WORKSHOP

STATE WATER RESOURCES CONTROL BOARD

STATE OF CALIFORNIA

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Subject: ***Review of Water Quality Standards for the San Francisco Bay/ Sacramento-San Joaquin Delta Estuary***

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Held in
Resources Building
Sacramento, California

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Wednesday, October 19, 1994
10:00 a.m.

VOLUME VIII

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A P P E A R A N C E S

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JAMES STUBCHAER, Vice Chairman

MARC DEL PIERO

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I N D E X

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WEDNESDAY, OCTOBER 19, 1994, 10:00 A.M.

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MR. CAFFREY: Good morning and welcome to this sixth in the series of workshops on standards for the Bay-Delta estuary.

My name is John Caffrey. I am Chairman of the State Water Resources Control Board.

Let the record show that the full Board is present.

Proceeding from my far left is our Executive Director, Walt Pettit. Next to Mr. Pettit is Board Member Marc Del Piero, and immediately to his left is Board Member Mary Jane Forster. To my immediate right is Board Vice Chairman, Jim Stubchaer, and next to Mr. Stubchaer is John Brown.

At our staff table we have Tom Howard, Senior Engineer, and Barbara Leidigh, Staff Counsel.

We have several other very capable staff members available in the front row to assist us as time goes on.

I will read this for the record. This is the sixth workshop in which the State Water Resources Control Board will hear oral comments and recommendations regarding the water quality standards for the Bay-Delta estuary. At this workshop the Board will receive a progress report on the alternative sets of standards.

The Board appreciates the important work the parties

have put into developing alternative sets of standards for the Bay-Delta estuary.

To maximize the value of this work to the Board and to keep everyone updated, the Board's Executive Director, Walt Pettit, conducted two publicly noticed technical staff workshops with the parties recently. Additional technical information was provided at the two staff workshops along with refinements of the alternatives. We encourage all of the parties to continue to work together.

As you know, the comments and recommendations received during this series of workshops will be used to prepare a draft water quality control plan which will be released in December, 1994.

About two months after the draft plan is released, the Board will conduct a hearing in which the interested parties will have a further opportunity to comment.

After the hearing, we will make whatever changes are needed, provide copies of the revised draft to the interested parties, and then hold a Board meeting to consider it for adoption.

If you intend to speak today, please fill out a blue speaker card and give it to our staff at the front table. You have seen them, they look like this. We would appreciate your submitting those as soon as possible.

Conduct of the workshop: Today's proceedings are

described in the notice. Additional copies of the notice are available from staff.

This workshop will be informal, and today we want to hear from the parties on the key issues specified for this workshop which are in the notice.

Each party will have 20 minutes for an oral presentation, and we would appreciate it if you do not repeat yourselves or at least repeat what others have said.

If you indicate that you are in agreement with what others have said, it will shorten the time that we need to spend here today. If you need additional time, please explain why the additional time is necessary. If we are not able to provide you all the time you think you would like, we encourage you to submit your presentation in writing.

In the interest of time, we ask that parties avoid repeating details already presented, as I said earlier.

We will accept and we encourage written comments. You need to provide the Board and the staff 20 copies of any written comments and recommendations and make copies available to the other parties who are here today.

A court reporter is present and will prepare a transcript. If you want a copy of the transcript, you must make arrangements with the court reporter.

There will be no sworn testimony or cross-examination of the parties today, but the Board members and staff may

ask clarifying questions.

I believe we have about a dozen cards and within those dozen cards there is one group presentation.

Today's key issue is carried forward from the fourth and fifth workshops. It is:

What fish and wildlife standards should the State Water Resources Control Board evaluate as alternatives in this review?

We will call the parties in the order that we have in other workshops; first, elected officials for the State, Federal and local governments; second, representatives of State and Federal and local agencies; third, all others in the order of the submission of their speaker cards.

Unless there is some real difficulty with scheduling, we would like to do our best to stay within that order.

You may continue sending written materials to Mr. Pettit and/or Mr. Howard. If you do that, we ask that you send 20 copies of your materials, and also, send copies to the parties that have participated in these workshops.

Any materials received by the Board will be made available for inspection by interested persons.

We thank those parties who have been using these workshops as an opportunity to help the Board develop a plan that will provide reliable and reasonable protections for the estuary and all its beneficial uses.

Before we proceed, I would turn to my fellow Board members and see if there's anything they wish to add at this time.

All right. And before we get into today's proceedings, I have the pleasure of deferring to Mr. Brown and asking him to introduce a couple of guests.

MR. BROWN: Thank you, Mr. Chairman.

Today is Career Day at Valley High School, and there's two gentlemen in the audience that are aspiring to become members of that engineering profession.

Carlos Ruiz, if you would stand, please, who is a senior at Valley High School; and Wayman Brown, a junior at Valley High School.

Thank you, gentlemen, for joining us today (applause).

MR. DEL PIERO: Mr. Chairman, does that mean all the engineers have to be on their best behavior today?

MR. CAFFREY: I think so, Mr. Del Piero.

Let me say on behalf of the whole Board, Wayman and Carlos, welcome, and we hope that the legacy that we all leave with you as you come into the profession will be one which does not have to grapple with this problem. Hopefully, we will solve it before you get here. All right (laughter).

That's probably the best joke I have come up with so

far (laughter).

MR. DEL PIERO: And he delivered it with a straight face, too.

MR. CAFFREY: All right. We will begin today's proceeding with a presentation from our Executive Director, Mr. Walt Pettit. We are kind of anxious to hear what progress may have been made in the workshops that he conducted in trying to winnow down and hone down the alternatives.

Mr. Pettit, we would certainly love to hear from you.

MR. PETTIT: I think I will use the podium so you don't have to do a partial left face.

MR. CAFFREY: If that's more comfortable for you, that will be fine.

After we hear from Mr. Pettit, we will go to the blue cards and ask you besides whatever you had planned to present, if you have comments on what he has presented to us on relatively short notice if you are able to comment on what Mr. Pettit says today, it would be appreciated, and if you can't, of course, please do so in writing as soon as possible.

Good morning, Mr. Pettit.

MR. PETTIT: Good morning, Mr. Chairman and Board members.

Mr. Del Piero, I thought the presence of the guests

today meant that everybody had to defer to the engineers in the crowd.

MR. DEL PIERO: That's not what it means.

MR. PETTIT: Missed again.

Mr. Chairman, as you indicated, at the conclusion of the last workshop you directed the staff to hold a series of staff workshops, which we did do.

The intention was to try to facilitate a consensus with the objective of bringing to you today a preferred alternative that reflected consensus. The bad news is we are not able to bring you a preferred alternative today. The good news is that a lot of progress has been made and we are hopeful that it will continue.

The time lines for bringing this all to fruition are getting to be of increasing concern, and I will refer to that a little bit later, but we are still hopeful that we can bring this to a successful consensus.

I should back up a little bit and probably bring this discussion into a little more narrower context or a little more narrower focus. As you know, we had previously identified at least nine alternatives for consideration as potential sets of Delta standards, and we had DWR run water supply impacts analyses on at least those nine sets of standards as well as all the other things they were doing.

The intention of all of us and all of the parties, I

think, was to strive toward a solution that would result in a set of technically credible standards that still had acceptable water supply impacts.

Now, attention in recent days and weeks has focused in on three of those alternative sets of standards. The first one is the proposal developed by the California Urban Water Agencies in conjunction with some of the west side agricultural interests.

There was a second alternative set of standards that was developed by the consultants, primarily from Kern County Water Agency; and, of course, a third set of standards central to this issue is the U. S. EPA set, because if we are to achieve the objectives of the framework agreement, we have to come up with a set of standards that is either equal to or considered equivalent to EPA's and EPA could adopt them.

I believe that any successful package that we develop is going to be a refinement of one or more of those particular three sets of standards. In fact, I understand that the two water user proposals basically now are merged and you have a handout on your dais that I haven't had a chance to look at yet which may reflect that.

We have either a common proposal or at best we are down very close to a single option from the user community.

There are still some problems in resolving the

differences that stand in the way of consensus and some of them are relatively amenable to solution and some of them are still relatively serious. For example, the water users' proposals approach the X2 standards differently from what EPA does. I don't think that's an insurmountable problem at all. We still don't have consensus and haven't had a great deal of discussion on how we present the Suisun Marsh and the tidal wetlands, and what standards we use there.

There's also still some discussion on the flow requirements in the San Joaquin River and the appropriate way to express controls on the export pumps.

The biggest issue, however, is to the instruction that you gave me when this process started, and that is that, at least as I understand it, that a preferred alternative must have the shelf life contemplated in the framework agreement.

I understand that the water users believe that the proposals now on the table accomplish that; that is, that the improvements that would be achieved by other standards are sufficient that the salvage numbers at the export pumping plants that have been used as an expression of the take limits could be removed if these standards were implemented.

The federal agencies at this point, I think, believe that additional measures, and that translates to additional

water, are required to achieve that certainty. And the federal agencies are in the process now of trying to develop criteria and resultant numbers that would achieve that certainty that they need to lift the numbers at the pumping plants or raise them substantially.

We hope to have the information from the federal agencies quite soon so that they and we can continue discussion with the Club Fed agencies.

As that proceeds, the State Board staff will either try to facilitate that effort as best we can or get out of the way, whichever approach seems to be most promising.

As you know, Club Fed is facing a December 15 due date for promulgating their final standards. The Board has also confirmed and the framework agreement reflects that we intended to put out a water quality control plan sometime, a draft plan, sometime during the month of December. Time is getting very short to meet those deadlines for all of us. However, given the progress that has been made, I don't recommend any change in the approach that's being taken at the moment.

Now, if you have questions about the specific standards, the rest of the staff and I can attempt to answer them at this point, or any time during the proceeding. However, given the state of the discussion, I'm not sure that that will produce much in the way of results right at

the moment anyway.

I think Club Fed representatives, and I believe that's Mr. Wright, are prepared to either confirm or correct my perspective on where we stand at the moment, and there are a number of others here, as you have indicated, who wish to address you today.

I guess the bottom line from my standpoint is I would recommend that you maintain your current direction to staff as to how we should proceed.

With that, I will try to take any questions you have.

MR. CAFFREY: Thank you very much, Mr. Pettit.

Are there questions of Mr. Pettit from the Board members?

I was wondering, Mr. Pettit, if we have any recent runs from DWRSIM on the water costs of the latest versions of the alternatives.

MR. PETTIT: No, I think a couple are being run at the request of the federal agencies. I have not seen the results yet. I don't think we have anything new that we have asked for; do we, Tom?

MR. HOWARD: No, not yet.

MR. CAFFREY: Maybe this question I am about to ask is more appropriately placed to Club Fed. You mentioned that, if I heard you correctly, Club Fed is looking at additional needs for water over what U. S. EPA has offered

as their alternative.

Do you know if there has been any analysis by Club Fed of the other two alternatives?

MR. PETTIT: Yes, there have been detailed comparisons of the various EPA standards with the standards in the other two alternatives, which now may be a single alternative, so line by line and standard by standard, yes, there have been a number of comparisons.

The technical folks have been meeting almost continuously to look at the merits of the various proposals. I think they were at least scheduled to meet again yesterday. I have not heard the results of that.

MR. CAFFREY: All right, thank you very much, Mr. Pettit.

Please join us back up here.

MR. PETTIT: Thank you.

MR. CAFFREY: And we will go to the presentations -- let me read the cards that we have so you will all know the approximate order of how we intend to proceed.

First, we will have a presentation by Club Fed, Wayne White and Patrick Wright; then, Laura King of East Bay Municipal Utility District; then, we will hear from Greg Gartrell, the joint water users; and then, William R. Johnston of San Joaquin River Tributary Agencies; then, we will have a group presentation from Steve Hall, Roger Fontes

and Richard McCann, representing ACWA; and then, we will hear from Gary Bobker and David Fullerton representing the Bay Institute and the National Heritage and the Environmental Defense Fund; and then, we have Patrick Porgans, a member of the public, and Lon House, if I am reading that correctly.

So, that will be the general order that we will try to follow.

Let us begin then with the presentation from Club Fed, Mr. White and Mr. Wright.

Good morning, gentlemen, welcome. We are anxious to hear what you have to say.

MR. WRIGHT: I am Patrick Wright from U. S. EPA, San Francisco.

We are pleased to be here again at the Board's last workshop. I thought that it may be appropriate, since it is the last workshop, just to reflect back briefly on how far we have come in the last year or so when we started this process, and to just briefly go through the number of concerns and issues that all the parties raised or have raised over the past year, and to reflect on how we have tried to address each of them.

As we developed our federal proposal last year, we heard a number of different concerns. One was that we should try to develop standards; that is, jointly with the

State, that provide as much flexibility as possible for project operations, and I think it is fair to say that through the consensus-based approach, we have had through the sharing of information among the biologists and technical people, that we have come up with an approach to the standards that substantially reduces the water supply impacts while retaining our target level of protection, so I think we really have come through with respect to that particular commitment.

Secondly, we heard that whatever standards emerge from this process should be based on sound science and particularly on movement away from a single-species approach to more of a habitat-based approach, and I think again, it's striking when you look at all the different proposals that have been suggested to the Board, the degree to which all parties now are in agreement that we do need to take a more comprehensive view of the estuary not only for certainty for the biological resources, but for certainty for water users as well.

So, I think when you look at the different alternatives, the differences truly are a matter of degree rather than reflecting fundamental differences of approach toward protection of the estuary.

Third, we heard that the Federal Government really needed to come up with an integrated federal package, that

people didn't want to hear a different set of recommendations from EPA, the Fish and Wildlife Service and NMFS, et cetera.

As you know, we worked real hard last December to come up with a coordinated package, and I think you will find this year the package will be hopefully equally coordinated and integrated, and will pull in a number of different federal agency actions and programs to try to deliver the kind of certainty that people have been asking for.

Fourth, while a number of commenters said that EPA's proposal was a step in the right direction, everyone emphasized the need for the State to get back into the picture. It's certainly been EPA's goal from the beginning to have State-approved standards, and I am pleased to say that through the framework agreement, we at EPA particularly are pleased that the Board's commitment through that process is to develop draft standards and final standards next spring, and we have made the commitment again through the framework agreement that we will withdraw the federal standards if those State standards are approvable under the Clean Water Act.

And I am happy to say that we have had some excellent discussions with your staff over the past several weeks and months, and remain optimistic that while there are still

some differences out there, as Walt mentioned, we do have a process in place that we think can lead to mutually acceptable standards.

Fifth, we heard a large number of parties say that we need to look toward to a more equitable allocation of water supplies regardless of what standards emerge, and that is, that all users who divert supplies from the Delta should bear some responsibility for protecting the estuary.

Again, the framework agreement reflects this concept by establishing a process for determining the State and Federal projects' fair share for the standards next year while the State Board goes through the water rights process to determine the obligations of the other parties.

Sixth, we heard rather strongly that it wasn't enough for the State and Federal Governments to deal simply with water quality standards in the short term, that we also needed to begin the long-term planning process on Delta solutions with the Federal Government as a full partner.

And, again, I am pleased to say that we have made a tremendous amount of progress in setting up that long-term process. We still have quite a number of details to resolve, but we are all hopeful that that process can be up and running early next year.

Seventh, we heard that we needed to have an open process, that if this was going to work, we needed to have

the full involvement of the parties and interest groups. We at EPA have tried to do that in our standard setting process to be as open and above board as possible with all the parties, and we are pleased that the Board has adopted that approach in these hearings. I think it has really contributed to the success of our efforts so far.

