STATE WATER RESOURCES CONTROL BOARD

PUBLIC HEARING

PHASE 2

TO REVIEW THE UNITED STATES BUREAU OF RECLAMATION WATER RIGHTS PERMITS (APPLICATION 11331 AND 11332) TO DETERMINE WHETHER ANY MODIFICATIONS IN PERMIT TERMS OR CONDITIONS ARE NECESSARY TO PROTECT PUBLIC TRUST VALUES AND DOWNSTREAM WATER RIGHTS ON THE SANTA YNEZ RIVER BELOW BRADBURY DAM (CACHUMA RESERVOIR)

THURSDAY, NOVEMBER 13, 2003
9:00 A.M.

JOE SERNA CAL/EPA BUILDING
SIERRA HEARING ROOM
SACRAMENTO, CALIFORNIA

REPORTED BY: ESTHER F. SCHWARTZ
CSR NO. 1564

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SACRAMENTO, CALIFORNIA

THURSDAY, NOVEMBER 13, 2003, 9:00 A.M.

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H.O. SILVA: Good morning. Looks like we are all here. We left off yesterday completing with the cross of Dr. Moyle, and I think we have a new panelist to swear, to answer questions.

MS. KRAUS: Mr. Silva, Dr. Peter Gleick has joined us. He was a contributor to the written testimony submitted by Dana Haasz and Peter Gleick. He is here today for cross-examination.

H.O. SILVA: He needs to be sworn in.

(Oath administered by H.O. Silva.)

MS. KRAUS: Dr. Gleick, can you affirm that Cal Trout Exhibit CT 52 is a true and correct copy of your statement of qualifications?

DR. GLEICK: If I can see it.

Yes, it is.

MS. KRAUS: Thank you.

H.O. SILVA: We are ready to go, then.

Bureau?

MR. PALMER: Bureau of Reclamation refers questions to the Member Units, but we reserve the right to cross-examine on any redirect.

H.O. SILVA: That's fine.

Member Units?

MR. WILKINSON: Yes. Mr. Silva, as I mentioned, I'll be asking a few questions of Mr. Keegan to begin with and then Mr. Bertrand will have some questions for Dr. Gleick and Ms. Haasz.

H.O. SILVA: That is fine.

MR. WILKINSON: I will finish up after that, if that's all right.

H.O. SILVA: That's fine.

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CROSS-EXAMINATION OF CAL TROUT

BY MEMBER UNITS

BY MR. WILKINSON AND MR. BERTRAND

MR. WILKINSON: Good morning, Mr. Keegan.

MR. KEEGAN: Morning.

MR. WILKINSON: How are you?

MR. KEEGAN: I'm doing well, thank you. How are you?

MR. WILKINSON: Just fine, thanks.

Can you tell me when you first became involved with the Santa Ynez River and its biological issues?

MR. KEEGAN: I first became involved in -- I believe it was 199- -- it's kind of fuzzy, around 1994, 1993, something like that.

MR. WILKINSON: Who were you employed with?

MR. KEEGAN: I was employed with Entrix, Incorporated.

MR. WILKINSON: Entrix, Incorporated. When you worked with Entrix on the Santa Ynez River issues, who was your client?

MR. KEEGAN: The client was the Cachuma Conservation.

MR. WILKINSON: Release Board.

MR. KEEGAN: Yes.

MR. WILKINSON: My client as well, right?

MR. KEEGAN: That is correct.

MR. WILKINSON: When you participated on the Santa Ynez Technical Advisory Committee, as you testified that you did, whose behalf did you participate?

MR. KEEGAN: On that client's behalf.

MR. WILKINSON: Cachuma Conservation Release Board?

Mr. KEEGAN: That's correct.

MR. WILKINSON: Did you also participate on the biological subcommittee of the Technical Advisory Committee?

Mr. KEEGAN: Yes, I did.

MR. WILKINSON: Again, your participation was on behalf of CCRB?

MR. KEEGAN: That is correct.

MR. WILKINSON: Your time on the biological subcommittee was billed to CCRB?

MR. KEEGAN: Yes, it was.

MR. WILKINSON: Can you tell me when you left Entrix?

MR. KEEGAN: I left Entrix in 1995.

MR. WILKINSON: Who did you go to work for at that time?

MR. KEEGAN: After I left Entrix I went to work with EIP Associates.

MR. WILKINSON: What does EIP stand for?

MR. KEEGAN: I believe that the original derivation was Environmental Impact planners. I think, but they go by EIP.

MR. WILKINSON: When you went to work for EIP in 1995, did you continue to work on Santa Ynez biological issues?

MR. KEEGAN: Yes, I did.

MR. WILKINSON: Who was your client at that time?

MR. KEEGAN: My client then was Entrix.

MR. WILKINSON: Their client was CCRB.

MR. KEEGAN: That's correct.

MR. WILKINSON: In total you worked on Santa Ynez River issues during this time about how many years?

MR. KEEGAN: About two years.

MR. WILKINSON: Can you tell me how long you have been employed by California Trout?

MR. KEEGAN: I'm employed by ECORP Consulting, Incorporated.

MR. WILKINSON: And they are employed by Cal Trout.

MR. KEEGAN: I'm providing testimony on behalf of Cal Trout on this subject. How long have I been?

MR. WILKINSON: Yes.

MR. KEEGAN: Approximately three months.

MR. WILKINSON: Now in your testimony I believe you stated that less than a hundred adult steelhead make up the current annual escapement on the Santa Ynez River?

MR. KEEGAN: I am not sure that I actually provided that testimony. I may have referred to that. That seems to be the going -- I believe NOAA had brought that up, that number up.

MR. WILKINSON: So you have no personal knowledge, do you, of how many adult fish, adult steelhead, there are in the Santa Ynez?

MR. KEEGAN: I have no personal knowledge other than reviewing reports that were prepared by the SYRTAC and by NOAA in reviewing the documentation.

MR. WILKINSON: From the two years' experience that you had on the Santa Ynez isn't it true that adult steelhead tend to migrate up the Santa Ynez River when there are high outflows?

MR. KEEGAN: When conditions are correct for passage, yes, it's -- adult steelhead have a better opportunity for passage; that's correct.

MR. WILKINSON: They don't migrate up when the bar exists at the mouth of the river?

MR. KEEGAN: That's correct.

MR. WILKINSON: It takes a certain amount of outflow to break the bar?

MR. KEEGAN: Yes, and along with other oceanic characteristics, for example, wave overwash, things like that.

MR. WILKINSON: Are adult steelhead typically sampled on the Santa Ynez River during high flow periods?

MR. KEEGAN: In my -- to my knowledge there are upstream migrant traps in various locations that are set up during the time of year when you would expect upstream passage to occur.

MR. WILKINSON: That wasn't my question.

Are the fish sampled during high flows on the river?

MR. KEEGAN: During the -- they are. Yes, they are.

MR. WILKINSON: Isn't it also true that many of the areas that are Bordering the Santa Ynez River are privately owned and are not accessible for sampling purchases?

MR. KEEGAN: I believe that's correct.

MR. WILKINSON: Your testimony, I believe, Mr. Keegan, stated, your written testimony, that current operations have not resulted in improved conditions to the steelhead population.

Do you recall that statement?

MR. KEEGAN: Yes, I do.

MR. WILKINSON: Are you familiar with the Hilton Creek water system?

MR. KEEGAN: I am familiar with that system.

MR. WILKINSON: Hasn't that resulted in improved conditions for steelhead in Hilton Creek?

MR. KEEGAN: The current Hilton Creek water operations?

MR. WILKINSON: Yes.

MR. KEEGAN: I don't think that there is enough data to make that conclusion, no.

MR. WILKINSON: Have you seen the current Hilton Creek watering system?

MR. KEEGAN: I have not personally seen it, no.

MR. WILKINSON: Are you familiar with the passage barrier removal work that has taken place on South Salsipuedes Creek?

MR. KEEGAN: I am familiar with that project.

MR. WILKINSON: Have you seen that?

MR. KEEGAN: No.

MR. WILKINSON: Hasn't that improved conditions for steelhead?

MR. KEEGAN: I would say that that would ease -- yes, I would say that would improve passage of adult steelhead at Salsipuedes Creek during appropriate stream flows.

MR. WILKINSON: Are you generally familiar with the fishery management plan that has been developed for the Santa Ynez River?

MR. KEEGAN: Yes, I am generally familiar with it.

MR. WILKINSON: Isn't it also the case that that plan has not yet been completed?

MR. KEEGAN: I believe that to be true.

MR. WILKINSON: And your testimony, as I understood it, also said that flow augmentation overall of the proposed alternatives, over that proposed for all of the alternatives, in the EIR would be necessary for restoration of the steelhead? Do you recall that?

MR. KEEGAN: Could you -- over all alternatives?

MR. WILKINSON: Let me get the statement if I can.

I believe that flow augmentation over that proposed for all of the alternatives in the DEIR, including Alternate 2, Alternate 3 series and Alternate 4 series, will be necessary to achieve restoration of the Santa Ynez steelhead population.

Do you recall that statement?

MR. KEEGAN: I do.

MR. WILKINSON: Are the flows provided Alternative 3A2 sufficient, in your review, to provide for restoration of the steelhead?

MR. KEEGAN: It is my testimony that the flows provided in Alternative 3A2 from the 95 Cachuma contract renewal will more than likely result in improved conditions to the steelhead resources.

MR. WILKINSON: Isn't it also true that Alternative 3A2 reduces the water supplies available from the Cachuma Project for consumptive beneficial uses?

MR. KEEGAN: I'm not sure that that's true. That was not part of my testimony. I believe, though, that other members of the panel have looked at that.

MR. WILKINSON: Do you know how much the

Cachuma water supply would be reduced by Alternative 3A2?

MR. KEEGAN: No, I do not.

MR. WILKINSON: Isn't the reduction in available water supplies for competing beneficial uses an important consideration to take into account?

MR. KEEGAN: It is not part of my testimony.

MR. WILKINSON: I am not asking you whether it is part of your testimony; I am asking isn't that an important consideration to take into account.

MR. KEEGAN: Again, it is not my testimony. I was asked to look at steelhead resources and how to improve steelhead resources.

MR. WILKINSON: That is fine.

I'm going to show you a memorandum on EIP letterhead from you dated January 23rd, 1996. This would be Member Unit Exhibit 254.

Are you familiar with the memo?

MR. KEEGAN: It's been a while. I am refamiliarizing myself with it now.

MR. WILKINSON: Please take your time.

Have you finished?

MR. KEEGAN: I have.

MR. WILKINSON: Who is Art Kidman?

MR. KEEGAN: Art Kidman was counsel.

MR. WILKINSON: For the CCRB?

MR. KEEGAN: Yes.

MR. WILKINSON: And this memo was prepared at a time when you were working through another firm for CCRB; is that correct?

MR. KEEGAN: That is correct.

MR. WILKINSON: I would like to turn your attention to the third page of the memo and have you read the heading and the last paragraph. Before we do that, would you tell me what was the purpose of the memo?

MR. KEEGAN: This purpose -- the purpose of this memo was to provide comments to the long-term study plan that was under development at that time.

MR. WILKINSON: This was a long-term study plan of Santa Ynez River?

MR. KEEGAN: One of its initial versions; that's correct.

MR. WILKINSON: You were advising the attorney for CCRB with your comments on a long-term study plan; is that correct?

MR. KEEGAN: I was advising him, yes, of various parameters that should be included.

MR. WILKINSON: Why don't you read the heading on the third page and then the paragraph that follows.

MR. KEEGAN: The heading is Feasibility Analysis and Potential Management Actions.

An important component of this study should be the analysis of potential impacts to water supply resulting from flow and nonflow dependent habitat improvements that may be recommended as management actions to the SWRCB. Job seven describes analysis of management actions from a biological standpoint. Feasibility analysis of potential management actions should be performed, including biological, social and economic considerations. Specific considerations in determining feasibility may include the degree of consensus, the ability to minimize conflicts, the significance of potential benefits, potential impacts to water supply and costs. (Reading)

MR. WILKINSON: So is it the case, Mr. Keegan, when you were working on behalf of the Cachuma Conservation Release Board, it was you view that the water supply impacts to flow dependent alternatives should be considered?

MR. KEEGAN: Should be considered for?

MR. WILKINSON: Feasibility of the alternative.

MR. KEEGAN: I believe that those things are certainly important and should be done at the appropriate level, for example, with State Water Resources Control Board.

MR. WILKINSON: Can you point to me anywhere in your testimony where you undertook that consideration?

MR. KEEGAN: Where I under my --

MS. KRAUS: Objection. He's already indicated that he did not include that in his testimony.

H.O. SILVA: He's already said it. You can repeat it if you want.

MR. KEEGAN: I did not include that in my testimony.

MR. WILKINSON: Thank you.

You also told Mr. Kidman that a feasibility analysis of biological and economic considerations should be undertaken.

Was that right?

MR. KEEGAN: That is correct.

MR. WILKINSON: It is also true that your testimony did not undertake any analysis of economic considerations?

MR. KEEGAN: That is true.

MR. WILKINSON: You also told Mr. Kidman that a degree of consensus is a specific consideration for

determining feasibility of any study plan; is that right?

MR. KEEGAN: That is correct.

MR. WILKINSON: Are you aware of any contract holder for water supply from the Cachuma Project who concurs with your recommendation of Alternative 3A2?

MR. KEEGAN: I have not spoken with them about that.

MR. WILKINSON: So your answer is no?

MR. KEEGAN: My answer is I am not aware of that, yes.

MR. WILKINSON: Are you aware of any downstream water rights holder who concurs with your recommendation of Alternative 3A2?

MR. KEEGAN: Since I am not conversant with any of them, I am not aware of any.

MR. WILKINSON: Mr. Keegan, your testimony, your written testimony, also stated that the lagoon at the mouth of the Santa Ynez River no longer functions as a necessary and integral part of the system of steelhead rearing.

Do you recall that?

MR. KEEGAN: I do.

MR. WILKINSON: Then you said it was crucial, your word, to restore suitable habitat conditions for smelt -- smolt steelhead rearing in the lagoon.

Do you recall that?

MR. KEEGAN: Could you please repeat that?

MR. WILKINSON: Let me do that.

MR. KEEGAN: I like smelt.

MR. WILKINSON: I do, too.

Then you state, it is crucial to restore suitable conditions for smolt steelhead in the lagoon.

Do you recall that?

MR. KEEGAN: Yes, I do.

MR. WILKINSON: Were you part of the beach seine team that attempted to sample the lagoon nor steelhead?

MR. KEEGAN: I was.

MR. WILKINSON: Wasn't that sampling effort shut down because of the unexpectedly large take of tidewater goby?

MR. KEEGAN: Yes, it was.

MR. WILKINSON: Are you aware of any other sampling effort in the lagoon that shows how it is used by steelhead?

MR. KEEGAN: Specific sampling efforts in the Santa Ynez River lagoon?

MR. WILKINSON: Yes.

MR. KEEGAN: I am not aware of any other steelhead sampling assessments, no.

MR. WILKINSON: I am going to show you a set of notes that we will mark as Cachuma Member Unit Exhibit 255. It appears to be dated, or at least there is a fax mark on the top that says November 27, 1996. It appears to be from you to Ramona Swenson.

Is that your handwriting?

MR. KEEGAN: That is my handwriting.

MR. WILKINSON: Why don't you take a look at those notes. The questions I will have relate to the material on Page 2, but I certainly want you to read the whole document.

MR. KEEGAN: Do you want me to focus on Page 2?

MR. WILKINSON: Yes.

MR. KEEGAN: I read Page 2.

MR. WILKINSON: Can you tell me, first of all, what you were commenting on to Ramona Swenson about?

MR. KEEGAN: I believe these -- let me think.

I believe -- again, these are comments to the long-term study plan. I could be wrong. I believe that to be true.

MR. WILKINSON: These might have been comments with reference to a particular portion of that plan identified as 6.0?

MR. KEEGAN: These are preliminary -- I was

asked to provide comment. This is a work in progress, that is correct. That is why they are written in hand rather than typed.

MR. WILKINSON: Understood.

Would you do me the favor of reading the next to last bullet on Page 2?

MR. KEEGAN: I am not sure why we would want to focus on tidewater goby. Haven't we determined that the potential range of flows to be discharged from Bradbury Dam would not affect the lagoon in most months. (Reading)

MR. WILKINSON: Is it fair to say that when you were working for CCRB that your concern about the lagoon related more to tidewater goby and not to steelhead?

MR. KEEGAN: Would you repeat that?

MR. WILKINSON: Is it fair to say, Mr. Keegan, that when you were working for the Cachuma Conservation Release Board that your concern with respect to the lagoon related to tidewater goby and not steelhead?

MR. KEEGAN: No, I would not make that conclusion.

MR. WILKINSON: Can you point to anything in the notes to Ms. Swenson that indicated a concern that the

lagoon was crucial to the steelhead?

MR. KEEGAN: And specifically toward steelhead in the lagoon, I don't make comments specific to the lagoon. However, I do make the reference that this is a specific portion of the plan that I was responding to.

MR. WILKINSON: I understand that.

When you were working for the Cachuma Conservation Release Board, Mr. Keegan, did you ever propose that releases from Bradbury Dam be made in such a fashion that they would destratify the lagoon?

MR. KEEGAN: I note that was a consideration.

MR. WILKINSON: Did you recommend it?

MR. KEEGAN: Did I recommend to the Cachuma Conversation Release Board that they make releases to destratify the lagoon?

MR. WILKINSON: Or to anybody else when you were working for CCR?

MR. KEEGAN: As a matter of project operation?

MR. WILKINSON: Yes.

MR. KEEGAN: I know that we had discussions regarding downstream flows and how they affect all habitats within the Santa Ynez River, including the lagoon.

MR. WILKINSON: Did you recommend releases from the Cachuma Project to destratify the lagoon?

MR. KEEGAN: When you say recommends, it's kind of hard for me to answer that because I don't know -- in my discussions with my colleagues and other team members, I am sure that that came up.

I know that we discussed effects for destratification in one way or another. I can't point to a specific incident --

MR. WILKINSON: Thank you.

MR. KEEGAN: -- to answer.

MR. WILKINSON: Mr. Keegan, I was confused by another statement that was made in your written testimony. You said at one point currently under the presurcharge Biological Opinion operations, Alternative 2 in the DEIR -- I am reading from Page 5 of your testimony, conditions in the main stem are not suitable for steelhead rearing.

Do you recall that statement?

MR. KEEGAN: I am looking for it here. I do recall making the statement, yes.

MR. WILKINSON: Right at the top of the page.

MR. KEEGAN: I see it. Yes, I do.

MR. WILKINSON: Later on in that same paragraph you say -- this is about four lines up from the bottom of the paragraph -- limited rearing conditions do exist within eight miles downstream of Bradbury Dam.

Do you see that?

MR. KEEGAN: Where are you looking at?

MR. WILKINSON: Four lines up from the bottom paragraph you say limited rearing conditions do exist within miles downstream of Bradbury Dam (including the Refugio reach).

MR. KEEGAN: Yes.

MR. WILKINSON: That reach is also in the main stream; is it not?

MR. KEEGAN: That is correct.

MR. WILKINSON: In fact, the reach that is within eight miles of Bradbury Dam is the management reach, is it not?

MR. KEEGAN: Yes, it is.

MR. WILKINSON: My question is: Are conditions in the main stem suitable for steelhead rearing or not?

MR. KEEGAN: This is a qualification. They are not suitable. They are not currently suitable for steelhead rearing.

MR. WILKINSON: But limited rearing conditions do exist?

MR. KEEGAN: Limited rearing habitat exists, limited, but it does not cover quantity or quality to be identified as being suitable.

MR. WILKINSON: Your testimony also says in reference to Alternative 3A2 -- again, I am on Page 5 of your testimony. That it is likely to improve rearing conditions for steelhead below the Alisal Reach of the main stem.

Do you see that?

MR. KEEGAN: I do.

MR. WILKINSON: Is it your testimony, then, that Alternative 3A2 will result in suitable temperatures for steelhead below the Alisal Reach?

MR. KEEGAN: Temperatures --

MR. WILKINSON: If it would be easier for you to simply answer the question, I would be happy to have you do that.

MR. KEEGAN: Temperature was not -- would you repeat the question for me, please?

MR. WILKINSON: Sure. Is it your testimony that Alternative 3A2 will result in temperatures that are suitable for steelhead downstream of the Alisal Reach?

MR. KEEGAN: That wasn't part of my testimony, no.

MR. WILKINSON: Did you consider whether temperatures for steelhead would be suitable if Alternative 3A2 were employed downstream of the Alisal Reach?

MR. KEEGAN: I have considered them.

MR. WILKINSON: What is your conclusion?

MR. KEEGAN: My conclusion is there, frankly, is not enough data to make a conclusion regarding that.

MR. WILKINSON: Then is your testimony that we don't know whether Alternative 3A2 will result in suitable conditions for steelhead downstream of the Alisal Reach?

MR. KEEGAN: I think my testimony was that Alternative 3A2 would more likely result in suitable conditions -- would more likely result in steelhead restoration. That was my testimony. So in comparison to other alternatives, it is more likely to achieve that.

MR. WILKINSON: Actually, your testimony was that Alternative 3A2 would provide sufficient flow releases to improve downstream rearing into the Alisal Reach and likely below the Alisal Reach.

Do you recall that?

MR. KEEGAN: I do recall that.

MR. WILKINSON: But not including temperature?

MR. KEEGAN: Well, including temperature, too, since temperature is a part of habitat. Absolutely, it is.

MR. WILKINSON: Even though we don't have enough data to determine that, that is your opinion.

MR. KEEGAN: Can always use more data. The

data are limited. They are limited frankly in all aspects of this project. Therefore, to my best -- that is my best professional testimony that it would improve existing conditions.

MR. WILKINSON: I have a few questions for you, Mr. Keegan, about your testimony regarding the use of top width based model instead of PHABSIM. As I understood your testimony, it was that looking at top width fails to give you a good idea of rearing habitat conditions because it doesn't show changes in depth or velocity or substrate, correct?

MR. KEEGAN: I am not sure I said it that way. It's limited in those functions. It does not provide a good indication of actual depth or velocity criteria.

MR. WILKINSON: In other words, if we are dealing with a wider and fairly shallow stream, as an example, and we have increase in top width, there might not be an increase in habitat because the depth would still be about the same and substrate might be the same; is that right?

MR. KEEGAN: That could happen.

MR. WILKINSON: Isn't it a fact, though, that the Department of Water Resources performed a PHABSIM study of the Santa Ynez River in the late 1980s?

MR. KEEGAN: DWR performed a draft, probably a

draft of IFIM study in 1989.

MR. WILKINSON: It undertook that PHABSIM study as part of an existing proposal that was around to raise the height of Bradbury Dam?

MR. KEEGAN: You know, I'm not sure that that was the reason. I frankly do not recall the reason.

MR. WILKINSON: Isn't it true that also after DWR performed its PHABSIM study that the Santa Ynez River Technical Advisory Committee, of which you were a part, decided that it wanted a better understanding of flow habitat relationship that were provided by DWR?

MR. KEEGAN: The continued -- the SYRTAC was formed to develop appropriate data and suitable data to answer questions regarding steelhead. That would be one of the considerations.

MR. WILKINSON: Wasn't it part of the long-term study plan that you helped develop?

MR. KEEGAN: I believe so, yes.

MR. WILKINSON: In fact, wasn't a study undertaken in the fall of about 1993 under your direction that investigated fish flow relationships on the river?

MR. KEEGAN: I am not sure I can characterize it that way. I was involved in the fish sampling, fish sampling operations. In terms of actual flow-related investigations, no, I was not a part of the determining.

MR. WILKINSON: You didn't investigate flow fish relationships on the Santa Ynez?

MR. KEEGAN: Depends on how you are defining that. My participation really focused on sampling techniques for actual biology of fishes and sampling fish at various times of the year. I was involved very early on in the study and the development of the studies. That is true.

MR. WILKINSON: Mr. Keegan, this is a fairly lengthy memorandum, and I don't think we have enough time for you to read through all of it, but I will have a question or two for you about the table that appears as Table 1 on Page 5. This is a Cachuma Member Unit Exhibit 256. It is a memo to you from a person named Shawn Chase, dated February 18, 1994. It contains a table.

I'm sorry, before I do that, it says "Results of fish sampling at 10, 5 and 1 cfs."

Those are flows, are they not?

MR. KEEGAN: Yes, they are.

MR. WILKINSON: Table 1 is entitled "Total length, average width and average depth of electrofishing sites sampled in 1993."

Do you see that?

MR. KEEGAN: I do.

MR. WILKINSON: Doesn't this table report the

length and presence of fish based upon the top width of the stream at various flows?

MR. KEEGAN: Well, it gives -- excuse me. This table shows the total length of electrofishing stations and average width and average depth, average width, not top width.

MR. WILKINSON: Not top width?

MR. KEEGAN: It's the average width over various measurements of the width within the sample site.

MR. WILKINSON: What is the average width measure?

MR. KEEGAN: It is measuring the average wetted parameter.

MR. WILKINSON: Which is another term for top width, correct?

MR. KEEGAN: Yes, it is.

MR. WILKINSON: Thank you.

Mr. Keegan, isn't it true that when you were employed on behalf of CCRB that an IFIM process was, in fact, convened with the Department of Fish and Game, Fish & Wildlife Service and Bureau of Reclamation and that the use of PHABSIM on the Santa Ynez River was rejected?

MR. KEEGAN: I'm not aware of that.

MR. WILKINSON: You are not? You are not

aware that there were concerns about channel instability on the river?

MR. KEEGAN: I was not involved in that, in those discussions regarding that.

MR. WILKINSON: So you don't know whether this group rejected the use of PHABSIM or not?

MR. KEEGAN: No.

MR. WILKINSON: In your testimony you also said that water rights releases under Order 89-18 should occur over a more continuous nature.

Do you recall that statement?

MR. KEEGAN: I do recall that statement.

MR. WILKINSON: Over what period of time should those releases occur, in your view?

MR. KEEGAN: I made the statement -- the statement was made in reference to the fact there to the current release schedule, which is a very short term release. So I made a qualitative statement there, stating that -- and along with that it's my opinion that those should be investigated further. That was the point I was making.

MR. WILKINSON: Over what period of time do the water rights releases currently occur?

MR. KEEGAN: I don't think I can answer that question. I know it depends on many factors. It depends

on whether or not stream -- well, the stream has to be dry, for example, and there are other considerations. I am -- it is not part of my testimony actually in terms of the actual operations of the 89-18 releases, and, frankly, I can't speak to them. I don't know.

MR. WILKINSON: Mr. Keegan, just a couple final questions regarding your testimony about the adaptive management. Your testimony was that objective measurable criteria should be set for population size and other factors relating to steelhead?

MR. KEEGAN: Yes.

MR. WILKINSON: Is it your understanding that NOAA Fisheries is responsible for developing measurable objective criteria agency as part of the recovery planning process?

MR. KEEGAN: I believe that is part of the recovery process.

MR. WILKINSON: Isn't it also true that a number of the things that you believe measurable things should be set for, such as population size, are influenced by non-Cachuma Project factors?

Understand the question?

MR. KEEGAN: I am not sure I do.

MR. WILKINSON: Let's talk about population size. Isn't that influenced by ocean conditions?

MR. KEEGAN: Certainly the size of the population is influenced by the ocean.

MR. WILKINSON: And the age structure percentage is another factor that you wanted measurable criteria for, isn't that also determined by drought cycle?

MR. KEEGAN: Can be.

MR. WILKINSON: And juvenile production, which was another factor that you wanted measurable criteria for, isn't that influenced as well by drought cycles?

MR. KEEGAN: It can be.

MR. WILKINSON: But it is your position that these criteria that should be measurable in your view should all be included in permits for the Cachuma Project?

MR. KEEGAN: I do because the criteria can be developed to take into account various water year types, for example, drought years. Under drought years I would expect there to be certainly different target criteria.

MR. WILKINSON: Would they take into account ocean conditions as well?

MR. KEEGAN: Be very difficult to do that. There are many, many metrics that can be used that are more focused and more dependent upon the instream characteristics.

MR. WILKINSON: Thanks very much. That is all I have for Mr. Keegan.

H.O. SILVA: You have about 20 minutes. Time check.

MR. WILKINSON: I may ask for a little more. I would like to ask a few questions of Mr. Edmondson.

MS. KRAUS: Mr. Silva, one clarification on the time for Mr. Wilkinson. He did have ten minutes approximately yesterday for Dr. Moyle. Is that part of the panel or --

H.O. SILVA: Ten would be --

MR. WILKINSON: That is fine. We will work with that. I think Mr. Bertrand's questions may occupy a little bit more of that time. This is very important for us to cross-examine. It is really the last chance we will have to ask questions.

H.O. SILVA: Let me know what after. Just take consideration of time, though.

MR. WILKINSON: Sure. We will.

MS. KRAUS: Just -- I am not sure I follow that. The time remaining --

H.O. SILVA: He's got ten minutes left and then he is going to --

MS. KRAUS: And that includes Mr. Bertrand, as well?

H.O. SILVA: They have ten minutes left as a group, and then he is going to ask me for more time, and I

will see what he wants to ask about.

MS. KRAUS: Thank you.

MR. BERTRAND: Good morning. I'm going to ask a few questions of Ms. Haasz and Mr. Gleick this morning about water conservation.

Ms. Haasz, yesterday you testified about the California Urban Water Conservation Council and Memorandum of Understanding. Is that correct?

MS. HAASZ: That's correct.

MR. BERTRAND: And the Pacific Institute is a signatory to the Memorandum of Understanding?

MS. HAASZ: Yes, it's one of the group two members. It is not an agency signatory.

MR. BERTRAND: Thank you.

And Cal Trout is also a group two member?

MS. HAASZ: I am not sure.

MR. BERTRAND: This is going to be a long question, but it is an important question. Isn't the case that the Memorandum of Understanding is the generally accepted standard in State of California for measuring the implementation of water conservation measures?

