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STATE WATER RESOURCES CONTROL BOARD

PUBLIC HEARING

CALIFORNIA DEPARTMENT OF FISH AND GAME'S  
LOWER YUBA RIVER FISHERIES MANAGEMENT PLAN  
AND A COMPLAINT BY  
THE UNITED GROUP AGAINST YUBA COUNTY WATER AGENCY  
AND OTHER DIVERTERS OF WATER FROM THE LOWER YUBA RIVER  
IN YUBA COUNTY

PAUL R. BONDERSON BUILDING  
SACRAMENTO, CALIFORNIA

FEBRUARY 25, 2000

9:00 A.M.

REPORTED BY: ESTHER F. WIATRE  
CSR NO. 1564

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SACRAMENTO, CALIFORNIA

FEBRUARY 25, 2000, 9:00 A.M.

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H.O. BROWN: The hearing will come to order.

A little housekeeping before we get started.

The order that I have is Mr. Baiocchi, Mr. Gee, Mr. Cook and so on. If there are no changes to that or comments, we will proceed.

Mr. Baiocchi, you're up.

MR. BAIOCCHI: Thank you very much.

I need a clarification from you, Mr. Brown. I would like to read something into the record from the Exhibit 19, Yuba County Water Agency's Exhibit 19.

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CONTINUED CROSS-EXAMINATION OF YUBA COUNTY WATER AGENCY

BY CALIFORNIA SPORTFISHING PROTECTION ALLIANCE

BY MR. BAIOCCHI

MR. BAIOCCHI: On Page 1-3 the following is stated -- Page -- start all over again here. On Yuba County Water Agency Exhibit 19, on Page 1-3, the following is stated:

The California Department of Fish and Game 1991 Plan was flawed in several important ways. First, as stated above, the 1991 plan was developed to optimize habitat conditions. While Yuba County Water Agency acknowledges

1           its responsibilities under Section 5937 of  
2           the California Department of Fish and Game  
3           Code to maintain fish in good condition,  
4           neither this statute nor any other provision  
5           of flow requires Yuba County Water Agency to  
6           optimize aquatic habitat for restoration and  
7           other purposes.                           (Reading.)

8           Then I want to move to Page 5-1 of the same exhibit and  
9           it so states --

10          H.O. BROWN: Page 5-1?

11          MR. BAIOCCHI: 5-1. Second paragraph, first sentence:

12           Yuba County Water Agency proposed minimum  
13           instream flow requirements for the Lower Yuba  
14           River must maintain fish in good condition  
15           under California Department of Fish and Game  
16           Code 5937.                           (Reading.)

17          Now, as I recall, yesterday I attempted to ask  
18          questions, and Mr. Lilly advised you that I was trying to  
19          get a legal conclusion from the witness. Now, as stated  
20          into the record yesterday, Paul Bratovich testified that he  
21          prepared most of Exhibit 19. In Yuba County Water Agency  
22          Exhibit 26 Mr. Bratovich gets into California Fish and Game  
23          Code 5937. It's -- hang on a moment here. If I can find  
24          the page. I'm sorry.

25          H.O. BROWN: I presume you are going to put all of this

1 in the form of a question, Mr. Baiocchi?

2 MR. BAIOCCHI: What I am doing is this: is that Paul  
3 Bratovich has hit on 5937. And the point being is I believe  
4 that their testimony in Exhibit 19 has opened the door for  
5 questions concerning 5937, disregarding legal conclusions  
6 that's been objected by Mr. Lilly. I mean, it's in their  
7 testimony. So, consequently, I believe all of us who are  
8 asking questions should ask questions concerning 5937. I  
9 think it is reasonable.

10 H.O. BROWN: You are asking the question as to their  
11 opinion and not necessarily a legal conclusion?

12 MR. BAIOCCHI: The problem is this, that Paul Bratovich  
13 made a legal conclusion, and it is in their testimony. It's  
14 in there. He has defined what Section 5937 is all about. I  
15 can go further into it. If we go to 5.3 --

16 H.O. BROWN: Let's do it this way, if I may. Why don't  
17 you go ahead and ask the question and then let's see if  
18 there is objection to it. Then I will rule on the  
19 objection.

20 MR. BAIOCCHI: Where I'm going on this, is not just  
21 simply for myself. I'm sure that Bill Cunningham from the  
22 AG's office -- if the door is open, as I believe it is,  
23 concerning 5937, I believe Mr. Cunningham will raise a lot  
24 of questions concerning 5937 and how they define it. So it  
25 is not necessarily for myself. It's for all the other folks



1 that are cross-examining Yuba County Water Agency's  
2 witnesses, based on this testimony.

3 H.O. BROWN: Okay, Mr. Baiocchi, I understand. Let's  
4 get going. We have a lot of ground to cover today and you  
5 ask the questions, and we'll see what kind of responses we  
6 get.

7 MR. BAIOCCHI: Thank you very, very much.

8 Mr. Bratovich, in Exhibit 26, also included in Exhibit  
9 19 there are flow recommendations by the Yuba County Water  
10 Agency that you helped prepare. Is that true?

11 MR. BRATOVICH: Please refresh my memory, what is  
12 Exhibit 26?

13 MR. BAIOCCHI: There are two exhibits. You have an  
14 exhibit summarizing expert testimony which is Exhibit 26.

15 MR. BRATOVICH: Okay.

16 MR. BAIOCCHI: At Page 14 and Page 15 and it goes on  
17 16, 17.

18 Were those recommendations, were they approved by the  
19 United States National Marine Fisheries Service?

20 MR. BRATOVICH: No.

21 MR. BAIOCCHI: Thank you.

22 When you -- you testified yesterday that you wrote most  
23 of the report. I will get away from the report. You wrote  
24 most of the testimony.

25 Do you recall that?

1           MR. BRATOVICH: Yes. I said I was involved in,  
2 participated in the preparation of this entire testimony, so  
3 essentially I have read every word.

4           MR. BAIOCCHI: On Page 5-1 of Yuba County Water Agency  
5 Exhibit 19, under 5.3 there is a statement. The first  
6 sentence:

7                   Applying the definition of good condition in  
8 the Lower Yuba River fishery resources  
9 requires consideration of specific data  
10 limitations.                   (Reading.)

11           Now, you go on to say:

12                   The evaluation of good condition is,  
13 therefore, based on the available data  
14 pertaining to specific characteristics of the  
15 fish resources of the Lower Yuba River.  
16                   (Reading.)

17           Now the question is this: You have made a legal  
18 determination concerning 5937. All right, that is fair.  
19 Under 5937, Fish and Game Code 5937, dam owners are required  
20 to release water at all times; is that true?

21           MR. BRATOVICH: I didn't make a legal opinion. I made  
22 a biologic opinion based upon my interpretation of the term  
23 good condition in accordance with the definition of good  
24 condition which I developed from a biologic perspective.

25           MR. BAIOCCHI: Again, we go to the question, does

1 California Fish and Game Code Section 5937 require that the  
2 dam release water at all times?

3 MR. LILLY: I am going to object to the extent it calls  
4 for a legal condition. Certainly, it is right, Mr. Brown,  
5 as you ruled before, the question is appropriate as far as  
6 it relates to this witness' opinion or understanding of the  
7 code section. But I do object to the extent it asks for his  
8 legal conclusion.

9 H.O. BROWN: Counselor, is it your suggestion to the  
10 witness that he answer the question in accordance with his  
11 limitations as noted by yourself, then?

12 MR. LILLY: That is correct.

13 H.O. BROWN: Proceed.

14 MR. BRATOVICH: What is the question again, Mr.  
15 Baiocchi?

16 MR. BAIOCCHI: Under California Fish and Game Code  
17 Section 5937, are dam owners required to release water at  
18 all times to keep fish in good condition?

19 MR. BRATOVICH: When I made a definition of good  
20 condition and referred to Fish and Game Code 5937, as we  
21 stated, we based our instream flow recommendations on the  
22 State Board's 1996 Draft Decision.

23 On Page 23 of the State Board's Draft Decision there is  
24 reference in Section 4.1 to Fish and Game Code Section 5937,  
25 and that is what I was using. It does have a quote there.

1 Would you like me to read that?

2 MR. BAIOCCHI: Go ahead.

3 MR. BRATOVICH: The owner of a dam shall allow  
4 sufficient water at all times to pass  
5 through a fishway or in the absence of a  
6 fishway allow sufficient water to pass over,  
7 around or through a dam to keep in good  
8 condition any fish that may be planted or  
9 exist below the dam. (Read.)

10 MR. BAIOCCHI: Thank you.

11 On Page 24 of Exhibit 26 of which you made presentation  
12 yesterday, you used a transparent, you cited two lawsuits  
13 concerning define good condition.

14 Now, isn't it true that you have made a legal  
15 determination concerning two lawsuits in defining good  
16 condition?

17 MR. BRATOVICH: I don't believe I made a legal  
18 determination. What I tried to do was to come up with a  
19 definition of good condition for the Lower Yuba River, based  
20 upon available information that I had available to me.

21 MR. BAIOCCHI: In the first lawsuit is City of Los  
22 Angeles, also known as the Rush Creek Decision, have you  
23 reviewed that entire decision, Mr. Bratovich?

24 MR. BRATOVICH: Didn't review the entire decision, but  
25 I was involved in the conduct of the studies on Rush Creek

1 on behalf of the California Department of Fish and Game, so  
2 I'm familiar with it.

3 MR. BAIOCCHI: In the Putah Creek Decision did you  
4 review that case?

5 MR. BRATOVICH: I did not review that case. I relied  
6 upon a technical report prepared by the principal author,  
7 Dr. Peter Moyle, where he addressed the issue of good  
8 condition.

9 MR. BAIOCCHI: Were you present at the 1992 hearing?

10 MR. BRATOVICH: No, sir.

11 MR. BAIOCCHI: You have read the records?

12 MR. BRATOVICH: I have gone through the administrative  
13 record and much of the supporting documentation, yes.

14 MR. BAIOCCHI: Do you recall -- do you know a Mr. Jerry  
15 Mensch for the Department of Fish and Game?

16 MR. BRATOVICH: I know who he is, yes.

17 MR. BAIOCCHI: Do you recall in that testimony that  
18 Jerry Mensch made a statement that any flows below the  
19 recommended flows in the Department of Fish and Game's  
20 management plan would not be in compliance with California  
21 Fish and Game Code Section 5937?

22 MR. BRATOVICH: I don't recall that specific statement,  
23 no.

24 MR. BAIOCCHI: Mr. Mitchell, good morning. How are  
25 you?

1 MR. MITCHELL: Morning.

2 MR. BAIOCCHI: In Exhibit 24, Yuba County Water Agency  
3 Exhibit 24, known as Fishery Surveys Conducted by Jones &  
4 Stokes on the Lower Yuba River Since 1992, on Page 11, it  
5 shows -- on the top part of that document it shows  
6 electrofishing site and river mile 18.8.

7 And was this above the Daguerre Point Dam?

8 MR. MITCHELL: Yes.

9 MR. BAIOCCHI: How many miles is it from the Daguerre  
10 Point Dam to Englebright Dam, just approximate?

11 MR. MITCHELL: It's about 13 miles.

12 MR. BAIOCCHI: What was the size of the area in which  
13 you electrofished?

14 MR. MITCHELL: These are data that were collected by  
15 Jeff Kozlowski. The size of the area was, as I recall, a  
16 several hundred foot reach of the main river along the  
17 shoreline.

18 MR. BAIOCCHI: Do you believe that that really is a  
19 good example of the number of steelhead in that reach up  
20 there?

21 MR. MITCHELL: Yes. Jeff has provided additional data  
22 from other sites that are comparable to the number shown  
23 here. I have only presented one site.

24 MR. BAIOCCHI: This was the summer 1999. Have you done  
25 other electrofishing on the river for steelhead?

1           MR. MITCHELL: We have not done electrofishing. We  
2 have seining work in the past and direct observation in the  
3 past.

4           MR. BAIOCCHI: Mr. Mitchell, I am familiar with  
5 electrofishing. I have done it. So, to your knowledge, how  
6 many steelhead were killed as a result of electrofishing?

7           MR. MITCHELL: I don't know.

8           MR. BAIOCCHI: Would it be reasonable to presume that  
9 some fish were killed, harmed?

10          MR. MITCHELL: I can't answer that. I wasn't in the  
11 field at the time.

12          MR. BAIOCCHI: Based on the records as so noted in  
13 Yuba County Water Agency Exhibit 19, steelhead were listed  
14 on March 19, 1998.

15                 Would you take that to be a fact?

16          MR. MITCHELL: Yes.

17          MR. BAIOCCHI: Thank you.

18                 The electrofishing occurred in 1999, right, in the  
19 summer of 1999?

20          MR. MITCHELL: That's correct.

21          MR. BAIOCCHI: Did you contact the United States  
22 National Marine Fishery Service to conduct those?

23          MR. MITCHELL: This was part of Jeff Kozlowski's study  
24 and that I can't answer.

25          MR. BAIOCCHI: He's not here, so we really don't know

1       whether or not Yuba County Water Agency did consult with  
2       Fish and Wildlife Service concerning electrofishing of a  
3       threatened species?

4               MR. MITCHELL:  That would be -- as I said, that was not  
5       knowledge that I have.

6               MR. BAIOCCHI:  Thank you very much.

7               I want to go to, I believe it is, Exhibit 18, Stephen  
8       Grinnell.  How are you this morning?

9               MR. GRINNELL:  Very good.

10              MR. BAIOCCHI:  Great, glad to hear it.

11              I have a few questions.  I have to find the location.

12              Now, let's start off this way here.  There is a river  
13       outlet valve at Bullards Bar Dam.  Now, I want to ask the  
14       entire panel this question.

15              Does anyone know what the capacity of the outlet, the  
16       river outlet valve is?

17              MR. GRINNELL:  I do not.

18              MR. BAIOCCHI:  You said no yesterday.  Nobody else here  
19       knows that.

20              Could you give me your impressions concerning why river  
21       valves are constructed at the bottom of dams?

22              MR. GRINNELL:  Generally, it's in case you have a  
23       problem with the dam.

24              MR. BAIOCCHI:  Thank you.  That's what I wanted to  
25       hear.  Thank you very much.



1           On page -- I haven't got a magnifying glass. My eyes  
2           are bad. Pages 22, 23, 24, 25. You can go to that. That  
3           is on Exhibit Number 18.

4           MR. GRINNELL: Okay.

5           MR. BAIOCCHI: You have scenario one and scenario five  
6           on Page 22, and you have scenario two, scenario six on Page  
7           23, and you have scenario seven on Page 24, and then you  
8           have some additional information on 25. I am concerned with  
9           22, 23 and 24.

10           When all parties submitted their written testimony,  
11           they were theoretically all submitted around the same time,  
12           around the same time. We had a certain date to submit to  
13           the State Water Resources Control Board.

14           This data you prepared it appears that you apparently  
15           had that information that was submitted to us before it was  
16           submitted to us from DWR; is that true?

17           MR. GRINNELL: I guess I don't understand the  
18           question.

19           MR. BAIOCCHI: DWR, when they made their presentation  
20           here, they had scenarios. Is this the same information that  
21           was in their scenarios?

22           MR. GRINNELL: No. We ran our own modeling studies,  
23           provided the model to DWR, and they reviewed, reran, the  
24           model, verified the results.

25           MR. BAIOCCHI: What you are saying is the evidence that

1 DWR submitted actually came from Yuba County Water Agency?

2 MR. GRINNELL: They submitted their own evidence. We  
3 provided them with the model to do their work, to evaluate  
4 it, to check it out, to rerun it.

5 MR. BAIOCCHI: Would these scenarios be the same as  
6 DWR's?

7 MR. GRINNELL: They're essentially identical, but they  
8 are not exactly the same, and they did their work. We did  
9 ours.

10 MR. BAIOCCHI: Thank you.

11 Mr. Brown, I really appreciate your allowing me -- I  
12 will try to get through it as fast as I can. I believe I  
13 have -- I may have another question. I am looking around  
14 here.

15 H.O. BROWN: Thank you, Mr. Baiocchi.

16 MR. BAIOCCHI: Mr. Mitchell, back to you again. Page 3  
17 of Exhibit 24, Fishery Surveys Conducted by Jones & Stokes  
18 on the Lower Yuba River Since 1992. Now, on Page 3, could  
19 you please read the heading?

20 MR. MITCHELL: Relative Composition of Fish Species  
21 Above and Below Daguerre Point Dam, Summer 1999.

22 MR. BAIOCCHI: Let's go to above Daguerre Point Dam,  
23 and you have chinook salmon and you have 1 percent. Tell me  
24 what 1 percent means, please.

25 MR. MITCHELL: 1 Percent is the proportion of fish

1 collected that were chinook salmon.

2 MR. BAIOCCHI: How did you collect that fish?

3 MR. MITCHELL: These, again, are the electrofishing  
4 data that was also reflected in the previous graph, I  
5 believe Slide 11.

6 MR. BAIOCCHI: To your knowledge, was there any  
7 threatened spring-run chinook salmon that were  
8 electroshocked?

9 MR. MITCHELL: Not to my knowledge.

10 MR. BAIOCCHI: There is potential that they might have  
11 been?

12 MR. MITCHELL: Potential is there, yes.

13 MR. BAIOCCHI: As I remember, you indicated yesterday  
14 that you did do some sampling up there, estimates, and you  
15 couldn't separate spring-run and fall-run; is that true?

16 MR. MITCHELL: That's correct.

17 MR. BAIOCCHI: Summer, the summertime, and as you  
18 indicated yesterday that you testified to the fact that the  
19 spring-run had potential to hold over for an entire year. I  
20 was concerned about that 1 percent, if, in fact, it was any  
21 spring-run juvenile fish. You indicated you don't have that  
22 information, right?

23 MR. LILLY: Excuse me, Mr. Brown. To the extent this  
24 witness is trying to imply Mr. Mitchell or his colleagues  
25 violated the law, I object on the ground there was prior

1 testimony from the federal agencies that no 4(d) rules have  
2 been adopted for these species, and, therefore, even if  
3 there was some incidental effect to listed species during  
4 the summer 1999, it would not have been a violation of  
5 federal law.

6 MR. BAIOCCHI: That is not where I am going.

7 H.O. BROWN: I heard Mr. Mitchell say he didn't know.

8 MR. BAIOCCHI: On this -- I went that way on  
9 steelhead. I believe that is true. But I am not going this  
10 way on Page 3. I just wanted to find out if, in fact, there  
11 was any spring-run` juvenile fish electroshocked.

12 H.O. BROWN: Answer the question if you know. If you  
13 don't know, you can say so.

14 MR. MITCHELL: Restate the question, please.

15 MR. BAIOCCHI: He said he doesn't know.

16 MR. MITCHELL: That is correct, I do not know.

17 MR. BAIOCCHI: I have one more that will be the end of  
18 it.

19 Are you familiar -- Paul Bratovich -- any of the panel.  
20 Are you familiar with Yuba County Water Agency's water  
21 rights permits, the applications, et cetera?

22 MR. GRINNELL: I am familiar with the resulting  
23 rights.

24 MR. BAIOCCHI: I will ask you the question.

25 Does all of Yuba County Water Agency's permits

1 concerning the purpose of use, does it so state for fish and  
2 wildlife protection and enhancement?

3 MR. GRINNELL: Well, I guess I don't know them as well  
4 as I said. I cannot say specifically that all of them have  
5 that in there. I don't know.

6 MR. BAIOCCHI: If I told you that is what the permits  
7 and applications so state, would you --

8 May I make that statement, Mr. Brown, 'cause it is a  
9 matter of the record?

10 H.O. BROWN: Put it in the form of a question.

11 MR. BAIOCCHI: He hasn't reviewed the information.  
12 Perhaps what I should do is I will cross-examine Donn Wilson  
13 and bring it out there.

14 H.O. BROWN: All right.

15 MR. BAIOCCHI: I want to make one point. Paul  
16 Bratovich, if, in fact, the purposes of use in Yuba County  
17 Water Agency's water rights so states fish and wildlife  
18 protection and enhancement, what would be wrong with  
19 optimizing the flow requirements for those fish?

20 MR. LILLY: I am just going to state my same objection.  
21 To the extent that this calls for a legal conclusion it is  
22 inappropriate.

23 H.O. BROWN: Answer the question if you know or have  
24 an opinion, Mr. Bratovich.

25 MR. BRATOVICH: Would you restate that, Mr. Baiocchi?

1           MR. BAIOCCHI:  If, in fact, Yuba County Water Agency's  
2 water rights permits has a purpose of use so stated and that  
3 one of the purposes of use is for fish and wildlife  
4 protection and enhancement, wouldn't that enhancement  
5 portion of that purpose of use, wouldn't that be optimizing  
6 fishery's habitat aside from protecting them?

7           MR. BRATOVICH:  I am not comfortable making a legal  
8 opinion.  If you wish to restate your question without a  
9 legal opinion implication, I would be glad to try to answer  
10 it.

11          MR. BAIOCCHI:  I don't think I can say it any clearer.

12          H.O. BROWN:  I didn't understand that he was asking for  
13 a legal opinion.  He was asking for a professional opinion,  
14 if you have one, recognizing you are not an attorney.

15          MR. BRATOVICH:  Then I will try to restate your  
16 question as I understood it, Mr. Baiocchi.  Is it, did you  
17 say would there be anything wrong with trying to optimize  
18 conditions for fish?  Is that what you asked me?

19          MR. BAIOCCHI:  What I am saying is, one of the purposes  
20 of use -- let's get away from that.

21                 What is enhancement, fishery enhancement, based on your  
22 opinion, your professional opinion?  Please define  
23 enhancement.

24          MR. BRATOVICH:  Enhancement can encompass a wide  
25 variety of considerations.  Enhancement can consider

1 essentially the entire environment to which a fish would be  
2 exposed. It would be physical habitat considerations,  
3 flows, temperatures, point sources of mortality,  
4 out-of-basin factors. Enhancement is a very broad topic.  
5 Could we narrow that down a bit?

6 MR. BAIOCCHI: I think you did fine. That is very,  
7 very good.

8 So in the event that the purpose of use is enhancement,  
9 then the Department of Fish and Game's management plan would  
10 be in accordance with enhancement?

11 MR. BRATOVICH: Actually, I believe the stated goal in  
12 the '91 management plan was to optimize habitat conditions.

13 MR. BAIOCCHI: As so stated in your Exhibit 19?

14 MR. BRATOVICH: Yes. I believe I did have that as well  
15 as in Exhibit 26.

16 MR. BAIOCCHI: You take issue with that, you don't  
17 believe that the fishery resources of the Lower Yuba River  
18 should be optimized; is that true, and your arguments and  
19 your testimony?

20 MR. BRATOVICH: That's not true. I made no conclusion  
21 or statement to that effect.

22 MR. BAIOCCHI: I have the wrong impression. Shall we  
23 go to Page 1-3 of Exhibit 19, Yuba County Water Agency. If  
24 you can, would you please read into the record or I can read  
25 into the record. Let me so read it:

1 The California Department of Fish and Game  
2 1991 plan was flawed in several important  
3 ways. First, as stated above, the 1991 plan  
4 was developed to optimize habitat conditions,  
5 highlighted, while Yuba County Water Agency  
6 acknowledges its responsibilities under  
7 Section 5937 of the California Fish and Game  
8 Code, to maintain fish in good condition.  
9 Neither this statute or any other provision  
10 of flows requires Yuba County Water Agency to  
11 optimize aquatic habitat for fish restoration  
12 and other purposes. (Reading.)

13 So, as I read this document, you are arguing against  
14 that Department of Fish and Game flows based on optimizing  
15 habitat when, in fact, the water rights permit purposes of  
16 use is for protection and enhancement.

17 That concludes my cross-examination.

18 Thank you.

19 H.O. BROWN: Thank you, Mr. Baiocchi.

20 Mr. Gee.

21 MR. GEE: Thank you, Mr. Brown. Good morning.

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CROSS-EXAMINATION OF YUBA COUNTY WATER AGENCY

BY DEPARTMENT OF INTERIOR

BY MR. GEE

MR. GEE: My first questions will be addressed to Mr. Mitchell. I want to refer to Exhibit S-YCWA-24. Do you have that in front of you, Mr. Mitchell?

MR. MITCHELL: Yes, I do.

MR. GEE: If you can refer to Slide 1, the very first page. And on that slide you describe quite a bit of information.

Can you describe what that information is, what the overview of that is?

H.O. BROWN: Pull the microphone in front of you more, Mr. Gee. Hard to hear.

MR. MITCHELL: This is a summary of Jones & Stokes field activities on the Lower Yuba River since 1992 and includes also a juvenile steelhead study being funded by the Yuba County Water Agency as part of the U.C. Davis master's project.

MR. GEE: Can you show me where in Exhibit 19 this information is gleaned from?

MR. MITCHELL: This information is presented -- the results of this, of these surveys are presented in Exhibit 19.

MR. GEE: Can you point to what relevant section of

1 Exhibit 19 this is gleaned from?

2 MR. MITCHELL: Yes. This information was summarized in  
3 Section 3.2.4.2 on Page 3-4 of Exhibit 19.

4 MR. GEE: Where exactly? Starting off with the first  
5 salmon spawning escapement, can you specify where these  
6 dates in this topic area is located?

7 MR. MITCHELL: I need to go back here and say that the  
8 spawning escapement surveys, which is the first bullet on  
9 Slide 1, that information was covered in an earlier section,  
10 which begins on Page 3-8, under Historic Population Trends  
11 of Anadromous Fish. The specific surveys that we conducted  
12 were used to update the information that is shown  
13 specifically on Page 3-9 under post-Yuba River Development  
14 Project, which shows in the second paragraph that from 1972  
15 to 1999 fall-run chinook salmon escapement was sustained at  
16 higher levels than occurred to the pre-New Bullards Bar.  
17 That was based on new data that was developed as a result of  
18 the spawning surveys that are listed on Slide 1.

19 MR. GEE: I suppose my specific question is, is there  
20 anywhere in Exhibit 19 the dates that you refer to in  
21 Exhibit 24?

22 MR. MITCHELL: Not specifically. There are periods  
23 that are mentioned, but not specifically stated in some  
24 cases.

25 MR. GEE: So this is additional information, apart from

1 Exhibit 19?

2 MR. LILLY: I am going to object to that  
3 characterization. I think it might be -- further  
4 explanation might be on a more accurate statement than  
5 additional information.

6 MR. CUNNINGHAM: Mr. Brown.

7 H.O. BROWN: Mr. Cunningham.

8 MR. CUNNINGHAM: Thank you, sir.

9 I am the attorney who originally made the objection to  
10 that first page of Exhibit 24 for specific reasons. The  
11 specific reason is it contains information that is not in  
12 the record presented to us nor the testimony presented to  
13 this Board.

14 I believe Mr. Gee is now trying to explore the extent  
15 Mr. Lilly and Yuba County Water Agency asserts this  
16 information is somehow summarized, a summarization of their  
17 testimony. Mr. Gee is trying to find out where those dates  
18 are.

19 The truth of the matter is his characterization is  
20 correct. These are -- this is new information. It is not  
21 in those reports. It is not there. And that is why I would  
22 like to again renew my objection to that document, suggest  
23 that document not be incorporated into the record.

24 H.O. BROWN: Thank you, Mr. Cunningham.

25 Mr. Gee.

1 MR. GEE: Perhaps, I can rephrase the question.

2 H.O. BROWN: That would be helpful.

3 MR. GEE: Mr. Mitchell, if these dates that are listed  
4 in Exhibit 24, various dates that are listed there -- do you  
5 see those dates?

6 MR. MITCHELL: Yes, I do.

7 MR. GEE: If they are not contained in Exhibit 19 and  
8 you presented this information, these dates yesterday, is it  
9 possible that I probably saw these for the first time  
10 yesterday?

11 MR. MITCHELL: Well --

12 MR. LILLY: I'm going to object. Calls for  
13 speculation.

14 H.O. BROWN: Answer the question, if you know it.

15 MR. MITCHELL: If you read the report, there are dates  
16 in here, not specific dates, what we refer to is springtime  
17 sampling, fall sampling. We did not give specific dates in  
18 Exhibit 19.

19 MR. GEE: Thank you, I think you answered my question.  
20 Thank you.

21 Also on Slide 1, as I recall you gave testimony  
22 suggesting that salmon spawn in the Lower Yuba River from  
23 mid September through the end of December; is that correct?

24 MR. MITCHELL: That is correct.

25 MR. GEE: Can you point to any reference in Exhibit 19

1 that supports that statement?

2 MR. MITCHELL: Yes. As I said, we conducted spawning  
3 and redd surveys beginning in September of 1992 and also  
4 1998, in late August. In September, early September in  
5 1999.

6 MR. GEE: Mr. Mitchell, my interrupted question, if you  
7 can point to the relevant section in Exhibit 19 where that  
8 information is based on.

9 MR. MITCHELL: I am sorry.

10 MR. GEE: Thank you.

11 MR. MITCHELL: This information or the spawning  
12 escapement surveys, again, the spawning escapement estimates  
13 from which they were based were presented in the testimony.  
14 We did not give specific dates for the fall-run surveys.  
15 What we have described are the surveys themselves. And if  
16 you give me a moment here --

17 On Page 3-9 of Exhibit 19 we state the fall-run chinook  
18 salmon escapement spawning surveys were sustained at higher  
19 levels, again, than occurred. This is reference to the  
20 spawning escapement surveys.

21 To answer your question, the specific dates are not  
22 presented in the Exhibit 19.

23 MR. GEE: So they were presented to the Board for the  
24 first time yesterday; is that correct?

25 MR. MITCHELL: These specific dates were, yes.

1 MR. GEE: Thank you.

2 Referring back to Slide 1 of Exhibit 24, if spawning  
3 occurs mid-September through December, why did you limit  
4 your spawning surveys from October to mid-December?

5 MR. MITCHELL: As I mentioned in my testimony, we are  
6 present on the river in September, but rarely see carcasses  
7 until early October.

8 MR. GEE: Again, referring to Slide 1 of Exhibit 24, if  
9 spawning occurs mid-September through December why did you  
10 conduct salmon redd surveys on July 12th, 1992?

11 MR. MITCHELL: I can't recall the specifics of that  
12 survey.

13 MR. GEE: Did you conduct that survey?

14 MR. MITCHELL: Without going back to the specific  
15 records, I don't know, but I did conduct many of them.

16 MR. GEE: So your testimony is you don't recall  
17 conducting a salmon redd survey on July 12, 1992?

18 MR. MITCHELL: That's correct, according to my  
19 recollection.

20 MR. GEE: Referring back to Slide 1, if spawning occurs  
21 mid-September through December, why did you conduct salmon  
22 redd surveys on August 31st, 1998?

23 MR. MITCHELL: This survey, as I recall, was conducted  
24 to determine whether or not spawning had started. As I --  
25 in trying to recall, to the best of my knowledge, we had

1 determined that spawning had not started by that date in  
2 that year.

3 MR. GEE: Referring again back to Slide 1 of Exhibit  
4 24, if spawning occurs mid-September through December, why  
5 did you conduct salmon redd surveys on January 30th, 1995?

6 MR. MITCHELL: Again, it is not possible for me to  
7 remember the specifics of those surveys. I know that those  
8 salmon redd surveys were conducted at a number of locations  
9 during the spawning season, including the main river, the  
10 Goldfields and also some aerial surveys that were made.  
11 January 30th, I cannot remember the specific objective of  
12 that survey, but that was during -- that was after the  
13 major spawning period, and, again, I don't know the  
14 specifics of that survey.

15 MR. GEE: Then I am wondering if you can explain the  
16 relevance of including these dates if you don't recall  
17 making these surveys? What point were you trying to make to  
18 the Board including these dates in Exhibit 24?

19 MR. MITCHELL: Basically, these represent the dates  
20 that we were out conducting these surveys and was to include  
21 in the record all the dates that we had, where we had  
22 conducted those surveys.

23 MR. GEE: Did you not state just a moment ago that you  
24 do not recall doing these surveys on these particular dates?

25 MR. MITCHELL: I've been on the river so much, you

1 know. We have memos that document these surveys. And  
2 without having those memos in front of me to determine  
3 specifically what our objectives were, these were compiled  
4 going through those memos and indicating what the objective  
5 of the survey was, and if it was a salmon redd surveys we  
6 simply marked the date down on here.

7 MR. GEE: Again, my question goes to Slide 1 of Exhibit  
8 24. If spawning occurs mid-September through December, why  
9 did you conduct salmon redd surveys on February 22nd, 1995?

10 MR. MITCHELL: I believe the date would indicate we  
11 were looking for steelhead redds at the time, which is the  
12 time -- February is the peak time for steelhead spawning.

13 Again, without the memos in front of me, I cannot  
14 specifically identify the particular objective.

15 MR. GEE: Again, these dates are nowhere listed in  
16 Exhibit 19; is that correct?

17 MR. MITCHELL: The specific dates are not, as I said.

18 MR. GEE: Nor are the dates further explained in  
19 Exhibit 19; is that correct?

20 MR. MITCHELL: What do you mean by explained?

21 MR. GEE: You stated these dates are not included in  
22 Exhibit 19. So I am wondering is there any information in  
23 Exhibit 19 to explain, give any information as to the  
24 pertinence of these dates in relation to Slide 1 of Exhibit  
25 24?



1           MR. MITCHELL: Again, much of the information that was  
2 determined from steelhead spawning -- the conclusions we  
3 made regarding steelhead abundance were based on many of the  
4 surveys. Therefore, the conclusions we arrived at in this  
5 exhibit reflect the results of those surveys.

6           MR. GEE: Turn to Slide 5 of Exhibit 24. As I recall,  
7 you provided testimony yesterday which stated that your  
8 escapement survey used a marked recapture technique to  
9 estimate the number of spawning salmon; is that correct?

10          MR. MITCHELL: That's correct.

11          MR. GEE: Again, can you assist me finding where in  
12 Exhibit 19 this description of marked recapture is located?

13          MR. MITCHELL: Again, we describe these surveys in  
14 general and did not describe the technique that was used in  
15 Exhibit 19.

16          MR. GEE: So as I heard your testimony yesterday  
17 regarding the escape survey using a marked recapture  
18 technique, it does not contain in Exhibit 19, then is it  
19 fair to say I heard it for the first time yesterday, as it  
20 relates to these proceedings?

21          MR. MITCHELL: Yes.

22          MR. GEE: Thank you.

23          Mr. Mitchell, can you briefly describe the marked  
24 recapture technique used each year for the escapement  
25 surveys from 1991 to 1999?

1           MR. MITCHELL: I am sorry, could you repeat the  
2 question, please?

3           MR. GEE: Can you briefly describe the marked recapture  
4 technique used each year for escapement surveys 1991 to  
5 1999? I think this relates to Slide 5 of Exhibit 24.

6           MR. MITCHELL: Yes. As I described yesterday, the  
7 marked recapture technique requires tagging salmon carcasses  
8 with a distinctive tag and then placing those fish back in  
9 the river and then recovering them at a later date. And  
10 then weekly estimates of population are based on the  
11 recovery rates of those fish, relative to the total numbers  
12 of fish that are observed.

13          MR. GEE: This was done consistently from 1991 to  
14 1999; is that correct?

15          MR. MITCHELL: Yes, it was. And I do want to mention  
16 that in 19- --

17          MR. GEE: Mr. Mitchell, you have answered my question.

18          MR. LILLY: He is allowed to complete his answer.

19          MR. GEE: I believe he responded to my question. I am  
20 moving on.

21          H.O. BROWN: Do you need to explain your answer?

22          MR. MITCHELL: Well, I do need to explain my answer  
23 relative to these proceedings.

24          H.O. BROWN: If an explanation is in order to answer  
25 the question better, yes. If it's in addition to the

1 question, don't do that.

2 MR. GEE: Thank you, Mr. Brown.

3 Is this marked recapture technique which you just  
4 described the same used by California Department of Fish and  
5 Game prior to 1990?

6 MR. MITCHELL: Yes, it was, with some modifications  
7 that we had made.

8 MR. GEE: Can you please describe those modifications  
9 or differences?

10 MR. MITCHELL: Yes. The surveys above the Highway 20  
11 bridge, we conducted specific surveys in that reach. The  
12 Department of Fish and Game, at least from 1970 through  
13 1990, did not conduct surveys in that reach, but instead  
14 based the estimate of the numbers of salmon in that reach on  
15 the average numbers of fish that had been observed during  
16 the 1970's. Therefore, that was an assumption that was  
17 made. Instead of relying on that assumption, we conducted  
18 actual surveys to estimate the numbers above the Highway 20  
19 bridge.

20 The other modification we made is we realized that the  
21 estimate was less accurate when all fish were tagged. That  
22 would include the smaller salmon, the two-year-old males.  
23 And we developed a separate estimate for the two-year-old  
24 males and the three-year-old males and females to obtain a  
25 more accurate estimate.

1           MR. GEE: So you are saying that the methodology used  
2 by you is different than that used by the California  
3 Department of Fish and Game?

4           MR. MITCHELL: It is identical except for some  
5 improvements.

6           MR. GEE: Therefore, it is different, is it not?

7           MR. MITCHELL: What I am saying is it is the same  
8 general method. We use the same statistical calculations,  
9 but the potential for error is reduced.

10          MR. GEE: Can you explain the significance of using  
11 this modified, improved methodology?

12          MR. MITCHELL: Basically, it provides what we think is  
13 a better, more accurate estimate.

14          MR. GEE: Can you describe what these -- the quality of  
15 differences are in these estimates and how you arrived at  
16 these estimates?

17          MR. MITCHELL: When you say "quality of differences,"  
18 what do you mean?

19          MR. GEE: Was it possible that your escapement numbers  
20 overestimated the salmon escapements compared to the  
21 California Department of Fish and Game spawning estimates?

22          MR. MITCHELL: The estimates based on actual carcass  
23 counts above Parks Bar revealed that a higher percentage of  
24 fish were actually being estimated through the survey  
25 methods than the 15 percent that had been previously used.

1 That the estimates that we found were more on the order to  
2 20 to 25 percent of the population.

3 MR. GEE: I think you are making a comparison as  
4 opposed to what? Are you saying that CDFG's numbers are  
5 higher or lower compared to your numbers?

6 MR. MITCHELL: The estimate using their numbers would  
7 have been somewhat lower.

8 MR. GEE: Referring again to Slide 5 of Exhibit 24, as  
9 I recall your oral testimony, you testified that California  
10 Department of Fish and Game estimated run size of 2000  
11 steelhead in the Lower Yuba River; is that correct?

12 MR. MITCHELL: That's correct.

13 MR. GEE: If you could assist me, where in Exhibit 19  
14 is this number located, is this information located?

15 DR. BRIAN: On the top of Page 3-12.

16 MR. GEE: Mr. Mitchell?

17 MR. MITCHELL: Thank you. Dr. Brian is correct.

18 MR. GEE: 3-12?

19 MR. MITCHELL: Yes.

20 MR. GEE: Thank you.

21 Referring to Slide 5 of Exhibit 24, I believe you  
22 provided testimony that the California Department of Fish  
23 and Game commented on the steelhead estimates; is that  
24 correct?

25 MR. MITCHELL: Could you be more specific, please?

1           MR. GEE: As I was trying to follow you yesterday in  
2 regards to the Slide 5 of Exhibit 24, I recall you making  
3 some reference to the Department of Fish and Game, and I am  
4 wondering what were those comments, if you can remind me?

5           MR. MITCHELL: This would be in regard to increased  
6 numbers of steelhead following the completion of New  
7 Bullards Bar Reservoir.

8           MR. GEE: Thank you.

9           Where in Exhibit 19 would you base that narrative?

10          DR. BRYAN: Just to help speed things along, I think  
11 it is on 3-9 on the bottom.

12          MR. GEE: Thank you much.

13          Is that correct, Mr. Mitchell?

14          MR. MITCHELL: Yes, that is correct.

15          MR. GEE: Turn back to Slide 1 of Exhibit 24. Was  
16 there a report that you relied upon in preparing Slide 1?

17          MR. MITCHELL: Not a single report. It was based on a  
18 number of reports and memoranda.

19          MR. GEE: I was wondering if you can describe in detail  
20 the exact dates and specific locations and accurate numbers  
21 of each spawning escapement survey?

22          MR. MITCHELL: I am sorry, can you please restate the  
23 question?

24          MR. GEE: You stated that you relied on a number of  
25 reports and other documents. I am asking you to describe

1 the exact dates, specific locations and accurate numbers of  
2 each spawning escapement survey.

3 MR. MITCHELL: They are reported here. The specific  
4 dates are reported here. The spawning escapement estimates  
5 are reported in the graph which is actually part of the --

6 MR. GEE: Mr. Mitchell, I am asking for the specific  
7 locations and the numbers of each of the spawning escapement  
8 surveys.

9 MR. MITCHELL: The specific locations are described in  
10 the reports from which they were based.

11 MR. GEE: Are these reports described anywhere in  
12 Exhibit 24, Slide 1?

13 MR. MITCHELL: No. The locations are not, but this  
14 information was also presented in the previous hearing in  
15 1992, and, therefore, the results, you could find those,  
16 that information, in those proceedings.

17 MR. GEE: Can you give me the names of those reports?

18 MR. MITCHELL: Yes. The spawning escapement reports  
19 were -- when I say spawning escapement reports were in the  
20 last hearing, I am not sure that they were submitted as part  
21 of the hearing, as part of record, I will state that. What  
22 they were -- what was presented was a summary, again, of  
23 those reports.

24 MR. GEE: So they are not part of the administrative  
25 record?

1           MR. MITCHELL: I don't recall but they were provided --  
2           the information was provided that those reports were the  
3           basis for those population estimates.

4           MR. GEE: As I understand the data that you are  
5           referring to in Exhibit 24, Slide 1, this is data since  
6           1992; is that correct?

7           MR. MITCHELL: That's correct.

8           MR. GEE: Why would I go back to the prior hearing  
9           record to look for this information?

10          MR. MITCHELL: That information includes the 1991 and  
11          -- I believe the 1991 spawning escapement report.  
12          Obviously, we had not started the other surveys yet.

13          MR. GEE: I want to turn to Slide 4 of Exhibit 24.  
14          Does Slide 4 indicate you were targeting species for fish  
15          surveys?

16          MR. MITCHELL: Yes, it does.

17          MR. GEE: Can you please tell me what your target fish  
18          species were?

19          MR. MITCHELL: Chinook salmon, steelhead and American  
20          shad.

21          MR. GEE: Turn to Slide 3 of Exhibit 24. Does Slide 3  
22          show the relative composition of fish species above and  
23          below Daguerre Dam for the summer of 1999?

24          MR. MITCHELL: Yes, based on the work that was done in  
25          the summer of 1999 using electrofishing.



1           MR. GEE: Referring to Slide 3, what was the relative  
2 composition of steelhead above Daguerre?

3           MR. MITCHELL: The relative composition of the samples  
4 was 84 percent steelhead rainbow trout.

5           MR. GEE: And below Daguerre Dam?

6           MR. MITCHELL: 3 percent.

7           MR. GEE: What was the relative composition of American  
8 shad above Daguerre?

9           MR. MITCHELL: Actually, American shad could not be  
10 found above Daguerre Point Dam. They do not use the ladders  
11 and, therefore, are confined to the area below Daguerre  
12 Point Dam.

13          MR. GEE: Would they be found below Daguerre Point Dam?

14          MR. MITCHELL: Yes, they would during the times they  
15 are migrating and spawning.

16          MR. GEE: Referring to the Slide 3 of Exhibit 24, what  
17 was the relative composition of salmon above Daguerre?

18          MR. MITCHELL: 1 Percent.

19          MR. GEE: And the relative composition of salmon below  
20 Daguerre?

21          MR. MITCHELL: Less than 1 percent.

22          MR. GEE: Did the surveys above Daguerre include  
23 sampling of juvenile spring-run chinook salmon above in the  
24 Narrows reach?

25          MR. MITCHELL: These surveys did not sample fish in the

1 Narrows reach.

2 MR. GEE: What was -- was there a report or some  
3 documents you relied on for preparation of Slide 3?

4 MR. MITCHELL: This is data that is provided by Jeff  
5 Kozlowski, based on his graduate work.

6 MR. GEE: Is this included in Exhibit 19?

7 MR. MITCHELL: Yes, it is.

8 MR. GEE: Can you show me where?

9 MR. MITCHELL: This graphic is presented in Figure 10,  
10 Page 3-22. The information is discussed in the text on Page  
11 3-13 of Exhibit 19.

12 MR. GEE: May I take a few moments to review this  
13 page?

14 H.O. BROWN: We will go off the record for a moment.

15 (Break taken.)

16 H.O. BROWN: Back on the record.

17 MR. GEE: Where is there any reference to Jeff  
18 Kozlowski's report on Page 3-18?

19 MR. MITCHELL: As I said, this is not based on a  
20 report. It is based on data collected in the summer of  
21 1999. That data is discussed in these pages.

22 MR. GEE: What is your reference to Jeff Kozlowski?

23 MR. MITCHELL: He is the principal investigator for  
24 this work and was the source of the information.

25 MR. GEE: If Mr. Jeff Kozlowski's report is not stated

1 -- or rather let me ask you this question: Is Jeff  
2 Kozlowski stated anywhere in Exhibit 19?

3 MR. MITCHELL: Again, it was not a report. It was data  
4 that was provided to us by Jeff Kozlowski as a result of his  
5 work in summer 1999.

6 MR. GEE: Was his name referenced anywhere in Exhibit  
7 19 in relation to your preparation of Slide 3?

8 MR. MITCHELL: Yes. On Page 3-14 under the header  
9 Additional Characteristics of Lower Yuba River Fishery  
10 Resources. It would be the second paragraph.

11 MR. GEE: I am assuming this page bears on, is related  
12 to Slide 3?

13 MR. MITCHELL: Yes.

14 MR. GEE: Thank you.

15 Mr. Mitchell, if you could turn to Slide 7 of Exhibit  
16 24. On Slide 7 you referred some high population densities  
17 for juvenile chinook salmon; is that correct?

18 MR. MITCHELL: Yes.

19 MR. GEE: Can you point where in Exhibit 19 this  
20 reference is made?

21 MR. MITCHELL: I think I will need more time to see if  
22 I can find that.

23 MR. GEE: I think you are experiencing the same  
24 difficulty I had last night in finding that.

25 There is no need. I made my point. I will move to --

1 I would like to move on to Slide 8.

2 This slide, correct me if I am wrong, is entitled  
3 Average April/May Flows for Salmon Emigration for years that  
4 you sampled and ranges from 500 cfs to more than 4,000 cfs;  
5 is that correct?

6 MR. MITCHELL: Yes.

7 MR. GEE: I believe you stated yesterday that flows  
8 higher than 100 to 200 cfs are dangerous for juvenile  
9 salmon; is that correct?

10 MR. MITCHELL: No, I did not state that.

11 MR. GEE: Did you make any comment in that hearing on  
12 that topic?

13 MR. MITCHELL: No.

14 MR. GEE: Referring to Slide 8, Exhibit 54, can you  
15 please state in chronological order the years that are  
16 represented by the data?

17 MR. MITCHELL: '75, '76, '77, '78, '80, '81, '84, '88,  
18 '91, '92 and '94. I believe I may have missed '97.

19 MR. GEE: Are there years that are not represented by  
20 the data?

21 MR. MITCHELL: The years that are not -- the years that  
22 are shown here are the years in which sufficient data was  
23 available for conducting the analysis or they may have been  
24 years when no data was collected.

25 MR. GEE: What years are not represented by the data,

1 specifically?

2 MR. MITCHELL: 1979, 1982, 1985 and 1986, 1989, 1993,  
3 1995, 1996. Actually, the data we have actually extends to  
4 1994. So 1996 data was not available, so I'll stop there.

5 MR. GEE: Can you explain why there are two data sets  
6 for 1997? I am looking at --

7 MR. MITCHELL: That is a misprint. There must have  
8 been -- one of those years is missing there.

9 MR. GEE: I am not following. What do you mean?

10 MR. MITCHELL: Well, there has been a typo here and one  
11 of the years is '77; the other is another year.

12 MR. GEE: Which one is '77?

13 MR. MITCHELL: '77, my guess would be --

14 MR. GEE: I am not asking for your guess.

15 MR. LILLY: Excuse me, the witness is entitled to  
16 answer these questions without interruption. I object to  
17 Mr. Gee's interruptions.