And then, finally, as I have mentioned, a major theme has been certainty in shelf life. We in Club Fed have been working very hard over the past month or two to try to determine all the possible federal actions that might occur over the next several years to determine which of those actions may or may not have potential impacts on water supplies.

So, in conclusion, I think we have in the past year made tremendous progress in trying to deliver on these commitments and to try to resolve what remaining differences we have. I think all of us were hopeful we would arrive here today, as Walt said, with a consensus package. Unfortunately, we are not quite there yet.

I think Walt gave a fairly accurate summary of some of the differences that remain, but we certainly don't think any of them are insurmountable, and I think we are confident that we have established a process that will lead to mutually acceptable standards that have broad-based support.

We know for that to happen it has to happen very

quickly, but we on the federal side are committed to do whatever it takes to try to get there.

I will turn it over to Wayne to say a few more things about the ESA process.

MR. WHITE: Mr. Chairman and members, my name is Wayne White.

I would like to take a moment to talk about the ongoing process under the Endangered Species Act, the Section 7 consultations and the operations of the projects, and Section 7 consultation on the EPA water quality standards.

As you well know, December 15th is, once again, a magic date for the federal side of this coordinated effort, and we are looking to complete our consultations by that date, December 15.

We continue to work closely with the project operators. And the emphasis of our discussions at this point are looking at providing that certainty relative to incidental take. That has always been an unknown. We are working to get to a point where it is a known factor and the actual operational impacts are minimal at worst.

Also, another emphasis we are pursuing is the implementation of the framework agreement and looking at sharing the impacts of those operations throughout the users.

The other thing that we are trying to end up with at the end of this consultation is, in fact, to put the State in the lead where it belongs as part of the water quality plan, development of the plan and its implementation.

And in that regard, we are looking at providing that certainty while the State goes through that process, that roughly three-year process.

And as we look to the future in the development of the water rights implementation, we are looking at the opportunities and the tools that we have within the Endangered Species Act specifically, and I have mentioned this before to the Board, the opportunity to use a special 4D rule that would basically redefine take such that anything that falls within the plan's implementation would by definition not be take under the Endangered Species Act, the same approach we have taken with the State down in Southern California on the natural community conservation planning effort.

Under that approach, the operations of the projects, the implementation of the plan would be a no-jeopardy under the Endangered Species Act. Take would not be an issue.

And this would lead us into a parallel action that the federal side and the State side would continue on the implementation of the framework agreement, and the development of the long-term plan in the ultimate

implementation of the CVP Improvement Act.

Let me summarize quickly in bullet form. What Patrick and I have said as far as the objectives we are trying to pursue from Club Fed and with Cal Fed, and that is our first objective, is to get this into a State lead where it belongs, that our approach is multispecies/ecosystem protection that provides protection and starts to lead toward recovery of the endangered and threatened species, and that precludes the listing of additional species, that certainty is provided and that take does not become an additional burden upon the projects, and certainty in that additional species would not be listed as a result of water allocation within the Delta.

I would footnote that because you may come under a situation where you have to list a species for other reasons, but that the outcome would not be an impact as far as water movement and implementation of a State water quality plan; and that we have sharing of the impacts among all the users.

Another objective that we are pursuing now is to see if the Delta portion of the plan can also meet the needs of the Central Valley Project Improvement Act doubling plan, and that finally, Cal Fed and interest groups dropped to a consensus on what the long-term solution to the Delta and the Central Valley watershed is.

And with that, we would be glad to take questions.

MR. CAFFREY: Thank you very much, gentlemen. I will look to my fellow Board members.

Mr. Stubchaer.

MR. STUBCHAER: I am very encouraged to hear your definition or the potential addressing of the take problem with the 4D rule.

What time period do you envision could be given certainty by implementation of that rule and the other measures you have mentioned?

MR. WHITE: As we look at it right now, and this is something we need to sit down and to bring in all the players to talk about and see where it worked and how it worked before, but the 4D rule, the special 4D rule which at this point is only eligible under strict interpretation of the act for threatened species, so it deals with the Fish and Wildlife Service side of the listed species, and we would see this 4d rule meshing with your water rights or water plan implementation, that that defines under the act what take is or is not.

That's where we see that lock and key coming together.

Before then, we haven't looked close enough at it to see if it fits in there somewhere, but this would be another tool, and again, drawing the analogy with Southern

California, it is kind of a lock/key system with the State legislation, and that natural community conservation planning legislation, defines what take is, so it is a State process that defines on a federal level what take would not be.

MR. STUBCHAER: If it does not apply to endangered species, how do we get around the taking with the problem of salmon at the pumps?

MR. WHITE: If you will allow me to speak for the National Marine Fisheries Service to some degree, there are opportunities. One of the things we are trying to deal with right now are more candidate species, I think some of the issues we are trying to look at in the sense of certainty, because we have elevated the standard by which we are all looking at this process now, and that is certainty.

We all want certainty so we don't have to come back and list species. We all want certainty so we don't have take. Certainty is a two-sided road. Something has to come for certainty to be offered.

If, in fact, we can provide the certainty for those candidate species, then within the act the National Marine Fisheries Service could look at the opportunities to downgrade or reclassify an endangered species to a threatened species because we have some protective measures in place. Then, a 4D rule would fix.

There's another provision within the act that some have interpreted to say you could provide a 4D fix for an endangered species. That's never been tested before, so it's unclear if that's really a tool that we have.

But, if we step into this three-year process and we have in place in the Delta the certainty measures that we need, then NMFS could look at it, they could propose to reclassify their endangered listed species to threatened, and could propose a 4D rule at the same time.

MR. CAFFREY: Mr. Stubchaer, would you yield to me for clarification. I am a little confused and I want to make sure --

MR. WHITE: I've been doing this for 20 years and I get confused all the time.

MR. CAFFREY: I appreciate your efforts in this, Wayne, but I thought I heard you say that the 4D rule would be tied to our implementation phase which is water rights.

How do you activate the 4D rule or provide the certainty between, say, January 1, 1995, and when we complete our water rights? That's the critical obvious area.

MR. WHITE: Understood. 4D probably isn't the answer in this three-year period, that, in fact, the certainty that's provided is provided in the biological opinions, in the framework agreement under, I think, No. 5 or No. 6 in

the Points of Agreement where it says the State Board will seek agreement with the project operators to implement their portion of the water quality standards.

I think through that regulatory process or that administrative process, we can provide in our administrative records clearly that certainty is there and that should we be petitioned to list species we can show on our administrative records that there are regulatory mechanisms in place that provide the protection so species would not be listed.

That is how I see the three-year fix, the biological opinion, and then agreement that, in fact, biologically those things are provided.

MR. CAFFREY: So the critical element for certainty in the three-year hiatus depends entirely on the voluntary configuration, if you will, that the two projects hopefully can create for operation until then, and then, within the Section 7 consultation, I presume it would take some modification of the operation plans under the Section 7 consultation, or are you going to encompass everything into one new one? How would that work?

MR. WHITE: We are trying to incorporate the provisions of what comes out of all the discussions in the biological opinion, so it's implemented in the biological opinion as a result of the biological opinion.

MR. CAFFREY: Thank you.

Mr. Stubchaer, please proceed.

MR. STUBCHAER: Going on to another matter, you mentioned the CVPIA, trying to possibly integrate the requirements of that act into the standards. Do you have any specifics on that? Have you done any studies that indicate how much of the 800,000 acre-feet of water required by that act for environmental purposes would be usable for Delta purposes?

MR. WHITE: What we are in the middle of is a multitude of analyses and computer runs, and I wish I had a penny for every minute the computers are running to do all these different runs.

We have not completed the analysis. We need to know, first, what the operations of the projects are going to be this year. Then we need to overlay on that what we are putting together as the technical position on the flow needs for the doubling plan.

When you get that picture, then you can start to make some policy decisions on where the 800,000 acre-feet is going to fall. If the doubling plan falls all within the operations, then it is somewhat of an easy decision. If you have a lot that falls outside of the operations of the project, then you have a problem.

We have a mandate to double the anadromous fish runs.

We are concerned that the standards deal with the Delta but a lot of our problems are upriver and it's going to take in the long run, in our view right now, based on what we have put together, it's going to be more than 800,000 acre-feet.

MR. STUBCHAER: From just the CVP?

MR. WHITE: It will take more than 800,000 acre-feet. We have authority to buy water from willing sellers so we know we have 800,000 under the act. Any additional water would come as a result of willing sellers, and where and how that water will be used is an ultimate question you have.

If it is simply up in the watershed and not in the Delta, then you can use it upriver and put it to other beneficial uses after it fulfills instream flow needs.

So, there's a lot more questions than I have answers.

We need to do those two analyses first to really see what those differences are, and then, you can make a policy call on where the 800,000 goes.

MR. STUBCHAER: Thank you.

MR. CAFFREY: Mr. Brown.

MR. BROWN: Thank you, Mr. Chairman.

The CVPIA identifies the 800,000 acre-feet, but it also identifies another 120,000 acres of wetlands that need to be developed, or the Secretary is required to develop, which would require another half a million acre-feet.

It also identifies 200,000 acre-feet more out of the

Trinity for environmental purposes.

So, that total may be as much as 1.5 million acre-feet from the CVPIA.

Also, in the CVPIA I read it as a requirement and not an option for the Secretary to look at alternatives or options to restore those quantities of water diverted away from the Central Valley Project for environmental purposes.

What's the progress on doing that, and I would like to add I think the importance of developing those options, whether it is water marketing, transfers or conservation practices, a multitude of things agriculturally and for domestic water also, the importance of developing those options as quickly as possible so there's less negative impact that has to be addressed with the current contractors for those waters.

MR. WHITE: I think we all know what the possible options are, and within those options are those alternatives that we have. Some will fit better in trying to fix particular aspects of the wetlands enhancement exercise, so I don't think we have thrown anything off the table and have closed our minds to the various opportunities out there. We aren't yet at that point.

That piece of legislation has a lot in it, as you well know, and the analyses, the policy decisions have all yet to be really finalized.

We have got a long ways to go and we have all been terribly busy focusing in on the Delta and the exercise that we are in right now to really get all the answers to the various tasks that we have in the CVPIA.

MR. BROWN: Those are such large quantities of water and can have such a tremendous impact, of course, in the analysis that you are doing right now, I suggest that the work you are doing right now without having that information available to you is extremely difficult.

I am wondering how you are able to do that.

MR. WHITE: Engineers have to be on good behavior today; is that right? Well, you know, there's no doubt about it. I can tell you it's not an easy exercise because I am striving to live through it.

What we are trying to do is look at what we think are the major ones, those that are really going to have a significance. Right now, the doubling plan is the big one. Full water for refuges and wetlands, there is a whole lot going on out there in the wetlands area, the Joint Valley Ventures Project -- I mean, there's other avenues to pursue some of that through cooperative private land and water holders.

The doubling plan is the big one and that's the one we are trying to get a handle on and trying to determine; first, at the technical level what measures would be needed

in the sense of flow. We are almost at that point, and then, once we have the project operations, then we can start to really understand what some of those impacts are.

But we are well aware of the point that you draw out. My hair used to be a different color.

MR. BROWN: The emphasis, I guess I am trying to make is expediency and the real necessity of coming up with those options to restore those quantities of water, so we don't let them lag far behind. The longer they lag, the more severe the impact is going to be.

Thank you.

MR. CAFFREY: Mr. Del Piero.

MR. DEL PIERO: You indicated you wanted to speak for the U. S. Fish and Wildlife Service and the National Marine Fisheries Service.

Is it safe to assume we are going to get a decision on the splittail by December?

MR. WHITE: As part of our December 15 decision, that will be included in there.

MR. DEL PIERO: Okay. After the first of the year, is it possible, not probable but possible, that recommendations will flow for the winter run may increase?

MR. WHITE: After the first of the year?

MR. DEL PIERO: Yes.

MR. WHITE: What we are trying to do -- in fact, it's

all incorporated in our discussion right now. One of the issues that the National Marine Fisheries Service is trying to do with the collective group is -- we all know we want the shelf life, we want certainty, and one of the unknowns is, as a lot of people continue to point out, in the sense of take. What does it really mean when you have take limits on a project in the sense of numbers?

To provide certainty, as I pointed out earlier, is a two-way road. You need something in exchange, so they are looking at additional measures and putting those on the table now that will provide that certainty.

I don't think -- I mean, our whole effort is not to revisit this after the 15th so that everyone understands where we are going, that you all can get on with your process. Maybe I put some more emphasis on the CVPIA.

MR. DEL PIERO: Thank you.

MR. CAFFREY: Ms. Forster?

MS. FORSTER: Just for a little historical memory, let's talk about take for a few minutes.

Why do we have to have take anyway? I mean, if we come up with some standards that are far superior to what we have been doing over the years for the environment, why do we have to have take? Did take come along because people didn't think standards were doing that well and, therefore, take would be another way of getting more water? And if we

come up with this new standard, isn't there some reasonable, practical way we could say that we have now made that not a necessity?

MR. WHITE: Well, this has nothing to do with picking on the project. This has to do with the implementation of the Endangered Species Act and congressional mandate that deals with the question of incidental take that has to be authorized and dealt with during a Section 7 consultation, and then, the resulting biological opinion.

I said I have a long history in this act and it clearly states in the act that it was amended to include this provision for incidental take. We are obligated in the biological opinion to identify what incidental take will occur and to provide reasonable and prudent measures that minimize and mitigate that take. That's a requirement of the act.

What we want to get to is; one, so we have standards and operations that the take in a sense can be lowered because the protective measures are so good, and then, eventually, as I view it, coupled in with your process to get the -- let me explain what the special 4D rule is. That is a mechanism where we can simply redefine take so that for an action that we know is no longer take under the act, that's the point I would like to get to, so there's no take under the implementation of the State Water Plan.

But until we get to that point, we are obligated by the provisions of the act and the interpretation by our solicitors, that we have an obligation to deal with the incidental take of a federal action in the biological opinion.

Does that answer your question?

MS. FORSTER: Now I remember.

MR. CAFFREY: Would you yield, Ms. Forster? I am confused again.

Wayne, does that mean that the Section 7 scheme, for lack of a better term, that would result from the voluntary operational plan of the two projects would be without take requirements because you know ahead of time what the plan is for, or does that mean that between now and the conclusion of the water rights process, we would still be dealing with take limits because of Section 7?

MR. WHITE: Yes, there will be take limits, but what we are attempting to do through the consultation process is have them at a level, the actual limit on that take is so high such that the probability of getting to it to impact the operations of the project are greatly minimized.

MR. CAFFREY: Your feeling is that a properly configurated operation plan would minimize the impacts of any take limit that you would have?

MR. WHITE: Yes. What we are looking at right now,

just to give you kind of a general sketch, what we had last year was a single-level 14-day running average. When you hit that, we got together and made changes. What we are doing is the equivalent of a two-step process which says here is a warning level, project operations. You haven't hit the upper limit, but maybe you need to look at what opportunities you have in the projects to change or shift.

Last year they were shifting pumping loads from one project to the other. There's things they could do and still export the levels that they want.

And then, there would be a higher level that says, now we need to do something because you are at that level that's above that that we authorized in the biological opinion. But it is the idea of raising that level up because of the protective measures, the additional protective measures that you are providing and, therefore, the relative take is not as important to the species because we are doing other things to insure protection for the species.

