STATE WATER RESOURCES CONTROL BOARD

THE AUGMENTATION OF THE ADMINISTRATIVE RECORD AND

RECONSIDERATION OF WATER RIGHT DECISION 1644

IN LIGHT OF ADDITIONAL SPECIFIED EVIDENCE AS DIRECTED

BY THE YUBA COUNTY SUPERIOR COURT

FRIDAY, JUNE 6, 2003
9:00 A.M.

JOE SERNA CAL/EPA BUILDING
COASTAL HEARING ROOM
SACRAMENTO, CALIFORIA

REPORTED BY: KATHY L. SWINHART
CSR 10150

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SACRAMENTO, CALIFORNIA

FRIDAY, JUNE 6, 2003, 9:00 A.M.

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CHAIRMAN BAGGETT: Okay. Let's finish up -- since we were left with fish yesterday, let's just start with rebuttal testimony on the fisheries issues, the fish study issues.

Yuba County didn't have any rebuttal on the fish issues, did they, as I recall?

MR. LILLEY: Since we put on the direct, we can't rebut that. However, if the other parties put something on, we might have rebuttal to that.

CHAIRMAN BAGGETT: Okay. South Yuba River Citizens League. SYRCL, are you ready for --

MR. HUTCHINS: Chairman Baggett, we would defer first to Department of Fish and Game and then determine whether or not we think that it's worth taking up the Board and the staff time to put on our rebuttal witness.

CHAIRMAN BAGGETT: Okay. Is Fish and Game ready?

MR. CUNNINGHAM: Yes, it is.

CHAIRMAN BAGGETT: Okay.

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DIRECT EXAMINATION OF DEPARTMENT OF FISH AND GAME

BY MR. CUNNINGHAM

MR. CUNNINGHAM: Good morning, Chairman Baggett. Good

morning, Board Member Carlton. Bill Cunningham, Deputy Attorney General for the Department of Fish and Game.

We are offering rebuttal testimony to the biological testimony already provided by Yuba County Water Agency. And as a couple of first paper-keeping chores, we do have written copies of the proposed rebuttal.

Mr. Frink, how many copies did we need for the Board?

MR. FRINK: Six would be good. Then we could keep one in the record.

CHAIRMAN BAGGETT: Did we swear in the witnesses?

MR. CUNNINGHAM: Yes, we have.

What I can do initially is I'd like to go ahead and identify the two witnesses, indicate they've been sworn in. And we've already addressed one document that's been submitted through our presubmittal notice of intent.

Mr. Nelson, would you go ahead and identify yourself for the record, spelling your last name, please.

MR. NELSON: My name is John Nelson, N-E-L-S-O-N, with the Department of Fish and Game.

MR. CUNNINGHAM: And Mr. --

MR. NELSON: You need my address?

MR. CUNNINGHAM: Go ahead and provide your address.

MR. NELSON: 1701 Nimbus Road, N-I-M-B-U-S, in Rancho Cordova, 95670.

MR. CUNNINGHAM: And, Mr. Nelson, have you previously

taken the oath to testify in this proceeding?

MR. NELSON: Yes, I have.

MR. CUNNINGHAM: Thank you.

Mr. Nelson, have you also previously provided statements of your qualifications to this Board through Department of Fish and Game Exhibit 5 and Supplemental Department of Fish and Game Exhibit 2?

MR. NELSON: Yes, I have.

MR. CUNNINGHAM: Do you have anything further to add to the latest supplemented resume or statement of qualifications?

MR. NELSON: The previous resume submitted is -- is fairly up to date with the exception that I now supervise the Anadromous Fisheries Conservation Program in Department of Fish and Game for Region 2 headquarters.

MR. CUNNINGHAM: Thank you.

And, Mr. Drury, would you state your name for the record, please.

MR. DRURY: Yes. My name is Ian Drury --

MR. CUNNINGHAM: Could you spell that?

MR. DRURY: -- also with Department of Fish and Game. Drury, D-R-U-R-Y.

MR. CUNNINGHAM: And you're with the Department of Fish and Game?

MR. DRURY: Yes, sir.

MR. CUNNINGHAM: What's your address there?

MR. DRURY: 1701 Nimbus Road, Rancho Cordova.

MR. CUNNINGHAM: And, Mr. Drury, have you previously taken the oath to testify in this proceeding?

MR. DRURY: Yes, I did.

MR. CUNNINGHAM: Mr. Drury, have you also -- are you familiar with the attached resume for Ian Drury that was provided with the notice of intent to this proceeding?

MR. DRURY: I am.

MR. CUNNINGHAM: May we have that -- go ahead and have that marked for identification, I assume, as 2003-DFG-1?

MR. FRINK: Yes, that would be the correct number.

MR. CUNNINGHAM: Thank you very much.

Is that resume a present statement of your qualifications in this proceeding?

MR. DRURY: No, it's not.

MR. CUNNINGHAM: Do you have some additional updates for that?

MR. DRURY: Yes, I do.

MR. CUNNINGHAM: Can you tell me what they are.

MR. DRURY: What's lacking on that resume is July 2000, Board of Fish and Game, fishery biologist; worked on the Eagle River exclusively with the rotary screw traps, juvenile outmigration, spring-run chinook immigration. Basically was in charge of heading up all the field

operations for the projects that are in question.

MR. CUNNINGHAM: Thank you, Mr. Drury.

At this time we'd also like to offer a written summation of the proposed rebuttal testimony, joint testimony of John Nelson and Ian Drury from the California Department of Fish and Game. And we'd like to offer that as Exhibit 2003-DFG-2. I think that's right.

MR. FRINK: Yes, that would be the correct number.

MR. CUNNINGHAM: Thank you.

MR. LILLY: Our normal procedure is to wait to admit the exhibits at the end of the testimony. I request we do that today.

MR. CUNNINGHAM: I do apologize. I was just having them marked for identification.

MR. LILLY: He did say offer. That's why I was concerned.

CHAIRMAN BAGGETT: I would prefer to just mark it. It's just easier to mark them all. They will not be accepted into evidence until the end.

MR. CUNNINGHAM: Thank you, Chairman Baggett.

And with that, we'd like to go ahead and, Mr. Nelson, could you briefly summarize the rebuttal testimony that's provided in your written statement.

MR. NELSON: Yes. Specifically -- excuse me -- we are providing information on Key Issue No. 2 with respect to the

additional salmon spawning escapement data, population data and the juvenile outmigration data that's been used.

The additional three years of the fall and chinook salmon escapement data does not really change the trend from that of the previous hearings. Analysis of pre and post New Bullards Bar population data, while incorporating 2000-2003 data, indicates there remains no significant difference between those data sets. Because of the extreme variability in the populations both pre and post, the standard deviation is very great, and there is no significant difference.

Additionally, the trend lines were basically the rate at which the population was expanding pre and post New Bullards Bar. That remains unchanged from the standpoint of the previous hearing. The pre New Bullards Bar population is still expanding, or was still expanding at a greater rate than the post New Bullards Bar population. Hence, it's reasonable to conclude that conditions have not resulted in pollution of the salmon populations or the information does not really give us any additional clarification of what is happening out there with respect to the population.

With respect to juvenile outmigration data, I'd like to say a little bit about our operation out there and a little bit about the data. And I'll try to keep it short.

The Department of Fish and Game basically installed and operated the rotary screw traps on the Yuba River at the

Hallwood Boulevard location from approximately November of '99 and almost continuously through June of 2002. There was about a two-month period in there in 2000 that we did not operate during the August/September time frame. But essentially we have operated it for three years continuously up through June of this last year.

The purpose of that monitoring at that time was not to determine population as to absolute numbers of fish outmigrating but was rather to begin development of baseline information for juvenile salmonids, including chinook and steelhead, on their life history strategies in the Yuba River. We didn't have much information on that.

Data were collected to determine and document the species and race compositions, the timing of the downstream movement below the spawning area, the duration of downstream movement, and the condition and size of downstream migrants at the time of capture.

Trap efficiency tests or trap calibration tests were not conducted with chinook salmon or steelhead trout because that was not the purpose of our study. Trap efficiency tests are necessary when either the size of the fish changes, float conditions change or the trap is moved or relocated.

Data from uncalibrated traps as we had represents trends, size of fish and timing of movement. It does not

represent abundance or any other account of a total population.

The Department, as I said, ended that monitoring in June 2002, and that was due to a lack of funding.

In June of 2002, the Department loaned our traps to Yuba County Water Agency to monitor juvenile salmonids during that year's water transfer. This was a required condition that the Board stipulated as for that water transfer in that year. And basically Yuba County Water District then conducted the rotary screw trap operations from mid June through early October of that year, approximately four months.

The species of primary concern, as you heard earlier, was steelhead trout, and this was because previous monitoring by the Department indicated that juvenile steelhead at the end of the year prematurely moved downstream during the high instream flows that were associated with the past water transfers.

So to accomplish this monitoring, the Department, as I said, loaned and helped install rotary screw traps for Yuba County Water Agency as well as providing technical and additional support on how to operate the traps.

The catch per unit effort abundancies that's been reported here earlier by Yuba County Water Agency were determined solely, as you've heard, through the use of the

daily catches, the actual number of fish of each species caught per day, and data regarding trap operations, basically how much water the rotary screw trap sieves per day, and that was equated to the number of fish outmigrating. And it is not based on, as has been said, calibrated traps or how efficiently different sizes of fish are captured at different flows at different times of the year.

The data used for those estimates represent trends only and cannot accurately or meaningfully determine the number of fish outmigrating. This is the primary shortcoming of using that data. And, again, this is not what we intended when we started this -- this sampling. We were not going to use this data to interpret populations.

To derive meaningful numbers representing population or absolute numbers that are passing the trap and the timing of juvenile salmonids during outmigration, efficiency tests are necessary for determining for each species of interest, for all size classes, and in all different flows.

Additionally, it's important to have additional -- multiple-year efforts that accurately estimate the -- how many juveniles are migrating at different times of the year in order to determine the population.

The primary concerns with an uncalibrated trap are juvenile salmonids are not equally distributed throughout

the water column or throughout the river. Therefore, they do not have an equal opportunity of being captured. Juvenile outmigrating salmonids of different species and different sizes, fry versus smolts or yearlings, do not have an equal probability of being captured either due to their location in the water column or avoidance by the larger fish. That's something that's been fairly well -- there's been studies on avoidance, and it's basically been found on the average or typical that the larger the fish, the better the gear avoidance.

So that's really what we've done on the operations, some things about the screw traps. But I'd also like to say that some information on the interpretation of that data and what it means with respect to management for a species or various species.

And survival of any species including chinook salmon and steelhead trout is based on basic biological and ecological principles. And this really goes back to basic biology is where we are on this. The survival of a species or a population is based on its resilience or its ability to be least susceptible to environmental events that would adversely affect that species.

Life history strategies of chinook salmon and steelhead that provide a variety of outmigrating strategies specifically at different times of the year, at different

sizes, provides for a more resilient population. This is a standard strategy under which chinook salmon have evolved in the central valley. Typical outmigration strategies of chinook salmon in the Sacramento Valley include movement as fry, pre-smolts, smolts, post-smolts and yearlings. It is just a variety of life stages that -- that -- in strategies that chinook salmon have developed. So really that's necessary for maintaining the species.

Also, with respect to size differentiation or difference of species at outmigration, fry versus smolts or just in general the size of fish that outmigrate. And, again, this is a basic biological principle.

The larger the juvenile is at outmigration, the greater its survival rate. So survival of fry to maturity is significantly less than from fingerling or smolts to maturity. This has been fairly well-documented.

The relationship between the size of chinook salmon released and the returns ultimate survival or the population that's returning has been studied as I indicated. In fact, there are studies out there that -- Hallock in 1980 performed some experiments where he released various -- four different size ranges or four different size groups of fish from the smallest of the group to the largest. And what he looked at was four different sizes. And he released fish that were in the weight of 8 grams and also 4 grams, and

those basically equate to fry.

The 8-gram fish that were released in that size category returned or survived by 230 percent greater than the 4-gram fish. Also, the releases in the size range of 8 to 16 grams, 15 to 30 grams, and 30 to 60 grams -- 30 to 60 is getting into smolt size range -- resulted in increases in survival of 150 to 180 percent respectively in all those size groups. So that basically as the fish size increased, all the way through there was greater survival at return to the population.

Additionally, we've conducted studies -- this was back in the late '70s and early '80s at the Nimbus Hatchery on the American River. And in that study they released yearlings is what they reported. But actually looking at the size at release, 45 grams, they were basically a smolt size fish. But there is a return of 34 times greater than the fingerlings that were released at that same size range.

And as a matter of fact, as a result of these studies and some others, the Department of Fish and Game changed our hatchery practices throughout the state to basically release salmon in larger size because of their greater survival to adulthood.

In conclusion, I'd just like to make four points or five points out of this, and those are that there remains really no significant difference between the pre and post

New Bullards Bar chinook salmon populations because of extreme variance from year to year within that. The pre New Bullards Bar population still with the incorporation of 2000-2002 data was expanding at a greater rate. So really conditions have not resulted in improved populations that we can tell from that data.

Two basic biological points is the larger the salmon at outmigration, the greater survival rate; it's necessary to manage for all life history strategies of chinook salmon and steelhead trout in order to maintain those populations and provide some resilience to those populations.

That's my summary.

MR. CUNNINGHAM: Thank you.

And then one additional question. It's my understanding that the rotary screw trap at Hallwood is located somewhere above the mouth of the river. Are you familiar with the actual location of the rotary screw trap?

MR. NELSON: Yes, I am.

MR. CUNNINGHAM: Is data collected at that trap indicative necessarily of the fishery status at the mouth of the Yuba River?

MR. NELSON: Well, the trap is located about six or seven miles upstream. It is basically at the bottom end of the spawning area. It does not include and we would not be able to know specifically what was happening downstream in

the seven miles of river.

MR. CUNNINGHAM: Is there any change in the nature of the river from the Hallwood trap down to the mouth of the river?

MR. NELSON: There is a change in the character of the river. It goes from basically a stream environment to a valley river range, slower moving, lesser gradient change of habitat. Yes, substantially.

MR. CUNNINGHAM: Does the change in habitat produce any kind of change in survivability to your knowledge for chinook salmon juveniles?

MR. NELSON: We have not sampled down there. We really don't have that data to make any conclusions.

MR. CUNNINGHAM: Thank you. I have no further questions for these witnesses and make them available for cross-examination.

CHAIRMAN BAGGETT: Very good. Thank you.

Yuba County? Start or --

MR. LILLY: First of all, Mr. Baggett, could I clarify, I haven't heard any testimony from Mr. Drury. I just wondered what his status is today.

MR. CUNNINGHAM: Mr. Baggett, if I might.

The written summary is a compilation of information from Mr. Drury and Mr. Nelson and was offered in that light. But both of these witnesses are here to provide

clarification of the written summary of the rebuttal testimony.

MR. LILLY: And then the other thing is, since we just got this testimony and obviously haven't had a chance to read it yet, I would request even though it's still early in the morning that we take a break now so I have a chance to organize some questions.

You know, obviously when we submitted our testimony months before, they had plenty of time to cross-examine.

CHAIRMAN BAGGETT: I appreciate that, unless any of the other parties want to cross while -- is anybody prepared, so we can keep the -- why don't we just go down the list and give you a chance, and then we can take a break and see if we can get other cross-examination.

SYRCL, do you have any cross-examination of these witnesses?

MR. HUTCHINS: Yes, sir, we do. Thank you.

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CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME

BY SOUTH YUBA RIVER CITIZENS LEAGUE

BY MR. HUTCHINS

MR. HUTCHINS: Hi, my name is Todd Hutchins, and I'm from the South Yuba River Citizens League. My questions are either directed to Mr. Nelson or Mr. Drury depending upon which of you is responsible for that portion of the -- of

the written testimony.

Although, Mr. Nelson, since you were the speaking testifying witness today, I imagine most of the questions would be directed primarily to you.

My question is, are you familiar with the length frequency of the chinook salmon captured at the Hallwood rotary screw trap?

MR. NELSON: I'm somewhat familiar with it. Yes, I am.

MR. HUTCHINS: And can you give a brief summary of your knowledge, please.

MR. NELSON: I'm not sure that's possible.

I guess, trying to make it as short as possible, the length frequency sum -- summary of that is you typically see, based upon the lengths at time of year, you seem to see three different modes of sizes which indicate that there are spring-run, fall-run, and late fall-run present or spawning in the Yuba River. Also looking at those data, they correlate fairly well with time of year and size as the length frequency for those different races were established by Fisher and Green for the Sacramento River.

Additionally, looking at the data, as I recall, that we see significantly pre-smolts, fish that are smaller than smolts and have not smolted, so that includes fry also. Prior to April, those are probably the vast majority of the

size of those fish. We do see some smolts in there, but they do not comprise a majority.

And, again, I'm looking at the -- you know, all races combined there.

After or in April we see a change that the majority of the fish in general -- and these are typical trends; these aren't absolute numbers. I mean, again, they're not absolute numbers; these are just trends that show us something -- that the majority of those fish appear to be or are smolt size fish, in that range.

MR. HUTCHINS: If I can clarify one thing, please. We heard some testimony yesterday to the effect that it was difficult if not impossible to distinguish between fall-run and spring-run chinook captured in the rotary screw trap or otherwise available from other population data. It sounds from what you just said -- and correct me if I'm wrong, please -- that it does appear that there are different races of chinook salmon based upon the data that are in the record now.

MR. NELSON: It's difficult from the standpoint of when you're out there, can you distinguish between a fall-run and a spring-run without some additional interpretation and seeing the fish? You cannot.

It's kind of after-the-fact analysis that we look at the time of year and the size of those fish, and compare

those with some other datas that are on Sacramento River streams, there appears to be a size classification that matches well with time of year. And we do see distinct sizes that occur at time of year, which is typical of the three races and, like I say, compares well to those known races in the Sacramento system.

MR. HUTCHINS: Okay. So if I understand correctly, in your professional opinion, in any opinion of DFG, the information that you just referenced does indicate the presence of spring-run chinook salmon in the Lower Yuba River.

MR. NELSON: Yes. We're also using some additional information to kind of interpret that or to say that. And in brief that is, we see early spawning -- we're looking at phenotypic characteristics of the adults, which means what do they physically do, you know, timing and spawning and upmigration. And we see fish that come up at the typical time that spring-run ascended the Yuba. We have done some studies out there on that. We have one-year population data that show that we have fish coming up at the appropriate time, basically late February through June or July. And we also see early spawning that has occurred as early as the --

MR. DRURY: August 28th.

MR. NELSON: Yes. So spawning occurs very early out there, which is typical of a spring-run fish.

Now, that in itself, you can't be -- one of those or at least the spawning time you can't necessarily say that it was a spring-run, but combined with outmigration data, the spawning timing and the size at outmigration, yes, we think that says this.

MR. HUTCHINS: Okay. Thank you.

What can you tell us about the different life stages I guess determined primarily by size outmigrating by time of year?

MR. NELSON: Can you repeat the question, please?

MR. HUTCHINS: Based upon your knowledge of different life stages of the salmonids, and I assume that -- correct me if I'm wrong -- I assume that you determine the life stage of these fish based primarily upon their size, what can you tell us about the different life stages outmigrating by different times of the year?

MR. NELSON: With respect to the three -- the three races -- spring-run, fall-run, late fall-run -- you know, one thing you have to realize in all of this is that the fall-run overwhelms any of the other races just purely because of number.

And what we see with respect to juveniles is that by about April, the fish that are in the spring-run size category have typically -- are tailing off at that period of time. We see a majority of -- and that includes from fry to

smolts.

MR. HUTCHINS: Uh-huh.

MR. NELSON: We see -- with respect to fall-run, we see, you know, a large component that starts coming out in -- well, let me back up.

With respect to spring-run, we see fish that come out in November out of the gravel, very early fish, spring-run; they are in the fry category. Those tend to move downstream as they grow to smolts. Typically that starts tailing off in April.

With respect to fall-run chinook salmon, we see a large majority come out as fry in approximately January. We see those, a large number going out as fry. And then we see kind of a second wave in April through June sometime that are in the smolt size characteristics. And then late fall-run are even later coming out.

I'm not real familiar with the fry component, but having looked at some of the smolt size fish, they are later than are the fall-run. So unless Ian happens to recall specific times, you know, I suspect that those are probably June, May, June.

MR. DRURY: The fish that we caught that -- in the late fall-run size class tend to appear to be coming out as fry in April and May and tend to be coming out in the smolt size class July through early October.

MR. HUTCHINS: Okay. Thank you.

MR. NELSON: And let me add one other thing: These are very small numbers on either end for spring-run and for late fall-run. And there's some overwhelming in there by the fall-run, but they're very low numbers.

MR. HUTCHINS: Okay. Thank you.

And as for steelhead, if we don't have a situation where there's a large temporary transfer, generally what -- what is the time average for outmigration of steelhead trout?

MR. NELSON: I'm going to say based on time of day, time of year, but based on the rotary screw trap, I'm not really comfortable with saying that we know what that is because of the gear selectivity in that, you know, steelhead rear up to three years in the system. And so capturing that size component or that size of fish with a rotary screw trap, there's a lot of gear avoidance with that size of fish.

So, you know, really what we're effectively picking up are fry or -- or fingerling size of steelhead. And I'm just not comfortable saying that there is -- we can tell. We don't have enough sampling of different varieties to accurately pick up that size of fish. They typically outmigrate.

MR. HUTCHINS: So in short, we simply don't have any

data after April 21st concerning -- directly concerning the relationship of instream flows to outmigration of steelhead; is that correct? These are data that -- this is information we simply don't have?

MR. NELSON: We have monitoring for -- well, we do have monitoring -- our initial monitoring in 2001 with respect to steelhead for juveniles, and that's where we saw the large outmigration as a result of the transfer.

We do have information from last year's transfer. Conditions were substantially different as a result of flows or a result of rampant flows. And so we have seen that. We saw lesser numbers appearing to be coming out. But to make any definitive statements would be difficult.

MR. HUTCHINS: Okay. Thank you. Just a couple more questions for you.

Is it the position of DFG and your position as a biologist that based on the latest and best data available, that the -- that the various species and life stages described in D-1644 in the April to June period are appropriate? Or that they must be reconsidered in light of the -- they must be reconsidered in light of the recent data offered by Yuba County Water Agency?

MR. NELSON: No, I don't think that those species are appropriate. I think we need to consider, you know, shad, steelhead, chinook salmon. You know, we also need to

consider the races of chinook salmon within that, but I don't think it changes.

MR. HUTCHINS: Okay. And as for the various life stages of the species that you mentioned, do you -- in your professional opinion, do you believe that the RST data offered by Yuba County Water Agency should affect DFG's prior recommendations concerning flows in the April through June period?

MR. NELSON: No, because I think it's important to manage for all life history strategies in all different sizes in order to provide for a healthy resilient population.

MR. HUTCHINS: Okay. And I would ask the same questions for the July through September period. Do you believe that any of the data that have recently been offered by Yuba County Water Agency would affect or should affect DFG's recommendations concerning flows during that later period?

MR. NELSON: I haven't really thought about the summer period. I would still want to manage as we had recommended for temperatures and for -- for those life stages and those species.

MR. HUTCHINS: Okay. And then your answer would be the same for the September through May or April period; is that correct?

MR. NELSON: September -- excuse me, September through --

MR. HUTCHINS: September through May?

MR. NELSON: Okay. Yes.

MR. HUTCHINS: Okay.

MR. NELSON: Yes.

MR. HUTCHINS: In sum, nothing about the data that's recently been offered by Yuba County Water Agency concerning RST capture at Hallwood have any effect upon your professional recommendations or the recommendations of DFG concerning instream flows; is that right?

MR. NELSON: I believe it's important to manage for all life history stages, and we need to do that.

MR. HUTCHINS: Okay. Thank you.

And I believe you've already answered this question, but just to clarify in closing, do you believe that the RST trap data and other fisheries population data are sufficient to support any changes in D-1644's instream flow requirements in other fishery protection measures for the Yuba River?

MR. NELSON: Would you ask that one more time, please.

MR. HUTCHINS: Yeah. I'll ask it one more time, and I'll try to be more clear.

It's your opinion, is it not, both as a biologist and as a representative of Department of Fish and Game, that

nothing in the recent rotary screw trap data or any other fisheries data justify any change in D-1644's instream flow requirements in other fisheries protection measures for the Yuba River?

MR. NELSON: Certainly I wouldn't recommend any -- I wouldn't recommend -- those are the minimal flows, yes --

MR. HUTCHINS: The minimum.

MR. NELSON: -- that I'd recommend.

MR. HUTCHINS: Okay. Thank you very much.

Thank you, too, Mr. Drury.

CHAIRMAN BAGGETT: Mr. Brandt, does Interior have any questions? We're jumping around here.

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CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME

BY DEPARTMENT OF INTERIOR

BY MR. BRANDT

MR. BRANDT: Mr. Nelson and Mr. Drury, I'd like to draw your attention to page 2 of your written testimony, the third full paragraph where it states under number 2 in that paragraph:

> Juvenile outmigrating salmonids of different species and different size classes (fry and smolt) do not have an equal probability of being captured due either to location in the water column or avoidance by a larger fish.

(Reading.)

What's the significance of that fact?

MR. DRURY: Basically the significance of that fact lies with the data that you collect from the rotary screw trap that's not calibrated will not show proper numbers. Or, in other words, you may capture many fish, but regardless of the number, it does not represent any sort of population. You can't put a number on the amount of smolts or the amount of fry that you find in your trap.

MR. NELSON: I would also say that it unfairly biases towards selecting smaller fish.

MR. DRURY: I agree.

MR. BRANDT: And on what do you base that, both those conclusions in this -- this observation?

MR. NELSON: Well, I base mine upon my professional knowledge as a biologist, as a fisherman -- as a fisherperson or angler, excuse me, and of having read some of the literature.

And just general biology, also. It's a basic biological fact.

MR. BRANDT: And so it -- I want to understand how does that affect the -- your understanding of what happens with the larger fish, particularly that are in -- still in the river later in -- after, say, April 21st?

MR. NELSON: Basically -- relative to size, fry versus

smolt or whatever size you're talking about, you unfairly count with respect to the population or percentage of the population. The fry are captured at a much greater rate; therefore, they show up in a greater number or a greater percentage. They represent a greater percentage than do the larger fish because you do not catch them.

I'm not sure if I'm answering your question, but the large fish you do not see and so, therefore, the tendency is to say they are not there.

