingham: Who would like to work with Mike on putting that letter together? [Fletcher: I'll review it.] Okay, Mike, Troy and Joan and Don are our drafting committee. Mike will initiate a draft and get it to the other three and the rest of us will await your process. You will work back and forth by phone and FAX. When you have got something you feel collectively okay with, then it will go out to the TF for a last cut with a deadline. So let's say May 22nd we will have this back to staff for transmittal.

Belchik: It would be pretty instructive to take a look at timelines as things stand right now. The BRD work is scheduled to be finished by September 1998. The BOR intends to have their EIS finished in time to implement by spring of 1999, and the flow study that we were just working on, has no end date right now. When you are drafting this letter to the Interior, you may want to point that out that these elements are out of sync.

Jim Carpenter (Upper Basin Working Group, Coordinator in Klamath Watershed Coordinating Group): You should have all gotten a draft proposal for a mission statement for the Klamath Basin Coordinating Group from Steve Lewis that asks for input.

Fletcher: We haven't given it to this group yet officially because we just got it the last meeting in Yreka. I do know the PCC has got a copy of that and they are going to look at it. It will be coming through the pipe for these guys.

Bill Trush: I would urge restricting any PHABSIM exercise to the upper part of the watershed first where we have got some control over it. I have been working on too many projects now where I found that the whole methodology has been more of a hindrance than a help particularly where we have got less control over the river system like we do on the Klamath River. I suspect that if you applied this methodology all the way down the river, you are going to come up with a prediction that we need less flows than are occurring now on the lower Klamath River for most years. This method is not capable of ecological understanding of the implications of flow variation from year to year. That only comes from the investigators not from the method itself. It may come out of it being practiced generally in a very inefficient way so what you are doing is adopting a policy that will for most water years say you need less water in the river than there is today. It works very well where you have eight reservoirs in a row. You essentially are managing ditches between reservoirs, not viable wild river ecosystems like we still have on the Klamath. As we get closer to IGD, yes, we have a controlled environment and maybe you should apply this methodology on down to the confluence of the Shasta where you have got mostly a controlled river. Try to apply it there before going willy nilly and applying it all the way down the river. I think at best, it will be counter productive and probably the worst, a major set up for a lot of people in the future going, boy there is a lot of extra water in this river.

Generally what happens in these flow studies is 95% of the budget is spent on the base flow and when it comes time to figuring out all the other stuff, it gets paid for with the 5%. That has happened on a number of rivers. We are just now finally dealing with that on the Trinity. 95% of the prediction, the work that is going to come out of the Trinity, will come out of  $\leq 5\%$  of the budget that was spent on it. So I urge to watch out for establishing a base flow.

The overall policy, too, you should examine. We cannot restore anadromous fishery by looking at minimums. It doesn't work that way. It hasn't worked in countless streams throughout the western United States. We have got to maintain the variation. Don't go after minimums. That is not how these things work. We are not going to bring back salmon; best we are saying we are happy with the status quo and going from there. We are also making the implicit assumption that we are happy with the way that the river works right now; the way the river looks right now.

The first step in this whole thing is to get a better handle on what were the annual hydrography at a number of locations down the river, pre-dam and post-regulation. Then to take a look and see what components of hydrography are missing

now. When we did that on the Trinity (and it will show the same thing I suspect for the IGD), we saw that you lost the snow melt hydrograph. That snow melt hydrograph had an important aspect on providing base flows during low years all the way down stream. So how do we use that? How much of an effect did it have? How much can we really control the stage height all the way down the Klamath by a release at IGD? A three or four hundred cfs difference will be immeasurable downstream. Yet, you want to spend all this money developing a model that will tell you there is no difference we can detect in a few hundred cfs all the way down on the lower Klamath. So I think we need to back up and get a better look at the timing and how the tributaries work together hydrologically.

The IFIM approach is good, it is a fine tuning. But as Mr. Bulfinch said yesterday morning, we have to make sure the blueprint isn't being dictated by the methods. What I saw so far of this morning is that it is the method that is determining blueprint.

Bingham: Thank you; those comments will be heard by the TWG. Although we have already taken our action, certainly your thoughts are much appreciated. The focus within the framework of the motion that we made, I think, can still go along the lines that you have suggested.

Fletcher: One of the things we stressed throughout yesterday and earlier today, too, is that we need a healthy functioning river. My understanding is that what the TWG is going to do is look at what it takes to get to a healthy river. The healthy river will, of course, produce optimal populations of fish. That is where the TWG, Craig and the other members, need to come up with a study plan that is going to be responsive to those needs. I don't think it is going to necessarily just be a PHABSIM. It cannot be. It has to include other stuff.