Does that --

MR. CAFFREY: I am hopeful that that can be translated into a definition of reliability that people can accept.

MR. WHITE: Yes.

MR. CAFFREY: Ms. Forster.

MS. FORSTER: I just had a question. It is not very technical. It is more like how do you feel.

I have been reading all the alternatives and I am truly impressed with the new thoughts and new technical opportunities for better operations, real sensitivity to the months that the fish are spawning and the fish are moving, and I want to know, in your opinion, and I am just a novice, I am not a fisheries biologist, but it looks like such a significant improvement to me.

Do you feel that way about this, too? Do you think that you and the National Marine Fisheries Service just in the shift from where we were in D-1485 or even in '91, do you see vast improvement in what they have come up with technically about how to deal with some of these issues versus five years ago?

MR. WHITE: Absolutely. Just the fact that the parties are more able to sit down and talk and have constructive dialogue, not destructive dialogue -- that's been a major change. We are getting close. We're not that far apart. But there are provisions of the various alternatives that we need to be able to understand why they are recommended biologically. What is the force of some of those provisions?

When we got into this we made it abundantly clear we were looking for EPA standards or equivalents. I think that

equivalents are where people are really getting constructive dialogue, things that get you the same things which are tweaked here and not over there, so yes, I feel a lot better. I hope you do, too.

MS. FORSTER: I do.

MR. CAFFREY: Mr. Stubchaer.

MR. STUBCHAER: A question on take. What about take by predators such as striped bass? Is there anything in the plans to address that? Is it still wise for us to include enhancement of striped bass in the water quality standards and implementation?

MR. WHITE: This is really a question I hate to answer. The best way to answer it is that, in fact, we have data that shows that both those species occur in high numbers together, so you can have them both co-existing.

How you deal with that now in depressed populations and what that means is a very difficult analysis to understand. I mean, we have an obligation under CVPIA to double anadromous fish and that includes striped bass. They can co-exist. We know they have and we need to build the best process to get to that, that includes a whole lot of measures outside just the question of water.

MR. STUBCHAER: That's interesting. I didn't know it included non-native fish in the document.

MR. CAFFREY: Thank you, Mr. Stubchaer.

Let's just say, gentlemen, that we certainly heard from Mr. Pettit and our staff that you two gentlemen as well as your compatriots, but you two especially, worked very hard to try and solve this complex puzzle, and all of us on the Board do appreciate that.

Having said that, I must say to you that time is so critical that we are quickly running out of it. So, if we are going to be able to do what we need to do in terms of legal documentation that requires us to put a duly authorized legal draft plan out for the public to review by the end of this year, the very complex problems that you are still groping and grappling with need to be solved in days, as I see it, and I hope you are able to do that, and I must also say, and I will speak for myself in this regard, you heard Mr. Pettit talk about a cluster of alternatives, and we must assume from his statement that there certainly are differences among those three alternatives, but there are similarities as well, and I would say it would be problematic if what you eventually end up with sort of moves too far adrift from any of these clusters because I'm not sure what it would mean.

It seems as our staff is zeroing down now on a configuration of standards, or at least three groups of alternatives from which you might be able to develop some reasonable kind of mix.

Hopefully, what you come up with stays in that ballpark and still provide the shelf life and everything else; otherwise, I don't know where this will put us all.

Ms. Forster.

MS. FORSTER: I have one more non-technical practical question.

I understand that you had a meeting at San Francisco on Friday with your counterparts and maybe Betsy Rike was there, and I understand just from rumor that the plan was that they hoped within two weeks that you would have what the federal package looks like.

I guess I want to know if that's true and if that's the plan.

Here is what I think is so difficult, and maybe I just don't understand if we are sharing openly or we just wait until December 15 and surprise each other. I would think with the expectation that the State would be in the lead, that the State would develop standards that matched your standards, and we have to develop this document and get going on it, that you would try to keep that commitment and give us your best shot, and then we know that we have some very sound data to work with that we can see if we can match it or the equivalent, because we have, as John says, we only have a few weeks left, so I am hoping that the rumor is true that in this two-week time frame, everybody will just do the

best they can.

We all have learned from this process. We don't know exactly what's right, so we do the best we can with all the meetings and data that we have had and we have it in our lap, and we look at it and we do the best we can in taking into consideration that Californians have done the best they can.

Is that a fair time frame to have expectation for?

MR. WRIGHT: That is our hope. That is the process we have set up. We hope to have by next week when we do have a larger Cal Fed meeting, at least a framework for the total federal package, so it will have a EPA standard, plus NMFS' thinking as to what's necessary for spring run and winter run.

Again, that's the framework along with the total potential water supply impacts of that combined federal package.

What we may not have, unlikely to have, is every other element of the package worked out in detail in terms of exactly how the take limits would read, exactly what the contribution of the 800,000 is, exactly how it fits in with the doubling plan, and at least we hope to have the framework there that will give folks a sense of closure at least with respect to the larger picture and the impacts.

MR. WHITE: Secretary Wheeler was also there. It was

a very productive and good meeting.

MR. CAFFREY: Good to hear that.

Mr. Stubchaer.

MR. STUBCHAER: I have a question about this doubling. Are you expecting the water quality standards we adopt to address the doubling, or is that the CVPIA's problem?

MR. WHITE: The objective that we would like to collectively pursue is, in fact, the Delta plan as it's being developed in all of these discussions, addresses the needs of the doubling plan so that everybody knows the cost of water in the Delta for all of this.

If there is additional cost, it would be instream, upriver, not in the Delta.

MR. STUBCHAER: It is a new twist because doubling is quite different from the restoration that we have been talking about previously.

MR. WHITE: I mean, it is the jargon of the piece of legislation. It refers to doubling the anadromous fish populations.

MR. WRIGHT: I think part of what Wayne is saying is that you try to address the certainty issue. The Service doesn't want to be in a position a year from now of releasing a doubling plan that may impact water supplies by several hundred thousand acre-feet. We want to try now to

make sure that the standards that are adopted are consistent with the Fish and Wildlife Service's current thinking, at least with respect to the Delta, so that we don't have a problem a year from now or two years from now.

MR. STUBCHAER: Consistent with but not necessarily by themselves it will implement the doubling.

MR. WHITE: Right.

MR. CAFFREY: Ms. Forster.

MS. FORSTER: Has that been a discussion among all the parties? I haven't heard it before in any of our workshops until now.

MR. WHITE: It is something we talked about last Friday.

MR. CAFFREY: Does the CVPIA law as it is written require the doubling or does it require a written plan, for instance, to accomplish that?

MR. WHITE: It requires a plan and implementation with the objective of doubling anadromous fish where reasonable.

MR. CAFFREY: Where reasonable.

MR. WHITE: Well, in some cases doubling is going to be --

MR. CAFFREY: We certainly don't think you will be unreasonable in your interpretation of that.

MR. WHITE: As I have always been? I was on good

behavior.

MR. STUBCHAER: A doubling from what level?

MR. WHITE: Sixty-seven to 91 is the level we are supposed to double from.

MR. STUBCHAER: The average, or the highest year or the lowest year?

MR. WHITE: Average, not the lowest and not the highest.

MR. CAFFREY: Anything else from the Board members? Anything from Mr. Howard?

MR. HOWARD: I had one question for Mr. White.

Right now you are working on redrafting the biological opinion for Delta smelt. I assume that that opinion will likely call for outflow similar to the X2 proposals that have been discussed.

Presently we have two X2 proposals that are being brought forward to the Board, one formulated by EPA and one by the urban/ag interests.

Would you comment on these alternatives with respect to the needs of Delta smelt and whether or not it is your opinion that one or the other might be required under the biological opinion?

MR. WHITE: What we are looking at right now is the EPA standard or equivalent again, and looking at an implementation of that standard relative to a fair share

approach for the two projects.

MR. HOWARD: So, in your opinion, is the alternative formulated by CUWA equivalent to the X2?

MR. WHITE: It is very hard to speak to that right now because we are trying to understand the differences alone from the EPA standard and the new CUWA proposal.

First, you have got to understand those differences before you can really comment on that. Our approach to this point, until that proposal came around was based on the EPA 2X. We have all of a sudden thrown in a new picture.

The Chairman made a comment about working days. I tell my staff it's days and nights to figure out which one we want to do, but up to this point, the outcome of the biological opinion has looked at the EPA standards or equivalents, the 2X.

MR. HOWARD: Thank you. That was all I had.

MR. CAFFREY: Thank you, Mr. Howard.

Ms. Leidigh.

MS. LEIDIGH: I have no questions.

MR. CAFFREY: Thank you, gentlemen, we appreciate your time and effort, and will appreciate your future speed.

Next is Laura King from East Bay Municipal Utility District.

MS. KING: With your permission, I think it would be more logical if I followed Mr. Gartrell.

MR. CAFFREY: Oh, that's fine. Mr. Gartrell, good morning.

MR. GARTRELL: Good morning.

Chairman Caffrey and members of the Board, I am here representing the joint waters group and we are trying to develop a consensus, and we have what we consider an emergent consensus on proposals for developing a comprehensive plan that is a multispecies approach.

I would like to recap a little bit what's been going on the last several weeks, or a month and a half, and then go through our approach on this and briefly discuss what we are coming up with.

In the -- I think it was the September 1 meeting, CUWA presented a proposal that we believe is a good proposal to the X2 standard and meeting the goals of EPA, and the Board asked that we go back and develop a comprehensive set of standards to go along with that, which we refer to as Category 2.

We started work on that immediately and during the course of that work we began to work together with other water users such as the San Luis Delta Mendota Water Authority and the Kern County Water Agency in order to develop an urban/ag consensus package that would be a complete package and address the entire spectrum on a multispecies approach. We now have in that package a

description of four categories.

We are at a point now where we are working very hard to complete the documentation, the biological justification for each action, and complete the descriptive material on what the proposal actually does, and that, I think, relates to something that Mr. White has indicated on helping to determine if there are any differences between these proposals, or if there's a real difference, and from our meeting yesterday, we believe it is probably relatively minor.

We have been working very hard with other groups to understand the technical differences between the proposals and the Club Fed approach. In fact, we had a meeting yesterday with those people which included a wide range of others, environmental groups and other interests, and the California agencies, and I will get into that in a little bit at the end because I know that is of interest.

We are also working on cleaning up the proposal in terms of refinements to make sure it has aspects that are completely compatible with real operations, to make sure that, for example, that the averaging times are realistic in terms of what can be done with real time operations.

What brought us to this was that the major water users really firmly believe that the current mode of operating the Bay-Delta through a piecemeal approach under

the ESA, CVPIA, and the Bay-Delta standards is neither efficient nor protective, and we believe that there needs to be a consensus on a comprehensive set of requirements in order to move beyond a single-species approach.

We also believe, unfortunately, although there has been a large number of data collected over the years related to fish and wildlife, that they are insufficient and that reasonable scientists can come to reasonable disagreements on what the data mean, and we are still working within fairly broad parameters.

However, in order to move beyond the stalemate and in consideration of working with inconclusive data, we are submitting a technical package and proposal with a significant water cost, but one we think that meets the criterion and is a comprehensive package, and it has four categories including Category 1, which is the habitat, the X2 proposal;

Category 2, which are other operational and flow parameters related to that package, to bring the package from the February/June period to the entire year and focusing on the benefits of the entire estuary over the year.

Then, Category 3, which are the additional measures we believe need to be taken into account.

If they are not addressed, we don't believe they are

a complete package and I will get into those in a few minutes.

And Category 4 is the implementation measures.

As I mentioned, we have an emergent consensus among ag and urban water users and we are working hard to widen that consensus.

The key element in this is environmental protection for the Bay-Delta which we believe is crucial for long-term health of the California economy.

Now, the comprehensive package is really going toward an ecosystem and management approach, and we want to focus on the habitat quality rather than an individual goal for individual species, but to bring the entire estuary up together.

And I would like to go through that in a little bit of detail here and give you an overview of where we are at.

The Category 1 that we have been discussing is essentially the X2 proposal, the sliding scale, which includes measurement stations at the confluence of Chipps Island and alternative methods for compliance with three ways to comply, which are the 14-day average, daily compliance or outflow.

What we have added to that in terms of Category 2 are some adjustments. One is an adjustment in February of dry and critical years, and that is one area we are working on

defining that on exactly what we would use to trigger that. But that would demand a compliance at the confluence, which is slightly different than the original package. The original package does not necessarily demand a compliance all the time in particular years like 1977, which are extremely dry.

This would allow some additional benefits in February. However, at the same time, it relaxes a portion of that in dry years in terms of the Chipps requirement that would be met through flows that are just available and not a requirement, and we are working definitely on developing how that trigger would work to go into the dry critical years. We haven't completely developed that.

To the rest of it, we have added a 30-day compliance in the month of April. That's largely to benefit Delta smelt but it is a portion of the whole package and that is a strong part of the entire ecosystem approach, and coupled with that are minimum flows in May and April of 6,000 and 4,000 cfs. Those flows are again designed to insure habitat during that period, but that's where we also come in with another portion which is a 28-day compliance at the confluence that would default June based on monitoring that may be moved around to coincide with any late spawning that might occur by Delta smelt.

And a significant portion of the package is a

monitoring plan.

In a number of areas we have tried to tie the package to real-time monitoring and monitoring in the estuary. We believe it's no longer acceptable to be in a position where you can come back in three years, the triennial review, and still not know exactly what measures need to be taken to continue work on the package to continue its improvement. Monitoring is an essential portion of this.

Other portions of the package include export restrictions. We have export restrictions in the March-through-June period of 30 percent, we have a slight relaxation of 35 percent, the burden of proof being there is no impact on the native species.

We have export restrictions through the summer that range from 35 to 55, and then 65 percent at the end of the summer, and then in the fall and early winter months the export restrictions are 65 percent of the inflow. That's for the Banks and Tracy pumping plants.

In addition to that, we have minimum outflows throughout the year to insure better habitat than what we have had historically.

We have a package related to two periods on the San Joaquin, minimum flows during a period nominally from April 15 to May 15. That would, again, be tied to monitoring for out-migrating salmon along with the barrier closure that is

an important part of this at Old River, and export limits to more than what the San Joaquin inflow is, which is, in fact, quite a severe limit. But that time period is essentially a 30-day period and the time period would be allowed to move around based on monitoring.

Again, we have the pulse flow in the fall as well as an attraction flow in the San Joaquin, and that pulse flow could come as we deem it best. It would be over a week or two weeks, and we are suggesting a block of water of 10,000 acre-feet.

And then, finally, we have some other attraction flows, minimum requirements on the Sacramento River for returning salmon in the fall.

In addition to that, we are suggesting Delta cross channel gate closures.

The package that we are considering right now is from June through May 20. We are also discussing moving the January 1 around the best we can with monitoring to cover the November-through-January period as an additional protection method.

On the Category 3 portion of this, which we believe is an important part of the package, there are other non-flow measures that really need to be addressed and addressed in a way that we can say as soon as possible exactly what the effects of these items are.

Some examples are unscreened water diversions. I think the attack there will probably be along the line of identifying and prioritizing diversions for screening and implementing that, looking at waste discharge control and pollution prevention, a monitoring program to determine exactly what the effects are and to the extent that those need to be controlled, looking at the fishing regulations, land-derived salts, controlling exotic species, restoration of riparian wetlands and estuarine habitats and control of Delta channel alterations and local land use.