MR. BRANDT: And after April 21st, is it -- can you say anything about whether it's more likely that there are larger fish because they've stayed in the river longer by that point?

MR. NELSON: Yes. When the smolt outmigration occurs, those are larger fish. They -- and there are more of the larger size class of fish, smolt size present at that time of year, April through June.

MR. BRANDT: Thank you.

CHAIRMAN BAGGETT: Keep going down a little bit here.

Western Water, do you have any comments?

MR. MORRIS: We do have some, but we prefer to wait for Yuba and hopefully not ask the same questions.

CHAIRMAN BAGGETT: Trying to be as expeditious as possible here. What about any of the other parties?

Brophy, do you have any questions?

MR. BARTON: No.

CHAIRMAN BAGGETT: Browns Valley?

MR. BEZERRA: No, Mr. Baggett.

CHAIRMAN BAGGETT: South Yuba?

MR. MINASIAN: No.

CHAIRMAN BAGGETT: So I guess we're down to Mr. Lilly. Do you want to take a break or --

MR. LILLY: I request a break, 15 minutes.

CHAIRMAN BAGGETT: Okay. How long, 10 minutes?

MR. LILLY: I said fifteen, but of course it's your call.

CHAIRMAN BAGGETT: Okay. Let's come back at five till.

MR. LILLY: All right. Thank you.

CHAIRMAN BAGGETT: We're in recess.

(Recess taken.)

CHAIRMAN BAGGETT: Ready to go back on the record?

MR. LILLY: Yeah, we're ready.

CHAIRMAN BAGGETT: Okay. Yuba County Water Agency cross-examination of Fish and Game rebuttal witnesses.

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CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME

BY YUBA COUNTY WATER AGENCY

BY MR. LILLY

MR. LILLY: All right. Good morning, Mr. Nelson and

Mr. Drury. As you know, I'm Alan Lilly representing Yuba County Water Agency.

Mr. Nelson, I'm going to try to cover this in the same order you did, although I may jump around a little bit because I obviously just got all of this.

But, first of all, regarding the -- your analyses of the adult salmon escapement numbers pre New Bullards Bar and post New Bullards Bar, do you remember testifying about that this morning?

MR. NELSON: Yes.

MR. LILLY: And I think your -- your testimony, which is Exhibit 2003-DFG-2, has two figures at the end, Figure 1 and Figure 2. Would you please turn to those?

MR. NELSON: Correct.

MR. LILLY: Now, first of all, what method did you use to draw these trend lines?

MR. NELSON: Linear aggression.

MR. LILLY: And did you calculate what -- what the R-squared value was for the linear aggression?

MR. NELSON: I did.

MR. LILLY: And what were the R-squared values for the first and second one.

MR. NELSON: As I recall, there was just a slight significance -- correlation. And for the pre New Bullards Bar, it was approximately two point -- or excuse me, .25;

post New Bullards Bar, .3435. There's a very weak -- there was a weak correlation.

MR. LILLY: And basically the correlation is higher as the R-squared value gets closer to one; is that correct?

MR. NELSON: The greater the R value, the greater the correlation, that's correct.

MR. LILLY: All right. So that, conversely, the smaller the R value, the less the correlation is, correct?

MR. NELSON: Correct.

MR. LILLY: So, actually, you show a slightly lower correlation for the pre New Bullards Bar than the post New Bullards Bar; is that correct?

MR. NELSON: That is correct.

MR. LILLY: And did you calculate the P values?

MR. NELSON: I did not.

MR. LILLY: Okay. What do the P values show in statistical analysis and linear aggressions when you do calculate them?

MR. NELSON: I assume you mean significance at some percent.

MR. LILLY: Correct. Correct.

MR. NELSON: Significant at -- whatever P value you choose, it may be 99 percent, it may be 95 percent, but that's the significance that you're looking at. There may have been a -- that's what it shows.

MR. LILLY: Okay. What do you mean by significance? Significance of what?

MR. NELSON: It's a significance of the -- at a certain confidence level, 95-percent significance.

MR. LILLY: And that means --

MR. NELSON: Of the pop -- of the population trend there.

MR. LILLY: Okay. That means that the trend is significant at a certain level?

MR. NELSON: Yes.

MR. LILLY: Okay. But you did not do those -- that test for these two data sets?

MR. NELSON: I -- I don't believe I did. I don't recall specifically, but I don't believe I did.

MR. LILLY: And then I believe you testified -- and please correct me if I have this wrong -- but basically in your view there's no statistical difference between the average pre New Bullards Bar and the average post New Bullards Bar; is that correct?

MR. NELSON: That's correct.

MR. LILLY: And what statistical tests did you do to determine -- to reach that conclusion?

MR. NELSON: Well, there are actually three things that we looked at within that. One is just looking at the standard deviation, the large variance in the population.

Because of the extensive overlap between the means and the variances, the standard deviation between the two pre and post conditions, there doesn't appear to be one.

Also, my staff did an analysis, and it showed -- it had a very low R value, as I recall. There was no significance. I don't recall what that was specifically at this time.

And also having looked at the -- some of the old records on the survey trying to determine what the surveying methods were or the method of estimating the population, and the effort that was put into that appeared to be significantly -- appeared to be different and much less than with respect to efforts in sampling than post New Bullards Bar.

MR. LILLY: Now, looking at Figure 1, there is three particularly high values for the years 1962, 1963, and 1964; is that correct?

MR. NELSON: That looks about right, yes.

MR. LILLY: Did you do any analysis of what the average would be for this pre New Bullards Bar population if those three years were not included in the data set?

MR. NELSON: No, I included it in all the data set that was provided in -- provided by the exhibit of Bill Mitchell. I used that data set, both pre and post.

MR. LILLY: Okay. So for the pre average, you never

did any average calculations that you eliminated or excluded those three years?

MR. NELSON: No, I used all the data.

MR. LILLY: All right. Now, is it your opinion that the instream flows that existed in the Lower Yuba River during the 1953 through 1971 period were better for salmon -- for chinook salmon than the instream flows that existed in the 1972 to 2002 period?

MR. NELSON: I haven't looked at the data significantly. I have glanced at some of it recently, and I do know that there were many years that the flows were greater than D-1644.

MR. LILLY: Okay. But did you look at any -- to determine whether there were any differences in the instream flows before the New Bullards Bar project and after the New Bullards Bar project?

MR. NELSON: No.

MR. LILLY: Do you have an opinion as to whether or not the water temperature conditions in the Lower Yuba River were better for chinook salmon before the New Bullards Bar project or after the New Bullards Bar project?

MR. NELSON: I have no data --

MR. LILLY: Okay.

MR. NELSON: -- pre Bullards Bar.

MR. LILLY: Oh, you don't?

MR. NELSON: Not that I recall seeing recently.

MR. LILLY: So you have no opinion regarding whether the temperature conditions were better pre New Bullards Bar versus post New Bullards Bar?

MR. NELSON: I probably have an opinion, yes.

MR. LILLY: And what is that opinion?

MR. NELSON: My opinion would be based upon just best professional guess, that because flows are higher in the summertime or have been, that there is likelihood of cooler temperatures.

MR. LILLY: That would be after the project was built?

MR. NELSON: Yes.

MR. LILLY: Okay. And would that --

MR. NELSON: Cooler is relative.

MR. LILLY: Cooler than before the project?

MR. NELSON: Cooler than before, but maybe not acceptable.

MR. LILLY: And would that same answer apply also to the September/October period?

MR. CUNNINGHAM: If I might, Mr. Baggett.

Mr. Mitchell and Mr. Bratovich did not testify at all about temperature data either pre New Bullards Bar or post New Bullards Bar. And my memory of Mr. Nelson and Mr. Drury's testimony as well as the written testimony they provided in rebuttal does not discuss temperature at all

and/or recommendations or comments regarding temperature in either before or after installation of New Bullards Bar.

So may I suggest that this testimony is outside the scope of the rebuttal substantially, as well as outside the scope of the testimony originally provided by Yuba County Water Agency? And --

CHAIRMAN BAGGETT: Mr. Lilly, do you have --

MR. LILLY: Well, we're just exploring whether there's any biological basis for Mr. Nelson's opinion that the population -- populations and population trends were no different pre project and post project. And obviously this is one of the important factors.

MR. CUNNINGHAM: If I -- if I may, Mr. Baggett.

CHAIRMAN BAGGETT: Please.

MR. CUNNINGHAM: It's my understanding that Mr. Nelson's testimony as to the population trends was based upon information provided by Mr. Mitchell in his declaration, the subject under consideration as one of the items before this Board at this time; and was not provided based upon any prior testimony or any prior research materials or materials in the record, but was focused solely on materials provided by Mr. Mitchell.

CHAIRMAN BAGGETT: I think it's an important -- since we do have two experts, though, in -- in the area of -- before this Board, I guess I would ask the witnesses to

answer. If it's outside the scope, if they haven't researched it, you can so state.

But I think as I -- as we discussed yesterday regarding Mr. Lilly's witnesses, what we're trying to get at is some resolution of the issues here. This isn't an administrative hearing; it's not a court of law. And I think it is information that does help us evaluate the new evidence.

So within the scope of your review or your expertise, granted it's not a narrow reading of the issue before us, but I think it is relevant.

So I would ask the witnesses to answer Mr. Lilly's questions to the best of their ability based on what they did to prepare for the rebuttal testimony.

MR. LILLY: All right. Mr. Nelson, I'll just state it one more time.

Do you have an opinion regarding whether or not the water temperatures in the Lower Yuba River during September and October were better for chinook salmon before or after the New Bullards Bar reservoir was completed?

MR. NELSON: I have an opinion, but I have not looked at any data.

MR. LILLY: All right. Well, tell us what your opinion is.

MR. NELSON: That they are likely cooler in October in

some years. September I am not sure.

MR. LILLY: That would be cooler post project?

MR. NELSON: Yes.

MR. LILLY: In that time frame, would cooler be better for the salmon?

MR. NELSON: If it is within the preferred or appropriate range. If it is not, you can only basically kill the fish once.

MR. LILLY: All right. Now, regarding the Figures 1 and Figures 2, I see Figure 1 you have a slope of 478, and Figure 2 you have a slope of 358; is that correct?

MR. NELSON: Yes.

MR. LILLY: What are the units of those slopes?

MR. NELSON: It's basically -- the units of those slopes, it's rise over run. So it's -- it's -- I'm not sure to tell you the truth.

MR. LILLY: Okay. Well --

MR. NELSON: I did the calculation, and it said -- that's what it said the slope was.

MR. LILLY: All right. Well, first of all, did you do any analysis to determine whether there's any statistically significant difference between those two slopes?

MR. NELSON: Yes. As I indicated, there was a slight correlation, and that was an R value that I gave you previously.

MR. LILLY: Okay. I thought those were the R values for determining each slope. Is that not correct?

MR. NELSON: That was the significance between the population number and the slope, yes.

MR. LILLY: Right. And now I'm asking you a different question.

Is there any statistically significant difference between the 478 slope pre project and the 358 slope post project?

MR. NELSON: I don't know.

MR. LILLY: You did not do that analysis?

MR. NELSON: I did not.

MR. LILLY: And just so we're clear, when you say 358, does that mean that the trend -- and I realize it's just the average trend, but the average trend in the population is increasing by 358 adult fish per year?

MR. NELSON: No. It's the actual rise over run of the slope of the line. So, you know --

MR. LILLY: Okay. Well, isn't the rise --

MR. NELSON: Which means that the greater the number, the greater the slope of the line.

MR. LILLY: All right. Well, isn't the rise numbers of adult fish each year?

MR. NELSON: I'm sorry. I don't understand.

MR. LILLY: Okay. When you say it's rise over run,

what are the units of the rise?

MR. NELSON: It -- well, the units of the rise I believe would be numbers of fish. That's a guess.

MR. LILLY: Numbers of adult fish, correct?

MR. NELSON: I believe, yes.

MR. LILLY: Okay. And the run is numbers of years, right?

MR. NELSON: Probably -- I don't know at this point. I'd have to go back and look at my statistics book.

MR. LILLY: Now, shifting over to the RST data, I believe you said that your opinion is that RSTs are not as effective at catching larger salmon and steelhead as opposed to smaller salmon and steelhead; is that correct?

MR. NELSON: Correct.

MR. LILLY: And I think you even said that you don't even see the larger sizes; is that correct?

MR. NELSON: I don't believe I said that. I do not believe I said that, no.

MR. LILLY: Okay. And if you can just put some numbers on this, what do you mean when you talk about larger fish versus smaller fish? Because you can talk in terms of millimeters in length.

MR. NELSON: I think I'm talking on -- excuse me -- on a general nature, and that I think it holds true in general that as fish get larger, regardless of what size, there is

some better swimming ability and the ability of those fish to then avoid the trap.

MR. LILLY: Okay. And do you have any quantitative field data to support this statement?

MR. NELSON: For that trap, no. But I have read the various literature that indicates that there is a greater avoidance on -- due to size.

MR. LILLY: Okay. Can you put any numbers on this, as far as, you know, what the trend is or what you mean by greater avoidance?

MR. NELSON: I may be able to do it if I went back and read the specific articles. But at this time, no, it's a general statement.

MR. LILLY: Okay. Then -- this is either for you or Mr. Drury.

Do the RST data that have been collected include listings of the lengths of the fish collected?

MR. DRURY: That is correct.

MR. LILLY: Okay. So for all three years, they have numbers of fish and they're sorted by lengths, the data do?

MR. DRURY: That is correct.

MR. LILLY: Okay. Now, Mr. Nelson, did you do any quantitative analysis of the length data from the RST trap or RST on the Lower Yuba River?

MR. NELSON: What do you mean specifically?

MR. LILLY: Well, you've made -- you've made some qualitative statements that the fish that are caught later in the year tend to be larger. And I'm just wondering if you can put any numbers on that as far as what the average size of fish that was caught by month or anything like that.

MR. NELSON: What I looked at is I looked at the length frequency, which is numbers, and the length of fish --

MR. LILLY: Right.

MR. NELSON: -- by date.

And basically looked at the totals -- looked at the total number of fish before -- prior to and after April, or after April 1st, first part of April, and the relative size of those fish.

And in general, it -- it is -- the fish are less than sixty -- 60 millimeters more or less, and the majority is greater than 60 millimeters after that date.

MR. LILLY: Okay. Can you be any more -- do you have -- as we sit here today, do you have any quantitative data that actually shows the distributions of the different lengths before April or after April?

MR. NELSON: We have length frequency data.

MR. LILLY: Have you brought any of that today for the Board to consider?

MR. NELSON: We brought it as back-up information for

ourselves, but we could make it available to the Board.

MR. LILLY: Okay. They may -- they may ask for that.

As we sit here today, just -- let's just focus on --

MR. NELSON: May I add one other thing to that, also?

MR. LILLY: Go ahead.

MR. NELSON: We had actually provided -- this data since approximately late 2001 has all been provided electronically to YCWA or Jones & Stokes and Research Water Resources, Inc.

MR. LILLY: Oh, okay. So they have all the same data.

MR. NELSON: Yes. It has all been provided. It was provided as a cooperative effort and has been provided electronically, all the data that we have collected at the rotary screw trap.

MR. LILLY: Okay. Well, I guess my question is, does your testimony today contain any quantitative discussions of these data?

MR. NELSON: More overall general concepts of what we have seen with, you know, looking at total numbers, but I have not provided that specifically.

MR. LILLY: Okay. So you're -- today you're making more qualitative statements rather than quantitative statements.

MR. NELSON: On a general basis, but it is based on looking at the data.

MR. LILLY: All right. Now let's go forward to -- I believe you've talked about what you refer to as gear avoidance. Is that in fact the term you used?

MR. NELSON: I'll take your word for it.

MR. LILLY: Okay. I'm not trying to put words in your mouth, but please tell me if I've gotten this wrong.

But I think your basic statement was that the larger fish, in your opinion, tend to be better at avoiding an RST than smaller fish; is that correct?

MR. NELSON: That's correct.

MR. LILLY: Now, one question I have, is this affected in any way by the time of year? In other words, if you have a 40-millimeter fish versus an 80-millimeter fish, I assume you're saying that the 80-millimeter fish are more likely to avoid the trap; is that correct?

MR. NELSON: Yes.

MR. LILLY: And my question is, is the relative avoidance of the 80-millimeter versus the 40-millimeter different in, say, March versus in May?

MR. NELSON: The 40-millimeter fish in March versus an 80-millimeter in May?

MR. LILLY: No, no. No. I'm sorry if I wasn't clear.

I realize you don't have any specific numbers, but let's just take March. Is it your testimony that an 80-millimeter fish in the river in March is more likely to

avoid the RST than a 40-millimeter fish in the river in March?

MR. NELSON: In general, yes.

MR. LILLY: Okay. Now, in May is it your testimony that an 80-millimeter fish is more likely to avoid the RST than a 40-millimeter fish in May?

MR. NELSON: Yes, in general.

MR. LILLY: Okay. My question is, is there any difference between those avoidances by the larger fish, the greater avoidances by the larger fish in May versus in March?

MR. NELSON: I think where you're going is with respect to smolting characteristics.

MR. LILLY: Oh, and --

MR. NELSON: Not to put words in your mouth.

MR. LILLY: I wasn't going anywhere. I was just trying to find out --

MR. NELSON: There is -- I mean, obviously if you have a fish that hasn't smolted of the same size length, it is a better swimmer and stronger swimmer than a fish that has smolted. Even though a smolt may be a weaker swimmer, it is still a stronger swimmer than a fry.

MR. LILLY: Okay. So there may be some difference during time of year and based on smoltification but I assume you can't quantify that today?

MR. NELSON: That's correct.

MR. LILLY: Okay. Now, I think you mentioned there were some studies having been made about trap avoidance; is that correct?

MR. NELSON: There is literature out there, yes.

MR. LILLY: Oh, okay. Well, what rivers -- I assume the literature refers to field studies?

MR. DRURY: That's correct. There's a number of literature. The ones I'm most familiar with were conducted on the Sacramento main stem.

MR. LILLY: Okay. And who did those studies?

MR. DRURY: U.S. Fish and Wildlife Service.

MR. LILLY: And when were they done?

MR. DRURY: Approximately 19 -- I want to say 1995 through the present.

MR. LILLY: And do you know where on the Sac River?

MR. DRURY: Red Bluff, the Red Bluff diversion dam.

MR. LILLY: So were the RSTs below the Red Bluff diversion dam?

MR. DRURY: Yes, directly attached to the diversion dam.

MR. LILLY: And, Mr. Drury, can you put any numbers on this? We have a qualitative statement that larger fish tend to be better at avoiding the RSTs than smaller fish, but can you give us any quantitative information on that?

MR. DRURY: I can't as I sit here right now. I have read the report. Basically larger fish or what were documented as smolts had a -- I want to say almost twice the avoidance than smaller fish that were documented as fry.

MR. LILLY: Okay. So -- and what millimeter range are you referring to when you're talking about smolts?

MR. DRURY: I'd have to go back and look at their data to answer your question for that particular study. Twice the size of fish, perhaps.

MR. LILLY: So is it fair to say if the smolts were twice the size of the fry, would you say that the avoidance was twice as great?

MR. DRURY: I don't know if that would be fair to say that or not.

MR. LILLY: Okay.

MR. DRURY: I think it's probably a range.

MR. LILLY: A range for the fry and a range for the smolts?

MR. DRURY: Probably.

MR. LILLY: Okay. But the rough number was the smolts were twice as good at avoiding the RSTs as the fry?

MR. DRURY: I would think that's a fair statement to say.

MR. LILLY: Now, Mr. Nelson, going forward to another question, I think you talked about the fact that the -- the

larger fish have greater survival rates; is that correct?

MR. NELSON: That's correct.

MR. LILLY: And I think your testimony refers -- there's a Table 2 on the third page of your testimony. Is that where you're referring to -- or is that the numbers on which your testimony is based?

MR. NELSON: Partially, yes.

MR. LILLY: Okay. Oh, what other rivers are there besides -- this refers to the Sacramento River and several streams in the state of Washington. Do you have other rivers from which you have this information?

MR. NELSON: The American River also.

MR. LILLY: Now, regarding the Sacramento River data, where were these fish released?

MR. NELSON: Actually, as the reference cites, the California data are from March 1st of fall-run chinook salmon released in spring from 59 through 72 in the Sacramento River system hatcheries: Coleman, Feather and Nimbus.

MR. LILLY: Okay. Do you know if they were released at the hatcheries or if they were released down in the Delta?

MR. NELSON: Yes, they were all released at the hatchery except for the '58 year.

MR. LILLY: Where were those released?

MR. NELSON: I do not -- they were released downstream. Where, I'm not sure.

MR. LILLY: And this refers to studies --

MR. NELSON: Excuse me. Excuse me.

MR. LILLY: Oh.

MR. NELSON: No, that's true. That's a true statement. Yes.

MR. LILLY: Okay.

MR. NELSON: That stands.

MR. LILLY: Your testimony also referred to studies at the Nimbus Hatchery; is that correct?

MR. NELSON: Yes.

MR. LILLY: And just so we're clear, all of these fish in these studies were hatchery fish?

MR. NELSON: Yes.

MR. LILLY: Okay. Are there differences in the survival rates for hatchery fish versus naturally spawned fish?

MR. NELSON: Yes.

MR. LILLY: What are the differences?

MR. NELSON: What are the differences?

MR. LILLY: Yes.

MR. NELSON: I assume you mean what the difference is in rates.

MR. LILLY: Yeah, which ones survived better, hatchery

fish or naturally spawned fish?

MR. NELSON: Well, I -- I -- I'm not sure if that's a fair question because it has several points that -- that are not -- that one must consider.

If you look at the ultimate number of survival from fry to returns, adult escapement, it's likely that the greatest number of fish are hatchery fish because they are reared in an environment that does not have predation and has an optimal environment typically for the smolt size.

MR. LILLY: Okay. My question is, if you're talking about survival rates -- in other words, if you have a certain length of fish and you have a hatchery fish that's released into the wild, and you have a naturally spawned fish of that same length that's already in the wild, what's the relative difference in their likelihood of survival to adulthood?

MR. NELSON: Released at the same size in the wild, is that the question?

MR. LILLY: Yeah. Well, that -- assume the natural one is already there and the hatchery one is released right at the same place.

MR. NELSON: Released at the same size, it is likely there is a greater survival of hatch -- excuse me -- of wild fish.

MR. LILLY: And do you have any information on what

that difference is quantitatively?

MR. NELSON: Not offhand, but I'm sure it's out there.

MR. LILLY: Okay. Now, when you refer in your text here to studies at Nimbus Hatchery regarding yearling chinook salmon released at 45 grams -- it says here grams -- what millimeter length or length range is that corresponding to?

MR. NELSON: I don't believe there was a length that was given. I would have to double-check that. I'm not sure if I could come up with it.

I'm not sure. I don't believe it's here, but I'm not positive.

MR. LILLY: Can you give us any ballpark for what length range 45-gram fish are?

MR. NELSON: In the hatchery, I'm not sure. You know, I would imagine it's in the 75-plus, 60-plus, 75-plus millimeters.

MR. LILLY: And then it says -- it refers to smaller fingerlings. First of all, what grams are we talking about for the smaller fingerlings?

MR. NELSON: That was not given.

MR. LILLY: Oh, okay. Do we have a length for those smaller fingerlings?

MR. NELSON: That was -- I don't believe that was given. I don't believe that was given.

MR. LILLY: Okay. And it says here that they returned to the hatchery 34 times greater; is that correct?

MR. NELSON: Correct.

MR. LILLY: Okay. So that's not necessarily an indication of survival to adulthood. That's both survival to adulthood and actual return to the hatchery, correct?

MR. NELSON: That would be correct.

MR. LILLY: Okay. And for the -- so some of this could be -- some of the difference could be that the smolt size fish actually had imprinted to the hatchery where those released as the small fingerlings had not?

MR. NELSON: I don't know that.

MR. LILLY: Okay. Is that a possibility, though?

MR. NELSON: I don't know that.

MR. LILLY: As a general rule, what size of -- when does imprinting of salmon occur, what size range?

MR. NELSON: It could -- it can occur at the egg.

MR. LILLY: It can. And when is it -- is there any indication in the studies as to when it normally occurs?

MR. NELSON: I believe it normally occurs in the egg. I mean, there's additional -- yes.

MR. LILLY: Okay. But is there additional imprinting as it goes up to the smolt size?

MR. NELSON: There is probably additional imprinting, but I do know that it does occur at the egg stage.

MR. LILLY: Well, are there any studies that indicate -- that have determined the return rates of fish that are imprinted only at the egg stage versus fish that are imprinted all the way through the smolt stage?

MR. NELSON: I don't know.

MR. LILLY: Now, I believe you testified this morning that your opinion based on phenotypic characteristics is that there are spring-run chinook salmon in the Yuba River; is that correct?

MR. NELSON: Yes.

MR. LILLY: And to definitively determine whether chinook salmon are a spring-run versus fall-run, is it necessary to do an actual genetic analysis?

MR. NELSON: Would you repeat the question?

MR. LILLY: Yes. To -- to definitively determine that a chinook salmon is a spring-run as opposed to a fall-run, is it necessary to do a genetic analysis of the fish?

MR. NELSON: No.

MR. LILLY: Okay. So in your opinion, phenotypic characteristics alone are enough?

MR. NELSON: Yes.

MR. LILLY: Now, I believe your recommendation this morning is that the Board keep in effect the D-1644 instream flow requirements; is that correct?

MR. NELSON: That was not within my testimony.

MR. LILLY: Oh. Well, did you make any recommendation regarding what the Board should do for instream flow requirements in the Lower Yuba River?

MR. NELSON: I believe I was asked if -- what I thought the flow should be or should -- if they should remain at D-1644.

MR. LILLY: Oh, okay. What was your answer to that?

MR. NELSON: I believe that is the minimum.

MR. LILLY: Okay. So let's just focus briefly on the late April period.

In your opinion, is 1,000 cubic feet per second of flow the minimum necessary to facilitate salmon and steelhead outmigration during that period?

MR. NELSON: I believe that it is a -- generally in that range is what is necessary for maintaining a healthy ecosystem managing for a variety of life stages and a variety of races and a variety of species.

MR. LILLY: And do you have any quantitative data to support that statement?

MR. NELSON: Yes, I believe there was substantial information in the record with respect to maintaining temperatures, maintaining attraction flows for both chinook salmon, spring-run, and in particular shad; as well as providing for various habitats and allowing fish to select preferred habitats within a wide range of habitats.