Hardy: There is nothing that I articulated yesterday or suspect from my discussions with members of the TWG that a PHABSIM study is necessarily even on the table to be done. It is open season in terms of choice of particular tools. I would be extremely surprised if the TWG came back to the TF with a series of studies that were disconnected to the point that they would go out and do the kind of things you have just indicated are not a good thing to do. If they did, the TF should slap it back to the TWG and say do it again.

Bingham: We have the drafting committee established for letter number two. Letter number one will go out drafted by staff but you will get a chance to see it. Items identified for next meeting agenda are: 1) the annual work plan, 2) letter that will go to the Secretary of the Interior, 3) letter to Lee Lamb, 4) mid program review update by the subcommittee, 5) an update on efforts to secure additional funding, 6) listing and ESA implications for the restoration and the tribes, 7) status report on the 1997 water advisory and how the water advisory was determined, 8) short term water operations and the EIS, 9) status report from USGS, 10) report from the TWG, and 11) Compact Commission's update on the water supply initiative. Let the record show that it is inappropriate for this advisory committee to engage in lobbying activities before Congress but we can report on the activities of individual members. I will tell you, the TF, that I did formally approach the Energy and Water Development Subcommittee of the House and requested an additional million dollars for our budget to be focused on coho recovery efforts. I don't know where that request has gone but it has been formally entered in to the record and is under consideration by the subcommittee.

[The date and location for meeting after next will be the 15th and 16th of October, 1997 in Yreka, California].

Bingham: Is there any further business to transact? Hearing none, I will entertain a motion to adjourn.

So moved. Seconded.

ADJOURN.

Klamath River Basin Fisheries Task Force Meeting  
23-24 April 1997  
Eureka, California

Members Present:

Representing:

Nathaniel Bingham	Chair
Kent Bulfinch	California Sport Fishing Community
Mitch Farro	Humboldt County
David Finigan	Del Norte County
Troy Fletcher	Yurok Tribe
Thomas Hardy	Facilitator
Ron Iverson	US Department of the Interior
Alan Olson	US Department of Agriculture
Mike Orcutt	Hoopa Tribe
Don Reck	National Marine Fisheries Service (for James Bybee)
Robert Rhode	Karuk Tribe (for Leaf Hillman)
Mike Rode	California Department of Fish & Game
Don Russell	Klamath County
Joan T. Smith	Siskiyou County
Keith Wilkinson	Oregon Department of Fish & Wildlife

Staff Present:

John Hamilton	Klamath River Fish & Wildlife Office
Judy McDaniel	Klamath River Fish & Wildlife Office
Juanita Quijada	Klamath River Fish & Wildlife Office

Other Attendees:

David Finigan	Siskiyou County
Kelly Duncan	Humboldt State University
Bill Bennett	CA. DWR/Klamath River Compact Commission
Jim Bond	Yurok Tribe
Todd Kepple	Herald & News
Tom Payne	Thomas R. Payne & Associates
Tom Shaw	Fish & Wildlife Service
Bill Mendihill	CDWR
Steve Lewis	US FWS Klamath Falls
Alice Kilham	Klamath Compact Commission
Robert Franklin	Hoopa Valley Tribe
Mike Belchik	Yurok Tribe
Dennis Scott	Resighini Rancheria Klamath
Dan Nehler	USFWS CCFWO
Chris Jackson	USFWS CCFWO
James Wroble	Hoopa Tribe
Doug Tedrick	BIA/Portland Area
Doug Parkinson	Doug Parkinson & Associates
Ronnie M. Pierce	
Van Hare	
Jim Waldvogel	KRTF-TWG
Deborah Brauer	CA DWR (Assisting B. Bennett)
Jim Carpenter	Upper Basin Work Group
Petey Brucker	Salmon River Restoration Council
Xochilt Zamora	Self/Kids/Mother Earth
Jason Reyes	Self/Kids/Mother Earth
Gary Macdoel	CICR

**TASK FORCE MEETING HANDOUTS**

April 23-24, 1997

Agendum #3 Handout A	TF Actions/Motions passed regarding Klamath Flow Studies
Agendum #6 Handout B	Questions from the Technical Work Group
Agendum #6 Handout C	(The In-stream Flow Incremental Methodology, a Primer for IFIM)
Informational Handouts	Letter to Hon. Wally Herger from Marcia Armstrong, dated 4/17/97
	Educational Briefing notice from Klamath River Compact Commission, dated 4/8/97
	Letter to Sen. B. Boxer from Citizens United for Klamath River Restoration, dated 4/3/97
	Letter from legal representative for the Tribal Fisheries Council regarding: The Yurok Klamath River Anadromous Fishery Reserved Water Right, dated 3/6/97
	Memo to Project Leader, KRFWO on Task Force Priorities, dated 3/10/97