This is not a comprehensive list that I ran through, but we essentially want to have all of this as part of the package.

It is necessary that these items be looked at as part of the proposal. We believe that any proposal that does not include these is inadequate in terms of promoting the necessary levels of environmental restoration.

And finally, we are still discussing, and these haven't been completed yet, but implementation measures which include balancing among watershed users, mitigation credits and a possible environmental restoration fund.

And again, the key element to this is a comprehensive monitoring plan. We are prepared to work with the State Board staff in developing that as rapidly as possible and getting that into place.

I think there is already a question raised about the meeting yesterday. This was a meeting between our group and I think it started off by Club Fed going to Cal Fed and then by the time I got into this, I think just about everybody was there and represented, and I took notes and I had to ask people how it went. It was pretty uniformly positive.

The goal of the meeting was to get down the areas where we have disagreements between proposals or where our package looks like it is and others look like theirs, and identify the technical differences.

There were a number of areas where it appears that there's really sort of a gnat's eyelash of difference and X2 is probably one of them, and that we are going to be exchanging information to confirm those sorts of differences or to find out if there really are significant differences.

There are some others where there are significant differences. I think one is on the San Joaquin River flows. In putting that together, we were not considering a package that included the doubling plan. The one that was put before us indicated that that was an inconsistency with the government plan and we are going to be exchanging information on that, too.

We are approaching this from a technical point right now to determine exactly what the differences are and we intend to continue to do that.

I would be happy to answer any questions.

MR. CAFFREY: Thank you, Mr. Gartrell.

Mr. Stubchaer.

MR. STUBCHAER: Do the flow export restrictions then substitute QWEST?

MR. GARTRELL: That is right. We don't have any QWEST restrictions.

MR. CAFFREY: Mr. Brown.

MR. BROWN: On your non-related factors as you stated, I'm sure you have several that you were not able to add in your report, but a couple that we are particularly interested in, watershed protection and abandoned mines, do you have those?

MR. GARTRELL: I believe they have been mentioned. In part, that comes under waste discharge control and channel protection.

MR. BROWN: Okay.

MR. CAFFREY: Anything else, Mr. Brown?

MR. BROWN: No.

MR. CAFFREY: Mr. Pettit? Anything from staff?

MR. HOWARD: Looking at the alternative that EPA and other federal agencies have proposed and what CUWA have proposed, you have identified three issues, one of which is the San Joaquin flows; the second was the associated export limits.

Were those San Joaquin flows? The fishery agencies that recommended a fixed export limit of 1500 cfs during the San Joaquin pulse flow and you have recommended 100 percent of that San Joaquin pulse flow; and the third and probably most significant in terms of water supply are protections for winter-run chinook salmon.

Could you explain how the proposals put together by CUWA provide adequate protections for the winter-run chinook salmon?

I assume, though I haven't heard you say, that you believe that the biological opinion for winter run, or rather, there should be a no-jeopardy determination based on the CUWA proposal for winter run.

MR. GARTRELL: Right, that's what we are working toward. The main features of that in terms of the Delta, we are still continuing with the upstream releases, and assuming those are in place; but the main protections are the cross channel closures in the winter through the spring, and in the flows that are provided by X2 and the export limits in that period.

And in the combination of those, I think we can demonstrate pretty much an equivalent package or better overall than going to other flow restrictions that have been discussed, particularly I mean the QWEST.

And certainly, what we have seen from the operation

studies for most of the period, the QWEST factors really aren't a significant difference in what we are looking at.

One of the other issues that I didn't mention that came up yesterday was the February and January export limits.

MR. HOWARD: Thank you.

MR. CAFFREY: Anything else, Mr. Howard?

MR. HOWARD: That is all.

MR. CAFFREY: All right, thank you.

Alex had his hand up for a question.

MR. HILDEBRAND: My question has to do with the salinity requirements at Vernalis where the proposal called for one EC salinity in the summer months, the irrigation season, and .7 the rest of the year, and my question is whether that was merely a mistake or whether they intentionally reversed the figures that the Board adopted in 1991. I understand that was a mistake.

My second question has to do with the flow at Vernalis where they only call for a flow in the spring and October, and at no other time in the year.

The question is, does that imply that they see no need for any flow, minimum flow requirement in other months of the year, and that, therefore, they assume that since the overall river system is overcommitted that you can meet this fish flow by depleting the flow in the months that they

didn't indicate?

MR. GARTRELL: My response is that we are looking here at minimum standards to protect the overall habitat, and because we don't have a minimum flow all the time, it doesn't mean that we don't think there are other requirements on the San Joaquin.

MR. HILDEBRAND: My last point was, if you don't establish any flow at other times of the year, how do you analyze the availability of water for the fish flows without first determining what flows are needed at other times of the year?

MR. GARTRELL: Well, I think the whole availability question on the San Joaquin is one that needs to be addressed in terms of implementing this, and I think that would have to come in addressing the overall way that this standard would be met.

MR. HILDEBRAND: Thank you.

MR. CAFFREY: Thank you very much, gentlemen. Thank you, Mr. Gartrell.

Laura King from East Bay Municipal Utility District.

MS. KING: Thank you, Mr. Chairman and members of the Board.

MR. CAFFREY: Good morning and welcome.

MS. KING: For the record, I am Laura King with the East Bay Municipal Utility District.

We just wanted to make a brief comment on this proposal. We generally support this proposal on the Bay-Delta standards, but we do have a continuing concern that we wanted to put before you for the record here regarding the potential impact of some of the changes that are being discussed in this proposal on our ability to meet salmon production goals on the Mokelumne River.

We still have our lower Mokelumne River Management Plan pending before your Board, and we are also in discussions, settlement discussions with FERC on that plan, and there may be some need to adjust our goals assuming that this proposal is adopted in the risk standard.

As I am sure you are aware, a big element of this proposal to shift the pumping regime more from the fall to the springtime, and our concern with that is the fall is when we plant yearlings, so there may be a reduced survival rate due to more pumping during the fall-time when that yearling planting occurs.

Under our plan, we have fall attraction flows on the Mokelumne River to attract in-migration and increased pumping in the fall conflicts with that or reduces the effectiveness of that. We are not saying that these are concerns that mean you shouldn't adopt this proposal. This is probably the right thing from an ecosystem perspective, and that's how we are all trying to approach this now.

But ultimately we have an ecosystem plan that is going to need to be developed that will provide for management of the ecosystem as a whole, and that will recognize these kinds of trade-offs.

We have discussed these concerns with the group and I do want to call your attention in the briefing overview there is a sentence in here that acknowledges this issue. It is on the second page of the briefing overview tab under Roman numeral IV, the second paragraph. The sentence reads:

> The comprehensive multispecies ecosystem plan must also address the environmental trade-offs posed by different management strategies such as impacts on the Mokelumne River salmon production goals from the proposed Delta operational changes.

And I believe that there's going to be an additional document that describes the biological rationale of this proposal that will contain a fuller description of this issue and the possible trade-off there.

And I will just conclude by saying that we don't have an in-depth analysis of how this is all going to affect us, but potentially we may want to come back and reopen the record in the lower Mokelumne River Management Plan proceeding if we feel that that's something that would be --

MR. CAFFREY: Thank you, Ms. King. Let's see if we

have questions.

Anything from the Board members? Nothing at this time.

Anything from staff?

MR. HOWARD: No.

MR. CAFFREY: Thank you very much. We appreciate your comments.

MR. DEL PIERO: I would just point out to the Board members that on the Mokelumne River there is no winter run. The impact described by this speaker are on the runs that remain.

MR. CAFFREY: They certainly have cornered that record in this hearing process. As the Hearing Officer, we appreciate your comments.

We have, I believe, a joint presentation next. Bill Johnston, and you have with you Art Godwin, Steve Cramer, I believe.

Please come forward. Welcome gentlemen.

If you would like, you can use the table. There is a mike at the table.

MR. GODWIN: Good morning, Mr. Caffrey and members of the Board, I am Arthur Godwin and I am here today representing Turlock Irrigation District and with me is William Johnston, representing the Modesto Irrigation District, and Mr. Steve Cramer, and together we are

presenting this on behalf of the group called the San Joaquin River Tributary Agencies.

Together we represent five agricultural agencies that are all tributary to the San Joaquin River, the Merced Irrigation District on the Merced River, the Modesto-Turlock Irrigation District on the Tuolumne River, and the Oakdale and South San Joaquin Irrigation District on the Stanislaus River.

Last week at the Board staff workshop, we made a presentation on behalf of the tributary agencies specifically addressing the spring outflow requirements, striped bass, salinity standard requirements on the San Joaquin River.

And with your permission, we would like to provide you with a brief overview of that.

MR. CAFFREY: Please do.

MR. JOHNSTON: Mr. Chairman, I am William R. Johnston and we would like to talk to you briefly about both the salmon issues and the striped bass issues in the San Joaquin River.

First, in regard to the smolt survival index, Dr. Terence Speed, Professor of Statistics at the University of California, Berkeley, last week explained what the problems were and the reasons why the U. S. Fish and Wildlife Service has improperly utilized and interpreted smolt survival data

that we have collected.

He is recommending a more appropriate statistically sound method of analyzing the data. Dr. Speed's conclusion is that the U. S. Fish and Wildlife Service model should not be used to establish temperature or flow criteria or to establish policy.

You have a brief write-up summarizing Dr. Speed's comments. He is willing to work with the Fish and Wildlife Service in analyzing the data.

In the meantime, he is proceeding to see if we can develop a statistically sound model for the San Joaquin River using the Fish and Wildlife Service data.

Dr. Speed has also conferred with his colleague, Dr. John Ligon, who has been retained by CUWA in regard to the Sacramento River data and he has discussed collaborating further on that data.

The San Joaquin tributary agencies believe that it is in the Board's best interest to develop a model that is sound scientifically. The U. S. Fish and Wildlife Service model may have been appropriate at the time it was developed, but it is certainly flawed for the purposes of setting policy for the purposes that you and the EPA are using it.

We have provided you and your staff with a full copy of a paper titled, *Estimating the Influence of Temperature*

on the Survival of Chinook Salmon Smolts Migrating Through the Sacramento-San Joaquin River Delta of California, written by Peter Baker, Terence Speed and Franklin Ligon.

The paper basically shows that with a correct interpretation of the U. S. Fish and Wildlife Service data, salmon smolts can survive at temperatures substantially higher than those being recommended by the Fish and Wildlife Service.

The U. S. Fish and Wildlife Service analysis indicates that increases in temperature between 61 and 72 degrees Fahrenheit will result in a linear increase in smolt mortality.

The overhead shown there illustrates that point and what that really says is that if you increase the temperature between 61 and 62 degrees, for example, it would have the same impact on smolt survival as increasing the temperature between 71 and 72 degrees.

We do not believe that this is appropriate or correct. The EPA analysis indicates that survival is relatively insensitive to temperature until about 70 degrees Fahrenheit.

The lower curve on that display illustrates Dr. Terry Speed's point, that in order to properly evaluate survivability you have to constrain this curve in between zero and one. You cannot have more than 100 percent

survival nor more than 100 percent mortality. You would then shift the curve along the X axis to the proper location and that's the type of statistical analysis he is working on.

Now, in regard to pulse flow alternatives, Steve Cramer, who is here with us and will talk in a few minutes about his work, has worked on the Stanislaus River. Steve summarized his observations at the workshop and has concluded that one-or two-day pulse flows are most effective in making smolts that are physiologically ready to move to the ocean from the river where they were hatched.

Steve will explain his findings, as I said, in a few minutes.

In preparation for the State Board workshops, E. A. Engineering Science and Technology has modeled the San Joaquin basin for chinook salmon escapement under three selected pulse flow alternatives using their salmon population model.

This model evaluates factors impacting the life of the salmon from spawning through rearing, out-migration to the ocean, including ocean fishing impacts to escapement and then back to the spawning cycle.

The model was initially presented to the State Board in the Phase 1 water quality hearing, and again, in the water quality phase of the Bay-Delta process.

Now, the modeled alternatives were first the Department of Fish and Game alternative. This would be State Board Alternative 4.

Second, the joint proposal that was presented to you a bit earlier by CUWA and the other agencies that are joining in that, and

Third, the San Joaquin River Tributary Agencies salmon alternative, which is shown on the overhead you are looking at now.

The San Joaquin River Tributary Agencies' alternative is two seven-day pules, one in mid April and one in mid May. The pulses total at least 1,000 cfs at Vernalis in critical dry water years, 2000 cfs in dry years, 3,000 cfs in below normal and above normal years, and 4,000 cfs in wet years.

No explicit provisions dealing with fall flows or exports during other times of the year were modeled.

In regard to exports, we have imposed a 1500 cfs export limit from the 15th of April to the 15th of May. E. A. modeled each alternative with and without the Old River barrier, and in regard to the results which are shown on the overhead now, all three alternatives indicated similar three- to four-fold increases in salmon survival over the base case with modeled historical flows through a ten-year, 1982 to 1991, period of analysis.

Now, I will leave that. I want to point out that you cannot add up the columns and divide by ten and come up with the numbers at the bottom, which is shown as the 1982-91 average. This is a percentage increase over the period that's been modeled taking into consideration all of the activity of the salmon between 1982 and '91, and it's improper to just add the columns and try to average them.

Now, without the Old River barrier, and even with pulse flows, there was a less than one-fold increase as the San Joaquin smolt generally went directly to the export pumps.

In regard to a longer period of analysis, the overhead you are looking at now shows the period from 1973 to 1991, and in general, the three models are significantly better than the base case that was modeled without the pulse flows.

These analyses support Steve Cramer's observations that short pulses are as effective as long, high sustained flows in getting salmon smolts to move, and in the survival and return of adult salmon, and the short pulses used substantially less water to accomplish the same goal, producing more salmon.

Also, this alternative of the San Joaquin tributary alternative will most likely have the least impact on export pumping.

Now, I would like to turn a little bit to striped bass issues. The San Joaquin River Tributary Agencies presented data to show that there is no reason to adopt a striped bass water quality standard. This is in answer to one of the questions that were posed earlier by the Board.

We have provided a short explanation of the reasoning in the material we presented to you. We believe there is no scientific basis for setting a salinity standard in the San Joaquin River to allow the upstream spawning migration of striped bass.

We believe; one, that there is no real evidence that a salinity barrier to migration exists; second, even if such a barrier did exist, it would not affect the production of striped bass because as a broadcast spawner, they are not spawning habitat limited; and third, if striped bass could be induced to spawn farther upstream in the San Joaquin, this would be to their detriment as it would increase the potential of entrainment of the eggs and larvae in the State and Federal export facilities.

Finally, from a policy standpoint, it seems inappropriate to be setting standards to enhance an exotic species that is a known threat to an endangered native specie, the Sacramento winter-run chinook salmon.

Striped bass spawn in the same place every year, between Antioch and Venice Island, regardless of the flow

and the salinity. There is little evidence of major spawning of striped bass upstream from Venice Island.

Now, the graph that you are looking at here is a plot of the percentage of striped bass eggs between zero and eight hours old reflected in segments of the Sacramento-San Joaquin Delta and Suisun Bay at different flows ranging from 400 cfs to 24,000 cfs, and the data are from the California Department of Fish and Game. They are in your water rights hearing Phase 1, Exhibit 25, CDFG, Region 4, Fresno.

The tabulation of those data are also included in the packet of material that we provided and all of the surveys show that the spawning that has taken place has taken place again between Antioch and Venice Island.

