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, July 13, 1994
10:00 a.m.

VOLUME V

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A P P E A R A N C E S

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JOHN CAFFREY, Chairman

JAMES STUBCHAER, Vice Chairman

MARC DEL PIERO

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THOMAS R. HOWARD, Senior Engineer

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WEDNESDAY, JULY 13, 1994, 10:00 A.M.

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MR. CAFFREY: Good morning.

We will come back to these continuing proceedings.

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

We have a full Board present and by way of introduction, to my far left is our Executive Director, Mr. Walt Pettit. Then, to my not so far left is Mr. Marc Del Piero, a Board member; next to Mr. Del Piero is Board member Mary Jane Forster, whom I am happy to announce was confirmed by the Senate last week. To my immediate right is Board Vice Chairman, James Stubchaer; and next to Mr. Stubchaer is Board member John Brown.

The staff at the front table, our Senior Engineer on the Delta matters, Tom Howard; next to Mr. Howard is Barbara Leidigh, Senior Counsel on the Bay-Delta; and next to Barbara is Adrian Griffin, who is our Senior Economist and head of our Economics Unit.

I am going to read a statement into the record. Let me also say that we do have some staff in the front row, Heidi Bradovich, Gail Linck and Jerry Johns, and if I have left anybody out, I apologize.

Alice Book is here, who is our court reporter.

I will now read a statement into the record, which

is the usual procedure.

This is the last of four scheduled workshops for the State Water Resources Control Board, to hear comments and recommendations regarding the water quality standards for the Bay-Delta estuary.

If you intend to speak today, please fill out a blue speaker card and give it to our staff at the front table. The cards look like this, if there happens to be anybody in the room who doesn't know what they look like by now.

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

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

Conduct of the workshop: Today's procedures are described in the notice for today. Additional copies of the notice are available from staff.

This workshop proceeding will be informal. Today we want to hear from the parties on the key issues specified for this workshop. We will give each party 20 minutes for an oral presentation. A party may be represented by one or

several speakers. If a party needs additional time, the party's representative may request additional time at the beginning of the presentation.

Please explain why the additional time is necessary. If we are not able to provide you all the time you think you need, and such a decision would be based on the number of cards we have in fairness to the other parties, we encourage you to submit your presentation in writing.

In the interest of time, we ask that parties avoid repeating details already presented by other parties whenever possible and simply indicate agreement.

Alternatively, parties with the same interests are welcomed and encouraged to make joint presentations.

We will also accept and we encourage written comments. You need to provide the Board and its staff with 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, but the Board members and the staff may ask clarifying questions.

I haven't counted them, but we do have quite a few

cards today. Some of them are grouped by presentation and I am going to make some accommodations for individuals that have so requested because of time constraints.

For example, we have a request from the National Heritage Institute to make their presentation after lunch because they are combining a number of speakers.

The key issues for today, and before I go on with the statement, let me also indicate that we do have four days scheduled for this workshop. We have today, we have tomorrow and then we have 26th and the 27th later on this month. We will try to keep you informed as we go along as to how much time we think we are going to need for this. Whether or not we will finish today, I just can't tell you until we get further into the day.

The key issues today are:

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

B. How should the economic and social effects of alternative standards be determined?

C. Should the State Water Resources Control Board request the Central Valley Project and State Water Project to implement portions of the draft standards prior to adoption of a water rights decision?

I will call the parties in the following order and, of course, we will, as I indicated a moment ago, make some exceptions as need be.

1. Elected officials for the State, Federal and local governments;

2. Representatives of State government and local agencies;

3. All others in the order that your speaker cards were submitted to the staff, unless you have special time constraints which you have noted on your speaker card.

Before we begin, I would like to say the Board commends those parties that are working together during these workshops. We encourage you to continue to work together to identify and develop areas of agreement.

Although this is the final scheduled workshop, you may send written materials to Mr. Pettit or Mr. Howard. If you do that, we ask that you send 20 copies of your materials, and also, send copies to the parties who have participated in these workshops.

Additionally, and in any event, any materials received by the Board will be made available for inspection by interested persons.

We thank those parties who have used these workshops as an opportunity to help the Board develop a plan that will

afford reliable and reasonable protections for the estuary and all of its beneficial uses.

That completes the statement.

Is there anything my fellow Board members would like to add? All right.

Mr. Pettit?

MR. PETTIT: Nothing.

MR. CAFFREY: Mr. Howard, do you have a presentation to make this morning then?

MR. HOWARD: Yes.

MR. CAFFREY: We have been asking Mr. Howard in our previous workshops on the Delta to give us a synopsis of what has occurred in those previous workshops, and we have found that to be very helpful.

Good morning, Mr. Howard.

MR. HOWARD: Good morning. My name is Tom Howard. I am an engineer in the Bay-Delta program.

On June 14 the Board held its third workshop to review Bay-Delta standards. The workshop noticed four key issues for discussion and I would like to briefly review what staff heard on those issues.

The first key issue requested comments on the factors, excluding diversions, that contribute to the decline of fish and wildlife resources in the Bay-Delta estuary.

All workshop participants that commented on this issue acknowledged that there appeared to be many factors that collectively contributed to the decline of fish and wildlife resources. The factors discussed included introduced species, pollution, habitat modification, reduced flows, legal and illegal harvesting, reduced nutrients, limited food supply, floods, droughts, dredging, predation, temperature, fish angling, inadequate screens, land reclamation, and operations of water project features such as the Red Bluff diversion dam and the Delta cross channel gates.

Several commenters recommended that the Board address all controllable factors affecting fish and wildlife in the water quality control plan to either direct regulation or by recommending appropriate action by other agencies.

The second key issue requested comments on modifications that the Central Valley Project and the State Water Project had made in their operations to protect endangered species, and the benefits to fish and wildlife derived from those modifications.

DWR reported that the requirements of the biological opinions for winter-run chinook salmon and Delta smelt adopted under the authority of the Endangered Species Act have substantial impact on the operation of the State and

Federal water projects.

From January through April, the project operations have been controlled by the Q WEST requirements and the take limits in the biological opinions for winter-run chinook salmon.

In April through June, the controlling factor appears to be the Delta smelt take limit, at least it has been for the last year. The take limits on both endangered species have restricted the projects' capability to export unregulated winter and spring flows. This restriction has substantial water supply impacts because those flows have always constituted a major portion of the project yield.

DWR reported that the water supply impact of these new requirements was about 600,000 acre-feet in 1993, and that the cumulative total pumping capacity foregone defined as water that would otherwise have been available to fill future south of Delta reservoirs was about 1 million acre-feet in 1993 and about 1.3 million acre-feet for 1994 as of mid-June.

The additional impacts to project operations that were discussed included:

First, reduced reliability of water supply forecasts for contractors;

Second, less flexibility in the scheduling of operations;

Third, increased difficulty in coordinating the State Water Project and the Central Valley Project operations; Fourth, reduced feasibility of future conjunctive use programs;

Fifth, lower carry-over storage in reservoirs;

And sixth, reduced opportunity for water transfers.

There was also some discussion among the participants about the effect that these new requirements have on fish and wildlife resources. There is no question that the take limits imposed in the spring have reduced entrainment which in turn implies the general habitat conditions during this period have improved.

However, there was concern expressed regarding the expected shift in project operations due to Endangered Species Act requirements. Endangered Species Act requirements are likely to be less restrictive in the summer and fall and, therefore, export pumping to make contract deliveries and fill south of Delta reservoirs would shift from the winter and spring to this period.

The effect of the shift on fish and wildlife resources is unknown because the estuary has never been exposed to this type of operation before.

The third key issue requested comments on the effect

of upstream water projects other than the Central Valley Project and State Water Project. The workshop participants were split into two groups in response to this issue. Some participants believe that upstream water projects have potentially large impacts on fish and wildlife resources and should, therefore, contribute a share to Delta outflow.

Conversely, other participants believe that upstream diversions have little, if any, impact on fish and wildlife in the estuary and the major concern among this group of participants was that the Board should carefully consider water rights priorities and area of origin laws before setting any standards or allocating responsibility to meet the standards.

The fourth key issue requested the most current information on the status of the trends in biological resources in the Bay-Delta estuary. Few oral comments were made regarding this issue. However, Fish and Game did submit extensive written comments.

Additionally, the California Urban Water Agencies informed the Board that it will be funding a two-year study to examine the relative impacts of the various factors that contribute to the decline of Bay-Delta resources.

It was also accepted that the biological resources of the estuary are in a general state of decline as documented by comments submitted in response to previous

Board workshops. However, it is the cause and the decline and the related contribution to the problem that appears to be the issue.

That concludes the comments I wanted to make on the July workshop. However, I wanted to take this opportunity to inform the Board and the participants about our plans to contract out a portion of the economic analysis that we will be doing as part of the standard-setting process.

As you know, Porter-Cologne requires that economic factors be considered when establishing water quality objectives.

And staff believes the most efficient way to get an economic study is to augment an existing contract between Jones & Stokes and the U. S. EPA to analyze the economic effects of the proposed U. S. EPA standards.

Jones & Stokes has been meeting with the participants to discuss the appropriate assumptions and models that should be used in such an analysis, and we feel that experience could be extended to the Board's analysis.

At present, staff is working with the U. S. EPA to add State resources to its Jones & Stokes contract in order to insure our economic staff will have adequate access to the contractor, and that we can exchange the underlying assumptions in the analysis if appropriate.

The actual assumptions the Board staff would like to

see in the analysis have not been formulated yet, but that's one of the subjects for today's workshop, and we hope to get some input on that.

And that was all the comments I had.

Does the Board have any questions?

MR. CAFFREY: Thank you, Mr. Howard. I presume you are referring primarily to the input on the part of the economics funding and participation proposal?

MR. HOWARD: Yes.

MR. CAFFREY: I would note to the audience that we would appreciate your comments on that arrangement configuration.

Are there questions of Mr. Howard from Board members?

MR. DEL PIERO: I have no questions of Mr. Howard, Mr. Chairman, but I have had the occasion to go through a number of these so far and I am particularly interested in hearing some of the economic analysis that's going to be presented. I think of particular interest to me at this point was the statement by the Western United Dairymen talking about substantive changes in both industry as well as land use configurations in the Central Valley as a result of water availability modifications.

I am interested in hearing what the economic impacts are on that today.

MR. CAFFREY: I appreciate your thoughts, Mr. Del Piero.

I will remind members of the parties that you heard Mr. Del Piero and this is one of the emphasis that we will be looking at today, so please be as succinct as you can on your economic analysis.

Thank you very much, Mr. Howard.

Mr. Pettit, do you have anything you wish to add at this time?

MR. PETTIT: No.

MR. CAFFREY: Thank you.

Let me briefly read the order of the first several presenters we will hear from: Dave Anderson with the Department of Water Resources, Perry Herrgesell from the California Department of Fish and Game Bay-Delta Division, Roger Patterson in a panel presentation with Wayne White, Patrick Wright and Jim Lecky. Those are the Club Fed members who are here today.

Welcome, thank you, gentlemen.

It looks like James Feider, Area Manager of the Western Area Power Administration; Fred Schneiter, Northern California Power Agency; Steve Hall leading a presentation for the Association of California Water Agencies. And then, we have a number of Water Agencies, Henry S. Panian, Tom Clark, Michael Nordstrom, Ross Rogers, Dante Nomellini, Dave

Whitridge, Sandra Dunn; and then, we have, I believe, a group from the Kaiser Group, and then, we have the National Heritage Institute and Gregory Thomas is heading that group.

Let me point out Mr. Thomas has a scheduling difficulty with this group and they have asked to be heard right after lunch, which could be in the one to one-thirty area, so we will take them up at that time regardless of the other order that I have read.

So, with that then, let me say we will try to make it as close to twelve noon as we can for the lunch break, and then later in the afternoon we will see how we are doing on our progress and how many more days we will need, if at all.

With that, Mr. Anderson from the Department of Water Resources, sir, if you would like to come forward and be our first presenter this morning. Welcome.

MR. ANDERSON: Good morning, Mr. Chairman and members of the Board.

I am David Anderson with the Department of Water Resources and I am here to present the Department's comments on the three key issues that were noticed in the Board's notice of June 14.

As the first matter, I want to note that we have put out on the table Attachments 1 and 2. Attachment 1 is in the nature of an errata to submittals that we made on June

14 regarding estimated water supply impacts. I think the first page of that describes that we had recently introduced an error in our model to simulate Delta cross channel gate closure, and that has been corrected, and I wanted to make sure that was brought to the Board's and the parties' attention.

With that, I would like to begin with the first issue which is what fish and wildlife standards should the State Water Resources Control Board evaluate as alternatives in this review.

The Department is not today recommending a particular set of standards for the Board to evaluate. We recognize, as the Board has itself previously recognized and repeated today, that direct discussions are occurring among the interests to attempt to achieve accommodation and agreement on Bay-Delta standards.

We, along with the Board, support and encourage those efforts. For our part, we have tried to lend technical assistance to that consensus effort in the development and assessment of specific proposals.

We further support and recognize the continuation of the Board's efforts to facilitate agreement among the various interests.

We do have several points that we would like to offer the Board for its guidance as it listens to and works

with the interested parties to develop reasonable standards and a comprehensive plan for the Bay-Delta estuary.

The first point regards the involvement of the parties. Achieving the greatest degree of agreement possible is the most practical and productive way to effectively resolve the enormous policy and factual complexities involved in the use of the waters of the Bay-Delta system.

Policy resolution needs to occur prior to the water rights hearing whose processes are designed predominantly for policy implementation, not for policy making or policy identification.

The Board should, therefore, continue to keep its processes as open and flexible as possible to afford the opportunity for consensus efforts and to seek interaction with and input from all the interested parties.

I think that's what I heard the Chairman say today and we support that effort.

The second point that I would like to bring up is also one that we have brought up before, and that is this point about uncertainty. The evaluation and the ultimate promulgation of standards should reflect, not mask, the fundamental uncertainty underlying our understanding of the biology of the estuary.

While recognition of uncertainty should elicit

caution, it does not mean we should not go forward. What it does mean is that action based on uncertain premises should fully and expressly acknowledge and disclose that uncertainty.

In addition, the Board should consider, as I think it has, forms for standards reflective of uncertain relationships among the controllable factors that it is paying attention to and that would form the basis of standards and the biological responses that it is desiring to protect. Conditional, narrative and general standards are forms useful for dealing with uncertainty.

A third point is the rationale for standards. We think the Board should be careful to set forth as completely as possible its reasons for selecting a particular parameter as the basis for a proposed standard.

These reasons should explain how control of the chosen parameter would go to the benefit expected to be produced, including all intermediate causal factors or steps.

While this exercise is also a part of dealing with uncertainty, it is equally important to recognize that estuarine phenomena are interrelated. Again, this is a very complex system we are dealing with and it is important to deal with it in as clear and explicit a manner as possible.

The parameter upon which a particular standard is

based may actually be a surrogate for a remote or indirect cause of the phenomenon that we ultimately desire to control. For example, we have spoken previously about the use of Xn, which is the distance of a given near-bottom salinity in the estuary from the Golden Gate.

But bottom salinity at a certain location is not the thing affecting beneficial uses and not, therefore, what we ultimately care about. What we really care about is the outflow that incidentally locates that salinity and for which that salinity serves as an index, and even then, outflow may itself likely be but an intermediate factor.

The ultimate phenomenon may be the reduced incidence of loss of organisms to Delta diversions produced by the transporting effect of higher outflow for which, then both Xn and outflow are surrogates.

It may also reflect other factors such as transport or the location of the entrapment zone, or simply correlations whose underlying causality is uncertain.

Our fourth point is that the Board should deal with extant proposals. The Board should specifically address standards which have reasonably been proposed for water quality and for flow and diversion for the Bay-Delta estuary and which have been the subject of public interest and debate recently. Among these, and I think they are pretty obvious, are:

Q WEST from the Board's 1630 efforts and which has been included in the National Marine Fisheries Service biological opinion for the winter-run salmon.

We think the Board ought to address Q WEST.

While we appreciate the potential of Q WEST as a compromise standard which has a measure of flexibility for project operators, it is not, in our view, a compromise which the parties generally have embraced or gravitated toward.

Another example is X2, an obvious example. The Board should review the EPA proposal as a general estuarine management alternative. Some parties have shown interest in this formulation of an estuarine standard.

We have two strong caveats for the Board, however.

The first is that the Board should consider rather Xn, as I mentioned before, which is the estuary project's basic recommendation and for which X2 was selected as a useful but ostensibly arbitrary instance.

We are submitting to the Board today new studies that have been done on X3; that is, this location of three parts per thousand near-bottom salinity. We have reviewed these studies and distributed them to all the principals involved in the original analysis of X2.

Our review at this point indicates that X3 correlates equally well as X2 with estuarine biological

response, and also, serves equally well to characterize the salinity field associated with the zone of maximum turbidity, the entrapment zone.

Furthermore, we have analyzed the water supply impacts under EPA's formulation of an estuarine standard that it put out originally on December 15 and at its advocated level of protection.

Preliminarily, we find that meeting X3 at comparable locations and specifically we dealt with the confluence at Chipps Island, while yielding the same biological benefit, would cost some one-third less water.

As we recall Dr. Schubel's testimony from the D-1630 hearings, this is consistent with his view that some X1 to X4 may be equally suitable for estuarine management purposes.

Since this study is technical and quite lengthy, I want to inform the people here that we have submitted ten copies to the Board, but we ask anyone else who desires a copy to please contact Mike Ford, the Department's Bay-Delta Program Manager, and he would be pleased to supply a copy.

The second caveat we have with respect to the review of X2 is that a generalized estuarine standard should be framed properly in terms of outflow which Xn was originally intended to index. We think that X2 is misleading because if taken as a salinity parameter rather than an index of

outflow, it diverts attention from the underlying processes for which it stands as a surrogate, and in reality, has no measurement or operational advantage over the use of outflow as a parameter.

We think that people who prefer using a salinity index certain equivalents can be made, can be provided. As a matter of fact, I think when EPA put out its proposed X2, it suggested that outflow equivalents could be made for looking at the world that way.

I think the Board similarly ought to do an outflow standard if it is going to do that sort of estuarine management standard, and then it may simply find it useful to provide X2 or Xn location equivalents.

The third point here is that other EPA and D-1630 proposals ought to be addressed by the Board. The Board's alternatives' analysis should address and resolve the remaining standards in these outstanding proposed regulatory scenarios. I think this is an opportunity for the Board to provide some synthesis, some closure on these proposals.

The fifth point is the relationship of these alternatives to ESA regulation. As we indicated at previous workshops, we do not think the Board should set standards for endangered species per se. At a minimum, it should in its balancing, account for the impacts of regulation by the Federal ESA agencies.

Alternatively, the Board may consider including consideration of threatened and endangered species in the broad habitat management standard that it may design to provide general protection for several species.

Frankly, we believe that the ESA agencies have great flexibility to work within the tremendous factual and scientific uncertainty surrounding species needs to use an appropriately crafted State habitat management plan to issue no-jeopardy opinions for listed species and to forebear from listing new species fully within the endangered species law.

Our sixth point is one that the Board suggested in its notice and that's a comprehensive Delta plan. We support the indications in the Board's notice regarding the development of a broad range of measures and recommendations for the estuary in a comprehensive package of protection.

We feel that the true power of the State to address Delta problems lies in our ability to address not only water regulation issues beyond water quality; that is, flow and diversion, but the full gamut of issues related to the Bay-Delta environment.

We need to put these issues on the table for several reasons.

The first is that the Board's determination of reasonable use within its own jurisdiction must necessarily

have reference to the full range of factors affecting beneficial uses in the estuary in order to determine the reasonable role to be played by water use regulation.

Second, when all the factors are before us, I think it is going to be helpful for us to stop falling into the trap of thinking that all the answers lie in water quality, or that all the answers lie in water rights, or in some area of particular jurisdiction, or even that all the answers must be within the Board's direct regulatory reach.

Third, we need to start somewhere on a comprehensive State habitat management plan and we suggest why not here. This is an opportunity to do this. I believe that the speakers that are going to follow at this workshop will provide framework and listing of elements for this comprehensive plan.

Our next point has to do with the format for water quality and flow and diversion. The Department has strongly urged the Board to develop and promulgate what amounts to a flow and diversion plan at the same time it develops and promulgates a new water quality plan, so this would be the elements within the jurisdiction of the Board as opposed to the elements for which the Board may make recommendations to other agencies.

We have urged this approach for four reasons:

The first is that in our view flow and diversion are

not water quality parameters under the Clean Water Act or Porter-Cologne Water Quality Control Act. Flow and diversion impacts are not quality impacts.

Flow may be an implementation device to meet a water quality objective like salinity in the Suisun Marsh or salinity may be used to index flow needed to transport eggs and larvae to the Suisun Bay.

In the first instance, the parameter affecting beneficial uses is one of water quality, a constituent of the water affecting beneficial uses; but in the second, it is not a constituent of the water, but a characteristic of the water that affects the beneficial use; that is to say, flow or outflow.

The second point is as between water quality and flow and diversion, flow and diversion are by far more important factors with respect to fish and wildlife issues.

The third is it is important to keep our own regulatory house in sensible order so that federal agencies will clearly see where they fit in, a broad and cooperative regulatory management effort as has been described in the framework agreement.

Fourth, in a water rights hearing, the Board is called upon to implement policy principles of general application as against specific water users. The Board develops or establishes policy for water quality in the

water quality process.

If the Board does not develop policy for flow and diversion before the water rights hearing, then it will be searching for policy while limited to procedures useful for enforcing policy but not suitable to finding policy.

I know that the issue of CEQA compliance has been raised regarding the preparation of a flow and diversion plan. I believe that what we are asking the Board to do fits squarely within statutory exemption for State planning under Public Resources Code Section 21102, as elaborated upon in Section 15262 of the CEQA guidelines.

Use of the statutory exemption requires that the Board consider environmental factors, which we think the Board is already going to be doing, and also, requires that the adoption of a plan not have a legally binding effect on later activities.