MS. HAASZ: The Memorandum of Understanding is a set of -- the agencies sign on to the Memorandum of Understanding. It is a voluntary action. And they do set forth some measurable objectives, 14 best management

practices.

In my mind they represent the floor in terms of water conservation and not conservation potential. But it is something that both groups after a lot of haranguing did agree on as a management practice.

MR. BERTRAND: Your report that you submitted as Exhibit 63, has that been peer reviewed?

MS. HAASZ: Yes, it has.

MR. BERTRAND: It has.

MS. HAASZ: The waste not want not report?

MR. BERTRAND: Yes.

MS. HAASZ: Yes, it has.

MR. BERTRAND: The best management practices are referenced in the California Water Code; is that correct?

MS. HAASZ: Let me look.

MR. BERTRAND: Water Code Section 106317. Does that ring a bell?

MS. HAASZ: It doesn't.

MR. BERTRAND: That's fine.

H.O. SILVA: If you could answer yes or no.

MS. HAASZ: I don't know.

H.O. SILVA: The other witness was just shaking his head. If you are going to say no --

DR. GLEICK: I was shaking my head because I

also don't know.

H.O. SILVA: Then you should say you don't know.

MR. BERTRAND: Now you are familiar with the work of the California Bay-Delta Authority?

MS. HAASZ: Yes.

MR. BERTRAND: Isn't it the case that the Bay-Delta Authority has accepted the MOU as the basis for a proposed program of water agency certification?

MS. HAASZ: They're -- we're still working on certification.

MR. BERTRAND: Based on the MOU?

MS. HAASZ: Potentially. This hasn't been hammered out yet.

MR. BERTRAND: I would like to discuss a little bit Alternative 3A2. When I reference Alternative 3A2, are you familiar with the subject of which I am addressing?

MS. HAASZ: I am familiar just from this hearing, but I'm really -- I haven't had a lot of time to look at the alternatives. I am not very familiar with it.

MR. BERTRAND: Are you familiar enough to give an opinion whether or not Cal Trout is asking for flows in addition to those which the Member Units have offered to make?

MS. HAASZ: No.

MR. BERTRAND: Your cost beneficial analysis -- the Pacific Institute's cost benefit analysis assumes natural replacement; is that correct?

MS. HAASZ: It does for residential toilets. But the cost benefit analysis for commercial toilets and for ET controllers came from Santa Barbara County's Prop 50 proposal or Prop 13, and that is not natural replacement. It takes into account administrative fees, management fees and that.

MR. BERTRAND: And the natural replacement for a washer is about 12 years and for a toilet about 20 years, under your analysis?

MS. HAASZ: The lifetime of a washer is about 12 years.

MR. BERTRAND: The purpose of your testimony is to persuade the Board that water supply impacts from Cal Trout's request for flows can be mitigated by the implementation of water conservation measures. Is that fair?

DR. GLEICK: No. The purpose of our testimony is to evaluate uncaptured water conservation potential in these agencies.

MR. BERTRAND: Are you asking the Board to assume 5- to 7,000 acre-feet per year of water

conservation as part of its water supplies analysis?

DR. GLEICK: Our testimony concludes that 5- to 7,000 acre-feet of water is available through the limited number of measures that we evaluated, given current technology and current economics.

MS. HAASZ: Can I just add that I guess we are asking the Board to do a more comprehensive analysis than the one we did.

MR. BERTRAND: So you wouldn't ask them to assume that number without performing that analysis?

MS. HAASZ: Well, we do think it is a valid number. We also think more rigorous analysis needs to be done. But we stand by the 5- to 7,000 acre-feet.

MR. BERTRAND: The 5- to 7,000 acre-feet, a lot of that is going to be captured in future years as natural replacement occurs in these fixtures, washers and toilets, are going to be replaced; is that correct?

MS. HAASZ: Yes, and we account for that in the model.

MR. BERTRAND: But are you claiming that you can save 5- to 7,000 acre-feet this year?

DR. GLEICK: Our study says that if in these measures all existing technology were implemented today, current use would be 5- to 7,000 acre-feet less than it is today. We understand it can't be captured immediately,

but we are arguing it could be captured faster than it is being captured.

MR. BERTRAND: If it were captured immediately, if there were accelerated replacement, that would affect your cost benefit analysis, right? If you replaced all the washers in Santa Barbara County this year, would affect the cost benefit analysis in your report?

DR. GLEICK: Yes. Although accelerated replacement of many of these options is also cost-effective. We didn't discuss that in detail in this study, but we do in the broader study.

MR. BERTRAND: Ms. Haasz, yesterday you testified about per capita consumption of Member Units; is that correct?

MS. HAASZ: Yes.

MR. BERTRAND: Would it be accurate to say that measuring end-use information is a more accurate way of measuring water conservation savings than per capita consumption?

MS. HAASZ: Both numbers are relevant.

MR. BERTRAND: For example, you cite to the REUW Study; is that correct?

MS. HAASZ: Yes.

MR. BERTRAND: Is that a good study in your

opinion?

MS. HAASZ: It is one of the first large scale end-use studies, so it did provide a lot of information that never existed before. So in that way I would think it is good.

MR. BERTRAND: The sample size was more than a thousand, there was a control group; is that right?

MS. HAASZ: Yes. I think one of the sites was Santa Barbara as well.

MR. BERTRAND: Right. I'm going to come back to that in a minute. The first thing I want to point out it is yesterday you testified that during the drought Santa Barbara was able to reduce its per capita consumption down to 71 gallons per capita; is that right?

MS. HAASZ: That is correct.

MR. BERTRAND: During that time there were landscape restrictions in Santa Barbara; is that right?

MS. HAASZ: I think so.

MR. BERTRAND: Do you know what the water rates were in Santa Barbara at that time?

MS. HAASZ: No, I don't.

MR. BERTRAND: Does the figure $30 per unit above 12 units ring a bell with you?

MS. HAASZ: No.

MR. BERTRAND: But your testimony now is that

you're not looking into landscape changes, that is not part of the water savings that you are factoring into the 5,000 to 7,000 acre-feet; behavior changes, but not changes to the palette, right?

MS. HAASZ: That's right.

DR. GLEICK: No, we are looking at behavioral changing either.

MS. HAASZ: Just a minute.

DR. GLEICK: We are looking at management changes for landscapes, not behavioral changes that would occur during temporary measures, such as the 71 gallons where you make the lawn go brown. We are not looking at that.

MS. HAASZ: I looked at proper landscape maintenance. That is what I meant by behavior, watering at the right time, irrigating appropriately.

MR. BERTRAND: But your testimony is that greater water savings -- the water savings that you project are about 35 gallons per capita per day indoor and 30 outdoors; is that right?

MS. HAASZ: I don't recall saying those numbers. What I said was that we estimate that per capita use can be reduced to about 65 gallons per capita per day. That includes indoor and outdoor.

MR. BERTRAND: So when Santa Barbara went

down to 71 gallons per capita per day, now you are saying they can do it, but with fewer measures?

MS. HAASZ: This was a drought emergency measure. They didn't -- during the drought they didn't start replacing washers or toilets. There is different types of measures you can do. You can do the permanent changes. And what we are saying with these permanent changes you can get to 65. Drought measures are a different level and a different type of change.

MR. BERTRAND: Going back to REUW study, that was a study in which they actually measured the amount of water savings that occurred when they took two groups, a control group and a group that implemented a series of water conservation savings; is that right?

MS. HAASZ: They measured end-uses within the home. So, for example, they measured how many times toilets were flushed, how many times washers were used and the amount of water that was used for each one of these purposes.

MR. BERTRAND: Is it your testimony they didn't measure water conservation savings then? It was a before and after picture, right?

MS. HAASZ: No, it was an end-use study.

DR. GLEICK: The purpose of the reuse study done by the American Waterworks Association was to

evaluate water use by end-use. They monitored a series of houses, and I can't recall whether some of the houses had efficiency equipment in it and some of them didn't.

MR. BERTRAND: I'm going to move on, if that's okay.

Let me just ask a question -- no, you finish, I'm sorry.

MS. HAASZ: We used their assumptions of frequency and use and all that kind of thing to build our models on which we developed water saving. Because a lot of these water savings, they're technological changes. So if you have the end-use data and you can go to the model to estimate savings.

MR. BERTRAND: I'm going to speed it up. Is it your opinion, Ms. Haasz, that between Santa Barbara, Goleta and Carpinteria are very efficient users of water compared to other users in the state? With per capita rates in the mid '80s?

DR. GLEICK: That's better than the average statewide. There is tremendous diversity among water users.

MR. BERTRAND: Do you have an opinion about what the average is?

DR. GLEICK: Average statewide is about 130 gallons per capita per day.

MR. BERTRAND: In your report and your testimony you didn't analyze the affect of water rates on water conservation; is that right?

MS. HAASZ: No, we didn't.

MR. BERTRAND: Are you aware of the level of water rates among Member Units?

MS. HAASZ: Could you repeat the question.

MR. BERTRAND: Are you aware of the level of water rates among Member Units?

MS. HAASZ: I looked at it, but not in depth.

MR. BERTRAND: About 3,000 to 4,500 acre-feet of the water that you say can be conserved is residential landscaping; is that correct?

MS. HAASZ: Let me see. Yeah, it is residential and commercial; it is total landscape.

MR. BERTRAND: When you're talking about achieving 25 to 40 percent saving among the Member Units in residential landscaping, have you factored in the fact that the -- well, first of all, are you aware of Member Units' efforts in landscaping education?

MS. HAASZ: Yes.

MR. BERTRAND: Was that factored into your analysis of the potential for additional water savings?

MS. HAASZ: It is really difficult to quantify education in terms of potential savings.

DR. GLEICK: This was our estimate of the additional potential from current use.

MR. BERTRAND: From current use?

MS. HAASZ: Current use.

MR. BERTRAND: The potential would be more than 25 to 40 percent for an agency that has been implementing this water education program?

MS. HAASZ: It's possible.

DR. GLEICK: You can have ineffective education programs. Our estimate was potential savings from current use. You can increase that savings with many kinds of education, pricing programs, technology innovation programs.

MR. BERTRAND: But you can have a double county issue. It may be that the water education programs among Members are good and that they resulted in a lot of conservation which is why their per capita numbers are solo; is that correct?

MS. HAASZ: Can you repeat that again?

MR. BERTRAND: Isn't it possible that the current water education programs that the landscaping have are part of the reason why the per capita numbers for Santa Barbara, Goleta and Carpinteria are already so low?

MS. HAASZ: In general and from my experience in looking at programs across the state, education helps

with other programs, with ET controller programs, with rates, with other landscape programs, but in its own they're generally not associated with significant water savings.

DR. GLEICK: And we don't believe there is a double counting each year.

MR. BERTRAND: I'm going to ask one more question. I may not -- Mr. Wilkinson.

I believe I will not.

Thank you.

H.O. SILVA: Thank you. How much more time are you requesting, Mr. Wilkinson?

MR. WILKINSON: Ten minutes.

H.O. SILVA: That is fine.

MR. WILKINSON: And what you just saw was the partner-associate relationship very neatly explained.

For Mr. Edmondson. Mr. Edmondson, your testimony described Alternative 3A2 as it was presented in the 1995 EIR/EIS for contract renewal.

Do you recall that?

MR. EDMONDSON: Actually, my testimony, sir, was a use of 3A2 with a different scenario modeling, different assumptions and different factors. I did rely upon 3A2 as a basis, a technical basis, for in part, one, because of the IFIM PHABSIM quality of technical basis of

that recommendation, and, two, that wasn't certified Bureau of Reclamation and Final EIR/EIS.

MR. WILKINSON: You took Alternative 3A2 from the EIR/EIS and used it as a basis for additional testimony, correct?

MR. EDMONDSON: Yes, sir.

MR. WILKINSON: I think you stated in your written testimony that Alternative 3A2 had been dismissed in the 1995 EIR/EIS due to a purportedly significant reduction in water supply.

Do you recall that from your testimony?

MR. EDMONDSON: Yes, I do.

MR. WILKINSON: Do you recall what the purported impact on water supply that was identified in the EIR/EIS was?

MR. EDMONDSON: I can't recall exactly the numerical numbers, sir, but in response to your question, the 3A2, as I understand it, was modeled on a certain way of not considering, for example, drier scenarios, water conservation, factoring in perhaps more efficient ways of actually achieving a greater beneficial use of water. So whatever the figure may have been in the EIR/EIS was based upon the assumptions of that model, that prediction.

MR. WILKINSON: The model that was used is the basis for your testimony did have a reduction in water

supplies associated with it?

MR. EDMONDSON: As I recall, I believe it was 11,449 acre-feet, if I am not mistaken.

MR. WILKINSON: That was my recollection as well.

MR. EDMONDSON: I am glad we concur.

MR. WILKINSON: I think we agree on the exact number. And that is about 45 percent of the Cachuma yield; isn't it?

MR. EDMONDSON: I don't know what the percentage is.

MR. WILKINSON: You did modify, I think as you just now testified, Alternative 3A2 in your testimony, right?

MR. EDMONDSON: That's correct.

MR. WILKINSON: You made certain changes to the flows that comprised Alternative 3A2 to account for dry years; is that right?

MR. EDMONDSON: That is true.

MR. WILKINSON: You also reduced flows in Alternative 3A2 as it appeared in the 1995 EIR/EIS to account for water rights releases; is that also correct?

MR. EDMONDSON: There were a number of assumptions including that, yes, sir.

MR. WILKINSON: Then you also assumed that

these water rights releases were made in 92 percent of the years on the Santa Ynez River; is that correct?

MR. EDMONDSON: Based upon Table 2-3 of the State Water Resources Control Draft Environmental Impact Report, yes, sir, that is true.

MR. WILKINSON: Mr. Edmondson, if the actual number of years that water rights releases are made is 64 percent of the years and not 92 percent of years, that would increase the amount of water released from the Cachuma yield under your proposal, wouldn't it?

MR. EDMONDSON: Sir, if you make any changes in a model such as this in regards to its assumptions and the numbers put into the numerical spreadsheet, it will change the outcomes, yes, sir.

MR. WILKINSON: The change that I just suggested to you would, in fact, increase the amount of water released from the Cachuma yield; is that correct?

MR. EDMONDSON: I haven't run that model, so anything I would say would be mere speculation. I would not disagree with you, sir, no.

MR. WILKINSON: Thank you.

You also reduced the flows in the Alternative 3A2 in your use of Alternative 3A2 to account for spills, did you not?

MR. EDMONDSON: I did, yes, sir.

MR. WILKINSON: And you assumed that spills occurred in 37 percent of the years, did you?

MR. EDMONDSON: According to Table 2-2 of State Water Resources Control Board Draft Environmental Impact Report, that indicated that spills would occur at 37 percent of the time, if I am not mistaken.

MR. WILKINSON: If the spills, in fact, occurred in 30 percent of the years, that would also have an impact upon the amount of water released, right?

MR. EDMONDSON: Based on my response to your prior question, yes, sir.

MR. WILKINSON: Thank you.

Where, Mr. Edmondson, do you measure the flows that are released under your proposed modification of Alternative 3A2?

MR. EDMONDSON: As I conducted the model for the purposes of illustration, sir, I didn't identify a place for it to be actually measured.

MR. WILKINSON: Don't you measure them at the dam, Jim?

MR. EDMONDSON: As I constructed the model, it was actually dam releases, so it would be accounted for at the release of the dam, yes, sir.

MR. WILKINSON: Thank you.

If the releases were measured, in fact, not at the

dam, but in the target reach, wouldn't that also have an impact upon the amount of water that would be released?

MR. EDMONDSON: Target reach, what reach are we speaking about, sir?

MR. WILKINSON: Let's talk about the Alisal Reach that was mentioned earlier today. If the flows are to be measured not at the dam, but at the Alisal Reach wouldn't that have an impact upon the amount of water released under your proposal?

MR. EDMONDSON: Perhaps, certainly.

MR. WILKINSON: Perhaps?

MR. EDMONDSON: I don't know for certain, sir. I'm not ruling it out. I'm not saying it is unequivocally yes. I just don't know.

MR. WILKINSON: Mr. Edmondson, when you converted flows from cubic feet per second to acre-feet, what was the conversion factor that you used?

MR. EDMONDSON: The conversion factor was limited to one decimal point of 1.9.

MR. WILKINSON: Thank you.

So you rounded low rather than high; is that correct?

MR. EDMONDSON: No, sir. I just used 1.9.

MR. WILKINSON: Thank you.

And your testimony was that the long-term impact of

your proposal on the Cachuma Project is 7,056 acre-feet per year, correct?

MR. EDMONDSON: Based upon the assumptions and the numerical inputs in the model, that is true, yes, sir.

MR. WILKINSON: That is an average number, right?

MR. EDMONDSON: That is a ten-year average number according to the calculations and the assumptions, yes, sir.

MR. WILKINSON: Did you look at the impact of your proposal on the Cachuma Project yield during the critical drought period 1949 to 1951?

MR. EDMONDSON: No, I did not. I did not model any other than Table 1 and Table 2 in my testimony.

MR. WILKINSON: So you didn't look at the impact of your proposal on the Cachuma Project yield during the most recent drought, 1987 to 1991?

MR. EDMONDSON: No, I did not.

MR. WILKINSON: You didn't examine the impacts of your proposal, in fact, on any drought period outside of those two critical periods either, did you?

MR. EDMONDSON: No, I did not. The purpose of my testimony was to provide this as an illustration of 3A2 under different scenarios.

MR. WILKINSON: In the course of developing

your proposal and analyzing its effects, did you examine the impact of your proposal upon the delivery of State Water Project water to the Cachuma Member Units?

MR. EDMONDSON: No, sir, I did not.

MR. WILKINSON: When you developed your proposal, Mr. Edmondson, did you examine its impact on the quality of water available to the downstream users such as the City of Lompoc?

MR. EDMONDSON: Again, sir, the purpose of my providing my testimony was limited to as I previously stated, and I did not on that basis.

MR. WILKINSON: Thank you. That is all I have.

MR. EDMONDSON: Thank you.

H.O. SILVA: Santa Ynez?

MR. CONANT: No questions.

H.O. SILVA: City of Lompoc?

MR. MOONEY: No questions.

H.O. SILVA: Santa Barbara County?

MR. SELTZER: No questions.

H.O. SILVA: Fish and Game?

MR. BRANCH: Yes.

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CROSS-EXAMINATION OF CAL TROUT

BY DEPARTMENT OF FISH AND GAME

BY MR. BRANCH

MR. BRANCH: Good morning, Mr. Keegan.

MR. KEEGAN: Good morning.

MR. BRANCH: How are you doing?

MR. KEEGAN: Fine, thanks. And you?

MR. BRANCH: Not bad.

You were discussing Alternative 3A2, I believe, in your testimony. Could Alternative 3A2 be modified to reduce flows in dry years?

MR. KEEGAN: Yes, it certainly can.

MR. BRANCH: And would those modifications potentially reduce any impacts to water supply?

MR. KEEGAN: Yes, in that modifications during drought years, if that meant a reduction in flow releases, that would make more water available for other uses, yes.

MR. BRANCH: Again, speaking of those modifications, would Alternative 3A2 -- with modifications included, would Alternative 3A2 still be more likely to restore steelhead in the Santa Ynez as opposed to, say, the Biological Opinion or Fish Management Plan?

MR. KEEGAN: Yes.

MR. BRANCH: Based on your current experience, what is the standard methodology for determining flow

habitat relationships?

MR. KEEGAN: Standard methodology for flow versus habitat measurements? Certainly the IFIM method is the most widely used, most historic, has more basis and historical, and is based on empirical data. Would be the IFIM method.

MR. BRANCH: Mr. Keegan, in general are lagoon habitats important for juvenile southern steelhead rearing?

MR. KEEGAN: Yes, they are. I was just going to say they are a critical component.

MR. BRANCH: Sorry for interrupting.

Were they important historically?

MR. KEEGAN: They were.

MR. BRANCH: Are they important now?

MR. KEEGAN: They certainly are.

MR. BRANCH: Why is that?

MR. KEEGAN: The lagoon provides a habitat that -- well, there is two things. One is if habitat within the river itself is degraded or not, if it is degraded, the lagoon provides opportunity for those fish to move into and rear and preparation for the movement into the ocean.

Also, the lagoon intrinsically is historically in a population that is in good condition, it's the final phase

of juvenile steelhead rearing. They move into the lagoon in preparation for smoltification. They move into the lagoon prior to entering the ocean where feed is present, prey items more abundant, many factors.

MR. BRANCH: In general, would increase in flow released from Bradbury above that currently released provide a benefit to the aquatic biota in the Lower Santa Ynez, including steelhead?

MR. KEEGAN: The Lower Santa Ynez main stem?

MR. BRANCH: Yes.

MR. KEEGAN: Please repeat that.

MR. BRANCH: In general, would an increase in flow released from Bradbury which is more than that currently released, would that provide a benefit to the aquatic biota of the Lower Santa Ynez River?

MR. KEEGAN: I think it is dependent upon timing and release, quantity of release. The general answer I think would be yes.

MR. BRANCH: Thank you.

Does the Fish Management Plan have measurable criteria for gauging the success or failure of the plan actions?

MR. KEEGAN: The Fish Management Plan from my review provides a framework for adaptive management. I think it is missing a critical component of identification

of measurable target objectives.

MR. BRANCH: Thank you.

Mr. Zapel, you discussed trap and haul in your testimony, I believe.

MR. ZAPEL: Yes, that's correct.

MR. BRANCH: Could you explain a little bit more the full range of what is meant by haul?

MR. ZAPEL: Haul can mean many things. It has been implemented most commonly by truck. But also certainly by helicopter, by air. We have all seen outplants of smolts. It is very likely they may outplant smolts into Cachuma with helicopter baskets. It is quite common. It could mean a lift over the top of a dam. There are a variety of methods of hauling fish once trapped and collected.

MR. BRANCH: What would be necessary, in your opinion, to determine the feasibility of fish passage around Bradbury Dam?

MR. ZAPEL: I think a phased approach to studies would be the first effort. I'm referring to other studies in other areas that I am familiar with. One of the most primary and earliest studies that need to be done is to determine whether or not passage is technically feasible; that is, can you collect fish and move them upstream and/or downstream of the project.

The next study that would be probably appropriate in this case would be an in-reservoir migration survival study. Those can range in complexity from a very small tagging study to something more complex and more extensive than that.

MR. BRANCH: And how would you -- how might you ultimately test the effectiveness of passage measures?

MR. ZAPEL: I think I would refer to adaptive management plan where each year, depending on the results of your studies, you would implement increasingly more complex and comprehensive passage technology, depending on success of particular measures. For example, if you found that in-reservoir migration survival was poor, then you would probably want to place some collection device near the head of the reservoir to prevent that in-reservoir migration. That is something that has been commonly done.

If on the other hand, those in-reservoir migration studies show that the survival is good or acceptable, depending on that adaptive management criteria, you could consider collectors at a dam, for example.

MR. BRANCH: One last question, Mr. Zapel. Can you explain how floating collectors might be used in Lake Cachuma?

MR. ZAPEL: In my testimony I identified a couple of different opportunities for floating collectors.

And if it is possible for me to pull up one of these boards, Mr. Silva. I am not going to pull up all of the others.

H.O. SILVA: Just one.

MR. ZAPEL: This is an illustration of Bradbury Dam, and as I referred to --

H.O. SILVA: Is that already submitted?

MS. KRAUS: Yes.

H.O. SILVA: Refer to whatever the exhibit number is.

MS. KRAUS: This is Cal Trout Exhibit 28F.

MR. BRANCH: Mr. Zapel, can you up pick up the microphone as you are speaking.

MR. ZAPEL: This is an aerial photograph, actually satellite photograph of Lake Cachuma. And I was speaking about in-reservoir migration survival studies where you tag smolting fish, track their progress through the dam and determine whether or not they actually reach the outlet structure of the dam. That is something that is quite commonly done.

If those in-reservoir survival studies prove, for example, that that is not an attractive migration route, for whatever reason, perhaps you can put a collector at each of the inlet bays or one of the inlet bays of the reservoir.

MR. WILKINSON: Mr. Silva, we went through this once before and the testimony was excluded, and, in fact, struck. Whether it is an attempt to be brought in either direct or cross-examination, I think it is still inappropriate.

MS. KRAUS: I think that was Mr. Mann's testimony that was struck.

H.O. SILVA: As we said, we will be more lenient on cross.

MS. KROP: Excuse me, for the record, Mr. Zapel's written testimony did address specific measures at Bradbury, Gibraltar and Juncal Dams. And it was not struck.

H.O. SILVA: It was objected to by the Bureau. Again, on cross we are a little more lenient. You can proceed.

MR. ZAPEL: As I illustrated on that Board there, those are, one, potential measures that could be used at Lake Cachuma to collect downstream migrating smolts. Upstream migrating adults, of course, would be collected below the dam and transported by any one of several means of hauling those fish, either into the reservoir or into the tributaries of the reservoir.

MR. BRANCH: These floating collectors, am I correct in saying they are located at the mouth of

tributaries?

MR. ZAPEL: They are actually in the inlet bay within the reservoir itself, near the mouth of each of the tributaries. Yes, that's true.

MR. BRANCH: Would these floating collectors be able to assist in avoiding any potential predation in downstream movement?

MR. ZAPEL: Yes, that's possible.

MR. BRANCH: I have nothing further.

H.O. SILVA: Thank you.

NOAA?

MR. KEIFER: Just a couple quick questions for Mr. Zapel.

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CROSS-EXAMINATION OF CAL TROUT

BY NOAA FISHERIES

BY MR. KEIFER

MR. KEIFER: Is a channel around Bradbury Dam and coming into the reservoir somewhere a viable method of fish passage?

MR. ZAPEL: Are you speaking of actually diverting flows around Lake Cachuma or diverting fish around Lake Cachuma into a channel?

MR. KEIFER: Whichever way. You're the engineer. You tell me.

MR. ZAPEL: I think it could be studied and evaluated. I'm not aware of a fish bypass channel of that length that has been constructed.

MR. KEIFER: But it is a possibility that is worthy of study, and current understanding and data are incomplete to draw any conclusions about it.

MR. ZAPEL: Current understanding and data on Lake Cachuma and Bradbury Dam, in particular, are insufficient. Yes, but it is an alternative that could be studied.

MR. KEIFER: Thank you.

H.O. SILVA: Staff.

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CROSS-EXAMINATION OF CAL TROUT

BY BOARD STAFF

MR. FECKO: Mr. Edmondson, I am looking at your analysis of a 3A2 sort of alternative as well as 3A2 with a dry year criteria, and it looks like the 3A2 you calculate at 7,500 feet or acre-feet or so a year is what it would cost the contract for the water supply; is that right?

MR. EDMONDSON: Are you referring to Table 2?

MR. FECKO: Yes.

MR. EDMONDSON: My calculations are as follows, for clarity purposes. 3A2, which I characterize

in a normal or above water year, which is column A, based upon my calculations would total 7,878 acre-feet per year. Under the drier scenario, it would total 3,766 acre-feet per year. And then extracting that to get a ten-year average, based upon the 80-20 formula that was built into the assumption, I came up with a total of 7,056 acre-feet.

MR. FECKO: I guess I am trying to understand if you've done an analysis of what reservoir elevations or sending those flows down stream, how those affect reservoir conditions and how that ties into moving fish upstream or into the reservoir. Obviously, if you send more water downstream and contractors are still using their share, it is likely that reservoir elevations could actually decrease. And if that is the case, and then time into moving fish upstream, how are those two related?

MR. EDMONDSON: Sir, I am in total support of the Draft EIR concerning the limitations of the modeling done for these proceedings. But it is a monthly time step, and it does have some limitations. I did not conduct a reservoir routing model or extended model, for example, looking at changing reservoir storage by implementing this over a period of time.

MR. FECKO: Thanks.

H.O. SILVA: Ms. Kraus, you have redirect? And if so I want to take a little break.

MS. KRAUS: We are not going to do any redirect.

H.O. SILVA: That means we can get to Dr. Li. I am almost tempted to -- let's take a break. Ten minutes, just a stretch break. We'll start at 10:30 with Dr. Li, then.

(Break taken.)

H.O. SILVA: We have to do the evidence.

MS. KRAUS: Mr. Silva, at this time Cal Trout would like to move to admit Cal Trout Exhibits No. 1 through 96.

H.O. SILVA: Any objection?

Hearing none, they are accepted into evidence.

Thank you very much.

Now we are going to get into Dr. Li's testimony. Again, just to remind you, you have 20 minutes.

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CONTINUED DIRECT EXAMINATION OF NOAA FISHERIES

BY MR. KEIFER

MR. KEIFER: Good morning, Mr. Silva. NMFS calls as its next witness Dr. Stacy Li, and we have distributed and would like to mark as NOAA Exhibit 18 a PowerPoint presentation of Dr. Li, which merely reflects the written testimony previously submitted.

H.O. SILVA: Okay.

MR. KEIFER: Dr. Li, there is a preliminary thing we have to do before we start.

Is NOAA Exhibit 4 your testimony today in front of the Board?

DR. LI: Yes, it is.

MR. KEIFER: Do you affirm that your testimony is true and correct?

DR. LI: Yes, I do.

MR. KEIFER: Thank you.

DR. LI: Good morning, Mr. Silva. First let me thank you for extending me the courtesy of getting back late. From a personal perspective it was significant in that on my wife's birthday, down in the Grand Canyon, she saw a condor from 20 feet.

H.O. SILVA: Does that mean more rain coming?

DR. LI: I don't know.

I am here to present testimony relative to instream flow studies and biology of Southern California steelhead in relation to the Cachuma Project.

As I think we all know, the Cachuma River is a very flashy hydrograph. By flashy I mean the rain events or storm events tend to create very high flows in the channel. But the high flows only last for a short period of time, so they are generally high magnitude events with short duration and generally receding very quickly to a

fairly low base flow.