MR. LILLY: All right. And what about for outmigration? Is there any quantitative information that a minimum flow of 1,000 cfs in late April is necessary to facilitate salmon and steelhead juvenile outmigration?

MR. NELSON: I believe it's necessary to provide, again, a variety of habitat conditions under which these species evolve in order to maintain a resilient and viable population.

MR. LILLY: Let me just ask one more time.

Is there any quantitative data to support your statement that 1,000 cfs is needed in late April to facilitate salmon and steelhead juvenile outmigration?

MR. NELSON: I would have to go back and read the entire record --

MR. LILLY: So as --

MR. NELSON: -- to look for that.

MR. LILLY: So as we sit here today, you cannot refer to any quantitative data for that?

MR. NELSON: I believe it's in the record.

MR. LILLY: What kind of data would that be, what kind of study?

MR. NELSON: What kind of --

MR. LILLY: IFIM, RST or what kind of study?

MR. CUNNINGHAM: Mr. Baggett, if I might, two points.

This has now been going on for over 35 minutes. I was

under the impression that 30 minutes was going to be kind of the cap for cross.

Secondly, sir, it's my understanding again, as clarified by Mr. Nelson, that he in his rebuttal testimony along with Mr. Drury has not made any statements regarding the specific applicability or desirability of flows but responded only in a cross-examination question to some other party. And now we've gone far, again, beyond the scope of the materials that Mr. Nelson and Mr. Drury prepared and presented.

And while I appreciate the Board's interest in trying to continue to get this information in, unfortunately what we're left with is we're now referring to materials that were provided three years -- two and three years ago. And while this witness may have some personal opinions, his knowledge is limited.

CHAIRMAN BAGGETT: Again, I appreciate that. And Mr. Lilly has 55 seconds left on the 30-minute clock. So --

MR. LILLY: Well, I may need a little more on that.

Mr. Baggett, it's up to you. I thought that the questions, including the questions from your staff yesterday, went fairly far afield beyond just the evidence that had been presented regarding the RST data and the adult salmon and got quite a bit into recommend -- actual instream flow recommendations. But if your ruling is that we're not

supposed to get into that for this hearing, I will abide by that ruling. It's really the Chair's call.

MR. FRINK: Mr. Baggett, may I address that?

Yeah, one of the key issues listed in the hearing notice is should Decision 1644 be revised based on the evidence the fisheries presented in the declarations of William Mitchell and Mr. Bratovich. And that evidence was offered on direct, and we did ask some questions about that of those witnesses.

The hearing notice also states, however, that cross-examination of rebuttal evidence, which is what we're dealing with now, will be limited to the scope of the rebuttal evidence. And I think the reason that that's normally the rule is to prevent the hearings from going on indefinitely.

So I think there is a difference in cross-examining a witness on direct and cross-examination of a witness on rebuttal.

MR. LILLY: I assert that's not really a very good distinction. If we're trying to get to the bottom line here, one party's recommendations should be entitled to as much scrutiny as anothers.

CHAIRMAN BAGGETT: And I again ruled on that yesterday.

It's within -- we have a time limit. We didn't have

the -- what I consider a significant pre-hearing where we could deal with these -- some of these procedural issues, but we did have a time limit. And I'll allow you to continue within the time limit, but that's -- that's the only major limiting factor.

But I think we did have some lattitude yesterday, and I have granted you that now. And again I state to the witnesses, if you aren't prepared, if you don't have current knowledge, then so state. I mean, the answers are also going on at rather length -- great length. And if it's speculation, then so state you're not prepared.

But, Mr. Lilly, you've got about a minute left, so --

MR. LILLY: All right. Well, let me ask for a little more time, but I am trying to wrap this up. Obviously it's a little hard to organize this when we just got the information in the morning.

Mr. Nelson, let me just try one more time.

What types of quantitative data -- and I mean -- by "what types," I mean IFIM data, RST data or some other kind of quantitative data -- do you believe support your opinion that the minimum flow of 1,000 cfs is needed for salmon and steelhead juvenile outmigration in late April?

MR. NELSON: Again, I'm not really prepared to answer that because I haven't gone back and looked at all the studies that are there and refreshed my memory.

MR. LILLY: Okay. So would you have the same answer if I asked you what types of quantitative data if any are available to support your opinions regarding the minimum flows needed for salmon and steelhead juvenile outmigration in May or June?

MR. NELSON: Yes, I believe the data is there, but I believe I have not familiarized myself with the record from 2000 and from the previous year.

MR. LILLY: All right. Mr. Nelson, I think you testified this morning that one of the things that you believe is important is to emphasize the life stages that occur in the Lower Yuba River at many different times of the year; is that correct?

MR. NELSON: I believe it's important to manage for a variety of life stage characteristics and strategies, yes.

MR. LILLY: Okay. And those various life stages occur during various times of the year?

MR. NELSON: That's correct.

MR. LILLY: So is it fair to say that you believe that no one period of the year should be emphasized, but rather the instream flow requirements should consider all different times of the year?

MR. NELSON: We have to manage instream flows for all those different life stages at different times of the year. They have evolved under a variety of conditions.

MR. LILLY: All right. Mr. Baggett, if I may just have a break to talk to my staff here and colleagues to make sure I haven't missed anything. I appreciate just a couple minutes, and then I'll try to wrap it up.

CHAIRMAN BAGGETT: Off the record.

(Off the record.)

MR. LILLY: I do have two reports I'd like to ask the witness about. If I can just get clarification what number we're on, Mr. Frink, for 2003 YCWA exhibits.

MR. FRINK: The next number is No. 8.

MR. LILLY: I'll ask that the one which is entitled Effects of Pulse Flows on Chinook Salmon Migration in the Stanislaus River be marked as Exhibit 8 -- excuse me -- 2003-YCWA-8.

And the other is called Effects of Pulse Flows -- excuse me. The first one was dated 1993. And then 2003-YCWA-9 will be a 1998 annual report entitled Effects of Pulse Flows on Juvenile Chinook Migration in the Stanislaus River.

MR. HUTCHINS: Chairman Baggett, I would suggest that since we're now nearly 45 minutes into the cross-examination, and that since it appears that we're now looking at introduction of evidence that's beyond the scope of direct examination and it appears to be beyond the scope of cross-examination, I would respectfully refer the Board

and its counsel to page 8 of the notice of hearing, paragraph D:

The Hearing Officer has discretion to allow additional time for cross-examination if there's good cause demonstrated in an offer of proof.

And I respectfully submit that we neither have good cause demonstrated nor an offer of proof, and I request that this cross-examination be drawn to a close, please.

CHAIRMAN BAGGETT: I'll ask for the offer of proof, but in terms of the former question, we have one minute over. We don't keep the clock running during all the various objections and cross of the parties. So, in fact, he's not used 45 minutes; he's used 31 minutes and 13 seconds.

MR. HUTCHINS: My mistake.

CHAIRMAN BAGGETT: So that's how we tend to keep time. We feel to take objections takes up a lot of time.

And, I mean, I'll ask Mr. Lilly to exhibit -- to state the relevance of what you're handing out.

MR. LILLY: Okay. Yeah, these are two reports regarding trout efficiency tests on the Stanislaus River. And the first question I was going to ask Mr. Nelson is if he's ever seen them before.

And I can state our offer of proof is that the first one, contrary to what they've testified to before or

contrary to the questions that have been drawn at the hearing, shows that the volume -- excuse me -- that the captured fish are almost in proportion to the volume of flow sample. And the second one shows, and I quote:

> The mean size of recaptured fish did not differ significantly from the mean size of fish at release, so there was no evidence that trap efficiency changed with fish size. (Reading.)

CHAIRMAN BAGGETT: Okay. Well, I will overrule and allow counsel to continue. But be aware, I'll give you five extra minutes. You've got just four minutes or so. So if you'd be brief with your comments, I would appreciate it.

MR. LILLY: All right. Mr. Nelson or Mr. Drury, is either one of you familiar with the trap efficiency tests that have been conducted on the Stanislaus River?

MR. NELSON: No, I'm not. Stanislaus is outside my area of expertise or management authority.

MR. LILLY: And how about you, Mr. Drury?

MR. DRURY: I have no prior knowledge.

MR. LILLY: Have you ever -- has either of you ever seen either of these reports regarding trap efficiency on the Stanislaus?

MR. NELSON: I may have seen it, but I have not read it.

MR. LILLY: And how about you, Mr. Drury?

MR. DRURY: I have not seen it to my knowledge.

MR. LILLY: All right. Thank you. I have no further questions.

CHAIRMAN BAGGETT: Thank you.

Western Water, do you have any questions?

MR. MORRIS: We have no questions. Thank you.

CHAIRMAN BAGGETT: Thank you.

Any redirect in rebuttal, Mr. Cunningham?

MR. CUNNINGHAM: Yes, sir.

CHAIRMAN BAGGETT: Staff and I have a couple questions, too. How many you plan on having on redirect?

MR. CUNNINGHAM: I'll have a couple of questions on redirect, but I'll wait until staff has asked their questions.

CHAIRMAN BAGGETT: I don't know. I have a few myself. I guess we'll start down at the end and work this way, then.

Ernie, do you have any?

MR. MONA: No, Mr. Baggett.

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CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME

BY STAFF

MR. FECKO: Good morning, Mr. Nelson and Mr. Drury. Just a few questions. And if either of you could answer to the best of your ability, I'll direct them to both of you.

I'm wondering, Mr. Nelson, are you aware of the

Decision 1644 long-term interim flows, generally?

MR. NELSON: Yes, I am.

MR. FECKO: And are you specifically aware of the flows from April 21st through June 1 in all year types?

MR. NELSON: On a general basis, yes, I am.

MR. FECKO: Are you aware of the term "pulse flow" --

MR. NELSON: Yes.

MR. FECKO: -- as it relates to fisheries management?

MR. NELSON: Yes, I am.

MR. FECKO: And could you explain that for the Board.

MR. NELSON: Pulse flows can be either natural events or manmade events. It is basically rapid increases for a short period of time and then decreases. Often the intent of that under controlled circumstances is to induce juvenile fish to move downstream.

MR. FECKO: And the purpose of timing of pulse flows in a controlled system, is that to mimic a natural hydrograph in that system?

MR. NELSON: Typically not because it is very short duration. It may mimic some instances, but it is typically just to allow fish or induce fish to move.

MR. FECKO: Typically do fish living in a controlled system wait for a pulse flow to move or can they move before the pulse flow and after the pulse flow as well?

MR. NELSON: They can move at any time either --

either volitionally on their own as they choose or a pulse flow. They tend to move under different circumstances.

MR. FECKO: And would a pulse flow have more of a tendency to move smaller fish rather than larger fish because of differing swimming abilities?

MR. NELSON: Yes. We see -- on our rotary screw trapping on the Yuba, we have seen where we've had fairly short duration freshets that have come down in the January through March time frame that there appears to be a sudden movement downstream of juveniles or fry.

With respect to smolts, there is a less influence on their movement because they are more triggered by a physiological response, the smolting characteristics.

MR. FECKO: And in your opinion -- and I assume you've worked on the Yuba River for some time; is that correct?

MR. NELSON: I think I'm the only one left in Fish and Game that started out at the first hearing.

MR. FECKO: Okay. So in your opinion, the nat -- if you were to make an assumption on what the natural hydrograph looked like in the Yuba River, when would you assume that pulse flows might begin or end under natural conditions?

MR. NELSON: I mean, they would begin truly with -- with respect to when juveniles are present, they'd begin in the fall, late fall. And they would occur all the way

through late spring, early summer depending upon the water year type.

MR. FECKO: So if there was -- it was a -- I assume you mean if it was a water year type that was characterized as wetter, what would that do to the natural hydrograph?

MR. NELSON: It would extend it -- it would basically extend out -- increase the amount of outflow and would extend the period of outflow. And within that, there could be pulses within that from the standpoint of -- of rate of snow melt, rate of runoff.

MR. FECKO: Thank you. That's all I had.

CHAIRMAN BAGGETT: Dan?

MR. FRINK: Yes.

Mr. Nelson, I had a single question; I think it's a simple matter. I was just looking at the graphs attached to DFG Exhibit 2, and the slope numbers explain the difference. But just looking at the graphs themselves, if you look at the -- the actual slope in degrees of the line drawn in Figure 1, it appears that it's less than the line drawn in Figure 2.

Is that because the number of years that is covered in the horizontal scale on Figure 2 is greater than the number of years that is covered in the horizontal scale on Figure 1?

MR. NELSON: That's partially true, but -- but if you

just look at the slope, they are -- it is actually slightly greater on the pre New Bullards Bar Figure 1. But it's very subtle; it's very hard to see.

But you're correct. That is partially correct, yes.

MR. FRINK: Okay. I appreciate that. Thank you.

CHAIRMAN BAGGETT: I had a question on the graphs, also. Having just seen the written testimony, I -- maybe it's in there someplace. I read it quickly while sitting here.

On your graphs Figure 1 and Figure 2, it appears they aren't consistent. At the end of Figure 1, in 19 it looks like '72 maybe, '71 --

MR. NELSON: '71.

CHAIRMAN BAGGETT: Yeah, you've got 150-plus thousand -- no, 15,000. Yet on -- if you compare that to where the other graph begins, it starts at 110,000 at the same time period. So can you explain that to me?

MR. NELSON: I'm not sure I follow you.

CHAIRMAN BAGGETT: Look at Figure 2 and look at 1971. The beginning of the line over by the X axis is one thousand -- ten thousand --

MR. NELSON: On Figure 1 or --

CHAIRMAN BAGGETT: No, Figure 2. Look at the end of Figure 1 and the beginning of Figure 2. They seem to be inconsistent.

MR. NELSON: I mean, I think the data point -- I may not be understanding the question, sir, but the data point versus --

CHAIRMAN BAGGETT: I'm just looking at the little -- at the end of the line and looking at the little diamond there. And the diamonds appear to be showing different numbers.

MR. NELSON: I think they can explain it better than I can, but I'll try.

I think it has to do with the scaling. Graph 1 is scaled on a five-year basis versus Figure 2, which is scaled on a ten-year basis.

CHAIRMAN BAGGETT: I'm just looking at the population diamond.

MR. CUNNINGHAM: Mr. Baggett, if I might. I think what Mr. Nelson is referring to is the last scale point on Figure 1 is 1971.

CHAIRMAN BAGGETT: Right.

MR. CUNNINGHAM: And the first scale point on Figure 2 is 1972.

CHAIRMAN BAGGETT: It's hard to --

MR. CUNNINGHAM: And the reason that it looks at a similar location is because the horizontal scaling for Figure 2 is a ten-year scale rather than a five-year scale.

CHAIRMAN BAGGETT: Right, I understand that.

MR. CUNNINGHAM: We apologize for the change in scale dimension.

CHAIRMAN BAGGETT: Definitely, which it goes to the previous question on slope.

Your conclusion in your written testimony says:

> Pre New Bullards Bar chinook salmon population was still expanding at a greater rate than post New Bullards Bar population. (Reading.)

MR. NELSON: That is correct.

CHAIRMAN BAGGETT: And I -- and you were here yesterday. I asked a question on the accuracy of the data, and it seems like you're probably the most appropriate person to answer that pre -- preconstruction of the dam.

I mean, looking at the data numbers were all rounded off to the thousandths, how -- I guess how comfortable are you drawing that kind of conclusion based on data that didn't appear nearly as accurate as post construction?

MR. NELSON: I'm not, and that was indicated in the R values that there was just a weak correlation and not a strong correlation in that linear aggression. So really what it tells you is that it's -- it's -- it's quite variable. And, you know, it's a graphic that gives you some idea, but it is poorly -- poorly correlated.

The '66 through '71 data is fairly good. That is the years that we did the survey to determine that on the

average during that five-year period, six-year period, that there was 15.5 percent on the average there. We did do those surveys from essentially the narrows downstream. Prior to '66, your guess is as good as mine.

CHAIRMAN BAGGETT: Okay. You have any questions?

MR. CARLTON: No.

CHAIRMAN BAGGETT: Redirect?

MR. CUNNINGHAM: Yes. Thank you, Mr. Baggett.

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REDIRECT EXAMINATION OF DEPARTMENT OF FISH AND GAME

BY MR. CUNNINGHAM

MR. CUNNINGHAM: One question in redirect I think probably addressed to Mr. Drury.

You indicated, Mr. Drury, that actual size trap -- trap information including size of fish trapped was being provided to Yuba County Water Agency or Jones & Stokes for the period 2000, 2001 and 2002?

MR. DRURY: That's correct. I think Mr. Nelson said that.

MR. CUNNINGHAM: To your knowledge, was all of the information recovered from the rotary screw trap at Hallwood provided during this period to Jones & Stokes and Yuba County Water Agency?

MR. DRURY: Yes, it was.

MR. CUNNINGHAM: Were there any caveats attached to

the provision of that data, to your knowledge, when it was provided to Jones & Stokes and Yuba County Water Agency?

MR. DRURY: Yes, there was. With each electronic transfer of data, there was a caveat attached stating that this data represented trends only; it did not represent any type of population whatsoever.

MR. CUNNINGHAM: Did it indicate that this was coming from an uncalibrated trap?

MR. DRURY: I don't know if the word "uncalibrated trap," if those words were in the caveat. All parties that received the data were members of the Yuba River technical work group. And it was -- it was widely known within that group that the trap was uncalibrated.

MR. CUNNINGHAM: I have no further questions on redirect. Thank you.

CHAIRMAN BAGGETT: Any recross, Mr. Lilly?

MR. LILLY: Nothing else.

CHAIRMAN BAGGETT: Anyone else? Any parties?

With that, the witnesses are excused.

We have an issue of evidence. I assume Fish and Game wants to enter their exhibits in, and there seem to be some question on some data that was provided to Jones & Stokes in 2000-2002. Is that going to be admitted into evidence or the data which this is based on? It seems both parties or counsel for both parties thought it was relevant.

MR. LILLY: We're not asking the Board to ask Fish and Game to submit that data at this time. I just -- I had not understood the clarification that it was all the same data that we have already. I thought they might have had additional data.

So with that clarification, we're not asking them to do that. If the Board wants it, obviously the Board can certainly ask DFG to provide it.

MR. CUNNINGHAM: Chairman Baggett, it's your choice. We have that information available. I'm not sure we have all of it available here at this time. If you would consider it relevant, we can obtain copies and make sure that they're available to the Board and Board staff.

CHAIRMAN BAGGETT: Ask our fisheries expert here.

MR. FRINK: It appears that all of the information isn't in the record. Now, is it agreeable with all the parties that the Department of -- excuse me.

It appears that all of that information is not in the record. And if it would be agreeable with all of the parties for the Department of Fish and Game to submit that within a period of five days, that might be a good way to work it out.

Is that doable from Fish and Game's standpoint? This is just raw data, no interpretation.

MR. NELSON: It's raw data. It's all the data that we

collected on the rotary screw traps. And we could E-mail it or make it available to you electronically, and you could disburse it to the parties? Or we can do it if so desired.

CHAIRMAN BAGGETT: Sounds like Yuba's already got the data.

MR. LILLY: Well, we would like to get copied in on the transmittal from DFG to the Board, but that process is fine with us assuming that they provide copies to all the parties.

CHAIRMAN BAGGETT: Okay. With that, what exhibits do you want --

MR. CUNNINGHAM: At this time we'd like to offer, then, 2003-DFG Exhibit 1, 2003-DFG Exhibit 2. And may we consider, then, this additional raw data 2003-DFG Exhibit 3?

CHAIRMAN BAGGETT: Right. And if we could just -- that would be great.

MR. CUNNINGHAM: And we'll provide it electronically --

CHAIRMAN BAGGETT: That would be fine.

MR. CUNNINGHAM: -- to the Board.

And it is our understanding the Board would like us to go ahead and electronically deliver it or hard copy deliver it to everybody else or would you like to distribute it through the Board's distribution?

MR. BAGGETT: Electronically.

MR. FRINK: If you have the E-mail addresses of everybody else and that's agreeable with all of the parties here, I think you could just serve it on them electronically at the same time you serve to the Board.

MR. CUNNINGHAM: We'll do it electronically.

And it's understood that it will just be the raw data obtained from the Hallwood rotary screw trap in the relevant period of time we discussed.

CHAIRMAN BAGGETT: Very good. Any -- there's no objection? The exhibits are entered. Thank you.

MR. CUNNINGHAM: Thank you, sir.

CHAIRMAN BAGGETT: With that, Department of Interior, SYRCL, do you have any rebuttal?

I'm just trying to get --

MR. HUTCHINS: No, Mr. Chairman Baggett.

CHAIRMAN BAGGETT: Let's do SYRCL and then we'll -- I believe --

MR. HUTCHINS: No, Mr. Chairman Baggett. We had anticipated presenting evidence basically indicating that Mr. Mitchell's data submitted are of very limited probative value because they don't concern the list -- the species listed under the Endangered Species Act in the Lower Yuba River.

We also had intended to present rebuttal evidence to the effect that the RST data are also of very limited

probative value.

However, we believe that between the testimony of Messrs. Drury and Nelson, and in fact the testimony of Messrs. Mitchell and Bratovich themselves, that we don't need to present such evidence. And mindful of the Board's valuable time and the valuable time of the Board's staff and the rest in this room, we will decline to present any rebuttal evidence.

Thank you very much.

CHAIRMAN BAGGETT: Okay. Thank you.

With that, I think the only party left is Department of Interior.

THE REPORTER: Chairman Baggett, could I just change paper?

CHAIRMAN BAGGETT: Okay. Let's take a short recess while we set up.

MR. CUNNINGHAM: This could probably be an off-the-record discussion.

CHAIRMAN BAGGETT: Okay. So we're off the record.

(Off the record.)

CHAIRMAN BAGGETT: Okay. Mr. Lilly.

MR. LILLY: Mr. Baggett, Mr. Brandt just reminded me that I had not offered Exhibits 2003-YCWA-8 and 9. I'd like to admit those into the record.

CHAIRMAN BAGGETT: Okay. Objection? Mr. Cunningham?

MR. CUNNINGHAM: I see no Fish and Wildlife standing behind me, but I'd like to object to the admission of those documents. We've had no ability to have any authen -- authentication of those documents nor any ability to cross-examine any witness who would present those documents as to the nature and truthfulness of the substance within those documents.

Those appear to be reports prepared by a private entity for private purposes. They at first blush appear to have no peer review qualification. And without an ability to ask those people who prepared those exhibits whether or not and what manner they conducted their studies, those exhibits add little to this matter. And we suggest they should not be admitted.

CHAIRMAN BAGGETT: Mr. Lilly?

MR. LILLY: We're just offering them for the purposes of -- of explaining the testimony that the witnesses were asked whether or not they'd seen them. We agree that they're not being offered for the truth of the matters asserted therein, but just for that limited purpose.

CHAIRMAN BAGGETT: We'll admit them with that admonition. Thank you.

Now, Mr. Brandt.

MR. BRANDT: Mr. Chairman, Mr. Lilly has indicated that he would not object to the video. However, at this

point, being 11:00 -- we were hoping to get this done in a half day -- we would suggest that based on the testimony of the Fish and Game witnesses on avoidance of RST, that we would not need to submit this on -- or have this put into the record unless either you or Mr. Carlton would like us to, if you would like to see a video on avoidance, fish avoidance of RST.

But otherwise, we will leave it to you. Otherwise, we will not offer it.

CHAIRMAN BAGGETT: Well, I would like to ask, is any party objecting to enter it into evidence without actually showing the videotape, Mr. Lilly, as a document that --

MR. LILLY: We don't object to the video coming into the record. Obviously it's subject to the same limitations on use of hearsay as other hearsay documents.

CHAIRMAN BAGGETT: Right.

MR. LILLY: And my understanding was that we were going to have the opportunity to ask Mr. Blanco about it since he was Fish and Wildlife's witness.

But frankly, it's -- I looked at it yesterday. It's only about four minutes long. So if we're going to ask questions about Mr. Blanco, it's probably better if we see it first.

CHAIRMAN BAGGETT: Yeah. I -- I don't -- four minutes? Let's do it.

MR. BRANDT: Let's do it?

CHAIRMAN BAGGETT: Yeah. I think it's useful since this is becoming such a significant issue.

(Off-the-record discussion.)

MR. BRANDT: Mr. Blanco, could you come up here.

We'll just do two quick questions just to lay a foundation of how this came about.

Should I do it from here?

CHAIRMAN BAGGETT: That's fine.

MR. BRANDT: This is going to be quick.

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DIRECT EXAMINATION OF DEPARTMENT OF INTERIOR

BY MR. BRANDT

MR. BRANDT: Mr. Blanco, would you state your name and who you work for, please.

MR. BLANCO: My name is Cesar Blanco. I'm with the U.S. Fish and Wildlife Service.

MR. BRANDT: Mr. Blanco, are you aware of a study that the Fish and Wildlife Service had prepared regarding avoidance of a rotary screw trap?

MR. BLANCO: Yes, I'm aware of the study. However, I was not with the U.S. Fish and Wildlife Service at the time the study was conducted.

MR. BRANDT: But you're aware of how it was prepared or what Fish and Wildlife Service prepared -- requested to

be prepared, correct?

MR. BLANCO: Yes.

MR. BRANDT: And can you describe in summary form what was requested by Fish and Wildlife Service to be prepared and reviewed.

MR. BLANCO: Yes. The Fish and Wildlife Service and scientific community at large was aware that there was this phenomenon referred to as screw trap avoidance, and they were interested in determining if indeed this phenomenon occurred and to what degree this phenomenon occurred. And so they hired Stillwater Sciences and S.P. Cramer & Associates and the Fishery Foundation coordinated with Stillwater Sciences to put this video together, this spawning study.

MR. BRANDT: And what did this particular video look at, what size fish?

MR. BLANCO: Once again, I wasn't there during the preparation of the study, but based on conversations I had with one of the people from S.P. Cramer & Associates who conducted the study, the size range was 70 to 90 millimeters fish.

MR. BRANDT: Thank you.

With that, we'd offer to show the video.

CHAIRMAN BAGGETT: Thank you.

(Video played.)

MR. BRANDT: We would offer Mr. Blanco for any questions on the foundation on this video.

CHAIRMAN BAGGETT: Any questions from any of the parties?

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CROSS-EXAMINATION OF DEPARTMENT OF INTERIOR

BY YUBA COUNTY WATER AGENCY

BY MR. LILLY

MR. LILLY: Good morning, Mr. Blanco.