The plan, as we envision it, will not commit the Board to any definite course of action, will not bind the Board in that sense. It is merely to be considered, just as the California Water Plan or relevant water quality control plans are to be considered in water rights hearings.

In addition, the Board should expressly provide that any implementation is contingent upon CEQA compliance for preparation of an EIR which the Board is planning on doing for the water rights phase already.

While the Board should declare its intention to consider the plan, nothing in the plan is legally binding until and unless made so in a water rights hearing subject to CEQA.

This plan should be contrasted with water quality control plans which, although not binding in subsequent water rights hearings, do, upon adoption, have a legal and binding effect on other later activities.

The last recommendation under No. 1 to be made is sort of a catch-all. We recommend that the Board should consider and provide for completely interchangeable points of diversion for the CVP and the SWP in the Delta. The Board is going to be fashioning joint terms and conditions, I assume, as it has in the past for the project. It ought to consider those operations to be joint. We need these for maximum flexibility for not only the Board regulations, but also, to work with the endangered species regulations.

The second point is we strongly recommend the Board refrain from utilizing biostandards, such as the fish survival indices which was suggested in the notice. The science is simply too poor to justify this type of performance standard.

The Board should consider and adopt the water quality objectives for salinity, dissolved oxygen and temperature set forth in the Board's 1991 Water Quality

Control Plan.

The second question the Board asked was, with respect to determination of the economic and social effects of alternative standards. We have provided as Attachment 2, which is just underneath Attachment 1, stapled together, a paper by DWR Economist Ray Hoagland that discusses ways of determining and evaluating the economic effects of alternative standards.

The approach discussed in this paper is one in which we have had considerable success and agreement in working with EPA on its new regulatory impact assessment and with the USBR on CVPIA analyses, and we commend it to your attention.

The third issue that the Board asked for comments on is whether the Board should request the CVP and SWP to implement portions of the draft standards prior to adoption of a water rights decision.

As a general proposition, DWR and the State Water Project are looking for coordinated and cooperative approaches to dealing with all forms of Bay-Delta regulation. This is one of the essential purposes of the framework agreement between the Governor's Water Policy Council and the Federal Ecosystem Directorate.

In addition, we know that ESA regulation of the State Water Project and the Central Valley Project currently

not only imposes substantial costs on the projects, but provides conditions in the winter and spring beyond D-1485 requirements thought to be beneficial for many aquatic species and for the Bay-Delta environment in general.

Directly or indirectly, the projects would likely already be implementing future Board standards to some substantial degree.

We think that it may be possible to go beyond this coincidental implementation of Board standards. If the Board sets more general multispecies habitat protections that also benefit species of concern, there may be sufficient room for an interim SWP-CVP compliance with such standards to secure no-jeopardy opinions from NMFS and the U. S. Fish and Wildlife Service, or at least to modify the manner of current ESA regulation of the projects.

Those are our comments, and thank you very much.

MR. CAFFREY: Thank you, Mr. Anderson.

Let me see if there are questions from Board members.

Ms. Forster.

MS. FORSTER: Did you submit the economic approach you were talking about? Did you submit that this morning?

MR. ANDERSON: Yes, it is covered actually in DWR Attachment 1 which is the errata, and then, three pages under that begins DWR Attachment 2.

MS. FORSTER: Oh, I have it.

MR. CAFFREY: We have a lot of things.

MS. FORSTER: I had one question related to Mr. Anderson's comments.

Barbara, on pages 8 and 9, when Mr. Anderson talks about legally, his perception -- is that the pages -- perception of how we might be able to do flow and diversion, he talked about the Public Resources Code -- I guess it is page 10.

MS. LEIDIGH: Yes, right.

MS. FORSTER: I just wanted to know, and you haven't had enough time since we just heard this for the first time, but what do you think about what he just presented to us legally, and in the process of what we are trying to do in the triennial review?

MS. LEIDIGH: Well, from the standpoint of planning, I think what he is saying is that the Board ought to be preparing two documents; one as a water quality control plan, which is very limited, has only certain things in it, basically the same things that were in the 1991 plan; and then, another document for flow and diversion, which he is proposing to be under a statutory exemption under CEQA, but I think that that statutory exemption presupposes that there would be no environmental impact.

Now, to have no environmental impact or no potential

environmental impact as a result of that kind of plan, it seems that it would not have to be binding and he backs that up, that it would not be binding on the Board. The problem then is how does that come up to what we need in terms of putting together a plan of protection for the Delta if this is not binding on the Board?

It's true there wouldn't be any CEQA impact, but since there is no CEQA impact, then there is also no commitment, it seems to me.

The other thing that I am concerned about here is that I am not aware of any statutory procedure like the Porter-Cologne Act procedure for a water quality control plan that allows the Board to do planning for flow and diversions, and I am not quite sure how we fit this in if we try to do that.

So, perhaps Mr. Anderson can give us some further explanation.

MR. ANDERSON: Sure. I think there are three major points here. The first point, Barbara, had to do with the statutory exemption presupposing no impact on the environment.

I would agree that is a premise of categorical exemptions adopted by the Resources Agency, not as a premise of statutory exemption under CEQA. But I would also agree with the point you brought up, as a planning document it .

probably would not have any impact on the environment in any case, so that point may be moot.

The issue of being binding on the Board, what would be the utility if it is not binding on the Board? I would submit that the Board's water quality control plan is not binding on the Board in any subsequent water rights hearing. It would have the same utility as a planning document basically saying what are the general objectives for instream uses or environmental uses with respect to overall impacts of flow and diversion, and the questions that might be followed up in that sense just as the way the water quality control plan works and is useful basically as a quality guidance document.

It can be specifically applied but has no statutory compulsion in a water rights hearing that follows.

The third point had to do with the statutory framework. I didn't review this recently for today, but I believe in the first workshop in my comments I set forth the reasoning that I thought that this sort of planning effort is implicit, at least in the Board's authority to consider applications to appropriate water, to develop terms and conditions for those applications and so forth.

Basically, the Board in a water rights hearing is required to apply policy, and to define that policy the Board is free to consider documents that are developed

outside of the hearing process, such as the California Water Plan and such as the water quality control plan, so it seems that there's no inhibition on the Board from using something outside of the particular adjudicatory process, and I think several sections of the Water Code compel the Board to have that policy together.

It seems to me that it would be at a minimum a necessary and proper authority of the Board to do this sort of planning or policy identification effort as an adjunct to carrying on its general water rights responsibilities.

I would certainly be glad to refresh myself on the comments I made two months ago and discuss this further with the Board, to develop that and submit it to the Board and parties, but I really see no problem with it.

You can always throw in Section 275, which is a very broad authority of the Board to take all sorts of actions and proceedings to carry out its authority to provide for the reasonable use of water.

Apart from that, I really can't say too much more on the specific points.

MS. LEIDIGH: I think it would be helpful if you would provide us with your legal analysis with as much citation as possible.

MR. ANDERSON: I certainly will.

One thing, if I could offer, is that the Board

several years ago attempted to do this kind of effort in a regulatory process to set instream flow standards in the early eighties, but that process was stymied by the Attorney General's opinion that said the Board had gone too far. The way the Board had set it up it had attempted to take that planning effort and to cross over into the water rights hearing to actually make the planning effort have a legal, binding effect by creating a presumption in subsequent water rights hearings.

I would clarify that that's not the kind of thing that we are talking about here. We are talking about the kind of thing that the Board does in its water quality planning process, which is basically to synthesize and set administratively and as specifically as possible within the planning framework State policy rules of general application, applicable to water quality.

We would ask the Board to do the same thing with flow and diversion.

Having said that, I will provide to Barbara and the Board as quickly as possible my legal analysis.

MR. CAFFREY: And as we have asked in the opening statement, copies to any interested parties.

MR. ANDERSON: Yes.

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

Are there any other questions from the Board?

Staff?

MR. HOWARD: Mr. Anderson, on the top of page 6 you have commented, *we find that meeting X3 at comparable locations, while yielding the same biological benefit, would cost some one-third less water.*

Has the Department done any analysis in support of that statement?

MR. ANDERSON: Yes, we have.

MR. HOWARD: Is that incorporated into the --

MR. ANDERSON: I believe it is.

MR. HOWARD: All right, thank you.

MR. CAFFREY: Thank you, Mr. Anderson.

Our next speaker is Perry Herrgesell of the Department of Fish and Game, Delta Division.

Good morning, sir.

MR. HERRGESELL: Good morning, Chairman Caffrey and members of the Board and staff.

For the record again, my name is Perry Herrgesell and I am Chief of the Department of Fish and Game Bay-Delta Division in Stockton, and I would like to take a few minutes today to highlight some of our recommendations that you should consider while reviewing standards for the Bay-Delta estuary.

At the outset, I would like to recognize that there certainly are many things that affect the resources

associated with the estuary. However, we in the Department believe that you should focus most on those measures that are designed to counteract the impacts of the water development.

Impacts of the present water management system are so overpowering that fisheries restoration is infeasible without major changes in water management, and I think we, along with you and all parties, agree that some sort of restoration is desirable if we are to fix the broken Delta as Governor Wilson has directed us to do.

With that preface, I would like to briefly mention several recommendations that we would like you to consider in your standard setting process.

The first is that we encourage you to establish a long-term goal of restoring, protecting and maintaining a healthy aquatic ecosystem that includes very diverse and abundant populations of fish and invertebrates.

The key is that we will be working towards restoring the system as a whole rather than looking at individual species. But we recognize that in order to do that eventual changes in Delta facilities that are used by the State Water Project and the Central Valley Project and other diverters as well to manage and deliver water would probably be needed.

We think that the recently signed State/Federal framework agreement is the appropriate process for

evaluating these kinds of changes, but the bottom line is that system restoration, at least in our opinion, can't be achieved entirely within the scope of these proceedings or this triennial review. That must be a comprehensive long-term objective of all of us in all these processes.

Given the above, our second recommendation is that the interim goal of this present proceeding should be to halt the decline in aquatic populations and at least begin their recovery.

In order to do that, or at least make some progress toward this goal, we feel that you should set an interim ecosystem goal of attaining fish population levels that existed during the late 1960s and early 1970s.

Various alternative standards and means for evaluating the potential of alternatives for achieving this interim goal are already provided to you in our WRINT-DFG Exhibit 8, other WRINT-DFG exhibits, U. S. Environmental Protection Agency proposed standards, winter-run chinook salmon and Delta smelt biological opinions for CVP-SWP operations, and other documents and files.

In other words, those are the tools that we think are available to you to make these recommended alternatives. They are already out there, so I don't want to reiterate those again here, but I will assure you of our readiness to work cooperatively with your staff to evaluate the degree of

ecosystem protection and restoration that is potentially achieved by various alternative standards that you may want to consider.

Before I move on to more specific recommendations, I want to mention that we certainly recognize that most of the alternatives that I have referred to already and in our previous testimony, those certainly if implemented to achieve this ecosystem goal, may impact water project operations significantly, but as I mentioned before, the fishery declines have been significant, and as the state trustee for fish and wildlife, we believe that stemming the ecosystem decline and initiating some sort of recovery is essential and corrective actions must focus on water management.

With that in mind, I would like to move quickly through some specific recommendations that should support or at least be integrated into your ecosystem protections.

The first of those is, as we have said in WRINT-DFG 8, we recommend that the State Board adopt the striped bass salinity standards as they are currently provided in the 1991 water quality plan. We feel that's a necessary component of any system protection alternative that we may develop.

Secondly, with respect to fish facilities, Table 2 of Decision 1485 includes a set of operating standards for

fish protective facilities in the Delta. These are detailed standards that specify facility characteristics such as screened approach, velocities, bypass ratios, specific time periods to protect a suite of different species in the Delta.

As we have stated earlier in our Exhibit 8, for a number of reasons we believe that these standards should be revised. Specifically, the D-1485 operating criteria should be replaced with a statement including the following language: The fish protective facilities associated with the State Water Project and Central Valley Project export facilities will be operated to optimize the protection of Delta fishery resources as determined by the California Department of Fish and Game consistent with export rates and facility maintenance needs.

Should the Bureau of Reclamation or the Department of Water Resources consider Fish and Game's specifications to be unreasonable, they may request release from the executive officer of the Board and the executive officer may grant relief provided such relief is supported by written findings.

We presented that wording to you in the D-1630 hearing proceedings, and we offer it up again today as a recommendation regarding fish facilities.

A word about biological opinions and consultations:

We recognize that your decision concerning standards here in this proceeding will also apply to other groups of people besides the Central Valley Project and the State Water Project, and as such, we feel that the scope of your protective measures should yield an estuary habitat of sufficient quality to restore and sustain current threatened and endangered species to allow them to recover, and also, to preclude the need for listing other species.

We addressed the issue of instream flow and temperature criteria for upstream tributaries in our June 14 statement. I will only reiterate here that the recommendations that we considered to be the most important relative to these proceedings are the proposed increases in instream flow and the temperature criteria for the different rivers.

In the last workshop we presented drafts on pages 22 through 29 that summarized our recommendations for these various rivers and I will not repeat those now. I only refer you and your staff to those previous submittals.

We recommend that you develop a methodology to require diverters other than the State Water Project and the Central Valley Project to provide their fair share of water that is needed to restore the system.

The current allocation of Delta outflow responsibility which depends primarily on storage in the

Sacramento, American and Feather Rivers, and to a lesser extent on the Stanislaus River, currently has clearly contributed to the ecological imbalance of the Bay-Delta estuary.

As you craft new standards in this process, we feel you should develop a methodology that requires others to provide a fair share contribution to Delta outflow.

In WRINT Exhibit 30 we have provided suggestions regarding methods that can be used to allocate Delta outflow requirements, and I refer you to those and commit to work with you and your staff to develop those kinds of methodologies.

One additional concept that you should consider including in your decision would be some sort of mechanism to allow a third party to acquire water to provide additional protection above the Bay-Delta standards which may be set. For example, the new Delta standards should include some sort of mechanism that would allow acquisition of additional water to provide for improved flows in the Delta over and above those that your standards may require.

Finally, I would like to finish with four general recommendations that we would like you to consider during your standard-setting process:

The first is that there should be monitoring and evaluation of ecosystem effects required so that we could

prove the benefits of any adopted standards or facilities that may be put into place.

Secondly, we feel that any standards that are developed should not allow benefits that are gained through appropriate inflows or outflows, or reduced exports early in the year to be diminished by subsequent low flows and high exports that may occur later in the year.

In other words, the system needs year-around protection, and we think that's an important criterion that you need to strive for in this process.

As general guidance, when evaluating alternative standards, we feel you should consider export rates to be a function of concurrent amounts of outflow. For example, when higher outflows occur, you could allow higher exports. Concurrently, when we have lower outflows, we should require lower export rates, particularly in the later part of the year.

And finally, any standards that will improve environmental conditions over those provided in D-1485 we feel should be implemented immediately and not wait until the water rights phase. The estuarine conditions are such that implementation should not be delayed until the adoption of a water rights decision occurs.

That's the extent of our comments. I would be glad to answer any questions.

I think Dick Daniel is also here to respond to any questions you may have today.

MR. CAFFREY: Thank you, sir.

Any questions from Board members of Dr. Herrgesell?

Anything from staff?

Mr. Howard.

MR. HOWARD: I have a few questions.

Let's see, it is not numbered, but here you have a recommendation on striped bass spawning that says, *we recommend that the State Water Resources Control Board adopt the striped bass salinity standards as provided in the 1991 Water Quality Control Plan.*

Just for clarification, then you are recommending that the State Water Board not adopt the striped bass spawning standards that were proposed by U. S. EPA in its federal promulgation?

MR. HERRGESELL: I am not sure that we said that. We are certainly interested in having at least the ones we had in 1991. The other ones we haven't really analyzed that way at this point to make a decision on that today. At least we want the 1991 standards.

MR. HOWARD: Thank you.

MR. CAFFREY: All right, thank you, sir.

Next we will hear from your federal counterparts commonly known as Club Fed. We have Roger Patterson, Wayne

White, Patrick Wright and Jim Lecky.

Good morning, gentlemen.

MR. PATTERSON: Good morning.

Mr. Chairman and members of the Board and Mr. Pettit, we appreciate again the opportunity to be here, and for the record, I am Roger Patterson, Bureau of Reclamation.

The other folks here are Jim Lecky from the National Marine Fisheries Service; Patrick Wright from EPA in San Francisco; and Wayne White with the Fish and Wildlife Service.

What I want to do this morning is Patrick will be providing comments on the first two questions, and then, I will be commenting on the issue of interim compliance with the standards.

Before I turn it over to Patrick, I would just like to mention that the framework agreement between the State and Federal agencies that was released on June 20 is in the final process of getting all the appropriate signatures, at least on our side.

As you know, one of the cornerstones of that agreement provides for a joint process between the Federal Government and the State on this very issue, and we are very pleased to have that coming together and be working on it jointly.

I will turn it over to Patrick Wright and let him

comment on the first two provisions.

MR. WRIGHT: Thank you, Roger.

As you may know, EPA has had four primary goals in developing its proposed standards for the estuary, that they be scientifically sound, that they take a multispecies and habitat-base approach, that they also protect the needs of the endangered species, and that they be tailored to the natural variability of precipitation to minimize their water supply and economic impacts.

We believe the standards that we proposed last December 15 represented the best effort to date to achieve those goals, and also, to integrate the standards into a coordinated set of federal actions under the Clean Water Act, the ESA, and the Central Valley Project Improvement Act.

Nevertheless, at the same time we also recognized that several refinements to the standards would be appropriate and asked for comments on alternatives that would further reduce their water supply impacts while maintaining our target level of protection.

In particular, we asked for comments on alternative methods to define water year classifications; that is, sliding scales and various approaches to determine compliance with the standards.

As you may know, we received over 200 comments on

our proposed standards and several parties submitted detailed recommendations on these and other issues. What I think more importantly in that same time period, technical staff from the State and Federal agencies and others have been meeting informally over the last several months to discuss potential changes to the standards that would provide more operational flexibility.

As a result of those discussions, we developed several potential modifications to the standards and asked both the Contra Costa Water District and the Department of Water Resources to model their impacts.

Through this process we believe that we have developed a refinement of the standards that better reflect natural hydraulic conditions.

As a result the water supply impacts of the standards that we proposed on December 15 have been reduced by about a third in an extended drought period from those reported by the federal agencies last December, while maintaining the targeted level of protection.

According to recent modeling runs by the Department of Water Resources, the water supply impact of the standards we proposed with the addition of the sliding scale and alternative compliance methods that were suggested by the parties, have been reduced to under 500,000 acre-feet on average and to 1.1 million acre-feet in an extended drought

period.

Both of these figures are well within the range of impacts of the State Draft Decision 1630 and other alternatives that have been developed by the parties.

We think the results are also a real testament to what can be accomplished when the biologists and engineers from the various agencies and interest groups are thrown together in an informal non-adversarial process that the Board has been encouraging in these proceedings.

In particular, we would like to thank the staff of both the Department of Water Resources and Contra Costa Water District and other parties and agencies who are there to help not only in performing the runs, but in working with us on these modifications. We strongly encourage the Board to build on these efforts in its development of State standards.

In addition to modeling the proposed standards, we also ask DWR to evaluate the impacts of the other alternatives that have been recommended by the parties. These include modeling runs with and without the salmon smolt survival criteria, with and without the Rowe Island location salinity criteria and at various levels of development.

These alternatives were intended to reflect the range of alternatives that have been suggested by the

parties and hence should also prove useful in the development of your own State alternatives.

I would now like to briefly mention the peer review process on the standards that has also taken place over the last several months.

EPA and the State Board staff have participated in a series of informal peer review sessions sponsored and facilitated by the urban and agricultural interest groups. Again, the results of these sessions have been very encouraging. We believe the scientific basis of our final standards will be considerably stronger as a result of those sessions, and again, we encourage the Board to build upon the results of that consensus-based effort.

In particular, I want to highlight the ongoing discussions on the salmon smolt survival criteria. In their comments the scientists representing the urban agencies raised a number of concerns regarding the approach that we used to develop these criteria.

While EPA and the Fish and Wildlife Service continue to believe that the proposed standards are based on sound scientific methods, we agreed to consider and also help develop other alternatives that would address their concerns.

As a result of these discussions, we are developing an alternative to the salmon smolt survival criteria based

on actually measured survival rather than predicted model results.

We believe this modified approach has two major advantages. The standards better reflect actual survival levels that are generated from marked recapture studies and provide more flexibility in developing implementation measures than standards that are based solely on Fish and Wildlife Service models.

The rationale and benefits of this approach are more fully described in the summary of the sessions that we understand will soon be submitted to the Board by the urban and environmental groups.

Again, we urge the Board and the staff to carefully consider this approach in developing your own standards.

EPA also received a number of comments recommending that additional measures, including Delta cross channel gates, export limits and other measures be implemented to protect striped bass, spring-run salmon and other species in the fall months that were not addressed by our proposed standards.

To address this concern, we intend to work closely with the Fish and Wildlife Service and other federal agencies in development of the doubling plan and the 800,000 acre-foot allocation under the Central Valley Project Improvement Act to insure that the federal agencies can

come up with a comprehensive plan for the estuary.

And the Board may also want to consider additional protections for these species as well.

Finally, I want to briefly discuss the status of the economic analysis that is being prepared on EPA's final standards as well as Fish and Wildlife Service's final designation of critical habitat for Delta smelt.

As you may know, we are working on revising our economic analysis to reflect the valuable suggestions, critiques and data gathered from interested parties in our public comment period and series of informal meetings. We have been working with a broad range of interested parties, urban, agricultural, environment, academic, as well as staff from the Board, DWR and other agencies.

Through this process we have made great progress in defining the issues and understanding the range of impacts that are likely to occur as a result of the federal actions.

Because of the extensive involvement of these agencies and interest groups, we are confident that the final report will be credible, well documented, and serve as a framework of future studies to expand upon.