The basis for the belief that there is a salinity barrier or salinity spawning barrier rests upon inconclusive evidence obtained from the 1960s from field observations of the Delta striped bass distribution during the spawning season.

Bradky and Turner sampled adult bass throughout the reverse salinity gradient and found the highest numbers of fish in TDS concentrations between 250 and 300 parts per million. They found lower numbers of fish below both 200 and above 350 parts per million.

On the basis of these observations, they concluded that 350 parts per million formed a barrier to striped bass

movement. This occurred in the vicinity of Venice Island and we believe that such anecdotal evidence in no way proves that a salinity barrier exists.

E. A. has extensively reviewed the literature of over 400 papers, and copies of the bibliography of those papers have been provided to you, and they have found nothing to support the contention that striped bass spawning territory is limited.

The next graph shows all of the data that they have found in regard to the striped bass spawning above Venice Island, and you can see there are very meager and few data showing spawning in those areas.

Historian Allen Patterson has reviewed the historical literature and concluded the same thing, and you have a copy of the conclusion of Dr. Patterson's paper and the full paper is in the record of the proceedings.

Now, in summary, we recommend that you do not rely on the Fish and Wildlife Service model as there is no scientific sound basis for the relationship developed with that model.

Dr. Speed is continuing his statistical analysis on the San Joaquin smolt data and we will share whatever will be developed with the Board and staff and the Fish and Wildlife Service.

Dr. Speed will confer with Dr. Rice on the Sacramento

River data as appropriate.

Finally, we will be pleased to use the E. A. model to analyze other alternatives for your staff and we will sponsor another workshop on the E. A. salmon population model, if that will be helpful.

The goal of the San Joaquin River Tributary Agencies is to protect the salmon smolts, move them past the agricultural and export pumps, through the Bay and out to the ocean, and use only the necessary amount of water. The San Joaquin River water users will do their part to help increase and maintain the fishery, but they should not be obligated to contribute water to either (1) dilute salinity water that's been discharged into the San Joaquin River; (2) provide excess flows to meet the obligations of the Central Valley Project because of diversions at Friant Dam; or (3) provide flows to either allow additional exports or to allow the Central Valley Project or the State Water Project to retain water in their reservoirs which would otherwise have to be released to meet the projects' obligations in the Delta.

Finally, in regard to the striped bass, we agree with others that there is no reason to have a striped bass water quality standard.

That concludes our remarks with the exception of Steve Cramer's presentation on his data.

Steve.

MR. CAFFREY: You have about four minutes left of your twenty. We have been lenient in the past, so would you please do your best to stay within the period of time.

MR. CRAMER: I'm here today to talk about some sampling that we did on the Stanislaus River in 1993. Our consulting firm were fishery biologists. I was retained by the Tri-Dam project, South San Joaquin Irrigation District and Oakdale Irrigation District, to sample out-migrants on the Stanislaus River in 1993, to evaluate the effects of pulse flows that were designed in that year to move fish out of the river, and so, I wanted to show you the results of our sampling, and additionally, you will see in the handout I provided, I am going to cover how this compared with what you find on other rivers throughout the West Coast and the type of response that juvenile fish would exhibit when given a pulse flow.

This was a pulse flow pattern planned for the Stanislaus River in 1993, and this is one that was actually accomplished. The two major pulse flows that we evaluated occurred from the end of April through May, and a second one in late May that extended into June.

You can see that those flows started with a base flow of about 250 cfs and then were moved up to 1500 cfs, so this pulse is a five-fold increase in the base flow.

I am going to show you some data on the fish movement that we actually documented. You should notice that we did not start until about April 1st and the pulse flow had already begun. This higher pulse back in earlier April and one in late March had already occurred, so they may have stimulated fish movement that we were not in the water to sample.

Here are the actual data that we gathered on the movement of fish. What you should note here is on this Y axis in the out-migrant index, the line shows the pulse flow and that is against the alternate Y axis over there, and at the bottom we have the date.

The most important thing to notice about this is when the pulse flow increased, the bars here show the number of fish we captured. These are not actual numbers captured, they are, in fact, expanded to account for the efficiency of our migrant trap.

There is no previous data on the Stanislaus River where they trapped out-migrants that we could find that would be useful in evaluating how spike flows might influence fish, so we were actually capturing migrants moving downstream.

MR. CAFFREY: So, you applied a formula based on the efficiency to try and make the number more accurate?

MR. CRAMER: Exactly. As ten percent of the flow

went through the mouth of our trap, we found from releasing marked fish upstream that our trap captured five percent of the fish. In other words, we were about half as efficient as the amount of flow that actually physically went through our trap, so these are adjusted.

The reason that that is important is because here we had a sampling of 1500 cfs if you took this other point. Here we sampled when the flow was down to 400 cfs, and so, you had to adjust to those differences. By making that adjustment, the catches were much larger at 400 cfs simply because flows were lower. Actually, this catch here, this one spike represents a fairly small catch but efficiency was lower and you have to adjust for that.

At any rate, this shows one spike response in juvenile out-migration when that flow went up, and then, after that time the catches did not show a particular response to the peak in flows. You just see that immediate response and then pretty much the movement of fish goes back to an as-usual situation.

This is actual data on the Stanislaus. That is one year and that isn't particularly comforting, so you need to see if that is true up and down the coast.

Quickly, I am going to show you an example on the Rogue River. I happen to have been working with the Oregon Department of Fish and Wildlife in the mid seventies

directing research on the Rogue, and we had one very unique circumstance. For ten years, we monitored juvenile out-migrants on the Rogue. Here in 1975, that is the dark line you see discharge through the summer, a nice smooth curve, we had a unique event in '76 which showed us something about our fish response to spike flows. The natural storm event caused three weeks of high flow in mid August.

Now, I want to show you the next curve of what happens to the fish movement if you compare them in those years.

Here you have a catch-per-hour in a trap that crosses the -- that Savage Rapids Dam on the Rogue River, and as the fish moved past that trap, we found this spike event on that year coincident with the first week of those spike flows.

But for the next two weeks while the flow remained far above the traditional mean flows during summer, you see the migration moving back down to more normal levels and continued as so throughout the year.

In the ten years of our study, we saw no other spike flow event like this. We saw no other spike movement events like this, so it's obviously triggered by that pulse flow. The key is that it lasted only for a few days even though the flows remain high.

The same is true -- we had a grand experiment on the Columbia River this year, same thing, and this is an

artificial manipulation of the flow. This is actually up the Snake River. These are catches at lower Granite Dam of juvenile chinook. The dotted line here represents the flow pulse. There was substantial release of stored water to create this flow pulse, and what you can see is that there was a couple of days of stimulated movement of juvenile chinook following that pulse flow.

Despite the high flows, the movement ceased, or at least went back down to a more normal level.

Interestingly, if you look out here after they dropped the flows down to base level, there was still plenty of chinook up there to move out and there was actually a spike event of juvenile chinook movement that occurred later.

If I plotted these flows on a different scale, you would see there was a slight increase in flow there, but in proportion to these high flows generated here, it doesn't show because it is a small event.

You can't move all the chinook until they are ready. There are studies that indicate there is a physiological readiness that has to be reached on the part of the chinook before they will respond to flow and all fish are not physiologically ready to move at the same time.

Similarly, this is one of, I think, a 12-year data set on the Yakima River, similar kind of response year after

year. I just pulled one of their drafts. They also show similar kinds of things. The solid line represents the flow and the dotted line represents the movement of fish, and we can see that even though there were high flows here in March, there was not a movement of fish.

Finally, there was a spike on the 1st of May, strong movement of fish for one day and then they moved on. This was repeated year after year, so it is not an unusual event.

I could cite other examples but our time is quite brief and I don't want to take up your time doing that.

I would like to review with you briefly the recommendations from this review of how fish respond to pulse flows. In the handout that I have given you, I have five recommendations that come from this and I would like to emphasize these because I think there is strong potential to misuse what I am saying here.

Number one, the migration of juvenile chinook is stimulated by a rapid increase in flow, not by a sustained high flow. This behavior is consistent with populations of chinook throughout the West Coast.

Number two, only the portion of the juvenile chinook that are physiologically ready to smolt will be stimulated by the pulse to migrate to the ocean. Some will move a slight bit. We have found the ones ready to go will continue their movement all the way to the ocean.

Now, flow pulses spaced at intervals throughout the migration season will be necessary to stimulate migration of the entire population. A stimulus at one time of year will only move some of the fish and only the first few days will do that stimulation.

Number three, the magnitude of increased inflow required to stimulate this migration is uncertain. We know it has to be at least 20 percent, but we don't know what it needs to be.

Number four, the duration of the pulse flow needed is one to three days. Longer periods of high flow may be needed to sustain that desired condition through the Delta for the fish that were stimulated to have the desirable conditions through the Delta; but to stimulate them to move you need one to three days.

Then, number five, this is where I could be misquoted. Please consider number five. Magnitude of benefits to be gained from pulsing of flows is uncertain and should be evaluated by field tests. I said that fish will move, I did not say there was evidence they survived better or less, just simply that if you want them to move, the pulse flows cause them to move in the first few days.

MS. FORSTER: May I ask you a question while you are there?

At our last hearing at the end of the day we heard a

very fascinating presentation by somebody that at one time worked for you at the Fish and Wildlife, and I guess he was with one of the groups of --

MR. HOWARD: Dave Vogel.

MS. FORSTER: He also seemed to feel that there was a way to tell when the fish were going to move. If I kind of remember his presentation, he felt that they moved at night, that we could tell when they were going to move.

Do you sense from your work and some of the other work that's going on out there that we are getting or we will have available for us a much better understanding of sort of the basic needs of these fish? I mean, is it true, do you think fish move at night more than they move during the day?

All of these things are in bits and pieces, but it would be wonderful if somebody put it all together and said, we have put this together and here is what they like.

If you could make your operations match, we would have a giant success.

MR. CRAMER: That's an ideal that we would all aspire to, and I would say there is potential to get to that point, but we haven't done the experiments that will tell us whether or not that is truly possible.

Fish do tend to move predominantly at night, but the problem is that physiologically they will mature, they will

be ready to what we call smolt and move to the ocean at a varying period over the spring and into the summer, and we cannot speed that physiological process up other than to provide appropriate growth conditions for the fish because that physiological process is tied to their size and as they reach a sufficient size and growth, they will be ready to migrate.

Unfortunately, fish spawn over a variable time so you can't get them all to that point at the same time. So, they will always be dispersed in time as to when they are ready to move. But certainly, it is possible to learn through experimentation how we can more efficiently use the water we have to get the fish to move and provide the volume of flow that those fish could actually swim in as they move to the Delta so they benefit from a higher flow while they are moving through the Delta. That's why our proposal consisted of two smaller pulse flows to take care of the smolts that were ready to go at the beginning of the season, and another pulse to take care of the smolts that reached maturity at the end of the season.

MS. FORSTER: How can I understand what your presentation means compared to the other alternatives that have been provided -- the work that these folks have done, the work EPA has done? Explain where you fit into this, what you think of what they have done, what you are doing

that may be different. Can you just explain this for me?

MR. JOHNSTON: We are looking mainly at the contributions that would be made from the tributaries on the east side of the San Joaquin Valley. Our goal is to promote the movement of the fish through the estuary to the ocean so that we get some fish returning, as is the goal of all of the agencies for all of the rivers.

We limited our contribution to that necessary to promote the fisheries and tried not to provide water to meet obligations that would otherwise be the projects'. We have focused here on the temperature issues and pulse flow issues to move the smolts, so that beyond that, I think our plan would fit into any of the other alternatives that have been put forth.

MS. FORSTER: Thanks for giving us this early so we could read it. It made it easier to understand your presentation.

MR. JOHNSTON: You are welcome.

MR. CAFFREY: Any other questions from the Board members? Mr. Pettit? Anything from staff?

Gentlemen, Mr. Johnston, Mr. Godwin, Mr. Cramer, thank you very much for very interesting data. We appreciate your working with us. Good to see you all.

MR. JOHNSTON: Thank you.

MR. CAFFREY: Well, it is about ten after twelve, we

will take a lunch break now until one o'clock.

When we come back, we will begin with the joint presentation from ACWA, and then we will follow with Mr. Bobker, Mr. Fullerton, Mr. Porgans, Mr. House, and Dr. Peter Moyle has submitted a card as well.

So those will be the presenters this afternoon.

(Noon recess)

WEDNESDAY, OCTOBER 19, 1994, 1:00 P.M.

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MR. CAFFREY: All right, we will resume our workshop and while Mr. Hall is getting ready for the ACWA presentation, I will announce we had one change in the order. After ACWA we will hear from Patrick Porgans, and then go back to the regular schedule.

We also have two other cards that have been added, from Peter Moyle and Steve Ottemoeller.

Good afternoon, gentlemen, welcome.

Mr. Hall.

MR. HALL: Good afternoon, Chairman and members.

For the record, my name is Steve Hall and I am the Executive Director of the Association of California Water Agencies, and I have colleagues with me, Roger Fontes of Northern California Power Association; Richard McCann with the Economic Consulting firm MQ, who you may recall presented our economic analysis of the EPA standards; and Lon House, who is ACWA's energy consultant.

MR. CAFFREY: I didn't realize Mr. House was a member of your team here.

MR. HALL: I meant to mention that. We somehow crossed our wires, but the bad news is we have one more panelist than you talked about. The good news is you can eliminate one card now.

MR. CAFFREY: Maybe it is all good news.

MR. HALL: There's a trade-off.

Several months ago when we presented our economic analysis to you, we told you at the time that we were in the process of analyzing the potential impacts to hydroelectric power generation within the State of California from these standards.

And essentially what we have been waiting for is for the Department of Water Resources to finish their model runs on the various proposals so that we can do our modeling based on the hydroelectric computer models that exist and which actually Mr. House here helped to develop, and we now have the Department of Water Resources' runs and we have completed our runs, so we have presented to you today a written version of our report, and Mr. McCann and Mr. House will summarize that later.

I want to begin by saying we think this is an important component of the overall economic impacts that need to be assessed as part of the standard-setting process.

A number of parties have assessed the economic impacts as a result of the water shortages that will occur because of these proposed standards.

To our knowledge, this is the only study that has been done statewide of the energy impacts and we hope and trust that the Board and staff will incorporate them into

the record and into your deliberations as you analyze the benefits and the costs of the standards.

I would like to now turn it over to Roger Fontes, who will present to you the Northern California Power Association's perspective on this.

MR. FONTES: Thank you very much. I appreciate the opportunity to speak today on behalf of NCPA and the Central Valley Project Customer Tech Committee.

The chairman of our Policy Board and others were unable to be here today. He is on last-minute business, and for that reason, I am substituting for him, although I hope my presentation is not too bumpy.

NCPA and Western Area and our customers group has been working carefully and closely with ACWA in the past few weeks to assess the impacts of the hydroelectric system. We have concentrated on the federal system, the Central Valley Project, which serves more than a million two hundred thousand customers. Our results are very similar to what ACWA has been finding and the reports that have been filed with you today.

We have identified about 250 million dollars in impacts over an 18-year period. That's through about the year 2010, or about 20 million dollars a year.

We disagree with the Fish and Wildlife Service conclusions regarding the cost impacts of the CVPIA and we

have been talking to them and communicating with them directly.