MR. BLANCO: How you doing?

MR. LILLY: First of all, I'm not sure if Mr. Brandt asked you this, but have you taken the oath for this hearing?

MR. BLANCO: No, I haven't.

MR. LILLY: Uh-oh, bad.

Mr. Baggett, before I proceed, I request the witness take the oath.

CHAIRMAN BAGGETT: Very good.

Do you promise to tell the truth in these proceedings?

MR. BLANCO: I do.

MR. BRANDT: Mr. Blanco, could you confirm that all that you said previously in response to my questions were taken consistent with that oath that you just made?

MR. BLANCO: Yes. All of the statements I've made thus far and future testimony will be true.

MR. LILLY: All right. Thank you.

First of all, Mr. Blanco, the video, the field test involved in that video, was that hatchery fish that were being released?

MR. BLANCO: To my understanding, they were.

MR. LILLY: And are there differences in the behaviors of hatchery fish when they're released into the river versus naturally spawned fish that are already in the river?

MR. BLANCO: I believe Mr. Nelson had testified that there were.

MR. LILLY: Are you aware of any such differences?

MR. BLANCO: Not specific information that has been documented but, generally speaking, scientific -- fisheries biologists are generally aware there are -- this phenomenon of differences in behavior between hatchery and -- and wild fish do occur.

MR. LILLY: And what are the differences?

MR. BLANCO: Differences in behavior.

MR. LILLY: Can you tell us what the differences are, what hatchery fish do versus what naturally spawned fish do?

MR. BLANCO: Well, hatchery fish are raised in a different environment. Basically they're -- they're fed either a wood-coated food that tends to float whereas wild fish would tend to feed throughout -- you know, throughout the water column.

MR. LILLY: Okay. So what differences in behavior when they get into the river does this lead to or -- if any?

MR. BLANCO: I'm not sure.

MR. LILLY: All right. Now, when a trap efficiency test is conducted, please just describe for us how those tests are conducted.

MR. BLANCO: They have a known number of fish. They release it at a known location. And then they recapture those fish and look at the number that they recaptured. And obviously with the rotary screw trap, it's only sampling a portion of the -- of the volume, and then they would have to look at the difference between the number released versus the number sampled, and then look at the area sampled of the -- of the river to figure out how efficient the trap is.

MR. LILLY: Okay. And do all of the released fish actually migrate down the river to the vicinity of the trap or are some of them lost to mortality or stay in the reaches of the river above the trap or for other reasons do not get down to the location of the trap?

MR. BLANCO: That is unclear.

MR. LILLY: Okay. So it may be and it may not be?

MR. BLANCO: Maybe it may be once the fish are released, they're subject to the environmental conditions of the river.

MR. LILLY: Okay. Some of them could be lost to

predation or other factors?

MR. BLANCO: This is -- yes.

MR. LILLY: So assuming hypothetically if you had an RST that was capturing 7 percent of the flow of the river, even if the fish were uniformly distributed in the river, you would expect the RST to catch less than 7 percent of the fish released during the experiment, correct?

MR. BLANCO: Repeat that again.

MR. LILLY: Okay. Assuming you have an RST that's capturing 7 percent of the river flow. Okay?

MR. BLANCO: Okay.

MR. LILLY: And then assuming that the fish that are released for the recapture test are in fact distributed uniformly throughout the river.

Because not all of them get down to the river, under those circumstances, the RST still would catch less than 7 percent of the fish; is that correct?

MR. BLANCO: That would depend on the environmental conditions between the release point and the trap.

MR. LILLY: Okay. But if some of the fish were lost because of those environmental conditions, then under my hypothetical, less than 7 percent would actually be caught at the RST, correct?

MR. BLANCO: Correct.

MR. LILLY: Now, I believe the -- the video, the RST

on the video said it was an eight-foot diameter trap; is that correct?

MR. BLANCO: I believe so.

MR. LILLY: Okay. And the -- from what I could tell from the picture, it looks like the water flowing through the trap is basically through about half of the circle; is that correct?

MR. BLANCO: Yes. It's usually the bottom portion of the cone. The upper portion is above the water column.

MR. LILLY: Okay. Is it about half that's below water and half above water?

MR. BLANCO: Yes.

MR. LILLY: Okay. So if we just did some quick math, we could calculate that area, correct? If it has an eight-foot diameter, it would have a four-foot radius, right?

MR. BLANCO: Correct.

MR. LILLY: So the area of that circle would be one-half times Pi R-squared, is that correct, going back to geometry?

MR. BLANCO: Yes.

MR. LILLY: So if I took one-half -- and I'll just assume Pi is 3 since we don't have calculators here. And then if R is 4, R-squared would be 16. So if I get one-half times 3 times 16, you can even check my math if you want,

but I get 24.

Does that sound about right for the square feet of cross-sectional area that's actually going through the trap?

MR. BLANCO: I'll -- I'll go with your estimate.

MR. LILLY: Okay. And if -- and I think that the video said the velocity of the water going through the trap was between three-and-a-half and four-and-a-half feet per second; is that correct?

MR. BLANCO: Correct.

MR. LILLY: So if we take an average of four feet per second, then we multiply that four feet per second times the cross-sectional area to get the cubic feet per second going through the trap, correct?

MR. BLANCO: Correct.

MR. LILLY: So that would be 4 times 24 or approximately 96 cubic feet per second?

MR. BLANCO: Correct.

MR. LILLY: Okay. So -- and I realize we did that fairly roughly. We could fairly say approximately 100 cubic feet per second are going through -- were going through that RST?

MR. BLANCO: Okay. Yeah.

MR. LILLY: So -- and I think that the video said that the total flow of the river was 1500 cubic feet per second, correct?

MR. BLANCO: I believe so, yes.

MR. LILLY: All right. So basically to figure out the percentage of the river flow that was going through the trap, we just take the 100 cfs divided by 1500?

MR. BLANCO: Right.

MR. LILLY: So that's approximately 7 percent, a little less than 7 percent?

MR. BLANCO: Okay.

MR. LILLY: So -- and what did they say the trap efficiency was? I think it was four-and-a-half percent?

MR. BLANCO: I don't -- I don't recall that.

MR. LILLY: Okay. Well, we can -- trust me, we can listen to the video. I think it was four-and-a-half percent.

So that's -- that's a little smaller than the proportion of the river being sampled, but not substantially smaller than the proportion of the river being sampled, correct?

MR. BLANCO: Right.

MR. LILLY: Now, did the test described in the video mention the relative trap efficiencies for different sizes of fish?

MR. BLANCO: As far as the video, I'm not sure.

MR. LILLY: Okay. And did you have any other knowledge as to whether or not the studies that were

discussed in that video looked at different sizes of fish and RST trap efficiencies?

MR. BLANCO: On this particular study where we're discussing, the range was 70 to 90 millimeters for the test fish. But whether or not tests were performed on 70-millimeter fish versus 90-millimeter fish, I'm not sure.

MR. LILLY: Okay. And have you had a chance to look at the two exhibits 2003-YCWA-8 and 9?

MR. BLANCO: Briefly, yes.

MR. LILLY: Okay. I notice these were prepared by S.P. Cramer & Associates which you had mentioned in connection with the video and that these are also on the Stanislaus. Can you describe what the connection is between the studies in these reports and the study that's referenced on the video.

MR. BLANCO: Given that the study in the video and the study on these -- this '93 study and '98, I'm not sure what the exact connection is.

MR. LILLY: Okay. But we do know it's at least the same consultant and the same river, correct?

MR. BLANCO: Yes.

MR. LILLY: Okay. But you don't have any further -- or do you have any further information regarding these studies that are shown in these exhibits?

MR. BLANCO: I do know that these -- with the '93

study, I'm not sure whether or not at that time my program, the Anadromous Fish Restoration Program, was funding screw trapping efforts at the time. I think that in '98 we were funding S.B. Cramer & Associates to monitor the -- one of the two screw traps on the Stanislaus River.

MR. LILLY: Okay. Well, I would just ask you to move forward to -- on Exhibit 2003-YWCA-9 on page 19. The very last sentence there says:

> The mean size of recaptured fish did not differ significantly from the mean size of fish at release, Table 3, so there was no evidence the trap efficiency changed with fish size.
>
> (Reading.)

First of all, are you familiar with this statement?

CHAIRMAN BAGGETT: Mr. Cunningham.

MR. CUNNINGHAM: Mr. Baggett, I'd like to object to the use of YCWA's Exhibit No. 9. We objected initially to the admission of this document. And the understanding was this document was admitted solely because the two DFG witnesses could testify that they were unfamiliar with it. That did not verify it, authenticate it or otherwise allow the use of the substance of that document at any time.

I think questions going now clearly to the substance of that document are inappropriate, and, again, suggest that perhaps the better choice was to acknowledge that this

document has been marked, it has been examined by two witnesses who did not -- were not familiar with the substance of it, and it does not and should not be admitted.

MR. LILLY: I think I'm entitled to ask this witness similar questions about these exhibits, and that's what I'm doing. I mean, I haven't had a chance to ask him whether or not he has any personal knowledge about this. That's what I was trying to do.

CHAIRMAN BAGGETT: We admitted -- I think it's relevant to ask him if he has personal knowledge. But to go to the truth of the document I think is a whole -- we didn't allow the admission for that purpose.

MR. LILLY: All right. Well, let me just ask it that way. I'll ask it that way.

Do you have any personal knowledge of the matters that are discussed in these exhibits? And please take a minute to look at them if you need to.

MR. BLANCO: Personal knowledge meaning was I involved in -- in this study, the '98 study?

MR. LILLY: Well, not -- and by involved, not necessarily just in the field, but whether you were involved in any of the review of this or in any other way. Basically whether you had the same level involvement with these that you did with the study that was referred to in the video.

MR. BLANCO: I would say that Exhibits YCWA-8 and 9 as

well as the video, I had no personal involvement in those. I am aware of all -- all of these exhibits, however.

MR. LILLY: Okay. Is your level of awareness of these two exhibits and the video about the same?

MR. BLANCO: Yes.

MR. LILLY: All right. Thank you. I have no further questions of this witness.

CHAIRMAN BAGGETT: Thank you.

Any other recross? Staff?

MR. FRINK: Yes, Mr. Baggett. I think we do have another housekeeping matter.

It may have escaped -- it may have escaped my attention, but along with not swearing in the witness, I'm not sure if we qualified him as an expert.

Was that done, Mr. Brandt?

MR. BRANDT: We -- we are not offering him as an expert. We are offering him merely for the foundation of that video. That is it. So we're not offering him as an expert.

MR. FRINK: Okay. Thank you.

CHAIRMAN BAGGETT: With that, thank you.

We have two more rebuttal cases. Mr. Lilly or Mr. Minasian, do you have a preference to -- I guess we'll go to the five-minute version since that's what we --

MR. MINASIAN: Yes.

May I be sworn?

CHAIRMAN BAGGETT: Do you promise to tell the truth in these proceedings?

MR. MINASIAN: I do.

May I speak from this location, Mr. Baggett?

CHAIRMAN BAGGETT: Turn the mic on.

MR. MINASIAN: Is it working?

Andrew, could I ask help in distributing exhibits?

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TESTIMONY OFFERED BY SOUTH YUBA WATER DISTRICT

BY MR. MINASIAN

MR. MINASIAN: My name is Paul R. Minasian. I was an attorney for the South Yuba Water District and the Cordua Irrigation District and also worked cooperatively with Dan Gallery, the attorney for Brophy Water District, in both the first and second hearing.

In the course of that practice and participation, I became aware of various facts of my own personal knowledge which I would like to relate to the Boards, most of which are on record. I will mark them as individual exhibits of South Yuba. I will cite you to the record pages, the beginning of the document. And I have a set of overheads which will emphasize the language I would like the individual Board members to be aware of. And this testimony will relate only to Issue No. 1, due process and a fair

hearing.

MR. FRINK: Excuse me, Mr. Minasian. Are these documents already in the record?

MR. MINASIAN: Yes, they are.

MR. FRINK: Instead of giving them a new exhibit number, I wonder if we can just retain the same exhibit number. And if you have extra copies that you're interested in distributing, then that's great. But in order to avoid an unduly long record and repetition, if we can stick with the existing exhibit number, that be would helpful.

MR. MINASIAN: That would be fine, as long as I could be assured that each of the Board members will have a separate readily accessible copy so they will be able to deliberate in regard to that copy.

MR. FRINK: Yes.

MR. MINASIAN: In the course of representation before the hearing, I became aware that one of the issues in the hearing would be the 1984 agreement between the South Yuba Water District and Department of Fish and Game, and the attempt by the Department of Fish and Game to extract itself from the terms and provisions of that agreement, and of a stipulated judgment in the Yuba County Superior Court.

I would cite you to COR-582, which is a copy of the memorandum of Sid Taylor regarding a conversation with Jerry Mensch of the Department of Fish and Game.

Could one of you distribute these?

At no time during the first hearing, which was conducted by Don Maughan and Mike Meinz was the staff member on behalf of the State Water Resources Control Board, were we informed directly or indirectly that Mr. Meinz had designed and supervised the work of the Department of Fish and Game in preparing a methodology to examine the functioning of the South Yuba Water District fishery.

At COR-0559 there is a memorandum of Mr. Sid Taylor. I'd like to show this to the Board.

COR-599 is the memorandum for Mr. Taylor. I've underlined the language. Mike Meinz has drafted and prepared a study which is to determine the effectiveness of the South Yuba Water District screen.

601 through 605 are copies of that study outline typed. On page 2 of that is language which is underlined calling for a control and for adjustments of the recapture results for certain released fish so that the results will be properly reported.

COR-663 through COR-672 is a copy of the Department of Fish and Game's study that was done and submitted into evidence at the first hearing in my presence. And the underlined language is the conclusion of the Department of Fish and Game in regard to the results of the tests that have been designed by Mr. Meinz without our knowledge.

The results did not include any control or adjustment factor for the recapture, and therefore they concluded on page 4, quote:

> The results of this marked recapture study showed that less than 95 percent of the marked fish made it through the bypass canal.
>
> (Reading.)

South Yuba Water District put on testimony in regard to the Department of Fish and Game test results through Mr. Steven Cramer. That testimony commences at 92EX3232 in a written form, and there was verbal testimony, and I will give you that transcript label in a moment.

A portion of Mr. Cramer's testimony, that occupied a substantial period of time, was explaining why the Department of Fish and Game presentation and test results had erroneously omitted a control or recapture factor. And that if the proper control and recapture factor, which tests had actually been performed by releasing hatchery fish to see how effective the fyke traps were, and which data had been discovered by my office personnel in cardboard boxes at the Oroville fish hatchery, that testimony was submitted in -- both in writing and verbally, and the conclusion as testified by Mr. Cramer was that the fishery was working at greater than 95-percent effective, and that the Department of Fish and Game report was wrong.

Mr. Mike Meinz was present, sitting on the dais with Mr. Maughan on that day. He cross-examined Mr. Cramer. And his cross-examination can be found at 92RT2481 through 2489. To Mr. Meinz's credit, he did not cross-examine on the issue of the Department of Fish and Game report. To his discredit, he did not in any way inform anybody that he had been the prosecutor, the designer of the tests that were designed by Department of Fish and Game to call the fish screen's effectiveness into question.

Mr. Don Maughan left the Board in December of 1992. Is it necessary for me to go through the fact that no other member of the Board was on the Board at the full time of both hearings? I have the dates.

Thank you.

CHAIRMAN BAGGETT: No.

MR. MINASIAN: My final exhibit is a copy of a staff report, which is found at COR-1395 dated July of 1994. The origins of this staff report and how it became public are unknown to me, but our first knowledge of it was shortly before the 2000 hearing.

MR. FRINK: Excuse me, Mr. Minasian. Just to clarify that, I believe the Board did mail that out in advance of the 2000 hearing --

MR. MINASIAN: Thank you.

MR. FRINK: -- to all the parties including yourself.

MR. MINASIAN: A substantial portion of the report, the only knowledge of which I have in regard to the process by which it was prepared and the form of influence that it had on the Board members is the deposition of Mike Meinz. And in that deposition the Board took the deliberative process privilege, and, therefore, I have no knowledge in regard to whether or not or how Mr. Meinz's involvement in these issues, on behalf of the Department of Fish and Game, could have or did affect.

But on page 125 and 126 of the staff report, there is a very thorough analysis. And I will, in argument, explain what that analysis means in legal terms in regard to the staff's conclusions in respect to the 1984 Department of Fish and Game agreement and the court order of the Yuba County Superior Court.

Thank you.

CHAIRMAN BAGGETT: Thank you.

MR. MINASIAN: If there are any questions, I'm obviously --

MR. BAGGETT: Does any party have any cross-examination of Mr. Minasian? Any questions of staff? We'll wait for the closing arguments.

MR. MINASIAN: Thank you.

CHAIRMAN BAGGETT: Thank you.

One last rebuttal witness. Let's keep going.

Mr. Lilly?

MR. BRANDT: Mr. Chairman, if I may, just a housekeeping item. Just if -- depending on how long this goes on, this is on something else, just on closings.

I've talked to Mr. Morris this morning, and we'd like to propose that we actually do a 10-minute closing. And why I'm doing this now is because Mr. Morris has a one o'clock, so he's going to need to leave before then.

But I'd like to propose 10-minute closing and no written response or no written findings and offer them the opportunity -- I understand from Mr. Morris, however, that Mr. George will be doing the closing if there is an oral closing. So I'd like to request if we could do that, get that clarified and get that before Mr. Morris leaves.

CHAIRMAN BAGGETT: We can go off the record for a minute.

(Off the record.)

CHAIRMAN BAGGETT: So we will plan on oral closing, if you prefer to have more time, making an oral closing and not submit written. That's fine with me, too.

MR. LILLY: All right. We will call Lon House as our next witness.

CHAIRMAN BAGGETT: You just have the one witness?

MR. LILLY: On energy, correct. And then we will be calling Mr. Bratovich and Mr. Mitchell back for a very brief

rebuttal.

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DIRECT EXAMINATION OF YUBA COUNTY WATER AGENCY

BY MR. LILLY

MR. LILLY: Okay. Dr. House, please state your name and spell your last name for the record.

MR. HOUSE: My name is Lon House, H-O-U-S-E.

MR. LILLY: And a housekeeping matter, have you taken the oath for this hearing?

MR. HOUSE: Years ago.

MR. LILLY: Well, just -- just to make it real clean, we will refresh you.

CHAIRMAN BAGGETT: All right. Do you promise to tell the truth in these proceedings?

MR. HOUSE: I do.

CHAIRMAN BAGGETT: Thank you.

MR. LILLY: And did you testify during the State Board's 1992 and 2000 Lower Yuba River hearings?

MR. HOUSE: Yes.

MR. LILLY: And have you had a chance to review your Exhibit SYCWA-5 from the 2000 hearing?

MR. HOUSE: That's my qualifications resume?

MR. LILLY: Yes.

MR. HOUSE: Yes.

MR. LILLY: And is that still accurate or is there any

updates that need to be done to that?

MR. HOUSE: It is still accurate. There's been a number of proceedings and testimony I've been involved in in the -- in the intervening years. But the -- that's just additional testimony or additional proceedings.

MR. LILLY: All right. And since we have two Board members who were not present during the 2000 hearing, could you give a one- or two-sentence summary of what you do, what your experience is and what you do now professionally.

MR. HOUSE: I have a Bachelor's, two Master's and a Ph.D. in Engineering and Economics from Davis. I taught graduate school in engineering at Davis for a number of years. I was a resource planner with the California Energy Commission through the mid '80s, and then I was the chief utility planner for the California Public Utilities Commission through approximately '90. And in 1990, I left the Public Utilities Commission, and in 1992, I subsequently started my own energy consulting company.

My primary clients are the Association of California Water Agencies, which is 500 public water agencies in the state; and the Regional Council of Rural Counties, which is 29 rural counties in the state of California. I'm the energy advisor for both those organizations.

MR. LILLY: For how many years total, then, have you been working on issues involving California's electricity

supply and demands?

MR. HOUSE: Probably 25.

MR. LILLY: Were you present when David Ashuckian of the California Energy Commission staff testified yesterday?

MR. HOUSE: Yes.

MR. LILLY: Now, do you have an opinion regarding the adequacy of the California Energy Commission's estimates of the amounts of generated capacity that will be available to supply electricity to California in the future?

MR. HOUSE: Yes, I do.

MR. LILLY: And do you have an exhibit that you will use to illustrate your testimony?

MR. HOUSE: Yes, I do.

MR. LILLY: All right. I will ask that this be marked as Exhibit 2003-YCWA-10.

And using this exhibit, please explain your opinion and the basis for your opinion.

MR. HOUSE: What I did is I went back and checked the various numbers and assumptions that were in -- in the Energy Commission document.

And what I've done --

MR. LILLY: That document being the one Mr. Ashuckian testified to?

MR. HOUSE: Yes.

What I've done is for references I put down -- under

the first group of values, I put the references so you could see where I got them.

So what I did is I looked at what -- what generation has actually been added and is operating, which as you can see through -- from 2000 through June 2003, and that's about 6300 megawatts. During that same period, over 5,000 megawatts of generation was cancelled. And this is generation that was in the Energy Commission process or had been approved.

And then there's another -- then the third column over, is after the Energy Commission looks at all of -- looks at all these projects and approves them, then they put them into another category, which is start of construction.

So what I did is I looked through power projects, power plants that the Energy Commission has approved and permitted just to see what was happening with them. And you can see that you've got about 1,000 megawatts that's about half complete; you've got one that's about 50-percent complete; you've got 1100 megawatts that are less than 5-percent complete; you've got 4200 megawatts that they have suspended construction on. These are power plants that are permitted and approved, and they've suspended construction on.

And then I just put down -- to make my numbers add up to the Energy Commission numbers, I put down that 743

megawatts of peakers. And then the last column is how many -- how much capacity is currently in the Energy Commission permitting process.

The point, when you look up at the -- at the conclusions at the top, during the historic period when we had all these problems, about 60 percent of the plants that were before the Commission that were approved were actually built. In the current period, about 40 percent of power plants are currently -- that are permitted and approved are being built.

But in the Energy Commission report, which you look down at the bottom down here which I have retirements and I have additions down there, which is straight out of their report, they're assuming about half the plants in their permitting process are actually going to be constructed. In my opinion, that is an unrealistic assumption.

MR. LILLY: Okay. And if that in fact is an unrealistic assumption, how does that affect the predictions that the Energy Commission has made regarding future California electricity supplies?

MR. HOUSE: It will lower the reserve margins that are in the Energy Commission report.

MR. LILLY: Okay. Will this make a significant difference in whether or not the reserve margins will be adequate over the next several years for California?

MR. HOUSE: Depending upon how much generation is actually constructed. If there's a lot that's -- that is currently in the process that's not constructed, it will be a large impact. If there's a small amount that's not constructed, it will be a small impact.

MR. LILLY: Okay. But basically as we sit here today, it looks like the percent under construction already is lower than what the Energy Commission had assumed?

MR. HOUSE: Correct.

MR. LILLY: Okay. Now, going forward to your next exhibit, which I will ask to be marked as 2003-YCWA-11, I'm just going to ask you, are the major electricity suppliers in California presently having financial problems?

MR. HOUSE: Yes, they are.

MR. LILLY: And if you can, as necessary, refer to this exhibit and please describe those problems.

MR. HOUSE: Well, back in the old days, we had the utilities that built the power plants. And in the deregulation experiment, the utilities sold off a lot of their power plants, and they aren't building; they can't build any more. So what you're left with is somebody else needs to build these power plants.

And so what I did is I looked through and this is -- this is as of June the 3rd. I heard the stock market is up today so some of these share prices might not be current

today.

What I did is I looked at which companies are involved in California. You know, these are sort of the list of -- that you've heard about: Calpine, Reliant, Mirant, Dynergy, AES. These are the companies that build -- or bought power plants, bought power plants or are building power plants. So the first column is the company name.

Second column is how many billions of dollars they have in debt that is maturing between 2003 and 2006. And you can see that some of these have huge amounts of -- of debt. They've got to refinance in the next year, the next couple of years. You have five -- almost nine billion dollars for due.

And then the next two columns are the current share price and the high -- and the two-year high share price. And then the last three columns are just the average rate of return.

The point of this is --

MR. CUNNINGHAM: Excuse me, Mr. Baggett.

THE COURT: Mr. Cunningham.

MR. CUNNINGHAM: Could I impose upon Mr. Lilly and the present witness to establish where this witness is qualified to speak as a market analyst? I understood he was being presented as somebody who had expertise in energy planning and had served as a private consultant to various entities

for energy planning. I did not realize this witness was qualified or has otherwise submitted qualifications as a market analyst for future growth, development or refinancing of energy utilities or other energy companies within the state of California and the nation.

THE COURT: Mr. Lilly?

MR. LILLY: If -- if you want, I'll ask him if he's qualified. I think it is clearly part of what any competent expert would do regarding forecasting for future electricity supplies in California.

And we did submit his statement of qualifications during the 2000 hearing. I think they more than adequately cover this area of testimony.

MR. CUNNINGHAM: Mr. Baggett, I remember the statement of qualifications for this witness, and I did not see anything that indicated that this witness was capable of market forecasting or market -- market estimations for nationally traded or internationally traded energy companies.

This witness was and always has been presented as somebody who is knowledgeable about energy development and transmission, not a market forecast. And that is not intuitively obvious that such abilities to speculate about marketability and continued market life of major corporate entities is within the scope of this witness's expertise.

I'm sorry. I did not see that in his qualifications. I have not heard it yet.

MR. LILLY: All right.

CHAIRMAN BAGGETT: Mr. Lilly?

MR. LILLY: I think Mr. Cunningham has misstated what this witness is testifying to regarding these companies. I think that the testimony is whether or not these companies are in financial positions to construct additional capacity for electricity generation in California over the next several years.

And I'll just ask you, Dr. House, based on your education and experience, is reviewing the financial status of the major energy producers to determine whether or not they're going to be able to construct new electricity capacity in California within your normal work and experience?

MR. HOUSE: You have to -- if you're doing utility planning, you have to make sure that somebody is -- that -- that's going to build these power plants is financially able to do it. And that's what this table says. This table says that if you look at the finances of these guys, these guys can't raise more money, and they aren't going to be building anything in the near term.

MR. LILLY: Okay. Let's go on.

CHAIRMAN BAGGETT: The question went to

qualifications, not whether that's a logical question.