18 MR. GEE: Mr. Brown, if I may respond?

19 H.O. BROWN: Yes.

20 MR. GEE: As I understand the rules of evidence, the  
21 witness may respond to estimates, but they may not guess.

22 H.O. BROWN: Let the witness finish the answer. If you  
23 disagree with it or did not like it, you may restate the  
24 question again.

25 MR. MITCHELL: I believe 1977 is the year corresponding

1 to the flow of 400 cfs.

2 H.O. BROWN: If you want a more definitive answer, Mr.  
3 Gee, now would be the time to ask for it.

4 MR. GEE: What is that based on? Can you point to any  
5 other reference in Exhibit 19 to support that that is the  
6 correct flow?

7 MR. MITCHELL: I can't point specifically. We  
8 presented historical flows, and I do not know whether those  
9 are presented in any other documents or not.

10 MR. GEE: In reference to the other alias 1977 date,  
11 can you point to any reference in Exhibit 19 to refute that  
12 is the incorrect flow?

13 MR. MITCHELL: No.

14 MR. GEE: I am going to turn to Slide 9 of Exhibit 24.  
15 In the Slide 9, if you can verify a reference to high  
16 population density of steelhead; is that correct?

17 MR. MITCHELL: That's correct.

18 MR. GEE: Where in Exhibit 19 do you base this  
19 information on?

20 MR. MITCHELL: Page 3-18, under steelhead rainbow  
21 trout.

22 MR. GEE: Can you point to a particular sentence?

23 MR. MITCHELL: Yes. The second sentence says:

24 The presence of highly-acclaimed sport  
25 fishery, the lack of direct hatchery

1           influence, the presence of juveniles  
2           representing a number of age classes confirms  
3           the significant natural spawning and rearing  
4           of steelhead rainbow trout occurs in the  
5           Lower Yuba River.                           (Reading.)

6           MR. GEE: Are the words "high population densities"  
7           located anywhere in that sentence?

8           MR. MITCHELL: I'm sorry, first sentence:  
9           Since 1992, snorkeling, electrofishing and  
10          angling surveys have revealed the presence of  
11          largest number of juvenile steelhead rainbow  
12          trout in the Yuba River.                   (Reading.)

13          MR. GEE: So, the words "high population densities"  
14          aren't located anywhere in that sentence?

15          MR. MITCHELL: That's correct.

16          MR. GEE: In your opinion as an expert, what is the  
17          difference in using different terminologies? Is there a  
18          difference in density as opposed to presence of large  
19          numbers?

20          MR. MITCHELL: They are essentially the same. Density  
21          refers to the actual concentration of fish in a given area.  
22          And when extrapolated over the entire stream could also be  
23          considered high population abundance.

24          MR. GEE: Turning to Slide 12 of the Exhibit 24, can  
25          you read into the record the first point?

1           MR. MITCHELL: Large and viable self-sustaining  
2 populations of chinook salmon, steelhead exist in the Lower  
3 Yuba River.

4           MR. GEE: In reference to the large and viable  
5 population of salmon and steelhead population, where in  
6 Exhibit 19 is this based on?

7           MR. MITCHELL: These are based on the data that we  
8 presented and the conclusions that appear on Page 5-2, the  
9 top of the page.

10          MR. GEE: I do not see the words "large and viable."  
11 Do you, Mr. Mitchell?

12          MR. MITCHELL: We don't use those specific words, but  
13 in bullet four, bullet five says:

14                 Relative abundance and condition of juvenile  
15                 steelhead is good, particularly above  
16                 Daguerre Point Dam.                 (Reading.)

17           Under bullet 4:

18                 Multiple age classes of juvenile steelhead  
19                 utilize the river.                 (Reading.)

20           These are all measures of viability, in my opinion.

21          MR. GEE: Turning to Slide 12, again, you make  
22 reference to long-term stability populations of salmon and  
23 steelhead; is that true?

24          MR. MITCHELL: Yes.

25          MR. GEE: Can you point to where in Exhibit 19 this may



1 be said?

2 H.O. BROWN: Off the record for just a moment.

3 (Discussion held off the record.)

4 H.O. BROWN: Back on the record.

5 Mr. Gee, how much more time do you anticipate?

6 MR. GEE: I have questions for Mr. Grinnell as well as  
7 Mr. Bratovich. I will try to hurry along.

8 H.O. BROWN: What is your estimate?

9 MR. GEE: Another half hour, and I ask for latitude in  
10 regards to the amount of time that was given to Mr. Lilly in  
11 presenting these witnesses. I only had 20 minutes and I  
12 stayed well below that with my witnesses. I expect the same  
13 courtesy as well.

14 H.O. BROWN: I've taken that latitude into  
15 consideration with all the crosses and continue to do so.  
16 We will take a 12-minute break right now. We may be  
17 breaking a few minutes early for lunch due to another  
18 appointment that I have during lunch. So I think we will  
19 take our break early now, then I will again counsel you that  
20 you're welcome to bring your drink back into the room. Make  
21 sure it has a lid on it.

22 MR. LILLY: Mr. Brown, I just want to clarify. I  
23 believe that our summary, following the Hearing Officer's  
24 admonitions yesterday, was within the approximate two-hour  
25 limit for our party's case. I disagree with Mr. Gee's

1 statement to the contrary.

2 H.O. BROWN: Yes. I understand, Mr. Lilly.

3 MR. GEE: Also the number of witnesses as well.

4 H.O. BROWN: I will see that you have the appropriate  
5 amount of time, Mr. Gee, and others who wish to cross.

6 We will take a 12-minute break.

7 (Break taken.)

8 H.O. BROWN: Back on the record.

9 Mr. Gee.

10 MR. GEE: Thank you, Mr. Brown.

11 Mr. Mitchell, thank you for your testimony.

12 Move now to Mr. Grinnell.

13 Mr. Grinnell, you are a water resource civil engineer;  
14 is that correct?

15 MR. GRINNELL: Yes.

16 MR. GEE: In reference to Slide 8 of Exhibit 25, there  
17 is reference to historical diversions; is that correct?

18 MR. GRINNELL: Yes.

19 MR. GEE: Can you explain the components of historical  
20 diversions?

21 MR. GRINNELL: These components, these are diversions  
22 as accounted by the Yuba County Water Agency. I guess I  
23 don't understand what you mean by "components."

24 MR. GEE: What does that figure, the first one, what  
25 does it consist of?

1           MR. GRINNELL: Are you referring to the column that  
2 says historical diversions?

3           MR. GEE: That's right.

4           MR. GRINNELL: That is the total annual diversions as  
5 accounted for by the Agency.

6           MR. GEE: You say "total." What I am asking is can you  
7 describe what comprises that total?

8           MR. GRINNELL: Well, we are provided the accounting  
9 from the Agency, so some of that work did go into detail in  
10 compiling. Basically, it is the accounting of diversions at  
11 the various diversion locations, essentially, the north  
12 canal and south canal. There is also, I believe, some of  
13 the direct diversions.

14          MR. GEE: Does it -- you may have answered it, but does  
15 it include instream flow?

16          MR. GRINNELL: Historic diversions? No.

17          MR. GEE: Do the amounts, the total amounts for  
18 historical diversion, does it represent actual amounts?

19          MR. GRINNELL: Yes, that is recorded information.

20          MR. GEE: Actual measured amounts?

21          MR. GRINNELL: That's correct.

22          MR. GEE: Does the historic diversion include the  
23 quantity of water diverted at Hallwood-Cordua?

24          MR. GRINNELL: Yes, it does.

25          MR. GEE: Where was that quantity measured?

1           MR. GRINNELL: Specifically, I do not have that  
2 information. I am not aware of the specific location  
3 measurement.

4           MR. GEE: Who would have that information?

5           MR. GRINNELL: Hallwood-Cordua or the Agency may, in  
6 fact, have that also. They provided the information.

7           MR. GEE: You understand I am not a water resource  
8 civil engineer. In order to arrive at a certain amount of  
9 water, is it necessarily -- is it influenced by where you  
10 measure it?

11          MR. GRINNELL: Certainly. There are specific points of  
12 diversion, and there are specific gauging locations for  
13 those diversions. And so that is where they are -- that is  
14 where they are measured. They are required under the water  
15 rights to measure their diversions.

16          MR. GEE: Can you tell me where the gauge is located  
17 for Hallwood-Cordua?

18          MR. GRINNELL: I don't know. I think in the south  
19 canal location, but the Hallwood-Cordua I do not.

20          MR. GEE: Is there a gauge to measure the diversion at  
21 Hallwood-Cordua?

22          MR. GRINNELL: Again, I am not aware of the specific  
23 measurement for Hallwood-Cordua diversion.

24          MR. GEE: How did you arrive at any of the numbers that  
25 are listed there under historical diversion?

1           MR. GRINNELL: As I said, the Agency provided the  
2 recorded information of diversions to us.

3           MR. GEE: Would the base information, is it provided in  
4 Exhibit 19 or where would I find the base information? For  
5 instance, the diversions at Hallwood-Cordua that ultimately  
6 may lead to this total?

7           MR. GRINNELL: Where would you find it? This is the  
8 result of information that the Agency provided to us as far  
9 as records of diversions. I guess I don't -- this is  
10 included in our -- this figure is in YCWA-15.

11          MR. GEE: There's no breakdown in YCWA-15 as to the --

12          MR. GRINNELL: As to the various components, no. This  
13 is just totals.

14          MR. GEE: Is water diverted at Hallwood-Cordua in all  
15 years, 1987 to 1998?

16          MR. GRINNELL: Again, the specifics of each year,  
17 recollection, but I would imagine so.

18          MR. GEE: You would be relying on another entity's  
19 information?

20          MR. GRINNELL: I do not measure the information. The  
21 Agency keeps the tabulations for their gauge.

22          MR. GEE: Does the historic diversions include quantity  
23 of water diverted at South Yuba-Brophy?

24          MR. GRINNELL: Yes. That one I am a bit more familiar  
25 with, the locations.

1 MR. GEE: Where is this quantity measured?

2 MR. GRINNELL: I believe the gauge is located at the  
3 end of what is called the Meadow Pond. There is a control  
4 structure there where the water goes into the canal.

5 MR. GEE: Does historic diversion, does it include the  
6 quantity of water sold by Yuba County Water Agency to the  
7 State water bank or other producers south of the Delta?

8 MR. GRINNELL: No. This is just diversions, in-basin  
9 diversions.

10 MR. GEE: All the figures you listed from '87 through  
11 1998 are in-basin diversion?

12 MR. GRINNELL: Yes. They do not include out-of-basin  
13 transfers.

14 MR. GEE: Turn to Slide 18 of Exhibit 25. You made  
15 some comments yesterday regarding these two graphs?

16 MR. GRINNELL: Yes.

17 MR. GEE: What were your comments, again?

18 MR. GRINNELL: Basically, that just the conclusion of  
19 the results of the DWR modeling results and our results were  
20 essentially identical as shown by the flows shown here.

21 MR. GEE: Trying to follow. You're making the point  
22 that it was the same as DWR.

23 MR. GRINNELL: We were --

24 MR. GEE: Can I finish my question? Can you tell me  
25 why that is important to you to stress?

1           MR. GRINNELL: As an engineer, it is always helpful  
2 when another engineer, especially Dr. Arora is a very well  
3 recognized hydrologist, also for them to verify our results  
4 is very nice.

5           MR. GEE: I assume your studies were independent of DWR?

6           MR. GRINNELL: Yes. We provided the information. They  
7 did ask a large number of questions. There was quite a bit  
8 of information that we provided in order to explain the  
9 model.

10          MR. GEE: You were pleasantly surprised by this  
11 coincidence?

12          MR. GRINNELL: I wasn't surprised.

13          MR. GEE: Why weren't you surprised?

14          MR. GRINNELL: Because we did a very good job of  
15 modeling. I would expect somebody of Dr. Arora's character  
16 would also come up with the same results.

17          MR. GEE: Were the assumptions and data used by you  
18 and the consultant from DWR, were they the identical data?

19          MR. GRINNELL: I am not going to speak specifically to  
20 what DWR specifically used. They did get somewhat different  
21 results in that they weren't exactly identical. But the  
22 model that we provided did have a number of modeling  
23 assumptions in those and I believe that they also used  
24 those.

25          MR. GEE: There is some coincidence with assumption of

1 data?

2 MR. GRINNELL: Very much so, yes.

3 MR. GEE: What I am wondering, one would expect similar  
4 results than if you used the same assumptions and data as  
5 DWR?

6 MR. GRINNELL: That's correct.

7 MR. GEE: Turn to Slide 14 of Exhibit 25. I think your  
8 comment is, or at least I have in my notes, you stated that  
9 this slide imposes constraints in the model. I'm wondering  
10 what that model is.

11 MR. GRINNELL: Well, as all of this series of slides  
12 was used to show what is included in the model. Listed  
13 here, for instance, the '65 flow agreement for the scenarios  
14 that we ran.

15 MR. GEE: My question is, what model? I wrote down as  
16 notes to myself, I put constraints on the model as your  
17 statement. What model?

18 MR. GRINNELL: That is the HEC-5 model that we used to  
19 model the eight scenarios.

20 MR. GEE: The Yuba River Basin?

21 MR. GRINNELL: Yes.

22 MR. GEE: What do you mean by constraints on the model?

23 MR. GRINNELL: These are, for instance, instream flows  
24 are constraints. You must operate the system to meet the  
25 instream flows. When we are modeling the '66 PG&E power



1 purchase contract, we are imposing the conditions of that  
2 contract for target storage levels and generation quotas.  
3 That is what constrains the operation.

4 MR. GEE: There some bullet points on Exhibit 14 of  
5 Exhibit Slide 14 of Exhibit 25. Those are also the other  
6 constraints; is that correct?

7 MR. GRINNELL: That's correct.

8 MR. GEE: On Slide 5, this slide refers to FERC flows;  
9 is that correct?

10 MR. GRINNELL: Slide 5 --

11 MR. GEE: Excuse me, I am sorry, Slide 14.

12 MR. GRINNELL: This is a description of '93 PG&E  
13 Narrows 1 FERC requirements under that FERC license.

14 MR. GEE: Again, I was jotting these notes down  
15 yesterday. You stated that these flows are on top of the  
16 1965 agreement flows?

17 MR. GRINNELL: Yes.

18 MR. GEE: Can you explain what "on top of" means?

19 MR. GRINNELL: Sure. Specifically in this license it  
20 states that the flows released to meet these requirements  
21 that is listed in the table on Slide 15 are accounted for up  
22 to a total of 45,000 acre-feet, and they can only be  
23 accounted for to that 45,000 acre-foot total as the  
24 increment above the instream flow in addition increment  
25 above the releases made for downstream demands. So it is

1 actually above two pieces, two increments is an additional.  
2 So you only get to account for the difference above that up  
3 to these amounts accounting totally up to 45,000 acre-feet.

4 MR. GEE: Thank you.

5 I want to turn to Slide 21. Here you provide various  
6 modeling scenarios; is that correct?

7 MR. GRINNELL: That's correct.

8 MR. GEE: In scenarios one to four instream include the  
9 1965 agreement of instream flows; is that correct?

10 MR. GRINNELL: That's correct.

11 MR. GEE: Isn't it true that the constraints listed in  
12 Slide 14 of Exhibit 25 are included in scenarios one through  
13 four?

14 MR. GRINNELL: That is correct.

15 MR. GEE: So the FERC flows are included in scenarios  
16 one through four?

17 MR. GRINNELL: No. As I said, we do not model within  
18 the HEC-5 the FERC flow. Because it is so complex with  
19 accounting, we have to do post-processing to calculate out  
20 how much additional flow would be needed in order to satisfy  
21 the requirements of that license. So we run the model and  
22 then we add that on top of, but we show it in the results as  
23 a separate item. We call the additional FERC flow, and that  
24 is how it is represented in the YCWA-16 modeling results.

25 MR. GEE: In Slide 14 you have as one of the

1 constraints the 1993 PG&E Narrows 1 federal Energy  
2 Regulatory Commission license Project 1403; is that correct?

3 MR. GRINNELL: Yes.

4 MR. GEE: That information is explained further on  
5 Slide 15; is that correct?

6 MR. GRINNELL: That's correct.

7 MR. GEE: Thank you.

8 I want to turn to Slide 31. These summaries, can we  
9 call them summaries, in Slide 31?

10 MR. GRINNELL: I didn't --

11 MR. GEE: Is this a summary?

12 MR. GRINNELL: Yes, this is a summary of some of the  
13 scenarios.

14 MR. GEE: Also for transferable storages in the various  
15 scenarios?

16 MR. GRINNELL: Yes, summary of transferable storages in  
17 scenarios one, five, two and six.

18 MR. GEE: I want to focus on scenario one in  
19 particular. It states storage surplus?

20 MR. GRINNELL: Yes.

21 MR. GEE: Would that be the transferable amount?

22 MR. GRINNELL: That's correct.

23 MR. GEE: And in doing these, in running these numbers  
24 -- I know that is in layman terms, that is how I process the  
25 stuff. In running these numbers do you actually transfer

1 the water?

2 MR. GRINNELL: No.

3 MR. GEE: The 61,000?

4 MR. GRINNELL: The actual transfer, this is modeling.

5 MR. GEE: Within your model do you make the -- do you  
6 make the transfer?

7 MR. GRINNELL: This is a single year calculation.

8 MR. GEE: So the subsequent year wouldn't have a --

9 MR. GRINNELL: Right. It is not run serially. It is  
10 individual year accounting.

11 MR. GEE: Would the effect of having a series of  
12 transfers at the end of season storage level in New Bullards  
13 Bar Dam, it can be determined by these studies; is that  
14 correct?

15 MR. GRINNELL: The long-term transfers, no. This was  
16 not an attempt to look at long-term transfers. This was to  
17 look at individual year transfer, surplus storage.

18 MR. GEE: Because of that study, your study would  
19 include refill agreements that are in place?

20 MR. GRINNELL: No.

21 MR. GEE: Nor would your study make any determination  
22 as to Term 91; is that correct?

23 MR. GRINNELL: Let me think about that one for a  
24 minute.

25 This is storage surplus, so Term 91, this would be

1 transferable release of stored water. So, the effect of  
2 Term 91 would apply to stored water; that is not correct.  
3 This would be storage, not passage of natural flows.

4 MR. GEE: What is your understanding of Term 91?

5 MR. GRINNELL: My understanding is that it is -- it  
6 requires that passage of natural flows at certain times and  
7 conditions of the Delta.

8 MR. GEE: Has there been any attempt to integrate the  
9 study, the summary of transferable storages, to integrate  
10 the studies with the results of other studies, such as the  
11 operations of the CVP or SWP?

12 MR. GRINNELL: No. We only list below normal, dry and  
13 critical years, and that is kind of as a surrogate for  
14 that. Normally these are years when there would be, number  
15 one, a market for transfer and, number two, when there is a  
16 capability to transfer in the general sense.

17 MR. GEE: So, these are out-of-basin transfers; is that  
18 what you are talking about?

19 MR. GRINNELL: That is how we characterize, we use the  
20 water year as a general sense to identify transferable  
21 storage years.

22 MR. GEE: Transferable meaning out-of-basin?

23 MR. GRINNELL: Yes.

24 MR. GEE: In the future?

25 MR. GRINNELL: Out of the basin.

1 MR. GEE: Thank you, Mr. Grinnell.

2 Mr. Bratovich, I have some questions for you, as well.  
3 I will try to speed through it. Slides 14 and 15 of your  
4 package of materials -- I believe it is S-YCWA-26. Do you  
5 have that in front of you?

6 MR. BRATOVICH: Yes.

7 MR. GEE: I want to turn to Slides 14 and 15 of that  
8 exhibit, 26.

9 Are you there, Mr. Bratovich?

10 MR. BRATOVICH: Yes.

11 MR. GEE: Your testimony yesterday described the Yuba  
12 County Water Agency's proposed instream flow recommendations  
13 for the Lower Yuba River; is that correct?

14 MR. BRATOVICH: Yes.

15 MR. GEE: And you also stated, Slide 10, I recall you  
16 stated that the proposed instream flow recommendations were  
17 based on Yuba County Water Agency's April to November water  
18 budget per water type; is that correct?

19 MR. BRATOVICH: Yes.

20 MR. GEE: Can you please state for the record, and I  
21 believe in reference to Slide 10, Yuba County Water Agency's  
22 water budget for wet and above normal years?

23 MR. BRATOVICH: 337.5 thousand acre-feet.

24 MR. GEE: Going back to Slides 14 and 15, referring to  
25 Yuba County Water Agency's proposed flow recommendations,

1 the water budget used for each year type is identified below  
2 the flow schedule for each year type; is that correct?

3 MR. BRATOVICH: The water required to meet these flow  
4 recommendations for the April through November period is  
5 identified below each water year type, yes.

6 MR. GEE: The water budget; is that correct?

7 MR. BRATOVICH: Is that the water budget? We have the  
8 April through November volume of water that actually would  
9 be required to meet this proposed flow regime is what I  
10 believe this depicts.

11 MR. GEE: So it is not the water budget?

12 MR. BRATOVICH: For example, on wet and above normal  
13 years, if you are looking at the line that says "April  
14 through November, 280,000 acre-feet plus," that is not  
15 specifically the budget. That is the amount of water  
16 required to fulfill this instream flow proposed requirement,  
17 to my understanding.

18 MR. GEE: Is that the recommendation?

19 MR. BRATOVICH: Yes, it is the volume of water  
20 associated with that period of time for that recommendation.

21 MR. GEE: In preparing Slide 14 and Slide 10, and I am  
22 talking about the two values that you just testified to, the  
23 337.5 value and the 280,000 acre-feet value, why is there a  
24 difference there? Why is there an approximate 57,000  
25 acre-feet distance? Do you see that?

1           MR. BRATOVICH: Yes, I do see that. There is a  
2 difference because the amount of water from April through  
3 November required to meet the flow recommendation for wet  
4 and above normal year conditions is less than the water  
5 budget or water available, as indicated on Slide 10.

6           MR. GEE: I recognize that it is less. I am wondering  
7 why.

8           MR. BRATOVICH: Why is because, as I also indicated our  
9 protocol was to begin by referring as the basis for  
10 consideration the 1996 State Water Resources Control Board  
11 Draft Decision proposed flow regime. And the difference  
12 between what we have proposed as a minimum instream flow  
13 recommendation and the State Board Draft Decision was the  
14 addition of a 700 cfs requirement at Marysville from  
15 mid-September to mid-October and -- excuse me, at  
16 Smartville. I misspoke. And then also we recommended a  
17 flow of 1,500 cubic feet per second during May rather than  
18 2,000 cubic feet per second, which was included in the Draft  
19 Decision.

20           So, there is a volume of water less than would be  
21 required under the Draft Decision.

22           MR. GEE: Thank you.

23           Isn't it true that instead of Yuba County Water Agency  
24 determining the flow recommendation based on what the needs  
25 of fish are, the Agency determined the flow recommendation



1 that was limited to the amount of water in the water budget  
2 for any given year type?

3 MR. BRATOVICH: I wouldn't say that was particularly  
4 true. I would say that the flow recommendation was  
5 developed in consideration of needs to maintain the fishery  
6 resources in good condition within the constraints and  
7 context of water availability in the water budgets that were  
8 calculated and determined.

9 MR. GEE: Does Yuba County Water Agency determine flow  
10 recommendations which are limited to the amount of water in  
11 its water budget for any given water year type?

12 MR. BRATOVICH: In general, yes.

13 MR. GEE: Have you been involved in the development of  
14 instream flow recommendations on other Central Valley rivers?

15 MR. BRATOVICH: Yes, sir.

16 MR. GEE: I want to use the American River as an  
17 example. It is the average runoff for the American River  
18 approximately the same quantity as runoff for the Yuba  
19 River?

20 MR. BRATOVICH: I can't answer that. I don't know.

21 MR. GEE: Is there anyone on the panel that could  
22 testify to that?

23 MR. GRINNELL: No. No specific unimpaired runoff of  
24 the American.

25 MR. GEE: Can any members of the panel provide

1 testimony as to whether Folsom Reservoir and American River  
2 is approximately the same capacity as New Bullards Bar and  
3 Yuba River?

4 MR. GRINNELL: Off the top of my head --

5 MR. ROBERTSON: Folsom Reservoir has a --

6 MR. GEE: You, sir, may want to give your name.

7 MR. ROBERTSON: Stuart Robertson.

8 MR. GEE: What is your qualification?

9 MR. ROBERTSON: I am a civil engineer.

10 MR. GEE: Go ahead.

11 MR. ROBERTSON: Folsom Reservoir has storage of just  
12 over a million acre-feet capable, but it has a dead pool  
13 that is much lower, on the order of a hundred thousand  
14 acre-feet.

15 MR. GEE: This goes back to Mr. Bratovich. In your  
16 opinion as a professional fishery biologist, do the fish  
17 need less instream flow in a dry year than they need in a  
18 wetter year?

19 Shall I restate the question?

20 MR. BRATOVICH: Yes.

21 MR. GEE: In your opinion as a professional fishery  
22 biologist, do the fish need less instream flow in a dry year  
23 than they need in a wet year?

24 MR. BRATOVICH: It is a bit of a complex question. I  
25 would like to answer it by saying that, again, our

1 recommendations were based on the water available in the  
2 water budgets. And part of that is implementability, and  
3 that includes consideration that we wouldn't recommend flow  
4 that couldn't be met. Because if an attempt to try to meet  
5 flows that were higher that could result in a reduction of  
6 dead pool storage and ability to meet subsequent flows.

7 MR. GEE: Mr. Brown, if I could stop Mr. Bratovich. I  
8 am not a fishery biologist. If he can answer the question  
9 simply as I put it.

10 Do the fish need, in your opinion, less instream flow  
11 in a dry year than they need in a wet year?

12 MR. LILLY: Again, Mr. Bratovich is entitled to explain  
13 his answer.

14 H.O. BROWN: I want to hear his answer.

15 MR. BRATOVICH: Again, it is not a simple answer. I  
16 would like to say that if you're asking would you recommend  
17 a higher flow in all conditions, would you recommend a  
18 higher minimum instream flow in a dry year or would you  
19 recommend flows equal to your wet or above normal year flows  
20 in a dry year, I think the answer would be no.

21 The answer would be because, again, we wouldn't want to  
22 make an artificial wet year out of a drier critical year  
23 condition, particularly given the information that Mr.  
24 Mitchell presented, suggesting that high flows can delay the  
25 outmigration period and in consideration of out-of-basin

1 factors that delay outmigration with higher flows during the  
2 spring and the resultant adverse effects of emigrating out  
3 of the Yuba River into the rest of the basin and the  
4 mortality that may occur, given the basinwide  
5 considerations.

6 H.O. BROWN: Both counselors, there is a thin line here  
7 answering a question as asked and you providing explanation  
8 as appropriate and necessary, and the fear of continuation  
9 as additional testimony. It is my job to try to make sure  
10 that doesn't happen.

11 Counselors on both sides and witnesses, try to observe  
12 that rule if you can. No additional testimony. Answer the  
13 man's questions as best you can. But if it needs further  
14 explanation, I will permit it.

15 MR. GEE: I believe Mr. Bratovich is essentially saying  
16 no. Is that correct?

17 MR. BRATOVICH: Would you restate your question, Mr.  
18 Gee?

19 MR. GEE: Madam Reporter, could you read the question  
20 so I don't have to restate it.

21 (Record read as requested.)

22 H.O. BROWN: Mr. Lee is looking for a yes or no answer.

23 MR. GEE: Mr. Gee.

24 H.O. BROWN: I am sorry, Mr. Gee. I beg your pardon.  
25 Mr. Gee is looking for a yes or no answer, I believe. If

1 there is one, you may give it. If there is none, then you  
2 may say that also.

3 MR. BRATOVICH: It is a complex question. It is not a  
4 yes or no answer.

5 H.O. BROWN: Proceed, Mr. Gee.

6 MR. GEE: I am finished, and I thank the Board for  
7 giving me the latitude to ask these questions.

8 H.O. BROWN: Yes, sir. You're welcome.

9 Mr. Cook, you are up.

10 MR. COOK: Yes, sir.

11 ---oOo---

12 CROSS-EXAMINATION OF YUBA COUNTY WATER AGENCY

13 BY MR. COOK

14 MR. COOK: Morning, Mr. Brown, and panel, good  
15 morning.

16 Mr. Mitchell, I have this document received yesterday,  
17 which I believe is Exhibit 24. Is that the one that you  
18 testified about yesterday?

19 MR. MITCHELL: Yes, that was my summarization.

20 MR. COOK: On Page 1, you have results apparently of a  
21 study that you made to determine quantity of certain fish in  
22 the Yuba River, the Lower Yuba River. Is that correct?

23 MR. MITCHELL: Yes. Slide 1 is a summary of the field  
24 activities and studies that were done to collect that  
25 information.

1           MR. COOK: Just starting at the first one about salmon  
2 spawning escapement, I notice that there are different dates  
3 involved, different periods of time for each year that you  
4 conducted studies. Is there a reason for that?

5           MR. MITCHELL: Yes. It has to do with the tagging of  
6 carcasses when we first see carcasses in the river. The  
7 surveys are begun when the first carcasses begin to appear.

8           MR. COOK: Let's say in 1998 you completed the study on  
9 December 23rd and in 1997 you completed the study on  
10 December 4.

11           Can you explain that?

12           MR. MITCHELL: Yes. As I recall, in '97 large flows  
13 may have prevented us from surveying the river after  
14 December 4th. And I cannot recall exactly, but we have had  
15 times when high flows around the middle of December have  
16 precluded surveys.

17           MR. COOK: Would that mean, then, that in 1997 you were  
18 unable to make the same quality of survey that you were able  
19 to make in 1998?

20           MR. MITCHELL: When you say "the same quality survey,"  
21 I am not sure what you mean.

22           MR. COOK: You said that high flows prevented you from  
23 completing your survey in 1997. I am assuming from that  
24 statement that there were fish you were unable to count; is  
25 that correct?

1           MR. MITCHELL: That's correct. When high flows do  
2 preclude the surveyors during the last part of the season,  
3 some fish remain untagged or unaccounted for.

4           MR. COOK: Rather than say quality between the two  
5 surveys in '97 and '98, there is a difference in the extent  
6 of the survey. Is that an accurate statement?

7           MR. MITCHELL: In those particular years I can't say  
8 precisely whether that is true or not. In some years we are  
9 prevented from fully surveying the entire population because  
10 of high flows. I don't recall specifically whether that was  
11 the reasons for differences in 1997 and '98.

12          MR. COOK: So really then, you don't know what the  
13 reason was for the different termination dates?

14          MR. MITCHELL: I do know the reasons, but I cannot  
15 determine from this right now what those reasons were. I  
16 would have to go back to our reports.

17          MR. COOK: At least at this time, you are unable to  
18 explain the difference in those two dates. What about the  
19 other dates, they all have different termination dates.

20                 Can you explain that?

21          MR. MITCHELL: Yes. Again, surveys were conducted  
22 until carcasses were no longer present. And in some years,  
23 as I mentioned, we have had times when high flows have  
24 precluded us from doing the surveys, normally at the last  
25 part of the season.

1           MR. COOK: As far as this particular Page 1 is  
2 concerned, you don't know why that would be the case in each  
3 one of these?

4           MR. MITCHELL: I can't say for a given year whether  
5 that was the case or not. For the most part we were able to  
6 complete the surveys. There were years when high flows did  
7 keep us from completing the entire survey.

8           MR. COOK: Very well.

9           Now, you have set out in the salmon spawning escapement  
10 surveys a chart there, periods of time. For example, the  
11 first one in '92 is October 12th to December 15th.

12           Does that mean that you made a survey continuously  
13 during that period of time or part of the time during that  
14 period of time or what?

15           MR. MITCHELL: As I stated previously, those were  
16 weekly surveys that consisted of three days per week during  
17 that period.

18           MR. COOK: The next study of salmon redd surveys, do  
19 you see that?

20           MR. MITCHELL: Yes.

21           MR. COOK: And in that, apparently, at least on four  
22 occasions, that consisted of only a one-day study; is that  
23 right?

24           MR. MITCHELL: That's correct.

25           MR. COOK: Some of the dates -- for example, in 1998



1 you used the August 31st date. I think you previously  
2 testified that you found no redds on that day. You were  
3 checking for that date, but couldn't find any redds. Is  
4 that a correct statement?

5 MR. MITCHELL: As I recall, that survey was done to  
6 determine whether redds were in the river.

7 MR. COOK: Actually, then, in 1998 you made a survey to  
8 determine if redds were in the river. You found none. You  
9 made no other surveys and, therefore, in 1998 you don't know  
10 if there were redds or not. Is that true?

11 MR. MITCHELL: We did not conduct surveys in September,  
12 and so if a redd was formed, we did not -- could not --  
13 would not have known if it was there.

14 MR. COOK: In other words, you are saying in September,  
15 but according to this Page 1 here, the only date that any  
16 survey event was attempted was August 31st and that was  
17 unsuccessful; is that correct?

18 MR. MITCHELL: That survey I believe determined that no  
19 redds were present.

20 MR. COOK: Now, in the -- say, in 1992, July 12th,  
21 would you ordinarily expect to find redds in the river on  
22 July 12th?

23 MR. MITCHELL: No.

24 MR. COOK: Would you explain why you conducted a redd  
25 survey on July 12th when you didn't expect to find any

1 redds?

2 MR. MITCHELL: I can't answer that without going to the  
3 specific record that I have. As I said, these dates were  
4 compiled from a summary of memoranda that included salmon,  
5 that were entitled salmon redd surveys. Without that  
6 knowledge, I don't know why we did the survey then.

7 MR. COOK: In 1996 would you expect to find redds on  
8 December 2nd?

9 MR. MITCHELL: Yes.

10 MR. COOK: How about 1995 on January 30th?

11 MR. MITCHELL: Yes. That is at the very end of the  
12 season, and there could be redds at that time.

13 MR. COOK: Now, three weeks to a month later, on  
14 February 22, you conducted another survey of redds,  
15 according to this chart. Would you expect to have found  
16 redds on that occasion?

17 MR. MITCHELL: Yes. Both January 30th and February 22  
18 we would be looking for steelhead redds. That would be the  
19 timing of steelhead, not salmon.

20 MR. COOK: You have it listed here as salmon redds  
21 survey. You don't list it as steelhead surveys?

22 MR. MITCHELL: That's correct. That may be a general  
23 statement about the surveys that -- I believe it was,  
24 January 30th and February 22, were steelhead surveys.

25 MR. COOK: Really, that February 22 date should not

1 apply in this particular category?

2 MR. MITCHELL: Not in the salmon redd surveys. It  
3 should have been salmon and steelhead redd surveys to  
4 include those dates.

5 MR. COOK: On the juvenile salmon did you also conduct  
6 surveys once a week for three days each week?

7 MR. MITCHELL: No. Those surveys were conducted over  
8 several weeks in the case of 1992 and 1994, and in 1993  
9 there were, I believe, three dates, three to four dates,  
10 that we went out and did surveys.

11 MR. COOK: Where did you conduct those surveys?

12 MR. MITCHELL: Those surveys were conducted in the  
13 river both above and below Daguerre Point Dam. We are --  
14 our surveys generally extend to as high as the Narrows Down  
15 to the Hallwood Boulevard access point.

16 MR. COOK: In one of your charts further on you  
17 indicate conducting or you indicate substantial information  
18 relating to juvenile salmon surveys that were conducted at  
19 the screen at the Hallwood-Cordova Canal, which would be the  
20 north canal out of the Daguerre Point Dam; is that correct?

21 MR. MITCHELL: Yes. That is the diversion canal on the  
22 north side of the river.

23 MR. COOK: Were any of these surveys on this page for  
24 juveniles, juvenile salmon and steelhead, were any of these  
25 surveys conducted there?

1           MR. MITCHELL: Yes. The Department of Fish and Game  
2 permitted us to sample fish during their salvage operations.  
3 Those data were collected for obtaining information on  
4 emigration and size of fish, and those would be included in  
5 these surveys.

6           MR. COOK: Would you describe the Hallwood-Cordua fish  
7 screen?

8           MR. MITCHELL: The fish screen is a salvage facility  
9 that collects downstream migrating salmonids and other  
10 species and the fish are collected and then transferred back  
11 to the river below Daguerre Point Dam.

12          MR. COOK: You say transferred back to the river is by  
13 you physically?

14          MR. MITCHELL: No. I am sorry, that would be  
15 Department of Fish and Game conducts all of the operations  
16 at that facility.

17          MR. COOK: In other words, when the fish go into an  
18 area of that screen, they have to be transported physically  
19 back to the river?

20          MR. MITCHELL: That's correct. There are no -- there  
21 is no direct bypass channel, so the fish are collected in, I  
22 believe, a holding truck and transported to the river.

23          MR. COOK: At that screen is it true that there is  
24 potential for predation of the juvenile fish?

25          MR. MITCHELL: Yes.

1           MR. COOK:  And is it -- is there potential that the  
2 fish may be entrained in the screen itself?

3           MR. MITCHELL:  The potential exists, but there have  
4 been modifications that improved the efficiency of the  
5 screen, I believe.  I don't have personal experience at the  
6 fish screen to provide that level of information.

7           MR. COOK:  I believe yesterday you testified that part  
8 of the time that screen was not in operation or was that  
9 right?  It didn't exist there?

10          MR. MITCHELL:  That is correct.  It is operated only  
11 during a specific period of time of a year.

12          MR. COOK:  During the time that -- what was the time  
13 that it was not in operation?

14          MR. MITCHELL:  Well, that has varied through the years.  
15 Generally the screen is placed in the canal in early to late  
16 April and then removed by the latter part of June.  However,  
17 there has been a varied amount of time and I understand that  
18 the fish screen was actually maintained in the canal through  
19 August of last year.

20          MR. COOK:  Now, would any period of time that the  
21 screen was not in operation be a period when either salmon  
22 or steelhead juveniles would be outmigrating or when all  
23 year round steelhead would be able to go into that north  
24 canal?

25          MR. MITCHELL:  Yes.

1           MR. COOK: So really, what you measured was not salmon  
2 outmigrating downstream, but the amount of salmon juveniles  
3 that, in fact, were being -- were going into this  
4 Hallwood-Cordua Canal in which many of them could have been  
5 lost, but had they not been physically removed they would  
6 probably all have been lost; is that correct?

7           MR. MITCHELL: I'm sorry, could you restate the  
8 question?

9           MR. COOK: Rather long, I guess. I will rephrase it.

10           Basically, the salmon you counted and steelhead you  
11 counted, juveniles, in the Hallwood-Cordua Canal were really  
12 salmon that if they hadn't been physically removed would  
13 either have been subject to predation or if the screen  
14 wasn't in existence would have gone down the canal. Is that  
15 --

16           MR. MITCHELL: You say I. As I said before, the  
17 Department of Fish and Game operates the fish screen. And  
18 there are times, yes, when the screen is not in the canal  
19 when the fish are migrating.

20           MR. COOK: In other words, those fish would be lost?

21           MR. MITCHELL: They would enter the canal.

22           MR. COOK: You don't know where the canal goes; is that  
23 true?

24           MR. MITCHELL: Well, at this point I don't know where  
25 the canal goes and we don't know the fish behavior in the

1 canal.

2 MR. COOK: Based on your rather vast experience on the  
3 Lower Yuba, do you know whether that canal returns to the  
4 Yuba or goes somewhere else?

5 MR. MITCHELL: You know, I don't know the termination  
6 of that canal.

7 MR. COOK: Do any of the other gentlemen know where  
8 that canal goes?

9 MR. BRATOVICH: No.

10 MR. COOK: Do any of you know whether or not that canal  
11 at any location returns to the river?

12 MR. BRATOVICH: Don't know.

13 MR. ROBERTSON: Stuart Robertson.

14 That canal does not return to the river.

15 MR. COOK: Do you know where it ends up?

16 MR. ROBERTSON: It ends up -- I don't recall the name  
17 of the creek to the north. Some of these -- I am not sure  
18 if there is a direct outfall to that. I do know that the  
19 water does not return directly.

20 MR. COOK: Do you know if it is, in fact, used for  
21 irrigation purposes?

22 MR. ROBERTSON: Yes.

23 MR. COOK: Now, on Page 8, Mr. Mitchell, of Exhibit 24,  
24 I can't say that I fully understand the graph, but it does  
25 indicate that juvenile chinooks were counted or measured or

1 quantified at the Hallwood-Cordua fish screen over a good  
2 number of years while you were there. Is that true?

3 MR. MITCHELL: No. This is data provided by the  
4 Department of Fish and Game. The Department of Fish and  
5 Game collected the data and provided it to Jones & Stokes.

6 MR. COOK: Would that data then from the Department of  
7 Fish and Game go into your ultimate calculations of the  
8 amount of salmon and steelhead juveniles in the Yuba River?

9 MR. MITCHELL: No. We did not use the data to produce  
10 estimates of the number of fish in the river.

11 MR. COOK: Thank you.

12 Now, I think you said you studied rather carefully the  
13 Lower Yuba for the last ten years; is that correct?

14 MR. MITCHELL: That's correct.

15 MR. COOK: And you're familiar with Daguerre Point Dam?

16 MR. MITCHELL: Yes.

17 MR. COOK: And you're familiar, of course, as we  
18 previously talked about the Hallwood-Cordua Canal going to  
19 the north, which sometimes is called the North Canal?

20 MR. MITCHELL: Yes.

21 MR. COOK: You are also familiar with the South  
22 Yuba-Brophy Canal or sometimes referred to, aka, as the  
23 South Canal which heads to the south from Daguerre Point  
24 Dam?

25 MR. MITCHELL: Yes.



1           MR. COOK:  Daguerre Point Dam basically acts as a  
2 diversion dam for those two channels; is that right?

3           MR. MITCHELL:  That's correct.

4           MR. COOK:  Are you familiar with the operation of the  
5 South Canal?

6           MR. MITCHELL:  I can't say that I am familiar,  
7 completely familiar with the South Canal operations.

8           MR. COOK:  Do you know the location of the flashboard  
9 dam and the blowout dam and the channel, the diversion  
10 channel, that heads downstream for a substantial distance  
11 and then back into the river?

12          MR. MITCHELL:  Yes.

13          MR. COOK:  Have you observed any adult salmon or  
14 juveniles either in the South Canal or in this diversion  
15 channel?

16          MR. LILLY:  Mr. Brown, excuse me.  I think it would be  
17 useful just to clarify that the flashboard dam Mr. Cook is  
18 referring is in the Goldfields as he's previously discussed  
19 and testified.

20          MR. COOK:  It is in the part of the Goldfields?

21          MR. MITCHELL:  Yes.

22          MR. COOK:  It is connected directly to the South Canal?

23          MR. MITCHELL:  Yes.

24          MR. COOK:  And it allows water to go out of the South  
25 Canal back to the river?

1 MR. MITCHELL: That's correct.

2 MR. COOK: And the water that is in the South Canal at  
3 that point has come from the river to start with at Daguerre  
4 Point Dam?

5 MR. MITCHELL: Yes. In part. I believe much of the  
6 flow in that Goldfields is derived from underflow from the  
7 river as well.

8 MR. COOK: In other words, there are other sources of  
9 water for the South Canal which come from upstream?

10 MR. MITCHELL: Yes.

11 MR. COOK: And this water is water I assumed you have  
12 observed percolating through the various rocks of these  
13 dredger tailings?

14 MR. MITCHELL: That's correct.

15 MR. COOK: Now, I don't remember if I asked or if you  
16 gave an answer to the question. Have you observed salmon in  
17 the diversion channel that we just mentioned?

18 MR. MITCHELL: I have observed adult salmon in the  
19 channel below the flashboard dam, as you termed it, and  
20 downstream to the outlet to the Yuba River, in several  
21 places.

22 MR. COOK: And a large quantity of salmon?

23 MR. MITCHELL: As I recall, in '92 we observed -- I  
24 want to say 50 to 60 adult salmon.

25 MR. COOK: Is there any area below that flashboard dam

1 suitable for spawning?

2 MR. MITCHELL: Yes.

3 MR. COOK: Would that area suitable for spawning be  
4 sufficient to provide spawning for the amount of fish that  
5 you observed?

6 MR. MITCHELL: Yes, it was.

7 MR. COOK: Have you observed fish, salmon or steelhead,  
8 in the South Canal itself?

9 MR. MITCHELL: No.

10 MR. COOK: Calling your attention, Mr. Mitchell, to  
11 Page 3 of Exhibit 24, you have two pie charts showing the  
12 percentages of the various species of fish. On the pie  
13 chart above Daguerre Point Dam you have listed 84 percent of  
14 the pie consisted of steelhead rainbow trout.

15 Is that correct?

16 MR. MITCHELL: That's correct.

17 MR. COOK: Are steelhead and rainbow trout the same  
18 species or the same fish or same run of fish?

19 MR. MITCHELL: They are the same species. They are  
20 different forms of the same species.

21 MR. COOK: In what way are they different forms?

22 MR. MITCHELL: Steelhead is a sea-run form of rainbow.  
23 The rainbow trout referred to here is a resident form.

24 MR. COOK: Can you identify or distinguish steelhead  
25 from rainbow trout by their appearance?

1           MR. MITCHELL: I think we have pretty good success in  
2 doing that for adults, but I -- the juveniles are very  
3 difficult to distinguish, if not impossible.

4           MR. COOK: Now, if you can't distinguish adults from --  
5 steelhead from rainbow trout, why did you lump the two  
6 together?

7           MR. MITCHELL: These are juvenile trout, and,  
8 therefore, we could not tell the difference.

9           MR. COOK: I am not sure that I see on this page where  
10 it said juveniles; maybe I am missing that.

11          MR. MITCHELL: That is not in here. This slide refers  
12 to the electrofishing results conducted last year and,  
13 therefore, were primarily confined to small fish, juvenile  
14 trout.

15          MR. COOK: Would that be the same case with the chinook  
16 salmon that they would be juveniles as well?

17          MR. MITCHELL: That's correct.

18          MR. COOK: All the fish you refer on these two pie  
19 charts are juveniles?

20          MR. MITCHELL: No, that is not entirely correct. There  
21 were adults, speckled dace, adult tule perch and I believe  
22 adult sculpin that occupied these areas that were surveyed.

23          MR. COOK: What was the reason for excluding adult  
24 salmon and steelhead?

25          MR. MITCHELL: They were simply not -- Daguerre is not

1 effective in sampling the adult fish, and the adult fish did  
2 not occur in these sampled areas.

3 MR. COOK: Where were the sampled areas?

4 MR. MITCHELL: The sampled areas were, as I explained,  
5 were shallow, relatively shallow, near shore areas along the  
6 main river, and, therefore, would not be the areas where you  
7 expect to see adult salmon or steelhead.

8 MR. COOK: So then, with respect to steelhead and  
9 rainbow trout, the combination, they were juveniles that you  
10 were surveying, and you, I think, indicated it was at least  
11 difficult or impossible to distinguish a steelhead from  
12 rainbow trout in the juvenile form. Therefore, you don't  
13 know whether or not this 84 percent consisted mostly of  
14 steelhead or mostly of rainbow or what percentage, if any,  
15 or perhaps all, of one or the other consisted.

16 Do you understand that or is that too compound a  
17 question?

18 MR. MITCHELL: I think I understand it. Again,  
19 steelhead or rainbow trout, they are the same species, but  
20 they are different. As I understood your question, can we  
21 tell the difference between the fish that were collected in  
22 this sampling, and the answer is no. As juveniles they are  
23 very difficult, if not impossible, to distinguish.

24 MR. COOK: So, that 84 percent could have been 100  
25 percent steelhead, 100 percent rainbow or a combination of

1 both?

2 MR. MITCHELL: Yes.

3 MR. COOK: Now, we're talking about percentages. Are  
4 you talking about at a given time or over the year or based  
5 on an average, or what?

6 MR. MITCHELL: These were based on electrofishing  
7 surveys conducted in August and September of 1999.

8 MR. COOK: So then, how many electrofishing surveys  
9 were there, approximately?

10 MR. MITCHELL: Those were conducted -- there were at  
11 least, I will say, several at this point because, again, it  
12 was -- this information was obtained from Jeff Kozlowski who  
13 is -- who collected the information.