We are working closely with both the State Board and DWR staff on major portions of this analysis and urge the Board to take advantage of the significant investment already made by the State and Federal agencies and the

interest groups in evaluating the potential impacts of new water quality standards.

We would be glad to assist the Board in developing its own evaluations of impacts of State adopted standards as well as various implementation measures.

Finally, I wanted to just add briefly that we understand the Governor and the President will be receiving a letter soon from some of California's biggest employers that underscores the importance of the adoption of new standards for the health of not only the Bay, but for the State's economy.

Thank you again for hearing our comments, and we look forward to working with both you and the Board staff in the development of approvable State standards, and with that, I will turn it back over to Roger.

MR. PATTERSON: Let me quickly respond to question No. 3, should the Board request that the Central Valley Project and the State Water Project implement portions of the draft standards prior to adoption of a water rights decision?

As you know, we have made the commitment to consider such an arrangement through the State/Federal framework agreement that I mentioned earlier. We think that this question, which involves several factors, will probably become clearer as we move toward the end of the year.

Specifically, it is important that we look at the operation of the Central Valley Project and State Water Project in light of both existing and anticipated water quality standards as well as the Endangered Species Act, the provisions of draft standards and how they can be equitably distributed, as well as operational requirements that may be shaped to complement the standards.

The legal authority of both the Central Valley Project and I would assume the State Water Project to implement any portion of those standards is something that's going to have to be looked at closely and analyzed, but we have made that commitment.

With that, that concludes our comments. We would be happy to respond to any questions.

MR. CAFFREY: Thank you very much, Mr. Patterson and gentlemen.

I will turn to my co-workers.

Mr. Stubchaer.

MR. STUBCHAER: Mr. Wright, what was the base line for the measurements of the water impact for the figures you quoted?

MR. WRIGHT: Above D-1485. The Department, though, also did a count of alternatives that looked at the NMFS opinion and the incremental impacts associated with the standards above and beyond NMFS.

MR. STUBCHAER: Just to make certain I got this right, you said the figure was 1/2 million acre-feet in average years and 1.1 million during a critical drought period; is that correct?

MR. WRIGHT: That's correct.

MR. STUBCHAER: Thank you.

MR. CAFFREY: Ms. Forster.

MS. FORSTER: Is the person doing the economic analysis Jones & Stokes that Tom Howard talked about?

MR. WRIGHT: That's the consulting firm that we have contracted with to do the major portion of the study.

We also contracted with Rand to do some other studies as well based on community impacts.

MR. CAFFREY: Mr. Del Piero.

MR. DEL PIERO: Dr. Russ Brown is also associated with Jones & Stokes. We are in receipt of a recommendation on fish and wildlife standards from Dr. Jones, Dr. Unger and Warren Shaul. Is that generated from your --

MR. WRIGHT: I am not familiar with that at all.

MR. CAFFREY: Mr. Wright, I have a question. I am curious as to what schedule you are on, if you could reiterate it for us for the more detailed presentation of this latest draft you are referring to.

Is there going to be anything in writing prior to --

MR. WRIGHT: We are not planning on any formal

announcement prior to December 15, but we will be more than happy to share with interested parties all the details of the alternatives that are under development and we understand that most of the parties have those alternatives, have the water supply impact results available.

MR. CAFFREY: I appreciate your candor and I am not asking the question to put you on the spot. I know that you have legal rules and procedures that we will certainly respect.

I presume that your salinity standard remains at X2?

MR. WRIGHT: Well, again, we asked the Department to look at a range of different alternatives. We can't say at this point, obviously, which one we will be finalizing on December 15.

MR. CAFFREY: Just so I understand the water cost figures that you gave are substantially reduced. I understood you to say that they are based on model runs based on some modification, so I am just trying to get a handle on which ones were included.

MR. WRIGHT: The only modifications were the sliding scale and alternative compliance mechanism. It is X2 at those locations, although the Department did do a number of runs of other alternatives as well.

MR. CAFFREY: We appreciate your candor in sharing this with us.

Mr. Brown has a question.

MR. BROWN: Other than through the Central Valley Project Improvement Act, are you evaluating options at this time to restore these quantities of water back to the Central Valley Project? Are you looking at options to develop, conserve, reclaim water requirements as required through the Central Valley Project Improvement Act?

MR. WHITE: Maybe I can respond to that, Mr. Brown.

That is our principal focus. The direction that was in the Central Valley Project Improvement Act was to look at how to develop additional water needed for the Act, as well as to recover water that was dedicated through the Act.

That process is under way. There are a couple of other avenues that may or may not fit into this outside of that authority. I would specifically refer to an agreement that Reclamation recently entered into with some of the Bay Area people that has a large potential to recover, reclaim wastewater that may or may not fit into this program, so we are working on that in a couple of avenues, but there's an effort under the Central Valley Project Improvement Act specifically.

MR. BROWN: You mentioned -- the economic analysis you mentioned Contra Costa and I believe DWR. Are there other stake holders invited to participate in this process?

MR. WRIGHT: The process was developed informally,

but I understand there have been staffs from DWR, Contra Costa, and all the major interest groups at several different sessions, so we are confident that we have a very broad range of party representatives.

MR. CAFFREY: That was for modeling purposes, Mr. Wright?

MR. WRIGHT: There's actually been separate work groups. There were smaller informal work groups to work on the sliding scale and compliance measures, and a whole separate much larger work group to work on the economic study to try to reach as much agreement as possible on the assumptions that are going into the analysis.

MR. CAFFREY: I appreciate that.

MR. STUBCHAER: Mr. Wright, since I asked the question on the water costs, Mr. Howard gave me Table 1, which details some of these water costs, and I notice in the footnote it says that the water costs do not include potential water supply impacts of take limits, and I believe we heard earlier during this workshop that those impacts could be of a similar order of magnitude to these potential water costs.

Do you have any comment on how those might be addressed in the final EPA standards?

MR. WRIGHT: As we understand it, the economics work group is working on a couple of scenarios that will try to

address that. For instance, they plan to run one scenario that assumes that there will not be a window for transfers because take limits might be in effect that preclude transfers, and certainly, other transfers are under consideration, but I don't think that we are yet convinced that it is appropriate to use take limits or the activities that occurred this year and last year and assume that those will happen in the future under the standards.

So, it is a difficult and complicated issue, and we are struggling with a way to model it, but what our goal is, is to develop standards that are adequate to protect the uses. If we can do that, take limits should not be a mechanism that is driving the system.

So, although we think it is important to consider that, we certainly don't think the impacts in the future should be as significant as they are today.

MR. STUBCHAER: It seems to me they are so important they should be considered as much as possible. I guess you are trying to do that, but they can't be ignored and still have a valid analysis. Okay.

MR. CAFFREY: Ms. Forster.

MS. FORSTER: I have a question for anybody in Club Fed. It is a little unusual question, but I have heard rumors that are sort of justified by a statement that Patrick made, that the water cost would be, you know, around

a million acre-feet or there would be a million acre-feet of water used to help solve all of the Bay-Delta problems that we are addressing today.

I think that some people believe that it will be so utilized that it will take care of endangered species and the take limit, and it will be -- it's the shelf-life theory, use a million acre-feet and you will operate using this million acre-feet probably with a sliding scale, and thus and so.

Is that a theory that you think you can support? Where do we get a commitment by the federal agencies in working with us that a block of water for the environment and all the things that we do independently under your agency role and mission will work into this block of water? Is this a fair scenario for the general lay person to think might be workable?

MR. WRIGHT: It might be, but I don't think it is fair to say that is how we came to where we are today. we certainly did not start with the presumption that a million acre-feet was the target and then developed standards with that in mind.

We started with a set of standards that, as I said at the outset, we felt were necessary to protect the designated uses, but have been working aggressively for the past year to try to come up with standards that are also as

flexible as possible, and through that process we have developed a set of standards that we think will have an impact of about 1.1 million acre-feet in an extended drought period, and then, at the same time, we recognize there are a number of other programs under the Central Valley Project Improvement Act, including the doubling plan, that also need to be coordinated with EPA standards as well as the Endangered Species Act to make sure we do have this shelf-life concept or we do have a set of requirements that will provide regulatory stability.

So, that is how the process evolved, rather than saying necessarily a million acre-feet is needed or any other number.

MS. FORSTER: I don't know how many more opportunities we will get to talk like this and to have the public here, and I was just reflecting on the 500,000 acre-feet to 1.1 million acre-feet, and you are speaking for EPA. I think what is in the back of most people's mind is always, well, what does the National Marine Fisheries people, how do they play into that number, how does the U. S. Fish and Wildlife Service play into that number, and is this a number that is a planning tool for all of the things that we have to look at -- sort of putting you on the spot.

MR. WRIGHT: As you know, to promulgate our federal standards and/or to approve State standards, we have to

consult with both the Fish and Wildlife Service and the National Marine Fisheries Service to insure that the endangered species are also protected by the standards.

So, through that process and also through a coordinated approach to our standards as well as the various announcements that the Fish and Wildlife Service and NMFS are considering right now, we hope to be able to provide the public and the stake holders with just that kind of information, how do all the federal agencies' fit together?

MS. FORSTER: Good.

MR. CAFFREY: If you will allow me, Ms. Forster, I would like to ask the question in my way, and that is that I realize from what you said that you have given us some numbers based on one scenario of manipulation of your standards. There are others that you are looking at and modeling.

You mentioned the Rowe Island standard, whether it should be in or out.

There are a number of arrays of what you can do?

I think I will ask this of Mr. White and Mr. Lecky. As you participate in this, do you feel that you are on a track that will allow you to come up with a product, a product primarily of U. S. EPA, that will afford you the opportunity to interpret the Endangered Species Act in an ecosystem way that will provide the reliability and the

shelf life we are talking about; not just for human water needs but for the animal species as well?

MR. WHITE: Our whole intent here is truly to look at the ecosystem. We are driven somewhat with blinders on by the mandates of the Endangered Species Act, but you must remember that there are tools within the Endangered Species Act, though they are single species focused, that may give us an opportunity to make this fit better.

One clear example is Section IV(d), special rule, where we can redefine take for a threatened species. Coupled somewhat with the development of a recovery plan and the objectives set there with a regulatory mechanism in place that provides protection for a threatened species, we can issue a special rule that would say, and this is just an example, that the standards that are set by the State and implemented by the State Board, provide protection for this threatened species, and anything above that would result in take. Any implementation of that would be no take at all under the Endangered Species Act. That's dealing with listed species.

Our intent is, in fact, to develop water quality standards that address the ecosystem's need.

Now, water is not the only thing. What are those other factors affecting species? Habitat impacts, shallow water versus deep water, shaded riparian habitat, and there

may be other factors that may have to be addressed, but they would be outside of the question of water, and is it a million acre-feet, 500,000 acre-feet?

I think what is important is the objective, that the objective that we are shooting for is truly an ecosystem approach that would give the shelf life that we would all like.

MR. LECKY: Since we changed the status of winter run to endangered, IV(d) doesn't apply anymore. I think there is additional flexibility in the act that allows us to work with these agencies, and actually, your question hits right on why Club Fed got together to begin with.

We felt the need to integrate all of our actions, both from the regulatory point and the project operation point of view so that we could look at a broader range of measures and insure that they protect sort of -- I guess the least common denominator is the endangered species. They need to be protected at minimum and we need to build on that to make sure that we provide for the other species in the system, and hope, in the long run to not only recover our endangered species, but to turn around the decline in other species that are not yet up for consideration under the Endangered Species Act.

And I will just close with a reference back to Section 7 that Patrick made, that this is a very useful tool

for integrating their standards with the endangered species need and the outcome of that consultation, I think, will be the kind of information you are looking for in terms of shelf life.

MR. CAFFREY: Thank you. Mr. Brown.

MR. BROWN: Thank you, Mr. Chairman.

Public Law 102-575 identifies 800,000 acre-feet for environmental enhancement needs. It also identifies an additional 200,000 acre-feet, I believe, out of the Trinity and 120,000 acres of wetland which will probably require 400 to 500 thousand acre-feet of water to be developed. It could total up to as much as 1.5 million acre-feet of water. That's under the law right now.

How does the 500,000 acre-feet that you just mentioned for the average years and the 1.5 million acre-feet during drought years interrelate with what's already on the books.

MR. WHITE: The answer is that it's going to vary. There is substantial overlap between the water you referenced as part of the 800,000, not the Trinity, not the 120,000 acres of additional wetlands, which by the way, has to have a water supply someplace other than the Central Valley Project.

So, the question, as always, gets down to what is the overlap of the water dedicated under the Act for fish

and wildlife with the endangered species need and with where we ultimately get to with standards both of which can be assisted by this water.

So, worst case, it is additive, but that is not, in fact, what our experience has been the last two years.

So, I would say, John, the question of overlap there truly is going to vary depending on year type. This year, for instance, because of the critical dry year that we had, the dedication of that water coincided with the need for endangered species. In other years, that may not be the case, so it is a difficult issue for all of us to deal with.

It's unfortunately not just a fixed formula where we know exactly how it is going to work each year.

There is substantial overlap. The goal is to make these fit together and use that in an ecosystem kind of way as we want to do with the standards.

MR. BROWN: So, the total quantity you are addressing here, the 1.5 million during drought and 500,000 during average, all of that would be a fixed number, and then, that would be additive to Public Law 102-575?

MR. WHITE: Not total.

MR. BROWN: In part?

MR. WHITE: In part, not totally.

MR. BROWN: In worse case it would be, best case part of it?

MR. WHITE: It depends on which side of the equation you would like to call best and worst. It could do it totally additively or not at all.

MR. BROWN: Good point.

MR. CAFFREY: Ms. Foster.

MS. FORSTER: I wanted to ask one more question to build on what Mr. Brown asked you, so how will you do this every year? Is it through the COA that you will look at what the overlap -- or not the overlap -- how do we know the process? Certainly people want to know how is this going to work out every year for planning purposes.

MR. WHITE: Where we would like to get to, and I believe we can get to, is that the Fish and Wildlife Service will define fish and wildlife objectives in a priority way that they would like to utilize the 800,000 acre-feet, and that will be a list that will be available and will not change substantially from year to year, but what the Service will do, depending on the kind of year type and where the needs may be highest, is annually as the Act provides, they may reshuffle the priorities for where they may be.

So, people will understand what the objectives are and we will know the limit as to the amount of water those objectives will take. Anything above that we have to acquire elsewhere.

We will also, hopefully, have long-term standards,

long-term opinion for the Delta smelt and the winter run and any other listed species, and so annually we will fit the 800,000 to meet all of those needs. That's about as good as it is going to get, but we will know that before any allocations of water are made in any particular year.

MR. CAFFREY: Mr. Brown.

MR. BROWN: Public Law 102-575 also requires as we discussed earlier the requirement of restoring back into the CVP those quantities of water dedicated to a pump, and there are numerous options to do this, conservation, reclamation, water reuse, water transfers, new projects.

What options are most suitable and economically feasible? What's the lifetime? Are you looking at dedicating the waters next year and then the lifetime of developing these options for restoration within the next couple of years or ten years, and what's the -- is that required by law or is that an option that you have? I believe it is required.

MR. WHITE: As a matter of timing, and, of course, this is not everyone's shared opinion, but our belief is that the dedication of water was an act of law. Therefore, we actually dedicated the 800,000 acre-feet, the Trinity flows and the refuge water supplies for the last two years.

The Act was passed in October of 1992. The directive in the Act then is to basically explore ways to

find additional water and recover that water that was dedicated and, in fact, we have embarked on the study. Water had been dedicated. The study of how we go about doing that has started, so there is at least that much lag time.

We are only in the scoping phase of that study, so I would have to say there is a substantial lag time between the dedication and when even the study is completed and alternatives are available to pursue, let alone implementation of any of those alternatives which will probably be independent pieces, would be my guess, so there is a substantial lag time.

MR. DEL PIERO: The adopted interpretation by the Bureau has been challenged in Federal Court; is that not right?

MR. WHITE: That's correct.

MR. DEL PIERO: And at this point, is it a matter on appeal?

MR. WHITE: I need to bring in my lawyers. It is on appeal. Essentially we have been enjoined from delivering any of the dedicated 800,000 acre-feet this year other than what may overlap with the endangered species requirements, and we have also been enjoined from delivering additional water supplies as provided in the Act to refuges.

MR. DEL PIERO: And when is that matter going to

hearing; do you know? I know the injunction has been issued. Did that involve preparing an EIS?

MR. WHITE: The injunction was issued saying that we could not take those actions until we had completed essentially appropriate environmental compliance. We made a decision, in fact, to embark on a NEPA compliance process. We have a public workshop scheduled very soon to do that. The deadline is this fall.

MR. CAFFREY: Mr. Stubchaer.

MR. STUBCHAER: I have a question on a different matter.

We discussed briefly before this workshop began that you are doing adaptive management regarding the Delta smelt in the Delta right now, and the question is, do the proposed revisions to the EPA standards allow for adaptive management?

MR. WRIGHT: Well, certainly, you know, in State water rights standards, states are required to adopt revisions and to re-evaluate standards every three years.

One of the comments that we have received from a number of parties is that we need to set up not only a compliance monitoring program, but a monitoring program that evaluates the effectiveness of the standards in addition to whether or not they are actually being implemented, and we certainly think that should be a very high priority of not

only the Board, but IEP and other interest groups.

We think both the salinity standards and the salmon smolt survival targets in particular, I think were intended to provide that kind of flexibility so that you can go out and test whether or not you are achieving your desired results, and then make modifications from there.

MR. STUBCHAER: That's not on a three-year cycle, that's not on a real time basis?

MR. WRIGHT: Clearly, the law suggests that evaluation should occur on a three-year basis, but clearly, we need to be out there every year testing repeatedly to find out what works and what doesn't.

MR. STUBCHAER: I believe you mentioned about the salmon smolt survival based on measurements instead of models. Is that a real time basis?

MR. WRIGHT: Yes, it's very close to a process that envisions having the agencies go out and test every year the level of survival that we are receiving, and then to provide the kind of flexibility we need to try different types of implementation.

MR. STUBCHAER: But that isn't real time, it doesn't involve gate closing on a day-to-day basis?

MR. WRIGHT: It potentially could. I mean, certainly the way one set of the alternatives was formed is that they would establish essentially a target for salmon

smolt survival. As you learn more, you could then adjust your implementation measures and that potentially could occur on a yearly basis, but it is unlikely that you are going to be able to learn enough that quickly.

It is more likely you will need several years of information before you are ready to make those types of changes.

MR. STUBCHAER: Do any members of the panel have any suggestions as to how this Board could implement or adopt some adaptive management measures day to day that could be implemented on a day-to-day basis rather than year to year, or triennial basis?

MR. WRIGHT: I would be happy to discuss that with Board staff. Again, we think you have to have standards that allow for changes in meaningful biological cycles and so often, for instance, for salmon you really need three years to be able to know whether or not your measures are working, but that doesn't mean you can't implement measures that provide, for instance, close monitoring when salmon are moving through the system, and then adopting gate closures and other things.

There's certainly nothing in our standards that precludes that. In fact, it would certainly be to the advantage of the State to develop those types of measures to improve smolt survival.

MR. CAFFREY: Any other questions from Board members? Any questions from staff?

Mr. Howard.

MR. HOWARD: I would like to comment a moment on the question Mr. Stubchaer asked.

The Department of Water Resources has offered to try to estimate the effect of take limits and incorporate that into water supply impacts, and in our document we will try to incorporate that as much as possible.

I don't know if the federal agencies are interested in doing that or not.

I had a question for Patrick. As you know, we are trying to analyze a number of alternatives in our standards and one of them, of course, we would like to analyze in an undiluted fashion is EPA's proposal, but EPA's proposal has apparently shifted to January.

Can you give me any time that you could get some estimate of what your final proposal is so that we can be sure to carefully characterize it in our documents, or do we have to wait until December 15?

MR. WRIGHT: I think, unfortunately, your are going to have to wait until December 15. I would be happy to share with you the results of the sessions we have had to date and the progress we have made. I think it will be fairly clear from those discussions the types of things that

have had stronger support among the various interest groups and others, and I think through that process you will have a fairly good idea of what our standards are likely to look like on December 15.

MR. HOWARD: Mr. Lecky, is the National Marine Fisheries Service evaluating any proposals for listing any other chinook salmon runs?

MR. LECKY: Any other chinook salmon runs?

MR. HOWARD: In the Delta.

MR. LECKY: Not at this time, although I will fess up that we have under consideration a decision to proceed with some broad scale listings. For example, we are currently reviewing coho salmon west coast wide, Washington, Oregon and California, and steelhead throughout those states, and Idaho as well.

There are a number of petitions that have been filed for salmon runs in the Puget Sound area for other species of salmon and the agency as a result of that is considering just doing a broad scale review of all anadromous fish runs.

That decision is pending. I can't really say we have that under way yet.

MR. HOWARD: I'm particularly interested in the spring run and I know that that's been reduced in numbers recently. I know there have been some discussions, but that hasn't been formally presented to you?

MR. LECKY: There are efforts under way and there's a grass-roots group we are cooperating with in the upper basins to try and restore habitat and improve conditions for spring run.

As we understand, there is a petition sitting around someplace that has yet to be filed. We don't have it yet.

MR. HOWARD: Does the National Marine Fisheries Service have recommendations for protection of spring run to the Board for the standard setting?

MR. LECKY: I believe that there are some recommendations in your files from the Fish and Wildlife Service in previous testimony on 1630 and it will be supplied later that cover those, and we agree with those.

MR. HOWARD: Thank you.

Mr. White, just a quick question for you. Do you have any information on additional requirements that the U. S. Fish and Wildlife Service might be imposing for protection of the Sacramento splittail or any other species you might be considering in the Bay-Delta system?

MR. WHITE: Well, the splittail we are addressing in a conference on the operations of the projects. It will be a part of the consultation, the long-term consultation.

I think preliminarily we don't see a whole lot of impacts on the project operations at this point.

It's more a habitat problem than a water issue and

habitat in the sense of where they are at the particular time the pumps are running, and again, trying to deal with the question of incidental take as we are required under Section 7 to address.