MR. LILLY: Okay. Well -- and I submit -- I submit he's qualified. Do you want me to ask him more questions about his qualifications? I can.

CHAIRMAN BAGGETT: Mr. Cunningham?

MR. CUNNINGHAM: Again, the witness just illustrated the problem I'm having. He just stated these companies cannot make that financing. Nothing that I have heard about in his qualifications allows me to understand from what basis he is deriving his knowledge, his insider knowledge that these large multi-national corporations are incapable of maintaining a fixed debt level and still continuing to finance development of energy facilities.

If he's got insider knowledge, if he's intimately familiar with the operations of each of these utilities or the large energy companies, please have him so state. Otherwise, what we have is an outsider speculating and nothing more.

CHAIRMAN BAGGETT: One more chance, Mr. Lilly.

MR. LILLY: That -- those comments were so ridiculous, I will try to control myself.

There has been no suggestion whatsoever that Dr. House has insider knowledge, and I suspect he is offended by that suggestion.

Number two, there are ways that one can make

predictions about the -- I'll just ask you, Dr. House:

Do you have qualifications to make predictions about these energy companies' ability to construct electricity -- additional electricity capacity in California in the future based on your review of the public non-insider information?

Yes or no.

MR. HOUSE: Yes.

MR. LILLY: All right. Does that take care of this?

CHAIRMAN BAGGETT: Continue.

MR. LILLY: Now, if we can go forward, Dr. House, and please just summarize your conclusions regarding whether or not these energy companies are going to have the financial capability to construct additional electricity generating capacity in California over the next several years.

MR. HOUSE: In the last -- since the year 2000, you've had over 9,000 megawatts of generation that has been cancelled or suspended. It is my opinion, based upon the public information that shows up in -- in this document or this exhibit, that these companies are not in a financial position until their -- until their finances improve to -- to embark on any major construction of additional power plants in California.

MR. LILLY: All right. We'll go forward to the next exhibit which will be marked as 2003-YCWA-12. And I'll ask you to examine that and tell us what that is.

MR. HOUSE: This is a report that came out a couple of weeks ago from the Bay Area Economic Forum. And it is a -- and I'll -- as soon as you get it, I'll refer you to just two parts of it.

But the summary of this report -- actually, if you will go to page 1 of the report, the last paragraph, and I'll just read it for the record. It says:

> Today the threat of future power supply shortages seems remote to most policymakers. The temporary steps taken by the State and the FERC to react to the energy crisis served their purpose, and wholesale power prices are now low. However, a fact-based looked at today's policy shows that major problems remain.
>
> Based on current projections, there is a meaningful risk of another supply shortfall in the state within only a few more years.

(Reading.)

MR. BONHAM: Excuse me. May I, Chairman Baggett?

CHAIRMAN BAGGETT: Yes.

MR. BONHAM: I have a simple question.

The pace does not allow me to find the page number from which we were just quoting. Would you please provide the page number?

MR. HOUSE: Okay. That first page -- well, if you go

through and you find page 2, go to the page before that.

MR. LILLY: I think, Mr. Bonham, it's page 1 and it's up in the upper left-hand corner, so it's kind of under the staple.

MR. HOUSE: Right.

MR. BONHAM: Thank you.

MR. LILLY: And he was reading from the last paragraph.

MR. HOUSE: Okay. And then I have one other section that I'd like to refer you to.

MR. LILLY: Okay.

MR. HOUSE: And I'd like you to look at -- starting on page 6. And what this does is this -- Exhibit 2 on page 6 basically does something that is somewhat similar to what I attempted to do in my little -- my first exhibit here, which basically it goes through and it looks at how much was announced and how much was permitted, and it comes -- and it comes back down on how much is not likely to be built.

The point of this is, this group, the Bay Area Economic Forum, says that only about -- they are predicting that only about 25 percent of the power plants that are currently in the process will actually be constructed.

And if you look at Exhibit 2 on page 6, and then you could look at --

MR. LILLY: I think that's Exhibit 12.

MR. HOUSE: Oh, okay. Yeah, page 6. And then on the next page 2, in which they talk about what happens to California versus -- california versus other areas.

And I won't get into the investment climate in California because I'll probably get challenged on that. But the point of this is, this group here says that only about 25 percent of the power plants are going to be built.

MR. LILLY: And based on your experience and expertise in California electricity, do you agree with this report's conclusions?

MR. HOUSE: I agree that there is something that is -- there is a level that is less and I think probably significantly less than the 50-percent projections the Energy Commission is using of power plants that are likely to be constructed in the next several years.

MR. LILLY: Now, besides the California Energy Commission's estimates of peak demands and peak generating capacity that Mr. Ashuckian discussed yesterday, are there any other ways that reductions in the amounts of electricity that can be generated by the Yuba County Water Agency's Colgate Powerhouse during summer months would affect California's electricity situation?

MR. HOUSE: The Energy Commission did a rather -- I'm not -- I don't want to disparage it, but it's a rather simplistic approach to looking at utility planning.

Basically what did they is they went up and they looked and they said, I've got 100 megawatts of wind, and I've got 300 megawatts of hydro, and I've got 1,000 megawatts of nuclear. And I add them all up, and this is how much capacity I have. And then they develop a demand forecast, and they just match those two. I mean, that's basically what they did.

The problem with doing it -- that's a planning sort of approach. The problem with doing that are twofold. One is your demand forecast had better be accurate. We heard yesterday, their demand forecast was off by 15 percent in May of this year. And we heard that it was a one in 40 year, which they hadn't planned on; it was a one in 10 year. But that's the -- that's the -- one of the problems.

The other problem is that you need to account for how these plans actually operate. So you've got -- on one hand you've got sort of a planning horizon which you can add things up and see -- and see whether they balance out or not. On the other hand, you've got the actual operations. And when we were talking yesterday, some questions about Stage Ones and Stage Twos and things like that, those are the actual operations.

The point is that one megawatt of wind power is not equal to one megawatt of hydro power is not equal to one megawatt of thermal power when you're actually operating the

system. There's certain resources, particularly the hydroelectric resources that are very, very valuable for the actual operation of the system. Because they're -- they're quite flexible; they have a lot of the ancillary services that they can -- they can provide.

And so you've got -- you've got to look at two parameters. You've got to look at what we can do on the planning side, which is just counting things up, and you've got to look at how they actually operate and how the system is being -- how the system is utilizing them. And the Energy Commission did not look at the latter, and that is the -- in my opinion, that is the real value of something like a hydroelectric facility, which is their operations. Because they are used -- they are much more valuable to the system than either -- than other renewables or the thermal power plants.

MR. LILLY: All right. Now, Dr. House, you've got to kind of slow down a little bit here with the jargon. But what are ancillary services?

MR. HOUSE: Ancillary services are -- ancillary services are services that are used in the actual operation of the utility system, and there's a bunch of them. There's things like black start; there's regulation; there's spinning reserve; there's non-spinning reserve.

But the electrical system is a synchronous system.

And so what that basically means is that the phase of every generator from Mexico to Canada is exactly the same. And in order to do that, you have to do very, very pre -- you have to have a number of very sort of unique services, and that's what these ancillary services are. They're these unique services to keep the system in balance and operating.

And all -- all of the services I've talked about, the ancillary services, they're all bid into the ISO now. So you could have a power plant -- you've got a power plant and you say, I want to provide electricity. You could say, I want to provide bulk electricity, and you can bid that in. You could say, I want to provide spinning reserve, and you could bid that in, and that's a different amount. You could say, I want to provide black start ability or I want to provide regulation.

So they're all services that are different than providing kilowatt-hours that are bought and traded in the operation of the utility system in California. They're -- and they're traded through the ISO.

MR. LILLY: Okay. And of these ancillary services, why don't you start by talking about regulation and describe what that is and then how hydroelectric projects are important for regulation.

MR. HOUSE: Regulation is -- the United States and California system operates at 16 hertz or 60 cycles per

second. And what that -- what that basically means is that all of these power plants -- that's -- let me back up a minute.

You -- the system is very, very sensitive to that particular parameter, which is the 60 cycles per second. So, for example, you can have voltage swings that may drop -- may swing by 20 volts. But with ancillary -- with regulation, if you swing more than about .1 megahertz, you're going to have problems with your system. So if you drop from 60 to -- if you drop from 60 to 59.5, you're going to -- the system is going to collapse.

The reason this is important --

CHAIRMAN BAGGETT: Okay. No, I'm going to object to relevancy here. We -- this Board made a finding, granted a five-year stay based on its understanding of hydro, its importance and its impact and all that.

The issue before us today is, one, whether the energy crisis is in fact over based on the evidence submitted by SYRCL; and, two, whether we should modify the order because of that.

It's not -- we understand -- we already granted the five-year stay based on our understanding of hydro and the market and how all this goes together. So if you could just cut to the point here.

MR. LILLY: Okay. All right, go ahead. Cut to the

point.

MR. HOUSE: The point is all of the generation that's been added is natural gas-fired combined cycle facilities. You haven't added anything or very little that could provide automatic generation control.

So what you've got -- so the point is that the estimate from an operational perspective is not that much different than it was before. What you've done is you've added a bunch of natural gas-fired combined cycle facilities that don't typically run and it's very hard and it's much more polluting for them to run on AGC, for example.

MR. LILLY: You have to explain -- you have to tell us what AGC is.

MR. HOUSE: AGC is automatic generation control, and those are the units that are dedicated to responding within four seconds when the frequency starts dropping or going up.

Now, what they do is they use Colgate. Colgate is one of the primary sources of AGC in Northern California. And the point being, it doesn't matter that they've added a whole bunch of new generation. They haven't added a bunch of new generation that could provide this very, very valuable function.

MR. LILLY: All right. And among the hydroelectric projects, why is the Colgate Powerhouse particularly important for this regulation function?

MR. HOUSE: Well, it was originally developed as -- by PG&E as one of the primary regulators in the Northern California area. It's a large unit. You want a lot of inertia in that turbine for AGC. It is electronically very close to the system, and it is a hydro unit.

One of the things that you do is you want a hydro unit, you would prefer to have a hydro unit on AGC. Because, otherwise, you're constantly sort of accelerating and decelerating. You're constantly trying to run more fuel through or less fuel as this turbine is balancing along.

MR. LILLY: All right. And are hydroelectric projects, and particularly the Colgate Powerhouse, needed more for regulation during the summer months like July and August than during spring months like May?

MR. HOUSE: The standardized parameter is 5 to 12 percent, which is the combined regulation up and regulation down of the load. So as your load increases in the summertime, you need more regulation, and the regulation that you provide becomes more valuable.

MR. LILLY: Okay.

MR. BONHAM: Chairman Baggett, we have an objection as to relevancy. California Energy Commission witness testimony yesterday went to statewide supply and demand and did not go to specific hydro projects' contribution in ancillary or any other services.

CHAIRMAN BAGGETT: Mr. Lilly?

MR. LILLY: Well, obviously this is relevant because if there are going to be limitations placed on Colgate Powerhouse's ability to generate energy particularly during the summer, we need to know -- the Board in particular needs to know what effects that will have on California's electricity situation. And just because the Energy Commission witness did not know or did not talk about regulation, it still is important.

CHAIRMAN BAGGETT: I'd overrule the objection.

But how much more testimony do you have? We're going to take a break if it's going to be lengthy.

If it's more than two or three minutes, then --

MR. LILLY: Yeah, we should take a break.

CHAIRMAN BAGGETT: Okay. Come back at 1:15.

MR. LILLY: All right. Thank you.

(Luncheon break taken.)

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AFTERNOON SESSION

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CHAIRMAN BAGGETT: We're ready to go back on the record with rebuttal testimony from Yuba County Water Agency.

MR. LILLY: Thank you, Mr. Baggett.

Dr. House, to try to move this along a little faster as the Chair has admonished, can you just give us a simple summary of regulation?

MR. HOUSE: I think an analogy that would be fairly easily understood is that regulation is sort of like the cruise control on your car. You can be going down the highway, you can set that cruise control at 60 miles an hour, and so long as you're driving down the highway, your engine and everything is working fine. When you get to a hill, what happens is that engine has got to speed up in order to get you up the hill at the same speed. When you get to the top of the hill, that engine has to slow down because you're coasting down the other side of the hill.

That's basically what -- in a rather crude analogy, that's basically what regulation is on a utility system, is these various engines, if you want, these turbines speeding up and slowing down to match the changes in demand.

Now, this happens very, very rapidly. It happens under -- it has to happen in under four seconds for the

automatic generation control.

MR. LILLY: All right. Let's go forward, then. You mentioned earlier about spinning reserves. What are -- what's the difference between regulation and spinning reserves?

MR. HOUSE: From a -- from a consentual perspective, in both cases what they're trying to do is they're trying to balance demand and generation. But with spinning reserve, you have a much longer time frame.

In spinning reserves they have to -- they're supposed to balance generation and demand on a 10-minute interval. And so if you have a 200-megawatt unit that is connected to the grid and spinning, but it's generating 100 megawatts, that means that you've got 100 megawatts of spinning reserve that you can count.

MR. LILLY: Okay. That basically can get on line within 10 minutes.

MR. HOUSE: Within 10 minutes.

MR. LILLY: And why are hydroelectric projects important for spinning reserves in California?

MR. HOUSE: Well, you can see that if you -- if you needed to go from, say, 100 megawatts to 200 megawatts, if you're driving along and you come to a hill, you've got to put a lot more gas through your engine to get up that hill.

And so what they try and do -- and actually the ISO

has -- they have a certain criteria for what they -- what they use for spinning reserve. But from the summer peaks, it's about 1300 megawatts. All of that spinning reserve comes from hydro.

MR. LILLY: Is the simple reason that the thermal plants like the nuclear plants and the big gas-powered plants cannot shift their output as rapidly as hydro plants can?

MR. HOUSE: The bigger the plant, the more inertia, and they can't shift their -- their generation as rapidly.

But the other reason is that it's a lot more polluting. If you have a thermal plant, a natural gas plant, I mean, you're sort of constantly pushing on the accelerator and pulling off the accelerator. And so you're -- you end up, you know, wearing out the facility a little faster because it's much more strenuous. But you also end up with pollution problems; you end up with emissions problems.

Because the plants are just like your car. If it's operating at a constant speed and a constant RPM, it's much more efficient than if you're constantly having to put more gas and less gas through as you're going up and down a bunch of different hills.

MR. LILLY: Okay. So that's why the hydro plants are preferred for spinning reserves because of those reasons?

MR. HOUSE: There are some other reasons, but that's -- those are part of the reasons that they're preferred.

MR. LILLY: All right. And are spinning reserves more important during the summer months like July and August as opposed to spring months like May?

MR. HOUSE: Yes. Spinning reserves are a proportion of your load, a percentage of your load. And as your load increases, the amount of spin that you have to have increases.

Also, what -- what they're concerned about is that if you have a power plant that goes down or a transmission line that goes down, you have a fire and that transmission line trips off, you have a bunch of generation that suddenly disappears from the system, but you've got the same amount of load. So you've got to have enough spinning reserve out there that can sort of be sucked up into -- to provide that generation for the power plant that's gone down.

So -- and one of the criteria that they have for spinning reserve is single largest contingency. And they say, what's the biggest plant that I have operating at this time? I've got to spin at least enough -- I've got to have enough excess generation out there to cover that plant or that transmission line if that transmission line goes down, so I don't end up collapsing my system.

MR. LILLY: And then just to finish up on spinning reserves and following up on that, why is the Colgate Powerhouse particularly important for spinning reserves in California?

MR. HOUSE: Well, they -- the Colgate Powerhouse is one of the largest hydro facilities, and it has a great deal of flexibility. And so for all of the unloaded capacity that's on it, that you still have water that you can use, that is available for spinning reserves.

MR. LILLY: Now, finally, the last -- in the different categories you've talked to for ancillary services, what is load following and how do hydro plants -- or why are hydro plants important for load following?

MR. HOUSE: Load following is trying to do the same thing, which is match generation and demand, but on a longer time period. Load following is generally on an hour basis. So if you look at sort of what's happening, as soon as there's a problem on the system, you've got those plants that are on regulation responding instantly, under four seconds.

And then, what you try and do is you try and get the guys that are on spinning reserve to come and take that mismatch up and take the guy that was on regulation and back to his set point.

And then the next step you do is you want to take

those guys on spinning reserve, you want to get them back down to spinning where they were. So you look and you say, okay, next hour I'm going to call on that power plant. I'm going to tell that power plant it needs to crank up and start operating. And when it starts operating and starts producing electricity, then I can take the plants that were spinning that have ended up producing electricity because I needed them, and I can drop them back and take them back to spinning.

MR. LILLY: All right. And then, finally, if the total amount of energy that the Colgate Powerhouse could generate during an August of a critically dry year were reduced by 40 percent from the present amount, what types of effects would that have on the operational factors you have just described?

MR. HOUSE: The ability to change demand for the Colgate Powerhouse or change generation for the Colgate Powerhouse is dependent upon how much water it has. If it doesn't have water, it can't change the demand.

So if in a given point -- say you've got 200 megawatts that you're running. And what that would do, if you're on automatic generation control, that basically -- it's a 200-megawatt power plant, you're running at 100; that gives you 200 megawatts that you can -- you can either regulation up or regulation down, right? You could speed it up to 200

megawatts or you could drop it off to zero.

If you've got less water behind it, what happens is you've got to -- to drop the amount of energy that you're producing.

So it's sort of like setting your car at 60 miles an hour. You know you can get to L.A. at 60 miles an hour, but you have a lot less gas. So you say, well, I can still make it, but I got to run my car at 30 miles an hour. Well, if you're running it at 30 miles an hour, that gives you about half the amount of generation that you're -- that you can count for automatic generation control, right, because you can only -- you can only go half the amount of space.

So the problem that you've got is all of these things require some sort of fuel behind them. They either require water or they require natural gas or they require nuclear, something like that. You -- on an energy limited system like the Yuba system, you decrease the amount of energy that they've got that's going through that system, what that does is that decreases the amount of response that that plant can have simply because it can't go from 100 to 200 and keep it up because it doesn't have enough water to do it. And so it decreases the amount of ancillary services that that power plant can provide.

MR. LILLY: And just to follow up, are -- is the Colgate Powerhouse important for providing ancillary

services just during the peak demand periods or is it throughout the day that it's important?

MR. HOUSE: It -- all of these services are required around the clock. It is somewhat less valuable -- if you think about it, at night, it's somewhat less valuable because you don't have a lot of people turning on air conditioners or turning on new load at night. And so the -- the spread that you've got, that you're expecting at night or real early in the morning is not very large. But as soon as the morning hits, then what happens is the spread that you've got to be able to control for becomes larger and larger and larger.

MR. LILLY: And that -- that continues throughout the day and evening, I take it?

MR. HOUSE: Throughout the day until the early morning hours.

MR. LILLY: Now, so -- let me try this again.

If the total energy that the Colgate Powerhouse could generate during August of a critically dry year were reduced by 40 percent, would this have a significant effect on California's electricity situation?

MR. HOUSE: It would require the ISO to find something else to replace the services that it provided. If it was a thermal unit, it would be more polluting, it would be harder on that unit, and it would be more expensive.

MR. LILLY: And are there any obvious replacements that could provide all of the capabilities that Colgate Powerhouse provides now?

MR. HOUSE: There -- there are probably -- I think probably five or six units that they use for AGC, but it's proprietary now because you can't do it. But they're existing units.

MR. LILLY: Are they all being used now basically?

MR. HOUSE: Yes. And I don't think that they're -- you have to configure -- if you're putting a new thermal unit in, you have to configure it differently for regulation control than just for -- and it's much more expensive than just for bulk power sales.

MR. LILLY: Now, will these demands for regulation, spinning reserves and load following still exist in California in 2006?

MR. HOUSE: They will increase because the amount of load that we're serving is increasing.

MR. LILLY: Finally, shifting over to the Federal Energy Regulatory Commission, will any actions that it is going to take over the next several years affect electricity supplies in California?

MR. HOUSE: FERC has a proceeding that's going on. It used to be called the standard market design; now it's called WPMP. But it's -- it deals with changes in the -- in

the way the market is configured.

I don't think that it's going to have a significant impact on California because California is already doing -- the ISO's already doing something like that.

What will have an impact, though, is we have about 40 percent of the hydroelectric units in the state that are going through FERC relicensing by 2015. And that's about 5,000 megawatts.

MR. LILLY: All right. Let me just hand you or ask you to examine what will be marked as Exhibit 2003-YCWA-13 and then tell us what that is.

MR. HOUSE: This is a list by expiration date of the hydroelectric facilities in California that are undergoing FERC relicensing out to the year 2011. I note that the reference for this isn't on here, but this is from the California Hydropower Reform Coalition website.

And I guess the point is that you've got about 5,000 megawatts of generation, hydroelectric generation that's undergoing relicensing by FERC in the -- by the year 2015. And the FERC relicensing is almost -- it looks -- it's very, very similar to what you guys are doing here.

You've got people arguing about fish, and you've got people arguing about power, and you've got a bunch of these other things. But the net result of that is, in all cases that I'm aware of, the new license ends up with less

flexibility for the hydro facilities than the old license did.

And there was a report yesterday by the -- at a hearing by the Energy Commission that said that they only looked at -- they looked at Mokelumne and they looked Cal Creek and a couple of others. And what they ended up with is they ended with about 5-percent reduction in energy production with the final FERC license as opposed to previous to that.

The problem that you've got is, remember, these hydro facilities are the best facilities for providing a bunch of these services. And you've got a huge slug of these hydro facilities that are undergoing relicensing at FERC, which -- and they're going to do basically what you're doing, looking at the energy and things like that.

But the end result is, in almost -- I'd say in every case, the hydro facilities will be less flexible than they are right now, than their operation right now.

And so what that just says is that the more flexibility that you can keep in a valuable hydro facility like Colgate, the more valuable it is in the future.

MR. LILLY: And just to clarify, these various projects I guess are through -- it looks like they're throughout California, but one in particular caught my eye, the Feather River project. Is that in fact a project run by

DWR in the Oroville Dam?

MR. HOUSE: It is Oroville.

MR. BAGGETT: Are you close to being done with rebuttal, Mr. Lilly? I mean, this is interesting, but it's straying a little far from where we need to go. And you must recognize this Board is involved in 401 certs and relicensing of hydro. I don't think we need to have further explanation or legal authority on it.

MR. LILLY: All right. Well, with that, then I'll stop, and I'll offer into evidence Exhibits 2003-YCWA-10 through 13.

CHAIRMAN BAGGETT: Thank you.

Is there any cross-examination of this witness from any party?

MR. CUNNINGHAM: Chairman Baggett --

CHAIRMAN BAGGETT: Before we set the --

MR. CUNNINGHAM: -- first I was going to ask for time for cross, but I also was going to have an objection to at least one of the exhibits.

CHAIRMAN BAGGETT: Okay. Object away.

MR. CUNNINGHAM: I would like to at least object to Yuba County Water Agency's Exhibit 2003-YCWA-12. This appears to be some kind of a report prepared for a Bay Area economic forum. Not having any of the authors of that report here, not having any opportunity to cross-examine or

otherwise investigate the nature of the substance of this report, I suggest that this report, while interesting, should not be admitted.

And it's specifically because it does appear to have a substantial amount of content that would be clearly the subject of cross-examination and evaluation as to the nature of the testimony.

This is not even provided as a reference document that was relied upon by this witness. This does not appear to be a treatise or otherwise peer-reviewed reference document. This is just something that I'm not sure exactly what it is.

If you wish to have it admitted as something that the witness looked at and said he was familiar with, that's fine. But I do not think this is appropriately admissible as a document for the contents of the document contained.

THE COURT: Mr. Lilly, you want to respond?

MR. LILLY: Yes. I suggest that we treat it the same way we treated the RST video and the reports on the Stanislaus River. It should be admissible under Government Code Section 11513, but as hearsay it's subject to limitations on how it may be used.

Frankly, we offered this exhibit because it helped the witness explain his testimony more quickly so we didn't have to take even more time. But I think it's properly admissible subject to those limitations just as the Board

has done with other exhibits like this.

CHAIRMAN BAGGETT: I would allow it in as evidence. I'm giving it admission. Again, as Mr. Lilly stated, it is under hearsay and it will be given weight to that, not for the truth.

MR. LILLY: I just want to make sure we ultimately get a ruling on the other exhibits, too.

CHAIRMAN BAGGETT: And the other exhibits, any other objection? If not, we'll admit the exhibits as noted and numbered.

Cross-examination?

MR. BONHAM: Yes, Chairman Baggett.

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CROSS-EXAMINATION OF YUBA COUNTY WATER DISTRICT

BY SOUTH YUBA RIVER CITIZENS LEAGUE

BY MR. BONHAM

MR. BONHAM: Good afternoon, Mr. House. My name is Chuck Bonham, and I'm the California counsel for Trout Unlimited. I'm appearing on behalf of a collection of conservation groups in this proceeding.

I would like to start with your exhibits. Okay?

Could you turn to 2003-YCWA-11, please, which I think is labeled Generator Financial Status.

Okay. I've got it. Please correct me if I misstate what I heard you say.

Earlier I heard you testify that the purpose of this table is, if you look at the finances of these guys, these guys can't raise more money and can't build anything.

Is that a general description of the purpose of this table?

MR. HOUSE: With the exception of Sempra.

MR. BONHAM: Okay. Thank you.

To the best of your knowledge, are any of these companies on this table alleged to have manipulated California's energy market in either the year 2000 or the year 2001?

MR. HOUSE: I think all of them including Edison, Sempra and PG&E have been accused in one way or another of manipulating the market.

MR. BONHAM: Thank you.

Now, Mr. House, let's just pick Mirant. Did you actually look at Mirant's financial statements for the last fiscal year to determine all of the information to the right of the table?

MR. HOUSE: No.

MR. BONHAM: Okay. Let's pick Reliant Resources; same question. Did you actually look at the financial statements for the last fiscal year of Reliant for all of the information to the right?

MR. HOUSE: No.

MR. BONHAM: Thank you.

Would that also apply down through the rest of the companies?

MR. HOUSE: Yes. The information that's on the table is what I was looking for and what I developed that was provided to me. I did not look at the -- the detailed financial reports of any of these companies.

MR. BONHAM: Thank you.

Could we turn to 2003-YCWA-10, please.

MR. HOUSE: Okay.

MR. BONHAM: Thank you. If you'll bear with me.