The hydrograph also is unpredictable, as most people in this room are painfully aware. But the significance of this hydrograph is that the Southern California steelhead are adapted to these conditions. By that they are an unusual steelhead in that they come into the river as winter-runs with ripe gonads, but they tend to migrate as far upstream as they possibly can. And this makes sense in terms of this watershed in that with the lower flows the adult fish have to get up, find mates, build redds, spawn and leave before the flows go down.

This is essentially an inference. But as far as I know the Southern California steelhead have not evolved to the level of amphibians and they have not demonstrated the ability to walk over land like walking catfish.

Next slide, Andy, please.

This is a map of the watershed. Bradbury Dam bisects the watershed approximately in half. And based on historical hydrology, apparently the Lower Santa Ynez below the dam probably became intermittent regularly under historical conditions.

The conditions downstream of the dam are very difficult in that the thermal equilibrium conditions are essentially driving water temperatures to a very high level. So it is forcing water temperatures to become very

warm. The only way to overcome the equilibrium conditions from a management perspective is to provide higher flow releases than presently occur because that provides the sufficient mass to resist thermal gain and to reduce residence time, travel time. It will reduce the residence time and increase the travel time.

H.O. SILVA: Could you, just for the record, when you have an exhibit, just describe it for the record.

DR. LI: The map is NOAA Exhibit 7A.

H.O. SILVA: Thank you.

DR. LI: Next slide, please.

This is the effects of Bradbury Dam on the hydrology. This is an Exhibit MU-35. And it shows the effects Bradbury Dam on the impaired -- the already impaired hydrology of Juncal and Gibraltar Dams, and it looks to be about an 85 percent decrease in water availability.

MR. PALMER: Excuse me, Mr. Silva. I appreciate Mr. Li's discussion, but I don't find this in his written direct testimony. It seems very much beyond his direct testimony that was presented. He is talking about his direct testimony an investigation that needs to be done regarding flow.

MR. KEIFER: Mr. Silva, this is already in evidence and this is directly relevant to the need for the

studies that --

H.O. SILVA: But I would sustain the objection. He needs to summarize his written testimony and present new evidence. That is the rule of testimony. So I'm going to ask you to summarize your written testimony.

DR. LI: Okay. Another biological effect of Bradbury Dam is that it inundates apparently the prime spawning habitat of the steelhead and that the current status of the populations in the Lower Santa Ynez is somewhere around a hundred adults. That number, a hundred adults, is an estimate, but it is in terms of a comparative state the number a hundred is very low. And also in the Lower Santa Ynez, the Fish Management Plan identified limiting habitat quality as a limitation, too.

MR. PALMER: I have to renew my objection.

MR. WILKINSON: Same objection.

MR. PALMER: None of this is in the written testimony.

H.O. SILVA: I would agree. I am concerned you are providing new evidence as testimony.

Is there any way you can go back and summarize your written testimony?

DR. LI: I will try, sir.

MR. WILKINSON: We would ask the testimony that is outside the written testimony, which is only about two and a half pages, be stricken.

H.O. SILVA: Can you give him a copy of the written testimony and have him summarize it?

Why don't we take a ten-minute break. I will give you time for your client to -- for your witness to prepare. Take a 15-minute break until 11:00.

(Break taken.)

H.O. SILVA: I am going to be proactive on this one. I'm just going to strike the ones -- we've been through it with our staff. We are just going to strike the -- you still want to do your presentation or just summarize your written? There are two options. We can strike the whole thing, and you can do it verbally or we can or I can strike some of the pages, some of the presentation.

DR. LI: Well, why don't I just give it verbally. We will get through it quicker.

H.O. SILVA: That is better for me. Why don't we strike this then, if he is going to do a verbal summary, and we will strike his verbal testimony from the time he agreed to his written testimony. And we will start from scratch and I will give you 15 minutes exactly, and I will be very, very strict on time.

DR. LI:

H.O. SILVA: Let's do that.

DR. LI: I think my perspective on the instream flow studies, the message of that is that you cannot stake instream studies in a vacuum and that you have to rely on other considerations. Those being the geomorphological processes of the Santa Ynez River itself. In order to understand that, you are going to have to analyze how the channel has performed prior to the dam being in place and then how it has performed since.

Another important component of channel form is also the riparian community and the amount and extent of that community and how that affects the channel shape of the river. When you talk about water, you are not only talking about surface flow, but you are talking subsurface flow, and you are talking about that in the different dimensions. You are talking about what the water is doing longitudinally, what it is doing laterally in the channel, what it is doing vertically, the groundwater-surface water interchange. And there are a variety of ways to look at that.

One of the most promising ways to do that is to actually have a forward looking remote sensor on a helicopter and simply fly the length of the stream to take a look at the imprint of that infrared images to a

relationship between not only the surface water but how the extent of the groundwater table interacts.

There are a variety of things, other things that you can do. I put those down in the testimony in terms of installing piezometers or taking a look at observation logs to see what the water tables look like. If you don't understand that stuff, the object of the instream flow studies is to get surface water so it benefits the fish. If it gets into a situation where these other processes are inhabiting that, you are simply going to be making the wrong kind of studies.

Now in terms of making evaluations in terms of the instream flow study, there has been a lot said about the top width. And in summary, the top width is a poor habitat index because it is inconsistent, doesn't take into consideration the parameters that are relevant to steelhead directly.

The most widely used is PHABSIM within the IFIM approach. And it's simply a model that develops the sum parameters that you can look at in a more quantified fashion. But in relation to those kind of models, you also have to take into consideration how water deliveries are being made in the channel and how that makes sense relative to steelhead biology.

In reviewing for this testimony, it was confusing to

me to simply have target flows and target flow locations identified without understanding the basis for those recommendations. I don't know what five cfs looks like at Alisal. I don't know what two and a half cfs looks like. It is important to have a feeling for what the water is doing at those locations and to find out what the justification for those are going to be, to see whether reasonable or not.

The Santa Ynez estuary is a very important component of steelhead production in the Santa Ynez River. Any other streams in California that do have an estuary is very important largely because the estuary is the location where the smolts grow the quickest. There is a very strong correlation between the size of the smolt as it leaves and its probability of surviving to return.

So the estuary has to be studied in terms of what are its conditions now. The question of how this estuary works, whether there is a need for continuity with the remainder of the lower river. But it's fundamental questions of -- you have to understand the estuary and protect that because it is the thing that probably determines the survival of the returning smolts.

Bradbury Dam is the -- precludes steelhead from access to the upper river. When you make a comparison between habitat availability below the river and habitat

availability above the river, the habitat below the river is something like 71 percent as opposed to 29 percent. So the chances of being in a situation where we can get recovery of the species, the advantages to viewing access above is, one, that there is more habitat, two, the thermal equilibrium conditions are less adverse. And if you recall the hydrograph slides, you have much more water to work with. So it is highly probable that steelhead upstream of Bradbury would not have water that is not used for other purposes as well.

And that is my testimony.

H.O. SILVA: Thank you.

On cross, Bureau.

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CROSS-EXAMINATION OF NOAA FISHERIES

BY BUREAU OF RECLAMATION

BY MR. PALMER

MR. PALMER: Morning, Dr. Li. Since you don't have the benefit of the other NOAA panel members, I wanted to ask you this particular question: In the studies, the investigation you have just described, what would be overall purpose of those studies? For example, are they intended to be used in the recovery planning process or would they be for use in developing a biological opinion? What is the underlying purpose for your study that you

talked about?

DR. LI: You know, in terms of that, you're actually studying two different things. If you are studying the conditions below Bradbury, I think that you are working against physics. It is going to be very difficult to create the kind of habitat that you want down there without an awful lot of water. So the purpose for instream flow studies and understanding all that is to understand under these very difficult circumstances how you can create a situation where you can get larger production than a hundred spawners.

In terms of the upper watershed, on the other hand, what your purpose for those studies is to understand what flows are appropriate and the potential for recovery. So in terms of a simple-minded sort of thing, I sort of see the work going on downstream of the reservoir as sort of staving off any sort of jeopardy condition. Whereas, when you're looking at the condition of the upper watershed, I see that more as -- I see that there are some technical challenges to that, but I see that more as a greater potential for recovery.

MR. PALMER: You're aware that NOAA Fisheries did issue a nonjeopardy Biological Opinion on the Cachuma Project operations; is that correct?

DR. LI: I am aware of that. I came to the

service of the agency in February 2001, so my knowledge of all that stuff is really limited.

MR. PALMER: In discussing your studies, do you have any particular thoughts on who would actually be conducting the studies that you are suggesting?

DR. LI: I would think that that would be under the authority of the State Water Resources Control Board to develop an appropriate list of people or have them identify who would be the most appropriate people to make these studies.

MR. PALMER: So you didn't have any particular parties in mind?

DR. LI: O, sir.

MR. PALMER: Do you have any idea about the cost of the studies you suggested?

DR. LI: The cost of studies depends on what the objectives of the studies are. So for me to just be throwing out numbers would be inappropriate.

MR. PALMER: You didn't perform any cost analysis?

DR. LI: No, sir.

MR. PALMER: How about, did you consider or do you have any idea of how long it would take to complete the studies you are suggesting?

DR. LI: Some of the studies can be conducted

relatively quickly. But other studies because they entail questions of climate cycles and hydrological cycles, those kinds of things, if you want to get greater assurance, by necessity they will go on for a longer period of time.

MR. PALMER: Can you perhaps be a little more specific. When you say, first of all, studies can be done quickly, what time frame do you describe as quickly?

DR. LI: Some of these can be done within a season. Others would take longer.

MR. PALMER: When you talk about the longer term studies, what time frame are you thinking about there?

DR. LI: It's difficult to say. For instance, PG&E on the Potter Valley Project had the ten-year study, monitoring study, that they had to do. And seven of the ten years were extremely dry. So in essence they've only had four different conditions over that ten years. So it depends on the quality what the weather gives you so you can put that within the context of historically what happened and what likely is going to be.

MR. PALMER: So the studies would take as long as you would perceive conditions are available to get the results you are after?

DR. LI: You would get greater assurance that way.

MR. PALMER: Thank you.

That is all the questions I have.

H.O. SILVA: Thank you.

Member Units?

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CROSS-EXAMINATION OF NOAA FISHERIES

BY MEMBER UNITS

BY MR. WILKINSON

MR. WILKINSON: Morning, Dr. Li.

DR. LI: Morning, Greg.

MR. WILKINSON: I don't remember whether we met on the site tour that the State Board took of the Santa Ynez River or not. It has been a pleasure talking with you since that time.

I wanted to know, though, was that your first visit to the Santa Ynez?

DR. LI: It was the first time in a long time. When I first worked for -- when I apprenticed with Doc Kelly, I think I was shown that lower part of the river, in terms of bidding on a project.

MR. WILKINSON: That was a number of years ago?

DR. LI: In the '80s.

MR. WILKINSON: Did you ever participate then as a member of the Technical Advisory Committee?

DR. LI: No, sir.

MR. WILKINSON: Have you participated on the Adaptive Management Committee that's been established more recently?

DR. LI: No, sir.

MR. WILKINSON: Am I right you have never reviewed any of the drafts of the Fishery Management Plan as it was being developed?

DR. LI: I did not do that.

MR. WILKINSON: I gather from your testimony about when you joined NOAA Fisheries that you did not participate in the development of the Biological Opinion either?

DR. LI: That's correct.

MR. WILKINSON: Are you aware, Dr. Li, that the Technical Advisory Committee from 1993 on has developed a rather large body of scientific data and work on the Santa Ynez?

DR. LI: I am aware of that.

MR. WILKINSON: You have identified, at least my count was, that there were about 12 different studies identified in your testimony, and I wonder if you were aware of work that's already been done and whether any of that work deals with the subject matters that are the subject of your proposed study?

DR. LI: Some of it does in terms of studying environmental conditions in the estuary was one that I noticed was there.

MR. WILKINSON: For example, you propose to examine the role of the riparian community along the main stem below Bradbury Dam and providing channel stability and habitat structures; is that right?

DR. LI: Yes, I did.

MR. WILKINSON: And I think you said in your testimony this morning that that is an important component to look at?

DR. LI: Yes, sir.

MR. WILKINSON: Did you review the study that was conducted by Jones & Stokes in 1997 to assess the change in the riparian community that has occurred as a consequence of Bradbury?

DR. LI: I did not.

MR. WILKINSON: Are you aware that the State Board has already accepted that study as being in compliance with Water Right Order 94-5?

DR. LI: I was not aware of that.

MR. WILKINSON: You also propose a historical stream channel study to understand the change in stream morphology below Bradbury; is that right?

DR. LI: I did.

MR. WILKINSON: Have you reviewed any of the data that has been collected by Stetson Engineers that evaluates changes in gravel deposits?

DR. LI: I have not.

MR. WILKINSON: You also propose to study the surface water-groundwater interactions in the main stem below Bradbury; is that right?

DR. LI: I said that was important.

MR. WILKINSON: Have you reviewed the Santa Ynez River hydrology model that was developed for the river specifically?

DR. LI: I have not.

MR. WILKINSON: Do you know whether that model incorporates a surface water-groundwater interaction component?

DR. LI: No.

MR. WILKINSON: You are not aware that the model's been calibrated and verified?

DR. LI: No.

MR. WILKINSON: You also proposed, I think part of your testimony, to conduct a PHABSIM study to assess instream flows?

DR. LI: Yes.

MR. WILKINSON: Have you reviewed the Department of Water Resources study that one was

undertaken in the late 1980s?

DR. LI: I am familiar that there was one conducted, but I haven't reviewed the details of that one.

MR. WILKINSON: Is it your understanding, though, that the Technical Advisory Committee evaluated the DWR study and that the Department of Fish and Game chose to use a different method to evaluate instream flow conditions in the river?

DR. LI: I did not.

MR. WILKINSON: Have you reviewed the Technical Advisory Committee study that relates fish habitat to flow in the main stem between Bradbury and Solvang?

DR. LI: No.

MR. WILKINSON: I presume, then, that you have also not evaluated or reviewed the Technical Advisory Committee study that relates to fish passage conditions to flow in the main stem below the dam and above Lompoc?

DR. LI: All I understand is that that has been located.

MR. WILKINSON: You have also proposed in your testimony the creation of a habitat map of the main stem and the major spawning tributaries?

DR. LI: Yes.

MR. WILKINSON: Have you reviewed any of the

data provided by the Technical Advisory Committee in the synthesis report that was prepared by Dr. Hanson?

DR. LI: I have seen some of that, but it was a cursory review.

MR. WILKINSON: Did you review the material that summarizes the result of the habitat mapping that does occur in the main stem and the tributaries downstream of the dam?

DR. LI: I have seen it.

MR. WILKINSON: Did you find that material to be deficient?

DR. LI: With the habitat map there is always this need for more information.

MR. WILKINSON: You can never study enough?

DR. LI: There is -- particularly with habitat maps, sometimes it is very important to document site-specific conditions to understand the overall effects. And some maps include that and some don't.

MR. WILKINSON: Are you aware that the Member Units through the Adaptive Management Committee are currently undertaking a study of the habitat in the upper basin of the Santa Ynez?

DR. LI: I did not know that.

MR. WILKINSON: Are you aware that the majority of the basin in below Bradbury Dam is in private

ownership and that access to much of the river in the lower basin is prohibited?

DR. LI: I understand that that is a tremendous problem, which is why the upper watershed looks so attractive to me, because most of that is public land.

MR. WILKINSON: You propose, I think in your testimony, identifying flow deliveries along the Santa Ynez and the determination of whether those deliveries support steelhead; is that right.

DR. LI: Yeah. I don't fully understand the timing of those and whether they could be used to the advantages of steelhead as well as to serving its other functions.

MR. WILKINSON: Are you aware, sir, that there has been extensive study of the flow releases that were made and have been made from Bradbury Dam under 89-18, Water Rights Order 89-18, and their impacts on steelhead?

DR. LI: No.

MR. WILKINSON: Have you reviewed any of Scott Engblom's work?

DR. LI: I have reviewed his work, and it looks like there is a tremendous amount of energy put into that. And despite all that energy, all we are getting is a hundred spawners.

MR. WILKINSON: But you are finding that the

work, then, is deficient and needs further study or what?

DR. LI: It depends on what you mean by deficient. It is a monumental task to repair a system where so much water has been taken away from it. And to understand how to repair that, given all of the apparent limitations that we have.

MR. WILKINSON: But the monitoring work that has been undertaken with respect to the impact of the flow releases on fish downstream, is that deficient, in your view?

DR. LI: I think, given the kinds of conditions that are downstream and the need not to lose gear, Scott's doing the best job he can.

MR. WILKINSON: I think in your testimony that was written you also proposed that the Board order a study of the releases from Gibraltar Reservoir; is that right?

DR. LI: I think when you're dealing with this sort of thing, if you can get a more global view of that, then you can understand what is available and what your options are.

MR. WILKINSON: Is it your understanding that the release regime from Gibraltar Reservoir under the permits issued for Gibraltar are before the Board in this proceeding?

DR. LI: I understand that they are, but I

think it is smart if people are looking at that that you view that as -- to identify potential limitations.

MR. WILKINSON: You proposed, and I think you referred to this in your testimony this morning, to evaluate the rationale for the target flows in the main stem in light of the results of the PHABSIM study that you proposed?

DR. LI: Yes.

MR. WILKINSON: Are you aware of the Technical Advisory Committee studies and, in fact, that they were designed by the Department of Fish and Game and that those have served as the basis for the target flows?

DR. LI: Yes, but I don't understand their assessment.

MR. WILKINSON: Would that be a question better directed perhaps to the Department of Fish and Game?

DR. LI: It was their decision to do that. Yeah.

MR. WILKINSON: With respect to your proposed study of lagoon, water temperatures, dissolved oxygen concentrations and salinity in the lagoon, have you reviewed the data that the Technical Advisory Committee has already collected regarding water quality in the lagoon?

DR. LI: They have collected preliminary stuff and it is interesting, I think, given the information that they have collected, they can begin to pose more definitive studies, based on the baseline data they've collected.

MR. WILKINSON: Isn't it true that the studies that have already been undertaken have noted the seasonal variations in temperature and salinity and dissolved oxygen at different depths as well as along a longitudinal gradient in the lagoon?

DR. LI: An you ask me that question not in the negative?

MR. WILKINSON: Try that again. There were a lot of words there, weren't there?

Are you aware, Stacy, that the studies that have already been undertaken with respect to the lagoon have included evaluations that were undertaken seasonally of the variations at different depths of salinity, dissolved oxygen, and DO -- DO is dissolved oxygen -- and temperature?

DR. LI: Well, that's a good start. You can study -- this is a -- we are trying to discover the welfare of the fish, after all. Those are things that are sort of important to the fish. Sometimes the fish do things that us fancy-schmancy guys with degrees, they just

do things that are unexpected. So you have to connect that physical stuff with the fish.

MR. WILKINSON: My point, Dr. Li, is that the variables have already been studied and are identical to the variables in the study that you propose; aren't they?

DR. LI: I was saying that those -- that you have to understand those basic conditions and bring those conditions forward to see how it is working with fish.

MR. WILKINSON: Have you reviewed yourself the results of any of the studies in the lagoon?

DR. LI: I have read them with interest.

MR. WILKINSON: Are you also aware the Technical Advisory Committee has attempted to study steelhead in the lagoon but, as testified to by Mr. Keegan earlier this morning, the studies were foreclosed by NOAA because of the impact on tidewater gobies?

DR. LI: There were problems.

MR. WILKINSON: With respect to your proposed study of steelhead diet, how is that study conducted?

DR. LI: Well, there are a variety of ways to do that. First part of that would be to document the kinds of potential food critters that are there. And the trick with this, of course, is how to obtain samples from the fish without harming them.

MR. WILKINSON: In fact, don't you pump the

stomachs of the fish.

DR. LI: That is the -- the first attempt is stomach pumping, yes.

MR. WILKINSON: If there are a hundred adult steelhead in the river, would you advise that as a technique to be used on these fish?

DR. LI: In terms of the adults, it is -- well, in terms of the adults they are going to be in a situation where you are probably not going to be able to do that, anyway, and that is not the concern. It is the concern of the smolts primarily. Who's in the lagoon? Is it just smolts or is it used for summer rearing by the young of the year?

MR. WILKINSON: Mr. Li, with regard to your investigation of alternative means of providing steelhead passage around the dam, are you aware that the Adaptive Management Committee that has been formed subsequent to the Technical Advisory Committee is already proposing to study steelhead passage around the dam?

DR. LI: I didn't know that.

MR. WILKINSON: Are you aware that the Adaptive Management Committee is already studying the upper basin fish abundance and genetic structure?

DR. LI: I understand that they are starting that.

MR. WILKINSON: And I think, finally, you propose an investigation of the instream flow requirements that would support migration spawning and rearing above Bradbury; is that so?

DR. LI: Yes.

MR. WILKINSON: Does the Cachuma Project control any of the flows above Lake Cachuma?

DR. LI: That is what makes it so tantalizing up there. Because instead of being a 90 percent impaired watershed, we are talking about perhaps a 10 percent impaired watershed. And that is why the potential for recovery is so great up there.

MR. WILKINSON: My question was: Does the Cachuma Project control any of the instream flows --

DR. LI: No, sir.

MR. WILKINSON: In fact, that Bureau of Reclamation, which is the entity whose permits are before the Board, has no interest in either Gibraltar or Juncal Dams, does it?

DR. LI: I think they'd be a little worried if one of them started crumbling or something like that.

MR. WILKINSON: Or if they were taken out of service completely as proposed by one of the other NOAA witnesses?

DR. LI: It is there. I am sure they're a

responsible agency and they are going to want to know what is going on in their neighborhood.

MR. WILKINSON: Do they have an ownership interest in either dam?

DR. LI: No.

MR. KEIFER: Objection. That calls for a legal conclusion. It is not a subject of Dr. Li's testimony.

H.O. SILVA: He can answer. If he doesn't know, he doesn't know.

DR. LI: I think they are responsible and they are aware that they are there. Relative to the responsibility for them, they have not.

MR. WILKINSON: Dr. Li, I think Mr. Palmer asked you this question about the cost of the studies that you have proposed. I think your answer was that you hadn't run that analysis. I don't want to repeat the questions so I will try to ask it in a slightly different way.

Do you have a ballpark estimate of what the cost of the studies would be?

MR. KEIFER: Objection. That was asked and answered. He said he didn't want to ask the same question, yet he did.

H.O. SILVA: This one I will sustain.

MR. WILKINSON: You got another one, Chris. That is all I have.

H.O. SILVA: Thank you.

Santa Ynez?

MR. CONANT: No questions.

H.O. SILVA: City of Lompoc?

You do have a question?

MS. DUNN: You thought we are just going to sit here and not ask questions. I just have a couple of questions I would like to ask Dr. Li.

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CROSS-EXAMINATION OF NOAA FISHERIES

BY CITY OF LOMPOC

BY MS. DUNN

MS. DUNN: Dr. Li, would you consider yourself an expert in IFIM methodology?

DR. LI: There is only one guy in the state that I think is better than me.

MS. DUNN: Well, then, I take your answer would be yes?

DR. LI: (Witness nods head.)

MS. DUNN: I'm not going to ask that question.

H.O. SILVA: You should say yes when you're shaking your head like that.

DR. LI: Yeah, I think I am pretty good at it.

MS. DUNN: Is channel stability a factor that you would consider in conducting an IFIM study?

DR. LI: Well, once again -- originally those sorts of studies were conducted, and one of them maxims was that the banks had to be absolutely stable. And there are situations where you can conduct those sorts of studies and not harm the outcome. It's simply understanding the rate at which these banks are changing and accounting for that in your model.

This is a model -- it is not -- the importance of models is that it allows you to study an awful lot of variables at once so you can see the interactions. So there is nothing magical about it. If you perform one of these things poorly, you're going to get poor results. If you design it well and understand the limitations and all that, you can actually get a very powerful tool out of it.

MS. DUNN: But you do have to take into account the channel stability into your model?

DR. LI: That's correct.

MS. DUNN: Isn't it also true that streams below a dam are in a constant state of change until they reach some sort of equilibrium?

DR. LI: There are challenges to that, but, golly, I'm sort of thinking about all the ones that are done -- an awful lot of studies that are done there was

attached most of the river names. So, yeah, there are -- it changes the bed load transport in terms of that. And the channels have a certain characteristic to them.

MS. DUNN: Is it true that the Santa Ynez River has not yet reached equilibrium?

DR. LI: I wish I were a fluvial morphologist so I can answer that accurately. I don't know whether -- I don't know whether it has or not. You've got sediment contribution from the tribs down below, so certain segments may be in equilibrium. There are other areas that are probably not, but I don't know.

MS. DUNN: Would you believe -- wouldn't you believe that the Santa Ynez River is still changing, the channel is still changing, then?

DR. LI: He name of the game is how quickly is it changing. And if you can get some information that provides information to make decisions, then I think it is still a good thing to do.

MS. DUNN: While I don't question whether it is a good thing to do or not, I am just questioning whether we are not -- the IFIM study that was done in 1988 or '89 would necessarily be representative of the channel today, particularly if that channel had experienced high flood flows or periods of drought during that intervening period.

DR. LI: As I said before, a PHABSIM study is -- there are some good ones out there and there are some real bad ones out there. I haven't had the opportunity to delve into how that one was constructed, so because I haven't I can't comment on your question.

MS. DUNN: Just generally, would you expect an IFIM study that was done in 1988 to necessarily be representative of the channel conditions that exist today?

DR. LI: That is why I asked for a new one.

MS. DUNN: That is all the questions I had. Thank you.

H.O. SILVA: Thank you.

County?

MR. SELTZER: No.

H.O. SILVA: Fish and Game.

MR. BRANCH: No questions.

H.O. SILVA: No questions, okay.

Cal Trout.

MS. KRAUS: No questions.

H.O. SILVA: Staff, any questions?

Any redirect, Mr. Keifer?

MR. KEIFER: No.

H.O. SILVA: Well, thank you.

I think that takes us to all the testimony. I'm sorry, we need your exhibits. I'm assuming you are

withdrawing the latest.

MR. KEIFER: Yes. We will withdraw.

H.O. SILVA: You haven't submitted it yet. As long as you don't submit that, I think we are fine.

MR. KEIFER: Since we are being preemptory, I thought it would be appropriate to withdraw it before being offered. I will offer into evidence NOAA Exhibits 1 through 17 previously marked and offered?

H.O. SILVA: Any objections?

Okay. Good.

MR. WILKINSON: We also had several exhibits with respect to the NOAA testimony, and I would offer as evidence Exhibits 247 through 253.

H.O. SILVA: Any objections?

If not, hearing none, we will take both evidence into the record.

Now, good time right now. Why don't we break until 1:00 and then get started on the rebuttal testimony. What I want to do is go through some of the --

MR. WILKINSON: Mr. Silva, we do have a problem with one of our witnesses who is unavailable from one to three. I was wondering if we can perhaps put on our water conservation rebuttal panel early or late.

H.O. SILVA: Why don't we just do it late. I would rather take a little break here and let people get

ready. Let's have some ground rules.

The first thing is I want to make sure -- is everybody willing -- I have the sense everybody wants to get done today if we can, even if we stay late. I'm seeing everybody agree. Why don't we agree to that first. And then on the redirect -- I'm sorry rebuttal, I am going to rule there is going to be no redirect on rebuttal. And then I guess we set time limits. I am not going to set any time limits on the cross on the rebuttal, but I ask people to stay on point.

I'm going to try to regulate this and if I feel that you are wasting time because we do want to get done today. I think Cal Trout had a good suggestion of perhaps, since we are forcing you a little quickly to do the rebuttal testimony, that we allow about ten minutes after everybody puts on their rebuttal testimony to take a ten-minute break to allow people to prepare their questions for the cross.

MR. BRANCH: Ten minutes after a full panel?

H.O. SILVA: After a full panel. That gives people time to get ready for their questions.

Is that okay for everybody?

Okay. Any other comment, questions on the last phase here?

Hearing none, why don't we take a nice lunch break

till 1:00, and then we will be ready to go with the Bureau on rebuttal testimony.

(Luncheon break taken.)

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AFTERNOON SESSION

---oOO---

H.O. SILVA: Before we go to the parties, first Dana wants to enter the final item, final draft into the record.

MS. DIFFERDING: I would like to formally offer into evidence as a staff exhibit by reference Staff Exhibit 10, which was listed in the hearing notice. It is the Board's Draft EIR, including all the references listed in Section 10 of the Draft EIR with the exception of those documents that were stricken in the copy of the reference section that we stipulated to yesterday.

H.O. SILVA: Any objections?

We will enter that into the record.

Thank you.

It is my understanding we have the Bureau --

MR. WILKINSON: I will explain that. We have rebuttal witnesses. We are trying to do a combined rebuttal so we can be a bit more efficient. We have rebuttal witnesses for CCRB, Cachuma Conservation Release Board, ID No. 1, parent district and also Bureau of Reclamation. We will try and give you a combined rebuttal. We do have one problem, and that is unavailability of witness from one to three today. So as I have indicated, we would like to bring back or have the

opportunity to bring up for rebuttal also Mary Ann Dickinson and Misty Gonzales after 3:00 today.

H.O. SILVA: That is fine. Let's do that.

MR. WILKINSON: We will get started then.

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DIRECT EXAMINATION OF COMBINED PARTIES PANEL I

BY MR. WILKINSON, MR. CONANT AND MR. PALMER

MR. WILKINSON: Mr. Shahroody, I'm going to begin with you and ask first whether -- I'm sorry, Mr. Payne needs to be sworn in.

(Oath administered by O.H. Silva.)

H.O. SILVA: Again on timing, we have an hour for the panel. They have a panel of three parties. We will go 20 minutes per witness.

MR. WILKINSON: We will be within that with these witnesses.

H.O. SILVA: That gives you an hour and 20 minutes.

MR. WILKINSON: I don't think it will be that long, Mr. Silva. No prediction. I haven't spoken with Michael Jackson yet.

H.O. SILVA: Twenty minutes per witness will be fine.

MR. WILKINSON: Understood.

Mr. Shahroody, let's start with you, and let me ask

to begin with: Is Member Unit Exhibit 264 a true and correct copy of your rebuttal testimony?