14 MR. COOK: Were your studies or your surveys in the --  
15 or next to the Hallwood-Cordua screen included in the pie  
16 charts?

17 MR. MITCHELL: No.

18 MR. COOK: Do you have an explanation as to why  
19 steelhead and rainbow trout went from 84 percent above  
20 Daguerre Point Dam to 3 percent below Daguerre Point Dam?

21 MR. MITCHELL: This is an observation we have made in  
22 past years and was confirmed last year by the electrofishing  
23 survey, that most of the steelhead juveniles are found above  
24 Daguerre Point Dam. The explanation that they're several  
25 reasons, possible reasons.

1           One is that the spawning adult steelhead migrate to the  
2 upper reaches of the river. That would be consistent with  
3 some of our observations where steelhead spawn. So this  
4 sampling could reflect the distribution of spawning  
5 steelhead.

6           Another reason could be the upper river provides a wide  
7 range, a much broader range, of habitat conditions and, in  
8 my opinion, provides better physical habitat for steelhead.  
9 And that also could explain why they are rearing in these  
10 areas. They found these conditions to be favorable.

11           MR. COOK: Could it also be, Mr. Mitchell, that at  
12 Daguerre Point Dam water is taken from the river into both  
13 the North Canal and South Canal, or the other names,  
14 reducing the flow to a great extent below Daguerre Point  
15 Dam? Would that, you think, have an impact in the reduction  
16 in the amount of steelhead and salmon juveniles?

17           MR. MITCHELL: Would you restate your question again, I  
18 am sorry?

19           MR. COOK: At Daguerre Point Dam it is used as a  
20 diversion dam, and as a diversion dam water is diverted both  
21 to the north and water IS diverted both to the south. That  
22 is where we get into this budgeted water of nonconsumptive  
23 use. That is where that water is going. As a result of the  
24 water being taken out of the river just above Daguerre Point  
25 Dam, it means that there must be a net loss of water below

1 the river with the potential for heated water, the potential  
2 for less habitat and other things.

3 Would that have an impact, in your mind, on the fact  
4 that you don't find many salmon or steelhead juveniles below  
5 the dam?

6 MR. MITCHELL: No, and 1999 is a good example. Where  
7 water temperatures and habitat conditions in general below  
8 the dam were favorable for juvenile steelhead.

9 MR. COOK: That is one year. What about over a period  
10 of time? Less water would have some impact, would it not?

11 MR. MITCHELL: It may have an impact with regard to  
12 water temperatures and physical habitat. The data that we  
13 have observed is not definitive on that, so we cannot make a  
14 conclusion.

15 MR. COOK: So, in other words, you have not studied --  
16 I assume that is a proper word. You have not studied the  
17 changed conditions below Daguerre Point Dam and that the  
18 impact of those changed conditions on the amount of salmon  
19 and steelhead juveniles below the dam?

20 MR. LILLY: I object. The term "changed conditions" is  
21 vague and ambiguous.

22 MR. COOK: I think the witness understands.

23 H.O. BROWN: I understand the question.

24 Answer if you know it.

25 MR. MITCHELL: I would say that we haven't studied the



1 relationship between flow and juvenile abundance below  
2 Daguerre Point Dam. What we do have are estimates of growth  
3 rates, condition factors, that indicate that the fish are  
4 healthy below the dam.

5 MR. COOK: What fish there are?

6 MR. MITCHELL: Yes. I am specifically speaking about  
7 chinook salmon and steelhead for which we have data.

8 MR. COOK: Of course, that is 3 percent as compared to  
9 84 percent of fish above the dam?

10 MR. MINASIAN: That would be true of the sampling  
11 efforts last year, yes.

12 MR. COOK: I refer you to Page 7 of Exhibit 24, I  
13 believe it is. That abundance and distribution is based  
14 upon all the various surveys you indicated were made on Page  
15 1 of your sheet?

16 MR. MITCHELL: That's correct. The information that  
17 was used to develop those conclusions was based on the  
18 juvenile salmon surveys.

19 MR. COOK: And those surveys in many instances or in  
20 some instances the juveniles were only on a one-day basis;  
21 is that correct?

22 MR. MITCHELL: Yes. There were two years where that  
23 was the case.

24 MR. COOK: The others were made on different periods of  
25 time during the year. They are not comparable periods; is

1 that correct?

2 MR. MITCHELL: They do overlap broadly because most of  
3 our observations are for juveniles do occur from early  
4 spring to late summer, generally.

5 MR. COOK: I notice, for example 1992, again on April  
6 30th in 1995 it began in August. I can't see any overlap  
7 there.

8 MR. MITCHELL: That is true. Those surveys conducted  
9 in 1992, '93 and '94 were more comprehensive than the  
10 following years.

11 MR. COOK: One additional question on that, all this  
12 chart on Page 1, was that conducted by the same method of  
13 counting fish or did you use various methods?

14 MR. MITCHELL: If you are referring to all four  
15 bulleted studies there, we used different methods depending  
16 on the location species had objectives of the survey.

17 MR. COOK: Let me expand on that just a little. Within  
18 the specific studies, for example juvenile salmon and  
19 steelhead or salmon spawning escapement surveys, within an  
20 individual study did you use all the same methods or did you  
21 use different methods?

22 MR. MITCHELL: For salmon spawning escapement surveys  
23 we used the same method every year. For salmon and  
24 steelhead juvenile surveys, that was primarily conducted by  
25 electrofishing -- I'm sorry. The juvenile salmon and

1 steelhead series was seining and direct observation by  
2 snorkeling.

3 MR. COOK: What about the redds? I notice you  
4 indicated ground and area surveys?

5 MR. MITCHELL: That's correct. There were boating  
6 surveys on the river to determine the presence and  
7 distribution of redds, and there were also aerial surveys.

8 MR. COOK: On Page 9 of the Exhibit 24, you mention --  
9 let me ask a foundation question first. With respect to  
10 Exhibit 24, you testified rather on a lengthy basis  
11 concerning this.

12 Did you put this together?

13 MR. MITCHELL: Yes, I did.

14 MR. COOK: Are you acquainted with all of this Exhibit  
15 24?

16 MR. MITCHELL: Yes.

17 MR. COOK: And then we return to Page 9 and under  
18 abundance and distribution -- do you see that?

19 MR. MITCHELL: Yes.

20 MR. COOK: Below that is high population density?

21 MR. MITCHELL: Yes.

22 MR. COOK: Those high population densities, are those  
23 based on adult salmon or spawning salmon, on juveniles  
24 outmigrating or anything else?

25 MR. MITCHELL: This is primarily -- in fact, these are

1 juvenile salmonids as the title says.

2 MR. COOK: Now, calling your attention to Page 10, here  
3 again we have fish distribution and abundance in the Lower  
4 Yuba River by river mile, and you have the Daguerre Point  
5 Dam blocked off, so you can tell what is above and what is  
6 below.

7 Here again -- well, let me withdraw that. Let me ask  
8 this question: Does this involve juveniles and adults or  
9 what?

10 MR. MITCHELL: These are juveniles only. And these are  
11 again based on the electrofishing information that was  
12 collected last summer.

13 MR. COOK: In other words, the questions would be  
14 practically the same as the pie chart. This is almost a  
15 duplicate of the pie chart?

16 MR. MITCHELL: That's correct.

17 MR. COOK: I won't ask any further questions on that  
18 one.

19 Thank you, Mr. Mitchell. I'll go on to something else  
20 at this point. I am trying to reduce this as much as I  
21 possibly can, Mr. Brown.

22 H.O. BROWN: Thank you, Mr. Cook.

23 MR. COOK: I believe we have Exhibit 26, is the  
24 exhibit that Mr. Bratovich testified about; is that correct?

25 MR. BRATOVICH: Yes, sir.

1 MR. COOK: Are you acquainted with all of Exhibit 26?

2 MR. BRATOVICH: Yes, sir.

3 MR. COOK: Did you, in fact, put it together?

4 MR. BRATOVICH: With the assistance of this panel, yes,  
5 sir.

6 MR. COOK: You're acquainted with everything and you  
7 understand the factual statements that are made in Exhibit  
8 26?

9 MR. BRATOVICH: Yes, sir.

10 MR. COOK: Calling your attention to Page 2 of Exhibit  
11 26. In water temperatures at the bottom half of that sheet,  
12 Marysville water temperatures, you have pre-New Bullards Bar  
13 and post-New Bullards Bar?

14 MR. BRATOVICH: Yes, sir.

15 MR. COOK: Pre-Bullards Bar temperatures were for a  
16 period of four years?

17 MR. BRATOVICH: Yes, 1965 through 1968.

18 MR. COOK: Post-New Bullards Bar temperatures were for  
19 a period of ten years?

20 MR. BRATOVICH: Yes, 1989 through 1999.

21 MR. COOK: How do you select what years to use?

22 MR. BRATOVICH: Mr. Grinnell.

23 MR. GRINNELL: We used available data. Those are the  
24 dates we had information for.

25 MR. COOK: In other words, there is no data for the

1 Marysville temperature prior to 1965?

2 MR. GRINNELL: I'm telling you what we had for  
3 information. This was information from USGS in their  
4 report, that was from USGS.

5 MR. COOK: As far as you know, there is nothing else  
6 than what you have here?

7 MR. GRINNELL: That's correct. I don't know of other  
8 data than what we used.

9 MR. COOK: Is there any other source of temperature  
10 information on the Lower Yuba?

11 MR. GRINNELL: For pre-Bullards Bar?

12 MR. COOK: Pre or post.

13 MR. GRINNELL: There is a number of sources of  
14 information. There is USGS information, and then there's  
15 also been some recent temperature work that Mr. Mitchell has  
16 done in taking some temperature measurements in looking at  
17 the river. And the Agency has recorded temperatures at  
18 various locations along the river.

19 MR. COOK: Do you know where those locations would be?

20 MR. GRINNELL: Actually, there are several locations.  
21 They take temperature profiles within the reservoirs. They  
22 take temperature measurements out at the penstock of the  
23 powerhouses. Temperature measurements at the Marysville  
24 gauge. There has been temperature measurement made at  
25 Daguerre Point Dam, Parks Bar. There was additional probes

1 done at Parks Bar.

2 MR. COOK: Those temperature measurements, were they  
3 made on a continuing basis or just now and then?

4 MR. GRINNELL: Continuing time periods, series, at  
5 certain time periods. For instance, sometimes the gauges go  
6 out in floods and the temperature gauges, and they get lost  
7 and so --

8 MR. COOK: Are you acquainted with the temperature  
9 gauge at Daguerre Point Dam personally?

10 MR. GRINNELL: I haven't made those measurements. We  
11 utilize that data. Mr. Mitchell is more familiar.

12 MR. MITCHELL: That probe is actually maintained by  
13 Yuba County Water Agency. We have installed several other  
14 probes in the river upstream and downstream from that  
15 point.

16 MR. COOK: Mr. Mitchell, if you can expand on that just  
17 a little. Where at Daguerre Point Dam would that probe be?

18 MR. MITCHELL: It's changed locations several times.  
19 Let's see, I believe the location that has been used is the  
20 south side of the dam on the upstream face of the dam.

21 MR. COOK: On the upstream face, you mean on the  
22 physical dam itself?

23 MR. MITCHELL: On the physical dam itself. It's  
24 actually on the abutment portion of the dam, and it is --  
25 the probe is hanging from the abutment into the river.

1           MR. COOK:  Would that be hanging into the pond or pool  
2           that is below the dam?  In other words as the dam, I think  
3           -- as the dam -- as the water goes, passes over the dam, it  
4           falls down and creates sort of a surge action.  It creates  
5           water ponds that collect?

6           MR. MITCHELL:  As I said, the probe is upstream of the  
7           dam, on the upstream side of the dam.

8           MR. COOK:  Is it in the water of the reservoir?

9           MR. MITCHELL:  Well, I wouldn't call it a reservoir.  
10          It is the river above Daguerre Point Dam.

11          MR. COOK:  It is water that is backed up by the dam?

12          MR. MITCHELL:  Yes.

13          MR. COOK:  Now, apparently there is a substantial  
14          difference in temperature from the four years of the  
15          pre-Bullards Bar temperature measurement to the  
16          post-Bullards Bar measurement.  Do either of you -- I guess  
17          you, Mr. Grinnell --

18          MR. GRINNELL:  Yes.

19          MR. COOK:  -- do you have an idea or opinion as to why  
20          there would be such a change in temperature?

21          MR. GRINNELL:  Absolutely.  Bullards Bar provides a  
22          very cold water supply essentially throughout the year.  And  
23          since water is released generally from the low outlet, and I  
24          will clarify that in a second, using the lower outlet, there  
25          is generally always colder water released than comes in even



1 from the Middle or South Yuba. And so, that generates  
2 colder water for the Lower Yuba.

3 Now, there's a caveat to that, and that is that the  
4 Department of Fish and Game has made recommendations since  
5 1970 that varied over time as to what outlet of New Bullards  
6 Bar that the Agency should use. For instance, until about  
7 '93 they had recommended that the Agency use the upper  
8 outlet and to release warm water if possible in the  
9 springtime and a portion of the summer. And then switch to  
10 the lower outlet at the -- during the fall and winter. And  
11 that policy has changed over time as Fish and Game has  
12 recommended different outlet management configurations.

13 MR. COOK: What you are saying then is it is easier to  
14 control water temperature on a downward basis with the use  
15 of Bullards Bar than without it?

16 MR. GRINNELL: Control, I wouldn't use the word  
17 "control." It's to affect using the cold water pool,  
18 releasing water out of Bullards Bar cold water pool that  
19 definitely has a decreasing affect on temperature of the  
20 river. In fact, that is an excellent way to manage  
21 temperatures as I showed in the analysis. That is, the most  
22 effective tool is release as cold water as possible.

23 MR. COOK: Does that mean releasing water from the  
24 greatest depth of Bullards Bar?

25 MR. GRINNELL: Well, after a certain depth the cold

1 water pool in much of the time is fairly similar, you know,  
2 in the 47, 48 degree range for a wide depth. It is only the  
3 very upper portion that sees a change in gradient.

4 MR. COOK: If I may switch to, I think it is, Exhibit  
5 25, which is what you testified about yesterday, Mr.  
6 Grinnell?

7 MR. GRINNELL: Yes.

8 MR. COOK: And did you put this package together?

9 MR. GRINNELL: Yes, I did.

10 MR. COOK: Are you familiar with everything that is in  
11 it?

12 MR. GRINNELL: Yes, I am.

13 MR. COOK: Are you familiar with the facts that are  
14 stated in it and understand the facts?

15 MR. GRINNELL: Absolutely.

16 MR. COOK: Mr. Grinnell, you are a hydraulic engineer.  
17 Is that a proper statement?

18 MR. GRINNELL: Water resources engineer, hydrologist.

19 MR. COOK: Really, in layman's terms, you sort of work  
20 on the plumbing of this system; is that right?

21 MR. GRINNELL: That's a reasonable characterization.

22 MR. COOK: That is quite layman. So, you have on, I  
23 believe, Page 7 of Exhibit 25 set out present level of  
24 demand and full development level of demand?

25 MR. GRINNELL: Yes.

1           MR. COOK: How was this full development of demand  
2 worked up?

3           MR. GRINNELL: It's by -- actually, the slide above  
4 that, Slide 6, shows the methodology. Take the applied  
5 water rates and then multiplying that times the acres of a  
6 given crop, that's generally the methodology.

7           MR. COOK: Your methodology then is limited to  
8 agricultural use of the water; is that right?

9           MR. GRINNELL: No.

10          MR. COOK: How do you calculate other things?

11          MR. GRINNELL: We also have for the full development  
12 level of demand have M&I supply, municipal and industrial  
13 supply.

14          MR. COOK: Do you take the supply as, say, it is given  
15 or do you consider the possibility of the most efficient use  
16 of the water in your supply?

17          MR. GRINNELL: We follow, generally follow, the  
18 methodology that the DWR does and most other water resource  
19 engineers use in California, and that is DWR publishes  
20 applied water rates in Bulletin 113. Now we use some --  
21 there are some modified application rates that we use based  
22 on some surveys that were done, and that is all laid out in  
23 our '92 testimony. But that is generally the methodology  
24 that is used for estimation of demand for water resource  
25 planning.

1           MR. COOK:  Maybe I don't fully understand.  Some crops  
2           require a large amount of water.  Some crops are very water  
3           efficient, if that is a proper way of saying it.

4           MR. GRINNELL:  Well, I don't know if -- some crops use  
5           evapotranspiration.  Some crops use more water than others  
6           to grow.

7           MR. COOK:  Do you know what kind of crops that this  
8           water supplies?

9           MR. GRINNELL:  Actually, it is quite a variety.  There  
10          are tree crops.  There are pastures.  There is rice.  A  
11          number of different crops.

12          MR. COOK:  Is there any way of determining the  
13          efficiency of applying irrigation water to pasture?

14          MR. GRINNELL:  Efficiency, determining the efficiency.  
15          I guess I'm at a loss.  Maybe Mr. Robertson might help me  
16          out here.

17          MR. ROBERTSON:  Mr. Robertson.

18          The efficiency of applied water has to do with the  
19          amount of applied water versus evapotranspiration of water.  
20          A certain amount of efficiency can be used, but to the  
21          extent that you go to 100 percent efficiency you accumulate  
22          salt in the soils.  So efficiency speaks to the amount of  
23          water that is actually evapotranspired from the crops and  
24          from the land as it is applied versus the amount of total  
25          water applied.

1           MR. COOK: Mr. Robertson, that is sort of an  
2 engineering approach, is it not?

3           MR. ROBERTSON: That is how efficiency is used.

4           MR. COOK: Then trying to use maybe a different term.  
5 If you consider what you produce from the land, based on the  
6 amount of water that it takes to produce that, that is, I  
7 think, maybe an economic efficiency or for better a term;  
8 does that make any sense to you?

9           MR. ROBERTSON: It is a compound question.

10          MR. COOK: In your determination of efficiency do you  
11 ever consider what can be produced from the land?

12          MR. ROBERTSON: No. We used historical cropping  
13 patterns as surveyed in '84 and updated just before the '92  
14 report.

15          MR. COOK: Do you consider in efficiency the amount of  
16 water taken or used as related to the amount of produce or  
17 product from land?

18          MR. ROBERTSON: No, that is not a factor.

19          MR. COOK: In determining efficiency, do you consider  
20 crops that can be irrigated by, for example, drip irrigation  
21 as opposed to flood irrigation in determining your  
22 definition of efficiency?

23          MR. ROBERTSON: Again, the efficiency is a ratio of the  
24 amount of water that is transpired from the crop versus the  
25 applied. We did not go into the particular application

1 methods of the farmers. These are generally accepted  
2 statewide standards for applied water for these particular  
3 crops.

4 MR. COOK: Going back to Mr. Grinnell, when you talk  
5 about full development, you are talking about the future?

6 MR. GRINNELL: That's correct.

7 MR. COOK: So, when you decide on full development for  
8 crops, how do you determine what crops will be, say, on the  
9 land ten years from now or whatever it means?

10 MR. GRINNELL: Actually, that one important Yuba is  
11 kind of nice because our full development level of demands  
12 essentially only includes adding the Wheatland Water  
13 District and its detachments to the Yuba County service. So  
14 we know what is going on there because they're on  
15 groundwater right now.

16 So, the transition from present level to full  
17 development level is the addition of those lands, Wheatland  
18 Water District. So it is not -- we don't need to guess as  
19 to what would be added as crops or what crops would be  
20 established in an area. They're established.

21 MR. COOK: Are you really saying then that you are  
22 looking at static conditions, in other words, what the  
23 existing condition is with respect to the area that is  
24 presently being served and the existing conditions with the  
25 new areas that you plan on serving without consideration of

1 a possible change in crops?

2 MR. GRINNELL: Well, static is not correct. There is  
3 always -- I shouldn't say always. There is general  
4 continual development within the service area. So that goes  
5 on. There are shifts in crops within the service area.  
6 Farmers do change crops.

7 What we try to do is take the land use surveys and  
8 applied water rates and estimate the demands.

9 H.O. BROWN: How much more time do you need, Mr. Cook?

10 MR. COOK: Maybe 15 minutes.

11 H.O. BROWN: We are going to break for lunch. Meet you  
12 back here at ten after one.

13 MR. LILLY: Can we just get an estimate for this  
14 afternoon. We need to know whether to call our next witness  
15 or not, telephone him to have him down here in Sacramento.

16 H.O. BROWN: Let's do that.

17 Mr. Bezerra, how much time do you need for cross?

18 MR. BEZERRA: We don't have any questions.

19 H.O. BROWN: Mr. Morris.

20 MR. MORRIS: I think I am going to have to use about 10  
21 to 15 minutes.

22 H.O. BROWN: Mr. Cunningham.

23 MR. CUNNINGHAM: Mr. Brown, probably two to maybe a  
24 little less. Looks like some of the questions have already  
25 been answered.

1 H.O. BROWN: Staff.

2 MR. FRINK: Up to an hour.

3 H.O. BROWN: That is about three, almost four hours.  
4 So, we'll go a little later tonight if we have to to finish  
5 up. So be prepared to go to 5:00 or later.

6 MR. LILLY: I take it I don't need to ask my next  
7 witness to come into Sacramento today?

8 H.O. BROWN: I think it would take the rest of the day  
9 to finish with this panel. I would like to try to get to  
10 rebuttal as you had requested earlier. We will try to work  
11 that in this evening.

12 MR. LILLY: Thank you.

13 H.O. BROWN: We are going off the record just a  
14 minute. I need to talk to Mr. Chandler.

15 (Break taken.)

16 H.O. BROWN: Is there -- will you have some rebuttal  
17 this afternoon, Mr. Lilly?

18 MR. LILLY: I don't believe that we will. I believe  
19 that when cross-examination of this panel is done, we will  
20 be done for today.

21 MR. FRINK: Mr. Brown, I do have a request that might  
22 speed up our cross-examination.

23 H.O. BROWN: What is the request?

24 MR. FRINK: Mr. Grinnell, I think there were some  
25 questions asked about historical water use, and you



1 indicated that the information that was used in your study  
2 you obtained from the district.

3 MR. GRINNELL: From the Agency.

4 MR. FRINK: And I think there were some questions as to  
5 whether any of the water that Yuba County Water Agency has  
6 transferred is reflected in the historic diversion numbers.  
7 I wonder if you could clarify that at the break with Mr.  
8 Wilson or other people from the Agency?

9 MR. GRINNELL: Okay.

10 MR. FRINK: Thank you.

11 H.O. BROWN: Is there anything else before we break?

12 We will be here, make it a quarter after 1:00.

13 (Luncheon break taken.)

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1 AFTERNOON SESSION

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3 H.O. BROWN: Back on the record again.

4 Mr. Cook.

5 MR. COOK: Thank you, Mr. Brown.

6 Mr. Grinnell, may I call your attention to Page 33 of  
7 Exhibit 25. You have listed impacts?

8 MR. GRINNELL: Correct.

9 MR. COOK: I won't go into the whole thing, but  
10 basically impacts. In it you have value per acre-foot?

11 MR. GRINNELL: Correct.

12 MR. COOK: You have a value of \$50 per acre-foot for  
13 below normal years, 87 for dry years and \$125 per acre-foot  
14 for critical years?

15 MR. GRINNELL: Yes.

16 MR. COOK: I think you said this was based on sales of  
17 water, transfers of water, or what is it based on?

18 MR. GRINNELL: Recent transfers, recent transfers.

19 MR. COOK: So, at the present time there are transfers  
20 of water, I assume, on a temporary basis; is that correct?

21 MR. GRINNELL: That's correct.

22 MR. COOK: This you list as value. I would like to ask  
23 you if you have information on the amount of payments that  
24 are made by the agri businesspeople to South Yuba County for  
25 the water they receive?

1           MR. GRINNELL: No. I am not familiar with the details  
2 of the --

3           MR. COOK: Would you be surprised if I indicated that  
4 they're somewhere in the neighborhood of a dollar and a half  
5 an acre-foot that is being charged for that water? You have  
6 no knowledge?

7           MR. GRINNELL: That's correct.

8           MR. COOK: When you made this up and determined value,  
9 did you do it on your own?

10          MR. GRINNELL: No. What I did was in YCWA-16A, Page  
11 8A, I discussed where I came up with the price of water,  
12 dollar per acre-foot. It was using a 1991, a 1992 critical  
13 year transfer to the DWR water bank and the 1997 transfer of  
14 -- actually a wet year. I believe that was to SAFCA. So  
15 that is what I used as just recent.

16          MR. COOK: You never looked at anything else besides  
17 that?

18          MR. GRINNELL: Anything else?

19          MR. COOK: In other words, anything, any other  
20 information that might help you come up -- basically, what  
21 you did was an appraisal?

22          MR. GRINNELL: As I said, I used the recent information  
23 of dollar per acre-foot for transfers and times these  
24 amounts. But I did not -- to fully answer your question, I  
25 did not do an exhaustive examination of transfers, other

1 transfers.

2 MR. COOK: Did you feel that transfers that would be  
3 out of the Hallwood-Cordua Canal and also out of the South  
4 Canal coming from Daguerre Point Dam, you didn't consider  
5 those values of importance?

6 MR. GRINNELL: Those are not transfers. Those are  
7 diversions.

8 MR. COOK: They come directly out of the river; that is  
9 correct. They still relate to value, do they not?

10 MR. GRINNELL: We're talking about two different things  
11 here. One is diversions for in-county use. The other is  
12 out-of-basin transfers. That is kind of apples and  
13 oranges.

14 MR. COOK: In other words, you feel that the value of  
15 one has no bearing on the value of the other?

16 MR. GRINNELL: Generally, yes. A transfer,  
17 out-of-basin transfer, is based on a number of factors, as  
18 far as availability of the water utilized, and essentially  
19 it is utilization of a storage facility in order to provide  
20 water at a time it could be needed other places within the  
21 state.

22 So, there are hydrologic differences along with  
23 operational differences, timing. So they are quite  
24 different.

25 MR. COOK: Would you think that selling of any of the

1 water for a dollar and half a acre-foot would constitute a  
2 subsidy?

3 MR. GRINNELL: I am not an economist; I am an engineer.

4 MR. COOK: You did talk about value of water?

5 MR. GRINNELL: Right. Very straightforward and  
6 simplified.

7 MR. COOK: Very well.

8 Now, on Page 41 of your Exhibit 25, I notice that the  
9 chart that you have there relating to temperatures, one  
10 element is temperature between 1965 and '68. The other  
11 between 1989 and '99, the other's between 1974 and 1977.

12 Would you explain the reason for the gaps in the years  
13 that you didn't check that?

14 MR. GRINNELL: That is when we had information.

15 MR. COOK: Calling your attention to number 44, it is  
16 on the top of Page 44 and 45.

17 MR. GRINNELL: Yes.

18 MR. COOK: You have a cross-section there. Did you  
19 prepare that?

20 MR. GRINNELL: Yes, I did.

21 MR. COOK: That cross-section is at a specific  
22 location; is that right?

23 MR. GRINNELL: That's correct.

24 MR. COOK: That cross-section probably wouldn't match  
25 any other place exactly on the river, would it?

1           MR. GRINNELL: That is correct. Although it is a good  
2           generalized -- also generalization, depiction of what the  
3           general channel geometry is. There is kind of a main  
4           channel and overflow flood bank or floodplain.

5           MR. COOK: Isn't it true that some places the river is  
6           in a fairly confined channel; other places it is fairly  
7           wide? It is not certainly looking like this, the whole  
8           river.

9           MR. GRINNELL: Absolutely. The river is quite  
10          variable.

11          MR. COOK: At Daguerre Point Dam, I call your attention  
12          to 43 on that, there is a picture on 43 showing Daguerre  
13          Point Dam?

14          MR. GRINNELL: Yes.

15          MR. COOK: Above Daguerre Point Dam there is a wide  
16          section of the river which seems to me would be called a  
17          reservoir, or whatever you want to call it.

18          MR. GRINNELL: Which location are you referring to?

19          MR. COOK: Immediately above Daguerre Point Dam on that  
20          picture.

21          MR. GRINNELL: Immediately above the river channel  
22          itself, I wouldn't call it a reservoir.

23          MR. COOK: Well, in any event, it is fairly wide  
24          compared to what -- if you look upstream further, it is  
25          rather narrow in the channel, isn't it?

1           MR. GRINNELL:  Actually, I wouldn't make that  
2           characterization of -- the dam is quite wide, but flows in  
3           this picture just above Daguerre Point Dam actually move to  
4           a channel and then widen back up as you go farther upstream.  
5           It shows two small channels.

6           MR. COOK:  Let's go further upstream to those two wide  
7           areas and then look above that, and you find abraded river  
8           with relatively small channels, don't you?

9           MR. GRINNELL:  Small?

10          MR. COOK:  Compared to those two.

11          MR. GRINNELL:  They are narrower flows, yes.

12          MR. COOK:  Now also to the right of the dam on that  
13          photograph, do you see what would be the gabion screen?

14          MR. GRINNELL:  Yes.

15          MR. COOK:  And there is water in a pond next to the  
16          gabion screen; isn't that right?

17          MR. GRINNELL:  Well, there is water on both sides.

18          MR. COOK:  That's right.

19          Now with respect to that area, it is not very deep, is  
20          it?

21          MR. GRINNELL:  I am not as familiar with that area.  I  
22          have seen it several times, but I haven't looked at the  
23          relative depth of it.

24          MR. COOK:  Mr. Mitchell, would you be able to answer  
25          that question?

1           MR. MITCHELL: I don't know the exact depth. From our  
2 snorkeling surveys we can't see the bottom in that area. So  
3 my assumption is that it is more than ten feet deep.

4           MR. COOK: Mr. Grinnell, would the wide area that is  
5 there, and say ten feet depth or whatever, there is a strong  
6 probability of fairly substantial evaporation, is there  
7 not?

8           MR. GRINNELL: Well, if you consider the entire surface  
9 area of the river, I would say that is a very small area  
10 compared with the surface area of this river. Again, it is  
11 variable. The surface area is variable flow, but this river  
12 is almost 23 miles long from Marysville to Englebright.

13          MR. COOK: I believe that on 44 you indicate that, I  
14 believe at least, that the wider the river; the shallower  
15 the river, the more temperature and I assume evaporation;  
16 isn't that right?

17          MR. GRINNELL: That is not -- I guess I don't -- could  
18 you please repeat the question?

19          MR. COOK: Well, let's go on if you don't understand  
20 it.

21                 On a sheet that was given out, which I believe is  
22 amended Page 47, an individual sheet that was given out  
23 yesterday afternoon, it has temperatures starting at  
24 Bullards Bar on down.

25          MR. GRINNELL: Yes.



1           MR. COOK: I note that there at Daguerre Point Dam  
2 there is an estimated temperature. The other temperatures  
3 all appear to be precise figures.

4           MR. GRINNELL: Correct.

5           MR. COOK: That is the only estimated one?

6           MR. GRINNELL: Correct.

7           MR. COOK: What is the reason for estimating there  
8 rather than giving precise figures?

9           MR. GRINNELL: On that day I believe we did not have a  
10 temperature measurement for that day at that location.

11          MR. COOK: That was only done, was prepared only on one  
12 day?

13          MR. GRINNELL: For this figure.

14          MR. COOK: For this Figure 8, it is called.

15          MR. GRINNELL: Right.

16          MR. COOK: At the bottom it says Exhibit S-YCWA-18,  
17 Figure 8.

18          MR. GRINNELL: Yes.

19          MR. COOK: That was prepared just on one day?

20          MR. GRINNELL: This figure is prepared for one day.

21          MR. COOK: Thank you.

22                 On Page 49 we also have another amended sheet which was  
23 given out yesterday evening.

24          MR. GRINNELL: Correct.

25          MR. COOK: This sheet, which is really called

1 Bookman-Edmonston Engineering, Inc., 12 Yuba County Water  
2 Agency, and I think it is an amended Page 49.

3 MR. GRINNELL: That is an actually amended Page 12 of  
4 our testimony. I believe it is YCWA-18.

5 MR. COOK: It does, however, have the same graph as is  
6 on Page 49 as the sheet you gave out?

7 MR. GRINNELL: Correct.

8 MR. COOK: You pointed out -- you show a substantial  
9 difference in temperature between the Colgate Powerhouse  
10 outlet and the outlet at Narrows 2, which is not a great  
11 distance but several miles?

12 MR. GRINNELL: I believe about 12 miles.

13 MR. COOK: Twelve miles? Englebright is about nine  
14 miles long. Let's see. Well --

15 MR. GRINNELL: It could be ten miles. Somewhere in  
16 that range, ten to 12 miles.

17 MR. COOK: I won't take the time now. There is a map  
18 in your Exhibit 19 which shows the distances. We won't  
19 belabor that point in the interest of time.

20 So, in any event, you show a substantial change in  
21 temperature or a heating up of the water between the Colgate  
22 outlet and the Narrows 2 outlet?

23 MR. GRINNELL: That's correct.

24 MR. COOK: To what do you attribute that?

25 MR. GRINNELL: Two main reasons for that.

1           Englebright has the outlet for Narrows 2 Powerhouse is  
2 mid-level and Englebright is a heater from two respects.  
3 One is it is warmed. It has a small reservoir so that the  
4 daily heating from solar radiation and from conductive  
5 heating of air temperature heats the reservoir up. So that  
6 contributes to the heat load of the water there. Also,  
7 there is in the summertime especially, there is very warm  
8 water that comes in from the Middle and South Yuba, and that  
9 also contributes to the overall temperature of Englebright.  
10 And that is the reason that temperatures are increased from  
11 Colgate to Narrows.

12           MR. COOK: With respect to the Middle Fork, the Middle  
13 Fork contains that tributary called Oregon Creek?

14           MR. GRINNELL: That's correct.

15           MR. COOK: So you have Oregon Creek and the Middle Fork  
16 coming together and then going into the river above  
17 Englebright?

18           MR. GRINNELL: Correct.

19           MR. COOK: And both the Middle Fork and Oregon Creek  
20 contain diversion dams, do they not?

21           MR. GRINNELL: That's correct.

22           MR. COOK: Most of the water within those two waterways  
23 is transferred directly to Bullards Bar?

24           MR. GRINNELL: Most I don't think is accurate. Depends  
25 on time of year how much diversions versus how much was left

1 in the river. For instance the winter flows, that it not  
2 most.

3 MR. COOK: With respect to heating of the Middle Fork  
4 and Oregon Creek, you wouldn't be as concerned with the  
5 wintertime as you would with the summertime, would you?

6 MR. GRINNELL: Correct.

7 MR. COOK: During the summertime would you say that  
8 most of the water is transferred to Bullards Bar Reservoir?

9 MR. GRINNELL: There is a couple things going on.  
10 First off, you have a reservoir up above this. The upstream  
11 reservoir is Jackson Meadows. For instance, you have water  
12 coming out of those, traversing down.

13 So the specific amounts diverted, relative amounts, I  
14 would have to look at tabulation.

15 MR. COOK: Have you looked at those figures previously?

16 MR. GRINNELL: Yes. I spent a lot of time with those  
17 figures. There is a lot of numbers in this water accounting  
18 for all those locations.

19 MR. COOK: You do know that there are these diversion  
20 tunnels --

21 MR. GRINNELL: Yes.

22 MR. COOK: -- that transport the water from Oregon  
23 Creek and Middle Fork into Bullards Bar Reservoir?

24 MR. GRINNELL: That's correct.

25 MR. COOK: You do know in the summertime that the flows

1 below these diversion dams are considerably limited;  
2 wouldn't you agree with that statement?

3 MR. GRINNELL: Limited? They're modest flows. At  
4 certain times, absolutely.

5 MR. COOK: The more modest the flow, the hotter the  
6 water; is that right?

7 MR. GRINNELL: Well, a couple of things. One is a  
8 fairly long travel distance. To be honest, I am not as  
9 familiar with the channel geometry in the upper reaches. I  
10 know it is not as spread out as it is for the Lower Yuba.  
11 But there is, I know, definitely warming of that water.

12 MR. COOK: Now the water that transports through those  
13 tunnels going into Bullards Bar Reservoir, have you ever  
14 checked the temperature of that water?

15 MR. GRINNELL: No, I have not.

16 MR. COOK: Bullards Bar, you have pointed out has  
17 rather cold water, does it not?

18 MR. GRINNELL: Yes, it does.

19 MR. COOK: It does receive water from these rivers or  
20 these streams that you point out would be heating up the  
21 water below? If that is confusing --

22 The water that transports from the Middle Fork and  
23 Oregon Creek into Bullards Bar Reservoir, goes into a  
24 reservoir that I think you have pointed out is relatively  
25 cool or cold; is that right?

1           MR. GRINNELL: Yes. Although it does warm up through  
2 the late summer and early fall.

3           MR. COOK: In other words, Bullards Bar itself cannot  
4 provide all that cold water that you previously talked about?

5           MR. GRINNELL: I am sorry, let me give a little  
6 clarification. It warms up, but there is still a cold pool.  
7 The upper layer stratification gets thicker as I showed in  
8 the profiles. There is kind of a bending over of the  
9 temperature profile, but cold water is still released.

10          H.O. BROWN: Mr. Cook, how much more time do you need?  
11 We are at an hour and 20 minutes now.

12          MR. COOK: I'll rush right through, as rapidly as I  
13 can. I will get off that totally, the temperature.

14          One thing I would like to point out, I think there was  
15 an indication that it is unfeasible to change the  
16 temperature of the cooler temperature down more than or  
17 enough to satisfy the Water Board's draft.

18          MR. GRINNELL: What I believe I said is that currently  
19 the water is released out of the bottom of New Bullards Bar,  
20 the cold pool. Also, in our temperature regression work and  
21 for the predictions that we have shown in -- that I showed  
22 in my direct, we always assumed that cold water was being  
23 released. We never assumed that we lost the supply of cold  
24 water out of New Bullards Bar.

25          Essentially, the temperature would range from 47 to

1 just under 50 degrees. And even with releasing that cold  
2 water, there was a time we could not meet the standard and  
3 also there are times, many times when it requires  
4 substantial amount of water to attempt to meet standards.

5 MR. COOK: I have a few questions here that could be  
6 answered yes or no, if you can do it. I would certainly  
7 appreciate that because of the time frame that we have.

8 Would the elimination of Hour House and Log Cabin  
9 diversions have an impact on the temperature of the Yuba  
10 River, if you can answer that yes or no?

11 MR. GRINNELL: That is a complex question. I can't  
12 answer yes or no.

13 MR. COOK: Then let me ask another question. Would  
14 adopting additional riparian vegetation along the river have  
15 an impact on reducing the temperature of the river?

16 MR. GRINNELL: It is an awful wide river, so it is  
17 going to have some effect. I would imagine it would be  
18 relatively small.

19 MR. COOK: Have you read the Fish and Game's 1991 Lower  
20 Yuba River Fisheries Management Plan?

21 MR. GRINNELL: Not in its entirety.

22 MR. COOK: Do you know in there it mentions adding  
23 riparian vegetation would have an impact on the temperature  
24 of the river?

25 MR. GRINNELL: I do not know that specifically.

1           MR. COOK: Do you know also that -- or would keeping  
2 water out of the Goldfields or preventing water from  
3 returning to the river from the Goldfields, would that have  
4 an impact on temperature?

5           MR. GRINNELL: An impact? Potentially.

6           MR. COOK: On the Marysville gauge you have adopted  
7 that apparently as a terminus of the temperature controls.  
8 In other words, both flow and temperature, you considered  
9 it. You haven't considered anything below Marysville gauge,  
10 have you?

11          MR. GRINNELL: I don't understand "considered."

12          MR. COOK: Do you know where the Marysville gauge is?

13          MR. GRINNELL: Yes, I do.

14          MR. COOK: In considering flows and temperature, you  
15 have not made any calculations or observations below the  
16 Marysville gauge?

17          MR. GRINNELL: We have not calculated temperatures or  
18 flows below the Marysville gauge.

19          MR. COOK: And have you taken advantage of or have you  
20 considered all of the diversions from the Lower Yuba River  
21 in your calculations?

22          MR. GRINNELL: We lump -- for modeling studies we lump  
23 all of the diversions at Daguerre Point Dam, although  
24 realizing that there are some of those diversions, for  
25 instance the Dantoni diversions and Browns Valley are not



1 all right at Daguerre Point Dam.

2 MR. COOK: Now there are below the Marysville gauge at  
3 least nine diversions; isn't that true?

4 MR. GRINNELL: I don't know that specifically.

5 MR. COOK: In other words, you don't know of any  
6 diversions below the Marysville gauge?

7 MR. GRINNELL: I think --

8 Mr. Robertson, do you have any knowledge?

9 MR. ROBERTSON: I don't know the magnitude of any  
10 diversions down there.

11 MR. GRINNELL: I don't know specifically the amounts or  
12 number, not specifically.

13 MR. COOK: In other words, your calculations do not  
14 include any diversions or temperature changes below the  
15 Marysville gauge?

16 MR. GRINNELL: No, I don't believe that is true. We do  
17 account for other diversions, specifically the Dantoni  
18 diversion.

19 Stuart.

20 MR. ROBERTSON: The diversions for the Dantoni area are  
21 accounted for as though they all occur above the Marysville  
22 gauge.

23 MR. COOK: With respect to the Yuba River, do you feel  
24 it is important to determine the temperature and the flows  
25 at the mouth of the Yuba River?

1 MR. GRINNELL: Important for?

2 MR. COOK: For your studies, what you are doing here  
3 today?

4 MR. GRINNELL: All of the information that we have is  
5 measured at the Marysville gauge. That is the point of  
6 temperature standards. That is the -- I guess I'm -- as far  
7 as importance goes, we calculate those at the Marysville  
8 gauge.

9 MR. COOK: Do you know where the Marysville gauge is  
10 located?

11 MR. GRINNELL: Yes, I do.

12 MR. COOK: How far is it from the mouth of the Yuba  
13 River?

14 MR. GRINNELL: About five miles.

15 MR. COOK: With respect to water deficiency, I think in  
16 your budget plan you talk about deficiencies?

17 MR. GRINNELL: Consumptive use deficiencies?

18 MR. COOK: Yes. With respect to conservation, would  
19 that have been beneficial impact on the deficiencies of  
20 water?

21 MR. GRINNELL: Could you restate the question?

22 MR. COOK: If there is a program of conservation of  
23 water by the consumptive users, would that have an impact on  
24 the deficiency that you talk about?

25 MR. GRINNELL: Well, it depends upon what the

1 conservation program was, and I will give you an example.

2 If it is a tailwater reduction program, for instance  
3 there is some question about what the benefits would be of  
4 that because the diversions are -- there are -- use of  
5 tailwater by downstream diverters or reuse of that water, so  
6 conservation shorting those flows, it is questionable  
7 whether that would truly be beneficial or not, as those  
8 entities would have to find water from other locations or  
9 other sources.

10 MR. COOK: Would eliminating at least a portion of the  
11 carryover storage in Bullards Bar Dam have an impact on  
12 those deficiencies?

13 MR. GRINNELL: Yes. And I will explain that one.  
14 Carryover storage is for protection of the next year's,  
15 first and foremost, instream flows. Secondly, as I showed  
16 with the way we calculate, is planning for half of the  
17 demand for the next year. If you were not to do that  
18 planning, what happens is you get greater oscillations of  
19 the system.

20 Let me explain that. The deficiencies, say, in years  
21 when there would be significant deficiency, they get worse.  
22 The system becomes more exaggerated, fewer time periods of  
23 greater or more significant deficiencies.

24 MR. COOK: You did hear the testimony of Mr. Robertson  
25 that Folsom Dam which is about the same capacity as the

1 Bullards Bar Dam, then in Folsom Dam carryover is a hundred  
2 thousand acre-feet, I believe, and Bullards Bar has some  
3 230,000?

4 MR. GRINNELL: You are referring to the dead pool of  
5 the two reservoirs. The two systems are quite different.  
6 First off, Folsom is on the main stem of the American.  
7 Bullards Bar is on the North Yuba. Secondly, the American  
8 receives water from the Yuba when there is diversions by  
9 PG&E across the top of the system, to the American. So the  
10 American receives the benefit of flows out of the Yuba River  
11 Basin.

12 MR. COOK: One last question. Can any fish or other  
13 aquatic species survive in the riverbed below Bullards Bar  
14 Dam? That could be anyone.

15 MR. BRATOVICH: Not familiar with that reach, Mr.  
16 Cook.

17 MR. COOK: Is there anyone on the panel that knows  
18 anything about the riverbed below Bullards Bar Dam?

19 Well, then the answer is no, I guess.

20 Thank you very much.

21 H.O. BROWN: Thank you, Mr. Cook. Thank you for  
22 expediting your questions, I know the rest of the  
23 participants do, too.

24 MR. COOK: It is sometimes rather difficult. But I  
25 appreciate your allowing me extension of time as it was.

1 Thank you very much.

2 H.O. BROWN: You're welcome.

3 Mr. Bezerra.

4 MR. BEZERRA: We have no questions for this panel.

5 H.O. BROWN: Mr. Morris.

6 MR. MORRIS: Thank you, Mr. Brown.

7 ---oOo---

8 CROSS-EXAMINATION OF YUBA COUNTY WATER AGENCY  
9 BY WESTERN WATER COMPANY & WESTERN AGGREGATES, INC.

10 BY MR. MORRIS

11 MR. MORRIS: Good afternoon, panel. Take too long to  
12 say hi to everybody.

13 I'm going to try to move rapidly. Mr. Brown will tell  
14 me if I am not moving rapidly enough and hopefully he will  
15 tell me if I am going too fast.

16 Mr. Bratovich, I am going to start with you, if I  
17 might. Yesterday you were asked a number of questions  
18 regarding your previous experience on the Lower Yuba River  
19 and before your present employment in particular.

20 Could you tell me approximately how many days of  
21 fieldwork from the Lower Yuba River you have done  
22 particularly during the years 1986 through '89? I think you  
23 mentioned yesterday you did some IFIM work?

24 MR. BRATOVICH: I can't recollect the exact number of  
25 days. Many, many weeks. Several weeks.

1           MR. MORRIS: Okay. Mr. Mitchell, I am going to move  
2 over to you at this point. I am going to hand you a  
3 document that was put in by SYRCL, and it is marked  
4 S-SYRCL-10. I believe the cover page on that, correct me if  
5 I am wrong, states that it is Yuba County Water Agency  
6 Assessment of Impacts?

7           MR. MITCHELL: Yes. Let me give you the full title.  
8 It is Assessment of Potential Fish Straining Impacts  
9 Associated with April 1998 Flow Reductions on the Yuba River.

10          MR. MORRIS: Would you take a quick look at that  
11 document.

12          I think you already stated the title was Yuba County  
13 Water Agency Assessment of Impacts.

14          Was that prepared by your firm?

15          MR. MITCHELL: Yes, it was.

16          MR. MORRIS: Does that document contain an accurate  
17 statement of the data and analysis that are described in  
18 that document?

19          MR. MITCHELL: Yes.

20          MR. MORRIS: And the date of the document, again, was?

21          MR. MITCHELL: The date was April 28, 1998.

22          MR. MORRIS: So that was a -- have you done any  
23 additional fieldwork regarding flow reductions in the Lower  
24 Yuba River since that time?

25          MR. MITCHELL: Yes. We have done at least one other

1 survey since that time. There were several others before  
2 this time.

3 MR. MORRIS: Did that additional information confirm  
4 your earlier conclusions in that document or did it  
5 contradict it?

6 MR. MITCHELL: They were confirmed.

7 MR. MORRIS: Thank you.

8 A few more questions for you, Mr. Mitchell, regarding  
9 that document.

10 We had a lot of questions today about your first page  
11 of S-YCWA-24. I just want to be clear for the record, it  
12 seems obvious to me that you have done a great deal of  
13 fieldwork or your firm and your team has to support  
14 S-YCWA-19.

15 I was wondering if you could tell us approximately how  
16 many days have you spent on the Lower Yuba River to support  
17 that work or your team has?