The 20 million-dollar a year figure is something that's a little difficult to relate to impacts, but I think it is fair to say that these are substantial impacts -- 20 million dollars, about a 10 percent increase in today's dollars, and that by the year 2004 could escalate to about a 20- percent increase just based on the standards we have seen suggested to date.

However, that is not our biggest concern. Our biggest concern is the combination of effects of the standard settings that you are involved in and the cumulative effects of the CVPIA and other activities on the upper Sacramento River and tributaries to the Delta that will cause impacts and cost real dollars.

There are lots of real dollar potential impacts. Right now we are paying a substantial amount of money into the federal treasury into the restoration fund to fund improvements of fish and wildlife in the project, and we are doing that because we realize it is our obligation.

We are concerned a little bit about the Trinity River. I don't think it has been brought out here too well today, although Board Member Brown mentioned it earlier.

Right now on the Trinity River about 340,000 acre-feet is being used for fish studies on that tributary, and

at some of the meetings we have been in those studies have been suggested to go up to about a million acre-feet of water.

The cost impacts of that would be dramatic, many many millions of dollars.

There are other programs I could mention. I don't want to be an alarmist because we are not here today to try to have you stop or delay your decision based on the impacts, but simply to incorporate the considerable effects we think your decision will have potentially on the California electric consumers, on the prices of goods and commodities that are manufactured here.

So, in that regard, I will close by saying we are happy to work with ACWA. We appreciate the opportunity to be here today and we will continue to assess the alternatives that are set before you and provide you with information as to our view of their impacts.

We hope you can find an efficient, balanced, comprehensive solution while retaining some flexibility for the State's hydroelectric operators.

And I guess, just in closing, I would say we are a little concerned particularly about New Melones Reservoir on the Stanislaus River, that that reservoir be allowed to retain some water in it, because if it is allowed to go dry, the capacity value would go to zero and the dollar impacts

of that would be very significant, indeed, not to mention the operational aspects of losing that power source in our mix.

So, thank you very much.

MR. CAFFREY: Thank you, Mr. Fontes.

MR. HALL: Mr. Chairman and Board members, I am going to turn it quickly over to Mr. McCann and Mr. House.

Let me just set the stage by telling you that when we looked at the hydroelectric power impacts, what we essentially did was we were looking for both the costs and the benefits from this change in flow regime because there are some of both.

We looked at lost capacity to generate electric power. We looked at the increased load, pumping load for additional pumping of groundwater that we expect would occur. We looked at the decreased load on the State and Federal projects pumps because they will be pumping less water, and that's a decrease in electrical consumption.

We looked at every factor that we could quantify. We did not look at some factors that we know will increase the overall impacts, so the impacts that you see stated in our report, we believe, are exceedingly conservative. They do not include some impacts that we are confident will occur simply because we could not quantify them, and Mr. McCann and Mr. House can describe those in greater detail.

What we found, in summary fashion, is that the impacts are quite significant, that many of the estimates that were done previously by the U. S. Fish and Wildlife Service and by others which attributed an actual benefit in electrical power production were incorrect, to put it politely, and we have documented in the report as to why they were incorrect.

We also found that some water users, some energy users bear a much greater burden in terms of their electrical power rates and the availability of electrical power than do others, and perhaps the most striking conclusion from this report is that there are a number of regulatory actions pending by State and Federal agencies that could make the effects of the electric power impacts of this regulatory process much much worse if this process is not made suitably flexible to adapt as those other regulatory actions kick in.

So, with that brief summary, I will turn it over to Mr. McCann and Mr. House, and when they have concluded, I will wrap up.

MR. CAFFREY: Thank you, Mr. Hall.

MR. McCANN: I am Richard McCann with MQ. I will be discussing a summary of our report, and Dr. House will be available for questions on electricity planning issues at the conclusion of that.

I want to begin with talking about the issues that we addressed in this study. We looked at the impacts on the hydroelectric system in Northern California. Specifically, we focused mostly on the Central Valley Project because that's where the largest amount of impacts are.

We looked at how the changes in the hydro systems operations would affect non-hydro resources which is basically thermal-generating plants that are operated by PG&E and other utilities.

We looked at how project pumping would change and how this would affect the loads faced by the electrical utilities in California.

We looked at how groundwater pumping would change given the decreases, the expected decreases in water delivery.

We also looked at the impact of how air pollution emissions would change given the expected increases in generation from thermal-generating plants. It's a very prevalent problem in California.

And finally, we looked at the total economic costs or benefits from the policy alternatives in comparison to the base case given this range of impacts.

In doing the analysis we relied on electricity planning guidelines that have been adopted by the California Energy Commission and the Public Utilities Commission. In

this way, we have tried to limit any types of controversy that might occur in our study by relying on values that have been adopted elsewhere by other regulatory agencies.

We also relied on water planning models to the extent possible that were used by the Department of Water Resources, the Bureau of Reclamation, and EPA in studying these changes in hydrological flows; and finally, we tried to rely on conservative assumptions about how the water policies would impact electricity use.

Where we cannot quantify the impacts, we didn't attempt to come up with some sort of fudge factor or other type of device which might be used to adjust the costs.

We then discussed the methods that we used. In looking at the Central Valley Project hydropower impacts, we used the output from the PROSIM and DWRSIM models which have been discussed extensively here before you.

In looking at the pumping needs for the projects, we again used the output from the DWRSIM and PROSIM models.

In looking at the changes in groundwater pumping, basically what we did was analyze the historic PG&E load data over the 1970 to 1992 time period and looked at how changes in water diversions and water conditions affected groundwater pumping and assumed that that would occur in the future as well, and then, our results were also confirmed by the input that EPA is using in its own agricultural model.

Our results were very similar to EPA results.

We then used this information and put it into an electricity production cost model called ELFIN, a model used by the Energy Commission and Public Utilities Commission on evaluating electricity-generating costs.

For a particular utility we used the PG&E system and we relied on ER 94, Electricity Report 94 for assumptions being worked on over at the Energy Commission right now to the extent possible.

Then, from ELFIN we also got air quality impacts as a result of these model runs and we were able to use air quality impact values that have also been adopted recently by the Energy Commission.

And finally, we did side calculations on how much the capacity requirements would be that would be created by these changes in policy alternatives. Our capacity additions with the PG&E coming from the agricultural water pumping in the PG&E service territory, those values coming from values adopted by the Public Utilities Commission.

The capacity values or the capacity additions needed on the Central Valley Project system, those values come from values calculated by Western, who is the marketing agent for the Central Valley Project power.

We then looked at three policy alternatives evaluated against the base condition, the base case being D-1485

conditions as specified in the memo, the August 18 memo sent by Tom Howard to the Department of Water Resources.

We then looked at Alternatives 1, 2 and 3, as specified in that memo; Alternative 1 being the EPA proposal, Alternative 2 being the Board staff proposal at the time, and Alternative 3 being the California Urban Water Agency proposal at that time.

We basically focused on those alternatives because those were the runs that were available from DWR at the time in running PROSIM. They had some difficulty in running some of the alternatives.

We also looked at a weighted cost average across water conditions so that we didn't pick just, for example, a single average year and calculate the costs for that. We looked at how costs would change with dry-year conditions, wet-year conditions, and average-year conditions, and then calculated what the expected average would be over the time horizon to the year 2010.

We can then look at what are the costs that are associated with these various alternatives.

Under Alternative 1, the costs are about 41 million dollars a year, or 365 million dollars net present value over the 16-year time pricing we looked at.

For the water community it might be easier in terms of cost per acre-foot of water diverted, and that works out

to about $84 per acre-foot.

In Alternative 2, the cost, the annualized cost is about 46 million dollars a year or about $412 million dollars net present value over the time horizon, and that's about $72 per acre-foot.

And finally, under Alternative 3, again the cost is about 46 million dollars a year, 412 million dollars net present value, and the annualized cost per acre-foot goes up to $82, which is specifically because there is less water loss in that case.

MR. STUBCHAER: Dollars per acre-foot diverted from where, from the Delta or from the system?

MR. McCANN: From the system, so that's reduced deliveries on the projects.

We used project deliveries as defined --

MR. STUBCHAER: But not non-project deliveries?

MR. McCANN: Right. We did not look at losses in non-project deliveries.

So, at the conclusion of our report, we had several findings and recommendations to be presented to the Board.

The first finding, to emphasize Mr. Fontes' statement, is that our analysis demonstrated that there are costs associated with past and proposed standards and not benefits to the electric utility system.

This differs from two other previous studies done by

federal agencies which showed benefits, one being the winter-run salmon study, the second being a recent release by the Fish and Wildlife Service on the environmental assessment.

We have a discussion in our report on problems with the winter-run salmon study. The Fish and Wildlife Service study has many of the same problems.

Second, the net present value costs of these impacts are up to one-half billion dollars. These are real significant costs that should be considered by the Board in its choosing among various policy alternatives.

Third, the cost impacts are not spread uniformly among the State's consumers. Basically, this means that you can't just take this number and divide by the number of ratepayers in the PG&E service territory or across all the citizens of the state. These costs are concentrated among various groups within Northern California.

Most of the Central Valley Project hydropower impacts are concentrated among the municipal utility users. Most of the water pumping costs are concentrated among the agricultural community. The air quality impacts are concentrated among the residents who live around PG&E's thermal-generating units.

So, you must consider the distribution of these costs when making a policy decision.

Fourth, the assumptions that we use are conservative. In general, the cost to the electricity system could be significantly greater than the ones reported here. For example, we believe that our assessment of groundwater pumping increases are on the low side in large part because the increases in groundwater pumping attributable to the NMFS opinions are substantially larger than what would occur under the water losses that we have seen in terms of water deliveries, that there is a much more groundwater pumping increase than we expected.

Also, we have not looked at the impacts on the hydropower system on the Merced and Tuolumne Rivers in large part because of the uncertainty about being able to meet the Vernalis standards with New Melones releases, and there are some problems or some anomalies that we found in looking at the PROSIM output in terms of releases down the San Joaquin River. There seems to be substantial releases from other rivers.

We did not look at how PG&E's fossil fuel plants that take water from the Suisun Bay, how their operations may be changed by these standards, and we also did not look at the impacts on the State Water Project power system as well, because of the complexity of its linkages to Southern California Edison.

The contractual relations to be able to trace through

that was a bit more than what we wanted to pursue given the complexities of that problem.

Point 5, getting back to this issue of the releases on the San Joaquin River, we found that it appears from the PROSIM runs that there are large releases required from other projects, non-Federal, non-State projects in order to meet the standard at Vernalis and we believe that this issue should be explored further by the Board.

Point 6 is that there are other environmental mitigation planning processes currently under way and Mr. Fontes talks about the Trinity River. Of course, there is the San Joaquin River management program, the Central Valley Project Improvement Act, of course, and other Endangered Species Act reviews going on, as well as other activities.

If these processes lead to additive rather than concurrent requirements, the cost impacts could be significantly greater than reported here.

And finally, we believe that the uncertainty about the scientific basis, the economic effects, and the likely resolution of these and many other issues point to the need for an adaptive management approach to the Bay-Delta water quality issues.

We believe that the Board should establish a procedure to update the standards, that the new information and events warrant action so the Board should be in a

position to be flexible about the standards it sets and think of a process of how to adapt those standards as these effects occur.

I would like to thank you for your time and we are open to questions.

MR. CAFFREY: Thank you very much, Mr. McCann.

MR. HALL: I have a wrap-up comment, but I will pause here and let you ask any questions because I do not in any way wish to convey the impression that if you have questions, I am able to answer them.

Mr. McCann and Dr. House are.

MR. CAFFREY: Mr. Stubchaer.

MR. STUBCHAER: What interest rates did you use in determining net present value?

MR. McCANN: We used a nominal rate of 11 percent, real rate of 7 percent based on a memo by the Office of Management and Budget, and we have a footnote that discusses that circular. It is referenced twice in the report. You will find it in the footnote, I think.

I would have to look for it, but it is in there.

MR. STUBCHAER: So, if you had used the lower interest rate -- actually, it's a difference in interest rates --

MR. McCANN: Right. If we used the lower interest rate, the impacts would go up. In fact, there's enough

information in this report to recalculate the net present value impacts using a different interest rate.

MR. CAFFREY: You can be sure he will try that.

Anything else from the Board? Mr. Pettit or staff?

MR. HOWARD: Could you briefly describe what the error, what the difference in opinion is regarding the analysis done by the National Marine Fisheries Service and the U. S. Fish and Wildlife Service?

As I understand your statement, they estimated there was a net economic benefit to these types of standards, and you are going exactly in the opposite direction.

MR. McCANN: Right. We discuss that. There's two places that we discuss the problem. In Appendix G of our report is where we discuss the problem with the winter salmon run, critical habitat designation study that was done in 1991.

Basically, we had five points that were particular problems. Just taking some of the highlights, the first problem they have is that the value at the energy output from the projects is at the same rate around the entire year and, in fact, that's not a correct way of doing that.

The value of energy produced by the project varies by season and it varies by time of day.

So, if you have a power output which is flat or made more flat around the entire year, you are not able to shape

that energy into the highest value period of time. They did not account for that loss of flexibility in the operation of the system.

Also, the critical habitat study did not look at the large impacts that occurred in drought years, that there are very large losses of output from the Central Valley Project in drought years in their runs. They did not adjust their study for that loss of power in those particular years.

They also treated capacity incorrectly. They failed to look at the fact that capacity is valued at the time when peak demand is highest, which is the month of July.

Unfortunately, they did not present enough information in this study to be able to calculate what the right capacity valuation was, but what they ended up doing was just taking an average through the entire year, and so what happened is higher capacity value in the winter, the false sense there was an increase in available capacity.

And then, finally, they missed groundwater pumping entirely. They did not account for increases in groundwater pumping from reduced deliveries at all in their study.

There's an additional problem in the Fish and Wildlife Service. They, basically -- I try not to use this word too pejoratively, but they basically steal from the future. They assume a discount rate of 100 percent. They say that we will take 800,000 acre-feet from the future and

use it today and it will have no cost, and that's, I guess, as close a definition of stealing as you can get. And that's the major problem in this study.

MR. HOUSE: If you look in the blue document you have, if you look at Figures 1 and 2, those will show part of the problems that they have, this study has.

Figure 1 shows you the low profile on the peak summer and peak winter supply for the Northern California system. Capacity is only valued in the very peak period of time during the summer, so if you have extra capacity at virtually all other times of the year, it is not worth anything to the system.

And then, the bottom figure shows the actual recorded incremental cost from the PG&E system and you can see if you use an average throughout the year and you are able to shift water from summer to winter for different types of days, you are going to be getting an answer that would be incorrect.

MR. HOWARD: The Board might adopt standards that are not exactly the same as Alternatives 1, 2 or 3, obviously.

What is the advisability of interpolating or extrapolating these results to some alternative water supply impact under some new alternative the Board might adopt; in other words, trying to use this study directly without having to go back for new model runs?

MR. McCANN: Unfortunately, this system, as we

analysts call it, is non-linear. If you have an annual change, it may be approximately the same, but if the distribution of water is very different within the year, you can get very big changes in the cost of the system.

So, there's some difficulty in interpolating from the results. It depends on how much different the other proposals are from the alternative that we evaluated.

MR. HOWARD: Thank you.

MR. FONTES: I agree with that and the point would be that as you further refine your alternative, our goal and our commitment would be to continue to work with you and to do additional computer analysis, if we have to, to refine the numbers as you get closer to the alternatives that you are looking at.