MR. SHAHROODY: It is.

MR. WILKINSON: Is Member Unit Exhibit 265 a true and correct copy of your rebuttal PowerPoint presentation?

MR. SHAHROODY: Yes, it is.

MR. WILKINSON: Have you had an opportunity to analyze Alternative 3A2 as recommended by NOAA Fisheries and also as modified by Mr. Edmondson in his testimony?

MR. SHAHROODY: I have.

MR. WILKINSON: Would you please summarize the results of your analysis in your rebuttal testimony?

MR. SHAHROODY: Alternative 3A2 as recommended comes from Cachuma contract EIR/EIS, and that is supposed to provide flows in the downstream areas specifically to maintain flows at what is referred to as San Lucas Bridge/154 Bridge and at Alisal Bridge of the flows that are shown on, I think it is, the slide No. 2, which is right there.

MR. WILKINSON: That's correct.

MR. SHAHROODY: Can I go back there, please? That is -- the flows that you see there, those are the flows put forward, set forward in the EIS/EIR of 1995 in Cachuma's renewal.

MR. WILKINSON: Mr. Shahroody, are those flows measured at the dam or the reach which is the target?

MR. SHAHROODY: As I indicated, those flows specifically stated in the document, in the environmental document, to be maintained and achieved at 154 Bridge and Alisal Bridge at the same time.

Now the lower bullet point, which refers to as 3A2 for dry years, that is where the Cal Trout basically looked at dry years and it said, instead of using the flows that is set forth in this slide every year, in dry years, which they indicated which would happen 20 percent of the time, they would use reduced passage flows. That means instead of having 48 cfs or 20 cfs, they would use 5 cfs in those dry years, or 20 percent of the years. In other words, two years out of ten years they would use the lower flow rates, and I've got two hydrographs showing these flows that means flows for normal and above normal years. Of course, flows for dry years consisting of 20 percent of the years.

Next slide.

This is the hydrograph of flow to be maintained at the Highway 154 Bridge and Alisal Bridge as set forth in the Cachuma renewal. And as you see it, from mid February to mid April it's 48 cfs. It drops down to 20 cfs and, of course, it's then raised to 25 cfs for one week in the

month of June, and then gradually ramped down to 10 cfs, and that is maintained through September. It's dropped to 5 cfs, kept through the rest of the year.

Next slide.

This is the hydrograph of reduced flow for dry years, 20 percent of the years where we don't have the 48. We don't have the 20 cfs, except we have one increase in flow for the first week of June for one week and then, of course, we gradually reduce to 10 cfs. Again, these flows have to be maintained as set forth.

H.O. SILVA: I have a question. I've got two rebuttal testimony documents. Are you going to be presenting two?

MR. WILKINSON: Mr. Shahroody is going to be questioned also by Mr. Conant with respect to another part of his testimony, as part of our rebuttal.

H.O. SILVA: Okay. Sorry.

MR. SHAHROODY: This hydrograph is for dry year conditions, again meeting flows at the 154 Bridge and Alisal Bridge. Cal Trout made calculations given the 3A2 criteria with a modification for dry years, the amount of water that would be required to be released from the project. We looked at that. And just looking through the computation, we noticed there are certain errors or corrections have to be made.

First item, the calculation underestimates conversions from acre-feet to -- from cfs, sorry, to acre-feet. That's basically about 4.4 percent of volume of water understated. The second one is -- it's using the correct number of days for flow intervals. You saw there were different flow intervals. Those had to be corrected. And also for ramping in June, as I mentioned, it ramps from 25 cfs down to 10 cfs.

The way it was done in Cal Trout calculation, it was ramped down an amount of one day. After the first week of the June week being at 25 cfs, but as you saw the hydrograph and 3A2 requires that it be ramped gradually to the end of June.

Then in Cal Trout calculation, of course, it relies on or accounts on the downstream water releases. That means to the extent downstream water right releases are meeting the fish flows, therefore, project does not have to be released. In that respect it was determined or calculated by Cal Trout to be 92 percent of the years that that would occur. But actually, looking at WR 89-18 releases exclusively, not including 7337. That is what is in operation right now. Updating those releases for 2001 and 2002, just following the Cal Trout methodology, that comes out to be 64 percent of the years that downstream water rights would contribute.

The fourth factor which was again overestimation was occurrence spills. Again, to the extent the spills are occurring, maintaining fish flows, the project doesn't have to release. And Cal Trout used 37 percent of the time spills would occur. But actually looking at historical spills, there are three years which are very minor spill amounts. And, in fact, one of the spills was for six days. But excluding those, actually the percentage would be reduced from 37 percent of the time to 30 percent of the time that spill would contribute flows for the fish.

Lastly, Cal Trout basically assumed as far as meeting those flow requirements, to the extent those flow requirements are met at the dam, those flows would be moved down the stream undepleted. The same flows released at the dam would then show up at the 154 Bridge and the Alisal Bridge. They did not take into account net losses between Bradbury Dam and Alisal Bridge.

So what I did, just following Cal Trout's methodology, went ahead and made corrections for those factors. The first line shows Cal Trout's estimate of, again, average annual project water requirement based on the 80 percent of the years, which is normal and above normal. That is column A. And for dry years, this is two out of ten, column B. So for the first row is the Cal

Trout's calculation as to the model water required from the project. Then I went ahead and made each of those corrections, correction for conversion, number of days, and ramping. That is the next line. Next one is the correction for occurrence of downstream water right spills. Next one is correction for occurrence of a spill.

Therefore, the corrected estimate is shown for the normal year and above normal year, which is column A. It is 7,878, would become 9,324 for a dry year, which is two out of ten, and 3,766 would increase to 4,578.

Next box or next three rows in the middle, that is just the matter of converting eight years of normal, above normal and also two years of dry to get an average year amount for the ten years. So in doing so, therefore, my corrected figure average -- we have an average amount of 8,374. And that's as opposed to the next slide which is Cal Trout's ten year average, just following the same methodology, is 7,056. I repeat, my corrected number again on the right-hand side, 8,374.

The last correction, of course, is the depletion which would occur between the dam and the 154 Bridge and Alisal Bridge. We have to account for the losses. Once you account for those losses, the number would go up. The average number would go up. In fact, it would go from 8,374 to 9,445. So, Board, when you look at Cal Trout's

calculation of 7,056 as opposed to 9,445, it is obviously Cal Trout's calculation underestimates it by about 33 percent, about one-third.

H.O. SILVA: Mr. Shahroody, you have ten minutes. Will you summarize --

MR. SHAHROODY: I will move faster. But again, those calculations were made based on the average, average years. So, therefore, we then did calculations for drought and critical period to see what happens to the Cachuma yield in critical period. In doing so, we used the Santa Ynez hydrology model, and then we come to the critical period of 1951. The 3A2 and also Cal Trout's Alternative 3A2 adjusted for dry years will give us shortages in the range of 96 percent to 84 percent. That's only the critical period of 1947 through 1949 through '51. There are other dry years that, of course, following that methodology or that flow regime, create a shortage. I think the next slide will show that.

This is basically comparing the 3A2 and 3A2 adjusted for dry years, comparing it with the EIR alternatives, which we see would jump, again, to 96 percent, 84 percent, and similarly for the three years. As I said, the affect of shortages would be also beyond that critical period. For the purpose of comparison, I have shown that the shortages created by EIR Alternative 3C. And this is just

for the purpose of comparison.

The next slide will show the 3A2, that those shortages go beyond the drought of '49-51. It's in the drought of '87 through '91 and also in the other years. The next one is the same thing, except adjusted for dry years. Again, doesn't change the picture. The extensive shortages and continues to be there.

For the water supply users to not experience such a shortage, like 90 percent, they would have to fall back to more reliable draft. That means they have to reduce their take so that that water would be there every year. In doing so, I did an additional analysis to see, to increase the reliability of supply for the water users instead of 25,714, which would result in drastic shortages, what level they should take water. It turns out to be on the 3A2 that the supply would be reduced to about 13,000 acre-feet. Under Cal Trout's proposal of 3A2 adjusted for dry, that would be 16,400. And that is demonstrated in these graphs.

As you see, there would be a shortage in every year compared to the present demand of 25,714. This is 3A2. Next one was adjusted for 3A2. The other problem, of course, is the issue of delivering State Project water. The releases right now are made through the Hilton facility, watering facility. State Project water can get

delivered into Cachuma to the South Coast members. With the high demand for the flow and releases, that means water has to be also made through other water outlet works as well as the Hilton Creek. So, therefore, that would create restriction in terms of delivering State Project water. If you deliver State Project water that would end up to be in the river. That is contrary to the Biological Opinion restrictions. In comparing the 3A2 and 3A2 adjusted for dry years, we see that would be -- I think comparing with the other EIR alternatives, we see State Project deliveries would be reduced by about 15 percent compared to the other alternatives. So that is another impact that means in addition the project would be reduced in terms of -- it's also applied, but also delivery of State Project would be reduced, too.

Next.

The additional impacts are going to be on lake level storage, reduced water supply for WR 89-18 releases and also deterioration or degradation of water quality water delivered to Lompoc. And I have three additional -- four additional slides to show that. This is basically comparison of storage in the reservoir compared to 3C Draft EIR alternative. Both for 3A2 alternative and also Cal Trout proposed 3A2 adjusted for dry years.

And that basically translates into the order of

20,000 acre-feet less water. And simply said, that would be ten feet lower elevation in terms of Cachuma storage. As to reduced water rights releases, as you see here, under the Draft EIR alternative, water rights release amount would be reduced under the long-term BO, which is Alternative 3A through Alternative 4A-B, those are reduced by about 10 percent and compared Alternative 1, which is historical operation.

When you look at 3A2 or Cal Trout 3A2 adjusted for dry year, they would jump, the amount of water available for downstream water releases would jump from 10 percent to 27 to 30 percent.

MR. WILKINSON: Mr. Shahroody, you're running a little short on time. Could you now summarize then the remaining rebuttal testimony that you have?

MR. SHAHROODY: The remaining basically shows the impact on water quality at the narrows. And it shows that on the 3A2 compared to 3C with water quality would be degraded by something on the order of 50 milligrams per liter, both for 3A2 and also 3A2 adjusted.

MR. WILKINSON: Mr. Mack, I think you are up next.

I would like to ask you, first, is Member Unit Exhibit 266 a true and correct copy of your rebuttal testimony?

MR. MACK: Yes, it is.

MR. WILKINSON: Is Exhibit 267 of the Member Units a true and correct copy of your PowerPoint presentation?

MR. MACK: Yes, it is.

MR. WILKINSON: Would you please summarize your rebuttal testimony?

MR. MACK: Certainly. I took the values estimated by Stetson Engineers to show the -- evaluate the impacts on Cachuma Project members water supplies, the impacts of Alternative 3A2. As discussed by Mr. Shahroody, 3A2 would require a large reduction in draft to approximately 16,400 acre-feet. We had a discussion about this, the shortages that keep the draft at 25,000 or thereabouts would not be acceptable.

So we needed to reduce our annual draft and settled on 16,400. More investigation may move that number around a bit, but we think it's being in that ballpark. That is a difference of over 9,300 acre-feet per year in normal years, of what we would be able to take from the Cachuma Project. Has impacts on both normal year supplies and draft year supplies.

What I did was just substituted the 3A2 results, both for normal years and for drought years, into the tables I used in my original testimony that summarized the

supply for the Cachuma Member Units in Normal years and drought years.

This is Table 1, and I changed the Cachuma Project numbers. But all the other values in that table for water supplies are identical to what was used in my earlier testimony. As you can see, what happens when you put in the draft of 16,400 for all of us, our total water supply comes from very close to what our current year demands are. It brings us right to the edge, right away. We have big shortages in terms of planned future demands in normal years.

Notable is Improvement District No. 1; it shows -- where it says percent shortage current year demand, it shows your shortage with its current supplies. This would immediately put Improvement District No. 1 into a shortage situation. Also, as I stated earlier, I used the same numbers for other supplies that I used in my earlier testimony. However, Mr. Shahroody's already testified the state water deliveries would be less and dropping our state water supplies by 15 percent would probably get us right at the shortage situation with current demands.

Looking at what would happen during the drought, Table 2, it puts us in a severe drought situation immediately. Our shortages with current year demand are all negative with the exception of Carpinteria Water

District. In terms of planned future demand we have very severe shortages for critical period. So it is just a difficult situation immediately for Member Units to be having to meet 3A2 scenario.

Next slide, please.

In summary, the reduction draft in normal years is significant, very large. Improvement District No. 1 has shortage in normal years. Planned future growth has significant shortages in normal years and dry years, and shortages are greater in dry periods. Even mild droughts will have -- could have water shortages. We are in a -- we are just right on the edge right away.

This impact's use of supplemental supplies, Mr. Shahroody's talked about impacts on state water. Groundwater would have an impact. I would expect that we would have to use more groundwater in normal times, which means we have less during drought times. The City of Santa Barbara and Montecito have to evaluate their use of their other surface water storage on Robert Reservoir in Montecito. This will have an impact because we use our supplies conjunctively. If we can't make up water from Cachuma or Gibraltar, for example, we have a real problem. We, the City of Santa Barbara. And water conservation cannot make up the difference.

If this scenario went into effect right away, we'd

been looking at shortages right away. The Cachuma Project right now is 115,000 acre-feet of storage. If the dry trend continues, we are in a drought, and reduced deliveries from the project would put us in a difficult situation right away. Water conservation efforts, which the City of Santa Barbara takes the lead, is not going to bring us any relief right away unless we do things similar to what we did in 1990 and '91. There is not real interest in locally to go back to not watering lawns and very steeply tiered water rates. That would put us in a difficult situation.

That is my testimony.

MR. WILKINSON: Thank you, Mr. Mack.

Mr. Engblom, you're up next. Let me ask you first: Is Exhibit 268 of the Member Units a true and correct copy of your rebuttal testimony?

MR. ENGBLOM: Yes, it is.

MR. WILKINSON: Can you tell me, are you rebutting the testimony of Mr. Edmondson?

MR. ENGBLOM: Yes, I am.

MR. WILKINSON: Which part of that testimony are you rebutting?

MR. ENGBLOM: He showed some photographs of Santa Ynez River around the Highway 154 Reach and upstream below Gibraltar Reservoir.

MR. WILKINSON: Are you rebutting anyone else's testimony besides Mr. Edmondson?

MR. ENGBLOM: Some of the photos also in Mr. Zapel's testimony.

MR. WILKINSON: Would you please go ahead and summarize your rebuttal testimony?

MR. ENGBLOM: I had the opportunity back in September this year to fly the main stem river and look at the conditions both within the main stem below Cachuma, also below Gibraltar and also upstream of Jameson Reservoir.

During the flight, we videotaped our entire flight and also made that available to you if you are interested in viewing the whole thing. I want to warn anybody if they get seasick, to be careful how you watch this. It gets a little shaky sometimes.

We did observe that the entire portion of the Highway 154 Reach with the exception of the gravel bar that's directly upstream of the Highway 154 Bridge. It was flowing. There was water present downstream of the Highway 154 Bridge. The current target flow is 1.5 cfs as a number of people have testified. And there is approximately four cfs being released from Bradbury right now.

This first slide that I am going to show you is --

it is going to start below the Highway 154 and start to pan up, and you will see the 154 Bridge with traffic flowing over it.

MR. WILKINSON: Mr. Engblom, before we start the clip, can you tell me what the date of the flight was?

MR. ENGBLOM: September 27th.

MR. WILKINSON: That would be approximately four days after the site tour that was made by the State Board Members?

MR. ENGBLOM: That is correct.

MR. WILKINSON: Did you determine what the flow releases from Bradbury Dam were on that date?

MR. ENGBLOM: They were identical.

MR. WILKINSON: To the releases that were made, being made, at the time of the site tour?

MR. ENGBLOM: Yes.

MR. WILKINSON: How did you determine that?

MR. ENGBLOM: Through the daily ops report that we received on the days following from the field office at Bradbury Dam.

MR. WILKINSON: Thank you.

Please go ahead.

MR. ENGBLOM: You will notice this whole section through here is watered, and it's sort of a phenomenon that I've observed in the Santa Ynez River. At

gravel bars you have a steep gradient. Water generally tends to attenuate. There is the Highway 154 Bridge. There is water downstream approximately a quarter of a mile. This riffle bar section upstream, kind of pans away. It disappears underground right there and then reappears back right below the bridge. As I was mentioning, the way the gravel bars work, when you have a change in gradient as I have seen in Santa Ynez, this is the lower basin and you will see some other photos of the upper basin. The water will start to infiltrate at the upper end and then it will pop down at the lower end. And it's pretty typical during the low flow conditions during the summer, and September is typically the driest portion of the year.

The next slide is the Santa Ynez River above Lake Cachuma -- I'm sorry, the management reach. This is within the Highway 154 management reach. That is the Long Pool right downstream of Bradbury Dam. This is a digital photo. The quality isn't as good as some of the other ones. But again, there is -- the habitat is flowing. It is wetted. There is numerous pool habitats available. That is a pipeline structure that delivers State Water Project and also water deliveries to ID 1, I believe.

And the next slide is the Santa Ynez River above Lake Cachuma. Pretty much the whole section above Lake

Cachuma in the main stem is dry with the exception of the bedrock areas around Red Rock and downstream of Gibraltar. Those generally tend to hold water in them throughout the year. As you will see in the video, this is kind of getting into those bedrock areas. There is some pool habitats here that they're starting to -- actually, this is above Gibraltar. I apologize. This whole section above Gibraltar is essentially dry except for a small area right downstream of Juncal Reservoir and a small section where Indian and Mono Creeks do contribute some water to the main stem.

As I mentioned before, the upper basin conditions are very similar to what I've observed downstream. The majority of the main stem is dry, except for the Red Rock area and all the bedrock pools that some of the -- during the tour you folks had a chance to look at.

There is a short segment below Juncal Dam approximately a half mile long or so that is wetted and flowing. And also we had a chance to look at some of the major tributaries that flow into the Santa Ynez in the upper areas. As we see in the lower river also, those, at least this time of the year, are dry in the lower reaches. There is water in the upper portions of them, but again there is no continuity with the main stem.

And that concludes my testimony.

MR. WILKINSON: Thank you, Mr. Engblom.

Ms. Baldridge, your turn.

Let me ask, first, is Exhibit 269 a true and correct copy of your PowerPoint presentation?

MS. BALDRIDGE: It is.

MR. WILKINSON: I believe you have several other exhibits that you are going to present during the course of your testimony. As you do so, would you please identify the exhibit number for the record.

MS. BALDRIDGE: I don't think I have the exhibit numbers.

MR. WILKINSON: Maybe we can go along and as you introduce them, I will provide them.

MS. BALDRIDGE: In my rebuttal testimony I was clarifying information on trout stocking upstream of Bradbury Dam. That I think was in response to some questions from the Department of Fish and Game. I'm also going to provide some clarification about why we selected the methods that we did for the flow study, which was a topic of discussion under Mr. Keegan's testimony and also the oversight of the Adaptive Management Committee.

In starting with the stocking above Bradbury Dam, we have stocking records that are from 1931. Stocking started in the basin. I have a table and a map that I would like to introduce at this time.

MR. WILKINSON: The stocking table will be Member Unit Exhibit 270A and the stocking map will be Exhibit 270B.

MS. BALDRIDGE: The stocking map came to us from the Department of Fish and Game. This was their record about where they have been stocking. They provide fish to support a recreational fishery primarily on Forest Service land up there. The sources of trout have been many and varied that have gone into this area through the years. We have a number of different sources. They are all primarily northern rainbow trout and also some steelhead stock.

The average is -- well, the range is about 50 to a hundred thousand trout per year have been going in primarily since the '60s, and we --

Next slide for me, please.

They go into several locations. There is a fair number. Also over -- well, probably 70 percent of those go into Lake Cachuma. The others historically have gone into Santa Cruz, the Santa Ynez River between Cachuma and Gibraltar and some historically went into Gibraltar Reservoir and the river upstream.

The issue that we really think about when we are looking at the stocking pattern and it's important for us to understand them, is from the genetic question: Is

there -- has there been an alteration of the genetic stocking in that area. Do we have historically southern steelhead up there that would be important for us to reconnect. And the AMC has a study planned and we have done some other studies in the past on genetics. Mostly, though, in past studies we've been searching for southern steelhead stocks. We've been sampling in areas where we'd not expect integration to have occurred.

On the -- there's been a number of questions about the flow study and how we came to this methodology. I would like to clarify some terms, if you'd go to the next slide for me, please. We talk a lot about IFIM. I think it is Tom Keegan's testimony. IFIM is a method and PHABSIM is a complex of modeling tools that are used under IFIM. The collaborative process that we engaged in through the research that really started in 1995 and culminated in 1997 with a final decision to move forward with our study.

Part of the IFIM allows you to identify issues within the basin, consider whether what would be the appropriate tools to use, what are the issues you are dealing with, what do you expect future conditions to be and how might they differ from what you see today. All of those are considerations as to how you go forward with your study.

The group that we had was composed of a number of individuals. We looked at the issues associated with it, the study design, selection, method and what we might do with the information once we got it. That's really part of IFIM. And then PHABSIM, as I mentioned, is a complex of modeling tools and physical habitat index.

Next slide, please.

The SYRTAC's IFIM process, as I mentioned, we had a number of scoping meetings. We took a long time to structure the study. In part we were looking for access to the 154 reach, which is one of the most important areas where we felt it important to look at that.

And I'd also at this time would like to introduce a memo and the project biologist's report.

MR. WILKINSON: The memo will be Cachuma Member Unit Exhibit 271 and project biologist's report Cachuma Member Unit Exhibit 272.

MS. BALDRIDGE: In the memo, 271, this is some background information that we put together for one of our studies. Since we were contemplating how we might put scope out of the study that would use PHABSIM for the 154 reach, we also had the opportunity to engage a number of instream flow experts in this design of the study. Bill Snider from Fish and Game was really the project leader for this. Rob Titus, who you met here, was also involved

with us. Jeff Thomas was the Fish and Wildlife Service instream flow expert from Sacramento that came to participate. And we have Tom Payne, who is sitting next to me, which is a very well-known instream flow expert nationwide. Kris Vyverberg was the geomorphologist from the Department of Fish and Game who was also very helpful in helping us work through these issues and decide what our next steps were.

We had the baseline information that we collected from the SYRTAC distribution information, flows, habitat, timing that had been done. We also took a hard look at the DWR PHABSIM model that was conducted in 1989.

Next slide, please.

We ended up rejecting the PHABSIM in the reach below 154 because the dynamic nature of the channel. We also have a fairly short segment where we had water temperatures that would be suitable for us when looking for rearing habitat. We also had -- we didn't have access to the 154 Reach which was crucial in our decision about what to do next. We also spent some time considering habitat suitability criteria for southern steelhead. There hadn't been any developed. Rob Titus at that time was working on some information on his Big Sur studies, and we helped to use some of that and collect some additional information.

As we went forward in selecting the wetted width method, when we finally decided that we really were not going to gain access to the 154 Reach, we stopped further evaluations of habitat suitability criteria other than the generic criteria that we used in the wetted width study.

Next slide.

In summary for that section, there's been a lot of discussion. Fish and Game certainly led the effort, but it was a very collaborative process and we all had a part to play in that.

In the memo that I have passed out to you on the table, it goes through some of the information that we looked at and evaluated on January 27th, 1997. In the second page of the memo, the paragraph states out, "The purpose of our meeting," you can see that we had two different scenarios, depending on whether or not we got access to the Highway 154 Reach. The scenario that we chose was the one that we contemplated for not having access to the 154 Reach.

The other memo that I've passed out to you is the project biologist's report prepared by Scott Engblom, and that is dated December 11th, 1997. This reports on the progress of the flow habitat studies where Bill Snider and Scott and I were able to go to the field and collect some, and we also went back to collect instream flow

measurements that we utilized.

I have also been asked to provide some clarification on CCWA mixing and then some fish passage releases, both of which have information that are in the Biological Opinion. Fish and Game provided a letter, actually the letter that I have is from the Central Coast Water Authority back to Fish and Game regarding the stipulation that they release no more than 50 percent of any release made of state water.

MR. WILKINSON: That is Cachuma Member Unit Exhibit 273.

MS. BALDRIDGE: I've started on the right-hand side, the notification that goes back to the department saying that basically that the criteria -- they are going to abide by the criteria and they want to be able to provide some flexibility to meet release criteria if it should in the future. This was part of the basis of information that we had when we were going through the Biological Opinion. I think there was some discussion, sorry, don't recall exactly whose testimony it was in, that smolts would be -- fish would be imprinting on the water in the summertime. Fish, we understand makes an imprint when they are smolting, which is in the springtime. And the Biological Opinion provides us with this guidance that during December through June, we are

not allowed to release any state water into the Santa Ynez River, unless the flow discontinues from the main stem, to prevent any opportunity to provide imprinting on the wrong water. The 89-18 releases only occur when the flow is discontinued because they are trying to rewater the groundwater system. In our discussions between the Bureau of Reclamation and NOAA Fisheries, the biologist that worked on that felt that this would preclude any false imprinting.

Next slide, please.

The other, I think, misconception that you might have from looking at Mr. Keegan's testimony is the minimum passage flow and how that works with our passage protocol. We did establish the minimum passage flow at 25 cfs in the Alisal Reach. Depending on where you are, it can be as much as 30 cfs in the river. We looked at the -- and we had originally identified that as a flow that would allow steelhead to move upstream. We also know that steelhead and other fish can respond to higher flows and begin migration patterns when we have higher flows. We don't have a lot of solid information about what those levels should be or how that system really works. But in this particular project we set aside some water, which we call the fish passage account, which allows us to release additional waters.

We released 150 cfs starting out, and we ramp that down so we hit the 25 cfs level. So there are flows available for 14 days. In the Biological Opinion, on Page 65 on the Board's website, it's probably Page 61 on some other copies, it might be 63 in this day and age of electronic varying page numbers, but in any case the statement is that NOAA Fisheries believes that the supplemental migration flows are likely to appreciably increase survival of steelhead in the Lower Santa Ynez River, improving Santa Ynez River steelhead population long-term viability. I am not saying that, in working on that group, I would characterize that as the minimum amount that Mr. Keegan did.

Next slide, please.

There has also been some discussion about our adaptive management and the oversight of it on the Fish Management Plan and the Biological Opinion implementation.

Next slide.

The Adaptive Management Committee is authorized by both the Biological Opinion and the Fish Management Plan. I think my direct testimony I did pass out to you my scope of responsibility and list of tasks that we are engaged in. We work with the Consensus Committee. They provide a policy oversight and physical management for work under the Fish Management Plan, and the SYRTAC is the

stakeholder input group that meets usually at the same time as the Consensus Committee, and we review issues and work in progress.

These are our current members of the Adaptive Management Committee. It is a multifaceted group. We have different representations from federal agencies, from state agencies and from the local agencies. Part of our goal is in the Adaptive Management Committee is to manage the releases, define and oversee the additional investigations. We are implementing the monitoring program. One of our next steps will be to establish a committee that has been working on defining some of the monitoring tasks that we have and how we will go about them. They provide guidelines for the implementation of Biological Opinion and Fish Management Plan. They also seek to identify other activities that would be beneficial to engaging in the Santa Ynez River, and we are conducting some long-term evaluations. So we have our annual reports that we do, but we also look across years to see how well we are doing.

Next slide.

That is it.

MR. WILKINSON: Thank you, Ms. Baldridge.

Our next witness is Ed Donahue.

Mr. Donahue, this is your first testimony, I

believe, in this hearing, so I'm going to ask you initially: Is Member Unit Exhibit 275 a true and correct copy of your statement of qualifications?

MR. DONAHUE: Yes, it is.

MR. WILKINSON: And is Exhibit 274 a true and correct copy of your PowerPoint presentation?

MR. DONAHUE: Yes, it is.

MR. WILKINSON: And, Mr. Donahue, I wonder if you would briefly summarize, please be brief here, your background and what your expertise is in.

MR. DONAHUE: Expertise in literally fisheries engineering, founder of FishPro which is a specialized firm dealing in fisheries engineering. About maybe almost 40 years in the business, 20 years of apropos experience down here. I am involved with the fish passage technical committee at present with NOAA and the State of Washington Department of Fish and Wildlife, assessing fish passage over a major dam. Been involved with fish passage and all in Columbia, Snake River dams, Mid-Columbia Dam. The Baker Dam, we did the upgrade of the gulper and the net assessment and transfer there as well as Green River. And I'm just guessing maybe about five to six analysis in California on dams.

MR. WILKINSON: The projects you mentioned on the Green River and Baker Dam were the slides that were

shown yesterday or some of the slides shown yesterday by Mr. Zapel?

MR. DONAHUE: Yes. sir.

MR. WILKINSON: Those were facilities that you designed?

MR. DONAHUE: We designed parts or all of them or some form of assessment.

MR. WILKINSON: Thank you.

MR. DONAHUE: Should I go on?

MR. WILKINSON: Yes, please.

MR. DONAHUE: Generally, this overview will be brief here. What we are trying to look at here is the factors affecting adult passage and channels for juvenile passage and some review of the general passage assessment. And generally I agree with all the previous testimony relative to the study mentioned on this. However, I think it can be streamlined and shortened and not be expensive by doing certain type of analysis, which I will get into as we go through and see the testimony.

Now I did have a chance and we can be a little briefer, this was done before the testimony of Mr. Mann and Mr. Zapel, so there is a lot of overlap or obviously thinking the same, so I won't go into any more detail on these other than trying to focus in on what might be an issue at Bradbury Dam, Cachuma Reservoir.

First thing we can look at here quickly then would be if you look at adult passage right over the dam, you can see the options. They were mentioned before. What we really want to look at and if you do an analysis of this option you would look at the things that are listed below. The reservoir fluctuation. Again, a lot of these things were brought up, and obviously if you look at some of the types of facilities, in the engineering business you can eliminate some right off the top, or at least you can refine the options down where you don't have to study a whole bunch of them. Like the reservoir fluctuation, obvious in a ladder or stationary collector is going to knock that out. Water quality, warmer water coming down the ladder, sometimes the ladder becomes a barrier itself. There is just the topography and geology, if you do anything in there, it also relates to actually cost and practicability of construction.