MR. HOWARD: So, you might be incorporating a take limit for splittail?

MR. WHITE: First, the Fish and Wildlife Service has to make a decision on whether we are going to go forth on a final rule or not. It has no protection under the Act until it is officially listed.

We are in the proposal process and we are required to confer with federal agencies on actions that we take that may jeopardize a proposed species. We are working with them in an informal sense just to see if there is any aspect of the projects on the splittail that we need to address.

MR. HOWARD: Thank you.

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

Any other questions from staff?

MR. WHITE: Just kind of a footnote to the 800,000 acre-feet which continues to generate a lot of interest and, in fact, if you look at some of the correspondence that the Fish and Wildlife Service and the Bureau of Reclamation have received from Congress, two letters that seemed to be in complete opposite as far as interpreting what the 800,000 acre-feet means under the Act.

It is a very complex issue just in an operational sense and Roger's explanation of first determining what the base flow of the operation is, then overlaying the priority anadromous fish needs, overlaying the endangered species needs, is really at this point a year-to-year process.

We have a good idea of what the anadromous fish needs are. We prioritize those.

MR. CAFFREY: I certainly appreciate the legal and technical difficulties over that 800,000 acre-foot requirement, but having said that, I also feel that if there is a little bit of -- I won't say confusion, but variation of interpretation of the Act, then that may also afford you the flexibility to interpret it in such a way as to use enough creativity to provide the reliability that we need in this process, and I certainly don't envy you your requirements there.

MR. WHITE: Your comment is well received.

MR. CAFFREY: As a fellow signatory myself on the framework agreement that Mr. Patterson so eloquently mentioned at the beginning of the presentation, I have high confidence in all of our abilities to work together and solve this problem so we have reliability in all beneficial uses.

That's really critical. We can't get overly hung up again in traditional or overly technical approaches to these

things. We have got to solve the problem.

MR. WHITE: Yes, and we are trying to get an answer to that so everybody can understand what it is.

MR. CAFFREY: We appreciate that.

Anything else from Board members or from staff?

MR. HOWARD: No.

MR. CAFFREY: I want to thank you gentlemen again. As fellow signators we have created ourselves a hard act to follow, and I am looking forward to being able to jointly produce with you to the satisfaction of the parties a plan that will protect the beneficial uses and provide reliability for our water supply in California.

Thank you very much.

We have three speakers that have asked for a very brief opportunity to address the Bay-Delta. This is a scheduling situation which I am going to accommodate.

Before I bring these three gentlemen up, I am going to announce other accommodations. This is taking longer than we thought. That is fine, we have scheduled a lot of time, and this is a very important discussion, so we are going to hear from the following three gentlemen: Mr. Lee Redman, Executive Officer of Kaiser Resources from Fontana, California; Keith Butler, President of the Valley Group from Temecula; Mr. Joe Kuebler, Executive Officer of the Inland Empire Economic Partnership from Riverside, California.

Those three gentlemen can come up together or they can come up in that order, or any other order they may prefer, and then, we will break for lunch, and after we break for lunch, we will hear from Gregory Thomas and his group from the National Heritage Institute, and after that, we will hear from Mr. Hall from the Association of California Water Agencies, and then, we will hear a panel discussion including Sacramento Municipal Utility District, the Federal Western Area Power and Northern California Power Agencies, and then, we will go back to the more structured schedule that I had announced earlier, and we will go through more detail when we get back as to how this winds up in the afternoon.

Good morning, gentlemen, and welcome. Would you introduce yourselves as you speak.

MR. KUEBLER: Good morning, Mr. Chairman and members of the Board.

My name is Joseph Kuebler and I appreciate the opportunity to appear before you today to offer my perspective on water, more specifically, the critical role that this essential infrastructure will play in the future of Southern California.

As background, I am a Certified Public Accountant and one of the owners of the accounting firm of Kuebler, Thomas & Company with offices in Perris and Temecula in

Western Riverside County.

I am also deeply involved in the Valley Group and the Monday Morning Group, two community-based organizations concerned with the economic development of our region, as well as the continuing prosperity of all of California.

As it has been in all areas of the state, water is the essential ingredient that has shaped the communities and the economy of Western Riverside. As a direct result of water availability, we saw agricultural development in the early years, but more recently, a conversion of these farmlands to homes and businesses.

These businesses now form an important part of the 350 billion dollar Southern California economy, and many of the people who live in our area are commuters who work in the larger business complexes of Orange and Los Angeles Counties.

As it has in the past, the livelihood of our citizens and the quality of life they enjoy, depends upon having enough water. And whether we have the supplies necessary hinges on the decisions now being deliberated by your Board and other State and Federal policy makers.

I know that the issues you are facing in the Sacramento-San Joaquin Delta are complex, but my message to you is simple. The Cities of California, north and south alike, need additional water from the Delta if they are to

maintain their economic strength and protect the quality of life of millions of people.

In Riverside County, the recent drought has shown us the consequences of running out. There were building bans in some areas, the costs of water crept even higher, and agriculture was forced to take trees out of production as a result of substantial reductions in deliveries.

We almost bend when emergencies occur, but this scenario is simply not acceptable as an ongoing policy for California. Something must be done and something can be done.

Now is the time for California to find the resolve to fix the water flow problems that are the root cause of the Delta's environmental, water quality and water quantity problems.

Now is the time to push ahead with new facilities and programs which will improve the habitat for Delta fish, give us better water to drink, and provide much of the additional supply we will need in the years ahead.

But whatever steps you take, your decisions must be balanced, taking into account the needs of the environment as well as the needs of the cities of California.

I believe the business community in Riverside County is ready and willing to support you in moving forward with the job that needs to be done. And I believe business

people in other parts of the state are equally anxious to work to that end.

What we can least afford is to continue to do nothing while the Delta environment continues to deteriorate and our cities face an increasing risk of water shortages.

Thank you for your attention.

MR. CAFFREY: Thank you very much, Mr. Kuebler. We appreciate your being here.

I'm not sure which gentleman is which, so will you introduce yourself.

MR. BUTLER: My name is Keith Butler. I am with the Inland Empire Economic Partnership. We are a private, nonprofit economic development group working in both Counties of Riverside and San Bernardino.

Our charge is to promote the region and help bring new jobs into the area, and help existing businesses grow.

Due to the rising cost of water and wastewater in the Inland Empire manufacturers have already gone through quite a bit of water conservation methods. Reducing availability of water will simply reduce production capabilities and will result in layoffs for workers.

California is now completing in a world-wide marketplace. It is not just Arizona, Utah and Nevada that we compete with. It is the country of Mexico, the Pacific Rim areas, South America and even India.

By adding the uncertainty of water availability, we have given one more reason why business should not look to California for expansion opportunities.

I would like to give a brief example. We recently worked with Anheuser-Busch Companies, the Metal Container Corporation, which is a division of Anheuser-Busch. They were looking for relocation of an existing can plant that was in the Van Nuys area. They looked at all opportunities in California, including Arizona and Nevada, and they had looked at many factors. They had to look at the real estate costs, labor cost, transportation, environmental issues and water and wastewater.

They did use quite a bit of water and wastewater.

The search was done in the midst of the drought that was highly publicized. Water availability was questioned and looked at but the reliability was assumed. That assumption is something that they went ahead and made the commitment to invest 125 million dollars in a new can plant.

I want to make the point that the can plant that they are building now at 125 million dollars, in comparison to a new plant that would be built in other parts of the country that cost about 80 million dollars. So, it is more expensive to do business in California. They are willing to make that investment. There's a great marketplace out here.

But when you add the uncertainty of water

availability, I think that they would have made a very different decision as to where they were going to do their expansion.

Finally, it is very important to reduce that uncertainty of water availability as soon as possible. As the national economy improves, select California businesses are going to be making expansion plans and we would like those expansion plans to benefit the State of California.

Thank you.

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

MR. REDMAN: I appreciate the opportunity to be here as well, and in trying to determine how to present my thoughts I will get into in a minute, but I thought instead of providing a lot of technical data, that perhaps maybe some visual images might help us understand why we are here today.

First, I am with Kaiser Resources. I am responsible for the management and redevelopment of all of our real estate holdings. Kaiser Resources is the successor company to Kaiser Steel Corporation out of bankruptcy. We are located in Rancho Cucamongo and have a number of assets, a lot of which are involved in real estate.

I am also here today with another hat on, and that is I am Chairman of the Inland Empire Economic Partnership, and that organization that represents so many businesses and

jobs throughout our region in Riverside and San Bernardino Counties.

In terms of dealing with visual references, one of the things that I thought about coming up this morning was, I don't know if you have been to the movies lately, but perhaps you have seen Terminator 2. Perhaps you saw recently the TV movie about the supposition in 1994 with Germany having won World War II instead of the allies, and perhaps the TV movie Hiroshima about the dropping of the bomb in Japan.

The reason I mention those three movies is the fact that they all have one thing in common, and that is that they were shot on location at one of our principal assets, which is the former Kaiser Steel mill site.

The reason I mention that is that the Kaiser Steel mill in their height employed over 11,000 people directly in that manufacturing facility in Southern California. In addition, that facility supported thousands of other jobs that basically relied on that facility to remain operational and to provide them with jobs.

If you look at what has occurred to us here in California, not just Southern California, with recent base closures and loss of jobs through that process, if you look at what has happened in the reduction in demand in the defense industries based on the elimination of the cold war

and other factors that have occurred, it's real critical that we all work together toward trying to restore both those jobs that have been lost as well as continue to do whatever we can to improve our situation, to expand existing businesses, as well as attract others to the State.

Again, I reference the State because I don't think this is an Inland Empire issue. I don't think it is a Southern California issue. I think it is an issue for all of us in California.

I really would not want to see the loss of reliability of water resources to affect our ability to do those things. It would be a shame to see more abandoned Kaiser Steel mill sites. If you have been out to the site or have seen any of those three movies, you get a great visual image of what occurs after those facilities are shut down.

As with all various species of fish and the other issues discussed earlier, there are varying species of business and industry and jobs that also will suffer from a reduction in that reliability of supply of water and these jobs are as much the life blood of the people of California as are those precious natural resources that we enjoy.

I think both the natural resources as well as those other species of industry deserve to be nurtured and encouraged to grow and to multiply so we can enjoy future growth for not only ourselves but our children.

And I guess as a closing comment, I would only ask that perhaps if you deliberate today and talk about all the various species that have been mentioned before, maybe the same thought and consideration should be given to some of the other endangered species such as the red-suspendered lumbermen or the blue-collared metal worker, or the sunburned construction carpenter, or the white-collared data processor, because I think they are as important as all the other things that we want to preserve and I think you should give due consideration to those as well.

MR. CAFFREY: Thank you, Mr. Redman.

Are there questions from Board members of these gentlemen?

MR. CAFFREY: Thank you. Anything from staff?

Gentlemen, we thank you for being here. We hope we were able to accommodate you sufficiently.

When we come back after lunch, we will hear from the National Heritage Institute, and then we will hear from ACWA, and then we will hear from the power producers panel, and then I will announce what further presentations we will have.

We will return at one-thirty.

(Noon recess)

WEDNESDAY, JULY 13, 1994, 1:30 P.M.

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MR. CAFFREY: If you all would take your seats, we will resume the workshop.

Good afternoon and welcome back.

We have a panel discussion now scheduled consisting of Gregory Thomas, Cynthia Koehler, David Sunding and Wim Kimmerer.

Good afternoon and welcome, ladies and gentlemen.

MR. THOMAS: Mr. Chairman, I am Gregory Thomas from the National Heritage Institute. I appreciate your special accommodation of our scheduling needs this afternoon.

MR. DEL PIERO: Mr. Thomas, I am sure the Chair was very pleased to accommodate your desires. The only thing I request is you need to make sure that Ms. Koehler puts it down into second gear so Alice can get it all in the tape.

That's an inside joke.

MS. KOEHLER: Not inside anymore.

MR. DEL PIERO: I guess it isn't.

MR. THOMAS: I will tone down the speed.

I just want to take a minute to introduce the panel. We intend to present two subjects this afternoon. First of all, as I promised we would in the first workshop, we intend to present the analysis that we did of the costs to the California economy of implementing standards as demanding as

those that the Club Fed agencies proposed last December.

Assuming that this Board chooses an economically efficient implementation approach, to present that information we have Dr. David Sunding, who is our staff economist at NHI, and he is on the faculty of the University of California, Berkeley, in the Agricultural Resources Economic Department, and then, secondly, a presentation on the need of protective standards specifically for the spring run salmon.

This is the hole in the federal safety net, if you will, and we propose to the Board the importance of protecting this particular run of salmon, and regard this as an opportunity for this august body to take the initiative and get ahead of the curve on the fisheries decline, and get there before the Endangered Species Act, if you will.

On that presentation, we will have Cynthia Koehler and one of our staff attorneys, Dr. Wim Kimmerer, who is our fishery consultant; and joining also is Nat Bingham, who is the Chairman of the Habitat Committee for the Pacific Coast Federation of Fishermen's Associations and represents the commercial fishermen, and will also have a word or two to say on the spring-run salmon matter.

Because of the complexity, I guess, of these two matters, I would like to request that we have a little additional time. I would guess that we need about 15 to 20

minutes for each of these presentations, if the Chairman would allow that.

MR. CAFFREY: Are there four presentations?

MR. THOMAS: Two presentations, but all together four individuals chiming in.

MR. CAFFREY: So, you need a total of --

MR. THOMAS: I should think no more than 40 minutes.

MR. CAFFREY: That would be fine. We have had other requests at other workshops and we try to accommodate, and we are interested in hearing what you have to say and we will allow that.

MR. THOMAS: We will begin this with Dave Sunding.

MR. SUNDING: Thank you. I think if you look at the process of improving water quality in the Bay and Delta, it is useful to think of this as a two-step process.

The first process is determining how much water is needed in aggregate to protect species.

The second step in the process is to determine who is responsible among all the water users in the state, who is responsible for giving up how much and when.

It's the second step that I think is the most interesting from an economic point of view, and it is the second step I would like to confine my comments today.

I would like to begin with an observation regarding California agriculture. As you look across the state, as

you look across growing areas, one thing stands out, agriculture is extremely heterogeneous, implying that there's a huge diversity in the state in terms of water productivity, and by this term *water productivity*, I mean the value that growers make, the sales that growers make with the water they available to them.

In fact, Dr. David Silberman, who is also on the faculty of U. C. Berkeley, and I in an analysis we conducted last year for the EPA, we determined that the least productive 20 percent of water used in agriculture produces only 4 percent of all agricultural sales -- the least productive 20 percent of water produces only 4 percent of all agricultural sales.

Now, this observation is both a blessing and a curse. It is a curse in that, obviously, some growers might be doing a little bit better with the water they have available, and it's not an optimal situation for the State's economy.

However, for the State Board, this observation of diversity in water productivity is a blessing in that it allows you an opportunity to implement Bay-Delta standards with small cost by removing the water from the lowest productivity in agriculture.

I would like to talk today about a market-based implementation program and argue that it is such a low cost

method of implementing Bay-Delta standard, and I would like to contrast this method, this market-based method with one that I think is simpler in some ways but very unfortunate in other ways, and that is a pro rata cut, assigning responsibility for Bay-Delta standards on a pro rata basis.

I would like to present today just a very brief description of an economic model that we constructed at UC Berkeley, and also, with funding from NHI, used to assess the economic cost of policies used to improve or aimed at improving water quality in the Bay and Delta.

This model is applied to asses the costs of the Endangered Species Act and Clean Water Act standards on the State's agricultural economy under both the market-based scenario that NHI is proposing and the pro rata implementation that other groups have proposed.

It is important to note that at the beginning of a discussion of this model, that there currently exists an active, if somewhat limited, water market in the State of California. Whatever plan the State imposes, whatever plan the Board adopts for implementing Bay-Delta standard, is not the final say in the following sense: There exists opportunities for some growers to trade water on a private basis. Just as you or I might trade a car, they can also trade water. You might think of the State's plan regarding implementation as the beginning point.

Economists talk about bargaining in the shadow of the law and that's exactly what might happen in this case, and when assessing the economic costs of policies intended to improve water quality, it is important to figure out where this process of trading is going to end, and it is only then that we can know the true economic impacts of Bay-Delta water quality standards.

The analysis that I will talk about today recognizes this private market, and recognizes also that the scope of the private market may be curtailed and, in fact, will be curtailed to some degree by endangered species restrictions on pumping.

Now, the analysis is being conducted with the use of what we call the rationing model developed by myself, David Silberman and Professor Dick Howett at UC Berkeley with funding initially from the U. S. Environmental Protection Agency.

The model measures very short run impacts of water policy changes. It is very simple and the growers are allowed only one kind of decision. They can fallow land to equate water supplies and water demands. The model explicitly treats groundwater pumping as fixed and this is consistent with our policy assumptions for reasons I will talk about in a second.

We don't allow responses such as technology adoption

or crop switching. In this sense the model is truly a short-run impact. It takes a while for irrigation technology to change to equate water supply and water demand. Again, this is a short-run impact model and overstates the true economic cost to growers, the true long-range cost.

The model measures revenue impacts, impacts of water policy agricultural sales as opposed to agricultural profits, which is the more standard and in some ways the more select economic welfare measure.

The use of revenue, I believe, is appropriate as a welfare measure when factors of production such as labor and capital can't be redeployed in other sectors of the economy. It is an obvious observation that one person's cost is somebody else's income, A farmer's labor expense is a farm worker's income. And if a certain amount of land is fallowed resulting in less agricultural production, both parties can lose if the farm worker can't get a job in another sector of the economy. This is a short-run measure of welfare.

I think revenue is probably more appropriate than profit, which counts only the farmer's loss.

Now, in terms of policy, the model measures the loss of revenue from the Endangered Species and Clean Water Acts standards on top of what's required by the CVPIA. We will

assume that there's a 50 percent overlap between Central Valley Project Improvement Act requirements and ESA requirements. In other words, we will assume 50 percent of the water taken away by the CVPIA also counts towards ESA and CWA standards. This is a rough assumption, one that was presented to us by the EPA, but one that I think gives us some way to start.

Now, we will also follow in terms of policy the U. S. EPA guidelines and assume that 700,000 acre-feet is needed of ESA protection in an average year and 1.4 million acre-feet is needed in a critically dry year.

Since the CVPIA sets aside 800,000 acre-feet in an average year and 600,000 in a critically dry year, the model begins with the assumption that 300,000 acre-feet are needed in an average year for ESA standards and 1.1 million acre-feet are needed in a critically dry year. The 300,000 number comes from the fact that 700,000 acre-feet is needed in total.

The CVPIA sets aside 800,000. 400,000 counts for ESA. 700,000 minus 400,000 is 300,000, so we are considering the incremental impacts of ESA protection.

Now, the model treats growers in the following way: Growers are grouped in, first, water districts. That is a very basic unit of analysis. They are then aggregated into basic CVP contractors in the San Joaquin Valley, CVP

contractors in the Sacramento Valley, Modesto and Turlock Irrigation Districts are treated separately, and then, the Delta water users are treated separately as well.

These basic classes are then aggregated into trading areas. For example, there might be a very broad scale water market where growers in the Sacramento Valley can trade with growers in the San Joaquin Valley. There may be, on the other hand, a more limited private trading scenario where only growers in the San Joaquin Valley can trade with each other.

We consider two basic types of private market scenarios; one that allows north-south trading between Sacramento and San Joaquin, and another that allows no north-south trading.

This one would correspond to some sort of type ESA standards on pumping.

Now, with the basics of the model out of the way, let me show you what I think are sort of dramatic results regarding the policy impacts. I would like to direct your attention, if I could, to the table that's blown up over there, not quite as large as I might like, but there it is.

And let's consider these impacts one at a time. Let me begin with the average-year case where we have a limited market, in other words, no north-south trading and a purchase fund.

In this case, the State would raise money to buy water from willing sellers, presumably most of whom are in agriculture. What this analysis indicates --

MR. NOMELLINI: Could you read the numbers out, we can't see the chart.

MR. SUNDING: Sure. The analysis indicates that the lost sales in this case would be 3.7 million dollars per year. Now, it is important to note that this is not how much money the State would have to raise to purchase 300,000 acre-feet of water. It is clearly more than that. What this is, is lost economic activity. It is lost agricultural revenue resulting from purchase funds that fallows land.

Now, it is interesting to contrast this to the case where there is no --

MR. CAFFREY: Excuse me, Mr. Brown.

MR. BROWN: Does this lost revenue include consideration of the multiplier of about three or four for ag products?

MR. SUNDING: Whatever the multiplier is, it doesn't account for that. This is direct agricultural sales.

MR. BROWN: Not the relating impacts?

MR. SUNDING: That is correct. This is not third-party impacts, that's correct.

Consider now the no-fund case with a limited market, limited private trading and no funds, so now we have pro

rata cuts with a limited private market.

Well, in this case the economic cost to the State of protecting the Bay and Delta rises dramatically, and this, I would argue, is a scenario that the Board should do everything it can to avoid.

If you have pro rata cuts with limited opportunity for some growers to make up those cuts with a private market, then there is very little escape for some folks. You have high economic costs as a result, some lower value crops starting to be fallowed in this case.

Consider now --

MR. CAFFREY: What is the number for that?

MR. SUNDING: I'm sorry, for the audience, it is 64.89 million dollars, 65 million dollars, in the case of a limited market with no funds in an average year.

What is interesting to note here is that you might think of the fund as being a public market that supplants, in fact, complements a private market. I think almost every economist would argue and most water users here would argue, that private trading is a good thing. It's good for the seller, it's good for the buyer, and it's good for society in that we produce more food and fiber with the water we have available.

In the case where private marketing is constrained by ESA restrictions on pumping or any other factors,

conveyance, for example, the ability of the State to host a public market is that much more important and that's precisely what NHI is proposing, a public market for the cuts that will protect the Bay and Delta.