MR. HALL: I just want to echo that. I asked the same question early in the process of our consultants to save both time and money, and got essentially the same answer.

But I can assure you that we would be willing to partner with the Board in some fashion, an appropriate fashion, in order to get you the information that you need as to what the hydroelectric impacts would be from any alternative that the Board might propose.

MR. CAFFREY: We're going to ask you to leave your home telephone number in our economics unit for two o'clock

in the morning phone calls.

We appreciate that. That is a good question. We will have to deal with that if we come up with a hydrological alternative.

MR. HOUSE: The one thing that we haven't mentioned, if you look in Appendix F, there are in addition to the year-by-year production cost values or electricity values, there is year-by-year emissions from the criteria pollutants for Northern California, and we didn't mention that earlier, but this shows you the net increase in pollution for these five various pollutants due to the change in water flows in the system.

MR. CAFFREY: That's F3?

MR. HOUSE: F1 is for the EPA case, F4 is for the staff case, and F5 is for the CUWA case. For each of the cases you have an emissions and a utility simulation table.

MR. CAFFREY: Thank you. Any other questions of these gentlemen?

MR. HALL: Let me just wrap up. The reason I asked for the opportunity to wrap us is so I can comment on the point that Mr. Pettit made earlier, that you asked participants to respond to, if possible.

I would like to do that by simply saying that what we have presented to you today what we think is a very good picture of the hydro impacts.

You may note that the CUWA proposal, which we support -- or at least the combined proposal that was presented today, actually costs a bit more in hydro impacts than the EPA proposal. I just want to say that for the record we were not afraid to bring that into a public forum.

But beyond that, what we are saying today is there is another component of impact that nobody has assessed up until now. We think it ought to be added into the record. It is simply something additional to be considered.

What I have been impressed with throughout these proceedings is the apparent understanding and appreciation by the Board that every proposed action you take is going to have some very significant impacts, that we are reducing our water supply at the same time the demand across the state is increasing, that as was pointed out earlier today by one of the Board members, the costs of replacing these lost water supplies and energy supplies are enormous and extremely uncertain.

We simply don't know where we are going to get the water or the power to replace what we are losing.

We talked, and others have talked about the fact that we have not just this proceeding, but a number of other proceedings, some of which are concluding, others are just getting started.

We mentioned the Trinity restoration, San Joaquin

restoration, and there are a number of FERC licensing proceedings going on on individual streams. Laura King talked about theirs, but there are others.

Even the Mono Lake decision by the Board earlier, and certainly the Central Valley Project Improvement Act, the cumulative impacts of those things are going to be quite large.

We know that we don't know what it is. We just know it is going to be very large both for water and for power, so when we talk to the Board about an adaptive management approach in the plan that the Board adopts, what we are really asking for is that as the Board moves forward, to the extent you possibly can, you build into your plan the ability to adapt to changing conditions, both if the fish recover and if these other regulatory regulations appear to overlap what the Board does, we think that's as vital an ingredient in whatever you do as anything you can do.

And in closing, I would just like to echo what Greg Gartrell said earlier.

The water community has put forward a proposal that we feel strongly about, that it is biologically very credible, that it does minimize the water impacts where possible while still protecting and enhancing the resource, and we are essentially doing this in order to avoid what we have today, which is piecemeal regulation.

We hope that the Board will, to the extent that you can, fold all this together into a proposal that is supportable but is also comprehensive enough to provide the shelf life that we all talk about and that we must have.

With that, I will close. Thank you.

MR. CAFFREY: I think I can say for the entire Board your point is well taken about the regulatory efficiency as we provide these protections among all the regulatory agencies. Working together is very important in trying to fashion a plan that has some efficiency to it, and that we all understand and can live by is very important.

All right, gentlemen, thank you very much for your presentation. We appreciate it and will take it to heart.

Patrick Porgans.

MR. PORGANS: Thank you, Mr. Chairman and members of the Board.

My name is Patrick Porgans. I am an independent government regulatory specialist. Today I am here as a member of the public and I want to point out that I am a government regulatory specialist and I like that concept, you know, sort of coordinating all of this regulatory process in a way that is compatible with the best interests of everybody. I appreciate that. Good luck.

My point here today and before I get into it, I am following up on my presentation I made on September 1, first

on the fall-back alternative option in the event options 1, 2 or 3 don't happen. You know, it's always possible.

And as far as those students go, I hope that their graduation is not contingent upon these regulations being appropriate.

MR. CAFFREY: Probably not.

MR. PORGANS: Okay, I want to comment briefly on some of the things that were mentioned earlier.

First of all, we hear we are moving toward consensus. I have heard that before. That's another one where I say, good luck. Nothing has been finalized. Water reductions have had an impact on the agricultural sector, water reductions have had an impact on hydroelectric.

Let's think on the positive side. Look at all the money they have made in years past from using the publicly-owned resources to generate electricity and to irrigate arid land in the desert. I mean, just in the State Water Project service area alone in the first 21 or 22 years, they generated 6.6 billion dollars in gross agricultural revenues. They only paid about 6 million dollars in actual cost for water, which averaged out to less than $30 an acre-foot.

So, all these years they have been the major recipient of this water and things have been built more or less on the optimum condition.

I have always said we need flexibility. I have been talking comprehensive water planning since I can't remember how long ago. I lost track.

I am a little concerned about these words *flexibility* and *less restrictions*. Now, if I was an engineer, which I am not, I don't think I could operate the State Water Project and the Central Valley Project with more flexibility than they did in 1987 through 1990. I mean, there is just no way.

Now, based on their own data, they took as much as 80 percent of the water going into the Delta in some months. It was extracted for in-channel or Delta exports.

So, I am concerned if we have less restrictions, more flexibility, that it's going to invite the possibility or probability of more failures in the system or violations of standards, compounded problems with the aquatic resources, et cetera.

I want everybody to know that I am a money man. I am tracking money. So, when I hear people talk about how the Wall Street and big boys are concerned, I have sent Wall Street copies of my reports over the years. I have told them for decades that this problem was coming. This is nothing new.

Now, I want to point out that in 1982 we knew that Kern County would have problems paying their water bills

because the real cost of those water bills were deferred right up until sometime in the 1980s and we pointed out that there wouldn't be enough water in the system.

For somebody to come to this Board and say, we didn't realize and we didn't know there would be these cutbacks, I refer them back to the California Water Plan. I refer them back to Bulletin 200, DWR, and refer them to the Bulletin 132 series.

The depletions in the Delta pool were acknowledged in 1950. The problems associated with the amount of water these projects had received and the problems they have experienced today were all documented.

Now, what I am suggesting is that you can't have it both ways. It is not going to work. We have to have some reductions and we are going to have some redistribution of water.

And in my report, and I am one of those guys that work until 2:30 in the morning every morning, and in my report that I gave you guys a copy of, I gave you the basic foundation of why the problems that the projects are experiencing now, what was the basis for those problems, and I also give you solutions to remedy some of those problems, and one of the issues I talk about is the flexible yield concept.

Now, getting back to my presentation that I made on

September 1, at that time, I was raising questions about whether in fact, you know, in my mind -- and I am not a lawyer, thank God -- in my mind I see that the Board has the authority to go forward and adopt standards and apply them to the Central Valley Project and the State Water Project.

I don't see any problem there. They are under a mandate to protect and provide, even under the terms and conditions of their permits, to provide the level of protection that this Board requires.

So, the issue and the alternative I am raising today has to do with how do we get the upstream diverters to provide water to meet whatever the standards will be in the future. I think that's a valid concern.

However, I should preface that by saying I don't feel we have to wait for the upstream diverters to come on line to meet these standards or provide water. We can go forward and attach standards to both the Central Valley Project and the State Water Project. If you want me to sit in on this, I can have it done before December 15.

The way I suggest that we do this is under the Delta pooling concept, the projects were not supposed to take any water that the counties in the areas of origin would need, that under the provisions of the Burns-Porter Act, it allows for

-- under the offset provisions in the Burns-Porter Act, a

certain amount of money has been set aside to provide for facilities to augment any water depletions from the project that was attributed to counties and areas of origin demands.

Now, I suggest that what we could do is -- because, you know, the guys down in the valley, they have got a sweetheart deal, I don't care what anybody tells me. I am not an economist, thank God for that, too.

You notice I am not being discriminatory today.

The guys down in the valley have this long-term extended repayment period, so what we can do, there's 160 million dollars still set aside on those offset bonds. They are still sitting there in the original bond appropriation, 1.75 billion dollars back in 1960, and perhaps we can devise a way that they could buy water legally from the State Water Project under the provisions of the enabling legislation, which would mean that there would be a reduction in water available to the project, but that water, in part, would be made up to meet the outflow requirements set by the Board to meet the standards.

Does that make sense?

I have it all written down.

So, what I am saying is at this particular point in time -- I'm not the type of person that has a lot of faith in framework agreements because I feel the agreement has no enforcement provisions and, quite frankly, it is just

another one of those things where it may or may not happen.

The bottom line is I can sit here another 20 years and listen to all of this diatribe -- excuse me, I don't mean anybody personally -- and in the end we come up with a standard that is flexible and more reasonable. I ask, who is going to enforce it?

So, we may even go through this whole entire process, we may get to the end of the line, and then I am in a dilemma because I have to come back and I don't know if it sounds like I have nothing else to do -- my wife's got a *honey do list* that won't quit. That's the only reason I am here.

So, my point is that I believe that we can provide a little more flexibility in meeting the actual requirements of whatever standard is set by going back and re-examining that Delta pooling concept and possibly allocating portions of those funds that have been set aside for the purpose of providing water for the counties in areas of origin to meet the standards that this Board sets in the future.

That's one option that's available. I believe it is a valid one.

In addition to that, I have provided about five other viable options in the report on the State Water Project which this Board has. I have also sent 100 copies of that report south and all of the water contractors have copies of

it.

In closing, I had asked several questions in my September 1 letter, and I realize that the Board is kind of busy and I know Tom is busy over there, and it is hard for him to get everything upstairs to you, and hard for me in getting to Tom. I suggest that you read my two-page request, and I provided some basis for the proposal I am making to see whether, in fact, there is validity to it and to determine whether, in fact, we can use some of those suggestions to help to resolve this problem to the mutual benefit of the lawyers, engineers and people like me.

MR. CAFFREY: And the economists.

MR. PORGANS: And the economists. Thank you for bringing them in.

I appreciate your time and are there any questions?

MR. CAFFREY: Thank you, Mr. Porgans, always nice to see you. We appreciate your skepticism, but we like to think you have a little hope at this time.

MR. PORGANS: That is your second most optimistic statement today. Thank you.

MR. CAFFREY: Thank you.

Gary Bobker and David Fullerton representing the Bay Institute, the National Heritage Institute and the Environmental Defense Fund.

Good afternoon, gentlemen, welcome.

MR. BOBKER: Good afternoon. I always feel like a bland speaker whenever I follow Patrick Porgans.

I want to make a few brief remarks and then David is going to follow up.

I am Gary Bobker from the Bay Institute and my remarks today are on behalf of the National Heritage Institute, the Environmental Defense Fund and the Bay Institute. The Environmental Defense Fund representatives were unable to be here today.

And what I want to touch on very briefly, first of all, is the consensus effort that you have been hearing about. I would like to talk about where consensus is and where it isn't.

I think that the singlemost encouraging development in this year concerning development of new improved water quality standards has been the high degree of consensus over the so-called X2 standards, the Suisun Bay estuary habitat criteria.

We are very encouraged by the amount of agreement that exists on that standard. We think that the amount of disagreement that exists is relatively minor. We have entered into the record our comments about some of the improvements that we think the standard needs. Essentially we are talking about either levels of protection or levels of water supply impacts. We are really not in the realm of

major differences.

Part of the reason that we got so far on the estuarine habitat criteria is that it truly did come out of an exchange of views and consensus among very different parties.

During the spring and summer environmental groups spent a lot of time negotiating both on the policy and technical level with urban water groups. There was a lot of exchange between both urban and agricultural groups. There were meetings between environmental and agricultural groups as well.

We sponsored a series of technical workshops where agency personnel were participants and that, I think, was major as far as improvements in the estuarine habitat and in the understanding and acceptance of the estuarine habitat criteria, as well as improvements in many other criteria.

I don't think that's quite been the case with some of the other areas that are the subject of consensus activities.

We are concerned that there's not been the same exchange of views among all the parties as there was previously in that we seem to be developing in different directions.

We have an urban and agricultural water use proposal. We have agencies on their own and we have environmentalists

looking at some other alternatives, and we don't seem to be exploring the same ground as much as we were. We are concerned with the way the process is going.

We are also concerned that as a result of the lack of exchange of some of those views, there are some severe deficiencies in some of the proposals that are before you. The most notable, and I am not going into every detail of disagreement, I want to single out maybe three or four major issues -- most notably the issue of export limits, particularly for fall run chinook salmon on the San Joaquin River and for spring run salmon on the Sacramento, and then, the issue of protection for Suisun Marsh.

On the issue of export limits, the water user proposal that you heard described earlier relies heavily on the use of export-import rate of inflow ratios, a percentage which goes from 35 to 65 percent depending on the time of the year.

We have a concern that using that kind of inflow ratio is a little too simplistic. It doesn't really reflect the complex relationship that exists between export and their impacts on biological resources; and because they are not linked really to any kind of level of biological protection or biological value, it is very hard to use them to say we are getting adequate protection for the estuary.

We know that they have been used at least for part of

the year to suggest that at least you can have a cap on exports. They serve as a de facto cap to kind of keep things in place under the percentage taken.

The Fish and Game Department has raised the issue, I believe previously, about whether that is accurate or not.

The Board needs to take a look at that, but more importantly, it needs to tackle the issue of what kind of export constraints are really protective.

We do know that entrainment effects are highly correlated to absolute real export levels, and that's why in the past we have generally concentrated on the combination on both habitat, flow salinity improvements and absolute export constraints, and have, in fact, continually recommended those.

There are perhaps some better directions we can go and David is going to talk a little bit about that.

The major thing here is we rely on simplistic relationships which aren't biologically founded, and we really don't have much confidence that we are going to see the improvements we need to see, especially in the entrainment effects.

We also have very little ability to tinker with those kinds of export controls because they don't have a real solid biological base -- how you decide whether to raise or lower the percentage, which is the suggestion of the urban

and agricultural water users that they use by monitoring to adjust those percentages.

I am not sure that's the best way to go.

The second issue involving protections for salmon; we are concerned that the kind of flow levels that we recommended and export controls are not going to be effective enough for salmon.

We are going to need to see major increases of historical levels because historical flow levels have been so low and we need to put more than a little more water in the system if you want to see recovery and stabilization of those populations.

There also seems to be a wide range of agreement among fishery biologists that you need to have absolute export constraints in place at least in the April/May period that is so critical.

In terms of the Sacramento side, obviously, there's some major concerns about the spring-run salmon and environmental groups have given you some evidence and recommendations on what's needed to protect the spring run.

There seems to be general agreement again among many of the fishery biologists and agencies that extending the type of protections that have been designed for the fall-run and spring-run fish, specifically closure of the Delta cross channel gate earlier in the season, starting in November,

and increase in flows in the Sacramento River.

Finally, the one issue I want to be sure I highlight is the Suisun Marsh issue. We have talked for many years about the lack of protection for the brackish tidal marshes. There is now a movement to do something about that.