18 MR. MITCHELL: In total I haven't calculated the total  
19 number of days. I looked back at my records and developed  
20 an estimate of about 250 days over the last ten years for  
21 myself, and then, as I think I stated in my testimony, our  
22 team including myself puts in approximately 40 days per year  
23 on the river doing fishery surveys.

24 MR. MORRIS: During cross-examination this morning by  
25 Mr. Gee, he was asking you specific questions about some

1 fish surveys, and I wanted to ask a question or two about  
2 the Goldfields quickly.

3 Did you -- it sounds like you did do a little work  
4 within the Goldfields itself; is that true?

5 MR. MITCHELL: That's true.

6 MR. MORRIS: You mentioned -- Mr. Cook was asking you  
7 questions about salmon that you saw in the outflow of the  
8 Goldfields. Do you recall that testimony?

9 MR. MITCHELL: Yes, I do.

10 MR. MORRIS: I believe you testified that the channel,  
11 the lower outflow channel, would provide adequate habitat  
12 for spawning?

13 MR. MITCHELL: At the time we observed the salmon, yes,  
14 it did.

15 MR. MORRIS: I don't know if you -- one of the  
16 proposals is to actually put a barrier across so that salmon  
17 will not enter that. In your opinion, do you think that  
18 that would eliminate salmon spawning habitat?

19 MR. MITCHELL: It would eliminate access to those  
20 spawning areas.

21 MR. MORRIS: Would that be detriment or benefit to that  
22 species, if you have an opinion on that?

23 MR. MITCHELL: My opinion is, and it is solely my  
24 opinion, is that under certain conditions chinook salmon can  
25 spawn successfully in the Goldfields and, in fact, produce



1 viable young, which we've also observed in the river in the  
2 Goldfields, growing and surviving.

3 MR. MORRIS: Thank you, Mr. Mitchell.

4 Now I am going to refer to a specific slide in YCWA-24  
5 and that would be Slide No. 5. We have talked about that a  
6 bit this morning. I want to ask you a couple questions  
7 about that.

8 Have you got that?

9 MR. MITCHELL: Yes, I do.

10 MR. MORRIS: The graph in Slide No. 5 shows that the  
11 average spawning escapement of chinook salmon since  
12 completion of New Bullards Bar has increased by about 2000  
13 fish over pre-New Bullards Bar period. Would you agree with  
14 that?

15 MR. MITCHELL: Yes.

16 MR. MORRIS: Do you think that -- in your opinion, is a  
17 significant increase?

18 MR. MITCHELL: Well, I didn't address whether this  
19 would -- whether the increase was significant. My point  
20 with that comparison was to state that the population of  
21 chinook salmon has sustained itself after the completion of  
22 New Bullards Bar at stable levels and slightly higher levels  
23 than pre-Bullards Bar despite a number of out-of-basin  
24 factors and other conditions which occurred since 1970,  
25 which caused overall declines in chinook salmon on the West

1 Coast and other naturally produced spawning populations.

2 MR. MORRIS: Contrary to other rivers, they have  
3 increased on the Yuba?

4 MR. MITCHELL: It is possible that the benefits of  
5 improved habitat condition are not fully measured by  
6 spawning escapement, that what we are seeing is a possible  
7 increase in effects due to out-of-basin factors that have  
8 maintained the population. The fact that the population has  
9 remained stable suggests that the productivity of the basin  
10 has been remarkable despite these adverse, outside factors.

11 MR. MORRIS: I don't know if you can answer this  
12 question or not: what about spring-run salmon, do you think  
13 there has been a significant increase in spring-run salmon  
14 since completion of New Bullards Bar?

15 MR. MITCHELL: What we -- what records we have indicate  
16 that spring-run were extirpated from the Lower Yuba prior to  
17 the New Bullards Bar Reservoir Project due to the  
18 construction of Daguerre Point Dam and later Englebright  
19 Dam. And then, generally, habitat conditions downstream of  
20 Englebright Dam were probably adverse, particularly during  
21 the summer, for spring-run chinook salmon, and it wasn't  
22 until New Bullards Bar Reservoir began operating in 1970  
23 that summer flows were increased and water temperatures were  
24 reduced sufficiently to provide habitat for spring-run.

25 And since then spring-run have, in fact, been observed

1 in the river. As far as significant increase, it is hard to  
2 say because we don't have solid numbers on spring-run. We  
3 feel it is a relatively small run compared to the fall-run  
4 chinook salmon.

5 MR. MORRIS: Thank you.

6 I believe my final question for you is the -- I just  
7 want to ask the same question for steelhead. Has there been  
8 significant increase of Delta in the Lower Yuba River since  
9 the completion of New Bullards Bar?

10 MR. MITCHELL: Yes. As I stated in my testimony, there  
11 appears to be from records that we have from the Department  
12 of Fish and Game as well as angler responses during that  
13 time that the sport fishery for steelhead increased  
14 dramatically following completion of Bullards Bar  
15 Reservoir. And that was attributed by Department of Fish  
16 and Game biologists to initial stocking program of steelhead  
17 as well as to improved habitat conditions in the river  
18 following the completion of Bullards Bar. And recent  
19 surveys have also confirmed large number of steelhead in the  
20 river as well as significant natural reproduction of  
21 steelhead particularly above Daguerre Point Dam.

22 MR. MORRIS: You think the sportfishing activities have  
23 an impact on the species, where they take fish?

24 MR. MITCHELL: Well, they certainly -- I know the  
25 regulations are more restrictive now. But if there is -- I

1 believe that angling is restricted to only hatchery fish,  
2 hatchery steelhead, and all fish that are considered wild,  
3 which would be those without a specific mark, would be  
4 released and, therefore, there may be some harm to catching  
5 those fish and releasing those fish. That would be the  
6 extent of the impact.

7 MR. MORRIS: That is all the questions I have for you.  
8 I would like to move to Mr. Grinnell.

9 Yesterday I know that we were moving rather quickly, so  
10 I just want to clarify a couple things with you.

11 First, Exhibit S-YCWA-16, which I believe is the Yuba  
12 River simulation model, as I understand it that exhibit  
13 models impacts of certain instream flow requirements as  
14 applied to water supply available for the period of record;  
15 is that correct?

16 MR. GRINNELL: That's correct.

17 MR. MORRIS: What instream flow requirement does the  
18 exhibit use for a basis of that analysis?

19 MR. GRINNELL: The -- it's a -- the 1965 Yuba County  
20 Water Agency, California Department of Fish and Game  
21 instream flow requirements.

22 MR. MORRIS: And the exhibit also sets forth different  
23 scenarios, some of which I gather are based on the '65  
24 agreement and others are based on the Draft Decision; is  
25 that correct?

1 MR. GRINNELL: That's correct.

2 MR. MORRIS: What requirements of the Draft Decision  
3 does that particular Exhibit 16 take into account?

4 MR. GRINNELL: It only accounts for the flow  
5 requirements. In other words, does not include any  
6 operation for temperature, of the temperature standards.

7 MR. MORRIS: So it does not include any of the  
8 temperature requirements of the draft Board decision; is  
9 that right?

10 MR. GRINNELL: That's correct.

11 MR. MORRIS: Let's move to S-YCWA-18. Table 4, and it  
12 is also -- actually I am going to refer to Slide 52, I  
13 believe, in your Exhibit 25.

14 MR. GRINNELL: Yes.

15 MR. MORRIS: We talked about that briefly this morning,  
16 I believe. I wanted you to explain to me what the basic  
17 point of that table is.

18 MR. GRINNELL: Table 4 on Page 25 of 18, what it is  
19 showing is the amount of water that would be required to be  
20 released in order to attempt compliance with temperature  
21 standard, and then the flow standard is shown additionally  
22 on the far left.

23 MR. MORRIS: The bottom line is -- tell me if I am  
24 correct. You would need to release substantially more water  
25 than the Draft Decision to meet the temperature

1 requirements?

2 MR. GRINNELL: We have to release substantially more  
3 water than the flow standard. The flow standard from here  
4 is in total 400, approximately, 32,000 acre-feet. In order  
5 to, to the greatest extent possible, attempt compliance  
6 would require, shows the 99 percent probability, over half  
7 million additional acre-feet of water.

8 MR. MORRIS: Those numbers are actually in addition to  
9 the 430-?

10 MR. GRINNELL: That's correct.

11 MR. MORRIS: Would it be correct to say it shows that  
12 there would be deficiencies, including even deficiencies for  
13 instream flows under certain circumstances?

14 MR. GRINNELL: Yes. As we showed in the simulations,  
15 with just the flow standards there are significant  
16 deficiencies. With the amount of water that we require for  
17 operation for temperature there would be much greater  
18 deficiencies.

19 MR. MORRIS: So temperature would be a larger impact  
20 even than shown here?

21 MR. GRINNELL: Than shown in our simulation, yes.

22 MR. MORRIS: Let's go to Slide 25 in the same  
23 exhibit.

24 Do you have that in front of you?

25 MR. GRINNELL: Yes.

1           MR. MORRIS: What does that generally describe, Slide  
2 25, the lower one in particular or both of them?

3           MR. GRINNELL: The upper one, which is scenario four,  
4 shows operation under the PG&E power purchase contract, full  
5 development level of demand and the '65 instream flow  
6 requirements.

7           The lower one, scenario eight, is again PG&E power  
8 purchase contract, full development level of demand and  
9 under the Draft Decision.

10          MR. MORRIS: Can you tell me in how many years those  
11 combined factors would cause a shortage for instream uses  
12 based on those charts? Could you tell that?

13          MR. GRINNELL: I have to go to the color version.

14          MR. MORRIS: I believe I have -- is it Figure 5.2?  
15 It is 6.1 or 6.2.

16          MR. GRINNELL: It is -- I count nine periods when there  
17 would be instream flow shortage.

18          MR. MORRIS: Now, in your opinion, do you think those  
19 deficiencies would be, the shortages and deficiencies would  
20 be more or less significant if your modeling had included  
21 the effects of the State Board's Draft Decision temperature  
22 requirements?

23          MR. GRINNELL: They would be substantially greater. In  
24 fact, the volumes that we talk about in our temperature  
25 analysis, which are huge volumes, do not include the impact

1 of exhausting the cold pool. So, if you threw that on top  
2 of already those numbers, it would be -- the system would  
3 not operate for any of these demands. There would be many  
4 shortages in instream flows and substantial consumptive use  
5 deficiencies.

6 MR. MORRIS: Thank you.

7 I am going to try to move to Slide 23 on exhibit --  
8 your testimony from yesterday. Can you tell me, please,  
9 what Figure 4.2 on the bottom of the page is generally  
10 showing?

11 MR. GRINNELL: That is scenario six which is the  
12 current power generation practice, full development level  
13 of demand and Draft Decision instream flow requirement  
14 results.

15 MR. MORRIS: You may need to refer to your color ones,  
16 but is that also showing there would be deficiencies and  
17 shortages including for instream uses?

18 MR. GRINNELL: Yes. There would be a number of years  
19 with consumptive use deficiencies, and there are two time  
20 periods or two water years with instream flow shortage.

21 MR. MORRIS: Again, I am going to ask the same  
22 question. Do you believe those deficiencies would be  
23 larger, occur more often if your model had considered the  
24 impact to the State Board temperature requirements?

25 MR. GRINNELL: Substantially larger and more often.



1           MR. MORRIS: Back to Figure 25 again. In 6.2, which I  
2 believe is the lower one; is that correct?

3           MR. GRINNELL: Yes.

4           MR. MORRIS: What does that generally describe?

5           MR. GRINNELL: Again, it is the scenario which is the  
6 operation under the power purchase contract, full  
7 development level demands and draft decision and shows the  
8 impacts of that operation.

9           MR. MORRIS: The same question about deficiencies.  
10 Would they be worse if -- they definitely are showing up on  
11 this graph?

12          MR. GRINNELL: Yes. It says there is a substantial  
13 number of deficiencies and also shortages in carryover  
14 storage, which suggest that New Bullards Bar is very  
15 ineffective because of the demand on it in meeting all the  
16 downstream demands, including instream flow.

17          MR. MORRIS: Just to summarize, we have been through a  
18 bunch of graphs, but just to summarize, I guess it would be  
19 your opinion, just about done, your opinion that the Draft  
20 Decision temperature requirements would create more  
21 instances when there would probably be absolutely no water  
22 to release for fish; is that correct?

23          MR. GRINNELL: Yes. There would be times when -- more  
24 times when New Bullards Bar would be pulled down to dead  
25 pool and only whatever natural flows that were making it

1 past the upstream impairments would provide whatever flows  
2 for the Lower Yuba River.

3 MR. MORRIS: Now, if I heard correctly, you didn't  
4 model this, but there are some proposals before the Board  
5 that the State Board should adopt even higher flows,  
6 instream flow requirements, that were requested in the Draft  
7 Decision; is that correct? We heard testimony from other  
8 agencies asking for more instream flows?

9 MR. GRINNELL: Temperature, I don't know about flows.  
10 More than our proposal. I don't know about the Draft  
11 Decision.

12 MR. MORRIS: What would the affect of either adopting  
13 hypothetically a higher instream flow or a higher, should I  
14 say, lower temperature requirement be?

15 MR. GRINNELL: Well, it would be even more dramatic.  
16 You are referring to the -- in some of the testimony  
17 suggestion of even lower temperature standards.

18 MR. MORRIS: National Marine Fishery level?

19 MR. GRINNELL: Yes. Also Department of Fish and Game  
20 had lower recommendations.

21 How can I characterize it properly? We are already not  
22 and sometimes not releasing temperatures that are that low.  
23 So, the water gets warmer as you go down river. So, it  
24 would be dramatic impacts to the system.

25 MR. MORRIS: I think Mr. Cook asked you briefly about

1 the 1991 Fish and Game Plan where they talked about  
2 temperature or part of the fishery plan and he asked  
3 specifically, I think, about temperature riparian habitat.

4 Are you familiar with the water temperature discussion  
5 in that 1991 plan?

6 MR. GRINNELL: Somewhat.

7 MR. MORRIS: Anyone here --

8 MR. GRINNELL: Actually Dr. Sun is much more familiar  
9 with it.

10 MR. MORRIS: Dr. Sun.

11 DR. SUN: Yes. After we reviewed the new data gathered  
12 in the past ten years we relooked at the temperature  
13 modeling effort in the '91 management plan. We found  
14 several potential pitfalls of this analysis. Some of them  
15 was avoiding the Draft Decision.

16 MR. MORRIS: Could you say that again?

17 DR. SUN: Some pitfalls, for example, you have actually  
18 the plan so we can talk about that?

19 MR. MORRIS: Could you just refer to what exhibit  
20 number that is?

21 DR. SUN: I am not quite sure what the exhibit number  
22 should be using the '92 hearing.

23 MR. FRINK: The 1991 Fish and Game Plan.

24 DR. SUN: Yes. Lower Yuba River Fishery Management  
25 Plan published February '91.

1           MR. MORRIS: While he is looking for that, if it is  
2 okay, timewise I would like, if you could, give me your  
3 basic opinion on the temperature modeling that was done in  
4 that plan without necessarily going into detail about the  
5 problems.

6           DR. SUN: The temperature modeling in this plan, it  
7 calibrates the model using the data available at that time.  
8 And in this report, I believe is on Page 54, Table 15,  
9 actually show the calibration results, which shows the  
10 maximum error and probable error. I will have to say the  
11 probable error was not a well-defined term. I would assume  
12 it was standard deviation of the calibration. The maximum  
13 error we are looking at 4.86 degrees Celsius. At least it  
14 was showing Celsius.

15           All those possible errors for prediction was not  
16 included in the later use for this model. In other words,  
17 in the later pages, starting on Page 57 to Page 61, showing  
18 different flow regimes and the temperature providing the  
19 different location in the Lower Yuba River, it did not  
20 characterize the error margin of those predictions. All  
21 those lines, at best, they are expected value which means  
22 that you will have 50 percent of the time you would exceed  
23 that number.

24           And another error was introduced while they do the  
25 prediction was that they assumed a constant release

1 temperature from Englebright. And in the table shown on  
2 Page 55 it was clearly indicated that the release  
3 temperatures from Englebright has a various range in  
4 different months, and some in June the variance could be  
5 almost ten degrees, and also indicate that the range not  
6 used in the model. And, therefore, you introduce additional  
7 error in your prediction, and the error was not quantified  
8 in those figures.

9 And the other things I would like to point out, I think  
10 fortunately it was not used in the Draft Decision, it was  
11 the paragraph, second paragraph to the last on Page 63. It  
12 says daily maximum water temperature shall not exceed the  
13 daily average temperature recommended above.

14 MR. CUNNINGHAM: Mr. Brown, I am sorry to  
15 interrupt, and I appreciate the fact that we are getting  
16 some interesting testimony, but this is not in response to  
17 the question. This is testimony addressing an issue that  
18 was resolved before this Board in 1992.

19 I was under the impression that our testimony, even our  
20 cross-examination, was to be focused on new information.  
21 This is also not in response to anything directly attested  
22 to by this witness. This, in fact, is a new piece of  
23 testimony that we are hearing now. That is an attack on a  
24 study done for the 1992 hearing.

25 May I suggest that this is not responsive to the

1 question and it does exceed the scope of direct already  
2 presented by the witness, any legitimate cross-examination.  
3 This is new testimony that is being elicited for the first  
4 time. This is an attack on something that has already come  
5 and gone. Once again, we are now going to hear about it.

6 H.O. BROWN: Mr. Morris.

7 MR. MORRIS: I would like to respond to that if I  
8 could. I think it is very relevant because these gentlemen  
9 and this panel have done a great deal of modeling, and they  
10 basically have done much detail information. Since 1992  
11 models become much more sophisticated since time. I don't  
12 know how -- I would like to have a direct comparison, maybe  
13 a better way to ask it would be comparing -- could you  
14 please compare your modeling results of temperature to the  
15 Fish and Game results and tell me why there is a difference?  
16 I don't know if that would help in your objection.

17 MR. BAIOCCHI: Mr. Brown.

18 H.O. BROWN: Mr. Baiocchi.

19 MR. BAIOCCHI: To begin with, the Department of Fish  
20 and Game hasn't put on testimony. So I think the gentleman  
21 is presuming they have nothing. They are going to have a  
22 lot. We will hear that.

23 MR. MORRIS: I am certainly not presuming that, Mr.  
24 Baiocchi.

25 H.O. BROWN: Are you sure you want to talk? I am going

1 to rule in your favor.

2 MR. CUNNINGHAM: I will sit down. I am not slow,  
3 Mr. Brown.

4 MR. MORRIS: I'll end my examination at this time.

5 H.O. BROWN: Thank you, sir.

6 MR. MORRIS: Thank you very much.

7 MR. LILLY: Mr. Brown, just so the record is clear, you  
8 are just not allowing any further questioning on this  
9 subject. You are not striking any of the testimony that has  
10 been offered. Is that correct?

11 H.O. BROWN: That is correct.

12 MR. LILLY: Thank you for the clarification.

13 MR. FRINK: Just so the record is clear on the exhibit  
14 number, the Department of Fish and Game's Lower Yuba River  
15 Fishery Management Plan, dated February 1991, was previously  
16 introduced as DF&G Exhibit 26.

17 H.O. BROWN: Mr. Cunningham.

18 ---oOo---

19 CROSS-EXAMINATION OF YUBA COUNTY WATER AGENCY

20 BY DEPARTMENT OF FISH AND GAME

21 BY MR. CUNNINGHAM

22 MR. CUNNINGHAM: Thank you, Mr. Brown.

23 Members of the panel, my name is Bill Cunningham. I am  
24 representing for the purpose of this hearing the Department  
25 of Fish and Game, and I will beg your indulgence right off

1 the bat. I am going to have to ask several times for more  
2 time. I am going to probably occasionally bounce around,  
3 so bear with me if one or more of you could qualify to  
4 answer the question. I am not probably as good as Mr. Gee  
5 at trying to focus on a specific previous witness. I am  
6 trying to elicit an answer, so if any of you wish to  
7 volunteer, I'd appreciate that.

8           However, I will try to start with Mr. Grinnell first.  
9 He knew that; he could see me. You saw that. I had this on  
10 top. If you could help me kind of work through some of the  
11 information you put in, mostly I am going to work through  
12 the overhead provided. I do think that was a good summary  
13 of your testimony. If we can work with that, I would  
14 appreciate it.

15           Perhaps you can help me initially understand a little  
16 about the methodology that -- you talked about it with  
17 others, the methodology you used to establish your models,  
18 specifically your water budget. And, I guess my first  
19 question for you are as to how you established the actual  
20 water demands for the district as identified as present  
21 level of demand.

22           With that as the subject, could you tell me if this is  
23 based on the information in exhibit -- I should say on  
24 overhead six. You looked at crop acreage from the 1984  
25 survey; is that correct?



1           MR. GRINNELL: Yes. The demands listed on Slide 7 come  
2 from a methodology which is explained in Slide 6, which is,  
3 again, taking the per acre applied water rate or water  
4 requirement for a given crop times the number of acres  
5 planted to that crop and the number of acres are from the  
6 DWR crop surveys of 1984, and I believe Mr. Robertson said  
7 updated in the '92 hearing.

8           MR. CUNNINGHAM: So, it is safe to say when you say  
9 present level of demand that doesn't actually reflect a  
10 measured amount of real-time delivery, does it?

11           MR. GRINNELL: That's correct. It's estimated using  
12 the methodology shown.

13           MR. CUNNINGHAM: Does it in any way reflect any  
14 contracts that the Agency may have with various water  
15 districts?

16           MR. GRINNELL: The contracts do come into play.  
17 Essentially, the contracts do have a cap of five feet of  
18 water, and, therefore, it will limit. Taking this  
19 methodology you come up with a demand, but the contract only  
20 allows so much water to each district and so it would cap  
21 that.

22           MR. CUNNINGHAM: Now, how do you measure that? Do you  
23 know?

24           MR. GRINNELL: Measure it?

25           MR. CUNNINGHAM: If I have a contract for delivery of

1 water to one of the districts the Agency delivers water to,  
2 how do I know for any one period of time, month or year,  
3 that I have delivered the full amount and that I should  
4 cease delivery of any water to that district?

5 MR. GRINNELL: The Agency has gauging locations for  
6 their diversions.

7 MR. CUNNINGHAM: Are there gauges on every one of the  
8 diversions the Agency delivers to?

9 MR. GRINNELL: I'm not aware of all the specifics. Mr.  
10 Robertson is shaking his head, so I'll --

11 MR. ROBERTSON: It is my understanding there is a gauge  
12 at the head of each canal so that they can comply with the  
13 FERC requirements. That goes into the computation of flows  
14 to contribute to the 45,000 acre-feet that is required under  
15 the FERC Narrows 1 license.

16 MR. CUNNINGHAM: Are you personally familiar with where  
17 the diversion level gauge would be on the Hallwood-Cordua  
18 diversion?

19 MR. ROBERTSON: I haven't seen that diversion.

20 MR. CUNNINGHAM: How about the South Yuba diversion?

21 MR. ROBERTSON: I have seen that.

22 MR. CUNNINGHAM: Is that gauge above or below the  
23 Goldfields, as far as hydrologically above and below the  
24 Goldfields?

25 MR. ROBERTSON: It is behind the gabion. It's at the

1 head of the actual canal.

2 MR. CUNNINGHAM: Now going back to how you calculate  
3 your water budget. As I understand it, you take,  
4 apparently, a land use survey of irrigated acreage for each  
5 acre irrigated. You multiply, I believe you said, five?

6 MR. GRINNELL: No.

7 MR. CUNNINGHAM: Are there a variety of numbers that  
8 you multiply by?

9 MR. GRINNELL: They are varied. There are bulletins.  
10 Again, Bulletin 113 that DWR puts out has applied water  
11 rates for various crops. So we have a slightly modified,  
12 and it is shown in our testimony, as slightly modification  
13 of some of those applied water requirements.

14 For instance, Bulletin 113 uses 6.1 feet of water for  
15 rice. We use 5.7. There is a number of different  
16 variations. That is then multiplied times the acreage of  
17 crops planted, to that acreage planted to that crop.

18 The cap comes in in limiting the amount, contract  
19 amount, to a specific district.

20 MR. CUNNINGHAM: You indicated also that --

21 H.O. BROWN: Mr. Cunningham, mind if I get something on  
22 the record to make sure I understand the answer?

23 You're talking about diversion rate on the rice and  
24 not the consumptive use of it, right?

25 MR. GRINNELL: Right. This is the -- there is a -- our

1 calculation uses the applied water rate. We also have  
2 losses, a 10-percent loss we include.

3 H.O. BROWN: Do you have the consumptive use of the  
4 crop?

5 MR. GRINNELL: No. We use just 113.

6 H.O. BROWN: Thank you, Mr. Cunningham.

7 MR. CUNNINGHAM: Sir.

8 You said that there apparently were some updates in  
9 1992. Are those updates contained in any of the exhibits  
10 you provided to this testimony?

11 MR. GRINNELL: The updates were contained in the '92  
12 testimony. There was updates for this testimony on top of  
13 that. I said -- I am sorry.

14 The '84 surveys were updated for the '92 testimony. We  
15 have updated the '92 testimony for revised demand estimates  
16 for this testimony.

17 MR. CUNNINGHAM: Does that mean that you've actually  
18 gone out and done new crop acreage surveys?

19 MR. GRINNELL: No, it does not.

20 MR. CUNNINGHAM: When was the last crop acreage survey  
21 done?

22 MR. GRINNELL: '84 is the last DWR crop survey that we  
23 are using in this estimate.

24 MR. CUNNINGHAM: That's a 16-year-old survey. Have you  
25 done anything to try to identify whether or not that survey

1 accurately reflects what is currently being grown on those  
2 lands right now?

3 See everybody shaking their head.

4 MR. GRINNELL: Just checking with Stuart. Mr.  
5 Robertson has spent a lot of time on this.

6 MR. CUNNINGHAM: Do you have any reason to believe that  
7 a 16-year-old survey does accurately reflect the crops that  
8 are currently being grown on those lands within the district  
9 or within the Agency's delivery to the districts?

10 MR. GRINNELL: How can I answer that? We believe that  
11 it is an accurate survey or an accurate estimate of demands  
12 for the purpose that it is intended, which is both the  
13 present level and full development level of demands. We  
14 have looked at historic information just to ensure we are on  
15 the right track.

16 MR. CUNNINGHAM: I guess, Mr. Grinnell, my concern is  
17 that in 16 years isn't it reasonable to expect that some  
18 farmers through market driven forces will have changed the  
19 crops that are grown on the lands that you are including in  
20 the survey?

21 MR. GRINNELL: That is reasonable to assume.

22 MR. CUNNINGHAM: And that those market forces may drive  
23 a change in crop type or acreage almost on an annual basis?

24 MR. GRINNELL: Please repeat the question.

25 MR. CUNNINGHAM: Are you familiar with the fact that or

1 -- let me just put it out to you as a hypothetical. Isn't  
2 it reasonable to assume that today's modern farmers will  
3 make market-dependent decisions for both types of crops and  
4 acreage of crops on an annual basis?

5 MR. GRINNELL: To some extent. But there is some  
6 limitation for the specifics of Yuba County, specifically  
7 with respect to crops that can be grown. Much of the land  
8 has soil limitations and so, for instance, rice is the only  
9 crop that is viable for quite a bit of the land, due to the  
10 soil.

11 And so, although there will be shifts due to market  
12 considerations, there are some physical limitations on what  
13 could be shifted to.

14 MR. CUNNINGHAM: Now, I want to also explore just  
15 slightly the question of what full development means. I  
16 think earlier in your answers to other questions you  
17 indicated that that was actually pretty easy to look at,  
18 that all we are talking about here is the new Wheatland's  
19 acreage that is going to be brought on line; is that  
20 right?

21 MR. GRINNELL: Wheatland Water District and the M&I  
22 supply.

23 MR. CUNNINGHAM: Is there any place within the written  
24 testimony exhibited in this proceeding where the concept of  
25 full development level of demand, as identified in your

1 Exhibit 7, Title 1 of your charts, is actually identified on  
2 an item-by-item basis contained with that concept of full  
3 development level?

4 MR. GRINNELL: Actually, in YCWA-15 is a fairly  
5 definitive description of the details of the irrigation  
6 diversion requirements for future demands, it is called.  
7 Table seven. Then there is the appendix, has a lot of  
8 numbers and a lot of figures that have tabulations of all  
9 this information.

10 MR. CUNNINGHAM: I guess my question is: Do you  
11 specifically, for example, identify the demands for the  
12 Wheatland Irrigation District?

13 MR. GRINNELL: Yes.

14 MR. CUNNINGHAM: Do you identify any of the other new  
15 demands that are going to be considered part of the full  
16 development level of demand?

17 MR. GRINNELL: As I said, full development is Wheatland  
18 Water District, the district's attachment, and the M&I water  
19 requirements. Those are well-detailed in the exhibit.

20 MR. CUNNINGHAM: I guess, let me have you take a look,  
21 if you would. I am going to sidetrack for a minute. I want  
22 you to take a look at what was overhead 33, which I believe  
23 was an impact of Draft Decision on transferable storage  
24 value for below normal, dry and critical years.

25 First I am going to ask you a totally out of context

1 question. Can you tell me why over there on the left side  
2 of that overhead 33 the below normal, dry and critical  
3 valuation periods are from the Sacramento Valley Index  
4 instead of Yuba River Index?

5 MR. GRINNELL: It goes to demand for or need for  
6 transfers. This water is to be used other places throughout  
7 California. Because the Sacramento Valley is a large  
8 resource for water throughout the state, that characterizes  
9 better the potential need for water and a market for  
10 transfers. So the YCWA Index talks to water availability  
11 for the Yuba River Basin. The Sacramento Valley water year  
12 type would talk to need for water in other areas.

13 MR. CUNNINGHAM: My question is --

14 H.O. BROWN: Excuse me, Mr. Cunningham.

15 Mr. Gee.

16 MR. GEE: I would move to strike that testimony. As I  
17 understand, the scope of this hearing does not deal with  
18 future out-of-basin needs or water transfers.

19 H.O. BROWN: Mr. Cunningham.

20 MR. CUNNINGHAM: That is fine with me. I will refocus  
21 on something else. I was concerned about what appears to be  
22 a change back and forth depending upon the issue attempted  
23 between Sacramento Valley Index identifiers for water year  
24 types and the Yuba River Index for water year types. It  
25 seems that sometimes it is convenient to us one or the



1 other. I am concerned about the disparity in the use of  
2 these. I am concerned we are looking at apples and oranges.

3 MR. LILLY: Mr. Brown, I oppose the motion to strike.  
4 Clearly, the impact on the Agency's ability to transfer  
5 water in the future is directly relevant to reasonableness  
6 of any instream flow requirements that might be adopted by  
7 this Board in this proceeding.

8 H.O. BROWN: Thank you, Mr. Lilly.

9 Mr. Frink.

10 MR. FRINK: Mr. Brown, I think the question and answer  
11 both are relevant. If in calculating the full development  
12 level of demand, the Yuba County Water Agency is including  
13 considerations regarding water transfers, I think that  
14 should be clear.

15 H.O. BROWN: Thank you, Mr. Frink.

16 It's 2:30 right now.

17 MR. CUNNINGHAM: Mr. Brown, can I ask two more  
18 questions on this subject and then take the break?

19 H.O. BROWN: All right.

20 I am going to rule on this. I am going to allow the  
21 question and answer, and overrule the objection.

22 MR. CUNNINGHAM: I am assuming also you are looking at  
23 times for possible breaks. Can I ask about two questions  
24 and then take a break?

25 H.O. BROWN: Anytime that is convenient between now and

1 the next ten minutes.

2 MR. CUNNINGHAM: Again, moving on and drawing your  
3 attention again to Exhibit 33. I guess now that I  
4 understand that bringing the Wheatland Irrigation District  
5 into the system is going to be your expansion into full  
6 development, can I call your attention to the actual numbers  
7 you provide us here about transferable storage value?

8 MR. LILLY: I have to object. That misstates the prior  
9 testimony. The full development was adding Wheatland Water  
10 District and municipal and industrial demands.

11 H.O. BROWN: Mr. Cunningham.

12 MR. CUNNINGHAM: I stand corrected, although I seem to  
13 recall the witness varied his testimony from time to time.  
14 He indicated only the Wheatland Irrigation District's new  
15 demands were part of the full development.

16 H.O. BROWN: Perhaps we can get this -- if you ask the  
17 question again.

18 MR. CUNNINGHAM: That is fine, sir.

19 Mr. Grinnell, when we are talking about full  
20 development beyond today includes what new demands upon the  
21 system?

22 MR. GRINNELL: I've consistently said it includes the  
23 demands for Wheatland Water District, the attachments, and  
24 M&I supply.

25 MR. CUNNINGHAM: Is late fall flooding of rice fields

1 for decomposition a new demand?

2 MR. GRINNELL: A new demand?

3 MR. CUNNINGHAM: Identified as a new demand for  
4 measurement of full development level?

5 MR. GRINNELL: Only for Wheatland Water District. To  
6 the extent there is rice in Wheatland Water District, it  
7 would be part of that.

8 MR. CUNNINGHAM: As I understand, other people do grow  
9 rice within the Yuba County Water Agency's area of service;  
10 isn't that right?

11 MR. GRINNELL: That's correct.

12 MR. CUNNINGHAM: I understand from earlier testimony  
13 that one of the new uses of water being considered or  
14 developed is use of water for rice decomposition in late  
15 fall rather than the burning of rice; isn't that correct?

16 MR. GRINNELL: Yes.

17 MR. CUNNINGHAM: How are you accounting for that new  
18 use of water at a time that otherwise was not being used?  
19 Is that considered present level of demand or future level  
20 of demand?

21 MR. GRINNELL: For the areas that are calculated within  
22 the present level of demand we calculate the acreage that is  
23 planted to rice. We calculate one foot of water applied  
24 over 90 percent of the land planted to rice.

25 MR. CUNNINGHAM: Then that one foot of water is in

1 addition to the 5.7 feet of water you've already told me  
2 about for rice growers?

3 MR. GRINNELL: Mr. Robertson.

4 MR. ROBERTSON: No. That falls within their five foot  
5 contract allowance.

6 MR. CUNNINGHAM: Is it five foot or 5.7? I thought I  
7 heard two different numbers.

8 MR. ROBERTSON: Five feet.

9 MR. GRINNELL: There are two different numbers. The  
10 reason is, as I said before, the applied water rate is 5.7  
11 feet for rice, but there is a contract cap of five feet.

12 MR. CUNNINGHAM: Okay, I stand corrected.

13 Looking at Exhibit 33, the question I do have and with  
14 Mr. Lilly's caveats in place, full development means both  
15 Wheatland and the new development for industrial and  
16 municipal. Can I puzzle that out and between those three  
17 new uses in below normal years under current PG&E practices,  
18 the district is going to lose the potential for almost  
19 \$3,000,000 in out-of-basin sales?

20 MR. GRINNELL: As I said in my summary, yes, that is  
21 correct. The reason is because presently there is  
22 flexibility in the system, in the Yuba River development  
23 system, to make water available for transfer. Once the  
24 service area is fully developed, the Agency, in order to  
25 ensure instream flows for the following year and full

1 deliveries would not have nearly -- they would only have the  
2 way we calculate it 3,000 acre-foot of surplus storage in  
3 some years to provide for transfers and, therefore,  
4 development will significantly reduce the availability of  
5 water for transfer.

6 MR. CUNNINGHAM: Then reading down the same chart,  
7 isn't it correct to say under dry years under current PG&E  
8 practices full development is going to cost the district  
9 over 5,000,000 and that in critical years it will cost the  
10 district over \$7,000,000?

11 MR. GRINNELL: It is going to reduce their ability to  
12 make transfer and so, therefore, under this analysis it  
13 would show that reduction.

14 MR. CUNNINGHAM: Last question, then we will be ready  
15 for a break, Mr. Brown.

16 Since the only difference between present level of  
17 development and projected level of development is the  
18 Wheatland Irrigation District and, as I understand it,  
19 things identified as industrial and municipal, is the Agency  
20 somehow recovering this differential loss of available funds  
21 from these new Agency customers?

22 MR. GRINNELL: I have no knowledge of that.

23 MR. CUNNINGHAM: Take a break right now.

24 H.O. BROWN: Let me get a feel for how much more time  
25 we have to see if we have a chance of finishing up with this

1 panel this evening.

2 MR. CUNNINGHAM: For Mr. Grinnell maybe another 10 to  
3 15 minutes maximum. For the biologists, Mr. Bratovich and  
4 Mr. Mitchell, probably an hour, sir.

5 H.O. BROWN: An hour and 15 minutes.

6 And staff, what is your estimate now?

7 MR. FRINK: An hour.

8 H.O. BROWN: Looks like we will be going at least  
9 until five.

10 Think you are going to have any redirect?

11 MR. LILLY: No, I don't think so.

12 H.O. BROWN: We want to have some time for rebuttal.

13 MR. LILLY: We will not be offering any rebuttal today.  
14 So if we can finish with staff, I think that would be the  
15 logical place to adjourn until March 6th.

16 H.O. BROWN: Till tomorrow.

17 MR. LILLY: March 6th, not tomorrow. We've all got  
18 plans for tomorrow.

19 H.O. BROWN: All right. So it looks like we will be  
20 going till five. And if you want to bring a snack in that  
21 is not messy and will not get on the floor, and that the  
22 Hearing Officer will not get in trouble with Maureen Marche,  
23 you may do so.

24 Take our afternoon break.

25 (Break taken.)

1 H.O. BROWN: Back on the record.

2 MR. CUNNINGHAM: Thank you, sir.

3 Mr. Grinnell, you are still on. My apologies, but I  
4 will try to make it brief.

5 Calling your attention to some of the overheads you  
6 provided as part of your direct testimony yesterday, could I  
7 have you take a look at No. 8 of the overheads, please? I  
8 believe entitled a Comparison of Historical and Present  
9 Levels of Lower Yuba River Diversion Demands.

10 MR. GRINNELL: Okay.

11 MR. CUNNINGHAM: Just as a real quick follow-up on  
12 this, in that chart or table that I see there, I see a  
13 heading that says Historical Diversion. In following up on  
14 my earlier questions, is it safe to say then under  
15 historical diversion, this is not actually measured or  
16 gauged diversion?

17 MR. GRINNELL: Actually, yes, it is a measured  
18 diversion. I guess I will make one clarification at this  
19 point. There are two time periods. It says historical  
20 diversions, but there are two time periods, 1991 and 1994,  
21 when there was a groundwater pumping substitution. And in  
22 those two time periods there was an in lieu transfer so the  
23 amount of water that was pumped in 1991 and in 1994 for that  
24 transfer, that water was pumped and used locally for the  
25 demands in the local area. That water is included for the

1 historical diversion in those two time periods, just to make  
2 that clarification.

3 MR. CUNNINGHAM: I guess my original question was when  
4 it says "Historical Diversions," are we talking about a  
5 summation or an addition of all measured gauged flows to  
6 each of the diverters that the Agency provides water to to  
7 arrive at those numbers?

8 MR. GRINNELL: Yes, I believe that is how it was done.

9 MR. CUNNINGHAM: You've raised a new issue, an  
10 interesting new question. In 1991 and 1994, to your  
11 knowledge, were out-of-basin transfers made?

12 MR. GRINNELL: Yes, I believe they were.

13 MR. CUNNINGHAM: Let me get this straight. The Agency  
14 transferred water out of basin and to make up the difference  
15 inbasin farmers switched over to groundwater pumping; is  
16 that correct?

17 MR. GRINNELL: In lieu groundwater pumping and  
18 transfer. What that is --

19 MR. CUNNINGHAM: I am sorry, I hoped that what I asked  
20 was a yes or no question. If you want me to, I will try  
21 again.

22 Is it correct to say that in 1991 and 1994 the Agency  
23 sold water out of basin and to make up for the water not  
24 provided by the Agency, farmers within the basin pumped  
25 groundwater to irrigate crops? Yes or no.



1           MR. GRINNELL:  You're going to have to say it one more  
2 time, I'm sorry.

3           MR. CUNNINGHAM:  In 1991 and 1994 the Yuba County Water  
4 Agency transferred water out of basin, and to make up for  
5 water it had transferred out of basin that it did not  
6 provide for its own farmers within the basin, those farmers  
7 pumped groundwater?

8           MR. GRINNELL:  Not to make up water.

9           MR. CUNNINGHAM:  Why did they pump groundwater?

10          MR. GRINNELL:  The transfer originates from pumping  
11 water that allows for leaving water in the river that then  
12 can be transferred.  The pumping gets used for the local  
13 demands.

14          MR. CUNNINGHAM:  I am sorry, Mr. Grinnell --

15          MR. GRINNELL:  Conjunctive use, essentially.

16          MR. CUNNINGHAM:  The farmer doesn't take his allocation  
17 out of the river.  He pumps or she pumps water to their own  
18 fields, and the water that that person would have taken went  
19 down the river and was sold out-of-basin; is that correct?

20          MR. GRINNELL:  That is true.

21          MR. CUNNINGHAM:  Another question I have for you on  
22 this is, is I see two columns; one titled Historical  
23 Diversion, which you tell me does reflect actual measured  
24 diversion, and I see one called Estimated Diversion Demand.  
25 Is that a diversion demand based on the model you presented

1 here as testimony?

2 MR. GRINNELL: No, That is an input to the model.  
3 Estimated diversion demand is calculated and used as an  
4 input to the model.

5 MR. CUNNINGHAM: That raises an interesting question.  
6 To the extent you generate this model and then use it to  
7 generate theoretical, use that -- I know it is not a word of  
8 art -- theoretical diversions for years when you have no  
9 diversion records, for example what would happen in 1922?  
10 This is the kind of number I would be looking at. This  
11 would be an estimated diversion demand that would be part of  
12 that model, right?

13 MR. GRINNELL: Yes. We -- I will try to elaborate a  
14 little bit, if you will allow.

15 We are not trying to recreate history. We used the  
16 historical hydrology and then the current operation and, for  
17 instance, for present demand, present demand to simulate the  
18 period of record that we have hydrology, to understand how  
19 -- what will happen with the system with that varied  
20 hydrology. We want to use historical hydrology. We are not  
21 trying to recreate history, so to speak.

22 MR. CUNNINGHAM: Your model and its simulated flows is  
23 being used to provide a historical analysis of possible  
24 impacts; isn't that correct?

25 MR. GRINNELL: I wouldn't characterize it as a

1 historical analysis. Again, we use the historical  
2 hydrology, but we do not use a historical full series of  
3 assumptions. For instance, we use present demands. Those  
4 demands are only very recent. We then run the model through  
5 that period of record of varied hydrology to understand what  
6 may happen in the future.

7 MR. CUNNINGHAM: Well, then what is this estimated  
8 diversion demand that I see, for example, for the 1987?

9 MR. GRINNELL: That is the estimated present level of  
10 lower river diversion demands that we used as an input to  
11 the model.

12 MR. CUNNINGHAM: I see that that doesn't match with the  
13 historical diversion; isn't that true?

14 MR. GRINNELL: Year by year it is not our intent to  
15 year by year match historical diversion. Remember, that  
16 this system is developing. For instance --

17 MR. CUNNINGHAM: That is all the answer I need.

18 MR. LILLY: Again, he is entitled to explain his  
19 answers. I object to Mr. Cunningham cutting him off.

20 MR. CUNNINGHAM: Mr. Brown, I am trying to ask true or  
21 false questions. "Isn't it true" does not require a lengthy  
22 answer. Yes or no or I don't know or I can't say, but I can  
23 clarify is all usable.

24 H.O. BROWN: I will give you this option. Mr.  
25 Cunningham is looking for a yes or no answer. I understand

1 that you can't always give a yes or no answer. If you can  
2 give a yes or no answer, do so. If you need an explanation,  
3 advise Mr. Cunningham you can answer the question but it  
4 will require an explanation. That will give him the  
5 prerogative of going ahead or not going ahead.

6 MR. CUNNINGHAM: Thank you, Mr. Brown.

7 MR. GRINNELL: Okay.

8 MR. CUNNINGHAM: What I really wanted to ask is the  
9 next question, and my question is: In looking just at the  
10 data provided here on this overhead from '87 through '98, 11  
11 or 12 years, it seems that for at least most of those years,  
12 I think in fact except for all but three of those years, the  
13 historical diversion which you tell me is the true  
14 diversion, is not actually all that close to the estimated  
15 diversion demand. That, in fact, in many years it is as  
16 much as 50- or 60- or 70,000 acre-feet less.

17 Does that reflect on the accuracy of your estimated  
18 diversion demand?

19 MR. GRINNELL: No.

20 MR. CUNNINGHAM: Do you have any calculation factors  
21 that you put into your model and into your estimated  
22 diversion demands to somehow verify that those estimated  
23 diversion demands reflect real world historical diversions  
24 to the extent that you use these in past dated simulations?

25 MR. LILLY: Excuse me, I object to the term "past

1       dated simulations" as mischaracterizing testimony.

2               MR. CUNNINGHAM: I am sorry, Mr. Brown. If --

3               H.O. BROWN: Wait a minute. Let's do it this way.

4       When there is an objection, if you will stand and be  
5       recognized in some manner, I will call on you. I will hear  
6       the objection and then I will ask for a response. That  
7       keeps the conversation going three ways instead of two and  
8       that helps sometimes.

9               I am going to ask the witnesses and to suggest,  
10       Counselor, with your concurrence, you keep the questions  
11       succinct to the point. If you believe it needs further  
12       explanation, advise Mr. Cunningham ahead of time so he will  
13       be prepared to either accept the question as presented or to  
14       rephrase it or to strike it.

15              MR. CUNNINGHAM: Thank you, Mr. Brown. With that I  
16       will restate my question.

17              Mr. Grinnell, your modeling efforts have provided a  
18       simulations of flows for years prior to the actual creation  
19       of the model; isn't that true?

20              MR. GRINNELL: Correct.

21              MR. CUNNINGHAM: What have you done as a modeler to  
22       verify that those simulated numbers for years prior to the  
23       generation of the model accurately reflect the hydrology of  
24       the Yuba River system?

25              MR. GRINNELL: The hydrology, we get the initial

1 hydrology from DWR. They do estimates of the unimpaired  
2 flow. And, in fact, when we updated this model to 1992 from  
3 -- it previously only went to '78. We got that information,  
4 the hydrologic information, runoff from DWR.

5 MR. CUNNINGHAM: To the extent you have made  
6 estimations or simulations of prior diversion, project  
7 diversions, for years prior to the production of this model,  
8 what information have you used to verify the accuracy of  
9 those simulations?

10 MR. GRINNELL: That one is going to take some  
11 explanation.

12 MR. CUNNINGHAM: Let me just ask: Did you make any  
13 effort to verify those simulations?

14 MR. ROBERTSON: The stimulations that were performed  
15 were not done retrospectively to as it were look in the  
16 rearview mirror and see if we did the historical  
17 simulations. That is not the purpose of planning studies.  
18 The purpose of planning studies is to address the near term  
19 impacts on changed conditions over a wide range of hydrology  
20 and then the long-term effects over a wide range of  
21 hydrology. There is no effort conducted to recreate  
22 history.

23 MR. CUNNINGHAM: Well, that leads me to my next  
24 question. I am looking at your overheads, Pages 22, 23, 24  
25 and 25, which I believe are eight different scenarios that

1 were modeled. And correct me if I am wrong, but I thought  
2 these scenarios were offered, Mr. Grinnell, as a way of  
3 understanding the impacts of various proposed flow  
4 limitations on project operations. Is that a  
5 misunderstanding?

6 MR. GRINNELL: No. We are -- can I explain?

7 MR. CUNNINGHAM: Please.

8 MR. GRINNELL: We are taking the current day. We are  
9 taking the assumptions of the current day, present level of  
10 demands, PG&E contract, all those assumptions. And then we  
11 run the model and we put in the hydrology of all of those  
12 years. So, for instance, if the hydrology of 1924, the  
13 runoff, were to come today, that is you would see the  
14 results that we have shown. If the hydrology of 1948 showed  
15 up with current day constraints, the demands, the instream  
16 flows that we have used, whether it is the Draft Decision or  
17 '65 flows, then the results are what you would see. That is  
18 how modeling simulations are done. You are able to look at  
19 what is with today's system of the Yuba River Development  
20 Project, as it is today, the upstream impairments, all of  
21 those things, if the hydrology of any one of these years  
22 showed up, then that is what the results would come along.  
23 Of course, it is done in serial manner.