Let me say a few words about implementation, the nitty-gritty aspects of how this fund would work. I think it is possible to have this fund work either as a spot market or the State would go out and purchase water on a year-by-year basis, or through short or long-term lease arrangements with growers that would involve some small up-front payment, potentially small up-front payment, definition of a strike price, and then exercising the option when needed.

In any case, what NHI is proposing is a willing seller program in that no one is coerced, no grower, or no urban agency for that matter, is coerced, required to give up water. Rather, water users are given the opportunity to sell their water to the State to meet standards.

The fund should be financed, in my view, whenever possible by lump sum or non-volume metric assessments, on all diversions from the Delta or any of its tributaries. This includes in principle both urban users and agricultural users.

Now, let me say my own opinion is that urban consumers should bear most of the responsibility for

financing for the simple reason that they receive most benefits from Bay-Delta protection.

The economic work that David Silberman, Michael Hanneman and I conducted for EPA indicates that most of the benefits from Bay-Delta protection are what we would call contingent value benefits or nonuse benefits, benefits not stemming from recreation, but rather, from the fact that people sleep well at night knowing that fish are happy in the Bay and Delta.

If that's true, and I believe strongly that it is, then those people should pay, people who live in urban areas should pay to protect the Bay and Delta.

Now, the costs of this program will be quite modest. The amount of money that is needed to be raised will be quite modest.

Let's do some simple calculations. In an average year, let's assume water sells at $90 per acre-foot. The State needs to purchase 300,000 acre-feet to meet ESA standards. That means the State needs to raise 27 million dollars to purchase all the water it needs to protect the Bay and Delta in this way.

Assuming that there are 10 million or so urban households, that implies a per hook-up cost, a per household cost, of only $2.70 per year to save the Bay. That's clearly a bargain that I think most urban households would

not be very upset about.

In a critically dry year, the cost per urban hook-up rises to only $13.75 per year with a higher water price and more water being diverted. A dollar a month saves the Bay.

That, again, is something I think most urban households would be happy about and I should note that the costs per urban household will decline clearly as agriculture is assessed more and more money for this fund.

So, let me conclude with a couple of summary points about the advantages of such purchase funds or pro rata schemes to implement Bay-Delta standards.

First, the purchase fund, because it is a willing seller program, takes just the lowest value water out of agriculture.

Second, the purchase fund will not increase and may even decrease the aggregate amount of groundwater pumping that occurs in the state because it will require fallowing.

Third, the purchase fund takes just what's needed for Bay-Delta standards on a year-by-year basis.

Fourth, the purchase fund requires in principle no investment in conveyance infrastructure because it is a market for the cut only. The grower would be given a choice, if you want your water or do you want a check? No water is being conveyed to the grower and then back to the Delta. It stays in the Delta if the grower doesn't want it.

Finally, if the fund is financed on a per-urban hook-up basis, the annual costs per hook-up are minimal even in a critically dry year.

Thank you.

MR. CAFFREY: Thank you, sir.

Mr. Thomas, would you prefer to take questions on the economics at this time, or shall we have the presentation on the spring-run salmon?

MR. THOMAS: Why don't we go through the questions now.

MR. CAFFREY: Mr. Brown.

MR. BROWN: Thank you. David, you obviously have put a lot of thought into this and you have some good ideas.

If we are just talking about 300,000 acre-feet of water a year, this plan by willing buyer and willing seller with fair compensation back to the area of origin, is an option that's been considered heretofore, and it is a good option along with the other options to make up those deficiencies.

Draft Bulletin 160-93 indicates that the State is currently one to two million acre-feet short of water today with the existing uses. With loss of water to the Central Arizona project and with the influx of people with projections up to 50 million people by the year 2010 and 2020, the shortfall is projected to go to five to seven

million acre-feet.

One of the options, hopefully, that will be available to mitigate that so we can pay our own way for water resources in this state some way is to have this water market trading that can address those issues. In addition, we have 800,000 acre-feet which the Bureau of Reclamation is looking for options to do the same thing.

If the problem was 300,000 acre-feet, that certainly would be a good option. But the problem exceeds 300,000 acre-feet by a considerable amount.

Have you given thought to that?

MR. SUNDING: I have. Let me give a limited answer first.

I would like to direct your attention again to the table that's blown up. As you can see, the limited market, you know, if there are limited trading opportunities, when the State needs to purchase much more than 300,000 acre-feet, for example in a critically dry year, the difference in economic impacts between having a fund and having no fund are quite dramatic, 42 million dollars in impacts with a fund, 248 or 249 million dollars without a fund.

As the amount of cut increases, as the amount of water needed for Bay-Delta protection increases, the value of the trading increases as well because you start to fallow some very high value crops in that case.

I think to the extent that more water is needed, it is even more helpful for the State to implement this kind of purchase fund.

I will give you a more general answer, too. The model that we constructed is based on actual water use. It is not based on demand or supply, it is based on actual water use in a predrought year.

As the State loses water to the Central Arizona project to other folks, clearly the impacts will be higher, but I think so, too, will be the benefits of water marketing.

MR. BROWN: You made a suggestion that there be no cropping pattern changes. That might be an error because much of the land that you are suggesting has low value is suitable for higher value crops.

MR. SUNDING: It is an error.

MR. BROWN: It is adaptable to a higher efficient irrigation system. Again, a pasture's consumptive use is greater than trees or vines that can use drip irrigation and such, and a potential for considerable water savings might be there.

MR. SUNDING: Absolutely.

MR. BROWN: Through intensified cropping patterns or values, so you may want to consider that.

MR. SUNDING: Let me say it is an error, it is an

intentional error. This rationing model was intended to be a short-term or almost an immediate term impact model that overstated to the greatest degree possible while still having a straight face, that overstated the impacts on agriculture.

If growers can switch crops, if they can change irrigation technology, and I believe strongly they can, certainly in the long run. They are right now. If that's true, and it is true, then the impacts should be lower than I have stated here.

MR. BROWN: Well, you may wish to revisit that.

And then, the other one you made was that groundwater pumping would remain the same and that, of course, is not what's happening. As surface water supplies are depleted for whatever uses, then there's greater reliance upon the groundwater basins that are already in many areas being mined and organics and nitrates start to show, so you may want to revisit that also.

MR. SUNDING: I guess my response to that would be that is a problem with the pro rata cut. It would not necessarily be a problem with the kind of purchase fund that NHI is proposing.

We took as a model in some ways Metropolitan Water District's program in Palo Verde Irrigation District, whereby they required fallowing. If you require fallowing

again on a one-year basis, then clearly there isn't an increase in groundwater pumping because there is no production at all.

MR. BROWN: The purchase fund that could buy water from willing sellers on a voluntary basis, you are suggesting would be state-wide supported?

MR. SUNDING: Yes.

MR. BROWN: Thank you.

MR. CAFFREY: All right, any other questions from Board members?

Mr. Thomas, your next presenter.

MS. KOEHLER: Cynthia Koehler. Dr. Kimmerer and I are here today to respond in part to your request for alternative standards with a proposal that the Board adopt protection specifically for the spring-run chinook.

Our proposal in this regard serves really two purposes. At this point, it appears fairly certain the spring run is eligible for listing under the State and Federal Endangered Species Act.

At NHI we have withheld fallowing for such a petition for a couple of years in order to let voluntary efforts to recover this fish take effect, and a great deal has been taking place in the upper tributaries and, of course, the ocean harvest has been severely restricted.

Nevertheless, it now appears that unless actions are

taken to protect out-migrating spring run smolts in the Delta, those efforts will not really be sufficient to bring the species back from the brink of extinction.

And the second purpose that our proposal hopes to serve is to avoid any negative impacts from the Board's adoption or EPA's adoption of standards targeted primarily at the spring months.

The concern here is that exports and Delta pumping may then be shifted to precisely the period when spring smolts are out-migrating. That is the period we are most concerned about, which is November through January, and thus, further harm a species that is already teetering on this planet.

I want to talk a little bit about the geographic area we are most concerned about. The primary problem is fish populations, spring-run populations in Mill and Deer Creeks. These are among the last tributaries where pure strains of this fish remain. Most of the spring run habitat was eliminated by water development dams occurring early in the middle of the century.

But the spring run is now also extinct and no longer spawns in the mainstream of the Sacramento and a number of tributaries. There are no hatchery spring runs. Hatchery fish that are labeled spring run are now widely recognized to be completely hybridized.

There is a recent DWR study on this point that is cited in our paper and we can provide you with additional information on that if you require it.

As our commission details, the scientific consensus is now that the only spring run genetically pure strains of spring run remaining are spawning in Mill and Deer Creeks and possibly a few other tributaries in that area. Populations in those creeks have been decimated over the last several decades.

The Department of Fish and Game estimates that populations in Mill and Deer Creeks have declined by 80 percent since the late sixties. Less than 1,000 fish return to spawn now in those creeks.

We have been consulting agency personnel and non-governmental fishery biologists the last six months to try and come up with a targeted set of proposals for spring run restoration in keeping with our goal of trying to recover this fish without resorting to the more draconian measures in the Endangered Species Act.

We were surprised by the level of consensus that the Delta is the largest problem for spring chinook populations in those creeks.

I am going to let Nat Bingham talk about the efforts under way to restore the spring run in the tributaries and the ocean harvesting restrictions, but the fact remains,

aside from those efforts, there are no protections for spring smolts which out-migrate through the Delta in the January-through-November time period.

I'm just going to give you a little background on why this is so unusual. These fish return to spawn in the springtime and they are unusual in that they hold over the summer in these high, very cold creeks. A part of the reason that we have seen the decline in this species is there aren't a lot of creeks below Shasta Dam that mimic the habitat that formerly existed above that area. They don't spawn in the fall and then they hold over for an entire year and out-migrate as yearlings, so they are moving out of the stream into the Delta in the fall period which is relatively unusual.

Most of the evidence before the Board targets the spring run for protection and, therefore, it will be critical that you not limit yourselves to that particular period.

As I said earlier, you then run the risk of shifting the problem from one species to another. In this sense, our proposal intends to be consistent with the Board's goal of adopting an ecosystem approach to your standard setting.

Moreover, as I indicated earlier, the spring run experts agree that protection for spring run smolts is the single-most effective action that the Board could take to

bring the species back from the threat of extinction.

The proposal itself is relatively straightforward. We are suggesting that the Board extend the measures which have been developed using fall-run data into the period during which spring smolts are most likely to be in the Delta.

I am going to defer to Dr. Kimmerer to discuss the details and the scientific justification for the proposal.

DR. KIMMERER: My name is Wim Kimmerer and I am a biologist. This is the second time I have been before the Board to talk about things that I didn't used to know a lot about, but I am a modeler and I have learned a lot about the population cycles of chinook salmon and what causes them to go up and down, and what are the important part of the life cycle.

The objective here, of course, the short-term objective, I guess, is to prevent listing of spring run and doing that by giving them enough protection that their decline can be reversed; and if, in fact, the problem is smolt passage through the Delta, as we seem to think it is from November to January, there are a number of things that have been identified that can be done about that, and the real sort of impediment to getting a good handle on this problem is that there's very little data specific to the spring run.

And what the Fish and Wildlife Service and others have done to take care of that problem is to use information they have gathered from the fall-run fish that they have released and they have followed their passage through the Delta and analyzed it. They have done some work with late fall fish, which are a larger size than the fall-run fish, and these results seem to be consistent with what they found for fall run.

One of the major issues for fall-run smolts going through the Delta is temperature. For spring run, since they go through in the middle of the winter, that's not an issue.

And so, what seems to be the most important issue is the diversion of fish off the mainstem Sacramento into the Central Delta, specifically through the Delta cross channel and Georgiana Slough.

Survival of smolts released downstream of the cross channel in Georgiana Slough is much higher than the survival of smolts upstream or in Georgiana Slough.

So, what happens is the fish split off the mainstem Sacramento something like in proportion to the flow, something that's not known very well, but it seems like the ones that go down into the Central Delta do much more poorly.

So, the first thing to do would be to prevent these

fish, or to the extent possible, prevent them from getting into the Central Delta, and you can do that most effectively by shutting the cross channel gates from November through January.

Now that still leaves Georgiana Slough open and NHI is not recommending that Georgiana Slough be blocked off. There are other fish and other races of salmon that might be harmed by this.

But what this means is that some fish will get through into the Central Delta no matter what you do with the cross channel gates. And to get the best benefit for the fish migrating overall, you really need to protect the fish that actually accidentally get through Georgiana Slough or through some of the other passages that bring them into more direct contact with the export pumps.

And it seems to be the case that for those fish that get into the interior Delta, the biggest issue is probably the level of exports, so NHI is recommending, and I would concur, that export limits something like what the Fish and Wildlife Service has recommended for fall run in their Alternative D, in their report WRINT 7, that there be a cap on maximum total exports, and this is in the handout you got, but they range from 6,000 cubic feet per second in wet years to 2,000 in critically dry years.

These particular numbers were chosen by the Fish and

Wildlife Service and I am not personally prepared to say that those are the right numbers or they should be something else, but something on that order seems appropriate.

The final thing that can be done has to do with Q WEST. Now, Q WEST is an index of flow conditions in the Southern Delta. It purports to be the flow of water past Jersey Point. My personal opinion about Q WEST is that it is actually nothing of the sort and that there is no such thing because it is a tidal environment.

However, it does seem to be a useful index of the overall flow balance in the Delta. When the Sacramento River flows are high and exports are high, and the cross channel gates are shut, you will get a negative Q WEST. When the San Joaquin River flows are high, you will get a positive Q WEST. Again, it is just an index, but until we come up with something better, it is probably the best thing we can find to deal with the issue of within Delta conditions.

And the Fish and Wildlife Service, again, in its report to the Board, gave a recommendation for minimum Q WEST positive of 1,000 cfs in all water year types, and again, NHI is recommending a limit on Q WEST of that sort of range.

That's all I have.

MR. CAFFREY: Thank you, Dr. Kimmerer.

Is Mr. Bingham going to speak next, sir?

MR. THOMAS: Yes.

MR. BINGHAM: Thank you very much, Mr. Chairman and members of the Board.,

My name is Nat Bingham and I am Habitat Director of the Pacific Coast Federation of Fishermen's Associations and serving as Chairman of the spring run work group.

This work group was put together as a result of the initiative which was begun by NHI. They came to us in the fishing industry a couple of years ago and asked us what we thought about a listing of the spring-run chinook under the Endangered Species Act, and our response to them was, hey, we have worked very hard to get a lot of fall-run fish out there in the ocean. We have paid to get these fish raised in the hatcheries. We have done all kinds of habitat work.

A listing of the spring-run chinook would completely close the ocean harvest of chinook salmon because you cannot separate these two species in the fishery.

So, it was in our best interest to go forth and get all the folks together, ranchers, farmers, people who work in the woods, Lassen National Forest people, to form these work groups to voluntarily do the kind of things that would be done under the endangered species mandate.

And we have had quite a bit of success in that. Some of the things that we have accomplished are set forth

on page 13 of the handout, so I won't go through them all right now, but we have been able to get adult protection, we have raised funds to get additional game wardens protecting the few fish that have made it up into the holding area, a lot of ranchers are voluntarily fencing off their property now and creating riparian protection zones.

This has all happened because the fishing industry has organized and coordinated this effort.

All the way along we knew, based on the inputs that we got from biologists and all the experts, that the Delta flows were considered to be the primary impact on the survival of spring-run chinook, but we felt that this was too large an issue for your group and that we would concentrate on the tributary issues and do the right thing up there.

The group has asked me to come to you and ask you to do the right thing for the spring-run chinook, too, to do your part on a voluntary basis as we have done so that we may prevent a listing from happening, because it would be an economic disaster for my industry and I believe it would cause additional economic pain for the south of the Delta water users.

So, cooperative action where we all work together seems to be indicated here today. I would earnestly recommend that you consider such action.

Thank you.

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

Mr. Thomas.

MR. THOMAS: We are ready for questions, Mr. Chairman.

MR. CAFFREY: Thank you, gentlemen.

Are there questions from the Board members of this panel? Anything from staff?

Mr. Howard.

MR. HOWARD: Looking at the causes of decline, you say it looks as though the principal concern of the spring run is entrainment at the pumps and temperature isn't a major concern.

Have you been looking at salvage data at the CVP and SWP fish facilities in November to January and seen substantial numbers of spring run?

DR. KIMMERER: I haven't looked at the data, so I couldn't tell you. I haven't looked at the salvage data.

MS. KOEHLER: We can try to get a response to that. A lot of the information in that section was based on reports by Peter Moyle, so we can certainly get the answer to that question for you.

I think if anybody is tracking this, it would be Dr. Moyle and his staff.

MR. HOWARD: I can get it. It is on the bulletin

board. It seems like everything here relies upon the fall-run analysis, and the fall-run analysis, at least in my understanding, was that it was largely temperature driven, the additional time in the Delta that high temperature was causing mortality.

It would appear with the spring run your concern is entrainment and it seems like we could check that.

MS. KOEHLER: That's true. Let me draw your attention to the last section of our paper. There haven't been a lot of studies in colder water, but the Fish and Wildlife Service has recently, as part of the work it is doing with regard to winter run, made a release of yearling-size fish, the same type of study done for fall run, into Georgiana Slough and at Ryde during colder temperatures, I believe it was during the summer, when the temperature was 51 degrees, and they obtained very similar results to the fall run.

I guess that is detailed in the last part of our paper, and we can get that information from the Fish and Wildlife Service.

DR. KIMMERER: Also, I suspect that entrainment alone is probably an oversimplistic view of the problems that chinook salmon have in the interior Delta. The Delta is probably not as good a habitat as it used to be. The environmental cues for which way to migrate are largely

missing when exports are high and flows are low.

So, there's a lot of problems besides simply exports, plus there is a problem of predation in Clifton Court that essentially raises a lot of signals from the salvage data. You lose a lot of fish so it's hard to tell what is going on.

MR. GRIFFIN: I have a question about the scenarios you discussed earlier. Do you have any information on the regional economic impacts of these trading and purchase fund scenarios?

It is possible much of the water would come from low-value crops which would be concentrated in particular areas and have severe local impacts?

MR. SUNDING: Yes. I haven't presented those impacts in the report that you have, but it is certainly possible to do that even with the information that's in there.

In the back I have detailed specific predictions about who would sell water, in what region and in what amount; the crops that would be fallowed as Tables 2 through 9.

So, it is certainly possible to go through there with a hand calculator and I could certainly provide you that information if you would like.

MR. GRIFFIN: I would certainly like that. Thank

you.

MR. SUNDING: By way of a brief note, I think a lot of the impacts will be centered in the Delta and also in the eastern side of San Joaquin Valley. There's an awful lot of relatively low productivity water used in that area and that water generally isn't available to the private market, so you might think of it.

The riparian water in the Delta especially isn't available through a private market, so you might think of it being a pocket of low productivity water that is available essentially only to the State through this kind of purchase fund to meet the Bay-Delta standards.

MR. GRIFFIN: I certainly would be interested in seeing some of that.

MR. SUNDING: I can supply you with that.

MR. CAFFREY: Any other questions?

Mr. Brown.

MR. BROWN: The spring run is having problems all up and down the coast. In fact, I believe the State of Washington and up through maybe Georgia Straits out on the peninsula. I think that this year they have eliminated all fishing up there.

What's affecting those fish up there and what kind of effect does that have on the problem that we have down here?

MR. BINGHAM: If I could answer that question for you, the primary effect on the fisheries in the State of Washington and Oregon are the problems on the Columbia River connected with out-migration of juvenile salmon, and these are hydro power impacts.

Each dam incremental it kills a portion of the out-migrants. They get lost in the reservoirs because of lack of current. So, it's a very different type of problem than we see down here in California, but it is basically the cumulative losses on the Columbia River which is the primary problem in the Pacific Northwest.

MR. BROWN: The official word from the commercial fishermen up there, what they are saying, is that the problems of netting capability has had a tremendous negative impact on the fishing industry up there.

MR. BINGHAM: The same fisheries in Puget Sound have largely targeted stocks originating from British Columbia for many years.

The declines that we have seen which were driving, is this closure of the Washington coastal stocks originating from the coast. You have a very complex mixed stock situation which is complicated by treaty negotiations with Canada, so it is really difficult to sort these issues out and say that this is the single reason for the decline.

You also have a State fisheries policy up there

that's, frankly, going in the direction of terminating commercial fishing as a way of life rather than dealing with habitat problems, which we object to very strenuously.

MR. CAFFREY: Any other questions?

Mr. Thomas and your panel, I would like to thank you all very much for your input and your participation. We do appreciate it. We will read your material and thank you very much.

MR. THOMAS: We appreciate the opportunity.

MR. CAFFREY: In keeping with our effort to accommodate, I am looking at Mr. Hall, he is raising an eyebrow and I am going to beg his indulgence. We have eight individuals who have flights to catch and have to be out of here by three o'clock.

My understanding is they have all agreed to speak for just a minute each.

MS. FORSTER: Their flight is at three.

MR. CAFFREY: Their flight is at three, they are worse off than I thought.

Are there individuals here who have a three o'clock flight? Is the note that we have received correct, let me read the names here. Maybe they are on the plane already.

We have Don Gardner, who has a three o'clock flight. Would you like to come up and speak for a minute.

I will read the names and you can all come up

together and line up. We know you have come a long way and we appreciate that. Sorry these proceedings oftentimes take quite a while.

We have Don Gardner, Fred Chen, then Robert Durgan, Dennis Spaniole, Wendy Illingworth. I may be reading some here that don't have that problem, but we also have Gary Conover. I believe that's it.

Have I left anybody out?

Please come up and spend a minute at the podium and let me point out that in fairness to the other parties, I must limit you and you know you also are limited anyway by your flight being imminent.

Please be assured that if you submit in writing a statement, it will go into the record and we will certainly review it, sir.

You are again, sir --

MR. GARDNER: Don Gardner and I am representing Mr. Don Finefrock, CEO and President of Kirkhill Rubber Company, which is located in the City of Brea in Orange County.