If you could orient yourself, I see several columns: Generation Added, Generation Cancelled, Approved by CEC and Under Construction. I'm interested in that third, Approved by CEC and Under Construction.

Okay. And if I count down the lines there -- I go one, two, three, four -- I arrive at the figure 4,244 megawatts, correct? Are you there?

MR. HOUSE: Yes.

MR. BONHAM: Okay. And then there's -- it looks like what would be a parenthetical to say, No Financing or Construction Suspended.

MR. HOUSE: Correct. There's one of those units that doesn't have financing.

MR. BONHAM: Okay. My question goes to Construction

Suspended. Do you mean that you can predict tomorrow whether or not construction would restart?

MR. HOUSE: No. This is simply taken from the reference that you have down below. This is an Energy Commission spreadsheet essentially that lists the status of all of these power plants. It listed how far along they are and whether they're still under active construction or not.

MR. BONHAM: So you've expressed no expert opinion on when construction could restart on any of those individual projects where it's presently suspended?

MR. HOUSE: No.

MR. BONHAM: Thank you.

What is the purpose of your rebuttal testimony today?

MR. LILLY: I'm going to object; lack of foundation. I don't know if he knows. He just was asked questions, and he gave answers.

CHAIRMAN BAGGETT: Lay a foundation?

I'm assuming in closing arguments we'll hear the purpose.

MR. BONHAM: I'll withdraw the question.

Are you expressing any expert opinion today as to specific findings within Decision 1644?

MR. HOUSE: No.

MR. BONHAM: Are you expressing any expert opinion today as to any of the existing evidence in the

administrative record prior -- that was there prior to today?

MR. LILLY: And that I have to object to on a lack of foundation. We don't know whether or not this witness knows everything that's in the administrative record.

CHAIRMAN BAGGETT: Please clarify.

MR. BONHAM: I'll withdraw the question.

Is the California Energy Commission this state's principal energy planning and forecasting entity?

MR. HOUSE: Yes.

MR. BONHAM: Is it an independent forecasting commission? In other words, it's --

MR. HOUSE: It's a State agency.

MR. BONHAM: It's established as a State agency with a legislative mandate to independently forecast future energy needs?

MR. HOUSE: Yes.

MR. BONHAM: Thank you.

In your opinion, in that capacity is it appropriate for the California Energy Commission and its staff to evaluate the availability of electricity in the state on a continual going forward basis?

MR. HOUSE: They're required by law to.

MR. BONHAM: In your opinion, in that capacity is it appropriate for the California Energy Commission to project

forward monthly generation capacity?

MR. HOUSE: I don't know that they're required to do that. I mean, they're required to do long-run planning. But I think -- and I think that that's just one of the ways that they do it. I don't think they're required to do it on a monthly basis.

MR. BONHAM: But regardless of whether they're required, it's appropriate for them to use that as a --

MR. HOUSE: It's appropriate -- yeah, it's appropriate.

MR. BONHAM: Based on your experience, do forecasting exercises typically involve assumptions?

MR. HOUSE: Yes.

MR. BONHAM: Are you familiar with the term "spot market"?

MR. HOUSE: Yes.

MR. BONHAM: What does that term mean to you?

MR. HOUSE: Spot market is energy that is procured on a -- a shorter time basis, and it -- and it is not procured under long-run contracts.

The problem is you've got hourly spot markets, you've got daily spot markets, you've got weekly spot markets. But anything over about a month typically doesn't -- well, you've got summertime. Anything less than a year is usually clarified -- is usually called a spot market purchase for

planning purposes.

MR. BONHAM: Thank you.

And did you know that the California Energy Commission January 20th, 2003, report in its planning reserve margins as a forecasting matter did not account for spot market purchases?

MR. HOUSE: I don't know that they -- that the difference -- the ISO uses half the short-term purchase assumptions in its planning than the Energy Commission does, but I don't know what they're exactly called. I don't know if the Energy Commission actually calls it spot market. I think the Energy Commission has, like, two, maybe 3,000 megawatts of out-of-state purchases. But those could be anything that's generally, like, a year.

They have -- the Energy Commission has in there -- I think it's called out-of-state purchases. And, again, the point is the ISO assumes about half the level that the Energy Commission does in its planning purposes.

MR. BONHAM: Thank you, Mr. House.

Which agency is this state's energy planning commission, the California Energy Commission or the ISO?

MR. HOUSE: The Energy Commission is supposed to be the strategic, the long-run strategic planner for the state. The ISO, though, does a lot of short-term planning and transmission planning.

MR. BONHAM: So to the best of your memory, you're not aware that the California Energy Commission January 20th, 2003, report states:

Unlike an operating reserve, planning reserve margin does not include spot market purchases.

(Reading.)

MR. HOUSE: They may have said that, I don't know.

MR. BEZERRA: Mr. Baggett --

MR. BONHAM: Thank you.

MR. BEZERRA: -- I want to object.

I am Ian Bezerra. I'm going to object to that question on lack of foundation, and it misstates the evidence. Staff Exhibit 7, the table for 2004 through 2008 produced by the Energy Commission does in fact contain spot market imports. So if Mr. Bonham wants to clarify what part of this document we're talking about.

MR. BONHAM: Mr. House, I think we'll get you Staff Exhibit 7.

And page 2, third -- well, I guess they're all full paragraphs -- third paragraph.

MR. HOUSE: Third paragraph?

MR. BONHAM: Yes. It begins, "Because --"

MR. HOUSE: Because this table looks into the future?

MR. BONHAM: Yes, but I'm referring to -- let's see, if you look at third sentence, "Unlike an operating reserve,

a planning reserve margin," and then my question goes to the following sentence which states: "Planning reserve margins do not include spot market purchases."

MR. HOUSE: You mean -- but after the comma it says, "This table does include 2700 megawatts of spot market purchases."

Is that the one -- the sentence that you're talking about?

MR. BONHAM: No.

Third paragraph --

MR. HOUSE: Three, okay.

MR. BONHAM: -- page 2.

MR. HOUSE: Okay.

MR. LILLY: I think there's some confusion. I don't know why, but the text on Mr. Bonham's copy does not line up with the text on the copy before Mr. House or Dr. House. The one before Dr. House is the one that the State Board circulated, so he seems to have some confusion regarding his paragraphs.

MR. BONHAM: I apologize. I withdraw the questions based on that confusion.

I believe earlier you testified that there are two parameters, a planning side parameter and an operation side parameter; is that correct?

MR. HOUSE: Correct.

MR. BONHAM: I would like to focus on the first parameter for a moment.

Actually, I withdraw that question. I've covered that. I'd like to focus on the second parameter, which is operations.

I think you stated hydro is very valuable for operation, correct?

MR. HOUSE: Correct.

MR. BONHAM: And I think you also stated that the California Energy Commission did not look at operations, correct?

MR. HOUSE: Correct.

MR. BONHAM: Thank you.

Can you today analyze what actual operations at Colgate Powerhouse will be in the year 2004?

MR. HOUSE: No. You could make assumptions on the way it's currently -- its historic operation, the way it's currently operated, then look at what new resources are coming on and make projections. But you can't determine today exactly how that facility will be run in the future.

MR. BONHAM: And is it safe to assume that that same idea is applicable to 2005 and so on in time?

MR. HOUSE: Yes. And the problem is that you've got all of these services it could provide. I mean, at some time it may need to be more on regulation, and another year

it may need to be more on -- they may -- it may be more valuable for spinning reserve or something like that.

MR. BONHAM: Okay. Thank you.

You used the phrase I believe "short on energy." When you used that term today, did you mean to say short on energy means the same conditions present during the energy crisis of 2000?

MR. HOUSE: You're going to have to refresh me as to when I -- in what context I used short on energy.

MR. BONHAM: If I'm remembering right, you were talking about in forecasting and trying to evaluate whether construction will come through and what the gap may be on megawatts in the future. We may find ourselves short on energy.

MR. HOUSE: Okay. I don't recall that I said that. I think that was from -- a quote from the Bay Area report. But ask your question, and I'll see if I can --

MR. BONHAM: My question goes to -- and to the extent you remember -- when you used the phrase "short on energy," did you mean the same conditions that were existing in 2000 during the energy crisis?

MR. HOUSE: No. Because the 2000 energy crisis in -- in some -- in some cases it was an actual physical problem, but in some cases there simply wasn't enough generating capacity. But there's been accusations that will go on for

a long time on whether that was manipulated, whether they had scheduling problems, whether they had things like that. But the physical parameter which is there wasn't enough generation to meet the demand is -- is the issue that I was talking about.

And in the year 2000-2001, you had a number of parameters that were going on that may have exacerbated that or complicated that.

MR. BONHAM: Thank you.

So, in your opinion, the energy crisis of 2000 and perhaps 2001 was caused by a combination of many different factors?

MR. HOUSE: It has been asserted that it was caused by a combination of many different factors.

In my opinion, it was primarily caused by lack of generating capacity. Because as soon as we started building generating capacity, a lot of those problems disappeared. We don't have to -- we don't have to precisely balance maintenance schedules and things like that simply because we have more generating capacity.

Because, I mean, we hadn't built anything in California for, like, 12 years, from about 1988 on, and sooner or later that load is going to catch up to you.

MR. BONHAM: Are we trying to build more plants now in California?

MR. HOUSE: Yes. And we have.

MR. BONHAM: And is there a -- let me ask a couple of market questions about plant construction.

In your opinion, are financial lenders or banks more likely or less likely to lend money for plant construction when supply is high?

MR. HOUSE: All other things being equal, they are less likely.

MR. BONHAM: And conversely, is it true if supplies are low and all other things being equal, lenders are more likely to lend money towards plant construction?

MR. HOUSE: I will say yes with the caveat that it's not just necessarily supply. What they're really looking at is price, which is what the price is for the electricity they can get from that facility that they're lending money on. Basically, can these guys service their debt? And the second parameter is, do they have somebody to sell it to?

MR. BONHAM: Okay. Thank you.

I think you mentioned that Colgate is one of the largest hydro facilities. And I'm curious, largest as to what?

MR. HOUSE: It's one of the larger installed capacity hydro facilities in -- in Northern California. You can look at Helms. Helms is 1200 megawatts. It's a lot bigger, but that's in Southern California, and it's a pump storage

facility.

MR. BONHAM: And what specific material did you rely on for the basis of that opinion?

MR. HOUSE: It's my personal knowledge.

MR. BONHAM: Okay. In response -- or actually during testimony, I think I heard you say if the power opportunity is reduced at Colgate by 40 percent, there would be a significant effect on California's system.

Is that roughly correct?

MR. HOUSE: I said that there would be an effect, because it would have less ability to provide those ancillary services.

MR. BONHAM: Okay. Did you attempt for today to measure that effect as to significance?

MR. HOUSE: No.

MR. BONHAM: Thank you.

I think you also stated that approximately 5,000 megawatts are upcoming for Federal Energy Regulatory relicensings throughout California; is that correct?

MR. HOUSE: By 2015.

MR. BONHAM: Okay. By 2015.

Could you please describe for me how you measured today how the licensing of, let's say, FERC License No. 233 which is the Pit No. 3, 4, 5 project will affect California's electricity system.

MR. HOUSE: I didn't look at any of those. I simply reported an analysis that was done by the Energy Commission that was presented yesterday at their hydroelectric workshop, that shows that there's a decrease in the amount of energy that is coming from the new California hydroelectric facilities and their new licenses.

MR. BONHAM: Thank you.

Now, to the best of your knowledge, has supply generally outpaced demand in the southwest and the northwest over the past two years?

MR. HOUSE: Yes. It has in California, too.

MR. BONHAM: Okay. Now, to the best of your knowledge generally, have natural gas prices declined from the record highs in the year 2000 and 2001?

MR. HOUSE: No. They did for awhile. But if you look at them now, they're like six bucks. Futures for gas is like six bucks. And correspondingly, the spot market price for electricity, which used to be like two cents a kilowatt-hour, since about November is running five or six cents a kilowatt-hour. So --

MR. BONHAM: Okay. Thank you.

Now, to the best of your knowledge generally, have additional plants been built since 2000?

MR. HOUSE: Yes.

MR. BONHAM: And to the best of your knowledge

generally, have additional plants come on line since 2000?

MR. HOUSE: Yes.

MR. BONHAM: And to the best of your knowledge generally, has the California Department of Water Resources signed contracts for the purpose of insuring sufficient capacity to meet load?

MR. HOUSE: Yes. But they've got an appeal at FERC that is asking FERC to declare all of those contracts invalid, and they want out of them all.

MR. BONHAM: Thank you.

And to the best of your knowledge, has the California legislature enacted something called AB-6X which amended the PUC Code Section 377, which I understand to direct California companies to keep California specific generation in California through at least 2006?

MR. HOUSE: The clarification is it's California utility owned generation. It doesn't -- it doesn't have to be in California. Because one of the cases -- what precipitated that was the potential sale of Mohave, which is in Nevada, by Southern California Edison.

MR. BONHAM: Okay. Thank you.

To the best of your knowledge, have various parties alleged that market manipulation was a factor in the energy crisis?

MR. HOUSE: Yes.

MR. BONHAM: Okay. And today, as a general matter, do you think the State of California is better prepared or worse prepared to prevent market manipulation than in 2000?

MR. HOUSE: I think they're better prepared. But if you look at the whole -- the ISO has a program called MD02, which is Market Design 02, that they're trying to implement.

And a part of that, a big reason behind that is they want to put in a lot of safeguards so that the parties can't manipulate the system like they did in 2002. That process is ongoing, and it won't be implemented until 2004. So there are some safe -- some additional safeguards now, but the system is still somewhat subject to manipulation.

The problem is, all those guys that manipulated it, they're all in trouble.

MR. BONHAM: So as a general matter, the State of California may be somewhat more prepared than they were in 2000?

MR. HOUSE: I think they're more prepared, and I think the likelihood of a manipulation is a little bit less -- is less.

MR. BONHAM: Okay. And today do you think that the Federal Energy Regulatory Commission as a general matter is more prepared now than in 2000 to prevent market manipulation?

MR. HOUSE: I think they're -- what used to be called

their standard market design and now it's called WPMP -- I can't remember what that acronym stands for -- that is intended to do that.

The problem I have answering your question is, FERC has a tendency to be reactionary or -- to respond and not to set things on a proactive basis, and part of this market design that they're trying to implement across the country is intended to do that. I don't know that they are that much further along in preventing something from occurring now than they were two years ago.

MR. BONHAM: Are they more acutely aware of the possibility of market manipulation?

MR. HOUSE: That's clear.

MR. BONHAM: Okay. Now, given the greater state and federal awareness of the possibility of market manipulation, and given the fact that additional plans have come on line as you testified, and additional plants have been built as you testified, and as you testified supply has outpaced demand here in California, in the southwest and in the northwest, as a general matter is California's energy situation better today in June of 2003 than it was in August of 2000?

MR. HOUSE: I would say yes with the caveat that we've already had a Stage One this year, and that has sort of surprised everybody. And there have been various

explanations for it, but the demand is much higher now.

And one of the -- the response is -- at the ISO one of the explanations is that in the year 2000 and the year 2001, prices went up so high and we had this, you know, safe a watt and all this stuff, and people could save a lot of energy, about 5,000 megawatts. It turns out that people aren't saving that much right now.

And so I would say in general you would be better off. But if demand has gone up and we're still having, you know, other sort of problems, it is unnerving that we've already had a Stage One this summer.

MR. BONHAM: Thank you, Mr. House. I have one final question.

Notwithstanding your caveat in that last answer, was your answer, yes, that as a general matter we're better off now in June of 2003 than we were in August of 2000, notwithstanding your caveat?

MR. LILLY: I object. That question is unclear, and I don't know whether that means he's supposed to ignore his caveat or state it or not state it.

MR. BONHAM: I withdraw the question. I have no further questions. Thank you, Mr. House.

CHAIRMAN BAGGETT: Any other cross-examination?

Mr. Cunningham.

MR. BONHAM: Thank you.

MR. HOUSE: Thank you.

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CROSS-EXAMINATION OF YUBA COUNTY WATER AGENCY

BY DEPARTMENT OF FISH AND GAME

BY MR. CUNNINGHAM

MR. CUNNINGHAM: Dr. House, Bill Cunningham with the Attorney General's office and representing Department of Fish and Game. And I have just a couple of very quick ones. I wanted to get a better sense of a couple of issues you've raised.

You in Exhibit 2003 Yuba County Water Agency 13, which was a table of FERC relicensing events coming up in the near future, in testifying to that you indicated that one of the problems as evidenced by this list of upcoming FERC relicensing events is that it created uncertainty about the flexibility that will remain in these hydro power operations; isn't that correct?

MR. HOUSE: From -- from an electrical production -- electrical operation perspective, yes.

MR. CUNNINGHAM: Okay. Do you know whether or not the California Energy Commission, in preparing its report as evidenced in Staff Exhibit 7, took into consideration this future uncertainty and future lack of flexibility in making its predictions about future energy generation capabilities?

MR. HOUSE: There wasn't enough documentation in 7 to

be able to go back and trace it back. But from looking at the numbers, I don't think they did, because the generation numbers look constant around that. They add generation and -- you take existing generation and subtract the retirements, which we know what the retirements are, and add the new ones, and it ends up matching.

So I suspect that they took no -- they didn't have any assumptions on changes in the availability of hydroelectric facilities upon their FERC relicense. But I don't know that for sure.

MR. CUNNINGHAM: Okay. Well, let me make sure I understand what your testimony as to Exhibit 13 was.

You were not testifying that all of these hydro facilities would generate less power, were you?

MR. HOUSE: I have not seen a FERC relicense of a hydroelectric facility in which the licensee had more flexibility and was able to generate more electricity. And the report by the Energy Commission at their water -- at their hydro power conference yesterday bears that out, too.

Their analysis says you always -- always is a pretty emphatic word -- but always end up with less flexibility from an electric generation side and less energy on a FERC relicense.

MR. CUNNINGHAM: You also testified about a variety of energy companies and their financial status. And I --

correct me if I'm paraphrasing this wrong, but my understanding of it was that your concern was that because of the high debt levels of a variety of current energy companies, that their ability to continue to create new generation in California may be limited in nature.

Was that --

MR. HOUSE: Not just debt level, but their current share price and their -- just their financial performance, which is the average return, which is the last three.

And the reason that I bring that up is that somebody has to build these power plants. And so you've got -- if you have these guys, the independent marketers that are in financial trouble, you've got the utilities with the exception of Sempra that are not creditworthy, that counts the question of who is going to finance building these power plants?

MR. CUNNINGHAM: And I understood that, I think.

My question to you, though, now is, is it your understanding that the Energy Commission in its report contained within Staff Exhibit 7 did not take into consideration the uncertainties of these companies continuing to participate in developing new generation in California?

MR. HOUSE: They have a note in there that says something along the lines of that they -- that they have --

they only included generation 75 percent -- their opinion was 75 percent likely to occur. As I recall, that's what it said, and I don't know how they derived that number.

But the end result of that number is a lot more generation than I would assume is going to be built in the future. But I do not know how they got at -- at their prediction on how much of the generation that is before them will actually be built.

MR. CUNNINGHAM: And in truth, at this point in time, you don't know whether they took this lack of possible corporate capability, you don't know whether they took that into consideration or not in making their predictions.

MR. HOUSE: And it's on -- I don't know what page it is, but it says -- it's called:

> High probability of California additions includes only those plants deemed to have at least a 75-percent probability of completion.

(Reading.)

I don't know how they derived that number. And I don't know what their assumptions were.

MR. CUNNINGHAM: So you don't know whether they took this into consideration.

MR. HOUSE: I don't know.

MR. CUNNINGHAM: Okay.

MR. HOUSE: It doesn't say; this report doesn't say.

MR. CUNNINGHAM: In your role as an -- I think you indicated that among other things, your role as an expert in this field has led you to work with things like the -- like ACWA, the Association of California Water Agencies, and an association of California regional or local governments.

In either of those roles, when you're wearing your hats working with those agencies, have you had an opportunity to generate a document similar to Staff Exhibit 7, a document that would be a predictor of future energy capabilities and future energy availabilities?

MR. HOUSE: Is the question have I had the -- have I done something like that or for those two entities?

MR. CUNNINGHAM: Have you done something like that in general?

MR. HOUSE: Okay. And the reason I ask that is there's another case that I'm involved in which is for neither of those guys, the Mohave case. And in the Mohave case, the issue is there, it's a coal-fired power plant, and they take water from the desert, and they pump coal to -- to Nevada to run this plant. And what I'm doing is I'm working for the local Indians, the local Hopis and the local Navajos under the intervener program at the Public Utilities Commission.

My initial testimony in that goes into the resource planning for Southern California Edison and for California,

which looks at the preponderance of -- it looks at the price of coal plants versus natural gas-fired plants, and what plants are being built and meeting reserves in through the year 2009, I believe.

MR. CUNNINGHAM: Okay. Now, other than that instance, have you ever had an opportunity to prepare a similar document to that of Staff Exhibit 7, which is a prediction of future demands and future capabilities?

MR. HOUSE: Not within the last year.

MR. CUNNINGHAM: Have you -- now, you say not within the last year. Have you done one sometime prior, then?

MR. HOUSE: Yes. I've been involved for both entities in -- for the Regional Council of Rural Counties on the PG&E hydroelectric divestiture, in which we're looking at what happens if PG&E is able to put their hydro facilities in an unregulated affiliate.

And then for the Association of California Water Agencies, I get involved in general rate cases and in resource procurement cases and things like that. And so I have had the ability to either produce a document like this or to critique other utility resource plans up until 1999.

Because once -- because until then, the utilities were building things or they were responsible for their loads. But once we hit deregulation in about 1998, then it became the response -- somebody else's responsibility. And so I --

I didn't do resource -- any resource planning from '98 through 2002, probably.

MR. CUNNINGHAM: Okay. Well, that kind of leads to my last questions here.

Have you ever had an opportunity to take one of your projections, one of your forecasts of energy use and availability and compared it against a similar document prepared by the California Energy Commission for the same time period?

MR. HOUSE: Yes. And -- but it's a little bit different than what we're talking about here. And -- and the issue was in approximately 1994, there was a proceeding on resource planning, and I was involved, and I was highly critical of the Energy Commission's assumptions on what they call uncommitted DSM, which is uncommitted demand side management, which was conservation that they said was going to occur, and they assumed thousands of megawatts. I said it wasn't going to show up, and it turns out I was right.

Because if the Energy Commission had been correct and all of this what I call imaginary demand side management had showed up, we wouldn't have had the problems in the year 2000. But like I predicted and my testimony says at the Energy Commission in '93 and '94, this demand side -- imaginary demand side management, in my terms, didn't show up, and we ran capacity short in the year 2000.

MR. CUNNINGHAM: Well, since 1994, have you ever had an opportunity to compare any of your projections for demand and supply with those provided or generated by the California Energy Commission?

MR. HOUSE: The California Energy Commission quit doing this in '96. I would say in '96 they quit providing projections. Sometime -- I think that's it, sometime after deregulation. They just -- because the free market was supposed to take care of all this stuff, and so they quit providing -- they quit doing demand forecasting, generation and supply forecasting in -- someplace between '96 and '98.

So there was no Energy Commission report or what they used to call their biannual report. There was nothing to compare to, because they didn't -- I didn't have -- if I had done something, there wasn't anything on their side to compare it to.

MR. CUNNINGHAM: So let me -- the answer to my question was, since 1994, then, you've had no opportunity to compare one of your projections with one performed by the California Energy Commission.

MR. HOUSE: And I would say that's partially because the Energy Commission didn't do a projection.

MR. CUNNINGHAM: For at least some years.

MR. HOUSE: Yes.

MR. CUNNINGHAM: Thank you. I have no further

questions.

CHAIRMAN BAGGETT: Thank you.

MR. FRINK: Excuse me, Mr. Baggett.

CHAIRMAN BAGGETT: I think staff --

MR. FRINK: Yeah, I just had a comment. I don't know if staff has any questions or not.

I do have a concern about the relevancy of a lot of what is being addressed and staying within the scope of the issues specified in the hearing notice. The hearing was noticed for the very limited purposes of addressing the issues specified by the Superior Court. Some of the rebuttal evidence has gone clearly beyond the scope of the cases in chief. Some of the cross-examination has gone further afield from that. And in some instances, the answers to the cross-examination have gone still further afield.

I'm just concerned that we're going to be here for the next week unless we can refocus on what the issues were as specified in the hearing notice.

CHAIRMAN BAGGETT: Well, I think there's no other cross-examination aside from the Board. I have a few questions, and then we can move on to the surrebuttal, which should be very narrow. It will be very narrow.

MR. LILLY: If you say so, it will.

CHAIRMAN BAGGETT: So I guess I have a couple

questions first, and then I know that Mr. Frink has some more probably more detailed questions. But in general I had a couple.

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CROSS-EXAMINATION OF YUBA COUNTY WATER AGENCY

BY STAFF

CHAIRMAN BAGGETT: One of them is this whole spinning reserve issue with hydro, and I understand the phasing and how that process works and how important it is. But is it your opinion that for a hydroelectric facility to be useful in that scheme, that it must operate 24/7?

MR. HOUSE: If it is not operating, it can't provide spinning reserve, number one.

CHAIRMAN BAGGETT: So --

MR. HOUSE: And then --

CHAIRMAN BAGGETT: I understand that.

MR. HOUSE: Okay.

CHAIRMAN BAGGETT: My question is very specific. Must it operate 24 hours a day, seven days a week?

MR. HOUSE: For what type of service? If it's on AGC, it has to be available and connected to the grid and operating.

CHAIRMAN BAGGETT: 24 hours a day.

MR. HOUSE: 24 hours a day. Otherwise it can't do anything. I mean, if it's not connected, it can't go down

because it's not -- there's no place to go; it's off. So it can't provide any down regulation at all if it's not connected.

CHAIRMAN BAGGETT: Well, I understand that. But my question was, is it useful for that purpose? Must it operate 24 hours a day, seven days a week to be useful to balance out the phasing and the grid?

MR. HOUSE: For the hours that it's not operating, it's not useful. Does that answer the question?

CHAIRMAN BAGGETT: It avoids it, but that's okay.

The second question I have -- I guess I'm confused. We have 2003 Yuba County Water Agency No. 12 here, which we've admitted into the record not for the truth of the facts asserted therein, but as an illustrative document to summarize your testimony. But I just want to be real clear.

The question was asked whether you're, quote, short on energy, and you said -- you referred back to this report and said that's what the report said.