24 MR. CUNNINGHAM: Move on to another subject. Again,  
25 Mr. Grinnell, is there any reason in looking at these

1 exhibits, 22, 23, 24 and 25, or at least the overhead  
2 slides, 22 to 25, similar scenarios were not performed for  
3 the flows proposed, instream flow proposed, by the Agency  
4 under any of the scenarios?

5 I see we have 1965 Fish and Game stream flow release  
6 agreements. We have the SWRCB Draft Decision. Can you tell  
7 me where I can find the one that says the Yuba County Water  
8 Agency's proposed flows scenarios?

9 MR. GRINNELL: You are not going to see it here.

10 MR. CUNNINGHAM: Why not?

11 MR. GRINNELL: Because this is a comparison of impacts  
12 of the Draft Decision.

13 MR. CUNNINGHAM: Mr. Grinnell, as I understand it, part  
14 of what is being presented here is the Agency has flows it  
15 wishes to push forward as reasonable flows for protection of  
16 Fish and Wildlife and natural resources. If this Board is  
17 to evaluate the impacts upon the district of various  
18 different kinds of flow proposals, why wasn't one done for  
19 the Agency's proposal?

20 MR. GRINNELL: Our flow proposal, the goals of our flow  
21 proposal wasn't to demonstrate deficiencies. We are trying  
22 to provide two things: instream flow to keep fishery in good  
23 condition and meet the demands to the extent possible of the  
24 Yuba County.

25 MR. CUNNINGHAM: I understood that you said that, and



1 you have said that several times. But I don't see anything  
2 here that would let the Board understand what the impacts  
3 upon the deliverability of Yuba County Water Agency's water  
4 to its own customers, what kind of impacts are going to  
5 happen upon its own proposal. I see what impacts are going  
6 to have upon a variety of other proposals.

7 If we are going to look at those two factors and one of  
8 those factors is the Yuba County Water Agency's demand  
9 flows, where is the scenario that is going to let me  
10 evaluate its impact upon Yuba County Agency's ability to  
11 deliver water to its customers? How am I supposed to  
12 evaluate the impact of your own proposal, or how is this  
13 Board?

14 MR. GRINNELL: I believe we presented quite a bit of  
15 information in YCWA-19 that compared the flows that would be  
16 seen, and this is in comparison to look at impacts on  
17 fishery.

18 MR. CUNNINGHAM: That is fine, Mr. Grinnell. My  
19 question to you is: How can I evaluate the impacts on water  
20 delivery? I know what 19 says. I read Exhibit 19. But  
21 these four pages identify scenarios where one of the issues  
22 is clearly the impact upon Agency's own ability to deliver  
23 water.

24 Now as to the Agency's ability to deliver water under  
25 its own proposed flows, have you proposed any model or

1 simulation?

2 MR. GRINNELL: No. We have not presented this  
3 information as shown in these graphs for the Agency's  
4 proposal.

5 MR. CUNNINGHAM: Is there anywhere in your testimony  
6 that I can discern the impacts upon the Agency's ability to  
7 deliver water to its own customers from its own proposed  
8 fishery instream flow conditions?

9 MR. GRINNELL: It is not shown in this information.

10 MR. CUNNINGHAM: Moving along to, overhead, Page 27,  
11 which is titled "Impacts of Draft Decision" --

12 H.O. BROWN: Excuse me, Mr. Cunningham. I was going to  
13 hear that answer to that question, and I don't believe that  
14 was responsive.

15 MR. CUNNINGHAM: Perhaps can I have the reporter reread  
16 the question, please.

17 (Record read as requested.)

18 MR. GRINNELL: Well, and certainly not trying to be  
19 glib, but we put forward a proposal that is in order to  
20 maintain the fishery in good condition. We presented the  
21 information to the extent that it shows that. We do not  
22 present the deficiencies associated, although there are  
23 deficiencies associated with that proposal. We have not  
24 presented that information. It is not relevant to the  
25 protocol that we have developed.

1           MR. CUNNINGHAM: Still not sure I got an answer to the  
2 question. Mr. Brown, I am going to move on.

3           H.O. BROWN: Okay.

4           MR. CUNNINGHAM: On Overhead No. 27, Impacts of Draft  
5 Decision, System Shortages by Category Continued. Mr.  
6 Grinnell, I see that one of the categories charted on that  
7 bar graph is the additional FERC flow.

8           It is my understanding that the FERC flow you are  
9 talking about there is the FERC permit conditions for the  
10 1993 FERC permit on Narrows No. 1 powerplant?

11          MR. GRINNELL: That's correct.

12          MR. CUNNINGHAM: Can you tell me why those flows are  
13 added on top of instream flow values? As I understand it,  
14 that flow from FERC permit conditions comes out of  
15 Englebright Dam above all of the instream flows we are  
16 talking about.

17          MR. GRINNELL: The conditions of the FERC license  
18 specifically state you cannot -- that the accounting, it is  
19 a total of 45,000 acre-feet, and the accounting for that  
20 cannot include the flows released for the instream flow  
21 requirements at Smartville and Marysville. It has to be on  
22 top of that amount, up to a total amount of 45,000  
23 acre-feet.

24          MR. CUNNINGHAM: Then after 45,000 acre-feet?

25          MR. GRINNELL: There is no more requirement once you've

1 met the 45,000 acre-feet.

2 MR. CUNNINGHAM: There is no FERC permit condition at  
3 all after the 45,000 acre-feet has been released?

4 MR. GRINNELL: There is no longer a requirement to  
5 release additional water. It's up to 45,000. That  
6 requirement is on the PG&E facility.

7 MR. CUNNINGHAM: After 45,000 acre-feet there is no  
8 FERC permit condition, to your understanding, to protection  
9 of Fish and Wildlife in the system?

10 MR. LILLY: Excuse me, I object.

11 H.O. BROWN: Mr. Lilly.

12 MR. LILLY: The question is ambiguous. I am not sure  
13 it is intentional. There is two different FERC licenses  
14 here. There is the FERC Narrows 1 license and the FERC  
15 Agency's license. The question is ambiguous as to which one  
16 or both of those he is referring to.

17 H.O. BROWN: Thank you, Mr. Lilly.

18 MR. CUNNINGHAM: I am referring to Narrows 1, please.  
19 All my questions have been on Narrows 1.

20 H.O. BROWN: Is that clear now?

21 MR. GRINNELL: For that license it is up to 45- -- my  
22 understanding, it is up to 45,000 acre-feet. That is after  
23 that it no longer applies.

24 MR. CUNNINGHAM: Moving along quickly, of the 71 years  
25 or so that you have included in hydrological models, how

1 many years are above normal or wet?

2 MR. GRINNELL: Wet and above normal years account for  
3 54 percent of the years.

4 MR. CUNNINGHAM: Can you tell me when I look at Pages  
5 31 and 32, and again titled Summary of Transferable  
6 Storages, and I guess count up, the column starts right off  
7 on the left side of both exhibits with water year and the  
8 very next line over talks about below normal, critical, dry,  
9 dry critical, dry and so forth, if I count those all up, I  
10 come up with 41 years in this same time period. And as I  
11 understand it, 41 years out of 71 years is not 55 percent?

12 MR. GRINNELL: Again, transfer, the transfer analysis  
13 was done using the Sacramento Valley Index, and so under the  
14 Sacramento Valley Index these years are classified as below  
15 normal, dry or critical. Under the Yuba River Index,  
16 approximately 54 percent of the years are wet or above  
17 normal.

18 MR. CUNNINGHAM: Mr. Grinnell, moving along, again I  
19 want to ask you a couple questions. Have you modeled or  
20 have you done some modeling using the concept of full  
21 development of the project. And some questions were asked  
22 of you earlier.

23 Did you do any modeling for additional possibilities of  
24 flow augmentation? You talked about how much more demand is  
25 going to be placed upon the system. Did you do any models

1 that discussed any new sources of water for the system?

2 MR. GRINNELL: No, we did not.

3 MR. CUNNINGHAM: The reason I ask that is I do see that  
4 you have a brief discussion of groundwater, Page 36 of your  
5 overheads. And I believe in your testimony directly you  
6 indicated that there seems to be a rather limited  
7 groundwater supply available in the Yuba, South Yuba area;  
8 is that correct?

9 MR. GRINNELL: That's correct.

10 MR. CUNNINGHAM: Does this determination reflect actual  
11 measured groundwater extractions?

12 MR. GRINNELL: No. And I was not trying to do a  
13 detailed analysis of the yield of the basin, only the net  
14 recharge.

15 MR. CUNNINGHAM: Did you, in fact, look at all the  
16 groundwater, especially rechargeable groundwater as a  
17 possible additional source of supply of water for the  
18 Agency's transfer within the system?

19 MR. GRINNELL: Well, while we did this analysis, we did  
20 not look at other or model other conjunctive use programs.

21 MR. CUNNINGHAM: Are you aware of the fact that Yuba  
22 County Water Agency has a water management plan?

23 MR. GRINNELL: I am aware of that fact.

24 MR. CUNNINGHAM: Are you aware of the fact or if I were  
25 to tell you that that plan includes a discussion of ways to

1 increase water supply through conservation and through  
2 groundwater recharge, does that sound reasonable?

3 MR. GRINNELL: That sounds reasonable.

4 MR. CUNNINGHAM: Do you understand that the Yuba County  
5 Water Agency can use a variety of those methods discussed in  
6 its management plan to produce additional sources of  
7 deliverable water?

8 MR. GRINNELL: Again, that sounds reasonable.

9 MR. CUNNINGHAM: Were you ever asked to model  
10 reasonably foreseeable or predictable new sources of water  
11 in a discussion of the impacts of instream flows upon Yuba  
12 County Water Agency's ability to deliver water?

13 MR. GRINNELL: No, not specifically.

14 MR. CUNNINGHAM: I would like to have you take a look  
15 at Page 49, which is a discussion of monthly averaged daily  
16 Yuba River temperatures.

17 Mr. Grinnell, how did you -- did you measure  
18 temperatures, actually measure temperatures, to create this  
19 model?

20 MR. GRINNELL: These are recorded temperatures.

21 MR. CUNNINGHAM: Every one of these temperatures for  
22 these years are recorded?

23 MR. GRINNELL: Yes. The '65 to '68 time period is a  
24 USGS report. The '74 to '77 information is also information  
25 collected by USGS. The '89 to '99 information, I believe,

1 is the USGS information at Marysville gauge.

2 MR. CUNNINGHAM: You indicated that this was, you  
3 think, USGS' responsibility in all three cases?

4 MR. GRINNELL: The reason I hesitate under '89 to '99 I  
5 believe that the Agency may have taken over temperature  
6 measurement at the Marysville gauge, but I am not a hundred  
7 percent sure.

8 MR. CUNNINGHAM: Were all those measurements made at  
9 the Marysville gauge?

10 MR. GRINNELL: Yes, they were.

11 MR. CUNNINGHAM: Calling your attention to Page 47 of  
12 your overheads, which was offered as an, I think,  
13 explanatory diagram of what was apparently and actual  
14 measurement, were actual temperature measurements made on  
15 October 16 of 1997?

16 MR. GRINNELL: Yes, there were.

17 MR. CUNNINGHAM: Were they made at exactly the same  
18 time?

19 MR. GRINNELL: No. I put times -- the ones that were  
20 daily averages, I put daily average. I also put the time  
21 for the ones that were a time-specific measurement. And  
22 then the Daguerre Point one, as I said before, is estimated  
23 through regression because we could not have a temperature  
24 measurement at that location.

25 MR. CUNNINGHAM: I believe in your own testimony you



1 indicated that the time -- that there is a time lapse in  
2 discharge of cold water flows from New Bullards Bar  
3 Reservoir before those flows actually arrive at the mouth of  
4 the Yuba River; is that correct?

5 MR. GRINNELL: That's correct.

6 MR. CUNNINGHAM: So was any attempt made to correct,  
7 and I speak in scientific terms, in this diagram to indicate  
8 that the temperature measurement at new Colgate Powerhouse  
9 at 3:20 p.m. of 48.5 Fahrenheit degrees is going to be  
10 somehow equated with or measured or corrected to meet the  
11 time it would have arrived at the mouth of the Marysville  
12 gauge? Did you do anything to try to deal with that time  
13 lag?

14 MR. GRINNELL: No. We just showed the measurement.

15 MR. CUNNINGHAM: So, depending upon air temperature and  
16 various other influences, the temperature at the  
17 Marysville's gauge may have reflected a totally different  
18 discharge temperature at New Bullards Bar; isn't that  
19 correct?

20 MR. GRINNELL: Well, not necessarily. The temperature  
21 released at New Bullards Bar is fairly static over a fairly  
22 significant time frame. It doesn't vary by much. That is  
23 why I felt it was reasonable to show a specific temperature  
24 at a specific time. I did want to be accurate in showing  
25 the time it was collected.

1           MR. CUNNINGHAM: As I understand it, there is a  
2 significant heating and time lag between discharge measured  
3 at new Colgate and the actual block of water, that same  
4 block of water, arriving at Narrows 2 Powerhouse; isn't that  
5 true?

6           MR. GRINNELL: Yes, there is heating and time delay.

7           MR. CUNNINGHAM: Isn't there another time delay between  
8 that block of water at the Narrows 2 pump house and its  
9 arrival at the Marysville gauge?

10          MR. GRINNELL: That's correct, there is a significant  
11 time lag.

12          MR. CUNNINGHAM: So I have no way from this graph to  
13 understand whether you are comparing that same block of  
14 water at each of these places, do I?

15          MR. GRINNELL: I am not trying to compare them. I am  
16 just trying to show a snapshot of the river at a particular  
17 day and in cases at specific times shown. This was not  
18 intended to show the trends of a specific amount of water.

19          MR. CUNNINGHAM: If one of the things you present is  
20 the difficulty or impossibility of using discharges from New  
21 Bullards Bar to provide temperature regulation all the way  
22 down to Marysville gauge, what other information have you  
23 provided that allows me to discern that that these flows do  
24 have a flow of 48 degrees, 48.5 degrees, from Colgate will  
25 produce a flow of 58.8 degrees at Marysville gauge? What

1 else have you provided to me that lets me understand that  
2 that is a true and correct representation of how the  
3 temperature increase occurs in the system?

4 MR. GRINNELL: I show the figure -- if you go to 49,  
5 shows a number of data points from 1990 to 1997 that show  
6 that comparison.

7 MR. CUNNINGHAM: As I understand, that is Colgate  
8 Powerhouse to Narrows Powerhouse. That is through  
9 Englebright?

10 MR. GRINNELL: Correct.

11 MR. CUNNINGHAM: That doesn't get me to Marysville  
12 gauge?

13 MR. GRINNELL: No. Then for Marysville we did  
14 regression analysis on about 400 sets of measurements of  
15 temperature for Colgate, the Narrows 2 and Marysville  
16 gauge.

17 MR. CUNNINGHAM: You never actually attempted to track  
18 a block of water from discharge from Colgate all the way to  
19 Marysville, have you?

20 MR. GRINNELL: Track a block of water? We did this  
21 analysis to look at the effect on daily average temperature,  
22 which is the temperature standard proposed in the Draft  
23 Decision.

24 MR. CUNNINGHAM: My concern is you indicated the  
25 difficulty the district would have in providing a sufficient

1 lead time and actually calculating the lead time to provide  
2 any one block of water at New Colgate below Bullards Bar  
3 down into the discussed stretch of the river below  
4 Englebright to provide temperature correction.

5 How am I supposed to discern how difficult that is if I  
6 haven't actually seen that attempt made and documented?

7 MR. GRINNELL: We are not dealing with blocks. It is a  
8 continuous flow issue. And so the temperature is varying  
9 over the day. And the calculation then is for an average  
10 for that day. I guess I don't know how to answer the  
11 question.

12 MR. CUNNINGHAM: Mr. Grinnell, I guess what I  
13 understood from your testimony was that there was a  
14 significant concern hydrologically speaking that it would be  
15 difficult to monitor both weather and ambient air  
16 temperature and at the same time discern how much water and  
17 the need for how much water would have to be discharged to  
18 meet certain temperature conditions downstream. That it was  
19 going to be difficult because it required a one- to two-day  
20 lead to calculate all of this, and that you also presented  
21 testimony that the weather forecasts themselves, as we all  
22 know, are a little less than 100 percent accurate.

23 So I guess my problem is, to the extent I were to look  
24 at this system and say today the temperature is going to go,  
25 ambient air temperature at the highest point of the day is

1 going to go from 85 of yesterday to 100 degrees of today;  
2 the weather front will move through. How would you know how  
3 much water to discharge to deal with increases in water  
4 temperature if you had not actually followed any water from  
5 New Colgate Powerhouse down to Marysville to see actually  
6 how far and how fast it moves through the system and how  
7 much ambient air temperature it picks up?

8 MR. GRINNELL: Well, and I will try to the best I can  
9 to answer this. Again, the temperature standard is an  
10 average, so the release of water or attempt to mitigate  
11 temperature is about six- to eight-hour travel time into  
12 Englebright, and actually is a number of days to get  
13 releases from Colgate through Englebright. So in order to  
14 reduce the temperature you would have to increase the flow,  
15 first off, get that water flowing at the Marysville gauge  
16 early in the morning and then have it throughout the river  
17 system throughout the day in order to try to mitigate the  
18 excursion that is going to go on for that day.

19 So there is that timing. And the other timing is just  
20 the scheduling of power. So you would have to be predicting  
21 out in front, using a prediction methodology as we have  
22 shown here, to try and predict what the temperature would be  
23 two days in advance.

24 MR. CUNNINGHAM: Last question on this subject: Is it  
25 safe to say -- if you can answer this, please, yes or no.

1 Is it safe to say you actually never attempted such a  
2 discharge solely to track temperature regulation in the  
3 lower river?

4 MR. GRINNELL: We have not done a -- no, we have not.

5 MR. CUNNINGHAM: That's fine. Mr. Grinnell, you are  
6 off the hook.

7 Biologists, here we go.

8 Mr. Mitchell, I am going to try to deal with some of  
9 yours first, mostly because that is what I have in hand.

10 Mr. Bratovich, if you have to step in, please feel  
11 free.

12 Mr. Mitchell, first question I've got for you, is the  
13 ever present overhead Page 5. This was annual fall-run  
14 chinook salmon escapement diagram. You have lots of  
15 questions, but I have at least a couple of follow-up  
16 questions for you.

17 Did I understand you to testify earlier that the  
18 methodology you have been using to make escapement surveys  
19 is modified from that used by the Department of Fish and  
20 Game?

21 MR. MITCHELL: Yes, to some extent.

22 MR. CUNNINGHAM: Is it my understanding that the survey  
23 data you found, as I believe you indicated, actually detects  
24 more numbers of fish than the earlier Fish and Game survey  
25 methodologies?

1           MR. MITCHELL: The old Fish and Game methodologies used  
2 15 percent average. And if that 15 percent average had been  
3 used in the years we conducted surveys since the past five  
4 years, it would have resulted -- application of that  
5 assumption would have resulted in an underestimate. The  
6 total estimate that we estimated was averaged closer to 20,  
7 20 to 25 percent versus the 15 percent that would have been  
8 assumed if a survey had not been done.

9           MR. CUNNINGHAM: So, as I look at this graph that  
10 presents, I believe information from both the prior DFG  
11 studies and your own studies, have you corrected your own  
12 studies to reflect the increase in collection of data and  
13 increased survey results so that I can compare apples to  
14 apples?

15           MR. MITCHELL: No, we haven't made that correction.

16           MR. CUNNINGHAM: If I were to make such a correction,  
17 would I find that your results would reflect fewer salmon in  
18 escapement?

19           MR. LILLY: Excuse me, I have to object on the grounds  
20 that the term "correction" is a misstatement of testimony.  
21 Mr. Mitchell never said that they did anything wrong. It  
22 was a modification of the prior DFG plot that more  
23 accurately estimated the run size.

24           So I object to the use of the term "correction" to  
25 describe Mr. Mitchell's estimate.

1 MR. CUNNINGHAM: Mr. Brown, if I might.

2 H.O. BROWN: Thank you, Mr. Lilly.

3 Go ahead, Mr. Cunningham.

4 MR. CUNNINGHAM: I meant correct in the most technical  
5 sense of the word. When I compare apples to apples, and  
6 I've used two different models, Mr. Mitchell, I want to try  
7 to compare both of those to try to arrive at a real world  
8 interpretation, I oftentimes apply the correction factor. I  
9 am talking about a correction factor so that my models do  
10 actually reflect essentially the same things and my results  
11 reflect the same things, so I can compare apples and apples.

12 Was such a technical correction made?

13 H.O. BROWN: Mr. Cunningham, there is an objection on  
14 the floor. I interpreted it the same way. I felt that is  
15 what you had meant. Now that the explanation has been made,  
16 answer the question if you know the answer.

17 MR. MITCHELL: Would you please restate the question.

18 H.O. BROWN: Try it one more time.

19 MR. CUNNINGHAM: Thank you, Mr. Brown.

20 Mr. Mitchell, based upon what you tell me about your  
21 escapement surveys and the fact that they find, perhaps,  
22 more fish than were found by Fish and Game's methodologies,  
23 when you compared them in this composite graph on Page 5,  
24 did you do any numerical corrections, technical corrections  
25 to your survey results to make them directly comparable to



1 Fish and Game's methodology results?

2 MR. MITCHELL: If we had done that, I wouldn't say that  
3 they were necessarily comparable. The point here is that  
4 there is variability in the percentage of fish spawning  
5 above the Highway 20 bridge.

6 MR. CUNNINGHAM: This is not answering my question,  
7 Mr. Brown.

8 Did you make any kind -- you were presenting one graph  
9 and you have made statements based upon this graph that say  
10 the post- Bullards Bar, New Bullards Bar Reservoir and your  
11 own survey results indicate an increase in escapement. I  
12 believe you even provided a numerical estimate of that  
13 average increase. My concern and my question to you is:  
14 Am I looking at apples and oranges and has your survey  
15 information been technically corrected so it reflects  
16 exactly the same observation and is directly comparable to  
17 that information in this graph provided in the Fish and Game  
18 study?

19 H.O. BROWN: That is compounded a few times, Mr.  
20 Cunningham. Make it one at a time.

21 MR. CUNNINGHAM: I am sorry, Mr. Brown. I am having a  
22 hard time getting this any simpler. I appreciate Mr.  
23 Mitchell's concern.

24 Mr. Mitchell, can you tell me that your survey for  
25 escapement collected more salmon than Fish and Game's survey

1 did; is that correct?

2 MR. MITCHELL: That is not correct, no.

3 MR. CUNNINGHAM: What did it do?

4 MR. MITCHELL: What it did is it provided an actual  
5 survey in a reach where Fish and Game had not done a  
6 survey. Fish and Game had assumed that in the past that 15  
7 percent of the runs spawned above Parks Bar Bridge. We, in  
8 fact, did a survey to obtain an actual estimate. Those  
9 estimates have been on the average higher than 15 percent  
10 estimate that Fish and Game assumed.

11 MR. CUNNINGHAM: Fish and Game you are now telling me  
12 measured in a place then where you measured; isn't that  
13 right?

14 MR. MITCHELL: My understanding --

15 MR. CUNNINGHAM: Yes or no, please.

16 MR. MITCHELL: I don't know.

17 MR. CUNNINGHAM: You just said Fish and Game made their  
18 estimates at a different place than where you made yours,  
19 made your surveys?

20 MR. MITCHELL: I did not say that.

21 MR. LILLY: Wait, wait.

22 H.O. BROWN: Mr. Lilly.

23 MR. LILLY: I was going to say that that misstates the  
24 testimony, and Mr. Mitchell has confirmed that. I think  
25 that the actual testimony was that Jones & Stokes surveyed a

1 broader area than Fish and Game and not a different area. I  
2 object on the grounds that the question misstated  
3 testimony.

4 H.O. BROWN: Mr. Cunningham.

5 MR. CUNNINGHAM: Did you, Mr. Mitchell -- attempt to  
6 rephrase the question one more time.

7 Mr. Mitchell, if Jones & Stokes took into account more  
8 area, a greater area of the river, in its survey than that  
9 of the Fish and Game, then was some technical correction  
10 made so that your results would be considered directly  
11 comparable to those of Fish and Game?

12 MR. MITCHELL: My answer to that question is we  
13 surveyed the same -- we survey the reach where Fish and Game  
14 had assumed that 15 percent of the run has spawned. So, in  
15 essence, they are assuming that over that reach that they  
16 do, in fact, have an estimate. So, it is the same reach,  
17 but instead of doing an actual estimate they applied the  
18 assumption that 15 percent of the run spawned in that  
19 reach.

20 MR. CUNNINGHAM: Let me follow that, then. If they  
21 counted hypothetically ten fish in that reach and their  
22 assumption was that they captured 15 percent of the run, and  
23 in that same reach you found ten fish, how many fish would  
24 you assume would be in the run? How many fish would you  
25 assume are escapement?

1           MR. MITCHELL: I believe there is a misunderstanding  
2 here in that Fish and Game did no surveys in that reach.

3           MR. CUNNINGHAM: Better yet, what did Fish and Game do  
4 there?

5           MR. MITCHELL: As I stated earlier, the Department of  
6 Fish and Game used an assumption, that assumption being that  
7 15 percent of the run spawns within the reach between  
8 Englebright Dam and the Highway 20 bridge.

9           MR. CUNNINGHAM: I follow you, Mr. Mitchell.

10          MR. MITCHELL: What we have done is actually do surveys  
11 in that reach to determine the actual population estimate.  
12 Rather than make that assumption, 15 percent, which was done  
13 in the past, we provided an actual estimate of the  
14 population.

15          MR. CUNNINGHAM: Are you prepared to testify today that  
16 your survey methodology is directly comparable year for year  
17 to that of the Department of Fish and Game's conducted  
18 before your survey methodology was in place? The word is  
19 directly comparable.

20          MR. MITCHELL: I would like to answer no, but I have an  
21 explanation, further explanation.

22          MR. CUNNINGHAM: I'll go with that no, Mr. Brown. I  
23 would like to pursue -- he is entitled to redirect,  
24 Mr. Brown, but I have other things I wish to ask.

25          MR. LILLY: If Mr. Mitchell needs to explain a

1 qualification, the record is not complete unless he is given  
2 that opportunity now.

3 H.O. BROWN: What I would like for you to do and what  
4 my instructions were, if you can't answer yes or no, respond  
5 in that manner first. That gives counselor a chance to  
6 proceed or not to proceed. When you answer and then with an  
7 explanation, it takes away their right to do that.

8 Understand the difference?

9 MR. MITCHELL: Not quite.

10 H.O. BROWN: If he asks you a question and you feel  
11 that he wants a yes or no answer and you can give him a yes  
12 or no answer without explanation, go ahead and do so. If  
13 you feel you need to further explain the answer, advise him  
14 before you answer. That gives him the option of proceeding  
15 or not proceeding.

16 MR. MITCHELL: I understand.

17 H.O. BROWN: If you answer yes or no but with an  
18 explanation, you have usurped that right from Mr.  
19 Cunningham.

20 MR. MITCHELL: I understand.

21 DR. BRIAN: Mr. Brown, I would like to add some  
22 additional clarification, additional information, to that  
23 discussion. Can I do that before we go on to other  
24 questions?

25 H.O. BROWN: Yes. If Mr. Cunningham wants an

1 additional explanation on that, I will let him make that  
2 request. Right now, Mr. Cunningham, it's up to you. If you  
3 would like to have additional explanation or to proceed.  
4 This is your time.

5 MR. CUNNINGHAM: I have other use for my time.

6 MR. LILLY: We still haven't resolved the issue that  
7 Mr. Mitchell obviously did not understand the ground rules  
8 when he answered the question with a no and he would like to  
9 explain it. So if Mr. Cunningham is going to go on, Mr.  
10 Mitchell should be given the opportunity to reanswer that  
11 question now that he understands your rules.

12 H.O. BROWN: You object. Here is my ruling. Your  
13 objection is overruled.

14 Proceed, Mr. Cunningham.

15 MR. CUNNINGHAM: Thank you, sir.

16 On Page 7 of your overheads, Mr. Mitchell, you refer to  
17 new information regarding Lower Yuba River juvenile  
18 salmonids, and under your first large bullet it says  
19 juvenile chinook salmon. Is this fall-run, spring-run or  
20 both?

21 MR. MITCHELL: As I said in my testimony, during the  
22 rearing period there is broad overlap in the sizes,  
23 potentially broad overlap in the sizes. We have fall and  
24 spring-run chinook. Because they look identical, the only  
25 way we can tell if they were different sizes. In the Lower

1 Yuba River because of broad overlap in the spawning time,  
2 emergence time, their body sizes broadly overlap. There is  
3 no way to distinguish. The answer to your question is we  
4 don't know whether -- to what extent spring-run contributes  
5 to this data.

6 H.O. BROWN: Mr. Cunningham, and for your benefit and  
7 the benefit of others also, is that if you are requesting a  
8 yes or no answer, let the witness know that ahead of time.

9 MR. CUNNINGHAM: I will, Mr. Brown.

10 Mr. Mitchell, to the extent you could not distinguish  
11 between the two populations, your conclusion that follows  
12 that bullet point, high population density, does not  
13 directly say that there were high population densities of  
14 spring-run salmon, does it? You can answer yes or no.

15 MR. MITCHELL: No.

16 MR. CUNNINGHAM: Take a look at Page 8 and the  
17 discussion about juvenile salvage or juvenile chinook  
18 salvage at the Hallwood-Cordua fish screen.

19 Mr. Mitchell, to your knowledge, is this fish screen at  
20 this site intended to identify an accurate count downstream  
21 of migrating juvenile chinook salmon?

22 MR. MITCHELL: No. That is not the intended purpose of  
23 the exhibit.

24 MR. CUNNINGHAM: Did you in any of your studies ever  
25 put in place a trap or traps on the Lower Yuba River to

1 attempt to document downstream juvenile migration of chinook  
2 salmon?

3 MR. MITCHELL: No.

4 MR. CUNNINGHAM: Do you have any way here today to say  
5 that this, that information contained on Page 8 in any way  
6 accurately reflects downstream migration of juvenile chinook  
7 salmon on the Yuba River?

8 MR. MITCHELL: We have strong data to suggest that it  
9 does.

10 MR. CUNNINGHAM: Is there any place within the  
11 testimony you provided in Exhibit 19 or other exhibits of  
12 the Yuba County Water Agency that such evidence is  
13 presented?

14 MR. MITCHELL: If I may have a moment.  
15 Could you repeat the question, please?

16 MR. CUNNINGHAM: Do you have any data in any of the  
17 testimony you have provided to allow us to accurately  
18 understand whether or not the information that this document  
19 accurately reflects downstream migration of juvenile chinook  
20 salmon?

21 MR. MITCHELL: I do not have data in this exhibit. I  
22 do have data with me that provides strong indication that  
23 these are -- this does represent juvenile emigration.

24 MR. CUNNINGHAM: Mr. Brown, we may want to come back to  
25 that. To the extent there is additional information that



1 has not been provided, it may be appropriate to provide it  
2 to all parties for the next round of hearings.

3 H.O. BROWN: Do you wish that marked?

4 MR. CUNNINGHAM: I am not sure he has it ready to  
5 produce it today. I do suggest that in the past you have  
6 encouraged others when this kind of information may be  
7 relevant to produce such raw data, additional information,  
8 for others to examine in preparation for rebuttal or to  
9 better understand the testimony presented.

10 H.O. BROWN: Mark it, Esther.

11 MR. CUNNINGHAM: I would like to move on right now.

12 Mr. Mitchell, to the extent you were using information  
13 from the Hallwood-Cordua fish screen to examine outmigrating  
14 or just migrating juvenile chinook salmon you provided in  
15 this graphic format, were any corrections to your data made  
16 and, again a technical nature of corrections, to reflect  
17 whether or not the diversion itself was operating during  
18 these time periods?

19 MR. MITCHELL: We were careful to select those years  
20 when the trap was operating during the period that is shown  
21 by the bars in Slide 8.

22 MR. CUNNINGHAM: I am sorry, that didn't answer my  
23 question. My question was, was any water being diverted  
24 during those periods?

25 MR. MITCHELL: Yes, in all cases when the fish screen

1 was operating there was a diversion.

2 MR. CUNNINGHAM: Do you have any information to  
3 indicate what velocities of water were passing through the  
4 screen during any one of these diversion events?

5 MR. MITCHELL: No.

6 MR. CUNNINGHAM: Isn't it your understanding that the  
7 ability of a fish screen to collect or not collect fish is  
8 oftentimes dependent on water velocity through the screen?

9 MR. MITCHELL: Among other things.

10 MR. CUNNINGHAM: It is also dependent on flow through  
11 the screen?

12 MR. MITCHELL: Yes.

13 MR. CUNNINGHAM: Were any attempts made to establish  
14 what the flow, actual flow, through the screen was in any  
15 one of these events?

16 MR. MITCHELL: Not by Jones & Stokes.

17 MR. CUNNINGHAM: Moving on, Mr. Mitchell, on Page 9 of  
18 your overheads, once again in reference this is new  
19 information regarding Yuba River salmonids. You have a  
20 discussion for steelhead rainbow trout. You make a  
21 statement of high population densities, and I believe  
22 several questions have been asked about this.

23 What is your understanding of a high population density?

24 MR. MITCHELL: Well, this characterization is primarily  
25 based on my experience observing wild steelhead population

1 both in the Central Valley and the northwestern streams in  
2 California. By comparison with Yuba River population,  
3 densities are comparable to other healthy steelhead  
4 populations, and so I characterize those as high population  
5 densities.

6 MR. CUNNINGHAM: Were any attempts made to actually  
7 count steelhead populations in the Lower Yuba River during  
8 your study periods?

9 MR. MITCHELL: We did do some counts on index reaches.  
10 I believe it is in the Exhibit 20 being presented, but other  
11 than that there have been no efforts to count steelhead  
12 juveniles.

13 MR. CUNNINGHAM: So high population densities is based  
14 upon your visual observation?

15 MR. MITCHELL: That's correct.

16 MR. CUNNINGHAM: These visual observations were made  
17 how?

18 MR. MITCHELL: By direct observation during the year  
19 1991 through '98. In 1999 some additional work was done  
20 with electrofishing which added data for those surveys and  
21 included as part of this record.

22 MR. CUNNINGHAM: Is it your understanding that visual  
23 observation is the accepted standard for population density  
24 estimations in California, as a biologist?

25 MR. MITCHELL: When you say "accepted," I know that it

1 has been used on certain streams to estimate total  
2 populations in California, as one of the methods.

3 MR. CUNNINGHAM: To your knowledge, has it ever been  
4 used as the sole method to estimate population densities in  
5 California?

6 MR. MITCHELL: No, not as the sole method.

7 MR. CUNNINGHAM: To your knowledge, is it the most  
8 accurate way to identify population densities of steelhead  
9 in California?

10 MR. MITCHELL: That would require an assessment of a  
11 particular stream. Certain streams are more amenable to  
12 direct observation because of physical conditions, water  
13 clarity. Therefore, it would be hard for me to make a  
14 generalization for that.

15 MR. CUNNINGHAM: You didn't do anything else other than  
16 this visual observation and the studies that were done in  
17 1999, right?

18 MR. MITCHELL: We also collected young trout as part of  
19 our seining in 1992.

20 MR. CUNNINGHAM: I think your 1992 testimony was  
21 actually in Exhibit 20; is that right?

22 MR. MITCHELL: That's correct.

23 MR. CUNNINGHAM: If I recall, didn't you conclude in  
24 Exhibit 20 on Page 22 -- I will read it to you in your  
25 summary.

1           In contrast, steelhead trout abundance  
2           increased during the monitoring period as  
3           juveniles began to grow and occupy the  
4           sampling sites used for monitoring. The  
5           general increase in steelhead abundance  
6           observed in river paralleled the increasing  
7           proportion of juvenile steelhead trapped at  
8           the Hallwood-Cordua fish screen, suggesting  
9           passive or active downstream migration of  
10          young steelhead during the early rearing  
11          period.                               (Reading.)

12           Is that an accurate statement of what you said in  
13          summary?

14           MR. MITCHELL: Yes.

15           MR. CUNNINGHAM: How from that can I conclude that  
16          there were any kind of population density studies done at  
17          all? It suggests that you looked at steelhead juvenile  
18          migration. If I recall, it talks about that in other  
19          places. How can I arrive at any numerical estimations of  
20          population density estimations from that, Mr. Mitchell?

21           MR. MITCHELL: I believe that we also counted steelhead  
22          within transects under water observations in that same  
23          report.

24           MR. CUNNINGHAM: Are you talking about the snorkel  
25          surveys you conducted in 1992, Mr. Mitchell?

1 MR. MITCHELL: Excuse me, Mr. Cunningham.

2 MR. CUNNINGHAM: That is fine. Mr. Mitchell, I will  
3 call your attention to Page 12 in Exhibit 20, which I  
4 believe is halfway down the page. Starts off "Steelhead  
5 trout," if that will help you.

6 Mr. Brown, if I might repeat my question. My question  
7 has to go to where in this exhibit I can find information  
8 that allows me to conclude there is high population  
9 densities, where there are quantity sampling information,  
10 pieces of information, within this testimony.

11 MR. MITCHELL: I do have a page number for quantity of  
12 information on steelhead. That is presented in number of  
13 fish in Figure 6, number of juvenile steelhead trout along  
14 100-foot transects at four monitoring sites in the Yuba  
15 River, number of fish per hundred feet in one site, which  
16 was identified as the Daguerre site. Numbers ranged from  
17 zero in early parts of the season all the way up to 200  
18 fish, 200 steelhead, per 100 feet of transect.

19 The bottom graph shows a number of fish per haul.  
20 These are seine hauls that involved netting fishing with a  
21 beach seine, showing the numbers of a fish per seine haul.  
22 Seining is relatively inefficient, and, therefore, you  
23 wouldn't expect to see the same numbers. In general, we saw  
24 the same patterns using both methods.

25 We don't have a specific statement that characterizes

1 these as high population densities.

2 MR. CUNNINGHAM: Mr. Mitchell, don't you instead  
3 actually say in your -- on Page 20 where you are talking  
4 about abundance, I think on Page 21, where you are talking  
5 about abundance, all that information suggests to you the  
6 possibility that your sampled population may be migrating  
7 someplace where it is no longer sampled?

8 MR. MITCHELL: That was evident from the data, at least  
9 some of the fish were collected in Hallwood-Cordua Canal.  
10 This report did not specifically address the population  
11 abundance.

12 MR. CUNNINGHAM: Thank you, Mr. Mitchell.

13 Mr. Mitchell, on Page 11 of your overheads, just a real  
14 quick question, you have reference to an angling survey.

15 Can you tell what year or years are included in that  
16 angling survey?

17 MR. MITCHELL: The angling survey was conducted in  
18 September -- August, September 1999.

19 MR. CUNNINGHAM: By whom?

20 MR. MITCHELL: By Jeffrey Kozlowski who is a U.C. Davis  
21 graduate student and a Jones & Stokes biologist.

22 MR. CUNNINGHAM: Are you familiar with the methodology  
23 Mr. Kozlowski used to collect his angling survey data?

24 MR. MITCHELL: Only to the extent it was a hook and  
25 line sampling effort.

1           MR. CUNNINGHAM: Is any of that information provided to  
2 your testimony to these proceedings?

3           MR. MITCHELL: We generally describe those efforts.  
4 But there are no specific detailed description of the  
5 methodologies in this report.

6           MR. CUNNINGHAM: I think in Exhibit 19 it only refers  
7 to a hook and line angling survey. Is that a relatively  
8 accurate statement?

9           MR. MITCHELL: That is relatively accurate.

10          MR. CUNNINGHAM: Finally, Mr. Mitchell, for the time, I  
11 want to look at your conclusions. Your conclusions, and  
12 this is again on your overhead, Page 12. Let's start with  
13 an easy one. Right at the top, bullet point, top point,  
14 large viable, self-sustaining population of chinook salmon.

15          Fall- or spring-run`, Mr. Mitchell? When you say  
16 chinook salmon, is that fall-run or sprung-run?

17          MR. MITCHELL: Because we can't -- these are based on  
18 chinook salmon, both adults and juveniles. As I said, we  
19 cannot distinguish between spring- and fall-run on the  
20 spawning grounds or rearing areas.

21          MR. CUNNINGHAM: Are you prepared to testify today that  
22 the management practices for spring-run and fall-run are  
23 identical?

24          MR. MITCHELL: I'm sorry, don't understand the  
25 question.



1           MR. CUNNINGHAM: Are you prepared to testify today as  
2 an expert biologist, a fisheries biologist, that the  
3 understood management practices for spring-run chinook  
4 salmon and fall-run chinook salmon are identical?

5           MR. LILLY: I object. The term "management," perhaps  
6 this is unclear as to by whom he is referring to.

7           H.O. BROWN: I concur. Can you clear that up a little  
8 bit for me?

9           MR. CUNNINGHAM: Yes, Mr. Brown.

10          Mr. Mitchell, are you prepared to testify today as an  
11 expert biologist that the spawning time for spring-run`  
12 chinook salmon and full-run chinook salmon is identical?

13          MR. MITCHELL: No. I wouldn't say identical.

14          MR. CUNNINGHAM: Are you prepared to testify today that  
15 the time spent in river by juvenile phases of spring-run` and  
16 fall-run chinook salmon are identical?

17          MR. MITCHELL: We don't know that.

18          MR. CUNNINGHAM: Isn't it, in fact, true, that  
19 spring-run salmon, juveniles, often times spend almost a  
20 year or more than a year in the river before outmigration?

21          MR. MITCHELL: In some rivers in the Central Valley  
22 that has been determined.

23          MR. CUNNINGHAM: Did you make any effort to determine  
24 that in the Yuba River?

25          MR. MITCHELL: We would if we could tell them apart

1 from fall-run.

2 MR. CUNNINGHAM: Your recommendation lumps chinook  
3 salmon together. As I understand it, they are not  
4 biologically distinct populations of chinook salmon; isn't  
5 that true?

6 MR. MITCHELL: Well, there I would disagree. In Yuba  
7 River we have a condition very similar to the Feather where  
8 fall and spring-run overlap in spawning and in all  
9 probability interbreed. Therefore, what has been found in  
10 the Feather River is that that interbreeding has led to an  
11 essentially hybrid run.

12 My opinion is that the conditions in the Yuba River are  
13 also the same as the Feather where those populations overlap  
14 to an extent, that interbreeding is very likely and  
15 substantial hybridization is very likely. Therefore, the  
16 distinction, even genetically, between spring and fall is a  
17 question on the Yuba.

18 MR. CUNNINGHAM: Mr. Mitchell, have you done any  
19 studies to verify this hypothesis?

20 MR. MITCHELL: Not personally.

21 MR. CUNNINGHAM: Have you done any genetic studies to  
22 identify and verify this hypothesis?

23 MR. MITCHELL: As I said, I'm relying on other  
24 studies.

25 MR. CUNNINGHAM: Have you done any studies? Answer yes

1 or no, please.

2 MR. MITCHELL: No.

3 MR. CUNNINGHAM: Have you done any instream studies on  
4 the Yuba River which tried to establish whether or not there  
5 are distinct spring-run versus fall-run chinook salmon  
6 populations?

7 MR. MITCHELL: No specific studies.

8 MR. CUNNINGHAM: Mr. Mitchell, you also say that these  
9 are viable, self-sustaining populations. How do you define  
10 viable?

11 MR. MITCHELL: Viable, definitions would be  
12 self-sustaining, productive, sufficiently abundantly to  
13 withstand adverse conditions such as droughts, ocean  
14 conditions, harvest rates, high harvest rates.

15 MR. CUNNINGHAM: Are you prepared to testify today that  
16 spring-run chinook salmon in the Yuba River, Lower Yuba  
17 River, are a viable population?

18 MR. MITCHELL: No.

19 MR. CUNNINGHAM: Mr. Mitchell, are you prepared to  
20 testify today that the steelhead run is -- let me back up.

21 Did you do any quantitative studies to establish the  
22 total number steelhead in the Lower Yuba River?

23 MR. MITCHELL: You'll have to define quantitative  
24 studies.

25 MR. CUNNINGHAM: Did you count them?

1           MR. MITCHELL: I -- we have counted steelhead, yes, in  
2 the past along transects and as part of our seining  
3 sampling.

4           MR. CUNNINGHAM: Mr. Mitchell, you say large  
5 populations. I am reading right from your conclusions,  
6 large, viable, self-sustaining populations of chinook salmon  
7 and steelhead.

8           When you say the word "large," what facts are available  
9 in your testimony, either in Exhibit 19 or anywhere else in  
10 the written testimony, are there facts that I can use to  
11 establish there is large steelhead population in the Lower  
12 Yuba River?

13           MR. MITCHELL: Large I think has to be viewed in the  
14 context of historical conditions. The reach below  
15 Englebright Dam prior to New Bullards Bar did not provide  
16 good habitat conditions for steelhead, the fact that those  
17 conditions were improved and steelhead were able to increase  
18 to what I believe are significant numbers, and evidence we  
19 have observed in recent years that that has led to  
20 significant natural reproduction in many years, sustained  
21 years. That leads me to believe that this population is, in  
22 fact, viable and self-sustaining.

23           MR. CUNNINGHAM: What information do you have about  
24 preproject Lower Yuba River steelhead populations?

25           MR. MITCHELL: We have an estimate that was made by the

1 Department of Fish and Game prior to New Bullards Bar  
2 Reservoir.

3 MR. CUNNINGHAM: What year was that study made for,  
4 that estimate made?

5 MR. MITCHELL: That was Wooster and Wickwyre, I will  
6 have to -- that information, as I recall, is cited in our  
7 previous testimony during the 1992 hearings.

8 MR. CUNNINGHAM: You can't find it now, can you?

9 MR. MITCHELL: I don't -- give me a moment. We might  
10 have included that in this section.

11 H.O. BROWN: Esther, do you want a few-minute break?

12 THE COURT REPORTER: I wouldn't object to it.

13 H.O. BROWN: While you are looking, we are going to  
14 take a three-minute break.

15 (Break taken.)

16 H.O. BROWN: Back on the record.

17 Mr. Cunningham, proceed.

18 MR. CUNNINGHAM: Mr. Mitchell, can you tell me where in  
19 your testimony a specific number of steelhead in Lower Yuba  
20 River have been identified?

21 MR. MITCHELL: Yes. On Page 3-9 of Exhibit YCWA-19  
22 under dam construction period, the last sentence for the  
23 first paragraph says:

24 Although annual estimates of steelhead runs  
25 are not available, CDFG estimated that only

1           200 steelhead spawned in the Lower Yuba River  
2           annually before the completion of New  
3           Bullards Bar in 1969.       (Reading.)

4           Unfortunately, we left off a citation. I do not know  
5           the date. The authors were Wooster and Wickwyre.

6           MR. CUNNINGHAM: Can you tell me where in your  
7           testimony it shows where the present run of steelhead in the  
8           Yuba River is in numerical numbers?

9           MR. MITCHELL: As I stated in my testimony, we do not  
10          have long-term records of steelhead abundance. The  
11          Department of Fish and Game did estimates of run size in  
12          1975. That information is presented on 3-12, top of the  
13          page. This is Exhibit YCWA-19. Says:

14                 Based on angling data, Department of Fish and  
15                 Game estimated a run of 2000 steelhead in the  
16                 Lower Yuba River in 1975.       (Reading.)

17          MR. CUNNINGHAM: In all the studies and surveys you  
18          participated in since 1992, have you done any additional  
19          numerical sampling to establish the actual numerical number  
20          of steelhead in the Lower Yuba River?

21          MR. MITCHELL: Not a total population estimate, no.

22          MR. CUNNINGHAM: How did you conclude in your testimony  
23          that there was a large population of steelhead in the Lower  
24          Yuba River?

25          MR. MITCHELL: That was based on recent years'

1 observations of frequent occurrences of adult steelhead  
2 during snorkeling surveys in the Yuba River.

3 MR. CUNNINGHAM: Let me understand the snorkeling  
4 surveys. These were done prior to 1992 and incorporated in  
5 your Exhibit 20; is that correct?