Briefly, I am going to summarize my whole statement and that is we are very concerned about the water problem mainly because, as a water user in our processes, we need to have a good supply of water and it needs to be a regular supply of water.

We can't change in the middle of the stream, and

prices of our competitors who are out of state who are competing against us, don't have that problem.

And we are being quoted day in and day out by others states. I hope you are aware, I am sure that they are not courting other government agencies because they've got their own share, but we are committed to California. We are hoping the State will be committed to us in helping us stay in business.

We are 550 employee-owned owners and we would like to stay working here in California.

That's all.

MR. CAFFREY: We appreciate your being here, Mr. Gardner.

Let me point out the State law does require the State Water Board to consider the economic impacts in water quality decisions, so we are not unaware of the concerns that your industries have, and we do have an obligation in that regard, so we appreciate your being here.

You, sir, are --

MR. CHEN: Fred Chen.

MR. CAFFREY: Welcome, sir.

MR. CHEN: Good afternoon. My name is Fred Chen and I am the immediate past President and Director of the Asian-American Architects and Engineers Association of Southern California.

We are a state-wide organization of more than 500 professionals divided roughly half engineering and half architects.

While we may be divided professionally, we are not divided as a state nor are we divided in our resolve to urge the State and Federal Governments to come together to solve what has become a crisis in the San Francisco Bay/Sacramento-San Joaquin Delta estuary.

The problems associated with this important ecological area have been known to one degree or another since the early 1950s. The estuary is one of the most studied environments in the United States.

The estuary is also one of the most critical water supply facilities in the country, providing drinking water to some two-thirds of all Californians.

Months ago President Clinton, in a speech discussing the economic recovery of the nation, underscored the importance of California to the nation as a whole. He correctly noted that, and I am paraphrasing, as goes California, so goes the nation, in terms of recovering from the recession that has gripped the United States for too long.

An assured supply of high quality water is a key ingredient to that recovery.

Businesses, thinking about expanding or locating in

California, are either giving pause to that decision or, in fact, locating elsewhere. Jobs are either failing to be created or they are moving somewhere else.

Just as a solution in the Bay-Delta estuary is in gridlock, so are the opportunities in California in gridlock.

Clearly, the inability to solve Bay-Delta problems has impacted, and will continue to impact the urban areas of all of California. In fact, it is interesting to note that the issue of water supplies that has historically divided California is now the point of focus that is bringing California's urban areas together.

We all have a stake in your deliberations and in the State's ability to work with the Federal Government in reaching reasonable standards in the Delta, standards that are based on good science, standards that can be practically applied, standards that will help the Delta environment and allow California's economy to continue to expand. This, in turn, can give the nation as a whole a lift.

We are all reasonable people, and together we can find reasonable solutions. All that is required is the will to work together and the desire to solve the problem rather than choosing not to decide.

The Asian-American Architects and Engineers Association urges the State to work with the Federal

Government and end the water supply gridlock that ultimately will paralyze the State.

Thank you.

MR. CAFFREY: Thank you very much, Mr. Chen, for coming all that way to speak to us.

Robert Durgan. Unfortunately, you have one minute, sir, we have people with three o'clock flights.

MR. DURGAN: Actually, I have one at four-ten.

MR. CAFFREY: How many people along the wall have three o'clock flights? There's nobody here now -- we have dealt with the people that have three o'clock flights?

MR. DEL PIERO: Either that or they left.

MR. CAFFREY: All right. How much time did you need, Mr. Durgan?

MR. DURGAN: I think probably no more than five minutes.

MR. CAFFREY: Why don't you go ahead and give your presentation as briefly as you can and we will try to get through the others along the wall and accommodate them.

I apologize to Mr. Hall for making him wait, but he is doing it very patiently. Thank you.

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

My name is Bob Durgan and I am Director of Public Affairs for Kelco in San Diego, California.

Kelco was founded in 1929 in San Diego and today is the leading global supplier of alginates and exanthan gum which are known as hydrocolloids or speciality chemical ingredients. Alginates are derived from the kelp beds which Kelco harvests off the coast of Central, Southern and Baja, California.

A pioneer in biotechnology, Kelco also produces biogums such as exanthan gum, which are made from fermentation. It may be of interest from a standpoint of California's technology image, in the last 25 years only four products have been approved by the U. S. FDA for use in foods. One is exanthan gum which was approved in 1969, which Kelco developed and commercialized.

Next was a product called aspertain, better known as nutrisweet. Another was polydextrose and the fourth was gelatone (phonetic) which Kelco received approval for in November of 1992.

Much is talked about of the burgeoning biotechnical industry in California, but Kelco has had a successful 30-plus-year history in this area.

Both the alginates and biogums are used in a wide range of applications ranging from food and dairy processing to pharmaceutical uses to drilling for oil and gas exploration.

Today, Kelco employs 590 workers in San Diego with

an annual payroll of 37 million dollars. Total annual purchases for our California plant are in the neighborhood of 28 million dollars, most of which is spent with California suppliers.

Kelco is also the largest industrial water user in San Diego County, consuming 2,400,000 gallons per day of fresh water as well as 9 million gallons per day of recycled water. Because water is so crucial to our operations, a two million dollar program began in 1988 has resulted in overall water reductions of 25 percent.

Our incentives for saving water included reducing operating costs and contributing positively to the State's water problem. There were and are no rebates or incentives that encourage businesses to invest in reducing water usage in California.

With increasing global competition emerging from countries such as China, Japan, France and Norway, as well as from within the United States, the issue of future reliability and costs of water become critical to Kelco's success and future in California.

Today we have production facilities in Pennsylvania and Oklahoma, as well as three plants in the United Kingdom.

In 1977, Kelco had only one U. S. manufacturing facility which was in San Diego. Certainly, it is difficult to imagine any Kelco expansion in San Diego in light of the

current environment.

On a more positive note, following are some recommendations we would like you and your Board to consider from a California manufacturer's point of view:

An emphasis should be placed on analyzing the Bay-Delta impact on the urban economy. In California, urban areas of the state are responsible for providing over 600 billion dollars of the State's 750 billion dollar gross product and 90 percent of its total employment. Therefore, we feel as an urban player the State must establish a water plan which focuses on market demand.

In addition, the future health of California's economy cannot wait and requires the establishment of reasonable standards this year. The State must work with the federal agencies to develop immediate standards and a comprehensive multispecies plan that addresses the multitude of factors affecting the health of the estuary.

Due to the critical nature of water availability for manufacturers, flexible water transfers are necessary and essential to manage shortages with minimal economic impact.

Finally, we believe that the implementation of the burden of standards should be shared by all upstream, downstream and Bay-Delta water users.

I would like to make one last comment from the standpoint of the hard hit San Diego economy. Two of the

growth area's involved industries have people who are looking very closely at the outcome of your Board's progress. One is the biotech pharmaceutical area as well as circuit board manufacturers. They will be watching once again the outcome of these proceedings very closely.

We wish you luck and success in completing this important task.

Thank you very much.

MR. CAFFREY: Thank you, Mr. Durgan. We appreciate your being here.

Dennis Spaniole. Are you someone with a scheduling problem?

MR. SPANIOLE: I have approximately an hour, so if you would like, I can defer.

MR. CAFFREY: You didn't put the amount of time you needed.

MR. SPANIOLE: Just a couple of minutes.

MR. CAFFREY: Why don't you go ahead now.

MR. SPANIOLE: Mr. Chairman and members of the Board, I am Dennis Spaniole. I am Director of the Council of Industries of West Contra Costa County.

To tell you a little bit about our organization, we are 32 manufacturing, research, environmental support, and biotech companies in the Bay Area, specifically in Contra Costa County.

We did an economic survey about two years ago. Currently our 32 member companies employ over 20,000 workers in the Bay Area. I might add, that these are highly paid workers. Two years ago the average annual salary was in excess of $40,000 a year.

Currently in the Bay Area we have six petroleum refineries that are in the midst of doing a reformulating fuel project. We are looking at a total dollar cost for the six refineries of almost 4 billion dollars. Obviously, you don't recruit this type of investment overnight.

Our member companies are very concerned about the future availability of quality and quantity of water. I would note that we are doing our part. The largest employer, largest company in the Bay Area is the Chevron refinery.

In 1976, before the drought, the Chevron-Richmond Refinery was using almost 20 million gallons of water a day. Currently they are using 13 million gallons. They are in the process of building a reclamation project which will come on line sometime next year, in 1995, and they think that figure will drop to approximately 8 million gallons of water a day. So, in the last 15 years or so, they have reduced their water use by approximately two-thirds.

The former gentleman mentioned the emerging biotech industry. We are also concentrating on that in the Bay

Area. I'm very proud to say that we recruited a new company, new biotech company into the Richmond, California, area about two years ago called Bullock's Biosciences. It is projected that they are going to employ a thousand to fifteen hundred workers over the next five years. We are hoping that they are going to be a magnet that's going to attract other types of biotech to come to that particular area.

Water availability, the quality of water, again, is a crucial factor when the determination is made what specific area that these major firms would move into.

My reason for being here today is to urge the Board to implement reasonable Bay-Delta standards that address the needs of business in the industrial community. Again, we are very concerned with the reliability and acceptable quality for our industries at reasonable cost.

And with that, I would thank you for your time and be happy to answer any questions.

MR. CAFFREY: Thank you very much, Mr. Spaniole, we appreciate your being here.

I am not sure these notes I have are correct. Is there somebody else with a three o'clock problem?

MS. ILLINGWORTH: No. I am speaking for the Urban Coalition and I am sort of wrapping up from the previous speakers.

Although I don't have a plane to catch, I would like to follow the previous speakers.

MR. CAFFREY: I am sorry, you are --

MS. ILLINGWORTH: Wendy Illingworth.

MR. CAFFREY: Okay, I have your card. How much time do you need? We do have other people with expectations and we have had to move this schedule significantly to accommodate them who made plane reservations prior to knowing when they were going to speak.

MS. ILLINGWORTH: I believe I am going to take about ten minutes.

MR. HALL: Mr. Chairman, I defer to Ms. Illingworth.

MR. CAFFREY: I appreciate that, Mr. Hall, and we will get you immediately after Ms. Illingworth makes her presentation.

Go ahead.

MS. ILLINGWORTH: Thank you, Mr. Hall.

I am here not to answer the questions that were raised on the economic issues in the Board's notice, but to add to those questions. I don't think that the Urban Coalition is prepared to answer the questions. We are actually working on those issues and we hope to have a written statement to the Board in the near future.

But we believe that the Board needs to examine additional questions as well as those which you have raised

in the notice. In particular, the issues that we want to raise to the Board's attention are the following:

The base case for the study needs to be clearly defined. The short run and the long-run economic impacts both need to be examined. The Board needs to investigate a range of implementation options for the standards. It also needs to investigate the allocation of responsibility for meeting those standards, and it also needs to recognize the limitations to opportunity for transfers.

To expand on those, first of all, it is very important that the base case, the case of existence before the standards, be fully explored by the Board.

One of the things that we need to be aware of in conducting the economic analysis is that we don't assume that things can be done in order to mitigate the effect of the standards that are already going to be done under some base condition. Therefore, we have to be very clear and explicit as to what goes into that base case.

There are many things that the Board has to consider. For example, it obviously should include Decision 1485, but then, there are issues such as the winter-run salmon decision, the Central Valley Project Improvement Act, the take limitations, and various other options, the endangered species, that the Board should consider whether they should go into the base case condition or not.

We also want to raise the issue of demand levels. The Board needs to understand what the current situation is without standards, that the water supply agencies are facing. What demand levels will they need to meet and how do they currently without standards plan to meet those demand levels?

In particular, this is important from the point of view of transfers. Any transfers that are required to meet the demand levels will not be available to mitigate the effects of the standards.

Secondly, I want to address the issue of short run versus long run. There are going to be very different effects in the short run than in the long run.

In the long run agencies and consumers will be able to react to the standards and undertake projects which enable the cost of the standards to be mitigated.

In the short run those options are not available.

Therefore, the Board's economic analysis should include at least one representative year of the short run and the long run to fully understand the broad scope of costs that will be incurred.

Thirdly, the Board needs to investigate the range of implementation options to reach the standard that it decides.

It is the Board's responsibility to explore the

economic impacts of various implementation alternatives and choose those that have the least economic impact consistent with meeting the necessary standards in the Delta.

Fourth, the Board must recognize and investigate the range of different regional costs. The costs to urban consumers vary widely according to the region of the impacts.

So, therefore, to undertake the study, the Board must make some guess of some range of estimates of the form of allocation of responsibility that are likely to occur.

As part of this recognition of regional costs, the Board must look at the difference in supply options available to regions, the difference in transfer options available to a region, and also, the difference in conservation programs and demand growth.

There are many differences that occur between these regions that the Board must recognize in its analysis.

Finally, the limitations and opportunity for transfer must be recognized. There are many in these, the most obvious of which is the physical barriers existing on the facilities.

The Board must decide which facilities are going to be available for transfer. Whether we should assume that current facilities are restricted or whether we assume the level one facilities as outlined in Bulletin 160, the Board

must make clear the level of facilities it is assuming when looking at transfers.

So, another impact is going to be on the level of transfers in the base case. As I mentioned before, if the base case assumes that 600,000 acre-feet of transfers are going to be required to meet demands, that severely impacts on the amount of water transfers that will be available for mitigation.

Secondly, the amount of water that has been removed from the system through other causes -- we have just heard a discussion of the spring-run chinook restrictions that may or may not be considered by the Board. There is also the other considerations such as take limitations and the CVPIA.

The time of transfers is important. If transfers are available in the spring or the fall when there is less demand for water, the water must be stored in local storage, either surface or underground. Therefore, the timing must also recognize the level of storage on the system to enable the transfers to be stored until they are needed.

And finally, the Board must recognize existing institutional barriers to transfers. While it is hoped that the Board will play its part in overcoming these institutional barriers, they still exist and in the short term at least will make a restriction on the market.

Given the complexity of this analysis, we feel that

the only way that a reasonable economic analysis can be performed is by closely working with the agencies involved in supplying water. The agencies are very interested in working with the Board staff on this issue.

We have already been working with EPA on the issue and we would like to commend EPA for the proactive way it has involved as many interest groups as possible in its process.

We recommend that the Board continue along this same line and we feel that this will most insure that the economic analysis that is performed is the best that can be done under the time limitations and other limitations that we face.

Thank you. That concludes my testimony.

MR. CAFFREY: Thank you, Ms. Illingworth.

MS. FORSTER: I just have a question. You raised a lot of interesting issues. You said in the beginning that you were going to submit this. You haven't submitted it in writing, but you are going to submit it in writing.

MS. ILLINGWORTH: The urban agencies are trying to decide answers to these questions or recommendations for answers to these questions, and we hope to submit a written statement.

MS. FORSTER: Because I was going to say, we will not know all this information that you bring up in this

base-case condition, so I was hoping that you were going to say that the people that you have been working with can supply us with a lot of this information so that we have the answers to these questions -- I am curious who knows these answers.

MS. ILLINGWORTH: I would urge the Board to continue the consultative process that started with EPA. Mr. Griffin and myself have been in many meetings with EPA discussing just these issues, and I would hope that this process would continue.

MS. FORSTER: Thank you.

MR. CAFFREY: Mr. Brown and then Mr. Del Piero.

MR. BROWN: Wendy, you have a very good summary of the economic concerns establishing the base case. I know you worked a little bit on the CVPIA plan of action and I know the struggle that those people had in trying to identify the no-action alternative or the base case.

Do you know where they are on that?

MS. ILLINGWORTH: I am sorry, I haven't kept up to date with that.

MR. BROWN: I wonder, is staff familiar with the work on the no-action alternative, what they have and how that may relate to Wendy's remarks on the base case?

MR. GRIFFIN: I don't have any information at this date.

MR. HOWARD: I was of the opinion that the Central Valley Project Improvement Act was using D-1485 in NMFS and EPA's draft standards as their base case for standards, if that's your question.

MS. ILLINGWORTH: That agrees with my last knowledge, but I am not sure how current it is.

MR. BROWN: Thank you.

MR. CAFFREY: Thank you, Ms. Illingworth.

Mr. Hall. I know you had a scheduling problem and we appreciate your patience.

MR. HALL: Well, having been through a few of these, I understand your logistic problems and I will try to be as brief as I can as well.

For the record, I am Steven Hall. I am with the Association of California Water Agencies.

Now, we did take very seriously the admonition of Board Member Del Piero, who asked that respondents deliver their comments before the hearing, so a whopping 18 hours before this hearing, we did deliver --

MR. DEL PIERO: I appreciate that, sir.

MR. HALL: We did deliver a full package of comments. In case you didn't get them, we have duplicates here today with us.

And included in that packet is our testimony as well as the comments that we submitted to U. S. EPA on their

economic analysis along with documents that I will describe in just a few moments, and all transmitted by a letter addressed to you, Mr. Chairman, and I hand delivered yesterday afternoon.

MR. CAFFREY: And it was hand delivered to me momentarily.

MR. HALL: We appreciate it and we calculated that if you digested all of it given the 18 hours you had time for 4 hours of sleep or so.

At any rate, we appreciate the opportunity to testify and with me here today are two of the three principals of the economic consulting firm MQ, David Mitchell, who will do most of the work on responding to question 2; and Richard McCann, who will describe for you a study that we propose to do to estimate the impacts on hydropower generation in California from the proposed standards.

MR. CAFFREY: Welcome, gentlemen.

MR. HALL: So, let me begin by saying that the first item in your packet that I would like to refer you to is a document that is entitled, *Framework of a Comprehensive Protection Program for the San Francisco Bay-Delta Ecosystem.*

Now, that document is a response submitted by ACWA at the request of a number of water user groups in response

to question 1, which pertains to what sort of standards should be set.

Let me take a just a moment to describe that document, if I may. There are three categories of actions described in that document:

First, standards governing outflow requirements;

Second, conventional controls on water project operations that should be carefully looked at, and if they are deemed to be efficacious, put into place as a part of a comprehensive plan;

And third, controls on other non-water related but nevertheless important factors.

Now, we believe, those that have worked on this, that if this sort of comprehensive plan is implemented, it will provide for a long-range plan for the Delta, early improvement in fishery habitat, particularly for native fisheries, and ultimately we believe what any comprehensive plan should provide are protections sufficient to eliminate the need for jeopardy opinions, eliminate the need for additional listings under ESA, and ultimately, allow for recovering and delisting of listed species.

Now, I was very pleased to be asked to present this document to you today, and I would like for a moment to turn to the letter that I wrote that transmitted it because it describes not only what is in the document, but what that

document represents.

So, let me tell you what it represents by telling you first what it does not represent. It does not represent a detailed plan. This is a four-page document. It is not a detailed comprehensive plan. It is the framework for what we believe is the best comprehensive plan that we can conjure up today.

And secondly, I want to emphasize this does not represent complete agreement among the water community. Some of the water interests that ACWA represents did not participate in the preparation of this document. Some of those who did participate would not agree with every aspect of it.

MR. DEL PIERO: Do those that did not participate not participate because of disdain of the process or simply an unwillingness to come to Sacramento?

MR. HALL: I would say that the best answer is that this was done over a period of several weeks, during a period of time when not everybody could participate or participate as often or as fully as they would have liked.

It did not, to my knowledge, represent a disdain of the process.

I want to be clear in saying that there are a number of outstanding issues that those who were working on the process are still wrestling with, and even those who did not

participate directly have participated in the discussions surrounding these same issues.

MR. DEL PIERO: Will you identify those for us during the course of your presentation today?

MR. HALL: I will if asked.

MR. DEL PIERO: I think you just were -- after you are finished.

MR. HALL: Okay, when I conclude.

And I want to say, and be clear on this, too, my own organization has not formally endorsed this document. This is very much a work in progress, a document that until yesterday had draft on it, and in may respects could still be considered to be a draft.

But what it does represent, I told you what it doesn't represent, it does represent the best collective thinking of the water community on what a comprehensive solution should look like, the framework of that.

And I think there is one area where we clearly do agree and that is this, if it isn't a comprehensive solution, it probably isn't a solution. We simply cannot afford to move forward on a water quality control plan or any other major regulatory action without addressing the elements that are contained in this document, we believe.

And it also represents a commitment on the part of the water community to accept standards for an outflow

requirement if, and I underline in my text that word, *if*, they are accompanied by the other factors we have identified in the document.

We simply don't believe that water quality standards or outflow requirements by themselves will achieve the environmental goals that we all see as necessary, and we clearly understand that if we get into a cycle of ratcheting up water quality standards or outflow requirements trying to achieve those goals and ignore these other factors, that the California economy will be severely impacted.

These proceedings are at a critical stage. They are about to conclude the workshops and the Board and staff will take all of this input and begin its work. We recognize that water quality standards will be a focus of the Board's work, both the Board and the staff, for the next several months, but we urge the Board to consider strongly two things: First, to broaden the water quality control plan to include the other elements of the comprehensive plan that we have identified, and in a few weeks the water interests that I am here representing today will have more input, substantially more input, we believe, on those other factors and will be able to describe better for you what should be done to address those other factors.

So, the second thing that we urge the Board to do is to hold another workshop in late August. We believe by late

August our work group will be able to present to you a fairly detailed plan on how to address the factors other than water project operations on either standards or outflow requirements, and so, we respectfully but strongly, are urging the Board to consider that additional workshop.

We think it will provide valuable information to the staff and to the Board on elements of the comprehensive plan.

Now, let me pause before I introduce my colleagues here and ask you if there are any questions on my presentation.

MS. FORSTER: I am going to raise the question now, and then at the end, we will probably talk about it. I would be curious to know from our staff if we legally can do a comprehensive plan or if we are restricted because of the process that we are in and limited in our scope, so that's going to be critical.

You know, I don't know -- that's going to be critical to understand.

MR. HALL: Let me just say before your staff does respond, I think the water community is at this juncture very open and willing to work with the Board and the staff in terms of shaping what that comprehensive plan would look like.