Now we can look at trap and haul. Again, a lot of those slides, we have a lot of trap and haul. Trap and haul is in some cases reliable and in it is used consistently when issues are of passage, ladders and lifts and locks and things are just not feasible. And looking at Bradbury, now again trying to zoom in a little bit, one of the things we saw was the reliability. We did a study with the Corps, in effect similar analysis on Howard

Hanson on transfer of juveniles downstream, not adults, but juveniles. We went through and determined that the reliability of truck transport was less than direct lift to a plume. Applying that to --

Is that the right slide?

Applying that to adults -- pretty good. Applying that to adults, if you're just handling a few, you have to have reliable transport. Your holding, your water quality and temperatures. You can't -- you really have to have somebody on station. And in our case on trap and haul, the ability to get to the site. I drove the road from Bradbury upstream, and some of those curves and things in the winter there is environmental issues there. And some of the curves if you had a tanker full of water, you kind of get the willies during a turnaround, so to speak. That's where they got the name of the Jeep, I don't know. These things have to be listed and there could be, couldn't be not a flaw in some of these.

One of the things here is to me, anyway, would be the ability to have downstream juvenile passage. If you are trying to get them upstream, you should get them downstream.

MR. WILKINSON: Mr. Donahue, before we leave that trap and haul, in terms of the road configuration at Bradbury, is the gradient an issue, in your opinion?

MR. DONAHUE: Normally, our design standards, the slopes might create a need for separate tanks in transporting fish on short runs has been exceeded, but generally that is some of the guidelines.

MR. WILKINSON: Thank you.

Please continues.

MR. DONAHUE: We will talk about juvenile collection and transport. Here the actions again as has been mentioned before, we won't dwell on them, but I think everybody has been well aware now either one testimony or another, there they are. We hit them all pretty much, I think. And if you start looking at the juvenile collection and transport, and you know you can put these -- we're going to talk about surface collectors here.

The issues are reservoir fluctuation. We know that operational safety being around those, during -- we have to handle the fish four times. There is a lot of stress. You have to get them through the gulper. That is where the surface collector and you have to get them to the holding barge. You have to get them transported, and you've got to release them. So there is some health and stress issues there. Debris, guide nets fail, power source. That Baker facility, for instance, that really -- the last word I had last week it is only 35 percent effective. It is not meeting the FERC requirements. It

is going to be upgraded to 250 cfs with potential for 100 cfs -- or a thousand cfs which requires a one megawatt of power, so you have to look at power sources. These are the things you look at. Experienced engineers that are objective would take these issues and do sort of an analysis of them to shorten the study and get right to the point of what may or may not be feasible here.

That's what, I guess, this whole testimony would be, is to suggest a fatal flaw analysis, where you just take a stretch of matrix. Most people have been through that before. You itemize the options on one side. You consider design issues and challenges horizontally. If you go right down and you agree objectively putting the fish first in your mind, what is good and bad and you refine your options and you zero your attention in on those that are really feasible rather than covering the whole gamut.

So in summary, again, just I think these issues could be refined, and we could find by using this objective matrix analysis and getting experienced professionals within the agencies and an independent review on the panel to find out what can work and focus on steelhead needs and capabilities, and keep it objective during this analysis. And to me this would maximize the available funding by eliminating options that would not

work and be applied directly for the benefit of fish.

That concludes my testimony.

MR. WILKINSON: Mr. Donahue, thank you. Just a couple questions in addition for you.

Are you aware of the Adaptive Management Committee that's been discussed during the course of the hearing?

MR. DONAHUE: Yes, I am.

MR. WILKINSON: Are you also aware the Adaptive Management Committee has the intention of studying fish passage at Bradbury Dam?

MR. DONAHUE: Yes, I am.

MR. WILKINSON: I have asked this question of several others; I will ask it of you.

Would you be willing to contribute your time and effort to the Adaptive Management Committee as they begin and carry through of that study of the passage opportunities?

MR. DONAHUE: I would like to do that, yes.

MR. WILKINSON: Thank you.

MR. CONANT: Mr. Silva, now we are going to move with two last witnesses to talk about downstream issues, and then conclude with Mr. Jackson. So at this time we will call back Mr. Shahroody.

Mr. Shahroody, in addition to the downstream issues that you have identified in your prior testimony involving

reductions in 89-18 and releases and negative impacts on downstream water quality affecting the Lompoc plain, in addition to those issues, you have in your testimony, as I understand it under part three, identified additional issues related to downstream water rights, and if you can summarize that please, sir.

And, Mr. Silva, the confusion, I think, arose at the beginning here. There is a second part of his PowerPoint, and for some reason the computer numbered starting again with No. 1. So when we refer to slides, there is second Page No. 1, a second 2, and so on. We will do that for the record as we refer to slides.

MR. SHAHROODY: I can do that.

The downstream water right releases, it's been stated in Cal Trout's written testimony that the releases should occur over a more continuous nature. The other issue raised that the dry river conditions are necessary to trigger water right releases, which is not beneficial for fish. And the third issue, the way I see it, is WR 89-18 releases should be used in tandem with other releases. So I will try to at least address those three issues. And before doing that I just want to make a quick overview of downstream water right releases.

That's the next slide.

The objective of downstream water right releases is

to percolate the quantity of water which would have occurred from the unregulated flows. That means in absence of the dam in the river. To the extent that we have regulation and storage by the Cachuma Project, there are impairments to the percolation, and those percolations are quantified in terms of the accounts, Above Narrows Account and Below Narrows Account. And the releases are basically is to percolate effectively those quantified impairments due to the project. And to do that, that requires to percolate that water effectively in the riverbed which would turn out to be dry.

Next slide.

Just for the matter of illustration, there are two areas as this map has been shown before. The above narrows area which is above Lompoc Narrows and that is basically received Above Narrows Account water and the Below Narrows Account, the below narrows area which is, in fact, shown on the map which is in orange, that is the Lompoc Plain which receives the Below Narrows Account water.

H.O. SILVA: Could you identify the exhibit for the record?

MR. CONANT: This would be Member Unit Exhibit 265, the second Slide 4.

MR. SHAHROODY: It is referred to as the major

groundwater units on the Santa Ynez River Basin.

The point of the delivery for above narrows area is at the dam. That is where it is measured. The point of delivery for the Below Narrows Account water is at the narrows. There is a USGS gauge.

Next slide, please.

I have basically done a couple of the steps in terms of looking at making releases necessary at 30 cfs on a continuous basis. If we did that, of course, that water would have -- that water would not reach over the period of time that we send water to the Lompoc area. Since any water which does not reach to Lompoc narrows, as I indicated, Lompoc's water is measured at the narrows, then that would be debited against Below Narrows Account. Water reaching to below narrows areas, if we did it at 30 cfs, flow would be very small.

I have an example to show that, in fact, the releases made in July 19th through October 31st, 1996. I have that in the next slide. That was for 94 days effective. That means outside of the ramp-down period. If you notice that in order to make the downstream water right releases, it would take substantial amount of water. In this case the total amount of released was 10,700 acre-feet. And of that amount 3,500 acre-feet made it into below narrows areas, for the Below Narrows Account,

purple. 7,300 acre-feet of that water actually percolated in Above Narrows Accounts, which is deducted from the Above Narrows Account.

If you notice, then, the first block, that the average release for the period of 94 days was 55 cfs. Of that, 20 cfs actually was delivered to the Lompoc area. In essence, 35 cfs did not make it to Lompoc. If we then take 30 cfs instead of 55, as you see in this chart, obviously the water would not make it to Lompoc area. If it does, it is not going to be very much. So Lompoc's Below Narrows Account would be left behind, and it would take substantial amount of Above Narrows Account to make it continuous delivery.

Next slide.

H.O. SILVA: Can you identify again for the record?

MR. CONANT: That Member Unit Exhibit 265, the second Slide 6.

MR. SHAHROODY: Next slide, Slide 7, that basically states that what would continuous releases do in this situation. It would -- the above narrows area would have no water left during the drought period because if we did continuous deliveries, most of all of the Above Narrows Account would be used for that purpose, and at the same time we won't be able to make the Below Narrows

Account delivery to Lompoc.

As also stated there, this would result in impairment of downstream water rights. It would also strand Below Narrows Account in the reservoir since that water would not be fully delivered to the below narrows area. It would be stranding the Below Narrows Account in the reservoir. That, of course, would have the affect of reducing the Cachuma yield. And as a whole, there would be a premature deletion -- I'm sorry, depletion of the water rights without providing drought protection.

Next.

The third issue was releasing water in tandem. And to that extent, of course, water right releases are made in tandem with other releases for fish, and that is basically stated as a part of coordinated releases for conjunctive use program on the Biological Opinion and Settlement Agreement. To the extent that 31 percent of the total water provided for fish under the long-term Biological Opinion comes from its downstream water right releases, it shows that is being done in a coordinated fashion. In releasing water in a coordinated fashion, therefore, under the Settlement Agreement we have to make sure those releases would continue for a specified period of time. And that is what I call coordinated release and water scheduling in tandem.

MR. CONANT: Next, Mr. Silva, I want to ask Mr. Shahroody a couple of questions about three exhibits I am going to offer. And they are going to go ahead and circulate them now, all at once. Maybe that will speed things up a little.

So the first, which we will identify as SYRWCB Exhibit 6, is a memorandum from Mr. Shahroody dated November 10th, 2003. Second SYRWCB Exhibit 7 is a letter from Mr. Jackson to Mr. Lecky dated November 16, 1999. And lastly SYRWCB Exhibit 8 is a letter from Mr. Shahroody to Mr. Fusaro dated November 11, 1998. I have a couple quick questions to ask Mr. Shahroody about these pieces of correspondence.

Mr. Shahroody, did you prepare the November 10, 2003 memorandum, identified as Exhibit 6, which I just referred to, in response to written testimony of Mr. Keegan alleging that downstream water rights releases result in temporary turbid water conditions?

MR. SHAHROODY: I did.

MR. CONANT: Was this prepared based on your many years of observing and overseeing water rights releases on behalf of Santa Ynez River Water Conservation District?

MR. SHAHROODY: Yes.

MR. CONANT: This memo describes the

velocities of the water rights releases, as I understand it. Can water rights releases flows be characterized as, a quote, pulse high flow? Can you comment on that?

MR. SHAHROODY: Well, to the extent of described water right release and their velocity and movement of the front, and based on my long-term observation, the front moves very slowly and generally it is less than one mile to something on order of eight miles per day. Given that condition, I would not consider that the releases would be a pulse nature.

MR. CONANT: Thank you.

Regarding your prior testimony just a moment ago regarding the problems associated with implementing something like so-called continuous releases, have you been asked to perform similar evaluations in the past regarding the continuous release schemes?

MR. SHAHROODY: I have.

MR. CONANT: I will refer you now to Exhibit 7, which is the letter from Mr. Jackson to Mr. Lecky dated November 16, 1999, which is attached to your memorandum to Mr. Jackson of November 12th, 1999.

Did you in your November 12th, 1999 memorandum investigate a proposal by NOAA to provide a more continuous release of water rights?

MR. SHAHROODY: I did, and that is reflected

in Item No. 1 of that memorandum.

MR. CONANT: Thereafter in the BO which NOAA issued, did they not propose any change in the release program except to implement and incorporate a new ramping schedule?

MR. SHAHROODY: That's correct.

MR. CONANT: Thank you.

Lastly, Mr. Shahroody, have there been discussions over the years with Cal Trout and others in the environmental community about similar proposals for more continuous release?

MR. SHAHROODY: Yes, it has.

MR. CONANT: Is SYRWCB Exhibit 8 a letter from you to Mr. Fusaro dated November 11, 1998, a example of those discussions?

MR. SHAHROODY: It is.

MR. CONANT: Thank you.

Next, Mr. Silva, we will call on Mr. Thomas Payne, and we need to distribute.

Mr. Payne, this is his first appearance before you, Mr. Silva. So I will ask that he state his name and affiliation.

DR. PAYNE: I am Tom Payne. I am a fisheries biologist. I am the owner and principal associate of Thomas R. Payne & Associates in Arcata, California.

MR. CONANT: What is the purpose of your testimony here today?

DR. PAYNE: The purpose of my testimony is in rebuttal of a few statements that Mr. Keegan made about the adverse effects of water rights releases on downstream steelhead in the Santa Ynez.

MR. CONANT: Mr. Silva, we just distributed SYRWCB Exhibit 9 and Exhibit 10.

Mr. Payne, is Exhibit 9 a true and correct copy of your SOQ?

DR. PAYNE: Yes, it is.

MR. CONANT: And is Exhibit No. 10 a copy of your testimony here today.

DR. PAYNE: Yes.

MR. CONANT: Very briefly please summarize your professional and educational qualifications?

DR. PAYNE: I have a Bachelor's and a Master's degree in fisheries biology obtained from Humboldt State University in 1979-'82. Since that time I have had a couple jobs, one in the private sector testing the toxicity of various chemicals to fish. And I spent about seven and a half years with the U.S. Fish & Wildlife Service in Northern California and Washington State on various capacities. And since 1982 I have been the principal of my own company and primarily specialize in

the application of the instream flow incremental methodology as a tool for evaluating the impact of water management practices.

MR. CONANT: Please summarize your experience on the Santa Ynez River.

DR. PAYNE: I was born in Southern California, and I remember actually camping in the Cachuma area probably in the late '50s, and I've seen the river at various times since then. I was retained in a professional capacity in 1993 to do some evaluations for the previous water rights hearing. And at that time I walked the river conducting habitat mapping from Lompoc up to Buelton. I was involved in the evaluations of the DWR instream flow study; revisited their study sites in the company of the DWR staff. And since that time I've been participating on a fairly regular basis in the ongoing Santa Ynez activities.

MR. CONANT: On Page 12 of his written testimony Mr. Keegan states that, quote, high flow pulse releases can adversely affect juvenile steelhead and their food resources through downstream displacements and to unsuitable habitats.

Do you agree with this statement?

DR. PAYNE: As a broad statement, I would agree with it because the term "high pulse flow" is not

defined. It was applied to the water rights 89-18 releases in the Santa Ynez River and in that context I do not agree with the statement.

MR. CONANT: What evidence supports your conclusion regarding the potential for physical displacement relative to 89-18 releases?

DR. PAYNE: As Mr. Shahroody has indicated, from his years of studying the river and some of his observations, I have had independently confirmed by other people that have actually observed the water front, the approximate maximum velocity of water from the water rights release is achieved when the water will move about nine miles in a little over a day. And if you do the math on that, that comes to a little bit under a half a foot per second, which is about a third of a mile an hour, and you can walk two miles an hour. So that is quite slow.

But as far as an impact on fish that might be in that area of the river, a half a foot per second is also well within the habitat suitability criteria that are generally accepted for fry and juvenile steelhead that was actually in the slide that Mr. Keegan showed yesterday. A half a foot per second is quite suitable. So under those circumstances, I would not conclude that those releases would result in displacement of steelhead.

MR. CONANT: Mr. Keegan also states that

temporary turbid water conditions are created by 89-18 releases which may affect steelhead feeding.

Do you agree with this possibility?

DR. PAYNE: No, I don't agree, again based on the observations of Mr. Shahroody that he's communicated and with my other discussions with people that have observed it. First of all, the bed of the Santa Ynez River is primarily sand. And sand is not a component ordinarily of turbidity. And with the slow moving character of the waterfront it's actually quite unlikely to stir up turbidity. Half a foot per second would more likely result in deposition of rather than any sort of mobilization.

The accounts of what I have heard of what it looks like is that it tends to pick up particulate matter such as dried algae or leaves and twigs and such. There have been observations in the water of sunfish. And so if you can see fish in the water and there is only particulates, that would not qualify as turbidity.

Mr. Keegan said that that would probably cause some negative effects on feeding, and I would actually conclude the opposite, that fish are generally known to initiate feeding when water increases, and they would forage in an area where there was organic particulates floating around.

MR. CONANT: Thank you.

That is all we have for Dr. PAYNE at this point. Turn to Mr. Jackson.

MR. PALMER: Bureau of Reclamation calls Mr. Michael Jackson as their rebuttal witness.

Mr. Jackson, would you please present your rebuttal testimony.

MR. JACKSON: Thank you. I offer this testimony in response to certain views expressed or implied by my colleagues, some of which are new-found during their respective panel presentations. My association with Mr. Lecky goes back to the days of Club Fed from which CalFed was spawned. My path crossed Mr. Jim Edmondson's of Cal Trout for the first time this summer as the effects of the Ventura River Project on Steelhead were being consulted under Section 7 of the Endangered Species Act.

Due to the personal efforts of both Mr. Lecky and Mr. Edmondson, steelhead opportunities for growth have been appreciably improved for the Ventura River system. Likewise, my impression of the parties' counsel to these proceedings, namely Mr. Keifer, Ms. Kraus, Ms. Krop, Mr. Seltzer and Mr. Branch is one of exceptional regard for the manner in which they represent their clients. It also goes without saying, but I need to say it anyway, that I have impeccable regard for my counsel, Mr. Palmer, and the

counsels and panel members of the Member Units, parent district and the City of Lompoc. All of these folks, perhaps even unknowingly, have furthered my maturity as a public servant, hopefully as a person as well.

Reclamation is somewhat unique to the other parties in that its statutory authorities and responsibilities for its project generally and for the Cachuma Project in particular encompass and/or address a broad range of water resource management issues, including water supplies, recreation, fisheries, water rights and flood control. Similarly, Reclamation's mission is to manage water and its related resources in an environmentally and economically sound manner. In utilizing our discretion within the framework of our statutory responsibilities and to carry out our mission, we strive for solutions that achieve three things: what is prudent, what is feasible and what is fair.

Prudent would include the planning and initiation of actions and discussions that appear to make common sense. Feasible means pursuing actions that are legal and economically viable. Fair describes an equitable distribution of the benefits and costs that includes careful consideration --

MR. BRANCH: With all respect to Mr. Jackson, I would like to inquire as to what this rebuttal --

H.O. SILVA: I was about to ask the same thing. How is this a rebuttal statement? I am not sure that it --

MR. JACKSON: There are statements made by the -- a number of statements made by a number of the parties that the best way to ensure benefits for the steelhead was imposing a schedule on the Bureau of Reclamation and requiring that we do certain actions. I hope to display through this testimony that it is relationships that ensure the benefits to species that are durable and long lasting more so than administrative or legal proceedings.

MR. BRANCH: I would agree that relationships are important. I would instruct the Bureau to address this in a closing argument.

MR. JACKSON: Ms. Krop made reference that each of the parties had an interest, had a particular interest as to why they were here and how the Board should consider that. I think the Bureau has numerous interests, not just a single -- we just don't look at the trout or steelhead or the recreation. We look at all the things that I just mentioned.

H.O. SILVA: I think the way you stated it now is better than stating -- it almost sounds philosophical. Approaches by the Bureau versus rebuttal testimony, I am having a hard time understanding who you are rebutting,

whose testimony you are rebutting.

MR. JACKSON: I am rebutting statements made by counsel --

MS. KRAUS: I understand. I think the statement that Mr. Jackson is referring to was made by me in opening statement which is not testimony.

H.O. SILVA: Which is not evidence -- which is not part of the testimony; it is a statement by the attorneys.

I guess if you could maybe help -- I know you're reading it. If you could perhaps -- as your stated it right now, it is a little bit more helpful. You stated you were rebutting a statement by --

MR. JACKSON: If I would have been allowed to go further into my testimony, it would have evolved, things would have flowed together, I think, a little bit better perhaps.

H.O. SILVA: I'll bear a little bit more, but if you can get to actually --

MR. JACKSON: I think it will take ten minutes out of my 20-minute time, if you don't count this time.

H.O. SILVA: Okay. If it's ten minutes, I will allow it.

MR. BRANCH: I have no opposition.

H.O. SILVA: Thank you.

MR. JACKSON: Although NMFS was proactive in assisting Reclamation to formulate a project description that led to a Biological Opinion with lasting durability, implementation of the Endangered Species Act does not call for balance or consideration of what is fair. Yet Reclamation must consider these things if it is to carry out its mission responsibly.

One of the durable aspects of the Biological Opinion that Reclamation and the National Marine Fisheries Service utilized to achieve our mutual goals of durability was incorporation of the Adaptive Management Committee to respond to real time management issues, changing conditions and to test various release protocols. The Board and the parties heard testimony during these proceedings regarding several examples of value of a healthy relationship and what it means to water resource issues. The Settlement Agreement, the winter storm operations the agreement reached between the county and the Member Units and the phased approach to the surcharge.

The Member Units to date have spent an estimated 5,000,000 to $6,000,000 on the development of the vegetation study, Fish Management Plan, monitoring and variable removal projects in order to comply with the terms and conditions of Reclamation's water rights permits in the Biological Opinion which, to the best of my

knowledge, far outpaces any of the other parties' expenditure for the benefit of steelhead on the Santa Ynez River watershed.

One of the principal reasons that Reclamation coordinated its case in chief with the Member Units because nearly all of the operational and administrative costs associated with the Cachuma Project are borne by them. The Member Units are committed to implementing actions identified in the Fish Management Plan. They have demonstrated their commitment to implementation of the Biological Opinion and Fish Management Plan and a number of ways. But of particular note is that even in the face of adversity and discouragement, as they experienced when they were successfully sued by a local landowner for insufficient environmental compliance, the response was more than commendable. Because instead of folding their tent and requesting Reclamation to reinitiate consultation with the National Marine Fisheries Service, they made plans to initiate the preparation of additional environmental compliance to satisfy the deficiencies cited by the state court and continue to this day to assertively pursue the implementation of actions for the benefit of steelhead.

Member Units and Reclamation continue to expend significant resources towards studies and investigations

that will lead to decisions on the implementation of on-the-ground actions. We remained focused on implementing actions. If other parties would like to pursue additional studies beyond what has been done to date, they let them dedicate their economic and human resources to it. Reclamation has faithfully carried the baton of spend-it-and-they-just-might-come. We believe it's now time to pass that baton and let some of the other parties dedicate their economic and human resources to it.

Reclamation has absolutely no desire to have additional studies or a schedule of additional studies imposed on us, either in our permits or otherwise. Other parties need a schedule for when they need to get their work done for the benefit of steelhead or other resources, we encourage them to do so. In our view the most efficient way to ensure that resources are adequately protected is to foster relationships to a healthy condition. Because formal proceedings such as these typically lead folks to take positions instead of building coalitions. Reclamation's mission to manage water and is related resources in an environmentally and economically sound manner is not unlike the Board's responsibilities to weigh the public trust interest -- the public interest, excuse me. And as such we offer our model sound public policy as one that addresses whether an action is prudent,

feasible and fair.

Finally, we reiterate that Reclamation is a conscientious administrator and steward of the resources that it manages and affects, and we restate that we request the Board adopt our change in place of use petition, recognize the Settlement Agreement for downstream water rights on the Santa Ynez River, approve the modifications to the terms and conditions of Permits 11308 and 11310 as Reclamation proposed, while recognizing the measures outlined in the Biological Opinion and Fish Management Plan as appropriate to address public trust resources issues.

Thank you for bearing with me. That concludes my testimony.

H.O. SILVA: Thank you. That was a little bit of a closing brief than rebuttal, but half was okay.

Thank you.

MR. JACKSON: I'm an engineer, not an attorney.

H.O. SILVA: Is that it for the panel?

MR. WILKINSON: Mr. Silva, we have the other folks to present after 3:00, but that's it for this panel of people. If you would like to proceed with cross-examination, we are ready for it.

H.O. SILVA: As we agreed, we will take a

ten-minute break.

Objection or --

MS. KROP: Request for modification, that we didn't realize that we were going to have seven panelists to prepare cross for, so we would appreciate probably 45 minutes. We didn't realize we were going to have seven panelists. Ten minutes for each would have been actually 80 minutes, so we are asking for 45. We are seeing all of this information for the first time.

MR. WILKINSON: That is true of all of us. I'd certainly be willing to support 20 minutes; 45 minutes seems a bit excessive. We would like to finish today.

H.O. SILVA: I know. I would, too.

The other option, I'm going to ask the other parties: Is anybody ready to do their cross? Maybe other parties that can go ahead of you and allow you more time. Can we do it that way?

MR. BRANCH: I have maybe five or six quick questions.

H.O. SILVA: Lompoc, do you have any questions?

MR. MOONEY: I don't believe so.

H.O. SILVA: That's what I'm saying. Why don't we -- let's take 15 and then we'll come back with -- Fish and Game doesn't have that many. We'll start with

you.

MR. BRANCH: We can do it now and then take a break.

H.O. SILVA: Okay, if you are ready.

MR. KEIFER: I would like to take a 15-minute break now.

H.O. SILVA: We agreed. Let's take 15. We'll come back at 20 of three and then we will go with Fish and Game. It will allow you more time as they're asking their questions.

Is that okay?

MS. KROP: We are going to be preparing while they are asking their questions. Thanks for the extra five minutes.

(Break taken.)

H.O. SILVA: Let's get back in order. I think what I compromised, I talked to Cal Trout's attorney. What we are going to do is go through everybody else's cross. We'll take a break for ten minutes. That way they have 25 total, plus the time everybody else does their cross. So, anyway. I think -- why don't we just go down the list, and see.

Lompoc, do you have any cross and are you ready?

MS. DUNN: We have a couple of questions.

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CROSS-EXAMINATION OF COMBINED PARTIES PANEL I

BY CITY OF LOMPOC

BY MS. DUNN

MS. DUNN: First of all, with regard to Tom Payne, in looking at your rebuttal testimony, you indicated that you had reviewed the IFIM study that was done by DWR previously; is that correct?

DR. PAYNE: What you said was not correct.

MS. DUNN: If you tell me what you considered in the analysis, what you did.

DR. PAYNE: You said that acronym backward, but I know what you meant.

MS. DUNN: Sorry about that.

DR. PAYNE: I always like to draw a distinction between the IFIM and the PHABSIM. DWR did a PHABSIM study which is an optional element of IFIM, which is an overall approach to analyses. I did review the PHABSIM work that DWR did in the late 1980s, yes.

MS. DUNN: And I believe you also testified that you're an expert in PSIM and IFIM, correct?

DR. PAYNE: In PHABSIM in regard to that I would agreed that Dr. Li is number two in the state, yes.

MS. DUNN: Does that mean you are number one?

H.O. SILVA: You are the number one?

MS. DUNN: I'm still not sure I got an answer

to my question. Do you consider your yourself an expert in the methodology?

DR. PAYNE: I have been recognized internationally as an expert in IFIM, yes.

MS. DUNN: Have you drawn any conclusions with regard to the applicability of the study done by DWR in regards to the conditions as they are today?

DR. PAYNE: Yes. Jean Baldridge mentioned my involvement in the early reviews in 1993 to 1995 of the DWR work and as the SYRTAC was becoming developed, and I had concerns over the applicability of PHABSIM then in regards to three major issues: channel stability and criteria and lack of access to critical sites. And I still have those concerns today.

You can deal with the channel instability issue with multiple efforts over time to try to capture variability. It is not as straightforward as the studies typically are. But I still have concerns primarily over the lack of suitable criteria for Southern California steelhead. There just isn't any. If you try to use something from Northern California or Washington, I do not believe would address the habitat requirements of the species.

MS. DUNN: Thank you.

And I have one question for Jean Baldridge.

Has Cal Trout ever been invited to participate in

the AMC?

MS. BALDRIDGE: Cal Trout has been invited to participate in the SYRTAC and been invited to sign the MOUs through the years, but they haven't been signatory to MOUs, so they haven't had a seat on the AMC or the Consensus Committee.

MS. DUNN: Have they participated in any of the meetings?

MS. BALDRIDGE: Oh, yes. They have participated in a number of the meetings that we had with the SYRTAC and then Craig Fusaro was very gracious with working with us on the Fish Management Plan.

MS. DUNN: Thank you.

That is all the questions I have.

H.O. SILVA: Thank you.

County?

MR. SELTZER: No questions.

H.O. SILVA: Fish and Game.

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CROSS-EXAMINATION OF COMBINED PARTIES PANEL I

BY FISH AND GAME

BY MR. BRANCH

MR. BRANCH: Afternoon, Mr. Engblom. Would I be correct in saying that increasing flow from Bradbury might cause water delivery deficiencies?

MR. ENGBLOM: In what way?

MR. BRANCH: If you release more water from Bradbury Dam, might it cause water supply deficiencies, if you are releasing for extra fish flows?

MR. ENGBLOM: It depends on the amount that you are talking about. Based on all the testimony --

MR. BRANCH: So it might happen under certain circumstances?

MR. ENGBLOM: Water supply deficiencies released from the watershed, sure.

MR. BRANCH: If steelhead were -- if steelhead were able to be introduced into the tributaries above Bradbury Dam, if they were allowed access through some sort of fish passage project, might that relieve some of the pressure to release water for fish in the lower main stem?

MR. WILKINSON: Objection. Speculation.

MR. BRANCH: Can you answer the question?

H.O. SILVA: Again, this is cross.

MR. ENGBLOM: Repeat the question again.

MR. BRANCH: If steelhead were able to be passed above Bradbury Dam, therefore were able to access some of the tributaries to Lake Cachuma, might that relieve some of the pressure to release water for fish in the lower main stem Santa Ynez below the dam?

MR. WILKINSON: Excuse me. That's a different question. I think he is asking in terms of -- are you asking a legal pressure? If that is the case, it calls for a legal conclusion. I will object.

MR. BRANCH: I am not asking legal pressure. I am asking might it result in being able to release less water for fish.

H.O. SILVA: I will allow it, if you can answer the question.

MR. ENGBLOM: I am not sure exactly how to answer it. As far as the management plan that we have developed, supposed to take advantage of conditions when they are ripe to get the fish into the lower system and increase the population numbers.