6 MR. MITCHELL: Snorkeling surveys were begun in 1990  
7 and have continued through the present.

8 MR. CUNNINGHAM: Can you explain to me in as few as  
9 possible words how you can identify, count and correctly  
10 estimate steelhead from a snorkeling survey?

11 MR. MITCHELL: As I said, we do not estimate the entire  
12 population. The conclusion we made was based on the large  
13 numbers of adult steelhead that we see when we do snorkeling  
14 survey. The numbers have been, in a single day, have been  
15 on the order of hundreds. And, therefore, since we do not  
16 -- we only see a fraction of the population while  
17 snorkeling. That leads us to believe that we have a large  
18 population, probably in the 1- to 2000 range, if not  
19 higher.

20 MR. CUNNINGHAM: Are the ranges made when you are  
21 snorkeling during these time events what you would consider  
22 representative ranges of the entire steelhead habitat within  
23 the Lower Yuba River?

24 MR. MITCHELL: Not the entire reach. These have been  
25 limited to a good portion, in some cases over 60 percent of

1 the accessible areas that steelhead have to them.

2 MR. CUNNINGHAM: Isn't it safe to say today, if you can  
3 answer yes or no, please, that you cannot accurately  
4 conclude that there is a large population of steelhead in  
5 the Lower Yuba River?

6 MR. MITCHELL: Yes, I think we can say that.

7 MR. CUNNINGHAM: Let me understand this. You have done  
8 snorkeling surveys, but not on all rivers and reaches. You  
9 have a 1975 estimate of 2000. You have some visual  
10 estimates, and you have some steelhead juvenile research  
11 done in 1999. That allows you to conclude there is a large  
12 population of steelhead in the Lower Yuba River?

13 MR. MITCHELL: Those data, as well as seeing relatively  
14 large numbers or densities of adult steelhead within the  
15 river and extrapolating that over the entire river, we  
16 believe that those populations are large and sustained.

17 MR. CUNNINGHAM: I am sorry, Mr. Mitchell, if I don't  
18 know that place I am looking for steelhead is both  
19 representative -- let me say not both, but is representative  
20 of all of the system and isn't an extrapolation from my  
21 single point observation, not a good idea?

22 MR. LILLY: Wait. I object. Misstates prior  
23 testimony. He said 60 percent, not single point.

24 H.O. BROWN: Let me recognize you, Mr. Lilly.

25 MR. LILLY: Excuse me.



1 H.O. BROWN: Please go ahead, Mr. Lilly.

2 MR. LILLY: I object that Mr. Cunningham's question  
3 misstates Mr. Mitchell's prior testimony, when Mr.  
4 Cunningham refers to a single point observation and Mr.  
5 Mitchell had actually said 60 percent of the accessible  
6 steelhead habitat. That is a very different  
7 characterization.

8 H.O. BROWN: If you could clear that up.

9 MR. CUNNINGHAM: My question was a hypothetical.

10 Mr. Mitchell, if I go into one point on the Lower Yuba  
11 River and I see a large population, my own personal  
12 observation of steelhead in the hundreds, is it safe to  
13 extrapolate?

14 MR. MITCHELL: Could you please define "one point."

15 MR. CUNNINGHAM: I have gone in and done one snorkel  
16 run as you define your snorkel runs by your own staff. I  
17 have done one snorkeling run on one day at one place. And I  
18 see hundreds of steelhead.

19 Is it safe to extrapolate from that data alone a  
20 conclusion that there are large populations within the  
21 entire Lower Yuba River?

22 H.O. BROWN: When you see your counselor rising,  
23 give him the floor.

24 MR. LILLY: I object again. It is okay for him to ask  
25 a hypothetical. But when he says at one place and is

1 characterizing Mr. Mitchell's observations, it misstates Mr.  
2 Mitchell's prior testimony.

3 MR. CUNNINGHAM: Mr. Brown, I did not talk about Mr.  
4 Mitchell's observations. I talked about his methodology,  
5 his snorkel methodology in which he got a --

6 H.O. BROWN: Restate your hypothetical again and leave  
7 Mr. Mitchell out of it.

8 MR. CUNNINGHAM: My question is a hypothetical, and it  
9 assumes I will be using his style of snorkel survey. If I  
10 do such a style of snorkel survey at one point on one day of  
11 one year on the Lower Yuba River is it safe to conclude  
12 there is a large population of steelhead in the Lower Yuba  
13 River.

14 MR. MITCHELL: I'm sorry, I still need a definition of  
15 what you mean by one point.

16 MR. CUNNINGHAM: I didn't even use a point. I am doing  
17 one of your snorkel runs at one position at one bar at one  
18 site. Mr. Mitchell, what don't you understand about point?

19 MR. MITCHELL: When you say point, to me that means  
20 sticking your head in the river at one point and looking out  
21 at the river and saying --

22 MR. CUNNINGHAM: Mr. Mitchell, let me start this over  
23 again. You have done snorkeling surveys; is that correct,  
24 on the Lower Yuba River? Is that correct?

25 MR. MITCHELL: Yes.

1           MR. CUNNINGHAM: How do you conduct a snorkel survey,  
2 please?

3           MR. MITCHELL: We use mask and snorkel and enter the  
4 water, enter the river, at a point and snorkel for several  
5 miles and then count the number of steelhead we see and  
6 record that information.

7           MR. CUNNINGHAM: Okay, Mr. Mitchell. I have entered  
8 the river at one point, and following your exact methodology  
9 on one day on this river, and only one day, I arrive at a  
10 conclusion that I saw hundreds of fish.

11           Is it safe from that one day's observation to conclude  
12 there is a large population of steelhead in the Lower Yuba  
13 River?

14           H.O. BROWN: Now I have a question. I heard him say  
15 snorkeling two miles up the river. Is that what you mean,  
16 Mr. Cunningham? You enter at one point.

17           MR. CUNNINGHAM: I am sorry, snorkeling down river. I  
18 am following the same pattern and practices as Mr. Mitchell.

19           H.O. BROWN: This includes about a two-mile run of the  
20 stream, then?

21           MR. MITCHELL: I said several miles. Sixty percent, we  
22 generally use 60 percent of the river.

23           MR. FRINK: Can we assume for purposes of the  
24 hypothetical Mr. Cunningham could recognize a steelhead?

25           H.O. BROWN: We will assume that.

1           MR. CUNNINGHAM: Mr. Mitchell, can you answer the  
2 question yes or no?

3           MR. MITCHELL: Without any previous knowledge, having  
4 not done any surveys and surveyed the river one day, I would  
5 not make -- I would not come to that conclusion in a single  
6 day, having no knowledge or previous -- having no knowledge  
7 or results from previous surveys.

8           MR. CUNNINGHAM: How much of these kinds of counting  
9 surveys did you do or your staff do on the Lower Yuba River,  
10 specifically for steelhead?

11          MR. MITCHELL: I don't have an exact count. We are  
12 doing those surveys generally in the winter to early spring,  
13 into the late spring, and most of our observations are late  
14 -- early spring to late spring. We have conducted those in  
15 1992 and '93, '94 and then there have been less intensive  
16 surveys in the following years.

17          MR. CUNNINGHAM: Mr. Mitchell, when I conduct such a  
18 survey, a snorkel survey, and you say you did it in January  
19 or February through March and April?

20          MR. MITCHELL: We have done them in January, February  
21 for monitoring steelhead redds. At the same time we have  
22 done some snorkeling at that time. Most of our observations  
23 are following high winter flows. That would be early spring  
24 to late spring.

25          MR. CUNNINGHAM: Are these snorkeling surveys

1 specifically only to look for steelhead?

2 MR. MITCHELL: No. They are also to evaluate or survey  
3 for young chinook salmon that have emerged.

4 MR. CUNNINGHAM: Are these surveys looking for only  
5 adult steelhead?

6 MR. MITCHELL: We are also making observations about  
7 juvenile steelhead as well.

8 MR. CUNNINGHAM: Mr. Mitchell, are you personally --  
9 can you discern the difference between a 50-millimeter long  
10 chinook salmon juvenile and a 50-millimeter long steelhead  
11 trout juvenile at a five foot distance? You personally,  
12 please.

13 MR. MITCHELL: That would be difficult.

14 MR. CUNNINGHAM: Can you discern that difference from a  
15 three-foot distance?

16 MR. MITCHELL: That would be difficult.

17 MR. CUNNINGHAM: Can you discern them from an -- in  
18 water that would be deemed by all turbid, i.e., visibility  
19 less than three feet?

20 MR. MITCHELL: I think where 50-millimeter fish and  
21 smaller, it is very difficult unless you have them directly  
22 in front of you. So I would say that under any conditions,  
23 three feet away, that would be difficult.

24 MR. CUNNINGHAM: So --

25 H.O. BROWN: I am going to ask our counselor to slip me

1 a note, and you can read it. I concur with it.

2 MR. FRINK: I was wondering if we could encourage you  
3 to move on. I think it is pretty clear what Mr. Mitchell  
4 has done. It is becoming increasingly clear, and it is also  
5 pretty clear by now that you don't believe the work he has  
6 done is sufficient to support his conclusions.

7 There may be differences of opinion on that, but I  
8 wonder if we are not getting unduly repetitious here.

9 MR. CUNNINGHAM: I appreciate it, and I understand Mr.  
10 Frink and staff want time to do their own cross, and I  
11 apologize.

12 I did think it was relevant to the extent you were  
13 presented with conclusions based upon materials that we were  
14 having a difficult time finding. This follows my original  
15 objection as to this kind of bulk presentation of  
16 testimony. We are having a hard time finding where the  
17 actual facts and data are to support such conclusions. It  
18 is relevant for me to explore in cross-examination. In  
19 fact, I was encouraged to explore them in cross-examination.

20 H.O. BROWN: You are quite welcome. This is your time,  
21 Mr. Cunningham, to use it as you see fit. I thought it  
22 might be important for you to know how the staff is  
23 feeling.

24 MR. CUNNINGHAM: I appreciate staff concerns. I will  
25 be moving on.

1           Mr. Bratovich -- Mr. Mitchell, I must warn you that I  
2 still have a few questions, but I will try to focus on Mr.  
3 Bratovich so you can cool down.

4           Mr. Bratovich, let's go to the big questions first.  
5 Your testimony in your overheads concluded substantial  
6 testimony about the evaluation of proposed instream flows  
7 using Section 5937 of the California Fish and Game Code;  
8 isn't that right?

9           MR. BRATOVICH: It included using my definition of  
10 good condition in accordance with that code.

11          MR. CUNNINGHAM: It is my understanding that you never  
12 intended offering a legal opinion, but just your personal  
13 opinion as to the implications of this code section; is that  
14 correct?

15          MR. BRATOVICH: I didn't -- I don't quite follow your  
16 question, sir. Did you say did I offer implications of the  
17 code?

18          MR. CUNNINGHAM: It is my understanding by your  
19 references to this section of the code you were not offering  
20 your opinions as those of a legal expert, but strictly as  
21 your personal opinions and understanding --

22          MR. BRATOVICH: Correct.

23          MR. CUNNINGHAM: -- of the effects of the code?

24          I notice that in your testimony on Pages 24 and 25 of  
25 these overheads, Exhibit 26 as well, and even 27, I am

1       sorry, you mentioned two cases in California courts that  
2       have attempted to develop a definition of this phrase, "good  
3       condition," and I believe you actually spent considerable  
4       time on the Putah Creek Council versus Solano Irrigation  
5       District interpretation.

6             It is my understanding what Pages 25, 26, 27 and 28 all  
7       reflect?

8             MR. BRATOVICH:  25, 26, 27 and 28 do reflect the  
9       definition that I developed of good condition, yes.

10            MR. CUNNINGHAM:  Mr. Bratovich, is it your testimony  
11       that -- this is a big question here -- that spring-run  
12       chinook salmon in the Yuba River are in good condition?

13            MR. BRATOVICH:  No.

14            MR. CUNNINGHAM:  Is it your testimony that steelhead  
15       trout in the Yuba River are in good condition?

16            MR. BRATOVICH:  No.  And I indicated in written  
17       testimony that both populations do not meet some of the  
18       criteria which I used in my definition of good condition.

19            MR. CUNNINGHAM:  Can you tell me which criteria you  
20       believe are not met in your own definition of good condition  
21       for, and we will take them one at time, for spring-run  
22       chinook salmon, please?

23            MR. BRATOVICH:  I could go through them item by item  
24       and list there, but if we want to expedite this somewhat,  
25       essentially it is either the lack of knowledge or the



1 determination that the run sizes are sufficient to adhere to  
2 some of the criteria and many of the criteria, many of them,  
3 refer to population size. By population size I am  
4 specifically referring to adult population size as indicated  
5 by spawning stock escapement estimation and the ability of  
6 those fish to have a sufficient population size to be able  
7 to demonstrate sustained productivity and resiliency in the  
8 face of anthropogenic predations as well as natural  
9 variations in conditions --

10 MR. CUNNINGHAM: Probably going to have to spell a word  
11 you just used, for the reporter.

12 MR. BRATOVICH: Human caused adverse influence as well  
13 natural occurring situations such as out-of-basin factors as  
14 well, ocean conditions.

15 MR. CUNNINGHAM: Then I will ask this question of both  
16 of you. I am sorry, Mr. Mitchell. I will ask you this  
17 because I am not sure whether you might have something to  
18 say about this. I am looking at Page 26 on the overhead  
19 projections where it talks about population. It talks about  
20 a definition for or characterization of a viable,  
21 self-sustaining, abundant, productive, diverse population  
22 characterized by the following.

23 Mr. Bratovich and Mr. Mitchell, do you know of any  
24 studies done to establish whether steelhead on the Lower  
25 Yuba River are sufficiently abundant to survive

1 environmental variations, such as fluctuations in ocean  
2 conditions or local disturbances?

3 MR. BRATOVICH: Specifically focused only on that  
4 issue, no.

5 MR. CUNNINGHAM: Do you know whether any studies were  
6 done to establish whether the same steelhead trout is  
7 sufficiently abundant for compensatory processes that affect  
8 the population?

9 MR. BRATOVICH: We can go through this entire list and  
10 my answer will be the same. The answer is that we use the  
11 best available information. And the best available  
12 information, frankly, is Bill Mitchell's work. I am not  
13 aware of any other studies that have been conducted to that  
14 extent. My conclusion remains the same. I am not  
15 concluding they are even meeting some of the criteria of  
16 good condition which I developed, sir.

17 MR. CUNNINGHAM: Fine.

18 Let me back up a little and go through some of the  
19 other information quickly.

20 Mr. Bratovich, in preparation of your testimony and  
21 opinion, were you ever asked to provide a recommendation for  
22 protection of instream fishery resources for the Lower Yuba  
23 River without taking into consideration the total delivery  
24 demands of Yuba County Water Agency's contract demands?  
25 Were you ever asked to look just at the fish and flows only

1 for the fish?

2 MR. BRATOVICH: I wasn't asked specifically to do  
3 anything of that nature. I was asked to develop a flow  
4 regime within the context of water availability.

5 MR. CUNNINGHAM: So let me understand this. I think  
6 this is critical. And Mr. Mitchell and Mr. Bratovich, both,  
7 I would like some understanding of this:

8 Is it my understanding that the constraints of your  
9 opinions and of your developed flows are always within the  
10 water that you provided within the water budget for instream  
11 flow uses? Is that a correct statement? Mr. Bratovich.

12 MR. BRATOVICH: I am not trying to be obstreperous. I  
13 think there is a compound question. Would you please repeat  
14 it?

15 MR. CUNNINGHAM: Is it a true statement that in  
16 developing your opinions and your testimony for this hearing  
17 as to fisheries issues, you were asked to develop your  
18 opinions and testimony with only that water available in the  
19 water budget for instream uses; you were never asked to  
20 develop -- let me stop there, only for instream uses, only  
21 the water that was available for instream uses.

22 MR. BRATOVICH: My opinions resulting from evaluation  
23 of the proposed flow recommendations are my own. I wasn't  
24 asked to develop those within any constraints. The  
25 development of the proposed flow recommendation was in

1 consideration of water availability, and the water budgets  
2 that have been referred to in our testimony.

3 MR. CUNNINGHAM: Water availability was always the  
4 water left in the budget after full use by the Agency; is  
5 that correct?

6 MR. BRATOVICH: I can't speak to that. I defer that  
7 question.

8 MR. CUNNINGHAM: Mr. Grinnell.

9 MR. GRINNELL: Can I answer that one?

10 MR. CUNNINGHAM: Be my guest.

11 MR. GRINNELL: As we explained how water availability  
12 started, I have to explain this was an iterative process.  
13 We first came up with an analysis of water availability, as  
14 I said, using the results of scenario two.

15 Remember, that scenario two already has deficiencies.  
16 There are already water being given up in that model run by  
17 water users in order to provide for available water that  
18 would get allocated to the budget, number one.

19 Number two is, once we came up with an initial budget  
20 of water availability estimates, it was an iterative  
21 process. We ended up, for instance, for critical years, the  
22 available water for historic minimum was essentially 40,000  
23 acre-feet. The biologists said there needs to be more  
24 water.

25 MR. BRATOVICH: Was that for the critical?

1           MR. GRINNELL: For critical years. That was the  
2           initial estimate. We had to up that budget in order to  
3           provide additional flows in critical years, imposing  
4           additional deficiencies. So, this was an iterative process  
5           also for dry years. We did the same thing.

6           For wet and above normal years, as I said, the  
7           protocols were to follow the Draft Decision, essentially.  
8           We started out with a scenario that included deficiencies  
9           and then by upping those budgets through an iterative  
10          process additional deficiencies. So it cannot be  
11          characterized as water available after meeting all demands  
12          because we don't meet all demands under those resulting  
13          budgets.

14          MR. CUNNINGHAM: All of you gentlemen then, in a wet  
15          year does the Agency get full use of all waters for its  
16          present and projected uses under your proposal?

17          MR. GRINNELL: I believe so.

18          MR. CUNNINGHAM: In above normal year does the water  
19          Agency get full use of water for all of its demands, both  
20          present and projected?

21          MR. GRINNELL: I believe it does not. For above normal  
22          year it does not.

23          MR. CUNNINGHAM: In every year, in every above normal  
24          year?

25          MR. GRINNELL: Not every, just in a year. I am trying

1 to recollect.

2 MR. CUNNINGHAM: As I understand, Mr. Grinnell, you  
3 bring me back to the problem, as I understand it, you've  
4 never modeled the Agency's own fisheries proposals using any  
5 of the scenarios that you deposited; is that true?

6 MR. GRINNELL: That is incorrect. We did model, and we  
7 provided an extensive amount of information in Exhibit  
8 YCWA-19.

9 MR. CUNNINGHAM: Then, Mr. Grinnell, you have  
10 previously told me in examining your eight scenarios that  
11 you do not have available for me a similar graphic  
12 reproduction that reflects the Yuba County Water Agency's  
13 proposal for fisheries and impacts it may have on its own  
14 ability to provide delivery to its customers; is that  
15 correct? Yes or no.

16 MR. GRINNELL: You will have to ask the question again,  
17 please.

18 MR. CUNNINGHAM: Mr. Brown, I am having trouble with  
19 witnesses who seem to be --

20 H.O. BROWN: Mr. Frink.

21 MR. FRINK: I think I can clarify. I believe the  
22 witness said he didn't have exhibits that provided that  
23 information. And I think your question was have they  
24 developed that information.

25 MR. CUNNINGHAM: My problem, Mr. Frink, is the witness

1 referred me to Exhibit 19, which, as I read it, at its most  
2 generous is a testimony by biologists, but not by Mr.  
3 Grinnell. Mr. Grinnell is now telling me that, yes, there  
4 has somehow been year-by-year evaluation impacts upon the  
5 Agency's own availability to deliver water to the customers  
6 using its own proposed instream flow releases as one of the  
7 possible limitations, and I can't find that.

8 H.O. BROWN: Response, Counselor.

9 MR. LILLY: Mr. Grinnell is doing the best he can under  
10 what is somewhat hostile questioning. The problem is Mr.  
11 Cunningham is asking two different lines of questions and is  
12 mixing them together.

13 One is any output regarding impacts on consumptive use  
14 deficiencies to the Agency's customers. And the other is  
15 analysis of the hydrological resulting flows and  
16 temperatures in the Lower Yuba River.

17 I think if he splits it up between those two we may be  
18 able to make a lot of progress here.

19 H.O. BROWN: That is a good suggestion.

20 Can you do that?

21 MR. CUNNINGHAM: I will attempt it, Mr. Brown.

22 I guess my question goes back to the biologist. Let me  
23 start over. Let me take a different tact, Mr. Brown, to the  
24 biologists.

25 I am drawing a blank. Let me see if I can get jump

1 started here.

2 Mr. Bratovich, Mr. Mitchell, as I understand it, your  
3 proposal for instream flow for protection of fish, to keep  
4 them in good condition as you stated, dealt with a specific  
5 amount of budgeted water; is that correct? Please, yes or  
6 no. Is that correct?

7 MR. BRATOVICH: Requires minor explanation.

8 MR. CUNNINGHAM: Please, I will give you minor.

9 MR. BRATOVICH: Yes. By water year type.

10 MR. CUNNINGHAM: Fine.

11 H.O. BROWN: That was good.

12 MR. CUNNINGHAM: Then the question with qualification,  
13 but it requires a definition as to the year types or limited  
14 to year types.

15 Mr. Grinnell, you tell me it is the fact -- it is my  
16 understanding as far as your modeling, you provided to the  
17 biologists that water budget for instream flow; is that  
18 correct? Your modeling gave them --

19 MR. GRINNELL: Yes, the results, yes.

20 MR. CUNNINGHAM: Again, based upon water year types?

21 MR. GRINNELL: Correct.

22 MR. CUNNINGHAM: Using your modeling information, you  
23 gave to the biologists for each water year type a fixed  
24 amount of water to, and accept, please, this generality, to  
25 do with what they could for instream fisheries; is that



1 correct?

2 MR. GRINNELL: I would not characterize it, it was not  
3 fixed.

4 MR. CUNNINGHAM: Did you give them, for example, in a  
5 wet year 400,000 acre-feet to develop a fishery flow  
6 proposal?

7 MR. GRINNELL: No. 337,000 I think was the number for  
8 wet and above normal years.

9 MR. CUNNINGHAM: In a dry year did you give them  
10 300,000 to develop a fishery proposal?

11 MR. BRATOVICH: No. 168.1.

12 MR. GRINNELL: Actually, initially it was not that  
13 number.

14 MR. CUNNINGHAM: For each of the water year classes you  
15 gave to the biologists a number to work with; is that  
16 correct?

17 MR. GRINNELL: That's correct.

18 MR. CUNNINGHAM: Does that number include specifically  
19 any identifiable reductions in Yuba County Water Agency  
20 deliveries for any of the water year classes?

21 MR. GRINNELL: Yes.

22 MR. CUNNINGHAM: Which water year class?

23 MR. GRINNELL: Specifically critical years.

24 MR. CUNNINGHAM: Does it do it for dry years?

25 MR. GRINNELL: Yes.

1 MR. CUNNINGHAM: Does it do it for below normal years?

2 MR. GRINNELL: The results do impose a below normal  
3 year's deficiencies.

4 MR. CUNNINGHAM: Can you tell me in any of the data  
5 that I have, any information that I have, the testimony that  
6 I have before me, where for below normal water year class I  
7 can discern how much of a reduction in flows the Yuba County  
8 Water Agency is prepared to accept for its own deliveries to  
9 its own customers as a reduction in its ability in providing  
10 flows for water budget for instream flows?

11 MR. GRINNELL: We do not present that information.

12 MR. CUNNINGHAM: Did you do it for critical years?

13 MR. GRINNELL: We did not present it for critical  
14 years.

15 MR. CUNNINGHAM: Did you do this for dry years?

16 MR. GRINNELL: We did not do it -- I will save you  
17 time. We didn't do it for any of the water years.

18 MR. CUNNINGHAM: Mr. Bratovich, can fish get by with no  
19 water?

20 MR. BRATOVICH: No.

21 MR. CUNNINGHAM: Do you know enough about farmers to  
22 know if they can get by with no water?

23 MR. BRATOVICH: No. I don't know about farmers at all,  
24 actually.

25 MR. CUNNINGHAM: Mr. Mitchell, can fish get by without

1 any water?

2 MR. MITCHELL: No.

3 MR. CUNNINGHAM: I'm not going to ask you the second  
4 question, too easy.

5 Mr. Mitchell and Mr. Bratovich, both or either one of  
6 you, ever been asked to develop a fishery flow, an instream  
7 fishery flow, that would provide both good conditions for  
8 the fish and at the same time a reduction in the available  
9 water for diversion by the Yuba County Water Agency?

10 MR. BRATOVICH: Essentially my understanding is that is  
11 exactly what we did.

12 MR. CUNNINGHAM: Were either of you ever asked to  
13 provide a flow for a dry year that would maintain the fish  
14 in good condition and put in place any kind of limitation on  
15 the ability of Yuba County Water Agency to divert water to  
16 its customers?

17 MR. BRATOVICH: Again, essentially my understanding is  
18 that is exactly what we did.

19 MR. CUNNINGHAM: Can you tell me today in your  
20 biological opinion that the fish and the Agency are equally  
21 sharing the pain of reduced delivery of a dry year? I'm  
22 sorry, I'm asking just for Mr. Bratovich's opinion,  
23 Mr. Brown.

24 MR. LILLY: I am going to object on the grounds of  
25 relevance. That it is not a relevant question for the legal

1 standards that this Board has to apply in this hearing.

2 H.O. BROWN: Mr. Cunningham.

3 MR. CUNNINGHAM: Mr. Brown, my understanding that on  
4 the definition of reasonable use other than the California  
5 Constitution and under the California Water Code that  
6 reasonable use is to be qualified to provide other uses as  
7 well, to protect other uses as well. One of the recognized  
8 uses in California constitutional law is the protection of  
9 public trust resources within instream flow. I do not  
10 believe they are second-class citizens. I do not believe  
11 they come second, third, fourth or fifth. And I am  
12 concerned that we are being asked to evaluate the Agency's  
13 proposal as they get no pain. Fish get ever increasing  
14 pain as we go from above normal years to critical years.

15 I do think it is reasonable to ask them whether they  
16 have been asked to evaluate and balance biologically  
17 impacts. And let me go further because, please, this is the  
18 crux question here. I am looking at Exhibit 19, early on,  
19 Mr. Lilly, you may want to follow along, see if I can find  
20 the specific --

21 H.O. BROWN: Let me hear what Mr. Lilly has to say  
22 while you are searching that out. I will get back to you,  
23 Mr. Cunningham.

24 MR. LILLY: The problem with the question is when it  
25 starts asking for a comparison of percentage reductions in

1 instream flows between wet years and dry years or critical  
2 years and percentage reductions in deliveries to farmers  
3 between wet years and as critical years. It implies that  
4 there is some legal requirement that those percentage  
5 reductions be equal or comparable.

6 And the problem I have is that there are different  
7 legal standards that are applicable here, and obviously  
8 different physical factors involved. A 10-percent reduction  
9 in deliveries to farmers means a very different thing than a  
10 10-percent change in instream flow requirements for wet  
11 years to dry years.

12 So the problem I have is to the extent it is trying to  
13 do a simplistic comparison saying, "Well, if the fish or if  
14 the instream flows are reduced by 10 percent going from a  
15 wet year to a dry year, then it is not appropriate unless  
16 the consumptive use deliveries are also being reduced by 10  
17 percent, going from wet year to a dry year. The problem  
18 there is there are different physical considerations and  
19 different legal standards as well.

20 There is the good condition legal standard that is  
21 applicable to the fish. There is not some sort of equal  
22 percentage reduction standard between the two different uses  
23 of the water.

24 H.O. BROWN: Thank you, Mr. Lilly.

25 MR. CUNNINGHAM: I am not comparing those kinds of

1 percentages. In fact, I would suggest looking at their own  
2 proposed flows on Pages 14 and 15 of Mr. Bratovich's  
3 testimony. What I see is the fishery flows are being  
4 reduced on the order of 63,898 for April through September,  
5 or 105,352 April through November on critical years.

6 I do not know nor do we have any information to suggest  
7 that a comparable drop from a wet or above normal year where  
8 I am looking at 280,000, we are not talking 10 percent, Mr.  
9 Brown, 50 percent, a 50-percent reduction in flows. Nowhere  
10 am I told, nor do I have evidence, that Yuba County Water  
11 Agency is going to suggest a 50-percent reduction in  
12 delivery to its customers during the same periods of time  
13 nor have we been provided this evidence. If we have, I  
14 would like to find it.

15 I am entitled to ask these biologists to the extent  
16 that they have opined that this is good for the fishery,  
17 whether or not this kind of disproportionate reduction in  
18 flows versus impacts upon the district is good fisheries  
19 management. I raise this question specifically because we  
20 have been challenged on Page 1-3 of Exhibit 19, in the  
21 bottom of the last full paragraph, that they think it  
22 unreasonable for one beneficial use, instream flows, to be  
23 considered without thorough consideration of potential  
24 adverse impacts to other beneficial uses of Lower Yuba River  
25 water.

1           It is simply unreasonable and it is not consistent with  
2 state water planning policy. Mr. Brown, I am not the only  
3 one who takes slight umbrage with that. I do think that the  
4 resource agencies have the right to ask these biologists, to  
5 the extent they have made this testimony and these  
6 conclusions, are they telling us that it is reasonable to  
7 reduce fisheries flows by 100 percent if I perceive it from  
8 bottom to the top.

9           H.O. BROWN: Okay. I am anxious to hear my ruling on  
10 this myself.

11           I was going to sustain the objection until Mr. Lilly  
12 gave an excellent clarification. I think you provided a  
13 good background in the perspective of how the answers should  
14 be perceived. And on that basis I am going to overrule the  
15 objection, but that information is in the record, which will  
16 be helpful.

17           And you may proceed.

18           MR. CUNNINGHAM: Thank you, Mr. Brown.

19           Staff, I am sorry. I understand everybody is  
20 interested in the time. I am doing the best I can.

21           So, for both of the biologists I will try this again.

22           In your professional opinions, is it reasonable to ask  
23 that the fish take a 50-percent cut in available flows  
24 between normal, above normal years and critically dry years  
25 without a commensurate reduction of available flows for

1 diversion to Yuba County Water Agency customers? Mr.  
2 Bratovich.

3 MR. BRATOVICH: Your question is still slightly  
4 confusing to me. It's not a 50-percent cut in available  
5 flows per se. It's a difference in the water available for  
6 our instream flow recommendations. By definition was  
7 provided to me that that was the water available.

8 MR. CUNNINGHAM: But, Mr. Bratovich, you don't know  
9 that that is the only physical water available, do you?

10 MR. BRATOVICH: No, I am not a hydrologist.

11 MR. CUNNINGHAM: Mr. Bratovich, haven't you gathered  
12 from the testimony so far today and from reading your own  
13 expert testimony that in critically dry years there is  
14 considerably more water in the system, but only 63,898 will  
15 be provided between April and September to the fisheries  
16 instream flows; is that correct?

17 MR. BRATOVICH: I'll defer to Mr. Grinnell for  
18 hydrologic analyses and --

19 MR. CUNNINGHAM: Interesting question, Mr. Grinnell?  
20 There is more water than that in the system, isn't there?  
21 The Agency's customers are getting water, aren't they?

22 MR. GRINNELL: Yes. They are receiving deliveries in  
23 critical years.

24 MR. CUNNINGHAM: Can you tell me what percent reduction  
25 in flow in total amount they are receiving in critically dry



1 years?

2 MR. GRINNELL: I don't have all of the details.  
3 Different years, there are deficiencies in critical years.

4 MR. CUNNINGHAM: Is any of that information on the  
5 record that I can find in any exhibit that I have gotten?

6 MR. GRINNELL: No, it is not.

7 MR. CUNNINGHAM: In dry years, the same question, the  
8 fish appear to be asked to take a reduction in flow from  
9 that associated with wet and above normal years, a  
10 significant reduction, almost a hundred thousand acre-feet  
11 of reduction in volume, for example, during the period April  
12 to November.

13 Is there any information that lets me see how much the  
14 Agency is going to accept as a reduction in their ability to  
15 divert during that kind of a year?

16 MR. GRINNELL: That information is not there.

17 MR. CUNNINGHAM: Same question for below normal years?

18 MR. GRINNELL: Again, for all years that information is  
19 not there.

20 H.O. BROWN: Mr. Frink, do you have a question?

21 MR. FRINK: I think this might help expedite it.

22 Mr. Cunningham has asked about the deficiency that  
23 might be expected to result from imposition of Yuba County  
24 Water Agency's own instream flow proposal. Mr. Grinnell  
25 responded that there would be some deficiencies. But it is

1       apparent that the exhibits that outline the details of those  
2       deficiencies aren't in the record.

3               I wonder in order to assist the Board in its evaluation  
4       if Yuba County Water Agency could provide the modeling  
5       results of the Yuba County Water Agency proposal to Board  
6       staff and parties early next week and if those results could  
7       include water supplied, deficiencies, effects to reservoir  
8       storage and comparable information that has been provided  
9       for the other proposals.

10              MR. LILLY: Mr. Brown, we object to this. It is we  
11       understand your clarification in allowing Mr. Cunningham's  
12       questions. But it is a whole lot different to require the  
13       Agency's hydrologist to generate additional documents.

14              We have the basic problem here that the issue is how  
15       much of this project, which was designed to supply water  
16       users in Yuba County, is going to have to be rededicated to  
17       instream flow purposes, and we don't believe that there is a  
18       legal basis for the type of information that Mr. Frink is  
19       asking for. In essence, what he wants is to determine  
20       whether or not the percentage reductions, I guess, or make  
21       some kind of comparison between them. That loses  
22       perspective of the whole purpose of this.

23              This is a reservoir that already has significantly  
24       increased summer flows and reduced temperatures in the Lower  
25       Yuba River. We have not seen any evidence in all of the

1 days of hearing or any of the written testimony that this  
2 reservoir has had any significant impacts on these  
3 fisheries. The issue is how much water and storage capacity  
4 from this reservoir is going to be required to be  
5 reallocated from water users in Yuba County to mitigate for  
6 impacts that were used by other factors, including in-basin  
7 factors like the construction of Englebright and  
8 out-of-basin factors. I think it goes beyond what is  
9 appropriate or legally relevant in this proceeding.

10 MR. BAIOCCHI: Mr. Brown.

11 H.O. BROWN: Mr. Baiocchi.

12 MR. BAIOCCHI: Mr. Brown, considering that Yuba County  
13 Water Agency came in with surprise testimony and dumped it  
14 in our laps and, secondly, I support Dan Frink's  
15 recommendation for them to provide the data. It would only  
16 be reasonable.

17 H.O. BROWN: Thank you, Mr. Baiocchi.

18 MR. BAIOCCHI: Thank you.

19 H.O. BROWN: I am not going to make that request right  
20 now.

21 Mr. Cunningham, you may proceed.

22 MR. CUNNINGHAM: Thank you, Mr. Brown.

23 H.O. BROWN: Mr. Cunningham, how much more time do you  
24 need?

25 MR. CUNNINGHAM: Ten minutes, 15 minutes.

1           Sorry, staff. And I have my own people handing me more  
2 stuff. I will do the best I can, and tell everybody back  
3 there to stop.

4           Again, my apologies to all the panel, as well, for the  
5 time. I do appreciate your help in understanding some of  
6 your testimony.

7           Mr. Bratovich, can I draw your attention to your  
8 overhead, Page 22, please. It is called Flow Fluctuation  
9 Criteria. Can I ask you, it is my understanding this is the  
10 Agency's recommendation for flow fluctuation limitations for  
11 instream protection?

12           MR. BRATOVICH: Yes. It is part of them, yes.

13           MR. CUNNINGHAM: I am sorry, I didn't mean to imply it  
14 is one piece of it.

15           Mr. Bratovich, do you know -- do you yourself know when  
16 spring-run chinook salmon would actually be spawning in the  
17 Lower Yuba River?

18           MR. BRATOVICH: Explanation required.

19           MR. CUNNINGHAM: Please. Can you give me a yes or no  
20 answer first or a why not?

21           MR. BRATOVICH: I wasn't supposed to. I thought I was  
22 supposed to say I needed to provide an explanation first.

23           MR. CUNNINGHAM: Mr. Bratovich, please.

24           MR. BRATOVICH: I know what has been presented by the  
25 various parties to this hearing regarding their opinions on

1 spring-run` and spring-run spawning. I know that the  
2 National Marine Fishery Service testified that in  
3 mid-September would be a good time to consider initiation of  
4 spring-run spawning. I think that is consistent among all  
5 parties as well as our own proposed flow recommendation by  
6 providing 700 cfs at Smartville starting September 15th,  
7 sir. Do I personally know that? Have I personally observed  
8 spring-run? I couldn't distinguish between them, so that  
9 part was the -- would be the no part.

10 MR. CUNNINGHAM: Thank you.

11 Mr. Mitchell, have you personally observed spring-run  
12 spawning on the Lower Yuba River?

13 MR. MITCHELL: As Mr. Bratovich said, there is no  
14 reason --

15 MR. CUNNINGHAM: No, no. Personally observed something  
16 that you would consider spring-run in the Lower Yuba River.

17 MR. MITCHELL: The answer is I don't know because we  
18 cannot tell the fish, distinguish the fish based on timing  
19 or location of spawning.

20 MR. CUNNINGHAM: Your provision, Mr. Bratovich, of  
21 these flows or at least your testimony as to these flows  
22 being provided, the flow fluctuation criteria being provided  
23 starting September 15th, that is the first bullet point on  
24 Page 22?

25 MR. BRATOVICH: Yes.

1           MR. CUNNINGHAM: Is it based on then an understanding  
2 that that will capture all of the spring-run spawning that  
3 takes place on the Lower Yuba River?

4           MR. BRATOVICH: Yes, sir.

5           MR. CUNNINGHAM: And as I understand it, under that  
6 fluctuation criteria the stream flow cannot be reduced more  
7 than 50 percent; is that correct?

8           MR. BRATOVICH: To less than 55 percent, it says.

9           MR. CUNNINGHAM: Less than 55 percent of the maximum  
10 stream flow due to the controlled project releases or the  
11 applicable instream flow requirement, whichever is greater.  
12 It depends on what is happening on September 15th.

13           But, Mr. Bratovich, on September 16 could the Agency,  
14 pursuant to this proposal, reduce the stream flow by 50  
15 percent?

16           MR. BRATOVICH: I am sorry, I don't understand. Mr.  
17 Grinnell can answer.

18           MR. CUNNINGHAM: I am sorry, this is a biological  
19 question for you. You testified to this, you presented  
20 this. This is a condition that I assume you had some input  
21 into, and it says that after September 15th, for example, on  
22 September 16th the Agency could reduce the stream flow by up  
23 to 55 percent, and there are some limitations of the  
24 applicable instream flow requirement, whichever is greater,  
25 or the maximum stream flow due to controlled project

1 releases.

2 As I understand that, that is somewhere on the order of  
3 over 4,000 can come through the powerhouses or the  
4 applicable instream flow requirement, whichever is greater.  
5 What actually happens on September 16th under this condition  
6 if the Agency chooses to reduce to the maximum of this  
7 condition?

8 H.O. BROWN: Mr. Lilly.

9 MR. LILLY: I am going to object. He's misstated what  
10 it says here. It does not say reduce by 55 percent. It  
11 says reduce to less than 55 percent. I think the question  
12 is --

13 MR. CUNNINGHAM: I will restate it.

14 H.O. BROWN: Wait, wait a minute.

15 MR. LILLY: I think the question might be clear if you  
16 used an example with a starting flow and then he asked the  
17 percentage reductions after that. The other thing, we do  
18 have these panels here so that the most qualified to answer  
19 a question can. If there is a certain question that Mr.  
20 Grinnell can answer best, it is not appropriate Mr.  
21 Cunningham to restrict that.

22 H.O. BROWN: Mr. Cunningham.

23 MR. CUNNINGHAM: Mr. Brown, to the extent the  
24 biologists had opined that these were reasonable biological  
25 conditions to protect the instream fishery resource, that I

1 would like to get a biologist's explanation of this  
2 opinion. That, yes, I understand that how these numbers may  
3 be manipulated by a hydrologist, but I do think the actual  
4 determination that this will keep fish in good condition is  
5 a biological determination, not hydrological.

6 H.O. BROWN: I will allow you to go ahead and select  
7 the witness that you would like to ask the question to. If  
8 the witness doesn't have the complete answer, it is all  
9 right to say that and to recommend to Mr. Cunningham that he  
10 could seek other clarification or other information from a  
11 fellow witness. The project manager, I suspect, knows a  
12 little bit about most of it, but he is not expected to know  
13 everything about all of it.

14 With that spirit in mind, Mr. Cunningham, you ask your  
15 questions to who you want to.

16 MR. CUNNINGHAM: Thank you. I will actually ask this  
17 of both biologists for expediency.

18 Gentlemen, and Mr. Lilly is right, I misstated this.  
19 It says reduce to less than 55. So actually the maximum  
20 reduction could be 45 percent.

21 On September 16th if the Agency has been releasing a  
22 stream flow of 1000 cfs on September 15th can the Agency  
23 reduce that stream flow to 650 cfs on September 16th? Is  
24 that your understanding of this term?

25 MR. BRATOVICH: Minor explanation and partial answer,



1 please.

2 MR. CUNNINGHAM: Please.

3 MR. BRATOVICH: The minor explanation is that, as we've  
4 stated in our testimony, we started our flow recommendations  
5 based on the '96 Draft Decision. The daily flow fluctuation  
6 criteria, which are not on this slide but which I said are  
7 part of the flow fluctuation criteria, are identical to  
8 those included in the State Board '96 Draft Decision, all  
9 the testimony and all the evidence presented at this hearing  
10 in 1992. In addition, we extended it a month earlier into  
11 the season, as you correctly point out, Mr. Cunningham, to  
12 try to protect spring-run` spawning if it occurs and starting  
13 at that time. And the other addition is that it was unclear  
14 in the Board decision as to whether that was intended to be  
15 a daily maximum, and together our panel included a  
16 definition of what maximum stream flow means. And I think  
17 that is what we were referring to on the five-day running  
18 average.

19 And the partial part is Mr. Grinnell can explain that  
20 part a little better than I.

21 MR. CUNNINGHAM: I think -- Mr. Bratovich, I think you  
22 already provided me all I need. I don't think I need to  
23 talk to Mr. Grinnell. I just have a follow-up question for  
24 you.

25 Yes, this number may have come from other sources

1 initially, but this number was not accompanied by the other  
2 conditions you currently suggest. To the extent this number  
3 surfaced in the State Water Resources Control Board's  
4 proposed decision or Draft Decision, it was accompanied by  
5 significantly different conditions for flow requirements in  
6 all other water years, for example. It had different  
7 numerical amounts. It had different monthly timing.

8 So, I guess to the extent you now present this  
9 condition, excised almost verbatim from that State Water  
10 Resources Control Board Draft Decision, I want to find what  
11 its impact would be on your proposed flows.

12 Isn't it true if there was a thousand cfs coming down  
13 on September 15th, on September 16th the Agency could reduce  
14 that flow to 650 cfs? Is that what that says?

15 MR. BRATOVICH: Very minor explanation. No, and the  
16 intent as I believe Mr. Grinnell could explain but I will  
17 give it a shot, Mr. Cunningham, is that I believe the intent  
18 is to start that five-day running average five days in  
19 advance of September 15th.

20 Please correct me if I misspeak, Mr. Grinnell.

21 MR. GRINNELL: Yes. In order to have a five-day  
22 running average starting in that time period you would have  
23 to use the five days prior to September 15th. So you can  
24 start counting the five-day running average so that you  
25 would not have more than a 45-percent reduction.

1 MR. CUNNINGHAM: Mr. Grinnell, since you want to talk  
2 about this, let me ask you this question. Sorry, you walked  
3 into it.

4 September 10th the flow is 1,500 cfs. September 11th  
5 the flow is 1,500 cfs. September 12th the flow is 1,500 cfs.  
6 September 13th the flow is 1,500 cfs. September 14th the  
7 flow is 1000. The Agency decides to reduce the flow by the  
8 maximum allowed.

9 Can you do the mathematics to tell me what flow I see  
10 on September 16th?

11 MR. GRINNELL: See, that four days at 1,500 --

12 MR. CUNNINGHAM: Four at 1,500 and one at a thousand.

13 MR. GRINNELL: Well, I just explained that it would be  
14 the average of that. The reduction would be -- maximum  
15 reduction would be 45 percent of the average of those five  
16 days. Four at 1,500 and -- if I could get a calculator I  
17 could do it.

18 MR. CUNNINGHAM: Generally, if I just do it in my head,  
19 I have 7,000 divided by five, about 12 5, about 1,400?

20 MR. GRINNELL: Average of 1400.

21 MR. CUNNINGHAM: You could reduce this flow by 45  
22 percent of that. So all of the flow on the day previous was  
23 a thousand. The next day the flow could be reduced by 45  
24 percent of 1400, about 600?

25 MR. GRINNELL: There is also a requirement, the

1 instream flow requirement.

2 MR. BRATOVICH: Whichever is greater.

3 MR. CUNNINGHAM: I appreciate whichever is greater. We  
4 would never propose to do this outside of your own proposed  
5 instream flow requirement. You might have a whichever is  
6 greater.

7 I guess again, Mr. Grinnell, this brings me back to the  
8 two biologists on this panel. My question to you is: Do  
9 you consider this possibility of reduction an adequate  
10 protection for spawning salmonids during this period of  
11 time? Will this or will this not provide adequate  
12 protection for spawning salmonids?

13 MR. BRATOVICH: I believe it will, yes.

14 MR. CUNNINGHAM: Do you have any idea, Mr. Bratovich,  
15 how many this kind of percentage of reduction will actually  
16 reduce the total depth of water over a spawning salmonid  
17 redd at this period of time?

18 MR. BRATOVICH: Directly, no. But I understand from  
19 Mr. Mitchell's field observations that there is a rough  
20 relationship between change in discharge and change in  
21 stage.

22 MR. CUNNINGHAM: Do you know what that is?

23 MR. BRATOVICH: I understand from Mr. Mitchell that it  
24 is roughly -- what is it, Bill? It is two inches for every  
25 hundred cfs or so. I am sure that varies on a site-specific

1 basis.

2 MR. MITCHELL: Yes, it is essentially an average over  
3 that we measured at several sites. There is variation due  
4 to channel configuration.

5 MR. CUNNINGHAM: I appreciate that. Thank you. That  
6 clarification actually asks me one more question.

7 If it is two inches per cfs and we just dropped it by  
8 600, it is dropped a foot, six times two. Is a foot  
9 reduction on a salmonid redd a reasonable thing to have  
10 during salmon spawning time?

11 MR. BRATOVICH: Minor explanation required.

12 MR. CUNNINGHAM: Please.

13 MR. BRATOVICH: Two things I would like to bring  
14 forward in response to that. First is, that again we based  
15 on the 1996 Draft Decision this identical criteria with the  
16 exception of nondefinition of maximum in the Board decision  
17 was referred to as very protective, unquote, by State Board  
18 staff on Page 63 in the staff analysis.

19 Secondly, your scenario is extremely hypothetical. And  
20 to my knowledge there has only been one instance that I am  
21 aware of in recent history where flows even approach those  
22 high levels you mention going into September, and that was  
23 in an effort not to reduce stream flows to protect  
24 spring-run spawning this past year. Your hypothetical  
25 question is problematic for me, sir.

1           MR. CUNNINGHAM: I appreciate that, Mr. Bratovich.  
2 I am glad you refer to the staff as somehow being  
3 reasonable in their generation of this same number. But I  
4 wasn't asking staff's opinion; I was asking yours. And I am  
5 concerned about the fact that even if it is a low  
6 probability hypothetical, is such a hypothetical, in your  
7 opinion, going to have a good or bad effect on existing  
8 salmon spawning redd at this time of the year?