So is -- is this in fact being entered into evidence to come to that conclusion or do you have other -- other ways of, I guess, bolstering your opinion that we are short on energy?

To some extent it's a challenge between you and Mr. Lilly. I'm just trying to understand what -- because I thought we were very clear this document would not be --

it's not entered into --

MR. HOUSE: I think that my testimony is -- I've got this number right, it's No. 10, which is this table that looks like this [indicating]. Okay.

CHAIRMAN BAGGETT: No, no.

MR. HOUSE: This --

CHAIRMAN BAGGETT: I was asking about the Bay Area study.

MR. HOUSE: Okay. This report was simply a corroboration of what I developed. I just said these guys are saying the same things that I'm saying in Exhibit No. 10.

CHAIRMAN BAGGETT: So you were saying we're short on energy based on Exhibit No. 10.

MR. HOUSE: That there is a --

CHAIRMAN BAGGETT: I mean, that was the direct -- those aren't my words. Those are your words, short on energy.

MR. HOUSE: That there is the near term future.

CHAIRMAN BAGGETT: That wasn't the question that was asked.

MR. HOUSE: The near term future is dependent upon a bunch of generation being built that I do not think will be built.

CHAIRMAN BAGGETT: Okay. Well -- Mr. Fecko.

MR. FECKO: Just a few questions. And they're probably pretty rudimentary, but I'm trying to get an understanding of how Colgate operates and -- within the greater grid.

What is the capacity of Colgate power plant at the maximum, roughly?

MR. HOUSE: I don't know exactly. It's like 370, I think. It's got two -- it's 350 or 370. I don't know exactly.

MR. FECKO: Okay. And it's my understanding that in a hydro operation, that output changes with the amount of water behind -- stored in the dam behind it; is that right?

MR. HOUSE: The ability to produce electricity will change based upon the water behind the dam.

MR. FECKO: Sure. So if there's less water, you can't produce the maximum of whatever the maximum capacity is of that plant; is that correct?

MR. HOUSE: Correct.

MR. FECKO: Okay. We're -- we have been talking about peaking, and I assume that -- I'm trying to understand how ISO calls on that power. Do they pick up the telephone? Do they call Colgate and say, open the gates up; we want to peak?

MR. HOUSE: There's -- there's probably I'd say seven different markets that you can bid into. One of the

things -- one is the bulk -- the day-ahead bulk power market. And you just say, utility ISO, I will provide these many kilowatt-hours in this hour for three cents a kilowatt-hour. Okay. And in that case, what you're doing is you're just pumping out electrons.

But you can also bid -- and that's why I talked about these ancillary services. You can also bid in ancillary services. So you can say, I'll run a hundred megawatts up or down in the ancillary services market.

So from -- what I'm saying is from exactly the same power plant, you can bid that 300 megawatts or 350 megawatts in a bunch of different markets. You could say, okay, half of it I'm going to produce electricity with; part of it I'm going to run on AGC, the regulation; part of it I'm going to operate as spinning reserve. And you get paid for each of those services that you provide.

MR. FECKO: Okay. That's good. That's what I want to get to.

And so, in essence, it's not that ISO makes a call for the energy. It's that the owner of the plant has a choice whether to sell that energy or not.

If the owner ever -- let's say a reservoir wants to use the water in another time of year for other purposes, they don't have to bid for a certain day a day ahead, let's say. We can withhold that water and not send it through; is

that correct?

MR. HOUSE: Partially. And -- and I'm not trying to hedge, but there's what are called RMR contracts, reliability must run contracts. And there are certain units -- I'm not sure whether Colgate is one; I think Colgate is one -- which are so valuable that they have --

MR. LILLY: I don't know.

MR. HOUSE: I don't know either -- that are so valuable that they have to be running all the time.

So any -- any generator that has what's called an RMR contract, reliability must run contract, has to be operating for that certain amount. And I -- I don't know whether they have that or not.

So, barring that, if they don't have conditions by the ISO, they could turn on and turn off and sell whatever services they want. But I suspect that Colgate does have an RMR contract, is under RMR.

MR. FECKO: But that so-called RMR contract, that wouldn't be for the full capacity of the plant. It would be some increment of it, some percentage of it.

MR. HOUSE: For some portion of it, yes.

MR. FECKO: Some portion of it.

MR. HOUSE: Yes.

MR. FECKO: And then the rest would be available for this voluntary sale because obviously they're trying to make

money on the power, right?

MR. LILLY: It might be useful to clarify who's trying to make money here since we have a PG&E power purchase contract involved, too. It's actually not the agency --

MR. FECKO: Let's not -- let's say the entity that owns the plant. Let's not even -- we don't have to specifically talk about Colgate.

We can say if an entity has an RMR contract, right, and that's worth a certain increment of the output of the power plant, then the rest of the output they can either choose to sell that -- that power or not choose to sell that power if they don't like market conditions or for other -- a variety of reasons?

MR. HOUSE: If they're not a utility owned con -- they're not a utility owned generation or under contract with the utility.

But that can't -- in the old days, that was true. If you were -- if you had bought a power plant, that would be true. But now, since we have the utilities back in the procurement business, their generation, their hydrogeneration, for example, is based upon cost of service. So they -- they don't -- they don't really make money. They can't -- they don't really make more money by holding it and selling it for another day, because their costs are based upon the cost of service. The costs for that particular --

that particular hydro plant are based upon the cost of service.

And my understanding is that Colgate is still under a contract with PG&E. And so there would be -- there is no incentive -- they don't make more money by holding it and selling it at another higher priced day.

MR. FECKO: So then what you're saying is that selling power in August is no more valuable than selling power in January.

MR. HOUSE: No. It's -- it is more valuable, but -- but to the owner -- if I'm a private individual and I'm selling power to the open market, I can sell it at whatever price the market will bear, and that's what I get.

If I'm a utility or I have a utility contract, I'm still selling power into the market. The amount of money that I get for that power is fixed because it's cost of service, right? It is -- it is the cost of providing that electricity that I get paid for producing that electricity, because it's my -- I'm a regulated entity.

MR. FECKO: Okay.

MR. HOUSE: So if you -- I'm just saying you have got to split these two out from the free market, if you want, and the regulated market.

And Colgate is still under the regulated market because they've got a contract with PG&E, and PG&E operates

it. And the cost of producing power from Colgate is -- the ratepayers pay for the cost of producing power from Colgate. They don't pay a lot more -- PG&E doesn't get a lot more money if they use more power in a high -- produce more power in a high priced period and less power in a non-high priced period. They try and do that. But they don't -- there's no profit -- there's not supposed to be any profit incentive in there is what I'm saying.

MR. FECKO: Okay. So then my theory is not right. In a regulated market, power in August is not worth more than it is worth in January to a regulated market.

MR. HOUSE: For a regulated entity, they get cost of service ratemaking. And -- and, I mean, that's the whole reason that they're regulated. Because the concern was that they are -- back in economics, they're called natural monopolies, and that's why they have entities like public utilities to regulate them, to keep them from making too much money if you want.

MR. FECKO: Sure. Okay. Thank you.

MR. FRINK: Yeah. Dr. House, I reluctantly have just a couple of questions.

Now, just to clarify, is Colgate currently under the operation of PG&E to your understanding?

MR. HOUSE: Yes.

MR. FRINK: And will it remain under the operation of

PG&E until the expiration of the contracts in I believe it's 2016?

MR. HOUSE: It's -- the contract and the license period, I believe, coincide, so, yes.

MR. FRINK: Okay. And I believe you stated that as a regulated utility, that PG&E recovers its costs for operation of the facility, but, theoretically, it doesn't get more money for generation of power in peak hours; is that correct?

MR. HOUSE: It gets its cost of service plus a PUC specified rate of return. So they do make a profit, but the cost -- they don't necessarily -- they don't make more money producing electricity during high cost periods necessarily than they would during low cost periods.

MR. FRINK: Okay.

MR. HOUSE: Because they get -- it's their rate base, their expenses and their rate of return.

MR. FRINK: So --

MR. HOUSE: And those are all fixed.

MR. FRINK: I believe I understand.

So if we're just looking at the Colgate plant from now till 2003, in the case of YCWA, it gets a flat rate from PG&E, is that correct, a flat amount of money per year from PG&E?

MR. HOUSE: I'm not that familiar with the contract,

but I believe they get their debt service and some operation and maintenance expenses. And I -- I'm just not that familiar with the contract. But that's my understanding.

MR. FRINK: Okay. And then in the case of PG&E, it gets a fixed rate of return on its investment.

MR. LILLY: Excuse me, Mr. Baggett. I find this ironic that Mr. Frink is asking these questions after having just made a speech several minutes ago about getting beyond the issues.

Revenues --

CHAIRMAN BAGGETT: Well, that objection is overruled. I mean, come on. You've opened this thing up from this wide -- by bringing your rebuttal testimony, I mean, you've opened this thing up so wide right now that I think in fairness to everybody, I've -- it's either going to be held really tight or I'm going to open it up.

MR. LILLY: Okay. Well, my point, Mr. Baggett, is we have shifted from the effects on California's electricity supply and demand to revenues. And I don't think anybody besides Mr. Frink, except for perhaps Mr. Fecko, had talked about revenues. And that I think is carrying it onto another whole step.

Now, of course, it's your ruling, but I'm not sure what the relevance is of revenues. We're talking about supply and demand and reliability, not revenues.

MR. FRINK: Mr. Baggett, I find it ironic also. I don't believe that revenues really should be the issue in this hearing. I was just trying to establish that in fact they are not. And I think that concludes my questions, actually.

CHAIRMAN BAGGETT: Any other questions?

MR. CARLTON: No.

CHAIRMAN BAGGETT: Redirect?

MR. LILLY: No.

CHAIRMAN BAGGETT: Thank you.

With that, you've got surrebuttal? I understand you've got a witness or two?

MR. LILLY: Yes. We have some very brief -- just have a few questions for Mr. Mitchell and Mr. Bratovich.

CHAIRMAN BAGGETT: Thank you.

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DIRECT EXAMINATION OF YUBA COUNTY WATER AGENCY

BY MR. LILLY

MR. LILLY: Mr. Mitchell, following up on yesterday and this morning, I'm going to ask you about one exhibit, and I probably have one or two questions.

Because of the confusions regarding the two methods of estimating salmon -- adult salmon escapement from 1994 and 1996 on, did you in fact prepare a new table that basically replaces your Exhibit C to your declaration and has the same

data as Exhibit D to your declaration?

MR. MITCHELL: Yes.

MR. LILLY: All right. Please examine Exhibit 2003-YCWA-14.

Is this exhibit in fact that new table?

MR. MITCHELL: Yes, it is.

MR. LILLY: So do these numbers correspond with the bars on Exhibit D to your declaration?

MR. MITCHELL: Yes, they do.

MR. LILLY: Mr. Baggett, that's all I have for Mr. Mitchell, and I offer this exhibit. It just seemed like it was useful to clarify this since we had confusion yesterday.

CHAIRMAN BAGGETT: Appreciate it.

MR. LILLY: Now, Mr. Bratovich -- just a minute.

In follow up to the questions this morning regarding the lengths of chinook salmon that were caught by the RST during different months, did you prepare figures showing the lengths of the fish caught by month?

MR. BRATOVICH: Yes, I did.

MR. LILLY: All right. And I'll ask -- we'll mark these next two exhibits as 2003-YCWA-15 and 16.

Now, please examine Exhibit 2003-YCWA-15. And just so we're clear and we don't get these two mixed up, why don't you first read at the bottom of the page what it says so we make sure we have the right one in front of us.

MR. BRATOVICH: I'm not sure which one you labeled 15.

MR. LILLY: Well, I'll try. Exhibit 2003-YCWA-15 at the bottom says, Average Fork Length of Chinook Salmon in RST Samples. Do you have that one in front of you?

MR. BRATOVICH: Yes, I do.

MR. LILLY: Okay. And please tell us what that exhibit is.

MR. BRATOVICH: This exhibit demonstrates the average lengths represented by the circles and the range in lengths represented by the vertical bars of all of the juvenile chinook salmon measured in the RST trap located at Hallwood Boulevard for each month during each of the three monitoring seasons.

And at the top there's also an indication of the number of individuals measured that were greater than or equal to 80 millimeters in length for the two time periods, November to April 20th, and then April 20th to June 30th, as well as the total number of juvenile chinook salmon counted in the trap.

MR. LILLY: Okay.

MR. BRATOVICH: For each of three monitoring seasons.

MR. LILLY: Okay. And then just so we're clear, what do the bars -- what does each bar represent?

MR. BRATOVICH: The vertical bars?

MR. LILLY: Yes.

MR. BRATOVICH: They represent the range in length.

MR. LILLY: And what do the yellow circles represent?

MR. BRATOVICH: The average length for each month.

MR. LILLY: Okay. Then the numbers in the table, that is the actual counts; is that correct?

MR. BRATOVICH: It is the -- again, the first line is the number measured greater than 80 millimeters. The second line is the number counted for those individual time periods.

MR. LILLY: Okay. So the second line is basically the total number counted of all lengths?

MR. BRATOVICH: Yes.

MR. LILLY: All right. And I notice that there's a correction where there's 1,063 which has been crossed out and 216 written in. What's -- which numbers do we follow on that one?

MR. BRATOVICH: 216.

MR. LILLY: Okay. Was the other a typographical error?

MR. BRATOVICH: Yes.

MR. LILLY: Okay. Now, whichever is easier for you, would you like to discuss your conclusions about this one or would you like to first describe the steelhead one?

MR. BRATOVICH: Let's stay with this one.

MR. LILLY: State your conclusions regarding this

figure.

MR. BRATOVICH: Well, my conclusions are really very simple; it shouldn't take long at all.

The length of juvenile chinook salmon captured in the Hallwood RST is quite variable. It varies between months, and it varied among monitoring seasons. But overall, it does indicate a general trend.

And the general trend is that there are some larger individuals captured during the winter months, but overall the average length of individuals does increase during the spring, particularly during April, May, and June period, and into the summer, relative to the previous months of the year.

But also that, as indicated by the number measured greater than 80 millimeters, as I testified yesterday, there are somewhat more larger individuals captured during the spring individual as indicated by the numbers in the first line. For example, 186 versus over a thousand the first monitoring season; slightly more during the second monitoring season; approximately three times more during the third monitoring season.

But the number counted also indicates that 98 to 99 percent of all fish have -- that were captured at the Hallwood RST were captured prior to April 21.

MR. LILLY: Okay. I wasn't clear. What was more in

the second one than the first one?

MR. BRATOVICH: I -- what I meant to state was that there are more larger individuals greater than or equal to 80 millimeters captured during the April 21 through June period than during the November to April 20th period.

MR. LILLY: Oh, okay.

MR. BRATOVICH: But then again, I do want to emphasize that 98 to 99 percent of all individuals were captured at the trap prior to the April 21 period.

MR. LILLY: Okay. Now, were you here this morning when Mr. Nelson talked about the relative survivability rates for -- I think he said that as the fish got larger, sometimes the survivability went up by 230 percent, 150 percent, 100 percent and 80 percent?

MR. BRATOVICH: I did hear his testimony, yes.

MR. LILLY: Now, considering those differences in survivability rates of the larger fish, but also considering the fact that there are so many more fish during the earlier season, what statement can you make regarding the relative importance of the outmigrations during the pre April 21 and during the post April 21 seasons?

MR. BRATOVICH: Well, I think there's -- there is a general lack of quantitative information regarding survivability. I did hear Mr. Nelson's testimony, and I'm sure you will recall mine yesterday. However, if the

numbers you mentioned were up to, what, two-and-a-half times perhaps greater survival, well, again, we have 99 or 98 percent of the fish that were all captured prior to that time. So you're talking, what, a hundred times that number of fish perhaps?

MR. LILLY: So does that mean that basically the numbers of fish before April 21 overwhelm any greater survivability of the larger fish?

MR. BRATOVICH: The data indicate from the number counted and measured at the trap that that indeed is true.

MR. LILLY: Now, just before we move on to steelhead, Mr. Nelson testified this morning that there had been -- there was the number of 34 times as many smolts returned to the Nimbus Hatchery as opposed to fry returning to the Nimbus Hatchery.

Do you remember that testimony?

MR. BRATOVICH: Yes, I do.

MR. LILLY: Now, what different factors could affect the difference in return rates between these two different life stages?

MR. BRATOVICH: Well, any number of factors, a myriad of factors could potentially affect survivability and eventual return as adults. Those can be both in-basin and out-of-basin factors.

They could include numerous considerations, not only

in aviatic factors, but in the manner in which these fish were used in this experimentation and released. It could be fish health, fish size, nutrition, when they were fed, where they were released, how they were released, whether there were predators in the area, selective predation, temperature, turbidity, out-of-basin factors, sport harvest, commercial harvest, ocean conditions. Any number of factors could affect such a figure.

MR. LILLY: Now, let's go forward to Exhibit 2003-YCWA-16, and please tell us what this is.

MR. BRATOVICH: This is a very similar representation. The one distinction between Exhibit 16 and 15 is that the line is not indicating the number of fish over a specific size. That was not included in this because, again, as I testified yesterday, I don't have a good reference for what constitutes a size distinction for a smolt or not. So it just includes all of the numbers counted each of three monitoring seasons.

And it's very similar. Again, the circles are the averages; the vertical bars represent the range in size of fish that were trapped and measured at the Hallwood RST. And it does make some indication of distinction for three time periods, November through April 20th, April 21 through June 30th, and July through October, for each of three monitoring seasons.

MR. LILLY: Okay. And, Mr. Bratovich, just so we're clear on this, were there any RST data for steelhead that were not included in these figures because the fish exceeded 300 millimeters, the top entry on your Y axis here?

MR. BRATOVICH: Yes, there were. There were. And as indicated in testimony this morning, we received these data electronically from Fish and Game and also partly from Jones & Stokes. And there were a handful of individuals, I don't recall the exact number, maybe a half dozen of individuals for across these years, all three years, of very large individuals, individuals ranging approximately from 350 to over 700 millimeters in length.

And I didn't really know what to do with them, but it seemed like they might be biasing some of these averages if they were included in these calculations, and it certainly would have made the scale so large it would be hard to see any distinction at all in these values. So we excluded those individuals from this graphic.

And I guess that was done because they seemed to be outliners, and those fish, well, probably represented either an adult or possibly another kind of a rainbow trout or steelhead that would not necessarily be appropriately considered to be an outmigrant juvenile, possibly a downstream moving resident rainbow or some other fish.

These fish, again, 350 to 720 millimeters as I recall,

maybe a handful of them.

MR. LILLY: All right. Now, if you can please just state your general conclusions regarding this figure for steelhead.

MR. BRATOVICH: Well, again, the length of steelhead captured at the Hallwood RST is really quite variable throughout the year and among the seasons, but there's a little bit of a different trend that is evident from a visual examination of this graphic representation.

And that is that there are large individuals captured at that RST during various months of the year, including the fall into the winter months in some years and later in the -- later in the season into the next fall in some instances. There are large individuals captured during the April to May/June period as well.

Overall, there's a general trend that the average length during the fall to through March period is roughly equal to or actually exceeds the length of individuals that were captured during the April through June period.

MR. LILLY: All right. Do you have any other comments on these exhibits or is that it?

MR. BRATOVICH: That's it.

MR. LILLY: All right. I have no further questions for these witnesses. I will offer Exhibits 14 and 15 and 16 into evidence.

CHAIRMAN BAGGETT: Is there any objection to the exhibits? If not, they're entered into evidence as noted.

Any recross on the items?

It's limited to the scope of the three exhibits and the information they just testified to.

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CROSS-EXAMINATION OF YUBA COUNTY WATER AGENCY

BY SOUTH YUBA RIVER CITIZENS LEAGUE

BY MR. HUTCHINS

MR. HUTCHINS: Mr. Chairman and the rest of the Board and staff and the rest of the gang, I'm going to try to keep this very brief.

Mr. Bratovich, I have just a couple of questions for you. I've seen Exhibits 2003-YCWA-15 and 16. Does anything in either of those exhibits or anything in your testimony concerning these exhibits today at all qualify or otherwise alter the statements that you made yesterday under oath?

MR. LILLY: I'm going to object that that question is too broad to be answered. He spent a whole -- you know, many hours testifying.

CHAIRMAN BAGGETT: Right. Please --

MR. HUTCHINS: I'll try to narrow the scope.

CHAIRMAN BAGGETT: Please.

MR. HUTCHINS: Yesterday, Mr. Bratovich, you and I spoke about the differential efficiency rates for fry versus

larger juvenile salmonids. We spoke of the fact that your analysis concerning the RST trap did not consider flow stream needs, instream flow needs downstream of the Yuba. And we discussed the fact that your analysis did not consider any life stages other than outmigration.

And I want to confirm that nothing in Exhibits 15 or 16 at all affects your testimony yesterday concerning those matters that I just delineated.

MR. LILLY: I'm going to object. The question still is compound and broad. If he has a specific point that he thinks Mr. Bratovich said --

CHAIRMAN BAGGETT: Could you try to focus. It's very narrow, what he just did surrebuttal on.

MR. HUTCHINS: Very well.

Mr. Bratovich, neither of these exhibits today in any way affects your ultimate conclusion yesterday that the differential inefficiency rate for the RST trap does not account for -- or does not accurately account for the presence of larger than fry salmonids in the Lower Yuba River; is that correct?

MR. LILLY: I'm still going to object. The question it's incomprehensible.

MR. HUTCHINS: Mr. Bratovich, did you understand the question?

MR. BRATOVICH: I'm not sure if it accurately

summarizes my testimony or not.

CHAIRMAN BAGGETT: I would sustain the objection. Could you -- it's fairly compound. We had some of these challenges yesterday.

Could you break it down into --

MR. HUTCHINS: Sure. In the interest of trying to be expedient, I was --

CHAIRMAN BAGGETT: I appreciate that, but we want to have a comprehensible record here.

MR. HUTCHINS: I understand.

Okay. Mr. Bratovich, you recall correctly during -- yesterday you and I discussed the fact that RST traps have differential efficiency rates for smaller juvenile salmonids versus larger juvenile salmonids; is that correct?

MR. BRATOVICH: I remember that discussion.

MR. HUTCHINS: Okay. Does anything in either of these exhibits that Yuba County submitted today alter the testimony that you submitted under oath in response to that question yesterday?

Or do you stick by --

MR. BRATOVICH: I'm trying to interpret your question. I don't believe so.

MR. HUTCHINS: Okay. That's -- I just wanted to confirm that nothing that you submitted today is designed to backtrack on the statements you made yesterday.

MR. BRATOVICH: No.

MR. HUTCHINS: Okay. Very well.

Another question: You testified just a few moments ago concerning the survivability rates of smaller fish versus bigger fish. You indicated that because 98 or 99 percent of the fish caught in the RST are relatively smaller fish, that overall the RST data, I believe the term was overwhelm -- that the fish caught before April 21st based on the RST data overwhelm the post April 21st outmigrants for survivability purposes; is that right?

MR. BRATOVICH: I'm not sure if I would say for survivability purposes. There's an overwhelming larger number of fish that were captured prior to November 1 -- excuse me -- prior to April 21.

MR. HUTCHINS: Right. But that doesn't actually give us any indication of which group of fish -- that is, the group of fish migrating before the 21st of April versus the group of fish migrating after the 21st of April. It doesn't -- those data don't actually tell us a thing about the survivability, the relative survivability rates of those two different groups of fish; is that correct?

MR. BRATOVICH: These data?

MR. HUTCHINS: Right.

MR. BRATOVICH: Do not address survivability.

MR. HUTCHINS: Okay. Thank you. That's all I wanted.

Thank you very much, and I appreciate your patience with my compound questions, Mr. Bratovich.

MR. BRATOVICH: Thank you.

MR. HUTCHINS: And the Board as well.

CHAIRMAN BAGGETT: Mr. Cunningham?

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CROSS-EXAMINATION OF YUBA COUNTY WATER AGENCY

BY DEPARTMENT OF FISH AND GAME

BY MR. CUNNINGHAM

MR. CUNNINGHAM: Thank you, Mr. Chair. Bill Cunningham with Department of Fish and Game.

I'd like to thank Mr. Mitchell for providing the additional exhibit that contains the additional information. That really helps. Thank you very much, sir.

A couple of questions just very briefly for Mr. Bratovich.

Mr. Bratovich, as best as I can puzzle out from Yuba County Water Agency's Exhibits 15 and 16, you've given us a graphic representation of the range of sizes captured by the rotary screw trap at Hallwood during the various months for both chinook salmon and steelhead.

Is that what I'm looking at?

MR. BRATOVICH: And as well as the calculated average, yes.

MR. CUNNINGHAM: And that's the yellow dot provided?

MR. BRATOVICH: Yes.

MR. CUNNINGHAM: Okay. Is there any -- is there anything here on either of these documents or in your recent testimony, though, that can tell me whether or not, for example, on Exhibit 15, in the month of -- well, let me pick the middle of the chart here -- the month of March of year 2000-2001, when you identified that there were chinook salmon juveniles captured in the rotary screw trap at Hallwood up to it looks like a little over a hundred millimeters, do you have any ability to say based on these documents that you captured every juvenile chinook salmon over a hundred millimeters that came within or near the mouth of that trap?

MR. BRATOVICH: No.

MR. CUNNINGHAM: And do you have any ability based upon this information to say that the area that was being trapped at that point in time, March of 2000-2001, that the area within the river and water column contained a -- an accurate representation or cross-representation of all juvenile chinook salmon sizes including those up to or exceeding 100 millimeters in length?

MR. BRATOVICH: I think we covered this yesterday, at length.

MR. CUNNINGHAM: I agree, but could you -- can I have you answer the question, please.

Do you need me to restate the question?

MR. BRATOVICH: Yes, please.

MR. CUNNINGHAM: Is there anything in your testimony just now or in either of the Exhibits 15 or 16 just provided, that allows me to gather whether or not the data on March of 2000-2001, where it indicates that fish of over 100 millimeters in length were seen in the trap, is there any way for me to know whether or not that trap at that time was sampling a representative sample of all juvenile chinook salmon coming down through the Yuba River that were in excess of 100 millimeters in length?

MR. BRATOVICH: I'll just stick by my testimony yesterday.

CHAIRMAN BAGGETT: Is that a yes?

MR. BRATOVICH: Well, shall we begin with the size of the trap and the assumption of the uniform cross-sectional distribution in lieu of site specific marked recapture experimentation? Which element do we wish to discuss again?