Obviously, we have to do that within the constraints

that you have, but we believe that anything less than something that embodies the tenets of this comprehensive plan will not satisfactorily solve the problem, and we would strongly urge the Board to, even if you get a response today from the staff that seems to limit your ability, to examine that issue.

If there are other questions, I will be happy to try to answer them, and if not, let me --

MR. CAFFREY: I don't believe we have any other questions at this point.

MR. HALL: Now, to address question 2, we will have David Mitchell and Richard McCann.

I would have to say, just tongue in cheek, that the old adage that no deed goes unpunished, and by allowing Ms. Illingworth to go before us, she managed to cover just about every point that our economists were planning to cover, but I think most of those points bear repeating, and so, if you will bear with us, David Mitchell will deal specifically with the economic impacts with questions 2 in your key issues and we very much appreciate the staff's invitation to comment on the Board's consideration of using the economic model and consultants of EPA because, in fact, what we have done in preparing our testimony is to address the assumptions made by EPA in preparing their economic analysis, and I think it will be useful to the staff, so

with that, I will turn it over to David Mitchell.

MR. MITCHELL: For the record, I am David Mitchell, a principal with the firm of MQ. We have been assisting ACWA in its assessment and understanding of EPA's economic modeling effort.

And the comments I am going to convey to you today are given within the context of the Board's consideration of adopting EPA's economic modeling framework.

As Mr. Hall mentioned, Wendy Illingworth did manage to cover a considerable number of the points I wished to raise, and I think it is interesting to point out the following bit of information. Both Wendy and I have participated in the economic forums that EPA has been having over the last two months to address revisions to its draft economic analysis. We both actively participated. We did not, however, collaborate in preparing our comments today for the Board, and yet, we both came away with the same impressions and the same needs that continue requiring addressing.

I am going to quickly go through what I think are the three most important areas the study will have to contend with. Before I do that, let me back up and just say that having participated in EPA's forums, we can say with confidence that a considerable amount of effort has gone into the analysis to anticipate impacts of alternative

standards.

But it is also important to point out that the complexity and the wide range of impacts that we expect from standards make this a very difficult task and one that really cannot be rushed, and EPA is working under a very tight time line.

The areas I would like to address first are those that concern both the agricultural and urban sectors when assessing impacts of alternative standards.

The second are areas that are important to the assessment of costs to agriculture;

And the third are those areas that are important to assessment costs for the urban sector.

Areas that are important to both sectors include, as Wendy mentioned, the short-run and long-run analyses clearly establishing base-line supply/demand conditions for the study and assumptions that go into developing water transfer scenarios. I will address each of these in turn.

There are two reasons, obvious reasons to consider both the short-run and long-run impacts of standards. The impacts should be expected to be very different over time. One is there will be considerable lag between the time supply is needed as a result of the standards and the time it can be brought on line, and by supply, I use that very broadly to include all forms including long-term

conservation, and you can get a sense of that out of the projections from DWR's draft Bulletin 160 that shows long-term conservation savings or new supplies increasing by 2010 to over 700,00 acre-feet for the State urban areas, but it is important to note that by 2000, just 10 years earlier, only 400,000 acre-feet of that water is expected to be on line.

So, it is important to address the lag that is involved in developing new supplies. The same will hold true for reclamation. The same will hold true for developing transfer programs.

Second, it is also the case that the demands on the systems will not remain constant. This is particularly true in urban areas where demands, according to DWR projections, are expected to grow by 2.4 million acre-feet between 1990 and 2010.

So, again, there is a differentiation that has to be taken into account, a time differentiation.

EPA did not address this in its first analysis, but it is readdressing it in the revised analysis, and has plans to conduct both short-run and long-run impact assessments.

It currently calls for two representative years, 1995 and 2010. I would urge that that horizon be extended to 2020 for the following reasons:

According to DWR projections, the State water

deficit is expected to increase between 1990 and 2000. That reflects the lag involved in getting supplies on line. It is then expected to decrease between 2000 and 2010, and that represents that supply coming on line. But then, it is expected to increase again between 2010 and 2020, and I think that reflects the second increase in population for this State, and so, I would urge the Board to try to capture those dynamics and not to cut off the analysis at 2010, but to extend it to 2020 to reflect the expected growth increases.

The second point to mention is the need to clearly establish the base-line supply levels. These provide the starting point for the economic analysis and they depend critically on whether Delta actions related to the CVPIA are included or not.

There was earlier reference to the no-action scenario. It is our understanding that in performing the programmatic EIS for the CVPIA, the assumption is no action includes implementation of the Clean Water Act standards, whereas the reverse is true in the case of the Clean Water Act where they assume no action may include implementation of the CVPIA.

Obviously, there is some confusion going on back and forth, and that needs to be clarified.

MR. BROWN: That is still dynamic, they are still

trying to come to grips on that?

MR. MITCHELL: They are according to my understanding and according to the most recent EPA release on the assumption that it will be using.

In its revised modeling it will continue to exclude the CVPIA from its base-line scenarios, base-line supply conditions.

The second important point, also mentioned by Ms. Illingworth, is the need to address the regional differences in supply and demand imbalances that are present in base-line scenarios. These vary vastly by region. I think you can get a lot of the information necessary to get an idea of how they differ from the DWR projections, and also, the time allows for working with local agencies themselves. They are all in the process of planning long-range supplies and demands.

But the DWR data does give an indication, again this is from Bulletin 160, the most recent draft, their project drought shortage by 2020, not including water quality standards for the Delta for the ten planning regions, aggregate planning regions in the State range from less than one percent to more than 16 percent.

In our written comments you will see the full range presented in tabular form and shows it is quite varied.

MR. BROWN: Be careful on that bulletin. I would

suggest, because they are making some assumptions that some of these options they have been discussing here are going to come to fruition, and then the base line keeps jumping up -- if you use your base line as to what's happening today, you recognize that today the totals throughout the state are that we are one to two million acre-feet short of water.

MR. MITCHELL: Yes.

MR. BROWN: But if you go ahead and assume that some of the options, water transferred or marketing and such take place, then that base line keeps moving.

MR. MITCHELL: That's exactly right. And the reason why -- one, that reiterates the reasons long-run and short-run analyses are necessary. Two of the projects I am citing here assume level one management options are in place by the year 2020. DWR defines level one management options as those that have undergone excessive review or are in the planning process now and have a reasonable probability of being implemented by 2020.

So, they recognize in these projections that they're dealing with a moving target and are accounting for that in the numbers. I think our written statement reflects that in a footnote.

The third critical area that is relevant to both agricultural and urban analyses is water transfers. And here it is essential that the assumptions to develop

scenarios for water transfers reflect the considerable operational, institutional and legal uncertainty with regard to likely transfer levels, and I will just touch on each of these.

Again, this is from DWR simulations with their hydrology models. The physical capacity constraints provide one bound for likely transfer levels and I will just mention some numbers. In normal or wet years, they project a surplus capacity after deducting project deliveries of about 300,000 acre-feet, and in dry years they expect perhaps less than one million acre-feet.

And again, this is just the physical capacity of the projects. It does not account for transfers that might otherwise be taking place to redress shortages due to drought.

It is also important within that context to note the regional differences or constraints to transfers, and again, this is something that EPA's analysis has been struggling with, but I urge the Board to give it full consideration.

One is agricultural systems are not fully integrated. They are limited. While they do have transfer capabilities, it is important to note that it is somewhat limited. We are not dealing with a fully integrated system.

There are also important regional differences for urban areas.

For instance, the ability to transfer Delta water to Bay Area cities is projected to be about 40,000 to 60,000 acre-feet only in dry years, and no available capacity above normal deliveries in normal or wet years.

And finally, as Ms. Illingworth also mentioned, in terms of physical constraints, timing is a very important consideration that has to be addressed by the analysis.

Pumping windows available that are going to open for transfers to redress or mitigate impacts of the standards are primarily going to be in the fall and winter months, whereas the peak demands, the need for water, is going to occur in the spring and summer months. It is going to require either storing transferred water or rescheduling water deliveries to accommodate these pumping windows, and it is important to recognize the costs involved in doing so and the costs in terms of risk and uncertainty of being caught holding water that you subsequently do not need, or just the cost involved of rearranging complicated delivery schedules when the system is dealing with added transfers.

The greatest uncertainty or unknown affecting ability to transfer at this time are the take limits on the pumps in the Delta, and again, and this has been mentioned by several speakers, the EPA analysis recognizes this constraint, but has yet to formulate any way to quantify it.

I urge that the Board and the staff continue in the

search to find a way to quantify this uncertainty. Right now it seems to be this year controlling the operations of the pumps and that could continue well into the future.

MR. DEL PIERO: Do you have a recommendation as to how the Board might begin the investigation for quantifying that effect?

MR. MITCHELL: I am not a trained hydrologist. I have heard, however, that the system's engineer, B. J. Miller, is beginning to investigate this issue based on historic impacts of the take limit. I have heard that through conversation. I have not actually discussed that with B. J. Miller myself to know for a fact, but to my knowledge, that is the case.

MR. DEL PIERO: Do you know how that historic take is going to be quantified in terms of current impacts on the species?

MR. MITCHELL: No, I do not. I would like to just put one adder to my last comment, though. In EPA's assumptions they recognize that the take limit is a very important issue affecting the ability to transfer water and as a proxy they have suggested assuming that no transfer is taking place as a scenario that represents the best way to model the effect of the take limits.

I would just like to add that there is a further possibility that take limits will impinge upon the ability

of the projects to achieve their normal deliveries as well, and that's something that EPA's analysis at this point in time wouldn't account for.

Finally, when we discuss transfers, it is of paramount importance to consider the institutional and legal uncertainties that are involved and create very high transaction costs.

This is something that economists are very fond of neglecting, but really, in this economy, as in any capitalistic economy, it is not a frictionless system. It involves negotiation, legal process, definition of water rights, definition of property rights, and all of these factors contribute to cost involved in doing business through the market. They need to be accounted for.

I would like to move on to areas that are specific to the costs of agriculture. I will address three areas of prime importance. These are groundwater access and costs, priority rules for project deliveries and market constraints.

I would just like to add EPA's analysis addresses each of these to some extent, and I would like to add just a little bit of my own thoughts.

With respect to groundwater access and cost, the analysis needs to address both regions with access to groundwater and those regions without access to groundwater.

With regions that have groundwater, it is important to the analysis to reflect the substitution of groundwater versus surface water represents a significant increase in annual production costs. Some studies have estimated that for the 1991 drought pumping costs increased by more than 200 million dollars to substitute reduced surface supplies with groundwater.

It also can represent as this shift occurs a significant capital investment in installing wells to bring groundwater capacity on line.

In 1990, 25,000 new wells were drilled according to State records, and obviously, the study should concern itself with long-term overdraft problems and --

MR. BROWN: The new wells in 1990 -- I had a question.

You said new wells were drilled in 1990?

MR. MITCHELL: According to my data source, yes.

MR. BROWN: Was that domestic wells as well as irrigation wells?

MR. MITCHELL: Yes. This is from a study done on Kern County Water Agency.

MR. BROWN: That's throughout the state?

MR. MITCHELL: I believe so, yes.

MR. BROWN: And that would include domestic water wells for new development and replacement and such?

MR. MITCHELL: I would have to refer back to the exact cite.

The point I wanted to get across, however, is that in addition to high increasing operating expenses, we are also talking about increasing capital expenses, and some of the points later on will reiterate why that's important to consider at this juncture.

MR. DEL PIERO: What study indicated that the additional pumping costs ran in the neighborhood of 200 million dollars?

MR. MITCHELL: That came from a study by Northwest Economic Associates that estimated the additional pumping lifts that were brought about as a result of the drought in 1991 in the San Joaquin Valley, and the additional pumping costs associated with that.

This has also been assessed in a separate study by my colleague, Richard McCann, for EPA, that addressed the impacts of global warming on water use in California and changes in pumping and electricity loads.

MR. DEL PIERO: Just so I understand, is that study being submitted into the record?

MR. MITCHELL: I do not know. This was a study conducted --

MR. HOWARD: It is already in the record.

MR. DEL PIERO: Was that part of the 1630 hearings?

MR. HOWARD: No, it was in one of the previous workshops.

MR. DEL PIERO: Thank you.

MR. CAFFREY: Mr. Brown has a question.

MR. BROWN: You also made a statement earlier and if I heard it right, it was that the options under consideration for water replacement within the state, new projects or contributions from reclamation of existing water supplies, the statement, I think I heard you say was it takes about the same amount of time for each, and since the last new project built in the state was 1982, the New Melones Dam, I wondered, did I hear that right?

MR. MITCHELL: I don't think I made that point. My point was a little bit more general. I just wanted to emphasize the time lag involved between the need for supply and the time you can develop it.

I made a couple of references to reclamation and an example with long-term conservation, but obviously, those time lags are going to vary both by type of supply and the particular type of project.

MR. BROWN: In your economic analysis where you have inequities between surface supply and groundwater availability and quality based on equity assessment programs, and Orange County Water District has an excellent one that they have implemented for years, have you

considered that in your analysis?

MR. MITCHELL: No, actually, I am not conducting any formal analysis at this time. I am in the process of reviewing EPA's analysis and participating in the forum to revise its draft economic analysis and to develop assumptions for that revised analysis.

MR. HALL: If I may, we took seriously the notice and in discussions with Board staff they clarified that they would entertain any input from respondents on the assumptions that EPA used and how we believe the Board should consider those assumptions, and that's really what we are addressing ourselves to more than any independent research that we were doing.

MR. BROWN: That's really what I was referring to in your analysis. I didn't mean that you were conducting a study.

MR. MITCHELL: In regions without groundwater, first, it is important to recognize that within the State Water Project service area there's more than 200,000 acres of productive agriculture that does not have access to groundwater and it is important for the State to give careful attention to those areas.

It is important to address that the economic impacts of the standards, at least in terms of agricultural impacts, could be expected to be concentrated in those areas.

I would say they are most at risk to employment dislocation, to land devaluation and destabilization and to generally economic decline, and those areas merit special consideration by the study.

The Board, in its workshop announcement, also requested recommendations to evaluate or to assess likely unemployment levels and duration, and I would like to just make an aside comment on that just very briefly.

The agricultural labor market is somewhat unique in this state, and my comment is that it is important to recognize that the conventional method of measuring employment loss tends to understate farm employment loss, and the reason is because of the high proportion of seasonal and part-time workers in the agricultural sector.

So, if you have a conventional regional economic model that reports employment loss in terms of full-time equivalent jobs which represent the 2,000-person hours, the conventional analysis, and to assume that also reflects one lost job, one full-time equivalent job occupied by one person, that's not true in agriculture, at least not in California agriculture.

The research I was involved with at the University of California back in the late eighties suggests that three to four agricultural workers occupy every full-time equivalent job in production agriculture. That is to say,

there are about three to four more times more people employed by agriculture in full-time equivalent jobs.

MR. DEL PIERO: You may want to expand on that just so everybody understands the point you are making.

MR. MITCHELL: The relevance of this, I think I can capture what you just asked by stressing the relevance of this. If you employed conventional methods to estimate employment lost based in terms of full-time equivalent jobs, a policy that results in the loss of 1,000 full-time equivalent jobs in agriculture may actually be affecting three to four thousand farm workers' incomes and their families' incomes, and that's an important point to recognize.

So, the impact is spread deeply and that's an important point to recognize.

It is also the case that areas without access to groundwater will probably witness the most significant land devaluation as the production return on that land declines. That is not speculation, that is something that was witnessed in the last drought. It is continuing to occur in those regions today.

Priority rules for project deliveries is something that EPA is paying more attention to in its revision of its economic analysis. We just wanted to stress that this is an important consideration for the Central Valley Project water

deliveries. They are prioritized by certain rules that concentrate impacts or cutbacks to the agricultural service contractors.

The same is true in a different way for the State Water Project agricultural recipients. They have a lower priority than urban water recipients, and that is something that I am happy to say EPA's analysis is taking into account in its revision.

There are a host of market constraints that limit agricultural response that also are important. I will just briefly list these.

These are processor contracts, marketing orders, federal commodity programs and general market constraints for higher valued crops. These all represent significant constraints to crop substitution.

Finally, long-run supply uncertainty is restricting access to and raising the cost of credit for production agriculture and this is already starting to have significant impacts for areas, particularly in the Western San Joaquin Valley.

This is not speculation again, this is something that is already occurring.

I would say that the credit markets are anticipating now actions that they expect to take place in the Delta, and they are revising their policies.

MR. CAFFREY: Mr. Hall, I have a couple of speakers that need to catch a flight, and they asked to speak by 3:30. Would you mind accommodating them and letting them come forward?

MR. HALL: If I may suggest, we have a fairly convenient break in subject matter when Mr. Mitchell concludes and he is about done, so if we could let Mr. Mitchell conclude, then following the other speaker, Mr. McCann, can pick back up and I will close quickly.

MR. CAFFREY: That will be great. I apologize for your accommodating us again.

MR. HALL: We are extremely flexible, Mr. Chairman. We want to accommodate the Board.

MR. CAFFREY: What we will do here is when Mr. Mitchell completes, then we will hear Mr. Panian and Mr. Conover, and then we will take a very quick break, and then we will come back and you can complete your presentation and we will have questions and answers.

MR. MITCHELL: Let me move on to urban areas important to the assessment. I would say that most of our comments are summarized in our written submittal, so the detail is provided there.

With regard to the urban analysis, there are really three critical issues. One is the number of representative regions included. The other is alternative supplies, and

the third is declining reliability, and I will just touch on these briefly.

EPA's analysis is going to be extended from a single representative region to two representative regions, and we would encourage the Board to consider extending it to three representative regions.

Right now, EPA plans to have a Northern California region and a Southern California region, and will treat the Central Valley as a side bar in its discussion.

We think that is unadvisable for three reasons:

One, the Central Valley is expecting faster growth in the urban centers in general than the coastal population centers, and that will not be captured by just considering the two coastal population centers in the analysis.

Second, groundwater plays a much more important role in terms of supply for municipalities in the Central Valley than it does for municipalities on the urban coastal fringes, urban coastal regions.

And finally, the analysis is planning to use reclamation as a proxy for local supply, and this assumption is not well suited to Central Valley municipalities since reclamation does not create a net increase in supply for the region. That water that is reclaimed would otherwise have been captured by downstream users.

Alternative supplies also need to be accounted for

accurately as Ms. Illingworth expressed. I will just quickly go through this.

When accounting for possible supply sources or resources to mitigate the impacts of the standards, you need to evaluate existing claims on those resources. One example might come from DWR's projections that show that by 2020 reclamation is expected to increase by 300,000 acre-feet. But at the same time for the same period, the region's water deficit is projected to increase by more than 350,000 acre-feet. Clearly, the reclamation supply that is expected to come on line is going to be accounted for by that projected growth.

MR. DEL PIERO: Which region?

MR. MITCHELL: That's for the South Coast region, South Coast planning region, using DWR projections.

MR. DEL PIERO: Am I missing something? That doesn't correspond with what the statutory mandate is.

MR. BROWN: The statutory mandate is one million acre-feet by the year 2010. We are about 600,000 now, so it is probably pretty close.

MR. HALL: Yes, that's the increase. That's correct.

MR. MITCHELL: I was just saying that the same consideration would hold true in the South Coast region, particularly also for Colorado River supplies. While they

are expected to hopefully keep that to the full, it will largely be going to offset already planned for increases in demands in that region.

MR. DEL PIERO: Can I ask you a question? Have you as part of the analysis that you evaluated, that you have reviewed, is there any differentiation between current demand, and the representative from the Urban Water Agency probably could answer this question, but is there any differentiation between current demand and projected demand?

MR. HALL: Sure.

MR. MITCHELL: Yes. In regard to the EPA study or the --

MR. DEL PIERO: In regard to what the Urban Water Agencies have been putting forth?

MR. MITCHELL: I would say most definitely.

MR. DEL PIERO: Is the current demand a true current demand or is it the current demand predicted on projected development?

MR. MITCHELL: Current demand.

MR. DEL PIERO: Based on meter readings, not based on what they project they will need in the next five years?

MR. HALL: It's based on annual deliveries as far as I know.

MR. DEL PIERO: On annual deliveries, that's not what I am talking about. I am talking about annual

consumption as opposed to annual deliveries.

MR. MITCHELL: As far as I am aware, it is based on the current demand. Their planning processes are based on current demands looking forward to what they project those demands to increase to.

MR. HALL: That question may be better directed to Mr. Hoag, who is scheduled to respond later in the proceedings.

But I can only say what we have relied upon are DWR calculations of existing demands and projected demands.

MR. DEL PIERO: And DWR relied on the Department of Finance calculations in terms of projecting the population growth for the State of California, as I recall.

Is that not correct, Mr. Chairman?

MR. CAFFREY: That is correct.

MR. DEL PIERO: And those projections .. were predicated on information that was provided by all of the various counsels of government around the state, the vast majority of which have a tendency to significantly inflate their population projections because the greater the potential population they have in the future, the more they qualify for federal grants, and the COGS historically have been recipients of federal grants, so the reason I am asking the question is because if you start off with base-line information that's artificially inflated, whatever goes in

comes out looking sort of the same way.

MR. MITCHELL: Right.

MR. DEL PIERO: If you start off with base-line information that is artificially inflated and completely unrelated to the issue of water, you will end up with an inflated expectation of demand at the year 2020. That's why I am asking the question.

MS. FORSTER: I think that water districts don't actually work like COGS do.

MR. DEL PIERO: That is what the population growth is projected on and population is what the demand is projected on.

MR. McCANN: I do have one suggestion, that the Energy Commission also does population projections that are not based on the Department of Finance projections, and you might compare their population projections with the DWR projections to see what the difference is.

MR. HALL: I think that concludes Mr. Mitchell's testimony, and so, we will take a break while others speak, and then --

MR. CAFFREY: You are more than welcome to stay where you are. We will be getting back to you shortly. We will have a very brief presentation from, first, Mr. Panian and then Mr. Conover, who have schedules to keep which we are going to accommodate.

Mr. Panian, good to see you again.