9           MR. BRATOVICH: The additional -- I am sorry, minor  
10 explanation required.

11          H.O. BROWN: Up to Mr. Cunningham.

12          MR. CUNNINGHAM: That is fine, sir. I didn't mean to  
13 gesture. I do need to know. Yes, please.

14          MR. BRATOVICH: The additional information that I was  
15 able to review was a submittal by Department of Fish and  
16 Game regarding surveys of what was considered to be  
17 spring-run` this past year and there was depth distribution  
18 associated with that. I don't -- I'm sorry, I don't recall  
19 the specific exhibit number. It was a two-page memo titled  
20 Spring-Run` Chinook Salmon Spawning Surveys 1999, or  
21 something to that effect.

22          I had the opportunity to briefly examine that. And I  
23 believe NMFS -- oh, oh, excuse me. I misspoke. In the  
24 Department's recommendation I believe they recommended  
25 something to the effect that it shouldn't be reduced more

1 than 300 cubic feet per second during the spawning season to  
2 protect spawning and incubation. If you use Mr. Mitchell's  
3 stage discharge relationship of approximately two inches  
4 per 100 cubic feet per second, then the Department's own  
5 recommendation for this supplement hearing is recommending  
6 not to make a reduction greater than approximately six  
7 inches.

8 And I believe upon examination of that spawning depth  
9 distribution information provided by the Department of Fish  
10 and Game that that would protect virtually all of what was  
11 referred to as spring-run chinook salmon spawning that were  
12 observed this past fall. So when we're talking about a  
13 reduction during the spawning season and flows that are  
14 expected to occur going into September 15th and the stage  
15 discharge relationship, I believe that this would be  
16 protected, sir.

17 MR. CUNNINGHAM: Mr. Bratovich, I want to talk to you  
18 very quickly about temperatures. I understand in your  
19 exhibit, your overhead Page 33, you talked about, someplace  
20 in your testimony, I believe you testified as to the  
21 available --

22 H.O. BROWN: How much more time, Mr. Cunningham?

23 MR. CUNNINGHAM: Ten minutes, maybe less, your Honor.  
24 I'm sorry, my ten minutes keep running ten minutes. A  
25 fisherman's time. One more cast as I understand more than

1 one more cast. Perhaps if I can -- in fact, I skip by that  
2 and move to something else altogether and try to finish up  
3 in less than five minutes.

4 H.O. BROWN: All right.

5 MR. CUNNINGHAM: You can hold me to that. If you have  
6 to beat me, my clients will understand.

7 Mr. Bratovich or Mr. Mitchell, can you tell me which  
8 one of you is actually testifying in Exhibit 19 when you  
9 were discussing the temperature requirements for juvenile  
10 salmonids?

11 MR. BRATOVICH: Very minor explanation. We prepared  
12 that as a panel. Dr. Brian and myself primarily worked on  
13 that section.

14 MR. CUNNINGHAM: Is it my understanding then that --  
15 let me ask it. Either one of you gentlemen then, are you  
16 asking this Board to understand that at 66.2 degrees  
17 Fahrenheit, 19 degrees centigrade, is an optimum temperature  
18 for chinook salmon, growth of juvenile chinook salmon?

19 DR. BRIAN: I think you're referring to the information  
20 on Page 3-26 of S-YCWA-19.

21 MR. CUNNINGHAM: That I am.

22 DR. BRIAN: What you are referring to is a recent study  
23 conducted by U.C. Davis Professor Joe Cech and graduate  
24 student and now Dr. Myrick.

25 MR. CUNNINGHAM: I am. You made a statement here,



1 gentlemen, I don't care which one of you answers this, that  
2 suggests that Table 4 says preferred temperatures. Table 4,  
3 Preferred Temperatures and Critical Thermal Maxima for  
4 Steelhead and Chinook Salmon, Page 3-26 of your exhibit.

5 You identify 66.2 degrees Fahrenheit. Are you  
6 suggesting to this Board that 66.2 degrees Fahrenheit is a  
7 reasonable temperature to maintain Yuba River for growth and  
8 protection of juvenile salmonids?

9 DR. BRIAN: I am looking for something in the report  
10 that we referred to that I would like to use in partial  
11 response to this answer.

12 MR. CUNNINGHAM: When you say "in the report," which  
13 report?

14 DR. BRIAN: This is Drs. Cech and Myrick that is cited  
15 in our Exhibit 19.

16 MR. CUNNINGHAM: Have you attached a copy of that  
17 report to your exhibits?

18 DR. BRIAN: Not that I am aware of.

19 MR. CUNNINGHAM: Instead, let me move this along  
20 perhaps. If I were to tell you that on Page 25 of that  
21 report, report being a report by Joseph Cech, Jr., and  
22 Christopher Myrick prepared at the University of California  
23 at Davis on August 1999, Page 25. It says:

24 It is premature to conclude that the optimal  
25 temperature for Central Valley steelhead

1                   growth is 19 degrees centigrade until further  
2                   growth data are collected at temperatures  
3                   just below 17 degrees centigrade and above 19  
4                   degrees centigrade.       (Reading.)

5                   Is that a correct statement? Does that sound like what  
6                   it says?

7                   DR. BRIAN: That is what it says. Partial explanation  
8                   required.

9                   MR. CUNNINGHAM: Explain away.

10                  DR. BRIAN: Having in my former life been a university  
11                  professor and researcher, essentially that, in my opinion,  
12                  is typical of researchers. They always want more  
13                  information. In fact, any scientist or biologist wants more  
14                  information.

15                  MR. CUNNINGHAM: Let me ask you then, take a look --

16                  MR. LILLY: Excuse me, he gave him a chance for the  
17                  partial explanation. I don't think Dr. Brian is done.

18                  H.O. BROWN: I haven't recognized any of you yet.

19                  MR. LILLY: Excuse me, I am sorry. It is getting late.  
20                  I forgot to stand up. I object to Mr. Cunningham cutting  
21                  off Dr. Brian after he said go ahead when Dr. Brian said  
22                  further explanation is needed.

23                  MR. CUNNINGHAM: My apologies.

24                  DR. BRAIN: I would just like to add --

25                  H.O. BROWN: Wait a minute. Mr. Lilly, do you have a

1 comment? Now you can stand up.

2 MR. LILLY: No further comment.

3 H.O. BROWN: Mr. Cunningham.

4 MR. CUNNINGHAM: Well, I am sorry, I thought the  
5 witness had finished testifying. He finished a complete  
6 sentence and I thought it sounded responsive, and I wished  
7 to move on.

8 H.O. BROWN: Go ahead. You're seven minutes into the  
9 five. So you almost used it up.

10 MR. CUNNINGHAM: Can I draw your attention to --  
11 fisherman's time. Can I draw your attention to Page 25 of  
12 that same study. Do you have it before you? Please have  
13 you examine --

14 DR. BRIAN: May I finish my response before we go on?

15 MR. CUNNINGHAM: I thought I had a response and was  
16 ready to go forward. What I heard was that professors have  
17 a tendency to qualify their statement and ask for more  
18 research.

19 DR. BRIAN: I would --

20 H.O. BROWN: One at a time. Esther is good, but she is  
21 not that good.

22 Are you dissatisfied with the response that you gave?  
23 Does it need further clarification?

24 DR. BRAIN: I need to be able to finish it. It was not  
25 finished. I was interrupted halfway through.

1 H.O. BROWN: Proceed.

2 DR. BRIAN: The more important half of my response is  
3 what you did not read is the sentence following that, the  
4 sentence on Page 25 which reads:

5 We can, however, conclude that the observed  
6 maximum growth rates correlate with mean  
7 preferred temperatures. (Reading.)

8 MR. CUNNINGHAM: Are you done?

9 DR. BRIAN: Yes.

10 MR. CUNNINGHAM: Let me call your attention to Page 29,  
11 last sentence of the top paragraph where it says:

12 Care should be taken before applying our  
13 thermal preference results because the  
14 interactive effects of factor like predation,  
15 inter and intra specific resource  
16 competition, disease and instream hydraulics  
17 may influence temperature selection in the  
18 American River. (Reading.)

19 The source of this study.

20 Is that a true statement?

21 DR. BRIAN: It appears that you read that correctly,  
22 yes.

23 MR. CUNNINGHAM: On Page 33, bottom of the full  
24 paragraph that starts "Food consumption and growth."  
25 Direct your attention to that last sentence of that

1 paragraph.

2 It is important to qualify our findings by  
3 stating that these were fish held under  
4 saturated dissolved oxygen conditions and  
5 pathogen-free well water, so some of the  
6 common problems associated with higher  
7 temperatures were controlled for.

8 (Reading.)

9 Is that a correct statement?

10 DR. BRIAN: Yes.

11 MR. CUNNINGHAM: And in summary at the end of this  
12 exhibit, on a page called Summary, Page 38, second  
13 paragraph, third sentence. Is it true that that statement  
14 says:

15 Our study demonstrated that temperatures up  
16 to 19 degrees centigrade are not a problem  
17 for these fish provided that food and oxygen  
18 availability are not restricted and disease  
19 problems do not arise. (Reading.)

20 Is that a correct statement?

21 DR. BRIAN: Yes, it is.

22 MR. CUNNINGHAM: Are you prepared to say today that the  
23 results of this study should be implemented on the Yuba  
24 River by establishing that the optimal temperature for  
25 juvenile salmonids is 66 degrees Fahrenheit?

1 DR. BRIAN: No. I think it would be premature to come  
2 to the conclusion that the optimal temperature for these  
3 juvenile salmonids is 19 C. As indicated in this research,  
4 that was the highest temperature that they studied.

5 MR. CUNNINGHAM: They also studied it with severe  
6 limitations on conditions, didn't they? They had maximum  
7 oxygen saturation and maximum feed; isn't that true?

8 DR. BRIAN: They had various rations, actually.

9 MR. CUNNINGHAM: The 19 degrees centigrade study where  
10 they concluded that it was not necessarily temperature  
11 dependent also specifically qualified it by saying that  
12 these fish were fed at the full feed, maximum feed; is that  
13 correct?

14 DR. BRIAN: They did research at 19 degrees C with  
15 multiple rations.

16 MR. CUNNINGHAM: Isn't it true that in this study, if  
17 you read this study, when they did research on dramatically  
18 reduced rations, 25-percent rations, the fish did not grow  
19 well, and, in fact, were identified as under stress and  
20 failing to grow?

21 DR. BRIAN: I am not familiar with that part of the  
22 document.

23 MR. CUNNINGHAM: How much have you read of this  
24 document, sir?

25 DR. BRAIN: I have read various parts. I have scanned

1 this document several times, but I have certainly not  
2 memorized it.

3 MR. CUNNINGHAM: Mr. Brown, I haven't even asked a  
4 question.

5 H.O. BROWN: Mr. Lilly.

6 MR. LILLY: Mr. Brown, I suggest, especially  
7 considering the hour, probably the easiest thing to do is  
8 mark this report as a copy and then State Board staff can  
9 read it rather than having Mr. Cunningham and Dr. Brian read  
10 sentence by sentence. I think it would be appropriate to  
11 just have the whole thing marked as an exhibit and  
12 circulated for all parties.

13 H.O. BROWN: Thank you, Mr. Lilly.

14 MR. CUNNINGHAM: Mr. Brown, we would be amenable to  
15 that. It was not provided as a source document, but we do  
16 have copies. I believe the Yuba County Water Agency also  
17 has copies.

18 I do think it could be identified either as an exhibit  
19 attached to their materials or as a staff exhibit or, if  
20 necessary, an exhibit for Department of Fish and Game.

21 H.O. BROWN: How close are you to finishing?

22 MR. CUNNINGHAM: I think this was -- may I have 30  
23 seconds to do some conferring, and I think we are done.

24 (Break taken.)

25 MR. CUNNINGHAM: We are done, Mr. Brown.

1           Gentlemen, I would like to thank all of you. You have  
2           been very patient, very professional.

3           MR. BRATOVICH: Thank you very much.

4           MR. FRINK: Mr. Brown.

5           H.O. BROWN: Yes, sir.

6           MR. FRINK: Mr. Cunningham referred to a study and  
7           everybody seemed to agree it should be marked and introduced  
8           as an exhibit. The next exhibit in order for the Department  
9           of Fish and Game would be S-DFG --

10          H.O. BROWN: I did not agree to that.

11          Is that what you wanted, Mr. Cunningham?

12          MR. CUNNINGHAM: Since I think it may be usable and  
13          useful for staff, we are prepared to go ahead and identify  
14          it as our exhibit. I would apologize because right now the  
15          only copy I have is one copy and it is marked up. We can  
16          make copies available, I guess, on the 6th.

17          H.O. BROWN: Proceed, Mr. Frink, with your suggestion.

18          MR. FRINK: I would like if you could name the name of  
19          the study, but the exhibit number would be S-DFG-36.

20          MR. CUNNINGHAM: You want me to go ahead and name it  
21          now or we will name it when we submit it?

22          MR. FRINK: Do it now so the record is clear what  
23          everybody has been talking about.

24          MR. CUNNINGHAM: This would be something called  
25          Steelhead and Chinook Salmon Bioenergetics by Joseph J.



1 Cech, Jr., and Christopher Myrick, from the University of  
2 California at Davis, and it is dated on this cover August  
3 1999. And we will make available copies, six for the Board  
4 and copies for all the others when we attend next month.

5 H.O. BROWN: Thank you, Mr. Cunningham.

6 What we are going to do now is take a three-minute  
7 break for Esther or until she gets back, but the witnesses  
8 and staff at the front table can have a 20-second head  
9 start. If you want.

10 We will take a short break.

11 (Break taken.)

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EVENING SESSION

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CROSS-EXAMINATION OF YUBA COUNTY WATER AGENCY

BY STAFF

H.O. BROWN: We are back on the record.

If you would take your seats, please.

MR. FRINK: I will try to make this as quick as I can.

Mr. Robertson, I believe that you stated that there is a five acre-foot per acre contractual cap that applies in instances in which the duty of water for a particular crop exceeds five acre-feet per acre; is that right?

MR. ROBERTSON: That's correct.

MR. FRINK: I believe you also stated that one acre-foot per acre is needed for rice straw decomposition and waterfowl habitat; is that correct?

MR. ROBERTSON: For 90 percent of the rice acreage.

MR. FRINK: Mr. Grinnell, you stated that the duty of water for rice is 5.7 acre-feet per acre; is that correct?

MR. GRINNELL: The applied water rate is 5.7.

MR. FRINK: If the contractual cap on water deliveries is five acre-feet per acre, is that the amount that is used in your studies for rice?

MR. ROBERTSON: The five acre-feet per acre is a cap over an entire district. It is not a per crop result. If there is a mixture of crops, some crops will use less. It

1 is five acre-feet per acre per district.

2 MR. FRINK: Thank you.

3 Mr. Bratovich, when was the instream flow  
4 recommendation in Exhibit S-YCWA-19 prepared?

5 MR. BRATOVICH: Over the past several months.

6 MR. FRINK: When was it completed? I don't mean the  
7 document itself, but your basic proposal, how long ago was  
8 that completed?

9 MR. BRATOVICH: Probably within the -- well, the  
10 refinements to it? It is hard for me to distinguish between  
11 the reporting of it and the development of it. Prior to the  
12 submittal deadline for this supplement hearing.

13 MR. FRINK: You testified your first step in developing  
14 the flow requirements in your report was to define the  
15 amount of water available for instream flow purposes. I  
16 understand that you got your information on the quantity of  
17 water available from Mr. Grinnell and Mr. Sun; is that  
18 correct?

19 MR. BRATOVICH: Yes.

20 MR. FRINK: Your second step then involved determining  
21 the actual flow requirements using the water budget provided  
22 by Mr. Grinnell and then you made some adjustments after  
23 that. Is that a correct summary?

24 MR. BRATOVICH: Yes. Starting with the Draft Decision  
25 proposed recommendation, yes.

1           MR. FRINK: Now, in wet and above normal years your  
2 flow recommendations are very similar to the flow  
3 requirements that were identified in the Draft Decision.  
4 But you did have a reduction to 1,500 cfs in May and another  
5 relatively minor change; is that correct?

6           MR. BRATOVICH: The other change was adding a 700 cfs  
7 at Smartville for an additional month to cover spring-run  
8 spawning, yes.

9           MR. FRINK: I assume the prior reason for flow  
10 reductions in your proposal for below, normal, dry and  
11 critical years is the limits imposed by the water supply  
12 budget that you developed or Mr. Grinnell developed; is that  
13 correct?

14          MR. BRATOVICH: Yes.

15          MR. FRINK: If you had enough water to meet your normal  
16 year, flows in dry and critical years would providing those  
17 flows be expected to benefit the fish?

18          MR. BRATOVICH: Explanation required.

19          MR. FRINK: Yes.

20          MR. BRATOVICH: I don't want to rephrase your question  
21 for you, mischaracterizing it, but I think we are really  
22 asking two questions here. But first I guess my first  
23 response would be, no, I wouldn't recommend wet and above  
24 normal flows in dry year conditions for two reasons.  
25 One is for the implementability of them; and that is what

1 you are talking about as far as water budgets. So that may  
2 not be directly relevant to your question, however.

3 The second reason is that it would be a concern  
4 regarding the natural history of the fish and responses to  
5 various climatologic/hydrologic regimes. Just to make it  
6 short, I am trying to be consistent. I wouldn't want to  
7 necessarily make a wet year out of a dry one and have fish  
8 outmigrating out of the Yuba River in extremely hot, dry  
9 conditions in the Feather or Sacramento River and suffer  
10 mortality.

11 MR. FRINK: Are the minimum flow proposals or -- excuse  
12 me, are the minimum flow requirements in your recommendation  
13 anywhere near the unimpaired flows in wet or above normal  
14 years?

15 MR. BRATOVICH: Mr. Grinnell would better be able to  
16 answer what the unimpaired flows were. I will leave it at  
17 that.

18 MR. FRINK: I will move on. I would ask to -- go  
19 ahead.

20 MR. BRATOVICH: Didn't mean to interrupt.

21 MR. FRINK: I believe you and Mr. Brian both  
22 participated in some stages in the development of the flow  
23 proposal in the AFRP working paper flows for the Yuba River;  
24 is that correct?

25 MR. BRATOVICH: Yes.

1           MR. FRINK: In working with that group did anybody  
2 express the opinion that the flows stated in the working  
3 paper are too high and might be harmful for fish in dry or  
4 critical years?

5           MR. BRATOVICH: I am not aware of any statements to  
6 that effect. I am not sure what venues you are speaking of.

7           MR. FRINK: Did you bring that up as a problem in  
8 working with the AFRP group?

9           MR. BRATOVICH: That the flows were too high? No.

10          MR. FRINK: Mr. Brian, did you bring up that problem or  
11 do you recall if anybody else did?

12          DR. BRIAN: Is your -- can you restate the question?

13          MR. FRINK: I wondered if in working with the AFRP  
14 group if any of the biologists, yourself included, brought  
15 up the potential that the flows identified as being  
16 desirable in the working paper may be too high and,  
17 therefore, harmful to the fish in dry or critical years?

18          DR. BRIAN: No. Small explanation.

19          MR. FRINK: Okay.

20          DR. BRIAN: That being that as I discussed I believe  
21 yesterday, the two efforts on the work for the draft working  
22 paper in this effort was distinctly different in terms of  
23 the amount of time and effort that went into that  
24 contemplation of such issues.

25          MR. FRINK: Mr. Bratovich, you stated earlier that

1 right now the populations of spring-run `chinook salmon and  
2 steelhead would not meet your criteria for being in good  
3 condition. And I believe yesterday you stated that you  
4 believed your proposed flow requirements would help bring  
5 the steelhead and spring-run chinook salmon populations into  
6 the good condition category.

7 Is that right?

8 MR. BRATOVICH: I don't recall that exact  
9 characterization of my testimony. Memory is a weird thing.  
10 If I could try my shot at characterizing it. I think I said  
11 that fish resources that were in good condition would be  
12 maintained in good condition and that the proposal would  
13 continue to contribute to the recovery of those spring-run  
14 and steelhead populations that have been experienced since  
15 construction of New Bullards Bar.

16 MR. FRINK: And that answer then leads me to ask: Do  
17 you believe that the flow recommendations in your proposal  
18 are sufficient to result in the steelhead and spring-run  
19 chinook salmon populations recovering to a good condition?

20 MR. BRATOVICH: I think they will contribute and  
21 provide an opportunity for that. There are numerous other  
22 factors.

23 MR. FRINK: Do you believe that the minimum flow  
24 proposals in your report are better for the fish than the  
25 currently applicable flow proposals out of the 1965 DFG

1 agreement?

2 MR. BRATOVICH: Yes.

3 MR. FRINK: Would you agree with that, Mr. Brian?

4 DR. BRIAN: Yes, I would.

5 MR. FRINK: Would you agree with that, Mr. Mitchell?

6 MR. MITCHELL: Yes.

7 MR. FRINK: Mr. Bratovich, as a fisheries biologist, if  
8 Mr. Grinnell advised you that the water were available to  
9 begin operating to your flow recommendations today, would  
10 you recommend that Yuba County Water Agency operate to those  
11 flow recommendations right away?

12 MR. BRATOVICH: As a minimum instream flow  
13 recommendation, yes.

14 MR. FRINK: Would you agree with that, Mr. Brian?

15 DR. BRIAN: Well --

16 MR. FRINK: As a minimum flow recommendation.

17 DR. BRIAN: I just need to add something. From a  
18 fisheries perspective, yes. But Yuba County Water Agency I  
19 know has numerous contractual arrangements. They may not  
20 legally be allowed to operate those.

21 MR. FRINK: Excuse me, I gave a qualification to my  
22 question. I said if Mr. Grinnell advised you that there is  
23 sufficient water to do it, would you want to go ahead and do  
24 it?

25 DR. BRIAN: Strictly from a biological perspective,



1       yes.

2               MR. FRINK:  Mr. Mitchell, would you agree with that?

3               MR. MITCHELL:  Yes.

4               MR. FRINK:  So I assume all three of you would --  
5       never mind.  I will skip that question.

6               Mr. Mitchell, you spent a lot of time on the Lower Yuba  
7       River.  Have you been at Daguerre Point Dam when the chinook  
8       salmon were trying to migrate upstream?

9               MR. MITCHELL:  When you say "trying"?

10              MR. FRINK:  Have you been at Daguerre Point Dam when  
11       they were migrating upstream?

12              MR. MITCHELL:  Yes, I have.

13              MR. FRINK:  Did you notice any of the problems  
14       described by the South Yuba River Citizens League witnesses  
15       who saw salmon exhausting themselves trying to go upstream  
16       at the face of the dam?

17              MR. LILLY:  And I'd just like clarification, if I may,  
18       Mr. Brown.

19              H.O. BROWN:  Mr. Lilly.

20              MR. LILLY:  I think the question can be stated a little  
21       more generally.  I am not sure Mr. Mitchell was here during  
22       that testimony.  So it may be hard for him to respond  
23       directly to Mr. Frink's question.

24              MR. MITCHELL:  That was my response.

25              MR. FRINK:  We heard some testimony from witnesses for

1 the South Yuba River Citizens League that saw salmon  
2 attempting to migrate upstream and exhausting themselves  
3 attempting to get over the face of the dam.

4 Have you seen any similar situations?

5 MR. MITCHELL: I don't think I would characterize that  
6 as exhausting themselves. I have observed fish  
7 unsuccessfully trying to negotiate the crest of the dam.

8 MR. FRINK: Have you seen any of the them die in an  
9 attempt to get upstream?

10 MR. MITCHELL: No.

11 MR. FRINK: Mr. Grinnell, the conclusions on Pages 10  
12 and 11 of the Exhibit 17 stated that the rate of increase of  
13 groundwater storage in the Yuba south area has ranged from  
14 15.1 thousand acre-feet per year in the dry period to 21.2  
15 thousand acre-feet per year in a wet period. You meant to  
16 be conservative, your report stated that you recommended  
17 that long-term groundwater extractions be limited to an  
18 average of 15.1 thousand acre-feet. Does that sound  
19 correct?

20 Ten and 11 of Exhibit 17.

21 MR. GRINNELL: We are recommending an assessing  
22 opportunity that the 15,000 acre-feet per year be used.

23 MR. FRINK: Now, by its nature a conjunctive use  
24 program ordinarily involves using groundwater in dry years  
25 when the surface supplies are short; is that correct?

1 MR. GRINNELL: That's correct.

2 MR. FRINK: It is my understanding that under your  
3 proposed water year criteria that dry and critical years  
4 occur at about 25, 26 percent of the time?

5 MR. GRINNELL: That's correct.

6 MR. FRINK: So if one were to adopt a conjunctive use  
7 program involving groundwater pumping only in dry or  
8 critical years, could one pump an average of approximately  
9 60,000 acre-feet per year from the South Yuba area in the  
10 years in which groundwater is used?

11 MR. GRINNELL: I would not take -- would not  
12 characterize it that way, taking the 15,000 a year and then  
13 just piling it up to certain years because the impacts and  
14 the response to the basin is more complex than that.

15 MR. FRINK: How much was pumped out of there several  
16 years ago at the time the Yuba County Water Agency, I  
17 believe, relied on groundwater in order to facilitate water  
18 transfers?

19 MR. GRINNELL: In 1981 I believe it was about 81,000  
20 acre-feet.

21 MR. FRINK: Has the basin recovered from that level?

22 MR. GRINNELL: Yes, it's above that level.

23 DR. SUN: Excuse me, can I add a little?

24 MR. FRINK: Actually, we're limited for time. That is  
25 all I really wanted to know.

1           Is it your understanding that during the drought that  
2 Browns Valley Irrigation District also increased its use of  
3 groundwater in order to make a transfer of water outside of  
4 Yuba County?

5           MR. GRINNELL: I am not familiar with the specifics of  
6 that.

7           MR. FRINK: Are you aware that they did engage in  
8 increased groundwater pumping?

9           MR. GRINNELL: Again, not in detail.

10          MR. FRINK: Is there another witness that is available  
11 of the Browns Valley groundwater use during the drought?  
12 Or, excuse me, that is informed about the Browns Valley  
13 water use during the drought?

14          Seeing none, I will move on.

15          Mr. Grinnell, I have some questions about long-term  
16 computer modeling of reservoir storage and releases. In a  
17 series of dry or critical dry years, as I understand New  
18 Bullards Bar Reservoir does not refill each year; is that  
19 right?

20          MR. GRINNELL: That's correct.

21          MR. FRINK: If the annual amount of water required for  
22 instream flows were increased by some number, say, to 50,000  
23 acre-feet per year, then that could result in decreasing  
24 reservoir storage by an increasing amount in each succeeding  
25 year of that dry or critical period; is that correct?

1           MR. LILLY: I object that the question is incomplete  
2 and, therefore, ambiguous because it talks about increase.  
3 It does not talk about over what baseline.

4           H.O. BROWN: Restate it, Mr. Frink.

5           MR. FRINK: Assuming that you have a baseline, and  
6 this is purely arbitrary, that you have been making  
7 releases for instream flows that total 300,000 acre-feet per  
8 year. Now if you were to increase that to 350,000 acre-feet  
9 per year and maintained those increased flows over several  
10 dry and critical years in which the reservoir did not  
11 refill, would that have a magnified affect in the succeeding  
12 years, magnified affect on reservoir storage?

13           MR. GRINNELL: Impacts carry from year to year.

14           MR. FRINK: It will decrease reservoir storage in each  
15 succeeding year by more than the 50,000 acre-foot increment  
16 that you're adding to instream flows for each year; is that  
17 correct?

18           MR. ROBERTSON: That could impact storage, but it could  
19 also cause a deficiency depending on the amount of carryover  
20 storage you need to reserve for a severe dry period.

21           MR. FRINK: But it is likely to have more of an affect  
22 in succeeding years than simply the 50,000 acre-feet  
23 increase?

24           MR. ROBERTSON: Yes.

25           MR. FRINK: If releases from the reservoir for any

1 reason were increased by 50,000 acre-feet over the prior  
2 level, and that were done for each of several years in a dry  
3 or critical period, it would have an accumulative effect;  
4 isn't that correct?

5 MR. GRINNELL: Again, depending upon what happened for  
6 the diversions and also whether or not the reservoir was  
7 refilled would impact that there are continual effects.

8 MR. FRINK: Mr. Grinnell, Mr. Mona is going to put a  
9 table up on the overhead. It is out of Yuba County Water  
10 Agency Exhibit 15. The table shows the figures for the  
11 historical and estimated present levels of demand for  
12 diversions from the Lower Yuba River. I believe it was also  
13 in your overhead slides.

14 MR. GRINNELL: Yes.

15 MR. FRINK: Now the estimated present level of demand  
16 figures shown on the right of the table are all for  
17 estimated demands within Yuba County Water Agency service  
18 area; is that correct?

19 MR. GRINNELL: That's correct.

20 MR. FRINK: Is that also true for historical diversion  
21 numbers?

22 MR. GRINNELL: Yes, I believe it is.

23 MR. FRINK: I would like to call your attention to the  
24 historical diversion figure for 1987. That is 332,878  
25 acre-feet and compare that with the historical diversion

1 number for 1994, which is 239,905 acre-feet. Now both are  
2 in critical years.

3 Can you explain the approximately over 90,000 acre-foot  
4 difference in diversions for those years?

5 MR. GRINNELL: Well, I would imagine they were  
6 different hydrologic years. There is variability,  
7 hydrologic variability, within the year type, number one.

8 Number two, '94 did have some pumping. I am not sure  
9 how that specifically would affect the '94 number, but that  
10 pumping was included in there.

11 MR. FRINK: The pumping for what purpose was included  
12 there?

13 MR. GRINNELL: There was a groundwater in lieu transfer  
14 in '94. I believe about 28,000 acre-feet.

15 MR. FRINK: The number there does include some water  
16 that was used for transfer outside of Yuba County Water  
17 Agency?

18 MR. GRINNELL: No. It includes the amount of water  
19 that was pumped to supply the in-county demands.

20 MR. FRINK: Use of groundwater to irrigate the same  
21 area of the same crop in Yuba County has generally been more  
22 efficient than surface water, hasn't it, because you don't  
23 have conveyance losses?

24 MR. GRINNELL: I would agree.

25 MR. FRINK: So, if all of that water -- let me state

1 this again.

2 If all of those demands had been met with surface water  
3 and if you account for conveyance losses, that number for  
4 1987 would be even higher; is that correct?

5 MR. GRINNELL: No. It was '94 that was the pumping,  
6 not '87.

7 MR. FRINK: '94 was the pumping?

8 MR. GRINNELL: Didn't I say '94?

9 MR. FRINK: But, nonetheless, they are both critical  
10 years. You have more than 90,000 acre-foot difference?

11 MR. GRINNELL: Yeah. There is quite a wide variability  
12 there, and we have not attempted to try to gauge what all  
13 the drivers of that viability are.

14 MR. FRINK: Looking at Yuba County Water Agency Exhibit  
15 13 on Page 8, can you find that? It shows that the amount  
16 of water transferred to DWR for 1987 was 83,100 acre-feet.  
17 Do you see that number?

18 MR. GRINNELL: Yes.

19 MR. FRINK: Do you think it is possible that that  
20 number was included in your historical diversion numbers for  
21 1987?

22 MR. GRINNELL: I do not believe that they were  
23 included, the transfers were included.

24 MR. FRINK: You don't believe any out-of-county  
25 transfers are included in any of your historical diversion



1 numbers?

2 MR. GRINNELL: It's my understanding of the information  
3 that it does not include the out-of-county transfers.

4 MR. FRINK: In looking through Yuba County Water Agency  
5 exhibits I couldn't find a breakdown any place of the  
6 components of the historical annual diversions for use of  
7 water in Yuba County. Is that information in any of the  
8 exhibits?

9 MR. GRINNELL: No, it is not.

10 MR. FRINK: Is that information available?

11 MR. GRINNELL: We got it from the Agency.

12 MR. FRINK: Is it broken down on a district-by-district  
13 basis for each year?

14 MR. GRINNELL: Yes.

15 MR. FRINK: Could you provide that information to the  
16 Board and other parties?

17 H.O. BROWN: Mr. Lilly.

18 MR. LILLY: Again, I am a little concerned about what  
19 seems to be a one-sided discovery attempt here by staff. I  
20 am not sure -- I guess -- we certainly want to cooperate  
21 with staff and the Board, of course. I am not sure of the  
22 relevance here of the historical information on diversions.  
23 When -- all these witnesses have testified. What really is  
24 relevant is the future levels of demand and methods that  
25 they used for those, particular problems with new districts

1 coming on line and so forth. It is really even more  
2 difficult to compare that past diversion information.

3 H.O. BROWN: Mr. Gee.

4 MR. GEE: Can I respond to that?

5 The reason Mr. Frink is asking for it that way and the  
6 reason I would also like to see that information is  
7 obvious. References are made to historical diversions.  
8 That figure was given. And evidence will go to establish  
9 that foundation.

10 Now, if they do not provide such information we can  
11 just strike that evidence.

12 H.O. BROWN: Mr. Frink.

13 MR. FRINK: Mr. Brown, there have been statements made  
14 about the effect of any number of proposed instream flow  
15 requirements on the existing diversions of water within Yuba  
16 County. There are some numbers provided in a table on what  
17 those historical diversions have been, but they vary widely  
18 and apparently without explanation.

19 I think if we can see the actual diversion records on a  
20 district-by-district, year-by-year basis, it would go a long  
21 way toward resolving any uncertainties as to what the actual  
22 existing water demand is.

23 I agree with Mr. Lilly. The future water demands are  
24 very relevant, but I think that the present, existing water  
25 demands are also relevant.

1           H.O. BROWN: Mr. Lilly, will you provide that  
2 information willingly?

3           MR. LILLY: Obviously, if it is the Board's request, we  
4 will do so. I assume this is for 1987 through I believe  
5 whatever the last year was on this overhead, through 1998.  
6 Is that what you want?

7           H.O. BROWN: Yes.

8           MR. LILLY: We will do that. Of course, we have made  
9 our caveats as for the fact that it may not be directly  
10 relevant to future demand or even present levels of demands,  
11 but we will provide it if that is the Hearing Officer's  
12 direction.

13          H.O. BROWN: Is that the information you are asking  
14 for, Mr. Frink?

15          MR. LILLY: Excuse me, Mr. Wilson just clarified for me  
16 that we already submitted it through 1991 during the 1992  
17 hearings. I assume what you really want then would be the  
18 update for the information that is supplement to what we  
19 previously provided.

20          MR. FRINK: I believe that is right. At the Hearing  
21 Officer's request at the last hearing, you did provide the  
22 information from 1991. If you have it all in a single  
23 report on historical diversions, it would be helpful. If  
24 you don't, we'll find the information from 1991.

25          H.O. BROWN: Thank you, Mr. Wilson, that was helpful.

1 Mr. Lilly, thank you.

2 Proceed.

3 MR. FRINK: Mr. Grinnell, have you or your staff done  
4 any modeling runs which use instream flow requirements  
5 identified in the Draft Decision and which use a lower  
6 number for diversion demands than was used in Table 10?

7 MR. GRINNELL: Lower numbers? No, I don't believe we  
8 have.

9 MR. FRINK: Did your model -- I believe you mentioned  
10 earlier that there is some return flow from some of the  
11 water that is diverted for irrigation from the Yuba River;  
12 is that correct?

13 MR. GRINNELL: Yes. Return to where is open to  
14 question on that.

15 MR. FRINK: Do you believe that there is any evidence  
16 that directly or indirectly returns into the Yuba River?

17 MR. GRINNELL: I am not aware of what the return  
18 locations are.

19 MR. FRINK: I see Mr. Robertson shaking his head.

20 Does the return flow all go to a different watershed?

21 MR. ROBERTSON: I don't believe it returns to the Yuba  
22 River. It returns to places other than the Yuba River.

23 MR. FRINK: So it returns -- does it return to the  
24 groundwater basin, some of it?

25 MR. ROBERTSON: A part of it percolates to the

1 groundwater. A part of it enters creeks and returns to the  
2 Feather.

3 MR. FRINK: Thank you.

4 Mr. Grinnell, you testified that the HEC model does not  
5 include provision for water needed to meet the FERC flows,  
6 that that was an extremely complicated matter. But that you  
7 added in an adjustment for the water needed to meet the FERC  
8 flows; is that correct?

9 MR. GRINNELL: We don't add it into the model. We  
10 process it and account for it separately.

11 MR. FRINK: The information -- in doing the model runs  
12 that Dr. Arora did, you worked pretty closely with him in  
13 developing his understanding of the model; is that correct?

14 MR. GRINNELL: That's correct.

15 MR. FRINK: Do you know if he did any accounting for  
16 the FERC required flows?

17 MR. GRINNELL: I do not.

18 DR. SUN: The FERC accounting was not a subject of  
19 discussion.

20 MR. FRINK: So the results presented in the exhibit  
21 that Dr. Arora discussed are simply the modeled results  
22 without any adjustment for FERC flows?

23 MR. GRINNELL: Yes.

24 MR. FRINK: Now, FERC adopted some increased flow  
25 requirements in the early 1990s applicable to the Narrows 1

1       Powerhouse; is that correct?

2               MR. GRINNELL: That's correct.

3               MR. FRINK: In accounting for the water deficiencies  
4 that could result from adoption of the flows in the 1996  
5 Draft Decision, did you assume that the FERC requirements  
6 were being met or not?

7               MR. GRINNELL: We do not add the FERC flow requirements  
8 to the deficiencies that were resulted. That is why we show  
9 them separately.

10              MR. FRINK: At Englebright for several months of many  
11 years the flow requirements under the 1996 Draft Decision  
12 would be the same as are required under the FERC order for  
13 Narrows 1; is that correct?

14              MR. GRINNELL: I have to look at the schedules, but I  
15 believe the flows are somewhat similar.

16              MR. FRINK: So the flows that actually have to be in  
17 the river right now in compliance with the FERC requirements  
18 are going to be somewhat higher than the flows that were  
19 modeled under the 1965 Department of Fish and Game  
20 agreement; is that correct?

21              DR. SUN: May I add a little bit?

22              MR. FRINK: Sure.

23              DR. SUN: The FERC flow accounting, the reason why they  
24 are complicated, because it was a daily accounting process,  
25 and it was accounting at the top, flow on top of the

1 diversion and the instream flow requirements. And so it  
2 also depends on the current reservoir storage at Englebright  
3 and at New Bullards Bar, whether or not they made the  
4 criteria specified in the FERC license, and determined  
5 whether or not this flow will be required.

6 MR. FRINK: Is it correct that in some instances the  
7 FERC requirements will require more water to be released for  
8 instream flows than are provided under the 1965 Department  
9 of Fish and Game agreement?

10 DR. SUN: Yes, it will have to.

11 MR. FRINK: I believe that is all my questions.

12 Thanks very much for your short answers. I greatly  
13 appreciate it.

14 MS. LOW: Thank you. I will try to get through my  
15 questions as quickly as possible here. This first question  
16 is for the panel in general. Anybody can answer this  
17 question.

18 Did YCWA do any analysis of the impacts of your flow  
19 recommendation on the flooding of waterfowl habitat in Yuba  
20 County?

21 MR. GRINNELL: I don't believe so.

22 MS. LOW: Was that considered a significant issue to  
23 analyze?

24 MR. GRINNELL: We -- for the modeling we don't break  
25 out impacts to deficiencies for waterfowl habitat versus

1 other diversions. It is just the impact on the diversion  
2 schedules so we don't discern that one specifically.

3 MS. LOW: So that wasn't considered an important issue  
4 to analyze separately, as a separate impact?

5 MR. GRINNELL: We don't have -- the way that we set up  
6 the model we don't have the capability to do that. So, no,  
7 we did not do it.

8 MS. LOW: Thank you.

9 This question is, again, for Mr. Mitchell. I just have  
10 a couple questions on this, Exhibit 24, your handout.

11 I have a question on the relationship of timing of  
12 juvenile chinook salmon salvaged at the Hallwood-Cordua fish  
13 screen, Page 8 of your Exhibit 24. You indicated in your  
14 testimony a little while ago I think that basically the  
15 bars around each square point indicate the time that the  
16 trap was in operation; is that correct?

17 MR. MITCHELL: Actually, that is not quite correct.  
18 The lower most bar represents the date when 10 percent of  
19 the fish were salvaged. The upper point represents the  
20 date when 90 percent of the fish were salvaged during the  
21 time the facility was in operation.

22 MS. LOW: So you could say that the trap was operated  
23 somewhat before and after the time period indicated between  
24 the 10 and 90 percent catch?

25 MR. MITCHELL: That's correct.



1 MS. LOW: So we can conclude from this that the trap  
2 was not operated over a consistent time period every year;  
3 is that correct?

4 MR. MITCHELL: That's correct. The time period when  
5 they start and end varies and duration of the period varies.

6 MS. LOW: And could we say that in general it appears  
7 to me that the trap -- the period that the trap was in  
8 operation was in general later in high flow years than in  
9 lower flow years? Could we in general conclude that from  
10 this graph?

11 MR. MITCHELL: I examined that, and that is not  
12 necessarily true. In 1980 or -- in 1980, for example, the  
13 date when the trap was first installed was sometime in late  
14 April. And so there was a period of operation when no fish  
15 were collected at all until, I believe, early to mid May.

16 MS. LOW: Or less -- you could say from this graph less  
17 than 10 percent, at least?

18 MR. MITCHELL: Right. So there is quite a long  
19 duration there before they caught 10 percent of the fish.

20 MS. LOW: But in general it looks to me in the general  
21 positions of these bars on this graph that in general the  
22 trapping periods was later in the high flow years than in  
23 the low flow years; is that correct?

24 MR. MITCHELL: This represents the number of fish that  
25 were caught. So you'd have to go back to the actual times

1 when the trap -- or the fish screen was installed. I have  
2 done that and in some years we do see a later timing and  
3 other years it is earlier. In general if you look across  
4 the dates for all of the years, it's not consistently -- it  
5 is not a consistent pattern that they operate the trap later  
6 in the year.

7 As I pointed out, the example is 1980.

8 MS. LOW: Are those dates provided anywhere in your  
9 written testimony?

10 MR. MITCHELL: No, they aren't.

11 MS. LOW: They are not? That seems like a significant  
12 issue to make sense out of this kind of a relationship that  
13 we would need to know when, what dates the trap was in  
14 operation, otherwise it is very difficult to interpret a  
15 relationship such as this.

16 It is my understanding that during high flow periods  
17 that the trap is not in operation because the holding tank  
18 gets flooded. Fish and Game can't operate the thing.

19 Do you have any information similar to that?

20 MR. MITCHELL: Well, I have been told by the operator  
21 of the trap, Department of Fish and Game employee, Dave  
22 Rose, is that during high flow periods they have installed a  
23 trap, but the numbers of fish are so few that in some cases  
24 they don't operate until flows drop. In high flow year they  
25 do -- in high flow years diversions often don't start until

1 later in the year. That is one reason why they may start  
2 later in some years.

3 MS. LOW: If they do start later, Mr. Mitchell, then  
4 your trapping period is later in a high flow year, wouldn't  
5 you expect then that your median date of outmigration would  
6 be later? Wouldn't it follow that your median date that you  
7 caught your fish outmigrating would be later if you started  
8 trapping later?

9 MR. MITCHELL: That was certainly a question I asked  
10 myself, and, in fact, looked at that. When I looked at the  
11 years that were shown here, I decided that the best way to  
12 determine whether or not we were accurately catching, so to  
13 speak, the migration period was to look at the numbers of  
14 fish that were caught early during the period of salvage  
15 operations and follow that through.

16 What you see in the years selected for evaluating this  
17 relationship is in those years the trap started early enough  
18 so we pick up the low numbers of fish during the early part  
19 of trapping, the general peak and decline. I used that as a  
20 criterion for determining whether the trap had actually  
21 detected or had encompassed the major spring migration  
22 period.

23 MS. LOW: That could be true that you would see a peak  
24 there, but it could be that you missed a significant portion  
25 of the population before the trap was in operation. Is that

1 not correct, if you started later in a particular year?

2 MR. MITCHELL: That is possible if there was another  
3 mode, for example, if there was another peak in the  
4 migration earlier in the season, that certainly would not  
5 have been detected.

6 MS. LOW: Are you aware that some fish may go out of  
7 the system as smaller fish, as fry, for example?

8 MR. MITCHELL: Yes.

9 MS. LOW: So you may have missed if you started  
10 sampling at some point in May, say, you may have missed a  
11 whole other peak of outmigration.

12 MR. MITCHELL: In fact, none of these encompassed the  
13 fry migration mode from what we have been able to determine  
14 from general data of fry migration.

15 MS. LOW: The traps sampling I would think would not be  
16 efficient even for those smaller fries, would you say that  
17 that is correct?

18 MR. MITCHELL: I don't know whether the screen is  
19 actually efficient for fry or not.

20 MS. LOW: Could you say that this data is unbiased in  
21 its characterization of outmigration, peak of outmigration  
22 in relationship to spring flows?

23 MR. MITCHELL: Well, first of all, it would be only for  
24 the later outmigration of juveniles, the larger juveniles  
25 that outmigrate during the later spring. It does not

1 accurately portray the migration of fry that occurs  
2 earlier. I believe that it represents a reasonable  
3 indication of the timing of migration based on my analysis  
4 of the data. But I cannot say that it is totally unbiased  
5 because of other variables, such as the timing of trap  
6 operations and possibly peak numbers of fish coming through  
7 before the trap is installed or even after the trap is taken  
8 out.

9 MS. LOW: It seems to me that if you want to make some  
10 statements about timing of outmigration you really do have  
11 to run your sampling gear at a consistent time period every  
12 year to be able to say whether your timing is -- whether  
13 you're really getting any information about timing.

14 Would you agree with that statement?

15 MR. MITCHELL: I agree with that. That would  
16 definitely be an advantage to determining the time, actual  
17 timing of migration.

18 MS. LOW: Thank you, Mr. Mitchell.

19 I will move on to Mr. Grinnell. I would like to ask  
20 you some questions or any of the other authors on your  
21 Exhibit Number 15 where you are looking at diversion  
22 requirements. Just a general question. Since the  
23 construction of New Bullards Bar Reservoir have there been  
24 changes over on the years in water deliveries to the YCWA  
25 service area?

1 MR. GRINNELL: Yes, there are.

2 MS. LOW: Have water deliveries, say, increased over  
3 the years since the construction of the dam?

4 MR. GRINNELL: Absolutely.

5 MS. LOW: Were deliveries lower in 1970, say, than they  
6 were in 1999? I am not asking you data on those specific  
7 years, but would you say that over that time period?

8 MR. GRINNELL: Absolutely.

9 MS. LOW: Thank you.

10 Another thing, Mr. Grinnell, in your testimony  
11 yesterday I thought I heard you state that YCWA plans some  
12 temporary water transfers until development in Yuba County  
13 is complete. Is that correct?

14 MR. GRINNELL: Yes. That they have the capability to  
15 do short-term transfers and once full development that is  
16 going to be severely limited.

17 MS. LOW: Thank you.

18 Are you aware that the petition for change filed  
19 recently with the State Water Board was made under a Water  
20 Code section that applies to permanent water transfers?

21 MR. GRINNELL: I don't know the specifics of that  
22 change of use application.

23 MS. LOW: Thank you.

24 Again, Mr. Grinnell, this would be on your Exhibit 16.  
25 This is dealing with your hydrologic modeling. I am

1 interested in knowing some more details of how you set  
2 levels of reservoir carryover storage in the model. Is the  
3 reservoir carryover storage that you use in the model  
4 between different water years, is that somewhat of an  
5 artificial value in the model or is that an actual carryover  
6 target that would be used in project operations?

7 MR. GRINNELL: It's the methodology that we use, is,  
8 and I don't want to speak for Mr. Wilson specifically, it is  
9 a methodology that I believe he applies in operation in  
10 general.

11 MS. LOW: It would be similar to what, how you actually  
12 operate the reservoir?

13 MR. GRINNELL: Yes.

14 MS. LOW: I am interested on Page 2-7, it states that  
15 cap on a carryover storage requirement is 600,000  
16 acre-feet. And that, as I understand it, is more than half  
17 of the reservoir capacity at New Bullards Bar. I am  
18 wondering if that is a typical carryover storage value in  
19 this type of a model?