MR. CUNNINGHAM: Well --

CHAIRMAN BAGGETT: Break it down.

MR. CUNNINGHAM: Mr. Baggett, I thought my question was much more narrowly focused. I was trying to be focused only on the -- what's this called -- the re-rebuttal, I guess.

And so my question only to you was, in the testimony

you've just given, just in the last 25 minutes, and these two exhibits, but specifically on Exhibit 15 because I'm looking at an example on 15, when I look at an example on 15, where I see that there's a range of fish, is there any way I can know that when you say the trap data found or indicated that a fish in excess of 100 millimeters, a juvenile chinook salmon in excess of 100 millimeters was trapped in March 2000-2001, that the trap when it trapped that fish was trapping a representative sampling of the entire water column across the entire length of the river, and collecting a representative sampling of all fish in excess of 100 millimeters at that point in time?

And I think you can answer yes or no.

MR. BRATOVICH: There was -- there were numerous elements in your question. I think the answer is no.

This represents the data. This indicates the number of fish counted and the number of fish measured, period.

MR. CUNNINGHAM: And I think that's the point that we wish to have made, is this represents only what was caught within the trap.

And I think we'll call -- save the rest --

MR. BRATOVICH: I'll acknowledge that, Mr. Cunningham.

MR. CUNNINGHAM: Okay. So -- and you accept the fact that the trap itself may or may not have been collecting a representative sampling of all juvenile salmonids in the

river at that point in time.

MR. BRATOVICH: May or may not, as you indicated.

MR. CUNNINGHAM: Thank you. That's all the questions I have.

CHAIRMAN BAGGETT: Any other questions for the witnesses? If not, exhibits?

MR. LILLY: I thought we offered them, but just to make sure, 14, 15 and 16 we offer into evidence.

CHAIRMAN BAGGETT: All right. Okay. They're admitted unless there's an objection.

MR. FRINK: We did have a question about the status of the Department of Interior CD. Was that given an exhibit number? The --

MR. BRANDT: No, that was not given an exhibit number. So I would say it would be 2000 -- we would offer it as 2003-DOI-1.

CHAIRMAN BAGGETT: We accepted it, but didn't give it a number.

MR. LILLY: On that, could we get clarification. I think Mr. Brandt and I talked off the record yesterday that he said he would provide copies to us; obviously it may take him a little while. But we would like to have a complete set of the exhibits as well, and I'm sure all the other parties do.

MR. BRANDT: We would be happy to burn some copies of

the CDs and provide them to the parties.

I would suggest, though, that it might be helpful if the State Board staff could save it onto their drive now. That may make sense as well.

MR. MONA: Yes, all the exhibits will be scanned and posted on the website in the next couple of days. And I guess it can be electronically saved --

MR. BRANDT: You saved it?

CHAIRMAN BAGGETT: Okay. I think we can go off the record.

(Off the record.)

CHAIRMAN BAGGETT: Let's begin oral closings. We're going to strictly enforce five minutes because you will have an opportunity to write and you've got the added advantage of hearing the closing orally.

So with that --

MR. BONHAM: Thank you, Chairman Baggett, members of the Board and Board Member Carlton. Chuck Bonham of Trout Unlimited on behalf of the conservation groups.

Before the supplemental hearing, the answer to Key Issues 1, 2 and 3 was no. After the supplemental hearing, the answer remains no. The evidence as to those issues is not sufficient to warrant revision of Decision 1644.

For example, the Mitchell declaration and testimony failed to consider the listed species of spring-run chinook

or steelhead.

The Bratovich declaration and testimony selectively addressed only one aspect of fish life histories, did not consider instream flow needs below the Yuba River, and the RST data suffers from a fatal sample bias and has no bearing on fish survivability over time.

The Aikens declaration and testimony is simply cumulative of the existing record because it confirms evidence presented in 2000.

Finally, the parties during this supplemental hearing have made self-evident the fact that Yuba County Water Agency's prior positions and evidence already preserved in the administrative record contradict their 2003 evidence. When looked at globally, this self-contradictory evidence is unrepairable.

The statutory scheme that governs how the Water Board is to consider the means by which to protect fisheries requires that the California Department of Fish and Game be recognized as having primary expertise. The Department of Fish and Game's testimony in this supplemental hearing proves there are no grounds to revise Decision 1644 as to Key Issues 2 and 3. Other federal fish agency testimony during this supplemental hearing confirms the Department.

As for allegations of unfairness and lack of due process, we ask where is the fairness in making these public

trust fish wait over 15 years for resolution of these proceedings? These fish are worse off now than when the underlying original administrative complaint began.

In marked contrast, the answer to Key Issue 4 after the supplemental hearing is yes. Supplemental hearing notice at page 6 states:

> With respect to the report by the California Energy Commission, it would be appropriate for a witness with knowledge of the facts in the report to authenticate the document under oath, to present a brief oral summary of the document, and to be available for cross-examination. (Reading.)

These tasks have been accomplished. The California Energy Commission is an expert agency in its field, like the Department of Fish and Game is an expert agency in its field. The California Energy Commission report and testimony should be given great weight.

Decision 1644's amending order at pages 7 through 8 read:

> The record establishes that the new long-term flow requirements will not interfere with use of Colgate Powerhouse for peaking purposes. And Yuba County Water Agency's existing power purchase contract with PG&E

does not provide for maximizing power production during peak demand months.

(Reading.)

As shown during this supplemental hearing, the instream flow requirements now have no basis. The Decision should be revised because of the California Energy report and testimony, not because of any other evidence.

Finally, Mr. Hutchins and I sincerely thank the Board and its staff for their patience as well as for giving this issue another careful consideration.

CHAIRMAN BAGGETT: Thank you.

With that, let's come back at a quarter after, and we'll go in reverse order, Western Water, Department of Interior, Fish and Game. Thank you.

(Recess taken.)

CHAIRMAN BAGGETT: Let's just start. Gary will be along shortly. We're all challenged with the same issue here, trying to get out of Sacramento before 4:30 or else wait till 7:00.

MR. MORRIS: Mr. Chairman, on behalf of Western Water Company, given your allowance of our five-page written summary before Friday of next week, we'd be prepared to waive our five minutes now.

CHAIRMAN BAGGETT: Great. Thank you.

Okay. Mr. Brandt.

MR. BRANDT: Okay. I don't know that I can beat that speed.

Well, we've just finished two days. And I think looking over, I don't think I would disagree with the person from SYRCL. There's nothing here; there's nothing new.

As I look at these key issues in your notice, I go through and I guess I have to say, I don't -- I see no's to all of these.

I'm not really going to address the first one because I don't think you should be spending much time on that one. I just don't think there's anything here that suggests an unfair hearing or a lack of due process. Let me talk a little bit about some of the other ones.

On the energy question, we now have some information from the California Energy Commission, which is the official body of the State of California, the expert by the State. We also have some information, a lot of information from a private consultant.

We now know that, well, the CEC is not always a perfect predictor of crises. We know that they have regulatory and financial burdens. Is that enough to reopen and to revise the Decision? I don't see anything there.

How about water supply? We now know that Yuba is developing its water supply as it said it was going to and its -- sorry -- developing projects and developing new

opportunities to serve new -- new parties. But the key part here is that ultimately when it comes down to it, when we talked about Wheatland yesterday, the key part Mr. Aikens mentioned was there's enough water. They're going to serve Wheatland. They're going to do this contract whether there's 1744 or something like it or whatever else. There is enough water is the key point there. So there's nothing there that would provide -- require a revision of 1644.

How about biology? Now we did spend a bit of time on this, so I may take a minute or two here.

Recent monitoring data is what we got. It's helpful. We don't have any problem with the data. We always think it's helpful to have more data to base our decisions on just as I'm sure you do as well.

The problem we have is that the data does not support the sweeping conclusions that you heard from some of the witnesses for Yuba yesterday.

Mr. Mitchell made the comment that the fishery has remained stable or -- and he kind of said this a couple different ways: May have improved, it may have improved, it did improve, somehow or another. At least it's strong even after the project, after the Yuba project.

But in coming to that conclusion, he did not review instream flow levels during the high years when there were high fish. He did not review demands from Yuba. He did not

review what was actually in the river, how the water was doing at that point. Were they consistent with 1644? He didn't review ocean conditions, whether it's fishing or whether it's the ocean situation for salmon.

And the data relates only to fall-run. Now, he did say, well, I don't know anything. It could be fall-run. It could be spring-run. He ultimately said, I can't make any conclusions about spring-run. Spring-run is the one we have to be most concerned about at the Department of Interior, because that's the listed species. And steelhead we have to be concerned about.

But his data was based on fall-run. But he can't reach any conclusions as to spring-run is what he said yesterday.

Mr. Bratovich. Again, the data is from Fish and Game. All helpful; great to have data. But -- and he goes a little bit farther, though. He admit -- he does admit, though, that in response to Mr. -- one of your staff's questions, that he admits that all the activities that you identified in that late April through June period are going on with the fishery during that period as mentioned in your Decision 1644.

And the rotary screw trap that he mentioned, talked about, we don't know. We don't know enough about this. And it has data, but it may not reflect what's really going on

in the river as a whole. It provides the data, but not necessarily conclusions.

We don't know if it's all sizes. We don't know if it's -- you know, what avoidance is going on with bigger sizes. We had some new data today showing that the sizes are going up in the later period, but we just don't know. But he did admit that this way is not the best way.

And out of this use of this RST, he's come up with this abundance index, which we really don't know enough to say whether that's -- whether that abundance index is the best reflection of what's happening with the fishery, because we just have too many questions and too many questions he identified and acknowledged.

So when it comes down to it, we don't know the size; we don't know the accuracy of whether it's reflecting the entire column, water column. And we -- but we do know that this is not, quote, the best way. And out of that he comes to the vast majority of fish. I think that when we don't know those things and we do know it's not the best way, you can't get to the final conclusion of it's the vast majority of fish have already gone down the river.

And when it all comes down to it, we're done. I'll start the way we -- the way I ended yesterday when I ended my opening, which is let's proceed. I would encourage you to issue a new decision at your earliest convenience, and

let's move on.

CHAIRMAN BAGGETT: Thank you.

Mr. Cunningham, Department of Fish and Game.

MR. CUNNINGHAM: Thank you, Mr. Baggett.

Both Chairman and Board members, I'd like to thank you for your patience in this event. And I'd like to thank you for your patience for listening to us both present and cross-examine on a variety of testimony. I think we can make a very short closing statement. Again, we'll probably exercise our opportunity to submit something in writing as well.

Briefly I'd like to point out, though, that I think the Department's position will be the same as we pointed out in opening statements. The questions that we would like to focus on primarily, of course, are the questions contained within Key Issue No. 2. We do have a very few pointed comments on the other key issues.

Key Issue 1, for example, I do think that fair procedure has always been followed by this hearing. Nothing in law, either judicial or statutory law requires this Board to have a virgin staff, a staff inexperienced with no other accomplishments in any other fields associated with any other agencies.

It's recognized and always has been recognized that in order for you to have competent staff, you must have people

with life experience, with experience in specific issues. The experience in issues acquired by Mr. Meinz, Alice Low, in working with the Department of Fish and Game is just that; it's competent experience. It does not necessarily nor can it necessarily be concluded that such experience creates a bias and that bias somehow could be imported to Board.

I'd also like to point out very briefly on the questions as to Key Issue No. 4, while we've heard a lot of testimony on that issue, I do think what's most cogent about Key Issue No. 4 is that this Board at the very last moment in its decisionmaking process in the last go-round took into consideration the Governor's declaration of emergency energy crisis. This came through in the Governor's statement, and this Board took recognition of that through its official notice, recognition, and did respond to that notice.

I do think that the testimony of the California Energy Commission through its representative yesterday and through the document that has been provided by SYRCL establishes that that energy crisis is nowhere near the crisis that it was; in fact, may no longer exist.

I would suggest, then, that the terms -- the interim flows put in place to address that energy crisis may perhaps and appropriately be reexamined, reevaluated and eliminated from Decision 1644 or its successor.

Finally, and I would like to spend most of our focus on dealing with the questions regarding Key Issue No. 2.

We do appreciate, again, the opportunity to see any evidence, biological evidence coming into this Board's record, but would suggest that what you've received so far in the presentations and declaration of Mr. Mitchell and Mr. Bratovich can at best be considered cumulative, especially that of Mr. Mitchell which I don't think brings much new to us. It adds two more years to a graph and a chart. These two years do not establish any new trend lines; perhaps don't establish any trends at all. While interesting, I'm not sure it brings much to the discussion.

I think the testimony of Mr. Bratovich perhaps raises more questions than it brings resolutions. Yes, there's no problem with the data. Raw data is raw data. That screw trap works; it collects fish. The problem is in how it collects fish and whether what it collects is representative of what's actually happening out in the real world.

And I do think that the conclusions drawn by Mr. Bratovich that there are a significant if not majority of all juvenile salmonids migrating out by a certain fixed time are conclusions that cannot be drawn from the raw data. There are too many variables still left to be accounted for, too many questions of discussions about accuracy and calibration that are unaddressed.

You can use that rotary screw trap for a lot of things. It's a piece of laboratory equipment. But as with any piece of laboratory equipment, you must before you actually apply it to arrive at an answer to your problem establish certain additional protocols that assure you that your laboratory equipment is measuring what you wish to measure, and that it is accurately measuring what you wish to measure.

Without those kinds of calibrations or verifications, a piece of laboratory equipment, while useful, can also be very misleading and should never be used to generate an absolute conclusion in its own use. You must have a protocol that assures you that it's measuring and properly evaluating all of what you think it is doing.

Until you've done that kind of calibration, until you can assert that that equipment is being properly used, raw data should be nothing more than raw data. We think that raw data is interesting, but no conclusion can be drawn from it.

With that, again, I thank you for your time. We look forward to submitting a brief review, and we look forward to an expeditious resolution and a return, perhaps unfortunately, to another venue.

CHAIRMAN BAGGETT: Thank you.

Mr. Minasian. I guess you get 10 minutes.

MR. MINASIAN: May I address you from this location?

CHAIRMAN BAGGETT: That's fine.

MR. MINASIAN: Thank you, Andrew.

We're not asking for virgins. We're basically asking for due process and fairness.

Mr. Baggett, you're a lawyer. If this were in court and a clerk had a business relationship with a party to the action, had specific knowledge of a particular element of the case, and without any privity on the part of the clerk or the judge, that clerk ended up advising the judge as to interpretation of facts, we would start over again. You are no different than judges. You're entitled to the dignity of a judge, not just the black robe, but the respect.

This Board is like a couple of captains on a ship, and the planks of the ship are rotten. The record is rotten. This decision should never have been made. The conflict of interest, lack of due process and lack of fairness pointed out by the depositions and by the documents we have brought forward cannot be rebutted.

You have elected to take the deliberative process. This ship is going to sink under you, and you're going to spend the next four or eight years of your term dealing with that problem rather than dealing with the need for attention to the Yuba River. You can solve that directly. You can look at the state of your planking. You could pull into dry

dock, pull the decision, and say let us think about this.

Now, I know the factors that are in your mind. You don't want to read the whole record; you want to be acquainted with it. Okay. That is not enough legally. I'm sorry. This -- if a judge looked down at you and said, I'm going to judge your property rights on the basis of being acquainted with the record, especially when the record is being interpreted in the staff report by a member of the DFG who worked upon one of the central issues in the case, designed the case and the tests when he was with DFG, then went to employment with the Board and this fact never comes out and is never divulged, and we only learn in a deposition about it, we only learn when we get the full record, that decision will be set aside.

Now, the point is, this is not a threat. And if a judge looked down at you or Mr. Carlton looked down at you and said I'm going to decide your property rights on the basis of being acquainted with the record, you'd have a fit.

The California Supreme Court says the person that reads -- that decides must have read. That doesn't mean they have to be present. They have to have read. So let's go into dry dock and figure out how bad that is.

Well, first of all, if we go into dry dock and suspend this decision, you're going to hear moans about, gee, that Board, it can't do anything. 15 years, hasn't done a thing.

Well, the fact of it is that sometimes the very best use of a governmental authority is to indicate what it could do, and then withdraw it, notifying the parties of the potentials, and leaving the parties to work it out among themselves.

Now, if you think that's impossible, think about the progress that has been made on that river since we got a fish management plan in 1992 in terms of gathering data. We probably know more about the Yuba River than we know about any of the other tributaries to the Sacramento Bay Delta.

Now, it's a matter of you saying, I don't want those complaints because that undermines the authority and functioning of the Board. Just think about how stupid you look if you order water to be put down, and it turns out that the juveniles are all going out before the water you order going down, the critical water, the water that usually comes out of storage, the April/May/June water.

And think about how ridiculous it is to be ordering us to study putting in a fish screen of three to four million dollars, when we have a signed agreement and a court order of what we built in 1984. We built exactly that; it conforms fully to that. And your staff report in 1994 by Mr. Meinz, we presume he's the one that advised the Board or acquainted the Board members, can't even find a mention of that 1984 agreement and the court order.

So if you pull into dry dock and say, look, we're going to take another look at this, does this mean you're going to spend the next four or eight years of your lives studying the Yuba River, governing the Yuba River? Well, I take you back to the analogy of a judge. Sometimes a judge gets exactly the order that he thinks ought to be applied to a situation by threatening rather than doing.

Thank you.

CHAIRMAN BAGGETT: Thank you.

Browns Valley.

MR. BEZERRA: Thank you very much, Mr. Baggett and Mr. Carlton and staff. We appreciate the time that you've put into this hearing. I know it's been on short notice, so I appreciate it.

I want to just make one fundamental point.

There simply is nothing in the record to show that the fisheries have suffered here. SYRCL in its closing said that the fisheries have suffered in the last 15 years. There's simply nothing in the record to reflect that.

This project has helped the fisheries. The adult returns are stable. It is undisputed that to the extent there is any spring-run, they have come back since this project went on line. DFG said they were extirpated before this project came on line. And the best estimate is that the steelhead population has grown tenfold since the project

came on line. There simply is no fishery problem.

Thank you.

CHAIRMAN BAGGETT: Thank you.

Mr. Barton, Brophy Water District?

MR. BARTON: Mr. Chairman, the Board and staff, on behalf of the Brophy Water District, I'd like to thank you for your patience during this rehearing. Briefly I would like to summarize what it is you've been asked to do.

First, determine whether the petitioners received a fair hearing. While the Court only asked you to look at three depositions of Mr. Meinz, Ms. Low, and Mr. Sawyer, I would hope that you look a little bit further into the record to evaluate the high probability of bias that these three individuals brought into the hearing process.

We believe that substantial evidence has been presented that the -- that the vested interests these personnel had in the outcome of this decision have materially prejudiced all of the petitioners' right to a fair hearing.

Second, whether the flows required by and fish counts relied upon in Decision 1644 are justified in the light of the new, much better evidence presented by Mr. Bratovich and Mr. Mitchell. The evidence presented by Mr. Bratovich and Mr. Mitchell bring substantial doubt upon the original data considered by the Board and, at the very least, require the

Board to go back and reconsider the flow regimes required in the decision.

Third, whether the Board correctly considered Yuba County Water Agency's evidence on new contracts with Dry Creek Mutual Water Company, which will be more appropriately addressed by Mr. Alan Lilly.

Fourth, whether recent California Energy Commission forecasts justify the postponement of increased fishery flows until 2006. As Mr. Lilly pointed out in his cross-examination and rebuttal, the CEC has never been able to correctly predict energy requirements, and for this reason these forecasts should be viewed with a very skeptical eye. They do not amount to substantial evidence to remove the internal flow provisions in the decision.

With regard to these first three issues, while we are disappointed that the Board was only asked to consider these three issues because we think the issues presented present only the tip of the iceberg the problems with the decision, we feel that these three issues alone require the Board to vacate this decision and begin holding new hearings.

And although we appreciate the Board's and other parties' desires to bring about an expeditious resolution to this matter, expediency and convenience are no substitute for thoroughness and due process of the law.

Thank you.

CHAIRMAN BAGGETT: Thank you.

Mr. Lilly.

MR. LILLY: Mr. Baggett, Mr. Carlton, members of the staff, thank you very much for taking the time for this hearing the last two days. I know it has not been a pleasant thing, and it's been somewhat grueling, but we appreciate your fitting it into your schedules.

In the limited time here, I'll just touch on the issues.

Issue No. 1, we have not had testimony at the hearing. It's all through the depositions, and I hope that you will be able to read those depositions. This is clearly not a pleasant topic for the Board to consider or for us to have to bring up, but it's still an important topic. And the bottom line is, we do not think that we received a fair hearing in the process that led to D-1644.

Regarding the second issue, I think I just want to establish the context because I think there's really been a serious misunderstanding at least by the resources agencies and the environmental organizations and potentially by your staff as well.

This is not a situation where D-1644 was a final decision, no longer subject to court challenge, and we were coming back years later asking to amend it. In a case like that, I think it would be fairly clear that the parties

seeking the amendment would have some burden of proving that the amendment was appropriate.

But that's not what we have here. We have a court order directing the Board to reconsider and actually to vacate D-1644 and then to decide where to go forward. And the difference is critical because it means we have to go back to the original request. And the original request in this case was from Department of Fish and Game and some environmental organizations to amend Yuba's water right permits. So it was their burden to show that the evidence justified that amendment.

So -- and what this means is, it's not appropriate for them to nitpick every little detail of our new evidence and say, well, that wasn't the best way it could have been done basically because Department of Fish and Game did not do the marked recapture studies that it now claims should have been done; while, on the other hand, they are asking you to readopt instream flow requirements which largely are based on their so-called professional judgment without any significant data.

And I've said it before and I'll say it again, there is no quantitative data in this record, as long as this record is, that those spring flows are needed or in fact even will help the outmigration of any salmonids that might happen to be in the river during that period. And the new

evidence certainly draws into serious question the Board's findings that that's when most of those salmonids are there, which was in fact the principal basis for those flows in D-1644.

So what we believe is the parties need to have their evidence evaluated equally here. Fish and Game can't properly on one hand criticize us for not having the absolute best quantitative analysis, and yet come back and ask this Board to adopt decision -- adopt requirements that are really based solely on its professional judgment without any quantitative evidence, and yet that is what they are asking you to do.

Regarding Issue No. 3, I do have to take exception with Mr. Brandt. I don't think Mr. Aikens said that there would be enough water in all years for Wheatland Water District. And clearly with this Board's understanding of hydrology, that's not the way it works.

There is a simple answer for what needs to be done, and unfortunately what needs to be done is not quite so simple. But the hydrological model which the Board had Department of Water Resources develop and run -- actually it was from -- the Department received it from Yuba County Water Agency's consultants and then ran it -- needs to be rerun with the appropriate demands, which we now know really are going to happen in the next several years.

And certainly during the lifetime of D-1644, if it were to go back into effect, we need to have them all rerun so we can see what the numbers are. We need to make decisions on this, as in fishery biology, based on the best quantitative evidence and not simply some qualitative statements.

Regarding Issue No. 4, I'll just say very briefly, I don't think the Energy Commission's testimony or staff testimony really should give you great comfort that everything is taken care of. In fact, they don't even really address the operational problems that are the key issues for the Colgate Powerhouse.

And frankly, I don't think D-1644 addresses those very well, either. Simply talking about energy available for peaking does not tell the whole story here, not for this critical plant for Northern California's electricity grid.

And these impacts are so significant, it's not just a question of whether or not the interim requirements should be stopped sooner. It really draws into question, we think, and really demonstrates that the long-term requirements are not appropriate in 2006 or ever.

Now, finally, I'd like to respond to the questions about how long this process has taken. I think there's certainly implications that it's Yuba's fault that it's taken this long, and that's certainly not true.

But most importantly, what's happened to the fish here? The fish numbers keep going up. Yes, there have been some species listed under the Endangered Species Act, but not because of anything that happened in the Yuba River. That's because of conditions elsewhere in California and the Pacific Ocean.

The conditions in the Yuba River have improved the populations of both the fall-run and the listed species have improved. So we don't have a crisis here, and we don't need to take action as if we had a crisis.

So what should we do? We believe that the Board cannot just simply readopt D-1644 with a few band-aids. The Board needs to have a clean slate. The people of Yuba County and California frankly deserve a decision that is based on a reasoned and impartial analysis of all the evidence and has appropriate quantitative analysis, and we don't have that yet.

So what should you do? We recommend that you vacate D-1644, allow time for there to be settlement discussions, and in fact encourage settlement discussions. And the simple model is what this Board did in the Phase 8 Bay-Delta process. There were milestones. There were reporting deadlines. There were provisions to keep the parties' feet to the fire.

But settlement discussions cannot be effective with a

D-1644 hanging out there adopted, because then the parties are focusing on litigation, and people are thinking, well, I can't give up anything I have in D-1644, because that might jeopardize my litigation position.

So we encourage the Board to vacate D-1644 and allow the settlement process to continue, particularly in the wet conditions we have now.

Now, what's going to happen to the fish? What would happen to the fish if we went back to Yuba's FERC license as the controlling document? Well, that was the controlling document between 1969 and 2001, and the fish numbers went up. We can dispute whether or not they went up at a rate higher than pre project or not, but even Mr. Nelson shows that they went up by 364 fish per year, over -- that's an increase of over a thousand in the adult population over three years. And the evidence indicates that the spring-run and the steelhead also had increases.

We don't have a crisis here. The Board can act responsibly to address the problem and frankly to encourage the parties to really solve the problem instead of being in litigation for the next decade.

Thank you.

CHAIRMAN BAGGETT: Thank you.

With that, we'll give the parties until next Friday, a week from today at, let's say, noon. Five pages. You won't

have the record, but I think that's not necessary at this point.

With that, appreciate the patience and the time people put into this. This is obviously a contentious issue with lots of history, and we -- I think we've got some good information on the record in the last two days. So thank you.

(Proceedings adjourned at 3:48 p.m.)

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REPORTER'S CERTIFICATE

STATE OF CALIFORNIA)
) ss.
COUNTY OF EL DORADO)

I, KATHY L. SWINHART, certify that I was the official Court Reporter for the proceedings named herein, and that as such reporter, I reported in verbatim shorthand writing those proceedings;

That I thereafter caused my shorthand writing to be reduced to typewriting, and the pages numbered 245 through 462 herein constitute a complete, true and correct record of the proceedings.

IN WITNESS WHEREOF, I have subscribed this certificate at Sacramento, California, on the 10th day of June 2003.

_____
KATHY L. SWINHART
CSR NO. 10150