EPA has a criterion which we hope will eventually be the basis for development of numeric criteria.

It is disappointing to see suggestions being made to go in the opposite direction with the adoption of the Suisun Marsh Preservation Agreement which allows for deficiency standards. It really is the wrong way to go.

I also note that this Board directed DWR and other agencies to prepare a biological assessment. That has not been completed yet and it is unclear right now even with new standards about whether the SMPA would be controlling in certain times of the year, even with increased flows and decreased salinity in the springtime. The SMPA has not been completed yet and it is unclear right now even with new standards whether SMPA would be controlling at certain times of the year even with increased flows and decreased salinity. The SMPA deficiency standards may have some negative impacts in the fall. We don't know.

I think that we need to start looking in new directions instead of looking at the SMPA and D-1485. We need to assess what it is going to take to develop hard and

fast criteria, quantitative criteria, to protect the tidal marshes.

The bottom line in all of this, I think, brings up a lot of things that obviously would be good to increase protection of the system. They also, obviously, would cost a lot of water and there is a couple of points I want to make based on the fact that, yes, it would cost a lot of water to do all these things.

One is that increasing environmental protection dramatically may not necessarily have to have all those water supply impacts.

We saw in the evolution of the EPA standards that some major changes in the implementation and compliance mechanisms really made a difference, and one of the things that we are looking at is getting away from using absolute export constraints and looking at maybe some export constraints which, while based on the need to control those entrainment effects, and based on the understanding we have about the levels of export and what they do to biological resources are much more sensitive to natural conditions that are occurring, natural hydrologic conditions, and that's specifically what Dave is going to talk about.

The other point is that 1 million or 1.1 million or 1.2 million is not necessarily the magic panacea number. In the September 1 workshop, Ms. Forster referred to the magic

block of water to solve all the problems. What we are hearing is that these blocks of water are not going to solve every single problem and what you really want is certainty and shelf life, and you want to avert the potential of future endangered species listings.

Maybe you can't solve all the problems, but there are stronger measures, I think, that are in some of the consensus proposals.

And that concludes all I want to say and David is going to add some remarks along some new directions for export criteria.

MR. CAFFREY: Thank you, Gary.

Shall we wait until we hear from David Fullerton before we ask questions?

MS. FORSTER: When you say stronger measures in your closing statement, you mean more water? Is that what you mean or do you mean some of the other things that have been raised by the urban and --

MR. BOBKER: In the joint water proposal Category 3 type of things -- I mean both. Obviously, I think that we are; one, with the water users that there are a number of different measures that need to be undertaken that are related to the problem, that are related to flow, related to control of toxins, related to habitat restoration, and these are important to restoring the system.

The two caveats that I want to raise are that; number one, that doesn't mean that the exact amount of water that is being referred to as their proposal as opposed to ours is the major one.

Based on some of the knowledge we have of the need of different species, you may need to use more water.

The second point I want to make is that you need to do these together. One isn't a substitute for the other. I believe there may be some habitat improvements or other measures you can take which might reduce the need to adjust flow requirements, but that's highly conjectural. We don't know either.

I think we need to know a lot more about the interworking of the system before you can make those types of solutions.

MR. CAFFREY: Thank you, Gary.

Good afternoon, David.

MR. FULLERTON: I am David Fullerton with the National Heritage Institute.

I have a few additional comments to make beyond what Gary said, actually following up on what Gary said.

Primarily, I am talking about the issue of export control which in many ways is the crux of this whole thing. On the one hand, exports are a major part of this balancing, which is how much water are the people south of the Delta

able to take? At the same time, exports are a major cause of the declines in the Delta.

So, having the right pattern and controlling of exports is very important, both for protecting the environment and to assure minimal impacts of that protection.

From our point of view, I think the surest protection would be some form of absolute control of the exports. That's what I have seen in the past. We can only pump X amount for April or May or June. That let's us know exactly what we are getting from your point of view.

I think the other side is what we are seeing on the CUWA proposal, which is essentially a guaranteed amount of export. They are not going to get less than 30 percent or 60 percent as long as they have a place to put that water.

I think that both of these are probably suboptimal in the sense of really trying to fine tune and manage the system. Optimization of your export patterns really means doing something like what we did with the X2 standard, which is to say you want to tune your export limits to the actual conditions that are out there.

Now, the export limits do that a little bit because those are affected by what year type you are in, and certainly, the urban/ag proposal also makes some attempt at fine tuning exports to conditions. They have a certain

percentage that you take, which means as inflow drops over exports, but I think that both of those can be improved upon. Maybe we can find something in the middle so that when the environment needs to have pumping really cut back, it is cut back, and when there are good conditions so that you can pump a lot, then they could pump a lot.

I don't think either of these proposals catch that optimal point. For example, if X2 moves according to basically the pattern of flows that you see coming out of the Delta over many weeks, easily you could picture a scenario where X2 is very far upstream, which means that all the fish that are linked to X2 are upstream and near the pumps, and then you have a freshette come down through the Delta.

At that point, using the CUWA or the urban/ag standard, you would be able to pump a lot of water all of a sudden because the inflows of the Delta have gone way up, but X2 is way upstream, so you could have a large take using the X2 standard. So, that's not optimal.

But at the same time, with fixed pumping limits, you could foresee a situation where you would have massive flows going through the Delta which you are still unable to pump, a couple of thousand cfs. That's probably not reasonable, at least in terms of optimizing the system.

So, what we are working on and we would like to

provide to the Board as soon as we can, we hope in time to make a difference, would be a more complex function as in the case of X2. That's a very complex function if you were to look at it.

We are looking at such factors as inflow, diversions into the Delta islands, the X2 position, and also, the distribution of flows between the San Joaquin and Sacramento Rivers, and what we would like to do is to meld all of those variables into some form of sliding scale or function which then would determine month by month what kind of exports would be allowed.

We think that doing it this way would perhaps give us the protection that we want and at the same time support a high enough level of export that this thing can fly. That's what everyone wants.

I don't think that the existing proposals do that and so to that extent we are fighting where we don't need to fight.

Anyway, we have presented some data to you on a proposed alternative standard for you to look at, but this is an additional component I think we will want to substitute in there for the export limits that we have sent to you so far.

Those are all the comments I had.

MR. CAFFREY: All right, thank you, Mr. Fullerton.

Are there questions from Board members, Mr. Pettit or staff?

MR. PETTIT: I would ask Mr. Fullerton if you have a projection of time, a date when you would like to have some proposal ready?

MR. FULLERTON: I think we could probably come up with something in the form of an equation fairly quickly. We don't have the modeling ability to actually fine tune what the actual numbers should be so that we can get good protection for the environment and assess the export impacts. We just don't have that computer capability to be able to do that, but I think we would like to present to the Board, and also to the other stake holders involved in this proceeding, some of our ideas and see if maybe we can run with it.

As Gary said, we presented this stuff in the past, but the actual level of dialogue between the environmental community and the urban/ag group has been less than we would desire up to now.

MR. CAFFREY: Thank you very much, Mr. Bobker and Mr. Fullerton. We appreciate your comments.

Next we have Dr. Peter Moyle.

Dr. Moyle, welcome.

DR. MOYLE: Thank you. I am pleased to be here.

I have some very brief remarks on a relatively narrow

subject compared to what you have been hearing recently, at the request of the County and City of San Francisco.

As you know, there are two standards for the estuary, one for Suisun Bay, the X2 standard, which are basically ecosystem standards; and one for the San Joaquin River, which is specifically striped bass.

I'm sure, you know, I am a very strong supporter of the X2 standards or some variation of them. I do question the need for an electrical conductivity standard for striped bass in the San Joaquin River.

My reasons for this are fundamentally philosophical because I am really looking for ecosystem standards. That is what we need out there, improving the entire system, not to benefit one species.

And when you look at the striped bass criteria, they really are just for striped bass and striped bass will be the primary beneficiary. This creates some problems.

One thing from a philosophical perspective, they are an exotic species and they are abundant, and they are recovering in their native range, and for that reason, they don't merit the same attention as the declining species, essentially the San Joaquin fall-run chinook.

I think if you are going to be allocating water for fish in the San Joaquin River, it should be aimed at the native species, specifically at the salmon rather than at

striped bass.

Also, the striped bass criteria do seem to be based on the concept of two spawning populations of striped bass; one that spawns in the Sacramento and one that spawns in the San Joaquin, and there is really not much evidence for that.

Again, there doesn't seem to be any special reason for providing spawning criteria in the San Joaquin itself. Right now the majority of the spawning does take place in the Sacramento River.

Also, it does concern me that April and May, which is when these standards take place, this is the same time that the juvenile salmon are moving downstream, and presumably, if we have special standards for striped bass, we may be bringing the striped bass up at the same time as juvenile salmon are coming down, and perhaps increasing predation pressure. It is really hard to say for sure what would happen there, but it certainly is a concern.

And finally, I think more importantly, if we are improving conditions for striped bass under any circumstances in the system, we are probably going to be doing detrimental things to other species out there because striped bass is the top predator in the system. It does prey on salmon. Salmon are not a major food item for the bass, but it could be very significant for the salmon.

There is really a concern there that we want to avoid

enhancing the striped bass at the expense of other fishes and we need to bring everything up together, having equal system-type standards like the X2 standards.

And what this means, of course, is I am not really opposed to enhancing striped bass numbers, they are really part of the ecosystem. I just don't think we need to do anything special for them. They are going to recover--regardless of whatever we do to benefit the system, is going to ultimately benefit striped bass. They will recover along with everything else.

So, the question for striped bass is when, not if, which means that we really don't need special standards just for striped bass.

That's the extent of my remarks. Thank you.

MR. CAFFREY: Thank you, Dr. Moyle.

Any questions by Board members. Anything from Mr. Pettit? Staff?

MR. HOWARD: Dr. Moyle, to some extent it appears as though one of your principal concerns is that all the water would be allocated toward this standard.

One of the proposals that has been advanced is that an implementation program would probably more appropriately focus on agricultural drainage controls, so you would still adopt the standards, but the implementation program would not incorporate additional releases specifically for that.

Is that a more appropriate approach, in your mind?

DR. MOYLE: Definitely it is a more appropriate approach as far as I am concerned, but I am not sure EPA has the power to retire land in the San Joaquin Valley, and obviously, providing water tends to be the easier thing to do to satisfy these kinds of pressures.

But, I agree, I think land retirement, trying to find some way to reduce the saline pollution, is exactly the thing that we need to do, but it is difficult, as you know.

MR. HOWARD: Thank you.

MR. CAFFREY: Thank you, Dr. Moyle.

Steve Ottemoeller, Chief of Water Resources. Good afternoon.

MR. OTTEMOELLER: Good afternoon, Mr. Chairman and members of the Board.

I am Steve Ottemoeller. As of Monday, I am Chief of Water Resources at Westlands. I used to be Chief of Operations.

I guess I would like to just take a couple of minutes to emphasize the importance that we place on the joint proposal, and I want to say joint proposal and I highlight it on my copy.

I recall a few months ago when the agricultural interests and the urban interests realized we had to get together on some kind of approach that we could take to the

Board. We sat in a meeting and I can recall one of the few things that we would agree on is that we would probably not come up with a joint proposal. It would probably be a joint approach or it would have some very common themes involved in our proposal, but as we have had the time available to us through this process and we appreciate the patience the Board has had in developing this process, we have been able to, I think, come up with what is a joint proposal or at least the concept of a joint proposal, and I will explain my weasel-word in a minute.

I don't think I can overemphasize the importance and the significance of the process that we have gone through to develop a consensus on these standards.

The length of time that it has taken us in terms of several months, is by no means an indication of having a hard time getting our calendars together. Quite the contrary, it has been one of the highest priorities of all the member agencies involved.

For the last at least six weeks, there have been sometimes daily meetings by members of the agencies and their consultants. In our case, we have kind of worked on the tag-team basis. We can't always make the same meetings, but we try for consistency, and I know other agencies have given the same importance to this process.

We have had biological and engineering consultants

and I think I can assure you, from my perspective anyway, that they have not compromised their integrity at all in advising us on achieving what we have all agreed are the goals of this process.

At times, even as staff members of agencies that are governed by Board of Directors, with general guidelines on how we ought to approach this process, we even have been out on a limb, so to speak. It is difficult for us to say, Westlands Water District, supports everything that is in this proposal right now, but I can assure you we strongly support this process and feel that what we have come up with here as a group is probably about as good as we are going to get in terms of something that is very broadly acceptable and meets our goals.

We definitely do support the Category 3 issues that are addressed in here. We support the need for the Board to address those issues in whatever way possible in your proposed standards.

We do believe that when implemented, the Board's proposal, particularly if it is based on this proposal, will be well balanced and protective of the Delta.

Throughout this process it became apparent that while we could agree generally on things, it became sometimes the very smallest details that were very important to different interests involved in coming up with these proposals.

So, we also, in that light believe that it is important that the Board consider as much as you can that this is a package that's designed to work together. We, by no means, would say that the Board doesn't have the authority or ability to make some refinements or changes, but as I stated earlier, we have put a lot of effort into this and I think that is indicative of the extent to which there has been compromise and sweating blood over this whole process, given the fact that we are, in fact, proposing something that by estimates costs over a million dollars.

As an agency that is the first to see those costs when they occur in the Central Valley Project system, I can assure you we have been very careful about the kind of things that we would agree to, or agree should be proposed as far as the standards.

Again, we appreciate the Board's patience in allowing us the time to get together as a group to develop a recommended standard.

We believe, though, that in the end, particularly during the approval process, it will all have been worth it.

For those of you who recall the process that evolved after Draft D-1630 was announced, we can certainly develop a lot of effort and a lot of shotgun blasts from a lot of different directions on something that's been proposed.

We had as a group, or as individual agencies, a lot of discussions on the concepts, but certainly nowhere near the effort that we have put into developing a joint proposal.

In that light, and pardon me if I repeat myself, I think we would greatly appreciate the Board's willingness to consider that this proposal is an integrated package which is designed to meet the protection and balancing of the Board, and also, as something that we believe will have the greatest opportunity for acceptance by the largest group, including the federal agencies which are responsible for fish and wildlife and other water quality issues.

Those are my comments.

MR. CAFFREY: Thank you very much, Steve. We appreciate your comments and let me see if there are questions from Board members.

Anything from staff?

Thank you very much. We appreciate your comments.

That completes the cards that we have for this final workshop.

I want to thank all the parties for their diligence, and all their hard work and for their patience.

We ask you that are still going to be doing some refining of your numbers, please do them as quickly as you can, stay in touch with Mr. Pettit and the staff as they

prepare the draft document.

Your input has been and will continue to be essential to the success of this process and we are very appreciative of it.

Thank you all very much for your attendance.

(The workshop was adjourned.)

REPORTER'S CERTIFICATE

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This is to certify that I, ALICE BOOK, a Certified Shorthand Reporter, was present during the Workshop of the STATE WATER RESOURCES CONTROL BOARD, STATE OF CALIFORNIA, held in Sacramento, California, on October 19, 1994;

That as such I recorded in stenographic writing the proceedings held in the matter of Review of Water Quality Standards for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary;

That I thereafter caused my said stenographic writing to be transcribed into longhand typewriting and that the preceding Volume VIII, pages 1 through 132, constitute said transcription;

That the same are true and correct transcriptions of my said stenographic writing for the date and subject matter hereinabove described.

Dated: October 24, 1994

Alice Book

ALICE BOOK