If you were to get fish above into some of the upper tributaries, we are still going to be releasing probably the same amount of water to accomplish our goals. I don't understand what you mean by trying to -- the mechanism of getting fish around. If you get the fish upstream of some of these dams, you can't guarantee where they are going to go. And based on my overflight, there is -- this time of the year, the dry times of the year, in the upper tributaries, if they can get up in the location, it would definitely benefit. But once you release it into some of these places, you can't guarantee where they are going to

go.

I don't think I answered your question.

MR. BRANCH: Some fish might be there?

MR. ENGBLOM: Some fish, sure.

MR. BRANCH: Would you say the lower main stem spawning and rearing habitat -- would you say that lower main stem spawning and rearing habitat requires water releases to make it viable?

MR. ENGBLOM: During some years. During some years.

MR. BRANCH: If you were able to release flows in order to guarantee passage up the main stem, get them above the dam into tributaries that do not require water releases, might that in effect lessen the need to make water releases for spawning and rearing habitat in the lower main stem?

MR. WILKINSON: The question is just a rephrase of the earlier question that I found objectionable. I will object on the same grounds.

H.O. SILVA: You already asked that question. I agree.

MR. BRANCH: Mr. Donahue, this should be a fairly easy question. Would I be correct in saying that you are not opposed to studying the feasibility of fish passage or anything like that?

MR. DONAHUE: That is correct.

MR. BRANCH: Can I have you pull up Ms. Baldrige's Exhibit 269, Slide No. 10?

H.O. SILVA: Sure. Can we do that?

MR. BRANCH: I would like to refer to the top bullet. It says CDFG requirements. Ms. Baldrige, that statement says no more than 50 percent of any release would be State Water Project water, correct?

MS. BALDRIDGE: That's correct.

MR. BRANCH: It doesn't say that 50 percent of any release would be State Project water; it doesn't state that that is a target release, does it?

MS. BALDRIDGE: I don't believe that target is a constraint.

MR. BRANCH: A maximum?

MS. BALDRIDGE: That's correct.

MR. BRANCH: I have nothing further.

H.O. SILVA: Thank you.

NOAA?

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CROSS-EXAMINATION OF COMBINED PARTIES PANEL I

BY NOAA FISHERIES

BY MR. KEIFER

MR. KEIFER: Mr. Engblom, thank you for that video flight; that was quite entertaining.

MR. ENGBLOM: You should have been along. It was quite entertaining.

MR. KEIFER: I would have loved to. You can call me next time you are flying over the river. I will be happy to go along.

You used a video camera to make those clips; is that correct?

MR. ENGBLOM: Yes, I did.

MR. KEIFER: In one sense, a remote sensing technology of a video camera?

MR. ENGBLOM: Remote sensing? What is remote sensing?

MR. KEIFER: I withdraw that question.

You flew over a lot of private property to take that video, didn't you?

MR. ENGBLOM: We flew over several miles in the Lower Bradbury and upstream of Cachuma. I believe the majority of that is within National Forest Service property.

MR. KEIFER: Are there other remote sensing technologies that measure temperature or other parameters that affect fish that are suitable for use from aircraft?

MR. ENGBLOM: What is your definition of remote sensing technology, what specific device? I don't understand what you are getting at.

MR. KEIFER: Are there any parameters that affect fishing in the Santa Ynez River that can be measured from an aircraft?

MR. ENGBLOM: Not that I am aware of.

MR. KEIFER: I will move along.

Mr. Jackson, I thank you for your statement and your kind word about me. I was quite worried you were rebutting someone who had said something bad things about me. I was going to demand to know who it was.

You testified that although the ESA does not call for balancing what is fair, BOR must consider fairness if it's to carry out its duty, didn't you?

MR. JACKSON: Yes, I did.

MR. KEIFER: Isn't fairness a subjective standard?

MR. JACKSON: Yes, it is.

MR. KEIFER: What is fair is going to be determined by who's making the assessment and their personal situation?

MR. JACKSON: Can you say that again, please, Mr. Keifer?

MR. KEIFER: It is a subjective standard, is it not?

MR. JACKSON: Yes.

MR. KEIFER: And it is likely to be as varied

as the individuals in any given room?

MR. JACKSON: That is possible.

MR. KEIFER: You said BOR must consider fairness in order to carry out its duties. Does BOR have duties under the Endangered Species Act?

MR. JACKSON: Yes, it does.

MR. KEIFER: Does your personal subjective sense of fairness override the legal mandates of the Endangered Species Act?

MR. JACKSON: Not to my knowledge.

MR. KEIFER: You also testified that all costs of the Cachuma Project are borne by Member Units. Did you not?

MR. JACKSON: No, I did not.

MR. KEIFER: Could you rephrase that testimony for us?

MR. JACKSON: I said nearly all of the costs for the operation of the Cachuma Project are borne by the Member Units.

MR. KEIFER: The operation of the Cachuma Project?

MR. JACKSON: That's correct.

MR. KEIFER: How was the construction of the Cachuma Project financed?

MR. JACKSON: How was it financed? Congress

appropriated funds for its construction, and I believe it is being paid back through a repayment contract with the Santa Barbara County and Member Units.

MR. KEIFER: That is an appropriation out of general treasury funds of the United States?

MR. JACKSON: It is appropriation from the United States from the treasury, I presume.

MR. KEIFER: That is from all taxpayers equally?

MR. JACKSON: From all taxpayers equally? That -- I don't know the tax system to say whether or not it is equally among all taxpayers.

MR. KEIFER: In effect, tax contributions from people who have never --

MR. PALMER: I'm going to have to object. This is getting way beyond direct rebuttal.

MR. KEIFER: Mr. Jackson testified to fairness and the financing of the Cachuma Project operations.

H.O. SILVA: I wouldn't just -- if you can just -- I don't know where you're headed with taxation.

MR. KEIFER: I don't plan to explore the federal tax code. That might be a bit beyond the scope of this hearing.

Aren't Reclamation projects typically financed by Congressional appropriation and they are paid back by

Member Units or through contracts?

MR. PALMER: Asked and answered.

H.O. SILVA: Sustained.

MR. KEIFER: In the repayment of contracts, the operating funds, does that contribute back to the capital cost of the project?

MR. JACKSON: Yes, that is my understanding.

MR. KEIFER: Is there an interest calculation in that?

MR. JACKSON: I believe there is.

MR. KEIFER: Is that fixed by federal law, that interest rate?

MR. PALMER: Now he is asking for legal conclusion. I am not sure where this testimony is going. Mr. Jackson --

H.O. SILVA: He can answer. I let him go on even though it is fairly -- it is rebuttal, so I am going to allow a little bit of the questioning.

MR. JACKSON: Can you repeat the question, Mr. Keifer?

MR. KEIFER: There is an interest rate associated with the repayment contract, is there not, that goes back to the capital construction costs of the project?

MR. JACKSON: Yes.

MR. KEIFER: That's fixed by law, is it not?

MR. JACKSON: I do not know whether that is fixed by law or not.

MR. KEIFER: Do you know if it is typically below market interest rates?

MR. JACKSON: I do not know the answer to that.

MR. KEIFER: Would you know if it is fair to characterize the construction of the Cachuma Project as subsidized by taxpayers?

MR. JACKSON: I would tend to agree or, yes, concur that, yes, it is, to a degree, subsidized by taxpayers.

MR. KEIFER: So the Member Units who bear the cost of the operation of the project, do not bear the entire cost of construction of the project?

MR. JACKSON: That depends on one's perspective, so I don't know the answer to that.

MR. KEIFER: That is all I have.

H.O. SILVA: Thank you.

Tell you what, staff has some questions also. We'll let staff go.

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CROSS-EXAMINATION OF COMBINED PARTIES PANEL I

BY BOARD STAFF

MR. FECKO: Ms. Baldridge, I have a couple for you. The first is based on Exhibit 270A, which is the historic fish stocking above Bradbury Dam table.

MS. BALDRIDGE: Yes, I have that, Mr. Fecko.

Mr. FECKO: I see a number of -- this is going way back to the '30s and '40s. There is a number of what appears to be local stocks of steelhead. And I am wondering in your experience and in research in putting this table together, a source says, fish rescues from Santa Ynez Basin.

Did they elaborate on where those fish came from? Is there any documentation about where those were rescued from?

MS. BALDRIDGE: The documentation I have referenced over here in the last page. That information actually came from the Shapovalov results when he reported the fish that were rescued. Some of them were rescued under the current location of Cachuma and some were upstream and downstream. In the mid-'40s when the Fish and Game were very active in managing its stocks there, they would rescue the fish and put them in -- some of them went into upstream areas by Jameson and Gibraltar, and some went into as far away as Rush Creek on the east side,

and other rivers that venture a river elsewhere.

I'm kind of embarrassed I don't have a last page on my exhibit. Here it is. Just can't figure out what the page is -- Page 7 gives the citations associated with that information.

MR. FECKO: Second one, switching gears a little bit.

I am wondering if in your involvement with Santa Ynez River you're familiar with the 3A2 alternative. I think in your rebuttal there was discussion of that. The IFIM -- I believe Cal Trout discusses the IFIM alternative. I am wondering if the contract renewal EIR/EIS, what the source of those flow recommendations are. It would appear to come from the '89 IFIM study that DWR did.

Is that a correct assumption?

MS. BALDRIDGE: Mr. Fecko, my involvement in that EIR, I worked at Entrix when that was prepared. I had some involvement, but not intimate. I can tell you what my recollection is about that alternative and where it came from.

When Entrix worked on the contract renewal document, they took DWR information, recalibrated the models so they were on habitat basis and used some information on habitat mapping to condition those models. They tried to improve

DWR's study somewhat. The alternative -- there were two fish alternatives, as I recall, in the contract renewal. One of them was based on the selecting high habitat values associated with the DWR study. The three -- whatever the number is we are talking about any hearing from that. Basically was an attempt to manage the reservoir for more fish. So it was like the lower fish focused alternative.

I think the objective was really to provide spawning and rearing flows for fish based on the information that we had to date about how the river responded.

MR. FECKO: Thank you.

Mr. Shahroody, one question for you.

Actually, Ms. Baldridge and Mr. Shahroody contributing to my understanding, but I don't think I totally understand how State Water Project water is reduced. I assume it has to do with the limitations from December to June on that water. Therefore, you can't make up enough of a quantity later in the year; is that why under 3A2 state water is reduced?

MR. SHAHROODY: That is the primary factor, yes.

MR. FECKO: 1,500 acre-feet of difference or so?

MR. SHAHROODY: That's correct.

MR. FECKO: Thank you.

H.O. SILVA: I guess we are done for now. We will, as promised, take ten minutes. We'll come back ten after three, finish the cross and get the rest of your panel ready to go.

MR. WILKINSON: I'm keeping my fingers crossed.

MR. CONANT: Ms. Silva, I have to move in some exhibits. Do you want me to do that now or later?

H.O. SILVA: Are you going do the next panel or are you done?

MR. CONANT: I'll be done when they are done.

H.O. SILVA: Let's wait until they're through with the cross. Let's take ten, ten after we will complete the cross.

MR. WILKINSON: To answer your question, we can present the second panel.

H.O. SILVA: We'll come back and do cross and then do your panel.

(Break taken.)

MS. KRAUS: Thank you for the time. I will ask a few questions and Linda Krop will ask follow-ups.

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CROSS-EXAMINATION OF COMBINED PARTIES PANEL I

BY CAL TROUT

BY MS. KRAUS AND MS. KROP

MS. KRAUS: Mr. Donahue, you identified design issues and challenges associated with passage at Bradbury Dam?

MR. DONAHUE: Yes.

MS. KRAUS: Wouldn't these issues and challenges, at least some of them, be applicable to any fish passage project?

MR. DONAHUE: Some of them.

MS. KRAUS: Mr. Mack, you identified a shortage for planned future demand as a result of Alternative 3A2 or even with modified 3A2 releases; is that correct?

MR. MACK: Correct.

MS. KRAUS: Did that demand include a decrease or increase in per capita demands?

MR. MACK: I don't know. It's compared against the planned future demand of the five member agencies that was given.

MS. KRAUS: And you don't know what that planned future demand is?

MR. MACK: I did not do any investigation as to what the per capita water use was.

MS. KRAUS: Thank you.

One more question for you, Mr. Mack.

In your calculation did you consider additional conservation methods as set forth in the Pacific Institute report?

MR. MACK: What was the question again?

MS. KRAUS: In your calculation about the impact to water supply, did you consider additional conservation measures such as those that were identified by Ms. Haasz and Mr. Gleick in their testimony, the Pacific Report?

MR. MACK: In my rebuttal testimony I was taking the earlier testimony that I presented and instead using the Cachuma supply that I used earlier, I replaced that with the Cachuma supply that was estimated by Mr. Shahroody, and that is the only change I made in those.

MS. KRAUS: Did those tables include any calculation that considered conservation measures?

MR. MACK: All the water agencies have active water conservation programs. And all of them I believe, I know the City of Santa Barbara does because I work for the City of Santa Barbara --

MS. KRAUS: I am asking about your calculations. Did they include conservation measures?

MR. MACK: Yes.

MS. KRAUS: Ms. Baldridge, in your Member Unit Exhibit 269, Slide No. 8, you discussed some of the reasons why SYRTAC rejected PHABSIM. Couldn't habitat suitability criteria be collected during annual snorkel surveys of fry and juveniles and habitat downstream of Bradbury Dam?

MS. BALDRIDGE: Habitat suitability criteria could be collected during those snorkel surveys.

MS. KRAUS: And can't temperature information be evaluated in the IFIM process as part of PHABSIM?

MS. BALDRIDGE: Temperature can be evaluated in that process.

MS. KRAUS: When you referred to the bullet that indicates no access to important habitat, are you referring there to all of the management reaches identified in the Biological Opinion?

MS. BALDRIDGE: When we were planning to do PHABSIM study, we focused basically on the 154 Reach. That was the decision that the SYRTAC made in conjunction with the instream experts that we worked with.

MS. KRAUS: This is in reference to the Highway 154 Reach only, not the other reaches that are identified in the Biological Opinion?

MS. BALDRIDGE: Yes, it is. In the memo that I passed we had two different scenarios about how we'd

conduct the study. We did select the one that went along with our no-access.

MS. KRAUS: I am going to bring you a page from the Biological Opinion, Page 35. Focusing your attention on --

THE COURT REPORTER: I can't hear you.

H.O. SILVA: Come back to the microphone, please.

MS. KRAUS: Page 35 of the Biological Opinion.

MS. BALDRIDGE: Yes.

MS. KRAUS: On that page there is a title, Water Impoundment.

MS. BALDRIDGE: Yes, there is.

MS. KRAUS: Can you read that paragraph immediately following that title?

MS. BALDRIDGE: You want me to read the whole paragraph?

MS. KRAUS: Yes.

MS. BALDRIDGE: Adult upstream passage conditions have been analyzed by Reclamation and the Santa Ynez River Technical Advisory Committee through the use of cross sections at areas most likely to impede steelhead at low flows. Santa Ynez River Technical Advisory Committee,

1999; U.S. Bureau of Reclamation, et al., 1999. In this case the criteria used for passage availability was eight feet of contiguous wetted channel at one-half foot of depth at shallow river areas. U.S. Bureau of Reclamation, 1999. Different flows at each transect is required to produce the depth and width: 30 cfs at Lompoc; 37 miles downstream of Bradbury Dam; 15 at Cargasachi, 24 miles downstream of the dam; and 25 cfs at Alisal Bridge, 10 miles downstream of the dam. In the opinion of National Marine Fisheries Service fishery biologists and hydraulic engineers, these criteria are close to the minimums at which passage is possible, not water depth and width that produce good migration habitat. (Reading)

MS. KRAUS: Thank you.

In reference to the wetted width method, which you had discussed as part of your rebuttal, how would the wetted width method improve establishment of specific measurable success criteria?

MS. BALDRIDGE: Does that have anything to do with the page I just read?

MS. KRAUS: No. My question was to ask you to read that paragraph. I am on another question now.

MS. BALDRIDGE: Repeat the question.

MS. KRAUS: You want me to repeat the question?

MS. BALDRIDGE: Please. I was waiting for a question on that page.

MS. KRAUS: How would the wetted width method improve establishment of specific measurable success criteria?

MS. BALDRIDGE: The wetted width method can be used in any way like any other stream flow method for providing measurable criteria. You can establish what expectations you have based on flow habitat relationship and see if you meet those.

MS. KRAUS: Is stream depth important to steelhead?

MS. BALDRIDGE: Yes, it is.

MS. KRAUS: Is velocity important to steelhead?

MS. BALDRIDGE: Yes, it is.

MS. KRAUS: How many depth and velocity measurements are taken at each transect in the top width method that you utilized?

MS. BALDRIDGE: We utilized the method that

checks velocity and depth measurement at the thalweg, one.

MS. KRAUS: One depth?

MS. BALDRIDGE: One measurement per transect.

MS. KRAUS: Thank you, Ms. Baldridge.

Mr. Shahroody, regarding your first presentation, where you presented rebuttal testimony regarding Mr. Edmondson's calculations about the impacts to water supply of Alternative 3A2. As I understand it, your model assumes flow is measured below Bradbury Dam; is that correct?

MR. SHAHROODY: That's -- basically, the model follows what the requirements is as a part of the EIS/EIR '95, and then the model basically what it does to see those requirements are met.

MS. KRAUS: So where is the flow measured under your model?

MR. SHAHROODY: The flow under the model is measured at 154 Bridge and Alisal Bridge consistent with the criteria provided in the 3A2 of EIS/EIR of '95 renewal.

MS. KRAUS: Does your model include the contribution from all of the tributaries between Bradbury Dam and Alisal Bridge?

MR. SHAHROODY: Yes, it did. That is one of the reasons I said net loss.

MS. KRAUS: It included tributary contributions from above Highway 154?

MR. SHAHROODY: Yes, it did. Yes, it does.

MS. KRAUS: Did your model include the contribution of additional water supply resulting from a .75 surcharge at Bradbury Dam?

MR. SHAHROODY: Yes, it does.

MS. KRAUS: Did your model include the contribution of additional water supply resulting from a 1.8 foot surcharge at Bradbury Dam?

MR. SHAHROODY: The model does, but for this analysis of 3A2 or 3A2 adjusted for dry years it was based on .75.

MS. KRAUS: Did the information you provided today as part of your rebuttal only assume a .75 foot surcharge?

MR. SHAHROODY: That is correct.

MS. KRAUS: Regarding your second presentation, the impact to downstream water rights users, I asked you last time when we were here, and I just want to check again. Has there been a comprehensive study to evaluate the impacts of releases at lower rates for a longer duration than called for under the Biological Opinion?

MR. SHAHROODY: I think I probably responded

to this before. There has not been a comprehensive analysis except experience that has been, in fact, involved over 30 years. And the example I provided today as part of the rebuttal testimony where we made a release of 10,700 acre-feet of water at the rate of 55 cfs. We had only 20 cfs reaching the narrows.

MS. KRAUS: Thank you, that answers my question. One last question.

Did you consider conservation measures as part of your calculation of the impact to downstream water rights releases?

MR. SHAHROODY: Conservation measures of where? In terms of downstream or --

MS. KRAUS: Below Bradbury Dam, water use below Bradbury Dam, improvement in water conservation.

MR. SHAHROODY: The answer to that I believe, based on the water right holder's demand to satisfy those rights, and to that extent the model basically operates to satisfy the demands.

MS. KRAUS: You assume the demand that the water agencies have indicated for current, for present demand and future demand?

MR. SHAHROODY: That is based on present demand.

MS. KRAUS: Present demand. You didn't do any

additional consideration regarding the conservation measures that might not be included in those calculations?

MR. SHAHROODY: I did not.

MS. KRAUS: Thank you. That is all I have.

MS. KROP: Thank you very much.

Before I ask my question of Dr. Payne, I would like to ask Mr. Mack to clarify a question asked by Ms. Kraus. I don't think we got the specific answer on the record. The question dealt with whether or not your calculation has included increased conservation measures as identified in the Pacific Institute report.

MR. MACK: No.

MS. KROP: Is it true that the projected demand in your calculation increased by a higher percentage than population?

MR. MACK: I don't know.

MS. KROP: Thank you.

Dr. Payne, to your knowledge, has velocity actually been measured at various habitats during the 89-18 flows at 150 cfs?

DR. PAYNE: Not to my knowledge, no.

MS. KROP: Would you expect velocities to be different in different habitats?

DR. PAYNE: Yes. I would expect that, and within different habitats it would be different across the

channel.

MS. KROP: Would you expect higher velocities in riffle habitats?

DR. PAYNE: I would expect higher velocities in riffle habitat and near the thalweg, typically. Where it is deeper, it is generally faster.

MS. KROP: Finally, could fry that exist in riffle habitat be affected by higher velocities?

DR. PAYNE: You will have to get specific with that because the Santa Ynez, when there is water rights releases, does not have riffles; it only has pools. As a general statement, if fry are in riffles, they are typically near the margins. And when you increase the velocity, they tend to move with the wetted area and stay near the margins.

MS. KROP: Thank you.

H.O. SILVA: Thank you.

Staff, have any questions?

I think we are done with this portion of the panel. You have two more?

MR. WILKINSON: We have one more panel, two more people.

H.O. SILVA: This panel is only for the Member Units?

MR. BERTRAND: That is correct. We are going

to have three witnesses on this panel, two of whom will be testifying. Mr. Mack will be available for cross-examination as necessary. Just by brief introduction, we have Mary Ann Dickinson, the Executive Director of the California Urban Water Conservation Council and Misty Gonzales, the Water Conservation Specialist for Goleta Water District.

H.O. SILVA: Have they taken the oath?

(Oath administered by H.O. Silva.)

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DIRECT EXAMINATION OF MEMBER UNITS - PANEL II

BY MR. BERTRAND

MR. BERTRAND: Starting with Ms. Dickinson.

MS. DICKINSON: Thank you. My name is Mary Ann Dickinson.

MR. BERTRAND: I need to get some preliminaries.

Ms. Dickinson, I will identify your statement of qualifications as Exhibit 276.

Is MU Exhibit 276 a true and correct copy of your statement of qualifications?

MS. DICKINSON: Yes, it is.

MR. BERTRAND: I will identify your written testimony as MU Exhibit 277.

Is Exhibit MU 277 a true and correct copy of your

written testimony in these proceedings?

MS. DICKINSON: Yes, it is.

MR. BERTRAND: I will identify your PowerPoint presentation as Exhibit 278.

Is Exhibit MU 278 a true and correct copy of your PowerPoint presentation in these proceedings?

MS. DICKINSON: Yes, it is.

MR. BERTRAND: Would you please summarize your testimony beginning with a brief summary of experience relevant to your expertise to give testimony today?

MS. DICKINSON: I'm the Executive Director of the California Urban Water Conservation Council, which is an organization that manages and implements the Memorandum of Understanding under which the BMPs are administered. And I have been in the field of water conservation since 1988. I have been active throughout the state, nationally and internationally in this topic.

MR. BERTRAND: Thank you very much.

Would you please summarize your testimony for us now.

MS. DICKINSON: Does that mean I should do my presentation?

MR. BERTRAND: All the way through.

MS. DICKINSON: Now I can do it.

MR. BERTRAND: Thank you very much.

MS. DICKINSON: Go to the next slide.

I have been invited here by the Member Units to talk about the Memorandum of Understanding and the best management practices and the framework under which they are administered throughout the state of California.

One of the first points I want to make is that this memorandum is a statewide standard and a benchmark for reasonable water conservation performance statewide. It is a memorandum that is currently signed by 313 organizations across the state. Those organizations represent water agencies as well as environmental groups. Just as a matter of interest, the Pacific Institute and Cal Trout are very active members of our council, as are the Member Units who have been signatories since 1994.

Of all the agencies in California that serve 3,000 acre-feet or have 3,000 connections, there are about 450 of those, and we have to date 180 of them as members and signatories to this memorandum, which doesn't sound like a lot in numbers, but it is a lot in water, about 75 percent of the water delivered in the state. Those members by signing this Memorandum of Understanding, they pledge to do a good faith effort to implement the best management practices contained within this memorandum.

Interestingly enough, this memorandum was negotiated in 1989 actually in a forum very much like this one.

There were water conservation issues that were raised during a regulatory proceeding. It just got contentious and the environmental groups and the water agencies decided to negotiate a standard set of practices which are contained in this memorandum and which represent a level of acceptable water conservation statewide.

All of the signatories to this memorandum pledge to implement the 14 best management practices. Those 14 practices are referenced in the California Water Code as a standard for urban water management planning and the Bureau of Reclamation conservation guidelines also reference the best management practices and, indeed, they use our council reporting system as a way to keep track of their member contractor agencies' activities.

Finally it is a yardstick that is being considered for compliance by the CalFed program, a program -- a proposed program of water certification, water agency certification within. The State Board doing that certification has been proposed and the proposal is to use those 14 best management practices as a benchmark. Finally, by way of additional information, I believe the State Board requires signing the memorandum as a condition for receiving wastewater revolving loan fund money.

Status. Where are we in terms of BMP implementation? The Memorandum of Understanding is a

ten-year life? That ten-year life was extended in 1997. So anyone who signed the memorandum has until 2007 to achieve the full BMP implementation. We have built into our memorandum implementation milestones. An agency cannot be on track at the moment, but they can still ultimately make the ten-year track if they ramp up. The idea is to have the full implementation by 2007.

Santa Barbara and Goleta at this point are very active in implementing these measures. They are 78 percent, as I understand it, of the urban water use from the Cachuma Project. So those are two that I think would be of great interest to the proceedings. And their compliance with the BMPs is very good. They have been very active since the signing of the memorandum.

Compliance by the other three members is typical, in my experience, based on the size of the agency. In my experience agencies of that size haven't even signed -- many of them haven't signed the MOU. Those are the ones I am trying to get to sign all the time. So their compliance is not as high, but it's, based on size, unfortunately typical.

All of the council signators, I need to say, could probably do more conservation. The statement of conservation potential applies uniformly to everyone in the state.

Next one.

Here is a list of the best management practices that, by our records, are implemented by all the agencies, the Member Unit agencies. There are six of those that they are all working on.

System water audits, leak detection and repair is being complete. This is the one that mandates that water loss within the distribution system be managed.

Metering with commodity rates. That is a controversial one in the Central Valley, but not in this particular area. Everyone complies with that.

Public information and school education programs, BMPs 7 and 8, are all ongoing.

Conservation pricing, BMP 11, and designating a conservation coordinator, BMP 12. Those are all covered by those member agencies.

In terms of the other best management practices, Santa Barbara and Goleta, as I mentioned, have achieved significant or complete implementation of these other best management practices.

Residential surveys, which are BMP 1. Residential retrofit, BMP 2. Large landscape conservation, which can include a wide range of programs like water budgets, special weather-based irrigation controllers, called ET controllers. Recycled water use. Those are all

strategies to achieve water landscape conservation. That is BMP 5.

Commercial and industrial and institutional retrofit. That's BMP 9. Water waste prohibition. These are gutter flooding ordinances and ordinances at the municipal level that they have enacted.

And then finally programs to retrofit ultra low flow toilets. They have been active with those as well.

I just want to briefly as an aside mention that under CII retrofits, Santa Barbara and Goleta have been participating in our prerinse spray valve program, which is a pilot program we are doing with the California Public Utilities Commission. So they are one of the innovative participants in that.

I want to address the issue of the cost of conservation programs because that appears to be an issue here. And we find that this information varies all across on the map. Program costs per acre-foot can vary between a low of $29, which is the cheapest one I've ever seen, that prerinse program I just mentioned, to a high of sometimes as much as $500 an acre-foot, depending upon what the program is that is being done, what the size of the program is and how implementation is being achieved. So of the complicated commercial and industrial process surveys, audits and retrofits can be very expensive.

Most programs, though, typically are in the $150 to $250 range. Particularly the residential and commercial and industrial toilet and clothes washer programs. They can be lower if you have larger sized programs because you get economy of scale. And there are ways to streamline cost, but for most agencies when they build in the marketing cost, the staffing cost, they build in an analysis cost, which is often forgotten, it ends up being a fairly high number. It can be a lot higher and ramp up a lot higher if you're seeking a hundred percent penetration of these programs.

So the only way to really figure these things out, and I know the Pacific Institute I am sure struggled with their analysis, is that you have to analyze every specific region, every member agency, their particular situation, the design of the program, what they are intending to reach in terms of number of customers and the persistence of the savings as well as the discounting. All of those issues have to be rolled into the analysis. A fairly complex process. And the Council spends hundreds of thousands of dollars to educate its members and to work with them, train them in workshops to do these programs. Misty has been at a lot of our training as well.

So I guess I just wanted to stress that this is an issue that -- the cost-effectiveness issue is a difficult

one. It will be highly variable, depending on the program and its an issue that we struggle with at the Council because in order to qualify for an exemption to these programs, that analysis has to be done, and it is very different for each agency.

Finally, I just wanted to wrap up with a discussion about the statewide benefit of water conservation. This is something that has been discussed a lot in state water plan proceedings and in the number of other forums that the Council has been running. We have -- we are very active in getting our members to apply for water bond funding, which has collectively awarded over $50,000,000 in urban water conservation for both grants and loans, and some of that funding has been at the cost-effective level, but much of it has been above the local cost-effective level. There is recognition on the part of the state that statewide benefit for environmental purposes increase flows for fisheries, increase flows for habitat, especially in the Delta, have a statewide value which should be reimbursed to the local water agencies. So much of that bond funding asks the agencies to identify what the benefit is to the Delta or to the environment of the programs. And priority funding is awarded to those that demonstrate that well.

So the obvious conclusion then is that conserved

water for environmental purposes is a statewide benefit and is recognized as such on the federal side as well. The Bureau of Reclamation also gives substantial grant money. So the issue becomes what is effective at the local level versus what is cost-effective at the state level and what happens to the conservation that is achieved in that differential area.