20 MR. GRINNELL: Typical? I don't know that I can  
21 characterize it that way.

22 MS. LOW: Would you actually operate a reservoir in  
23 that manner, to have that large a carryover storage?

24 MR. GRINNELL: Actually, the cap is to make sure that  
25 we don't have too much carryover storage requirement. For

1 instance, the Draft Decision instream flow requires quite a  
2 bit of carryover storage requirement to make sure under  
3 certain scenarios; so we cut it off so it is not  
4 unreasonable.

5 MS. LOW: Could you go through very briefly how you  
6 would calculate the needed reservoir carryover storage?

7 MR. GRINNELL: Yes. That is -- actually, the formula  
8 for that is on Page 2-7. Again, it is 50 percent of the  
9 diversion requirement for next year, the instream flow  
10 requirement and if there are reductions allowed in that for  
11 a dry year, then that would be applied. The system loss,  
12 evaporation, and the dead pool just as a starting storage  
13 amount.

14 MS. LOW: So basically in your model you did predict  
15 some shortages in that carryover storage term, in your  
16 model; is that correct?

17 MR. GRINNELL: That's correct.

18 MS. LOW: So that in and of itself is nothing to worry  
19 about unless you get shortages in subsequent years in either  
20 instream flow requirements for consumptive use needs; is  
21 that correct?

22 MR. GRINNELL: That's correct. We just use it as an  
23 indicator of risk, so to speak, of not meeting next year's  
24 instream flow requirements or demands.

25 MR. LOW: When you report a shortage, it is not



1 necessarily something that would cause any kind of harm to  
2 the water supply in the following years; is that right?

3 MR. GRINNELL: Correct.

4 DR. SUN: Add a little bit of clarification.

5 MS. LOW: Go ahead.

6 DR. SUN: The carryover storage is like what Mr.  
7 Grinnell said, is an indicator that we may have a problem to  
8 supply the downstream demand, including instream flow  
9 demand, in a following year if the following year actually  
10 becomes a very, very dry year, for example, like '77. And  
11 that shortage was starting -- was realized and reflected in  
12 the delivery and instream flow. And if the next year was a  
13 wet year, for example, that risk was gone.

14 MS. LOW: I understand.

15 You did predict, like on Page 7-11, there are some  
16 instream flow shortages predicted in certain years with the  
17 Draft Decision; is that correct?

18 MR. GRINNELL: That's correct under, I believe it is,  
19 all scenarios for the Draft Decision.

20 MS. LOW: Now, in reality, if minimum flows were  
21 ordered, they would have to be met at all times; is that  
22 right?

23 MR. GRINNELL: What we are showing here is they  
24 couldn't do it. They wouldn't physically have the water to  
25 meet the instream flow requirement.

1 MS. LOW: But in further iterations of the model there  
2 could -- you could have made it possible to meet those  
3 instream flow requirements; is that correct?

4 MR. GRINNELL: No, not under the demands on the  
5 system.

6 MS. LOW: But if there was a way of anticipating a -- I  
7 understand that you gave the model some hard rules to meet,  
8 and then when you ran your reservoir down to dead pool you  
9 shorted the instream flow requirement. But would there be a  
10 way of, in further iterations of the model, to anticipate  
11 those periods where the reservoir would be drawn down to  
12 dead pool?

13 MR. GRINNELL: The only way to do that would be is the  
14 year before to put significant deficiencies on the demands.  
15 If you knew that the next year was going to be very dry, you  
16 would take the year before and apply a lot of deficiencies  
17 so you kept water in the reservoir to try to get through  
18 that next year.

19 (Reporter changes paper.)

20 H.O. BROWN: There is a problem we are facing. The  
21 garage closes at seven.

22 MS. LOW: Could we continue this to the week after next?

23 H.O. BROWN: I am reluctant to bring the panel back  
24 for five more minutes of questioning. How about speeding up  
25 your questions and see how we are doing here in the next ten

1 minutes.

2 DR. SUN: Excuse me, for the last question, just one  
3 sentence.

4 MS. LOW: Yes.

5 DR. SUN: A reduction of the instream flow diversion at  
6 Daguerre Point Dam has the potential to reduce flow release  
7 from the Englebright Dam. So we save water for later use,  
8 but we also have the instream flow requirement below  
9 Englebright Dam. So sometimes it is not possible to.

10 MS. LOW: This is on your Exhibit 17. You look at the  
11 sustainable yield of groundwater from the Yuba south basin.  
12 And I just have a simple question.

13 Are you aware of any potential sustainable yield of  
14 groundwater from basins other than the Yuba south within the  
15 Yuba County service area?

16 MR. GRINNELL: Maybe -- this is not sustainable yield.  
17 This is net recharge of basically of what we calculated.

18 MS. LOW: Net recharge? I think that you made an  
19 estimate of something that could be sustained from the basin  
20 on a consistent basis?

21 MR. GRINNELL: We made an estimate of the net recharge  
22 of two levels.

23 MS. LOW: So the sustainable yield would be at least as  
24 big as the recharge?

25 MR. GRINNELL: Yes, that's correct.

1 MS. LOW: So you didn't make your estimates in terms of  
2 sustainable yield, but the sustainable yield would be at  
3 least just as great; is that right?

4 MR. GRINNELL: Yes. This is a conservative estimate of  
5 that amount. This is net recharge.

6 H.O. BROWN: Mr. Lilly, let me give you a choice here.  
7 Who all has their car parked in the state garage that closes  
8 at seven? You want to take ten minutes and move the cars  
9 and give Ms. Low all the time she needs without stifling  
10 her?

11 MR. LILLY: Yes, let's do that.

12 H.O. BROWN: Or would you rather come back?

13 MS. LILLY: We have conflicting schedules.

14 H.O. BROWN: There will be a ten-minute break and we  
15 are 25 after right now.

16 (Break taken.)

17 H.O. BROWN: Back on the record.

18 Alice.

19 MS. LOW: Thank you, Mr. Brown.

20 Let's see, my last question I don't think was answered  
21 yet. This is for Mr. Grinnell on Exhibit 17.

22 Are you aware of any potential sustainable yield of  
23 groundwater from basins other than the south basin within  
24 the YCWA service area?

25 MR. GRINNELL: No.

1 MS. LOW: So you did an analysis just for that basin;  
2 is that right?

3 MR. GRINNELL: For the Yuba south basin.

4 MS. LOW: Then moving on to Exhibit 18, the water  
5 temperature analysis. I think most of my questions will  
6 probably also be for Mr. Grinnell or the other authors if  
7 appropriate.

8 You developed for the 1992 hearing, you developed --  
9 not you specifically, but Bookman-Edmonston developed a  
10 water temperature model for that hearing. I am wondering  
11 why that model was not used again to predict water  
12 temperatures in the Lower Yuba River.

13 MR. GRINNELL: That model was a physical-based model  
14 and did not nearly have the amount of information that we  
15 have utilized here in this analysis. And so that model also  
16 is not a predictive model where we have used a predicted  
17 capability of regression analysis to try to predict water  
18 amounts that would not be capable of that physical  
19 response.

20 MS. LOW: I thought it was a predictive model. I must  
21 have been mistaken when I read the previous exhibits.

22 MR. GRINNELL: I believe that model reoperated a  
23 certain time frame where information available; I think '74  
24 to '78.

25 MS. LOW: So a similar model to that type of model

1       could not be developed for adding additional years of data  
2       into a model such as that?

3               MR. GRINNELL:  Not that it could not be.  Because of  
4       the significant amount of temperature information, flow  
5       information and the data sets, we felt this was, now with  
6       this new information, a more appropriate way to examine the  
7       issues of temperature.

8               MS. LOW:  But a temperature -- a complete temperature  
9       model of the reservoir and the river then was not attempted?  
10       You did have actual temperature data that could be a  
11       foundation for developing a full temperature model, but that  
12       analysis was; is that correct?

13              MR. GRINNELL:  It was not done.

14              MS. LOW:  Is there any reason for that?  Would that  
15       give you better predictability on temperatures on the Lower  
16       Yuba River than you have with this regression analysis?

17              MR. GRINNELL:  I cannot -- because I don't have that  
18       model, I could not tell if it would be better or worse.

19              MS. LOW:  You made the decision at some point to do  
20       this regression analysis and not pursue development of a  
21       reservoir and stream temperature model for the lower  
22       requiring; is that right?

23              MR. GRINNELL:  Yes.

24              DR. SUN:  Can I add a little bit?

25              MS. LOW:  Yes.  Go ahead.

1 DR. SUN: The physically-based model uses a lot of  
2 climatology data. And when the model was used for  
3 prediction, you need to have the source of those predictions  
4 for those data. And as we explained in our testimony, there  
5 probably will be two-day advance scheduling for the instream  
6 flow. And, therefore, you need to have two-day advance  
7 prediction. For example, for wind velocity and solar  
8 radiation, cloud coverage and all that kind of factors. And  
9 we've already showed you that even just the air temperature  
10 alone we already have a significant problem in a  
11 prediction. So to comply the Draft Decision specification  
12 with no allowance will be allowed for the temperature  
13 criteria at any day, I think that will be very difficult to  
14 use the physically-based model for that operation purpose.

15 MS. LOW: The physically-based model would be worse at  
16 doing predictions in this case?

17 DR. SUN: I would not say would be worse. Basically  
18 what I am saying is that you have no real control about the  
19 error associated with the prediction of wind velocities,  
20 solar radiation, cloud coverage and even air temperature.  
21 And air temperature prediction where we are showing here the  
22 error associated with those predictions was not given by  
23 Accurate Weather, Inc., or National Weather Service. They  
24 will never issue what's the possibility of the error of  
25 their prediction. They just issue a maximum and minimum

1 number. If they're correct, that would be fine. If not,  
2 they usually do not issue a correction after that.

3 So, the way we are trying to characterize and  
4 describing in our testimony to show that there is a  
5 significant error associated with the weather forecast. And  
6 we use the historical -- a historical temperature and the  
7 predictive temperature. We compare those just for that  
8 particular period that was shown and use that to calculate  
9 the error margin.

10 So, because the Draft Decision, it has absolute  
11 temperature criteria and specific location and no allowance  
12 was permitted. And, therefore, you need to have all those  
13 prediction factors ready and in the controllable fashion in  
14 order to implement this flow.

15 MS. LOW: You are talking about the error in, like,  
16 predictions of air temperature and that sort of thing. With  
17 your regression analysis you do have those same problems;  
18 isn't that right, with that error in predicting?

19 MR. GRINNELL: Absolutely. That error has to be  
20 accounted for.

21 MS. LOW: That isn't really a reason that you did  
22 regression analysis rather than develop a temperature model?

23 DR. SUN: The major difference of any statistical model  
24 and a physically-based model is that the statistical model  
25 has the opportunity to lump all the errors of all the



1 factors together to give you an overall estimate of your  
2 prediction capability. And if you go into the  
3 physically-based model, you need to characterize for each  
4 factor. That is substantially more difficult to do.

5 MS. LOW: Okay.

6 Let's see, I would like to get back to -- I know we  
7 already had some questions about the planning that is  
8 currently underway for a revised intake structure at  
9 Englebright Dam for temperature control.

10 I think, Mr. Grinnell, yesterday you made an estimate  
11 based on some analysis that this kind of temperature control  
12 device could make a zero -- between a zero and six degree  
13 difference in temperatures on the Lower Yuba River; is that  
14 correct? Is that what you testified to?

15 MR. GRINNELL: That's correct.

16 MS. LOW: Would that be degrees Fahrenheit?

17 MR. GRINNELL: That's correct.

18 MS. LOW: Where would that temperature difference be  
19 measured? Would that be at Marysville or right at the  
20 release?

21 MR. GRINNELL: No. That is the release.

22 MS. LOW: And how did you make that? What methods did  
23 you do for that analysis, use for that analysis?

24 MR. GRINNELL: We used some temperature profile  
25 information that the Agency has collected at Englebright

1 and also some of the Colgate release information to look at  
2 what the potential benefits would be from that temperature  
3 control device.

4 MS. LOW: Would you say this was kind of a preliminary  
5 analysis of the benefits of that structure or was it a quite  
6 detailed analysis that went into the prediction?

7 MR. GRINNELL: I would not characterize it as highly  
8 detailed. However, it showed enough promise to move forward  
9 and warrant wanting to implement it.

10 MS. LOW: Thank you.

11 I have a question on your flow temperature or the  
12 predictive relationship that you developed. This would be  
13 in Exhibit 18, Page 15. I have an overhead if that would  
14 help for everyone to look at these same relationships. I  
15 can put that up.

16 There are three relationships here where you are  
17 relating first temperature, release temperatures from New  
18 Bullards Bar to Englebright release temperatures and then  
19 the downstream temperatures are being predicted at  
20 Marysville and Daguerre Point Dam; is that correct?

21 MR. GRINNELL: Correct.

22 MS. LOW: I am wondering how are these relationships  
23 derived? Was it a stepwise multiple regression analysis  
24 where you threw in a bunch of factors and did an analysis to  
25 find out which factors were the most important in

1 influencing water temperatures?

2 DR. SUN: I think I probably will be better person to  
3 answer that question. It actually was through the multi  
4 variant regression analysis. We started examining the  
5 various factors and started eliminate for those factors was  
6 totally not effective. And this is with the remaining  
7 factor.

8 MS. LOW: You started with a larger number of factors  
9 to begin with and these are the ones that fell out as the  
10 important factors in determining temperatures at this  
11 location; is that right?

12 DR. SUN: Yes. And I also want to mention that the  
13 relationship you point out, Page 15, those are not the final  
14 relationship we used in the prediction. This is just  
15 preliminary analysis that we want to find out the dominating  
16 factor throughout the year and as a test drive for the  
17 further analysis breaking down into monthly. And so this is  
18 a preliminary analysis. I showed it here is just as showing  
19 that this is an initial step of the investigation.

20 MS. LOW: Okay. I do understand that refinements were  
21 made by months in subsequent analysis to this. These were  
22 generally equations that were derived from the stepwise  
23 multiple regression; is that correct?

24 DR. SUN: Yes.

25 MS. LOW: In the relationship that this third equation

1 up here, it would be the relationship to predict Daguerre  
2 Point Dam temperatures. I notice that the coefficient for  
3 the flow term is extremely small. That coefficient is  
4 negative .00002667.

5 Is that the right way to read that?

6 DR. SUN: Yes.

7 MS. LOW: Were the temperatures used here, temperatures  
8 in degrees Fahrenheit -- I am sorry -- I meant to ask that  
9 were the -- was the flow term in terms of cfs in this  
10 equation?

11 DR. SUN: Yes.

12 MS. LOW: I am surprised at the value for that  
13 coefficient in that equation for the flow component. It  
14 seems like that coefficient for the flow term is so  
15 extremely small that it would mean that you would need to --  
16 in order to decrease the mean Yuba River water temperature  
17 at Daguerre Point Dam by approximately 2.6 degrees  
18 Fahrenheit with all other factors held constant, you would  
19 have to increase the flows in the river by approximately a  
20 hundred thousand cfs. Would that --

21 DR. SUN: Yes. I think this is --

22 MS. LOW: Is what that would mean?

23 DR. SUN: However, this is the yearly value. Again, we  
24 are looking at the throughout year modeling. And going  
25 through by month you would see the different impact of the

1 flow.

2 MS. LOW: That is true. I am just looking at these  
3 generally, the equations. I notice in your monthly values  
4 these did vary. They did vary somewhat by month. In your  
5 general equation here what this would mean is that to lower  
6 the temperature by 2.6 degrees you would need a hundred  
7 thousand cfs, which would be a flood flow release on the  
8 Lower Yuba River to --

9 MR. GRINNELL: This is relating to --

10 MR. LILLY: Go ahead. I think the question needs  
11 further clarification.

12 MR. GRINNELL: This relationship is relating to the  
13 river at Marysville, to the temperature at Daguerre. And  
14 it is showing in deriving differences in temperatures there  
15 above the relationship is taking those flows. So it is a  
16 calculation based off of the temperature at Marysville, of  
17 flow temperature at Marysville.

18 H.O. BROWN: The 2.6 degrees would be the difference  
19 between the Marysville point and the dam; is that right?

20 MR. GRINNELL: Between --

21 H.O. BROWN: Between those two points?

22 MR. GRINNELL: For the temperature at the Marysville  
23 gauge. What we are saying is it takes a lot of flow to  
24 expand the relationship between the temperature at  
25 Marysville and the temperature at Daguerre.

1 MS. LOW: In a similar way, though, the coefficient is  
2 very small in the equation for Marysville water  
3 temperatures. You have a flow term there of negative  
4 .000239. So you would need a flow of approximately 10,000  
5 cfs to get a 2.3 degree change in water temperature at  
6 Marysville.

7 MR. GRINNELL: Right. It is kind of comparing apples  
8 and oranges comparing those two relationships. Rather You  
9 should be comparing the relationship of the same  
10 coefficients. In other words, the prediction for Daguerre  
11 based on the Marysville flow, the Englebright release and  
12 the Marysville air temperature. If you compare those two,  
13 then you could see the difference there.

14 DR. SUN: I think -- if I just may add. The purpose of  
15 that particular equation is that we don't have a continuous  
16 measurement at Daguerre Point Dam for temperature. And,  
17 therefore, we try to relay the Marysville temperature with  
18 the Daguerre Point Dam temperature for all the data was  
19 available. So that we come away with a general prediction  
20 tool for Marysville temperature based on upstream release in  
21 and ambient air temperature and also release temperature.  
22 We can also generate a prediction at Daguerre Point. That  
23 is a reason for that.

24 Then the low coefficient for Marysville flow, it's just  
25 indicating -- I assume you understand the regression

1 analysis very, very well. And this coefficient is actually  
2 representing a relative importance to describe the target  
3 variable which is Daguerre Point temperature right here.  
4 What it is showing is that this particular temperature at  
5 this particular point is more related to Marysville  
6 temperature, water temperature, and then if you add  
7 additional factors, the Marysville air temperature, you  
8 explain additional variation. And the addition of the  
9 Marysville flow, flow factor itself, it may be just adding a  
10 little bit more of explanation in the capability.

11 MS. LOW: Yes, I do understand that.

12 What I am concerned about, to me these relationships --  
13 the flow term in these relationships are of a concern  
14 because it seems like the coefficients are extremely low.  
15 It would take -- it doesn't seem reasonable to me that you  
16 would need those kind of flows to affect water temperature  
17 at Marysville or Daguerre Point Dam.

18 MR. GRINNELL: This is regression analysis of a  
19 significant amount of data. And I think you have hit it on  
20 the head. It represents the flow. Our conclusion that flow  
21 is, although a factor and it affects temperature, it is not  
22 an overriding factor when compared to things like the air  
23 temperature and the release temperature.

24 MS. LOW: It just seems to me to be extremely low. Did  
25 flow actually come out as a significant factor in your

1 multiple regression analysis? Was it significant?

2 DR. SUN: It is significant enough to keep in. And I  
3 mean, all this factor if you were to go to eliminate any one  
4 of them, the first one to go I would say would be Marysville  
5 flow.

6 MS. LOW: Yes, yes. I would agree based on these  
7 relationships.

8 DR. SUN: I think we conducted this regression analysis  
9 based on the temperature data that was available, and this  
10 is what the data is showing.

11 MS. LOW: Mr. Grinnell, do you have anything else to  
12 add to that?

13 Thank you. I just am surprised that those factors came  
14 out to be that low.

15 DR. SUN: We, too. And we actually -- we know that  
16 flow was not a good control for the downstream temperature,  
17 good factor to try to control the downstream temperature.  
18 We did not realize that could be in this kind of sense.

19 MS. LOW: Thank you.

20 MR. GRINNELL: Although this was supported by the  
21 physical-based model that was essentially -- they all showed  
22 that the physical model has limitations of flow temperature  
23 relationship.

24 MS. LOW: Okay. I am just surprised that it is to that  
25 extent.



1           Thank you very much. That is enough to the temperature  
2           stuff. Moving on to Exhibit 19. Think most of my questions  
3           will probably be for Mr. Bratovich or perhaps other authors  
4           of that study.

5           The fishery analysis in this exhibit focuses on  
6           maintaining the fishery resources in good condition per the  
7           language in Fish and Game Code Section 5937; is that correct?

8           MR. BRATOVICH: Yes.

9           MS. LOW: Are you aware that the State Board has broad  
10          public trust responsibilities that are different than simple  
11          enforcement of Fish and Game Code Section 5937?

12          MR. BRATOVICH: In general terms.

13          MS. LOW: I am just wondering why everything, all of  
14          your analysis related to the framework of Fish and Game Code  
15          Section 5937 when there are other issues at stake here,  
16          including endangered species protection and other issues,  
17          that there is really a broader context here than just Fish  
18          and Game Code 5937.

19          MR. LILLY: I am going to object that that question  
20          mischaracterizes their testimony. They clearly did consider  
21          endangered species considerations.

22          H.O. BROWN: Mr. Frink.

23          MR. FRINK: I am not sure there is even a question on  
24          the point. I think Ms. Low made a statement. I don't know  
25          if she asked for agreement or not from the parties. But if

1 she wants to ask if did their analysis consider factors  
2 beyond making the fish in good condition, I think that is an  
3 acceptable question.

4 H.O. BROWN: Is there a question, Ms. Low?

5 MS. LOW: That would be my question.

6 MR. BRATOVICH: Our evaluation did not.

7 MS. LOW: Okay. Thank you.

8 MR. BRATOVICH: It was based on the conclusions  
9 presented in the testimony which were in accord with our  
10 definition of good condition. So strictly speaking, no. As  
11 they may be applicable to endangered species considerations,  
12 perhaps.

13 MS. LOW: Thank you.

14 In your analysis of available water for instream flow  
15 release it appears that the maintenance of water supply at a  
16 full development level of demand was used; is that correct?

17 MR. GRINNELL: Could you explain what you mean by  
18 "maintenance"?

19 MS. LOW: Well, in the calculation of available water  
20 for instream flow needs, it appears to me that it was  
21 assumed that water supply would be delivered at the full  
22 development level rather than current development level?

23 MR. GRINNELL: Full versus current; that's correct.

24 MS. LOW: You didn't do any analysis of current level  
25 of demand; is that right?

1           MR. GRINNELL: We did not base our water analysis on  
2 the present level of demands. We based it on full  
3 development level, yes.

4           MS. LOW: You could have done it, I suppose, under both  
5 levels of demands, but that was not done?

6           MR. GRINNELL: That's correct.

7           MS. LOW: And then, also, it appears on Page 2-8 there  
8 is a statement made that the maximum anticipated diversion  
9 demand was used. And I am assuming this means that there  
10 was some maximum diversion demand that was used and not the  
11 average diversion demand. Is that correct?

12          MR. GRINNELL: You said 2-8?

13          MS. LOW: 2-8. Let me see if I can find the exact  
14 location of that. That statement was made on Page 2-8. It  
15 would be under your Section 1(b), first sentence of that  
16 (1)(b) section.

17                   For each period --       (Reading.)

18           You're talking about the evaluation protocol.

19                   For each period, add the preliminary  
20 requirements identified at Marysville to the  
21 maximum anticipated diversion demand at  
22 Daguerre Point Dam.       (Reading.)

23          MR. GRINNELL: Yes. But that goes on further why that  
24 was done. It was in order to ensure that both the  
25 requirements and irrigation demand does not exceed release

1 capacity of the Narrows 2 Powerhouse.

2 MS. LOW: So your analysis looked at the maximum  
3 amount, maximum demand level?

4 MR. GRINNELL: A maximum anticipated maximum diversion  
5 for that period just to check against the release capacity.  
6 In other words, so that we weren't specifying an instream  
7 requirement with the diversion requirement which would be  
8 above the operation capacity of the system. Literally for  
9 flow.

10 MS. LOW: So it was on a -- okay. It was on a  
11 real-time basis. You looked at how much water you could  
12 physically put in the river at any particular time?

13 MR. GRINNELL: Correct.

14 MS. LOW: So, basically, in the analysis, what I  
15 understand is assuming a full development level of demand  
16 and other uses of water in the system, flows needed to be  
17 taken out first and then anything remaining was allocated to  
18 -- was assumed to be available then for instream flow  
19 needs?

20 MR. GRINNELL: No.

21 DR. BRIAN: Maybe I could clarify a little bit. On  
22 Page 2-8 the protocol that you are looking at is a protocol  
23 that applies to development instream flow after the flow  
24 budgets have been developed. I wasn't sure if you were  
25 aware of that.

1 MS. LOW: Yes, I am aware of that. Right. But backing  
2 up now to -- I am not talking about the maximum term there,  
3 I am talking about that full development level of demand was  
4 assumed before the water available instream flow needs were  
5 estimated; is that right?

6 MR. GRINNELL: Not before. We -- again, the way we did  
7 this was to take the results of scenario two, which had  
8 operating under '65 flow agreement and full development  
9 level demands, which includes the deficiencies, and take the  
10 outflow at Marysville for the time frame of April to  
11 September, plus the storage surplus at end of September, and  
12 that was the initial estimates of water availability.

13 So to characterize it as, first, I don't think that is  
14 correct. We are operating a model that is operated to  
15 certain criteria and that is what we used.

16 DR. SUN: Also, during the iteration between us and the  
17 biologists, we provide them this amount of flow and that was  
18 final amount of output. They say, no, you need that more  
19 flow. So we applied additional deficiency on our delivery.  
20 They said, okay, can this amount of flow keep the river and  
21 -- I am sorry, keep the fish in good condition and until --  
22 they say yes.

23 MS. LOW: So it was an iterative process?

24 DR. SUN: Yes.

25 MR. GRINNELL: Correct.

1 MS. LOW: I want to move along. This question is  
2 probably for Mr. Bratovich. This relates to the conclusions  
3 of your fishery analysis in Exhibit 19.

4 Your conclusions, I am going to read a section, a  
5 sentence, out of Page 5-13. This would be in Section 5.6 of  
6 your report conclusions regarding availability of YCWA's  
7 proposed flow requirements. Your third point that you are  
8 making in your conclusions here is started on the eighth  
9 line there and it says:

10 Third, operating to the YCWA proposed  
11 instream flow requirements, under both  
12 current and future demand levels, would  
13 generally provide equivalent or improved  
14 instream flow and water temperature  
15 conditions for the Lower Yuba River  
16 anadromous salmonids and American shad  
17 relative to actual historical conditions,  
18 1970 to 1992. Therefore, it can reasonably  
19 be concluded that the Lower Yuba River fish  
20 resources that are in good condition would be  
21 maintained in good condition by the YCWA's  
22 proposed instream flow requirement.

23 (Reading.)

24 Is that a correct reading of one of your conclusions?

25 MR. BRATOVICH: Yes.

1 MS. LOW: The analysis that went into this  
2 conclusionary statement, I want to just summarize briefly,  
3 if I could, and see if you agree with how I saw -- in your  
4 analysis you compared the predicted instream flows with the  
5 YCWA flow recommendations and you compared those with  
6 historical flows present between 1970 and 1999; is that  
7 right? The predicted -- you compared the predicted values  
8 to the actual historical values?

9 MR. BRATOVICH: Yes.

10 MS. LOW: Then you compared the differences between  
11 these flows in effects on fish habitat based on the IFIM  
12 study results; is that correct?

13 MR. BRATOVICH: Yes. Among water temperatures as  
14 well.

15 MS. LOW: Water temperature, too. But you did base it  
16 somewhat on the IFIM results?

17 MR. BRATOVICH: Yes.

18 MS. LOW: So your predictions of improved conditions  
19 mean that conditions were closer to the optimum fish habitat  
20 conditions as predicted by the IFIM study; is that correct?

21 MR. BRATOVICH: For the most part that is correct.

22 MS. LOW: I would like to just show -- I am going to  
23 slap up another transparency, if I might, and we can take a  
24 look at these, some of your analysis there.

25 This transparency shows a page out of Exhibit 18. It

1 would be Appendix A, Page 2. This is a comparison of  
2 simulated flows in the 1922 to 1992 period with present  
3 level of demands to the historic preproject flows, 1970 to  
4 1999; is that correct? Does that look like your --

5 MR. BRATOVICH: Yes.

6 MS. LOW: -- your figure?

7 In this analysis does historic mean monthly flows for  
8 the period of 1972 to 1999 are compared to the simulated  
9 releases under YCWA and Draft Decision scenarios for the  
10 71-year period of record, from 1922 to 1992; is that right?

11 MR. BRATOVICH: Yes.

12 MS. LOW: For the moment I think we can disregard -- I  
13 would like to do the comparison here between the historical  
14 flows, which are shown by diamonds here, from 1970 to 1999  
15 with the predictions of flows with the proposed YCWA flow  
16 requirements, which are shown in the squares. So we are  
17 comparing -- you can ignore the triangles for a moment. We  
18 are just going to look at the difference between the  
19 diamonds and the squares on that graph.

20 MR. BRATOVICH: We are trying to locate the graph.

21 MS. LOW: It should be Page 2 of Appendix A. This is  
22 an example. You did some other comparisons like this, but  
23 this graph is kind of a representative graph of your  
24 comparisons that you made.

25 MR. BRATOVICH: Okay.



1 MS. LOW: I am wondering in this analysis were the  
2 levels of consumptive use demands the same between the  
3 period 1970 to 1999 and flows simulated for the 1922 to 1992  
4 period?

5 MR. GRINNELL: I will have to answer that one. The  
6 1922 to 1992, as it says, the present level of demand, 1970  
7 to 1999 had variation, as I said before.

8 MS. LOW: The variation, basically, the demand level  
9 from 1970 to 1999 was, in general, lower than that current  
10 level or the present level of demand; is that correct?

11 MR. GRINNELL: Actually, it is ranged lower and higher  
12 as we showed in comparison with historic.

13 MS. LOW: I thought that you answered another question  
14 of mine in general demands have increased since 1970 through  
15 1999. Would that be correct?

16 MR. GRINNELL: The service areas has continued to  
17 develop, yes, demands are generally increasing.

18 MS. LOW: Demands have generally increased between 1970  
19 and 1999?

20 MR. GRINNELL: Generally, yes.

21 MS. LOW: So that level of demands would, in general,  
22 be lower than the levels that you're using to calculate your  
23 present level of demand; is that correct?

24 MR. GRINNELL: Across that whole time frame, yes.

25 MS. LOW: I'm concerned here that -- well, I can ask

1 this: Would you expect instream flows in the Lower Yuba  
2 River to be higher if the level of consumptive use demand is  
3 lower, in general?

4 MR. GRINNELL: That is actually a complex question.  
5 Because, as you know, the delivery for diversions actually  
6 creates a flow in the reach from Englebright to Daguerre  
7 Point Dam.

8 MS. LOW: I think we are looking at flows at the  
9 Marysville gauge here.

10 MR. GRINNELL: I'm sorry.

11 MS. LOW: So, would that be correct that, in general,  
12 the flows at the Marysville gauge would, in general, be  
13 lower of the level of consumptive use demand -- I am sorry  
14 -- instream flows in the Lower Yuba River could be expected  
15 to be higher if the level of consumptive use demand is  
16 lower? In general, in general below --

17 MR. ROBERTSON: The total amount of water that goes  
18 past Marysville will be less if there is more diversion.  
19 But the monthly distribution of water is depending on the  
20 instream flow or -- excuse me, the instream requirements.

21 H.O. BROWN: Alice, how much more time do you have? We  
22 are 50 minutes into your 20 right now.

23 MS. LOW: I understand.

24 H.O. BROWN: I am concerned about Esther. She is a  
25 real trooper and we are very appreciative of your extra

1 effort here. But sitting there with a machine for ten or 12  
2 hours can wear even the best of us down.

3 How much more time do you have?

4 MS. LOW: I understand. I have 15 minutes.

5 H.O. BROWN: Make it ten.

6 Esther, are you still with us?

7 THE COURT REPORTER: Uh-huh.

8 H.O. BROWN: Thanks, Esther.

9 You have ten minutes.

10 DR. SUN: Can I add something?

11 H.O. BROWN: Not unless she asks.

12 MS. LOW: Could I ask, Mr. Robertson, again to repeat  
13 his answer to those questions. I can repeat the question if  
14 necessary, but I didn't get all of that answer.

15 MR. ROBERTSON: If there is increased diversions for  
16 consumptive uses, in total there will be less water flowing  
17 past Marysville by definition.

18 MS. LOW: Okay.

19 MR. ROBERTSON: But the monthly distribution of the  
20 water past Marysville could be increased depending on the  
21 instream flow that is governing its operation.

22 MS. LOW: I understand that. I understand that.

23 What I'm concerned about here is that we are probably  
24 comparing -- you're probably comparing apples and oranges.  
25 When you compare flows between the 1970 to 1999 period and

1 the simulation for 1922 to 1992 period with different levels  
2 of demand.

3 DR. BRIAN: I think you're actually making it a lot  
4 more complex than you need to. This analysis was performed  
5 to compare what the fish experienced historically between  
6 1970 and 1999 versus what they would experience if the flow  
7 proposals were implemented.

8 MS. LOW: Yes, I do understand that. But you're  
9 claiming some credit here for changing the flows in the  
10 river which has something to do with the difference in  
11 consumptive use demands that you used in your analysis  
12 rather than instream flow recommendations themselves.

13 DR. BRIAN: I understand that. But your original line  
14 of questioning that you directed toward Mr. Bratovich was  
15 the use of these figures in assessment of good condition.  
16 So perhaps you are off in a different direction now.

17 MS. LOW: I am talking about the analysis that went  
18 into the preparation of this figure. I just want to clarify  
19 this analysis.

20 You've shown a difference in -- you're looking at a  
21 difference in flows between what you're predicting with YCWA  
22 flow proposal and an actual historical period. And the  
23 difference between those, I believe, is due to a great  
24 extent to differences in diversion demands and not to those  
25 flow recommendations themselves.

1           Would that be correct?

2           MR. BRATOVICH: The simulations in this figure are  
3 based on present level of demands. Whereas, the flows that  
4 are depicted for the historic or conditions were flows that  
5 actually occurred. So I don't know how to --

6           MS. LOW: So, you are comparing two things that really  
7 aren't comparable then; is that correct, there is different  
8 levels of demand?

9           DR. BRIAN: I still think you are making it far more  
10 complex than you need to. If you bring the demands into  
11 this, as you have been, then you're deviating from the  
12 purpose of this figure.

13          MS. LOW: Well, no. I am saying that the demands are  
14 different under those two scenarios.

15          DR. BRIAN: And I think Mr. Grinnell said yes to that,  
16 that may be true.

17          MS. LOW: But really my point is that you really can't  
18 compare these and claim fishery benefits of lowered instream  
19 flows when those instream flows have more to do with  
20 different levels of demands rather than effects of your flow  
21 proposal.

22          MR. GRINNELL: Let me answer first. That was not the  
23 intended purpose. We do not generate this figure to  
24 demonstrate that at all. It was provided to the fishery  
25 biologists so they could use it in their analysis of the

1 historic flows that kept the fishery in good condition  
2 versus what would be seen under the other flow proposal.

3 DR. BRIAN: Let me give you an idea of how this figure  
4 was used. Let's take a look at the month of October, far  
5 left of the graph. Look at the diamonds, the first vertical  
6 axis depicted with the diamond in the middle, which is  
7 historic. What you see there is that historically flows  
8 averaged at approximately 11- to 1200 cfs in the month of  
9 October at this location. In the driest of conditions they  
10 went down as low as about a hundred cfs. That is the actual  
11 conditions that the fish experienced in October at  
12 Marysville between 1970 and 1999.

13 MS. LOW: Yes.

14 DR. BRIAN: Under the flow proposal if implemented  
15 immediately under present level demands, and if you look at  
16 variable hydrology under which that -- as Mr. Grinnell  
17 explained here today, you have a set of assumptions existing  
18 level of demands. This instream flow proposal, the '22 to  
19 '92 simply gives you variation in hydrology upon which that  
20 would be imposed. In doing so, what you see is that the  
21 average October flow would be approximately 500 cfs and  
22 would never be below approximately 400 cfs, even in the  
23 driest of years. That is how this figure was used.

24 MS. LOW: But you also made a conclusion that I just  
25 read from your conclusions that fishery conditions would be

1 at least as good or better under the YCWA's flow proposal  
2 rather than compared to historic conditions.

3 DR. BRIAN: That is why I picked October as an  
4 example. As fisheries biologists, we compare the two that I  
5 just spoke to, historic versus what would occur under the  
6 1922 to '92 hydrology. Fisheries biologists, based on the  
7 best available information, at least myself personally and I  
8 think Mr. Bratovich will agree, is that the flows that are  
9 maintained consistently at the 500 cfs level, which IFIM  
10 tells us maximizes spawning habitat availability, and does  
11 not, even in the driest of years, go below 400 as dictated  
12 by the minimum instream flow requirement of 400 in dry  
13 years. That is a better regime over the long haul than what  
14 has occurred historically.

15 MS. LOW: That may be true. But in those other months  
16 you made an analysis by season in your analysis that looked  
17 at the differences between these historical values,  
18 historical flow values, and you predicted under the present  
19 level of demands. And I think some of your conclusions were  
20 based on data that is not really comparable here because the  
21 level of demands influenced the actual flows that would be  
22 in the river.

23 H.O. BROWN: Mr. Frink. We are supposed to be  
24 questioning this panel, not making statements.

25 MS. LOW: I will move on, thank you.

1           The only other question I have were dry and critical  
2 year types analyzed separately from the average for the 1922  
3 to 1992 period? Was there any separate analysis of the dry  
4 and critical year types?

5           MR. LILLY: Excuse me. I would request that Ms. Low  
6 clarify whether she is referring to this particular figure  
7 or to anywhere in this Exhibit 19. I think the answer is  
8 different depending on that.

9           MS. LOW: I will.

10          H.O. BROWN: Ms. Low.

11          MS. LOW: I will clarify that.

12                I am talking about this type of analysis where you  
13 looked at prediction of flows under the YCWA proposal. In  
14 those you did this, these are an average of all your year  
15 types. And I am wondering if you did the same type of  
16 analysis for only dry and critical year types.

17          MR. BRATOVICH: No. We did not isolate critical or dry  
18 year types. We used the range of hydrology and the range of  
19 flows that would occur the entire simulation period, 1922  
20 through 1992.

21          MS. LOW: That averages the 71-year period?

22          MR. BRATOVICH: We looked at averages. We also looked  
23 at the exceedance probability distributions.

24          MS. LOW: Yeah.

25          DR. BRIAN: The exceedance graph will give you that



1 comparison.

2 MS. LOW: Because the differences in flow would be  
3 greatest in the dry and critical year types between the  
4 State Board proposal and the YCWA proposal; is that correct?

5 DR. BRIAN: Sometimes that is true, I guess. Sometimes  
6 it is not. If you look at the exceedance plots you can look  
7 at the vertical axis in flow and look to the far right and  
8 you can figure out where the driest years occur.

9 MS. LOW: Thank you.

10 That is all I have.

11 MR. MONA: Very quickly.

12 Mr. Grinnell, I would like to refer you back to  
13 Overhead No. 8, which is Table 10 of Exhibit Number 15. Can  
14 you please direct me to the supporting data that is used to  
15 derive the total annual amounts for the estimated diversion  
16 demands in your testimony or exhibit?

17 MR. GRINNELL: The estimated? Estimated, all that  
18 information is embodied in 15, Appendix A.

19 15 and it is explained and there is the tables in  
20 Appendix A.

21 MR. MONA: You testified earlier this afternoon that  
22 the historic diversions do not include transfer amounts; is  
23 that correct, for years 1991, '94?

24 MR. GRINNELL: Yes, except that I will have to say that  
25 Mr. Wilson caught me out in the hallway and did tell me that

1       there is, for the 1987 year, that there is a possibility  
2       that that did include, because of the numbers, did include  
3       some transfer.

4           MR. MONA: Any other years because it seems like you  
5       compare the projected flow development irrigation demands  
6       tabled in Table 4 of Exhibit 15, Page 5, historic  
7       diversions, you have six out of those 12 years are greater  
8       than the projected flow development irrigation demand.  
9       Leads me to believe that perhaps there are more than a few  
10      years that water transfers were included?

11          MR. GRINNELL: I will have to go on what Mr. Wilson  
12      told me and the information that I received, and that that  
13      was the only year that there is a potential of that  
14      happening in this data.

15          MR. MONA: First none, now there's two and now three.

16          MR. GRINNELL: No. Well, the way that we calculate the  
17      -- there is not -- I do not believe it is characterizing the  
18      1991 or 1994 information as including amounts for transfer.  
19      That water amount was used as a local consumptive use for  
20      those years.

21          MR. MONA: I understand that. Was it actually diverted  
22      from the river or are you talking about groundwater use?

23          Mr. GRINNELL: No. It was a portion that was pumped.

24          MR. MONA: Pumped out of the groundwater, but it wasn't  
25      actually diverted from the river, so how can you count it as

1 a diversion from the river?

2 MR. LILLY: Mr. Brown.

3 H.O. BROWN: Yes, sir.

4 MR. LILLY: I am going to object. The table says  
5 diversion demands; it does not say diversions from the  
6 river. I think the difference there is critical.

7 MR. MONA: Let me point you to Page 11 of Exhibit 15,  
8 top sentence.

9 H.O. BROWN: Which one do you mean?

10 MR. MONA: Diversions from the river.

11 MR. GRINNELL: This table says historic and estimated  
12 present level of Lower Yuba diversion demands.

13 MR. MONA: Let me point you to the first sentence of  
14 Page 11, which is the last sentence of Page 10, where it  
15 states Table 10 presents a comparison of historical annual  
16 diversions and estimated current diversions, annual  
17 diversions, from the Yuba River for the period 1987 to 1998,  
18 period.

19 Which one is it? Is it demands or diversions from the  
20 river?

21 MR. GRINNELL: Again, based on the information, the  
22 statement is not fully correct in that they are not for '91  
23 and '94 because there is pumped groundwater there and not  
24 diversions from the river.

25 MR. MONA: Therefore, your conclusion of the amount of

1 water that was pumped during the groundwater program in '94  
2 as a diversion from the river isn't appropriate?

3 MR. GRINNELL: Absolutely, because what we are  
4 comparing is demands. Quite frankly, we received a lot of  
5 criticism in the Draft Decision about the estimation of  
6 demands. And so we included this to give some discussion to  
7 that, although we do not feel that that comparison is  
8 necessarily germane as these demands are estimates for a  
9 present level.

10 Whereas, this has been a growing service area. But we did  
11 want to provide some comparative basis to show the  
12 comparison between recent historic and estimated.

13 MR. MONA: I will move on.

14 Very quickly, on your exhibit number, Overhead No. 24.  
15 You brought it to show comparison of the scenario seven,  
16 including the PG&E power purchase contract.

17 How many times since the Agency and PG&E have entered  
18 into their current agreement has that power purchase  
19 contract been implemented?

20 MR. GRINNELL: You would have to ask Mr. Wilson. I  
21 couldn't answer specifically.

22 MR. MONA: Okay. Since the division purchased the  
23 HEC-5 model and provided it to DWR, would you expect the  
24 results of an additional run with the Agency's proposed  
25 instream flow to be similar to the one result that you have

1 already completed but have not provided us with?

2 MR. LILLY: Calls for speculation.

3 MR. MONA: I am through.

4 Thank you very much.

5 H.O. BROWN: Mr. Lilly, do you have any redirect?

6 MR. LILLY: We don't, considering the hour.

7 H.O. BROWN: I would -- therefore, do you have some  
8 exhibits to offer into evidence?

9 MR. LILLY: We do have some exhibits to offer into  
10 evidence. I will try to do this quickly.

11 At this time we would like to offer into evidence  
12 Exhibits S-YCWA-2, -3, -4, -6, -7, -8, -13, -14, -15, -16,  
13 -16A, -16B, -17, -18, -18A, -18B, -19, -19A, -20, -24, -25  
14 and -26.

15 H.O. BROWN: Are there any objections to those exhibits  
16 being offered into evidence?

17 MR. GEE: Mr. Brown.

18 H.O. BROWN: Mr. Gee.

19 MR. GEE: Actually yesterday, it seems like several  
20 days ago, Exhibits 24, 25, 26 were brought into this room  
21 and Mr. Cunningham and I both vehemently objected to the use  
22 of those exhibits. And I renew my objections and Mr.  
23 Cunningham's objection on his behalf. He is not here  
24 anymore.

25 H.O. BROWN: 24, 25 and 26?

1           MR. GEE: That's correct. The reason for that, as I  
2           tried to demonstrate during this presentation, that those  
3           exhibits, primarily Exhibit 24, contains and constitutes new  
4           information beyond the written information that could be  
5           substantiated by written testimony in Exhibit 19, and that  
6           the information contained in Exhibits 24, 25 and 26 lack  
7           proper foundation and they contain or rely upon hearsay.

8           In regards to Exhibit 19, it should be stricken to the  
9           extent it contains hearsay or relies on hearsay or refers to  
10          hearsay.

11          H.O. BROWN: Exhibit 19?

12          MR. GEE: Yes, sir. That is my objection.

13          H.O. BROWN: Mr. Lilly.

14          MR. LILLY: First of all, Exhibit 19 is testimony of  
15          these named witnesses. I don't believe it is hearsay. So I  
16          disagree with that assertion.

17          And as for the other three exhibits which I think are  
18          23, 24 and 25, as we discussed yesterday, most of the pages  
19          from those exhibits are exact copies from previously  
20          submitted exhibits. And the ones that are not are  
21          summaries, an attempt to summarize, very voluminous pages.  
22          About the only issue, I think there may have been one or two  
23          pages from Mr. Mitchell's summary, I think particularly the  
24          first page, where there was admittedly some expansion from  
25          the prior testimony. The prior testimony talked about

1 various surveys and seasons that they those surveys took  
2 place. The expansion was that that first page actually  
3 lists the specific dates. But I believe that is appropriate  
4 within the leeway that the Hearing Officer has shown for  
5 other parties as well as a summary.

6 Certainly, no party can legitimately claim any  
7 objection to that because they had full opportunities to  
8 cross-examine. And, in effect, did cross-examine at lengths  
9 on those exhibits. There was -- they were not new areas or  
10 even now sub areas. Just were some -- a few more details.  
11 So we disagree with that objection.

12 And the other thing, this point with numerous questions  
13 about these three exhibits, it is going to be very confusing  
14 for the staff to follow the transcript in this case, which  
15 refers to numerous slide numbers from the exhibits, if they  
16 are not in the record.

17 MR. GEE: If I could respond briefly. This condition  
18 is not caused by any of the other parties. It is caused by  
19 introduction of Exhibits 24, 25, 26 at such a late date and  
20 a full surprise on my behalf.

21 H.O. BROWN: Thank you, Mr. Gee.

22 Mr. Frink, you have a comment.

23 MR. FRINK: I don't believe that the exhibits really  
24 complied with the presubmit requirement specified in the  
25 hearing notice. I do believe that the parties

1 cross-examined the witnesses on them, and I would have to  
2 agree with Mr. Lilly that at this point with all the  
3 testimony we have had, if the exhibits aren't admitted the  
4 record is going to be rather confusing.

5 So, I guess my recommendation at this point would be to  
6 go ahead and admit these exhibits. I'd also like to make a  
7 request if there are any other such exhibits that are  
8 anticipated that people already know they are going to be  
9 introducing, that they distribute them as early as possible.

10 H.O. BROWN: Thank you, Mr. Frink.

11 Mr. Gee, who else was objecting to this? I didn't get  
12 the name.

13 MR. GEE: Mr. Cunningham.

14 H.O. BROWN: Mr. Cunningham.

15 MR. GEE: In general.

16 H.O. BROWN: I understand.

17 Your objections are noted and the comments passed on as  
18 referenced by Mr. Cunningham. I am going to allow those  
19 exhibits and the others into evidence with your concerns  
20 noted, Mr. Gee.

21 MR. GEE: Thank you.

22 H.O. BROWN: Mr. Robertson, Mr. Mitchell, Dr. Sun, Mr.  
23 Grinnell, Mr. Bratovich, Dr. Brian, Mr. Lilly, it's been a  
24 long day. We've tried to accommodate your schedules where  
25 we get out.



1           All these folks here, I want to thank, but particularly  
2 Esther, our reporter.

3           MR. LILLY: We thank you and her for accommodating our  
4 schedules.

5           H.O. BROWN: This hearing is adjourned.

6                           (Hearing adjourned at 7:50 p.m.)

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