The whole issue of environmental cost and benefits has been a very tricky issue since the signing of the memorandum. The memorandum was negotiated based on this very issue, and so we were charged at the Council with the responsibility of coming up with a methodology to analyze costs and benefits. And because of the extraordinary cost of such a study, we were not able to do so until last year, when the Bureau of Reclamation actually awarded us some study funds. So that study will be ongoing and will probably be available sometime in 2004. And at that point I hope to have a more complete answer for you on that whole environmental benefit issue.

But I wanted to just stress that this is an important issue for us. It is an important precedential issue depending upon what the decision is that you make. Our alliance of water agencies and environmental groups depends on that memorandum staying together. And right now the basic presumption in the memorandum is: If you do

what is in the Memorandum of Understanding, you achieve the statewide standards. And so we will have to think carefully about how far we go beyond that. That is not to say that conservation shouldn't be increased and that there isn't terrific conservation potential like the Pacific Institute shows us. But the question is who pays for that potential and where does that money come from.

So I guess that's my testimony at this point in time unless you have questions.

MR. BERTRAND: I do have one question, Ms. Dickinson.

You referred to the Pacific Institute report. This would be Cal Trout Exhibit 63, although we don't expect you to know that particularly. In your understanding was that report peer reviewed?

MS. DICKINSON: It's my understanding that there was a limited number of people that did look at the report, but the peer review process is really going to happen with greater -- with broader interest once it is finally published. I think there are a lot of water agency experts that will be very, very interested in the results of that report.

As I understand it, that report was commissioned to inform the state water plan process as to what the ultimate conservation potential might be in the state of

California. Again, that goes to the state water benefit. So there is tremendous interest in the report. We are all looking forward to see the final.

MR. BERTRAND: Thank you very much. I have no further questions.

Mr. Silva, I am going to go ahead and distribute some more documents for Ms. Gonzales' statement of qualifications for her testimony and PowerPoint presentation. I will identify Ms. Gonzales' statement of qualifications as MU Exhibit 279.

Ms. Gonzales, is Exhibit MU 279 a true and correct copy of your statement of qualifications?

MS. GONZALES: Yes.

MR. BERTRAND: I'm going to identify Ms. Gonzales' written testimony as MU Exhibit 280.

Ms. Gonzales, is MU Exhibit 280 a true and correct copy of your written testimony you are giving today?

MS. GONZALES: Yes.

MR. BERTRAND: I am going to identify Ms. Gonzales' PowerPoint presentation as Exhibit 281.

Ms. Gonzales, is MU 281 a true and correct copy of your PowerPoint presentation that you are going to be giving today?

MS. GONZALES: Yes.

MR. BERTRAND: Will you please summarize your

testimony beginning with a summary of your experience relevant to your expertise in giving your testimony today?

MS. GONZALES: My experience in water conservation are previous past employment with the City of Santa Barbara water supply management and conservation program. Current employment at the Goleta Water District as Water Conservation Specialist, implementing all of the Memorandum of Understanding BMPs and doing the BMP reporting. And my education includes a Master of environmental science and management with a specialization in water resources management, with courses in economics and natural resources, and a Bachelor of Science in hydrological sciences.

MR. BERTRAND: Thank you very much.

Will you please summarize your testimony for us.

MS. GONZALES: In summarizing my testimony as regarding the limitations of the Pacific Institute testimony and report, the estimate for Member Units, I believe that the conservation potential is incorrect. Regarding outdoor water use analysis, I believe it overstates the absolute and relative consumption levels by Member Units. It appears that the absolute consumption values may include agricultural use and the relative consumption levels use a gallon per capita per day figure, which is not necessarily consistent between water

purveyors. Different purveyor districts have different uses within them, and it is skewed with relation to the Member Units because Montecito has a high number of residential users with a large lot size. And it has been shown that large lot size is associated with a higher water use. And in Santa Barbara and Goleta there are a larger number of commercial, institutional and industrial accounts, which is included in the total number that is based on -- that is used for the per capita per gallon per day calculations.

And in my conservation experience and background and education I have found that in order to compare apples to apples people tend not to use the gallon per capita per day figures due to discrepancy in the calculations. Different purveyors will use different calculations. Some will include the CII; some will not include the CII. So they can be very different.

The statewide savings estimates I believe don't translate to the Member Units. In addition to the approximately 50,000 ultra low flow toilets that have been installed from rebates distributed in Santa Barbara and Goleta, there have been significant landscaping savings already. During the last drought, a water landscape was replaced with drought resistant landscape and drip irrigation systems. In addition, the Santa Barbara --

City of Santa Barbara, Goleta Water District and the County of Santa Barbara implemented an ET controller program, and this was talked about in the Pacific Institute report. But to report on current issues due to unforeseen amount of staff time involving implementing the program with the weather trap irrigation controller, ET controller, I would say that it is not -- the cost is going to be more than they were anticipating due to the increase in staff time necessary to implement the program.

Regarding the behavior in setting irrigation timers, I don't believe that it is difficult to estimate how much savings you are going to get over time. During the study, it is -- it can be determined. But over time different studies have found that behavioral patterns change and relax as time goes on. So conservation due to behavior changes can decrease.

Regarding the indoor water use analysis, for ultra low flow toilets, as I said -- well, as I said, approximately 50,000 toilets, toilet rebates, were distributed by Goleta and Santa Barbara, and they are both near 100 percent saturation. And the Pacific Institute's estimates do not account for leakage of toilets over time. The California Urban Water Conservation Council accounts for this when giving credit for water savings. They discount the savings of each toilet over time.

I didn't notice that in the Pacific Institute report, so I believe that the estimates for savings from ultra low flow toilets is an overestimate. And I also did not see any figures in the Pacific Institute report with regard to the cost benefit analysis to account for costs near 100 percent saturation. It's been found that the cost per toilet increases significantly, if not exponentially, as we reach 100 percent saturation. Each additional toilet cost more than that toilet before to replace, and I didn't see any accounting for that in the Pacific Institute report.

For low water use washers, the models listed in the Pacific Institute report are not evaluated by the consortium for energy efficiency. The models used are possibly discontinued and water savings are reported as gallons per load and not with what is called a water factor, which accounts for the volume of a washer in gallons per cycle per cubic feet of the load. So I believe that the Pacific uses gallons per load or gallons per wash. It does not account for volume of the washer, which is how much clothes they can get clean with it.

And the costs per machine I also believe is underestimated. When real current cost are considered and water savings is discounted, the washers are -- I found that the washers are not cost-effective at this time. I

actually completed cost-effective analysis for Goleta Water District and found washers not to be cost-effective

Finally, the Pacific Institute has some flawed analysis and assumptions for planning purposes using 1951 under critical dry year is valid and reasonable from a water supply perspective, and some data used by the Pacific Institute that was misapplied. They extrapolate conclusions from the data, which the data does not support. Some of the studies are not available, and the WUCOL report, which they referred to, is a subjective report as stated by WUCOL, but the study is a conservative estimate of water conservation.

And in conclusion, the Pacific Institute testimony and report extrapolates statewide assumptions for the Santa Barbara area, overstates consumptions and underestimates cost to Member Units in their cost benefit analysis, and these limitations overestimate the cost-effective conservation potential of the Member Units.

MR. BERTRAND: I don't have any further questions for Ms. Gonzales.

Thank you very much for your testimony.

H.O. SILVA: Do you need the ten minutes?

Back real sharp, five after and begin with the cross.

(Break taken.)

H.O. SILVA: Start with cross-examination of this panel.

Bureau, any questions?

MR. PALMER: No questions.

H.O. SILVA: Member Units? I'm sorry.

Santa Ynez have any questions?

MR. CONANT: No.

H.O. SILVA: Lompoc, do you have any questions?

MR. MOONEY: No questions.

H.O. SILVA: County?

MR. SELTZER: No questions.

H.O. SILVA: NOAA?

MR. KEIFER: No questions.

H.O. SILVA: Cal Trout -- I'm sorry, Fish and Game?

MR. BRANCH: No.

H.O. SILVA: Excuse me.

Cal Trout.

MS. KRAUS: I have some questions for Ms. Dickinson and my colleague, Linda Krop, will have some additional questions for the panel.

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CROSS-EXAMINATION OF MEMBER UNITS - PANEL II

BY CAL TROUT

BY MS. KRAUS AND MS. KROP

MS. KRAUS: Ms. Dickinson, do the best management practices represent all cost-effective conservation potential?

MS. DICKINSON: No. They are a negotiated set of measurements and have been agreed to by all the signators. However, we do have a process for adding new measures to the MOU. We have been amending the MOU yearly since 1999.

MS. KRAUS: There is a cost-effective potential beyond the best management practices?

MS. DICKINSON: Yes.

MS. KRAUS: Can you give a couple of examples of some practices that are not included in the best management practices?

MS. DICKINSON: Well, it depends on your perspective. If you think devices ought to be their own best management practices, then a device such as an ET controller or waterless urinal is theoretical not in the MOU. But if you have a perspective that the BMPs cover areas and BMPs for commercial and industrial, and a waterless urinal, which goes into a commercial installation, is one way to achieve commercial savings,

then it is covered. So it is a matter of interpretation. There are some devices like residential on-demand water heaters that are not in the MOU anywhere.

MS. KRAUS: You identified in Slide 4 of your PowerPoint six best management practices that have been implemented to date?

MS. DICKINSON: That is correct.

MS. KRAUS: Of those six best management practices how many are associated with a quantifiable water savings target?

MS. DICKINSON: None of these, really. We are working on the first one, system water audits, leak detection and repair, to set a coverage requirement. But the metering with commodity rates is a yes or no based on coverage in the service area, and everyone does comply with that. I would say the first two are the ones that would be most quantifiable. And the others are not considered easily quantifiable. We can't measure what conservation you get from a public information or school education program. Although we've been wanting to have studies to do that. So those are requirements that are meant to enhance implementation value of the other programs.

MS. KRAUS: In Slide 3 of your PowerPoint, whereas you testify, regarding Slide 3, you mentioned that

three of the member agencies are unfortunately typical. Can you elaborate on that?

MS. DICKINSON: Conservation programs are often considered difficult by smaller agencies. They -- this is a statement I'm making across the board statewide. They perceive they don't have the operating revenue to fund a conservation program. They are often very small in staff, sometimes as little as two or three people. The agencies that perform a lot of conservation have a significant conservation staff. East Bay MUD has probably 25 people on staff. So the smaller agencies are limited in their ability to carry out programs, and typically are the ones that need the most help from us.

So that is what I meant when I said they unfortunately are typical because smaller agencies struggle with the best management practices.

MS. KRAUS: Also on the slide you characterize Santa Barbara and Goleta's compliance with the BMPs as good. I take, then, that you would not characterize compliance by the other Member Units as being good?

MS. DICKINSON: We have a number of exemption applications that have been filed with us. And while the Council doesn't specifically approve or disapprove those, we intend, based on what appears to be a growing trend of exemption filed, we are interested now in providing

detailed commentary to water agencies to help them design programs that would be cost-effective.

So that is -- in my written testimony I think I did go into that fact, that what we are planning to do is study technical assistance-type of work with agencies to help them design programs that would be simpler and less expensive for them to run.

MS. KRAUS: Would you characterize the three Member Units, other than Santa Barbara and Goleta, would characterize their compliance as good?

MS. DICKINSON: I would characterize their compliance typical, which is not to say it is as high as I think it could be.

MS. KRAUS: So it is not good?

MS. DICKINSON: Oh, it could be good by 2007. This is the issue that is troublesome here. It could be in --

MS. KRAUS: Thank you.

You mentioned exemptions in response to one of my earlier questions. Have any of the five agencies filed for any exemption from the best management practices?

MS. DICKINSON: Yes. Again that is typical statewide.

MS. KRAUS: How many exemptions has -- how many exemptions did Santa Ynez Improvement District No. 1

applied for in their last submission?

MS. DICKINSON: I didn't bring any exemption information with me.

MS. KRAUS: You don't know the answer.

MS. DICKINSON: I could get the answer. I don't have it with me at this point. I believe they have applied for exemptions from -- no, I don't want to give an answer that I'm not sure of.

MS. KRAUS: Thank you.

That is all the questions that I have.

H.O. SILVA: Thank you.

MS. KROP: Thank you. Good afternoon. I have some questions for Misty Gonzales, and I would like to preface these with an acknowledgement for the record that Ms. Gonzales' testimony was devoted to a critique of the Pacific Institute testimony and report. And under the rules of this proceeding we are not allowed to bring in the authors of that report back for their response. Also, the authors have note an adequate opportunity to fully review Ms. Gonzales' testimony presented today. So what we will do is ask a few questions on cross and we will have to deal with the rest of our response in future submittals to the Board.

Ms. Gonzales, you made several statements regarding the inaccuracy or inadequacy of the Pacific Institute

report that was submitted for this proceeding dated October 1, 2003; is that correct? I want to make sure we both are talking about the same Pacific Institute report.

MS. GONZALES: Yes.

MS. KROP: One of the statements you made was that it appeared that the Pacific Institute report included agricultural use; is that correct?

MS. GONZALES: Yes.

MS. KROP: I am going to hand you -- do you have a copy of their report with you?

MS. GONZALES: I do.

MS. KROP: If you could look at Page 2, second line from the bottom, the sentence that begins, "It should be noted." Could you read that, please?

MS. GONZALES: Second --

MRS. KROP: Second line from the bottom there is a sentence that starts, "It should be noted." If you could read that one sentence.

MS. GONZALES: It should be noted that we do not discuss agricultural water use in any of this report, which accounts for about 20 percent of the member agency use.

MS. KROP: Thank you.

Another statement you made was that the report does not itself account for conservation measures already in

use. If you could please turn to Page 6 of the Pacific Institute report, this is in a section dealing with residential toilet retrofit. On Page 6, about the middle of the page, there is a heading that says, "Results by Agency," and the first agency listed is Goleta.

Is that correct?

MS. GONZALES: Yes.

MS. KROP: I'm going to hand you my copy that has a highlighted section I would like you to read.

MR. BERTRAND: Can I interpose an objection. It is not clear to me that what -- and she can answer for herself -- that when she says that they didn't account for the water conservation that she wasn't talking about landscaping. She can answer that. If she made a more general statement, I just want to make sure it is clear and her statement wasn't taken out of context.

H.O. SILVA: Now you've lost me.

MR. BERTRAND: Ms. Krop said that Ms. Gonzales represented that none of the water conservation measures were acknowledged that the Member Units had done, and I remember Ms. Gonzales said something to the effect. But my recollection is that she was talking about landscaping. That may not be correct. I want to make sure because Ms. Krop then started talking about low flow toilets.

MS. GONZALES: It was in addition to the ultra

low flow toilets. I think that the numbers were incorrect in the Pacific Institute report, and that was, I think, due to reporting to CWCC. Our toilet rebate program happened before the first year in the history of recording for GWCC, and so it wasn't until recently that that was accounted for. So that was -- that is why the numbers are incorrect for that. But for -- it was landscaping that I was referring to with the previous drought tolerant landscaping and drip irrigation, was what I was referring to.

MS. KROP: With respect to the toilets, if we could just cover that first. On Page 6, under the heading Goleta, if you can read the first three sentences.

MS. GONZALES: According to its 1997 report to the California Urban Water Conservation Council, the Goleta Water District has met the full requirements of the BMP 14. GWD had the most complete information on toilet stock and saturation of ULFTs of the five agencies. GWD began requiring 3.5 gpf toilets four years before it became a state mandate and in 1985 it began ULFT rebate program that ran until 1989, replacing over 11,190 toilets with 1.6 gpf models. (Reading)

And my statement would be that that was actually 27-, over 27,000 toilets.

MS. KROP: Again, I haven't had the chance to go through this report with the author, and I ask -- can I have a few minutes to talk to her about the landscape -- I guess I am confused as to the merit of this whole rebuttal process when we can't really respond.

H.O. SILVA: Again, evidence is presented as rebuttal, not as case in chief.

MS. KROP: But our cross is not effective. I guess I will just ask one last question and we'll have to deal with this in our written submittals if that is appropriate.

H.O. SILVA: You still have a chance with your written.

MS. KROP: I would like to state again for the record, our cross is not complete from our perspective.

You talked about cost-effectiveness of washers. Are you aware that there is a washer rebate program in the state?

MS. GONZALES: By whom?

MS. KROP: Are you aware of any washer rebate program in the state, yes or no?

MS. GONZALES: In the state, yes, but I believe it's by area.

MS. KROP: Thank you.

H.O. SILVA: Thank you.

Can we just cover the evidence? Are we all done with evidence?

MR. WILKINSON: At this time --

THE COURT REPORTER: I can't hear you.

H.O. SILVA: Why don't you come up to the microphone.

MR. WILKINSON: At this time the Member Units would move into evidence Cachuma Member Unit Exhibits 264 through 281, and that includes 270A and 270B.

MR. CONANT: Santa Ynez would move into evidence SYRWCB Exhibits 5 through 10.

H.O. SILVA: Any objections?

MS. KRAUS: I don't have an objection to the exhibit, but I do have a question about some testimony that was given on cross.

H.O. SILVA: Can you come up. We can accept the evidence.

MS. KRAUS: I believe that Ms. Dunn cross-examined Mr. Payne regarding the distinction between the IFIM and PHABSIM. Actually, I think her questions were a little confusing initially. Essentially she was asking Mr. Payne to testify as to the merits of PHABSIM and the DWR PHABSIM analysis. And as I understand it,

cross-examination of rebuttal is limited to the scope of the rebuttal evidence presented, and Mr. Payne's testimony was limited to the effects of the water rights release 89-18 on steelhead below the dam.

MS. DUNN: Mr. Silva, I believe I heard --

THE COURT REPORTER: I can't hear you.

MS. DUNN: I believe my questions were based entirely on the fact that Mr. Payne in his rebuttal testimony made some statement of having reviewed the DWR study, and I just asked him questions with regard to that review.

H.O. SILVA: That is what I remember.

MS. KRAUS: To clarify, he does not -- he summarizes his experience, but with respect to the evidence that he presents it is all related to effects of 89-18 on downstream -- on steelhead below the dam.

H.O. SILVA: Let me go back --

MS. DUNN: Could I just state one more thing, though, for the record? That study has been introduced into evidence by Cal Trout, so it is subject to the rebuttal and --

H.O. SILVA: Let me go back and look. I will work with Esther to see what was said. Then I'll get back to you before we end. I will take it under advisement.

Now let's move to, if we are done with this panel,

then we'll go to the City of Lompoc.

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DIRECT EXAMINATION OF CITY OF LOMPOC

BY MR. MOONEY

MR. MOONEY: Good afternoon, Mr. Silva. For the City of Lompoc' rebuttal testimony we have called Timothy Durbin back.

Mr. Durbin, are you familiar with what has been referred to as Alternative 3A2 in these proceedings?

MR. DURBIN: Yes, I am.

MR. MOONEY: Have you had the opportunity to analyze the effects of Alternative 3A2 on water quality below the narrows?

MR. DURBIN: Yes, I have.

MR. MOONEY: Could you describe the analysis that you performed, please.

MR. DURBIN: Yes. The analysis starts with the Santa Ynez River hydrology model which has been discussed at various times during these proceedings. That is a model over all the Santa Ynez River Basin, represents the stream flow and salinity with respect to the natural flows and the operation of the reservoirs. And one of the outputs of this river basin model are the -- is the salinity of stream flows at the narrows. And earlier this afternoon in Mr. Shahroody's testimony he described how

the -- compared to Alternative 3C in the water rights EIR for these proceedings Alternative 3A2 produces higher salinity stream flow at the narrows than -- with respect to 3C.

And I took the analysis somewhat further than Mr. Shahroody in that I did some work to translate the increased salinity at the narrows into what the impacts would be with respect to the groundwater recharge in the Lompoc groundwater basin from Santa Ynez River stream flow. And that involves, first of all, looking at for different stream flow rates what the corresponding recharge rate is and then also looking at for that recharge what its salinity would be. And salinity of the recharge would always be the same as the salinity within the river itself.

The conclusions that I draw from this analysis is that or that the Alternatives 3A2 and 3A2 dry produce significantly higher dissolved solids or salinity within the recharge when those alternatives are compared with Alternative 3C. And more particularly the salinity of the recharge of the average, and this is a volume weighted average, is about 100 milligrams per liter higher for the two Cal Trout alternatives than would occur under Alternative 3C. Under 3C the average salinity will be of the recharge is about 770 milligrams per liter. Under

Alternative 3C the -- or 3A2 the salinity would be about 900 milligrams per liter, which is approximately 130 milligrams per liter higher than 3C. Alternative 3A2 dry would have an average salinity of about 860 milligrams per liter. So that is about 90 milligrams per liter higher than the base case.

So overall, again, the Cal Trout proposals produce salinity of recharge that is significantly higher than what occurred under other alternatives and that higher recharge salinity will translate ultimately into higher groundwater salinity and impact the City of Lompoc.

MR. MOONEY: Is what has been identified here or handed out as Lompoc Exhibit 5, is that a description of the analysis that you just discussed and the conclusions?

MR. DURBIN: Yes, it is.

MR. MOONEY: Maybe you answered this, but let's just double-check here. You indicated that you were present for Mr. Shahroody's rebuttal testimony. How does your analysis and conclusions fit with Mr. Shahroody's analysis and opinion?

MR. DURBIN: As I said, my analysis takes Mr. Shahroody's analysis and carries it a step farther by translating narrows stream flow impacts into groundwater recharge impacts.

MR. MOONEY: Thank you very much.

That is all we have.

H.O. SILVA: Thank you.

You need ten minutes on this one?

MS. KRAUS: No.

H.O. SILVA: I'd like to go straight through if we can.

Bureau?

MR. PALMER: No questions.

H.O. SILVA: Member Units?

MR. WILKINSON: No.

MR. CONANT: No.

H.O. SILVA: City, your testimony.

Fish and Game?

MR. BRANCH: No questions.

MR. KEIFER: No questions.

H.O. SILVA: Cal Trout.

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CROSS-EXAMINATION OF CITY OF LOMPOC

BY CAL TROUT

BY MS. KRAUS

MS. KRAUS: Mr. Durbin, has the data underlying the conclusions in your testimony been submitted as part of the record?

MR. DURBIN: No, it has not. Just the summary

of what I did and the conclusions that I drew from the analysis.

MS. KRAUS: Thank you.

I have no further questions.

H.O. SILVA: Thank you.

Mr. Branch, how extensive is your panel going to be?

H.O. SILVA: Evidence?

MR. MOONEY: Move to introduce Lompoc Exhibit 5.

H.O. SILVA: Any objection?

MS. KRAUS: I do. Page 3 of the hearing notice states that exhibits based on technical studies or models shall be accompanied by sufficient information to clearly identify and explain the logic, assumptions, development and operations of the studies or models.

Mr. Durbin has not provided any of the data underlying his conclusions in his testimony, so I would move -- I'm sorry, I would object to the admission of his exhibit.

H.O. SILVA: Has that already been included or submitted as former evidence, prior evidence?

MR. MOONEY: Well, the modeling, the models that Mr. Durbin used, I believe, have been included as part of Santa Ynez River hydrology model as well as the ACI model, are included as part of the staff exhibits, and

I believe those are the documents for the models that Mr. Durbin has relied upon in doing those things.

H.O. SILVA: He had talked about his own modeling. Has that already been included or submitted as evidence, prior evidence by you or other parties?

MR. MOONEY: The modeling that he had relied upon, I believe, was the Santa Ynez River hydrology model. I can ask Mr. Durbin for clarification on that.

MS. KRAUS: I thought he indicated that he did some additional tests.

H.O. SILVA: That is what I heard.

MR. MOONEY: The model is part of the EIR. Says right here models -- models were derived from simulations using the Santa Ynez River hydrology model.

MS. KRAUS: Those simulations aren't part of the --

MR. MOONEY: Models described as part of the water rights EIR.

H.O. SILVA: I am quoting, my analysis involves comparing alternatives. So he must have done something on paper, I'm assuming, or was it just a thought process?

MR. MOONEY: It is based upon his expert opinion and based upon his --

H.O. SILVA: But he analyzed something, so he

must have some technical information or paperwork to back it up. That is a good point. I'm just wondering.

MR. MOONEY: What he have is -- what we have is the testimony he presented and the analysis.

H.O. SILVA: What I am asking, again, I asked you twice, has he already submitted -- he talks about his analysis, has he submitted that analysis.

MS. DUNN: If I might interject. The simulations are based on the model runs primarily in what Ali Shahroody testified that already have been introduced as rebuttal testimony here previously. All he did was extend that analysis to the Lompoc plain.

H.O. SILVA: What I am saying is where is that information.

MS. DUNN: The data and the information upon which that simulation is based is all part of the --

H.O. SILVA: I know. You are not listening to me. He is basing his testimony, he says, on his analysis. Where is that analysis?

MS. DUNN: Part of the analysis is the information that has been submitted into the record already.

H.O. SILVA: I agree, I'm not going to allow the testimony because I have asked you three times. You can't explain to me where it comes from.

MS. DUNN: We would be happy to provide the same graphs that were provided by Ali Shahroody that are there.

H.O. SILVA: The analysis -- I guess what I am asking is if the analysis is based on his own opinion, then it is not an analysis. It's an opinion of existing data, but not an analysis.

MR. MOONEY: An opinion of existing data.

H.O. SILVA: But not --

MS. DUNN: If I can try to explain it again, and, Tim, you can correct me if I am wrong. What he did is took the models that are already in the record. 3C, Alternative 3C is an alternative that's been analyzed as part of that modeling runs that were done. And he simply took the 3CA that was testified to by Cal Trout and looked at the difference in water quality -- ran the models and looked at --

H.O. SILVA: Where is that model he ran?

MS. DUNN: We would be happy to submit simulation into the record if it is required.

H.O. SILVA: That is what I am asking.

MS. DUNN: We'll be happy to give the model runs to you. But the data upon which that information was developed is in the record.

H.O. SILVA: That is what I was asking. It

has been submitted already?

MS. DUNN: Yes.

MS. KRAUS: I thought she said it hadn't.

H.O. SILVA: You told me originally it had not, that is why we kept asking.

MS. DUNN: The data is all upon which the model -- the data is in the model.

MS. KRAUS: The simulation that he ran --

H.O. SILVA: Can I ask the witness to come up and tell me what's going on. Sounds like he is probably the only one who knows.

Can you stand up at the microphone, please?

MR. DURBIN: There are various components to the analysis that I did. One of them is the model simulations that are described in the Cachuma contract EIR/EIS for Alternative 3A2.

H.O. SILVA: Can I stop you there? Has that been submitted as evidence already?

MR. MOONEY: I believe that EIR is part of the administrative record, part of the staff exhibits.

MR. CONANT: Staff Exhibit 5 or 6.

H.O. SILVA: Proceed.

MR. DURBIN: Another piece of -- and I might mention that the -- what I am referring to in the contract EIR/EIS are the model simulations using the Santa Ynez

River hydrology model. The second piece of information that I used were the simulation results for Alternative 3C that are within the water rights EIR for these proceedings. The next information that I used were the graphs within the testimony of Mr. Shahroody with respect to the salinity impacts on Santa Ynez stream flow at the narrows.

So I took those three pieces of information. There was actually another fourth piece of information that was utilized, and that was the recharge curves that are part of WR 89-18. So I combined all these things together and then come to the conclusions that I expressed here just a moment ago.

H.O. SILVA: Where I guess -- I understand the four sources of information are in the record. Right. But I guess what I am asking is: Is there a document that describes your analysis or -- is there a document that describes your analysis?

MR. DURBIN: It is a matter of how much detail is required here. There is no modeling that I have done. I have used the modeling that was produced by others and pulled all this information together and come to a conclusion based on some very simple calculations. I couldn't describe them in any way a model.

H.O. SILVA: Where are those calculations and

in what form are they?

MR. DURBIN: They are in a spreadsheet, small spreadsheet.

H.O. SILVA: Have those been entered as exhibits?

MR. DURBIN: They have not.

H.O. SILVA: That is what I am getting at.

MR. MOONEY: I would be happy to provide those.

H.O. SILVA: I will give you to -- how much time do we give?

MS. DUNN: We can have them by tomorrow.

H.O. SILVA: That is fair enough. Based on the information that you were asking.

MR. BRANCH: Will we get an opportunity to cross-examine?

H.O. SILVA: Well, I would think so. We want to come back tomorrow, then?

MR. DURBIN: I can have my office bring those down in -- just drive from Fair Oaks out to here.

MS. DIFFERDING: Can they E-mail them?

MR. DURBIN: Yes, yes, they can if someone would give me an E-mail address which they can be sent.

H.O. SILVA: Would that satisfy Cal Trout's concern?

MS. KRAUS: Yes.

H.O. SILVA: Let's try to do that, then. It is a fair question.

Thank you.

Mr. Keifer, I was about to ask you how large your panel is.

MR. BRANCH: That was to me.

H.O. SILVA: Mr. Branch, I apologize. I'm tired.

MR. BRANCH: Our presentation will take five to ten minutes of direct exam.

H.O. SILVA: Let's do it, then.

Everybody ready?

MR. BRANCH: We are missing some folks.

H.O. SILVA: That's their problem.

MR. BRANCH: Mr. Silva, our witness needs to be sworn in, Mr. Dwayne Maxwell.

(Oath administered by H.O. Silva.)

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DIRECT EXAMINATION OF FISH AND GAME

BY MR. BRANCH

MR. BRANCH: Good afternoon, Mr. Maxwell.

DR. MAXWELL: Afternoon.

MR. BRANCH: You have been presented with a document and that document has been distributed, I'm

hoping, to all the parties here.

Is this document, which should be labeled DFG Exhibit 10, a true and correct representation of your qualifications?

DR. MAXWELL: It is.

MR. BRANCH: Could you please state your name and your position for the record?

DR. MAXWELL: Dwayne Maxwell, Senior Biologist for the South Coast region for Department of Fish and Game. Been employed by the Department of Fish and Game for 25-plus years.

MR. BRANCH: In your position have you worked on the Santa Ynez River?

DR. MAXWELL: Yes.

MR. BRANCH: Could you briefly describe that work?

DR. MAXWELL: I have been involved in electrofishing surveys, stream surveys, creel census surveys. And during its formative years I participated in the Santa Ynez River Census Committee, Santa Ynez River TAC and the bio subcommittee.

MR. BRANCH: Can you move the microphone a little closer and is the microphone on?

DR. MAXWELL: The green light is on.

MR. BRANCH: In your work for the Department,

does it involve fish stocking in Lake Cachuma and the Santa Ynez River Watershed?

DR. MAXWELL: Yes, it does.

MR. BRANCH: Can you please describe that work?

DR. MAXWELL: For 12 years I've supervised the inland fisheries function of the South Coast region. One of the responsibilities for the inland fisheries folks is to instruct or direct the hatchery -- where the hatchery products are being placed in Southern California waters.

MR. BRANCH: Does that include the Santa Ynez River Watershed?

DR. MAXWELL: Yes, it does. Santa Ynez River and Cachuma are both within South Coast region.

MR. BRANCH: Mr. Maxwell, what fish are currently stocked in Lake Cachuma and the Santa Ynez and at what rate?

DR. MAXWELL: The only hatchery products that are stocked in Southern California are rainbow trout. Cachuma is stocked from early fall through early summer, and the allotment rate for the lake are 12,000 fish at one-third of a pound each, 26,000 fish at half pound and a thousand one-pound fish. The river is stocked up to Red Rock camp from early spring --

MR. BRANCH: Sorry to interrupt you for a

second.

Is that the river upstream of Bradbury Dam?

DR. MAXWELL: Upstream of Bradbury Dam. It is stocked from early spring through summer with 12,000 one-third-pound fish.

MR. BRANCH: Mr. Maxwell, are the Department's allotments varied from year to year?

DR. MAXWELL: They are. The allotments depend on hatchery production, the suitability of waters to be stocked, and we frequently move fish around to augment other recreational fisheries or to open up new waters.

MR. BRANCH: Would I be correct in saying that the department can modify its stocking allotment of hatchery rainbow on the Lake Cachuma and the Santa Ynez?

DR. MAXWELL: The allotments can be modified any time that evidence requires it.

MR. BRANCH: Based on your experience is the Department of Fish and Game changing the way it manages trout resources and fisheries in California?

DR. MAXWELL: Yes. The department is in a period of transition with respect to how it manages fisheries resources. We are currently in the final review process for the strategic plan for drought management and comments are due by November 15th to the fisheries programs branch and should be finalized shortly

thereafter. The purpose of the plan is to identify the key issues and concerns relative to trout resources and fisheries in California and to develop goals and strategies that will address these issues over the long term. And the plan looks at 10 to 15 years beyond as being the long-term. The goals and the strategies that are included in the plan are centered around two things that reflect the general mission of the Department.

The first theme is habitat and native species protection and management. The second theme is public use which translates to recreational fishing.

MR. BRANCH: Native species protection, does that include steelhead?

DR. MAXWELL: Certainly.

MR. BRANCH: Proceed.

DR. MAXWELL: The goals and the strategies associated with each of these themes are not prioritized nor are they water specific. But protecting and maintaining the habitat and ensuring that native species populations are sustainable takes priority over recreational angling activities in the plan. The primary purpose of trout stocking is to provide recreational angling. But the consideration of potential adverse effects resulting from stocking is receiving an ever greater attention than in the past years.

This increased awareness of species interactions within ecosystems doesn't diminish the value of hatchery products, hatchery trout or their uses of fisheries. Management tool. But instead it simply means the fishery managers need to be more aware of how they utilize those hatchery products and resolve any conflict in favor of native species.

MR. BRANCH: Speaking of that point, Mr. Maxwell, if scientific information demonstrated that hatchery rainbow trout and native stiff steelhead were in conflict, how would the Department stocking policy change?

DR. MAXWELL: If there is hard data to demonstrate that there is, in fact, conflict, the Department would simply stop stocking. There is several areas in the state, some on the South Coast, where populations of native coastal rainbow trout are presently isolated by man-made structures and other unnatural barriers. And it is presumed, and I think rightly so, that many of them are derived from steelhead stockings that became isolated from the ocean by the construction of these barriers. And many of them maintain their genetic integrity with the steelhead stocks.

MR. BRANCH: Can you list any places in the South Coast region where the Department has already altered stocking of hatchery trout based on conflicts with

steelhead?

DR. MAXWELL: Yes. We have stopped stocking Matilija Creek at the North Fork of the Ventura River, Sespe Creek, Rose Valley Wicks, Manzanita Creek, David Brown Creek. And current regulations close all coastal streams from Santa Maria River south to Malibu Creek.

Fisheries programs branch is presently putting together a regulations proposal which would be put out for review and then be sent to the Fish and Game Commission to close all anadromous coastal waters from Malibu Creek to the Mexican border.

MR. BRANCH: Mr. Maxwell, can I interrupt you for a second? When you say close all anadromous coastal waters, do you mean to close them to stocking?

DR. MAXWELL: Close them to fishing. If they are closed to --

MR. WILKINSON: Before we go on any further with this, I am curious what testimony is this intended to rebut?

H.O. SILVA: That is a good question. Could you sort of guide us through what your --

MR. BRANCH: This subject was brought up on cross-examination.

H.O. SILVA: What subject?

MR. BRANCH: When Mr. Whitman was discussing

fish passage and fish passage was discussed in our direct testimony. Mr. Wilkinson, I believe, brought up the issue of the fact that the Department was currently stocking rainbow trout, and we would like to further elaborate on what the policy is.

MR. WILKINSON: He's rebutting his own testimony. Mr. Whitman was his witness.

MR. BRANCH: I am rebutting the impression that was given in cross-examination by putting an expert from our Department on to expand on it.

MR. WILKINSON: He can rebut testimony, but one doesn't rebut impressions and particularly impressions that come from one's own witness.

H.O. SILVA: Tired guys.

Could you explain again what you are rebutting?

MR. BRANCH: It is -- correct me if I am wrong, but I think one of the issues in this hearing that was brought up, and whether it was our direct testimony or on cross-examination or maybe other witnesses, a major issue of this hearing is the issue of fish stocking and I think people have mentioned genetic studies that need to be done based on the possibility of steelhead passing over the dam and interbreeding with hatchery stocks. We would like to inform the Board that essentially Fish and Game can alter its stocking procedures to deal with that

concern. That is why Mr. Maxwell --

H.O. SILVA: That is not rebuttal.

MR. KEIFER: I belive Jean Baldridge testified directly about genetic introgression and problems caused by fish stocking. She brought that up on her direct testimony. I believe this is relevant to rebut anything that she brought up with respect to fish stocking.

MR. BRANCH: Building on what Mr. Keifer is saying, this is why I said I believe other parties may have brought this issue up as well.

MR. WILKINSON: The problem I have is what is the rebuttal. He's testified that there is fish stocking taking place currently in Lake Cachuma and above Lake Cachuma.

MR. BRANCH: If I can be allowed to finish our testimony we can probably resolve this subject.

H.O. SILVA: I will allow it. Let's just get over with it, get through it.

MR. BRANCH: Cutting to the chase here, Mr. Maxwell, how may the Department address potential concerns regarding hybridization?

DR. MAXWELL: The simple answer is that stocking would simply stop. It would probably take three to four years for any trout population in Cachuma to disappear. Those populations could be monitored and we

could probably come to some mutual agreement from all the interested parties that there would be a little risk of hybridization. Or as an alternative, if it were agreeable to NOAA Fisheries and others, there is a potential for using triploid, sterile trout in situations like this to minimize hybridization or introgression.

MR. BRANCH: There's been some discussion in this proceeding that genetic studies of rainbow trout above Bradbury were going to be conducted prior to studying the feasibility of passing fish around Bradbury.

Do you agree with this idea?

DR. MAXWELL: No.

MR. BRANCH: Explain why not.

DR. MAXWELL: Making decisions on passage of fish past Bradbury piecemeal is probably the wrong way to go about this. Feasibility study is going to have to consider all of the aspects of steelhead requirements in the watershed. And they can't be taken one at a time. There is also a time element involved in this. If two to three years or four years were taken for genetic studies before anything else is done, this is simply going to set things back. This feasibility study should be taken as a whole program, not as bits and pieces.

MR. BRANCH: Finally, if it was found that the trout above Cachuma were, in fact, hybridized, would that

automatically preclude the Department from seeking access for steelhead above Bradbury?

DR. MAXWELL: No.

MR. BRANCH: Explain why not.

DR. MAXWELL: Those fish very likely have significant portions of steelhead genes, and whether or not there has been some introgression with hatchery stocks that have been put in there is not the relative issue. It's keeping the genetics that we can establish in there alive and it is -- introgression is not the issue. The steelhead geno is the issue. And that geno that has to be kept going.

MR. BRANCH: I have nothing further.

H.O. SILVA: Thank you.

I'm going to use my prerogative and not allow the ten minutes. I'm going to go directly to cross.

Bureau, do you have any questions?

MR. PALMER: No questions.

H.O. SILVA: Member Units?

MR. WILKINSON: We do. Could I have about two minutes with my --

H.O. SILVA: Sure. Can I just go to other parties, then? Is that okay?

Santa Ynez?

MR. CONANT: No.

H.O. SILVA: Lompoc? Lompoc leave?

They went outside. I'll come back to them.

County?

MR. SELTZER: No questions.

H.O. SILVA: NOAA?

MR. KEIFER: May we have two minutes?

H.O. SILVA: No problem.

H.O. SILVA: And Cal Trout, can you go, do you have any?

MS. KRAUS: We don't have any questions.

H.O. SILVA: We'll wait for --

Let's just take five. Nobody go anywhere. Take five and we're going to consult with Esther on your question.

(Break taken.)

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CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME

BY MEMBER UNITS

BY MR. WILKINSON

MR. WILKINSON: Mr. Maxwell, you testified about, and I counted these and it looked like something on the order of 50,000 fish being stocked either in Lake Cachuma or in the Santa Ynez River above Lake Cachuma.

Is that about right?

DR. MAXWELL: In terms of the two locations

together?

MR. WILKINSON: Yes.

DR. MAXWELL: It is probably closer to 60,000.

MR. WILKINSON: That is going on currently; is that correct?

DR. MAXWELL: Cachuma is being stocked, has been stocked I think since October -- since October 1st has been stocked every other week since then. The river has not been stocked.

MR. WILKINSON: Can you tell me where these fish are from that are being used for stocking purposes?

DR. MAXWELL: Where they are from?

MR. WILKINSON: Yes.

DR. MAXWELL: The strains are going to vary. Jean Baldridge in one of her slides offered the strains of rainbow that have been stocked up there. And throughout the year there probably would be three strains of trout. Is that what you are asking?

MR. WILKINSON: Yes. They are from outside the Santa Ynez River Watershed; is that correct?

DR. MAXWELL: Yes, they are.

MR. WILKINSON: They may be from some distance, in fact, from the watershed; is that also right?

DR. MAXWELL: Yes.

MR. WILKINSON: Now you mentioned that the

Department of Fish and Game is in a period of transition. And is the transition that you referred to the transition from providing recreational precedence over native species protection to a situation that reverses that priority?

DR. MAXWELL: The situation that is given priority to native species and their habitats.

MR. WILKINSON: That is part of the plan that you described?

DR. MAXWELL: Yes.

MR. WILKINSON: That plan has not been adopted yet; is that correct?

DR. MAXWELL: That's correct.

MR. WILKINSON: Currently, then, the position of Fish and Game is to again provide precedence for recreation over native species protection at this time?

DR. MAXWELL: No, I don't think that is true. I think the fact that we have stopped stocking in waters that are considered to be steelhead waters and waters that are considered to harbor native coastal rainbow trout is an indication that the Department is mending its ways.

MR. WILKINSON: I am trying to understand what has been mended. What is the policy of the Department of Fish and Game currently, prior to adoption of this plan that you were describing?

DR. MAXWELL: The Steelhead Recovery Plan has

been adopted, and it very clearly states that steelhead and native rainbow trout are not to be mixed with hatchery products. And that is the policy of the Department.

MR. WILKINSON: What happens if a steelhead trout, in fact, mates with a hatchery planted rainbow trout? What is the progeny?

DR. MAXWELL: There is a random distribution of genes in any reproductive product. So if you are asking me what the geno of that trout is going to be, I can't tell you.

MR. WILKINSON: It would be a hybridized fish of some sort?

DR. MAXWELL: And its progeny would be a hybridized fish.

MR. WILKINSON: Would you agree with the testimony that was provided by, I believe, Mr. Lecky that a hybridized fish has a tendency towards a lack of fitness?

MR. BRANCH: For the record, he wasn't present for Lecky's testimony.

MR. WILKINSON: I'm sorry. I'll represent to you that that was Mr. Lecky's testimony, that a hybridized fish tends to be less fit than a fish that is not hybridized.

Would you agree with that?

DR. MAXWELL: I'm not sure I can answer that question.

MR. WILKINSON: You described that it would take about three or four years for trout populations within Lake Cachuma to disappear; is that correct?

DR. MAXWELL: Yes.

MR. WILKINSON: How long would it take for the trout populations in the tributaries upstream of Lake Cachuma to disappear, in your opinion?

DR. MAXWELL: If they are naturally reproducing populations, they would probably have to go in and be removed. If you are talking about the main stem of the Santa Ynez River where fish are planted, it is considered put-and-take and those fish probably don't survive over the year. There may be a few that survive a year in some of the deep pools. But water conditions throughout the summer and late fall are simply not conducive for their survival. And put-and-take fisheries have a history of fish being taken out very quickly.

MR. WILKINSON: And the put-and-take fishery that you are describing is a recreational fishery; is that correct?

DR. MAXWELL: It is.

MR. WILKINSON: If steelhead trout are moved around Bradbury Dam, would the Department of Fish and Game

in those circumstances consider closing the fishery at Lake Cachuma?

MR. BRANCH: Can I ask for clarification? Close as to which fish?

MR. WILKINSON: As to the rainbow trout or any other fish that might be resembling a steelhead trout.

DR. MAXWELL: I don't know. It might depend on the alternative that is chosen. If there were a way to isolate the lake from upstream migrations, either up or down, then it would seem that at least bass fisheries could continue in Cachuma and there may be even the potential for using triploid trout.

MR. WILKINSON: In fact, wasn't the fishery below Bradbury Dam closed by the Department of Fish and Game after the steelhead was listed and found to be in the river?

DR. MAXWELL: Yes.

MR. WILKINSON: So there is at least a likelihood -- Strike that.

There is at least a possibility that the Department of Fish and Game would consider closing the fishery if steelhead are found above Bradbury Dam as well?

DR. MAXWELL: I can't rule that out.

MR. WILKINSON: That is all I have.

H.O. SILVA: I am assuming that the Bureau has

no questions, then?

MR. PALMER: No.

H.O. SILVA: Santa Ynez?

MR. CONANT: No.

H.O. SILVA: Lompoc?

MR. MOONEY: No.

H.O. SILVA: County?

MR. SELTZER: No questions.

H.O. SILVA: NOAA?

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CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME

BY NOAA FISHERIES

BY MR. KEIFER

MR. KEIFER: Are the trout stocks in the Santa Ynez River intended or expected to naturally reproduce?

DR. MAXWELL: No.

MR. KEIFER: Are these stock trout able to reach areas of the Santa Ynez River or tributaries above either Gibraltar or Juncal Dams?

DR. MAXWELL: No.

MR. KEIFER: Are there any trout stocking programs that place fish above Gibraltar or Juncal Dams in the Santa Ynez River or its tributaries above those two dams?

DR. MAXWELL: Currently, no.

MR. KEIFER: That is all I have.

H.O. SILVA: Thank you.

Cal Trout?

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CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME

BY CAL TROUT

BY MS. KROP

MS. KROP: Good afternoon. I just have one question for you.

If landlocked steelhead already exist above Bradbury Dam, without any passage, and a conflict exists with the non-natives, could there be a change in current stocking practices?

DR. MAXWELL: I'm sorry, say that again.

MS. KROP: I'm sorry, there were a few commas in there. I will repeat the question.

If landlocked steelhead -- if landlocked native steelhead already exist above Bradbury Dam --

DR. MAXWELL: And below Gibraltar?

MS. KROP: -- and below Gibraltar and a conflict exists, could there be a change in current stocking practices?

DR. MAXWELL: Yes.

MS. KROP: Thank you.

H.O. SILVA: I think staff has no questions.

MR. BRANCH: I move DFG Exhibit 10 into evidence if there is no objection.

H.O. SILVA: No objections?

Thank you very much.

Since Cal Trout's is short, why don't we do yours and then we'll take a break. Let's do Cal Trout's, before we do cross and rebuttal testimony.

MS. KRAUS: Mr. Silva, Craig Fusaro will be presenting some rebuttal testimony for Cal Trout. He's not been sworn in.

(Oath administered by H.O. Silva.)

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DIRECT EXAMINATION OF CAL TROUT

BY MS. KRAUS

MS. KRAUS: There are two handouts here. One is Mr. Fusaro's resume marked as Cal Trout Exhibit No. 97. The other handout is some data supporting Mr. Fusaro's testimony, and that is Cal Trout Exhibit No. 98.

Can you please affirm that Cal Trout No. 97 is a true and correct copy of your resume?

DR. FUSARO: Yes, it is.

MS. KRAUS: Can you affirm that Cal Trout Exhibit No. 98 is a true and correct copy of the data related to your testimony today?

DR. FUSARO: Yes, it is.

MS. KRAUS: Thank you.

DR. FUSARO: Mr. Silva, Board staff, good afternoon. I'm going to try to mercifully be brief here. My name is Craig Fusaro. I am a board member of California Trout. My limited subject in rebuttal is to point out to the Board and all of the parties that healthy steelhead successfully oversummered in mixed pool habitat that is destratified pool habitat in stream reaches below the primary management reach during moderately high flows. This direct observation contradicts the testimony heard earlier that summer flows in the river are bad for oversumnering steelhead, particularly with respect to the temperature criteria.

Ms. Baldridge testified that when cool groundwater flows result in vertical temperature stratification in pools, these cool water refuge habitats can be created in deep pools, but higher flows will disrupt thermal stratification in these pools, making them unsuitable habitat for steelhead.

Direct observations of healthy fish oversummering without such ill effects give us reason to think that these southern steelhead remain healthy in conditions previously believed to be not so for the fish.

MR. PALMER: Excuse me, I would like to entertain an objection that there is no foundation for his

testimony. Sounds as though some biological expert testimony, and I have heard no foundation whatsoever for. If he's intending to make expert conclusions, there is absolutely no foundation on the record for that.

MR. WILKINSON: I will join that objection because I don't recall any such testimony from Ms. Baldridge. She doesn't recall it either. And so I would like to know what the foundation for it is.

H.O. SILVA: Both are valid points.

DR. FUSARO: Do I understand the two points correctly, that I am not an expert at this and, therefore, no foundation?

MS. KRAUS: Can you explain your qualifications as a biologist?

DR. FUSARO: Much more simply, I will assert for the Board that I am not here as an expert on fish biology and steelhead biology. I am going to report testimony that has -- I am going to review testimony that has already been reported in the testimony of Ms. Jean Baldridge and Mr. Chuck Hanson.

H.O. SILVA: If you are not an expert, how are you going to rebut?

DR. FUSARO: I am merely going to point out testimony and put -- synthesize what they have already said.

H.O. SILVA: That is not rebuttal, though.

MR. PALMER: He is not competent to make those statements.

H.O. SILVA: That is a good point.

MS. KRAUS: I think that the information Mr. Fusaro is providing regarding Ms. Baldridge's testimony and Mr. Hanson's testimony is just restating the testimony which --

H.O. SILVA: You --

MS. KRAUS: This is a preface to his testimony which is data from a gauge in one of the reaches where Mr. Hanson testified there were low flows when he observed healthy steelhead during summer months.

MR. PALMER: He is not qualified as a hydrologist. I don't think he can make a comment on that.

H.O. SILVA: I would agree. I'm a little bit concerned about the language of expertise, and if he is going to be rebutting expert testimony, I'm a little bit concerned about that.

MS. KRAUS: Mr. Fusaro's purpose is to authenticate data that reports that stream flows at a particular reach of Santa Ynez data that is provided on the U.S. website.

DR. FUSARO: This is the USGS water flow data information website.

H.O. SILVA: It would be done better in cross.

MS. KRAUS: This was part of CCRB's case in chief.

DR. FUSARO: If it please the Board, I can read the portions of Ms. Baldridge's --

H.O. SILVA: Hold on a second.

I guess -- is he providing expert opinion or not?

MS. KRAUS: Mr. Fusaro can limit his testimony to reporting the data regarding the flows that Mr. Hanson identified as low flows during those period of summer months.

MR. PALMER: He needs to be qualified as a hydrologist.

H.O. SILVA: If he's merely submitting information, I will allow it as long he doesn't elaborate as an expert.

MS. KRAUS: Mr. Fusaro, can you please identify for the Board the data, how you obtained it and what it says.

MR. PALMER: I will object to the part, what it says.

H.O. SILVA: If he simply states what it says and he doesn't make an expert opinion on it, then I will allow it.

I guess I will caution you not to make an expert

opinion, just simply state what the information is and where you got it.

DR. FUSARO: I will do my best not to do that.

The data that I would offer is 1998 California hydrologic data report downloaded from the USGS water flow information site for 1998 for the Solvang gauge. These data show that in summer of 1998 flows ranged from 5.7 to 1.50 cubic-feet per second and, in fact, 88 percent of these flows were over 10 cfs. That is what these data show.

MR. PALMER: He is now drawing conclusions from the data, unless he can point to where --

H.O. SILVA: I mean, I am reading it off -- as long as you're reading it off the paper. Anybody can do that. Proceed.

DR. FUSARO: Thank you. And the point of these data is to show that flows were moderate to high in the summer of 1998.

H.O. SILVA: That wasn't so hard.

Is that the extent of your testimony?

MS. KRAUS: Yes.

DR. FUSARO: It would not have been, but that is the extent of allowable testimony, apparently.

H.O. SILVA: Thank you.

Given this, why don't we just go --

Bureau, do you have any cross?

MR. PALMER: No questions.

H.O. SILVA: Member Units? Do you really have to ask a question?

MR. WILKINSON: I really do.

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CROSS-EXAMINATION OF CAL TROUT

BY MEMBER UNITS

BY MR. WILKINSON

MR. WILKINSON: I'm really going to keep this short.

Mr. Fusaro, every number that I see here -- not every number, but most of them have an E in front of them. Can you tell me what the E represents.

DR. FUSARO: The legend above notes that the E means estimated.

MR. WILKINSON: Do you have any idea why it is estimated when there is a gauge there?

DR. FUSARO: As you noted, I am not a qualified hydrologist, so I wouldn't be qualified to answer that question.

MR. WILKINSON: Fair enough.

Would you be kind enough to read for me, though, the words that appear about six lines down?

Do you see the five foot higher line and then there

is the words "remarks." What are the words that follow the word remarks?

DR. FUSARO: Remarks records poor.

MR. WILKINSON: Thank you.

That is all I have.

H.O. SILVA: Thank you.

Santa Ynez?

MR. CONANT: No questions.

H.O. SILVA: City of Lompoc?

MR. MOONEY: No.

H.O. SILVA: County?

MR. SELTZER: No.

H.O. SILVA: Fish and Game?

MR. BRANCH: No.

H.O. SILVA: Fisheries?

MR. KEIFER: No.

H.O. SILVA: I guess that is staff.

Thank you.

MS. KRAUS: I move to admit Cal Trout Exhibits 97 and 98.

H.O. SILVA: Any objections?

Hearing none, they are accepted into the record.

I was going to take a break, but -- actually, I do have to take a break.

You have a question first?

MR. MOONEY: No. We have our issue of getting Mr. Durbin's data.

H.O. SILVA: Why don't we take a break and we have to do it and go over objections by Cal Trout. Why don't we take 15 minutes for everybody to stretch out a little bit and walk around. Come back around 20 till.

(Break taken.)

H.O. SILVA: Let's first deal with the objection by Cal Trout. We did receive the information from Mr. Durbin.

Are you satisfied that that is okay?

So we will enter this in the record to number these.

MR. MOONEY: Move that they be identified as -- maybe identify the one that is labeled 3C would be Lompoc Exhibit 6. 3A2, Lompoc Exhibit 7. 3A2 dry, Lompoc Exhibit 8.

H.O. SILVA: Any objections?

Hearing none, they are accepted into evidence.

MR. MOONEY: And we also need Exhibit 5 accepted.

H.O. SILVA: That was the original. Okay.

Now on the objection of testimony, the cross-examination of Mr. Payne. Ms. Dunn, you had a quick comment.

MS. DUNN: My only comment was that if Cal

Trout had an objection to my cross-examination, it would have been appropriate to make the objection at the time of the cross-examination. But I do believe that my cross-examination was relevant to Mr. Payne's testimony.

H.O. SILVA: I'm ready to rule. We went back and looked at the transcript, and he did go beyond his written. He did go into detail about his concerns about the studies.

I think their cross-examination was relevant. So I am going to allow it. I am not going to strike it. Overrule your objection, I guess.

I think that takes care of the housekeeping stuff. Let's get into -- I think we are done. So now we want to talk about schedules and where we go next. The first item is on the closing briefs.

Normally we'd like to limit -- we agree to a number of pages, which I think helps everybody because you don't have one party submitting two pages and somebody submitting a thousand. And you can add appendices as you like, but we do want to have the closing briefs be concise, to the point. We had talked about ten pages prior to this. Is it ten pages too small?

MR. KEIFER: Fifteen?

H.O. SILVA: I am open to suggestions, whatever the parties want to settle on, I'm open to it.

MS. KRAUS: Cal Trout would have concern about it being that limited.

H.O. SILVA: That's fine.

What is everybody's sense of what they need?

MR. WILKINSON: How about 25? Would that work for Cal Trout?

H.O. SILVA: Thirty?

Twenty-five sound good?

MS. KRAUS: I liked your 30.

H.O. SILVA: Twenty-seven and a half. Thirty is fine. I think that as long as -- do we have to also talk about type and double-spacing and all that stuff? Attorneys know more about this than I do. But we go to whatever local county judge uses as the format so that we don't get different types.

Does anybody know what is good format?

MR. WILKINSON: I think the Ninth Circuit -- is it 12 or 14?

MR. MOONEY: They use 13.

MR. WILKINSON: That is -- I think it is silly if we get into that kind of detail.

MR. MOONEY: Superior Courts use 12. Appellate judges are older; they use 13.

H.O. SILVA: Let's use the Superior Court format; is that okay with everybody? That way everyone is

consistent on their formatting in Sacramento. Just so everybody is consistent. Believe it or not, we get into some really weird stuff. That way everybody is on the same page.

Thirty pages, Superior Court Sacramento. On timing, I guess I am going to let staff talk about timing because they are more familiar with the requirements.

MS. DIFFERDING: I am going to pass the buck, too. Ernie informs me that the division's goal is to get a draft out within three months. I guess after getting the transcript and the closing argument, right?

MR. MONA: That's right. We try to get a draft to the Board with the order within three months of the receipt to the closing arguments, which is our goal that we have in the hearing unit. We have closing argument submitted usually 30 days after receipt of transcript.

H.O. SILVA: Esther, let's talk first with you.

MS. DIFFERDING: Let me add to that. In this case I think our schedule's really going to be formed by the CEQA process. We need to finalize the EIR. And at some point after that has been released, staff will offer that into evidence and we will ask parties whether they have any objection to admitting the Final EIR into evidence.

I would request you, Mr. Silva, expressly hold the record open to receive the final EIR. I think we had a request to hold the record open for county, with the Member Units.

H.O. SILVA: Esther indicated she needs about a month for the transcript. I guess that is basically to Christmas. So I am thinking the clock starts January 1. Maybe that gets more time to get the transcript.

Comments on that?

MS. KROP: Yes, I am going to go back to what Dana was discussing about the CEQA schedule. When do you expect the final EIR to be released?

MS. DIFFERDING: I really don't know. I hesitate to even give an estimate. We haven't determined at this point whether we are going to -- I think we are probably going to go to the process with the Bureau of retaining a consultant to assist us in evaluating the comments and preparing the final. We haven't determined that yet.

H.O. SILVA: That puts another issue. Some people may or may not know. I may be here until March 15th, given the term. My term is up January 15th, and I have 60 days after that, depending on whether I get terminated or not. So, pardon the pun.

So that is another factor, and that is why I want to

get the closing briefs in so that we can -- at least I can be involved in the Board direction to staff on a draft document prior to March 15th.

MS. KROP: So just for clarification so we are all on the same page. It is my understanding that our closing briefs for these proceedings will be based on the testimony and evidence submitted here. Separate from that we will have an opportunity to address the CEQA issues once the final EIR is out.

H.O. SILVA: Right. That is separate.

Why didn't we say end of the -- how does February 15th sound? Let's see what day of the week it is. Then on the 16th or the Friday before? What do you prefer?

MR. WILKINSON: Make it the 16th.

H.O. SILVA: Sold. Then we will target to have the closing briefs in on February 15th, 2004 -- 16th, I'm sorry, 2004, by noon. Give you some clarification on E-mails.

MR. MONA: Reminder. E-mails, for all the parties sometime in the future.

H.O. SILVA: I think we are done on our end.

Any questions, comments, observations?

Off the record.

(Cachuma hearing concluded at 5:45 p.m.)

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REPORTER'S CERTIFICATE

STATE OF CALIFORNIA)
) ss.
COUNTY OF SACRAMENTO)

I, ESTHER F. SCHWARTZ, certify that I was the official Court Reporter for the proceedings named herein, and that as such reporter, I reported in verbatim shorthand writing those proceedings;

That I thereafter caused my shorthand writing to be reduced to printed format, and the pages numbered 870 through 1123 herein constitute a complete, true and correct record of the proceedings.

IN WITNESS WHEREOF, I have subscribed this certificate at Sacramento, California, on this 16th day of December, 2003.

_____
ESTHER F. SCHWARTZ
CSR NO. 1564