MR. PANIAN: Thank you very much. I appreciate the opportunity to speak to you.

My name is Henry S. Panian. I am here under the auspices of the Water Advisory Committee of Orange County.

My background experience comes from 16 years of service as a Water Board Director for a retail agency that served the first community, including important elements of public health; and 34 years of teaching community college history specializing in California.

The thing I have learned the most here today about that subject is the fact that if you live in Southern California you would love to have the capital located down there because it makes it tenuous and planes have to be caught and so on.

I speak today particularly to the second part of today's agenda, how should the economic and social effects of alternative standards be determined?

My mission is to urge the State Water Resources Control Board to place on its agenda a calculated examination of the public health, safety and other social issues that impinge upon its deliberations during this current standard-setting process for the Bay-Delta, or the water rights phase next year.

Further, I want to suggest a methodology by which

this Board can measure the significant relationships between water supplies and those social issues.

This is the third time the Board has had the opportunity to hear this point. It also has been made at the EPA hearing in February at Irvine, but sometimes I feel like King Lear who was on the Moors during a tremendous storm in which he was bewailing the ingratitude of his children. The storm was raging all around him with sound and fury, and he was speaking this marvelous soliloquy, but he was the only one who was hearing it.

I feel somewhat the same way about this particular topic, and that has fashioned the rest of my presentation of which there are three parts.

The first is the constitutional basis upon which I urge the Board to make this determination. The first is the State's police power to provide for the health, safety and welfare of its citizens.

The second is, the Clean Water Act, Title 33, U. S. Code Annotated Section 1314, Part 1(a) establishes water quality goals, which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife and allow recreational activities.

We have heard a great deal about some of those

topics today.

The following Section 1315, same source, requires that each state shall submit to the EPA administrator a biennial report which, among other items, shall include an estimate of the environmental impact, the economic and social costs necessary to achieve the objective of this chapter in such state, the economic and social benefits of such achievement, and an estimate of the state of such achievement.

The third constitutional source is the recently signed as a joint state Bay-Delta framework agreement where points of agreement, Exhibit A, B-1, Section 3 say, the results of this process will be used to prepare a draft water quality control plan and evaluation of the environmental and economic effects of the draft plan and its alternatives pursuant to all applicable provisions of the California Water Code, the Federal Clean Water Act and the California Environmental Quality Act.

I emphasize the Clean Water Act in that regard.

Now, the second point, what is the relationship of the health issue to economic impacts? To place in a water base a delivery of water for public health and safety purposes will diminish discretionary supply available for other equally or more important economic and environmental requirements.

Those reductions will have severe economic effects. I don't believe that those effects have been adequately considered in the deliberations of either EPA or other sections.

Failure to include the public health safety industry in your decisions, our decisions, will have severe economic and social consequences. The goal here is to avoid compromising health standards in the State of California.

Now the next area regards methodology. I would like to suggest a case study method coordinated by the State Department of Health. In the packet that I prepared in preparation for this meeting, which the Board and staff have, entitled *Comments Relative to Social Effects of Alternative Standards and the Health, Safety and Water in a Community*, the Water Advisory Committee of Orange County and the Mesa Consolidated Water District present five case studies of agencies in the Newport Beach-Costa Mesa, California, area.

They include Hoag Memorial Hospital Presbyterian, Newport-Mesa Unified School District, Fairview Development Center, Coast Community College District, and the City of Costa Mesa.

Those studies explain the integral relationship between water supply and the mission of these institutions to meet health, safety and sanitation needs.

And because of the time limits, I only want to refer you to those case studies to give you an idea that will enable the State Water Resources Control Board to determine the variety and extent to which water is used to meet public health, safety and sanitation problems.

I wish I had the time to list a series of them so you get a better idea of the points I am making, but you do have the study and you can see for yourself.

The State Health Department could use these case studies as models because they will reveal the various uses of water for health and safety standards.

The second suggestion I would like to make regarding the methodology is to propose that the State Health Department or perhaps the Association of California Water Agencies, that it conduct a survey of retail agencies as to what proportion of their water sales goes to health-related customers.

Records of hospitals, developmental centers, convalescent homes and so forth are readily available, and could provide the two agencies, EPA and the State Water Resources Control Board, the data base upon which to determine what proportion of water sales goes towards those industries.

I think other such uses as indicated in the case studies, for example, school districts, must be concerned

with their playgrounds. A certain amount of water must be used to provide the consistency of the ground on playgrounds to avoid liability problems as determined by case law.

The third suggestion on methodology is for all the agencies involved to broaden the approach of the present decision-making bodies. Currently, technicians, engineers and biologists drive the decision making in this process, and I think that has been abundantly clear from the testimony made today.

I would like EPA to extend its economic study to include the public health and safety factors, and that Jones & Stokes undertake that as part of their economic analysis. I did not hear Mr. Wright and I did not hear DWR, indicate that was anywhere near their study.

Now, DWR includes a reference to health and safety under what they call a feasibility study, but it is a very broad term, and case studies and the methodology I have suggested might give some meat to that particular aspect.

I would also like to see added to the team that is doing the examinations, the addition of people in the public health sector, or sociologists. To my knowledge, no public health member is on BDOC or any of the other staff members involved in this examination. I think that is a shortcoming and that should be addressed.

I think that should be especially true with the

advisers who under the joint framework agreement are going to be appointed to oversee and monitor this entire setting of standards. I think that that group, those two groups should be added, particularly on that citizens advisory committee.

I think also the addition of such people would permit the study of the kinds of information that a recent Los Angeles Times article had on the growing recognition of the relationship between provisions for parks and recreation as part of crime prevention. Now, the article is also in the record I prepared for you.

There is a belief, documented by lots of anecdotal information, that declining urban park land or similar recreation facilities and rising crime go hand in hand.

And, of course, without a necessary supply of water, parks cannot function properly or even legally, as I referred to before.

This concludes my remarks. I would love to stay for questions because I think some of the comments I have made would raise questions, but if I could have the questions relayed to me, I would be very glad to answer them in writing because I am dancing on the fine edge of getting to my plane in time.

Mr. Caffrey, I certainly appreciate this opportunity. I appreciate your jockeying the schedule. I

especially appreciate the agenda you have prepared for today and thank you very very much for accommodating me and, Steve Hall, thank you.

MR. CAFFREY: Steve gets the trophy for today, but we have tried to accommodate everybody that made the request and we are appreciative that you could be here, Mr. Panian, and are there any questions of Mr. Panian before he hastens to catch his plane?

MR. PANIAN: If they are really burning questions --

MR. CAFFREY: You are going to ask us to give you questions in writing. That's different. We might try that.

MR. PANIAN: I don't want to imperil my presentation by my haste, but if there is something that is really the heart of concern, I will answer quickly.

MR. CAFFREY: I misunderstood your earlier statement. I pledge if we have questions, we will put them in writing and I promise not to send you 20 copies.

MR. PANIAN: I will send you back 20 copies.

Thank you very much.

MR. CAFFREY: Thank you, Mr. Panian. Good to see you.

We have one more speaker, Mr. Conover, and then we will take our break and go back to Mr. Hall's presentation.

Mr. Conover.

MR. CONOVER: Thank you, Mr. Chairman and members of

the Board.

I was reminded that there are no flights to Modesto. I've got to get over to the Department of Ag in a few minutes and conduct a meeting on fugitive dust emissions, which will greatly increase the fact we allow land to go fallow.

My name is Gary Conover. I am Vice President for Western United Dairymen.

Western United Dairymen is a nonprofit trade association representing approximately 1400 Northern California milk producers, geographically covering Bakersfield to Humboldt.

As the largest milk producing trade association in California, Western members account for nearly 70 percent of the fluid milk produced in the state. Our staff provides services ranging from legislative and regulatory representation to field assistance in dairy site permitting, workers compensation, health care coverage, animal waste discharge and other services that may be required by our membership from time to time.

Western is not here before you today with alternative plans for salinity or flow standards, nor are we here to purport our expertise in the area of water hydrology or fish and wildlife issues.

We wish to provide the Board and its staff with

expertise in the coming months concerning dairy industry impacts which we believe you need to insure a balanced approach during your technical analysis of alternative plans with regard to the Delta.

Part of the key issues in the Water Board's notice of public workshop deals with economic and social effects that may result by decisions implemented to effect sound change in the Delta.

Western is before you to commit to providing you and your staff with insight into severe social and economic impacts that will occur within the dairy industry and related and allied industries, including social structure impacts in towns and communities of Northern California, if water reductions are unduly absorbed by hay commodities, specifically alfalfa hay.

Alfalfa hay represents approximately one-half of the total feed and roughage required for consumption by a milk dairy cow.

The recently released California Water Plan update projects a 204,000 acre reduction in alfalfa acreage in the Central Valley by the year 2020, off from the current estimated planting of 826,000 acres.

This needs to be compared against an industry which is essential to providing the California population in 1993 with an invaluable food substance, and managing its

expansion plans to absorb the predicted growth expected in California by the year 2020.

California agricultural produces over 18 billion dollars annually in farm gate receipts, behind tourism and national security/defense. The defense industry is well on its way out and that will make the significance of the ag industry all that more important in stabilizing California's economy.

Milk producers' farm gates receipts in 1993 represent approximately 2.6 billion dollars of the 18 billion dollars, far outdistancing the nearest agricultural commodity. What is of real significance is the multiplier effect that raw milk has once it does leave the farm for its journey to the processing plant, all the way to the grocer's shelf.

In addition, allied and impacted industries, especially in the San Joaquin Valley, will incur severe negative economic impacts if hay commodities are forced to unduly absorb additional water reallocations.

The obligations that are owed to the banking community in this industry would astound the most conservative of economists, debts ranging from land acquisition, facilities and structures, processing plants, milk tanks, milk machines, crop loans, housing, farm implements, milk tankers, and the huge investments in their most prized resource, their animals.

Western United Dairymen will be, within the next few days, retaining an economic consultant to measure the impacts as just described. In discussions with your staff, they appear to agree that information of this sort will provide them with valuable data that insure that obligations of the Board are met while considering the economic degradation that may result by alternative decisions.

Western greatly appreciates the opportunity to provide the Board and staff with the coming study and will work towards the goal of insuring accurate and reliable data that can be used during your deliberations.

Thank you.

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

Any questions of Mr. Conover?

MR. DEL PIERO: Mr. Conover wasn't here when I made my comments this morning.

We have had the occasion to meet. We have mutual friends and I will be looking forward to finding out what the economist you are hiring will be saying as to the long-term impacts on the industry.

MR. BROWN: Do you know why Bulletin 160 had a reduction of 200,000 acres of alfalfa? Did they talk to your industry? What is the justification or reasoning for that projection?

MR. CONOVER: Well, I believe some of the

justification comes from most of the State agencies. We were not consulted directly within our association, but I have to assume some of their implications come from some of the pending decisions that the Board has and the assumptions that they make. I cannot be accurate in my answer.

MR. BROWN: Isn't there about 800,000 acres of irrigated pasture in the state that is not as efficient in producing hay as irrigated alfalfa is?

MR. CONOVER: Most of the irrigated pasture lands are north of the Delta. I am only familiar with those that are used within the dairy industry. I am not familiar with the remaining cattle operations.

So, there again, I think I would rather let our documents speak to that to assure the data is accurate.

MR. BROWN: Your point is the second and third party impacts in the dairy's 2.4 billion dollars is considerable?

MR. CONOVER: Well, we have not seen during these deliberations any commodity that has stepped forward to raise their hand and say there is a forward linkage as the economists say to a negative economic impact, far beyond gate receipts of farm commodities.

As mentioned this morning, 20 percent of the water used only represents 4 percent of the value of a market crop. Well, that may be accurate, but the economy is not simply based on stopping at that point. We are going to

take it further than that point.

We think it is the Board's obligation to look at that and we are more than happy to provide that to your staff, who seems interested as well.

MR. DEL PIERO: After all, everybody needs milk.

MR. CONOVER: That's right. I think children and adults sleep easier at night, too, knowing that the cows are happy in the barn.

MR. DEL PIERO: It's time for a break, Mr. Chairman.

MR. CAFFREY: Before we do that, let me make an announcement that will be of interest to all of you.

The day is late. We have heard several presentations, but we have several more. After we come back from a ten-minute break, we will hear from Mr. Hall, and have questions for him, I am sure, and then, we will hear the following: We will hear from the power producers group; that is Mr. Ferreira, Mr. Feider and Mr. Schneiter, if they are still here. We will then hear from Mr. Tom Clark of Kern County, Mr. Michael Nordstrom of Tulare Lake basin and we will then hear from Richard Golb, and that will conclude the day and we have several cards for tomorrow.

I will read those that I have and this is the order that we will attempt to keep: Ross Rogers, Dante Nomellini, David Whitridge, Sandra Dunn, B. J. Miller, Tom Berliner, Gary Bobker, Robert Borgonono, David Guy, Bill DuBois, Jim

Chatigny, Alan Lilly, Nat Bingham, who asked to speak alone. He was on a panel earlier. Laura Hoover and then a group of Jones & Stokes led by Russ Brown.

I have just been handed another card.

So that will be the order for tomorrow.

Let me say one last thing before we break with regard to the request for an additional workshop. We have had several requests for that in writing, so the Board will be considering that very seriously. I am inclined, and I believe the other Board members are as well, to have another workshop. We will have to have some discussion about the scope and the timing of that, and, of course, we will certainly be asking our staff to continue to proceed with their drafting of the parts of the plan that they can begin, so we will have more on that later on the workshop, and we will definitely fill a good part of tomorrow, so let's take a break for ten minutes and come back and conclude with those other presentations.

(Recess)

MR. CAFFREY: Let the record show that you have some very accommodating peers and cohorts as well as yourself.

MR. HALL: Indeed, and I would extend that to the others.

If you are ready, Mr. Chairman, we will resume the ACWA mini-series.

MR. CAFFREY: One thing I forgot to mention before, we will start tomorrow after we hear these last few presentations, we will start tomorrow in this room at 9:30.

Mr. Hall.

MR. HALL: Mr. Chairman and members, once again, for the record, my name is Steven Hall and I am going to turn the microphone over to another principal from the firm of MQ, Richard McCann, who will detail our plans for a study on the impacts to hydropower generation in the State of California.

MR. CAFFREY: Welcome, Mr. McCann.

MR. McCANN: I am Richard McCann with MQ. I am going to talk about the study of the impacts on the electric generation system for California from imposing a set of standards in the Delta on various flows.

I just want to give you an idea, first, of the context in which hydropower sits in California. Hydropower generates about 30 percent of the energy used in Northern California, a substantial resource that PG&E and other utilities rely on heavily to supply Californians.

Even Southern California is affected by these standards. The power from the Oroville plant represents the largest single power source for Southern California. Edison uses this power to defer the net generation of electricity using natural gas in the Los Angeles basin, thus improving

air quality in the region.

I am going to talk a little bit about how we would study this issue. There will be another panel directly after us from the public power agencies and they will talk about how they are going to look at the power generation issues.

Our study is congruent with their study and we will be discussing with them how to go about this particular piece of work.

I also want to talk a little bit about what previous studies have looked at in terms of costs that they have found from various changes in flows and how they have impacted electricity generation in the state.

Western and the Bureau of Reclamation recently estimated the cost of the winter salmon releases to critical habitat designation and how much those releases have cost them in power generation over the last seven years. The total impact has been about 44 million dollars through 1993 and they were actually estimating impacts to be substantial this next year because of releases from Shasta Dam and Trinity Dam.

In addition, there was a study of which I was a member of the team at the University of California that was done for the National Institute on global and environmental change and that study was submitted to the U. S. EPA. That

study found that a drought in California cost about 370 million dollars in additional electrical generation costs.

That gives us an idea of what the cost impacts are to California for changes in flows in the Central Valley streams.

In terms of looking at the costs from standards that might be proposed out of this hearing, shifting water from the summer peak period when it is most valuable to spring-time flows or wintertime flows has a value of about $300 per acre-foot for PG&E. In other words, PG&E is losing about $300 for every acre-foot that gets shifted from the summer-time to the winter-tiome in terms of releases.

If 300,000 acre-feet was moved from the summertime to the wintertime, that would increase costs by 100 million dollars.

MR. CAFFREY: Mr. Brown has a question, Mr. McCann.

MR. BROWN: Three hundred dollars an acre-foot for power?

MR. McCANN: Yes.

MR. BROWN: I don't understand that figure. At about six cents a kilowatt hour a hundred-foot lift is worth about fifteen or sixteen dollars an acre-foot.

MR. McCANN: This is the water that is coming through the dams. Typically on the PG&E system we generate on average about just under 4,000 kilowatt hours with every

acre-foot of water that comes through their dams.

MR. BROWN: Four thousand kw's?

MR. McCANN: Yes. It is a substantial amount.

MR. BROWN: So, they go through a series of dams?

MR. McCANN: Right, it is a series of dams from the top to the bottom.

MR. BROWN: The dynamic head is maybe five or six thousand feet?

MR. McCANN: Right. Also, looking at it from the demand side, which your question is actually directed toward, agricultural pumping, typically when they experience curtailments of deliveries on the CVP and SWP, they have increased demand of about 20 percent or about 750 gigawatt hours. That amounts to about 90 million dollars at today's rates.

A severe drought can actually double that load, so they can be up near 200 million dollars in increased costs from increased groundwater.

I will just move on now to the proposed plan that we have for doing this analysis. The first step will be to develop a set of flow scenarios based on the information that we get from EPA and other resources, and we will be using existing models as much as we can throughout this entire analysis.

We will be getting generation output from

hydrological models that exist, the ones that are being used by the Bureau of Reclamation and the Department of Water Resources. We will also estimate the changes in flows on the PG&E and Southern California Edison hydropower systems which are not now included in the hydrological models.

We will then move on to estimating the changes in agricultural water pumping that will occur because of the changes in the standards, and we will be getting those as much as we can either from model results from the CVPIA and the EPA work, or we can also estimate those from historical information, which we have done in the past.

And then, we will take those results and we will be putting them into a generation simulation model that was created by the Environmental Defense Fund for the California Public Utilities Commission. That model is currently used by most of the interveners in hearings at the Public Utilities Commission.

We will then look at, in terms of looking at the results of those models which we will do for both the PG&E and Southern California Edison systems, we will be getting increases in energy production costs, we will be getting estimations of how much new investment will be required in the electric generation system in order to meet decreased or changes in hydropower production.

And we will also be looking at air quality impacts,

particularly in Los Angeles, from the probable increase in natural gas generation which will be required depending on how the standards affect hydropower generation.

And then, we will be presenting those results to the Board at a time that we determine, and that, basically, concludes my presentation.

MR. CAFFREY: Mr. Stubchaer has a question.

MR. STUBCHAER: What was the timing when you want to complete this modeling?

MR. McCANN: It can be done basically -- because it is working with mostly existing models, and depending on when we get all the data together -- once we get all the data in place, we can do it in about two weeks.

MR. STUBCHAER: And without knowing what EPA's final standards are going to be because we have to guess at them, as you heard this morning, we don't know what ours are going to be, so what are you going to use as input for the model for water impacts?

MR. McCANN: Actually, we talked with some of the EPA people today and they have offered to us some information on flow scenarios which we can use for preliminary analysis, and to the extent that this model is basically modular, we can run new scenarios as we need to in the future to do iterative analysis.

MR. STUBCHAER: Thank you.

MR. CAFFREY: Mr. Hall.

MR. HALL: Just to wrap up our comments on key issue 2, I hope, Board member Stubchaer, that Mr. McCann conveyed to you adequately that we think we can turn around the information pretty quickly once we get the hydrologic runs, that we have contacted the Department of Water Resources and we have also talked a bit to your staff, who likewise, have expressed an interest in this information, and what we hope to do is get from DWR some model run results fairly soon on existing hydrologic runs and use those along with the information that we will get from EPA, to give you some preliminary information, and then, as other information is made available, we can likewise do the runs fairly quickly, we think.

MR. STUBCHAER: Can you feed that preliminary information to Mr. Howard?

MR. HALL: As quickly as we get the information, Mr. Howard will have it. We won't even try to gloss it up. We will just get it to him.

I will say additionally, I want to echo what Ms. Illingworth said earlier about the EPA process. Their initial economic analysis was pretty heavily criticized and in my view deservedly so, but where I have given them criticism, I also want to give them credit. Their process following that to include the interest groups, including the

economists we have retained as well as the consulting economists that others have retained, is quite good, and we would urge the Board to adopt that same sort of process because these economic analyses, as our economists have indicated today, and others have and will, are complicated.

There are a lot of factors and the assumptions that I used are absolutely critical and it is very easy to use a wrong assumption unknowingly and with the best of intentions.

I will say in response to Board Member Forster's earlier comments to Ms. Illingworth about having this stuff written down, all of the testimony that we have submitted today is in writing as a part of our written testimony, and it is very similar to Ms. Illingworth's, so if you want to get a head start on reading some of our recommendations, you can do it there.

Now, let me move very quickly to key issue 3, and that is, should the Board request CVP and SWP to implement portions of the draft standards prior to adoption of the water rights decision?

Like a lot of Board questions, there is no simple yes or no answer, but let me make three points quickly.

First, the water rights phase is liable to be a lengthy one, and while we would not make a recommendation for or against asking the CVP and SWP, if you decide to do

it, we strongly recommend that you include those additional impacts in your economic analysis because, frankly, they will bear the brunt of the economic impacts if you impose those standards, either asking them to or requiring them to, and that needs to be quantified and considered in the economic analysis, if you decide to do that.

Secondly, there has been a temptation recently to focus on ESA measures because, as we all know, ESA requirements have been largely driving water project operations in the Delta, and while we accept that the Board must address that set of issues, we would urge the Board not to incorporate into standards measures that are peculiar to endangered species because we don't believe standards provide the level of applicability that you need to deal with the dynamics of endangered species, their population fluctuations, et cetera.

MR. CAFFREY: You mean standards peculiar to individual species?

MR. HALL: Exactly. In other words, if you were to adopt something in the way of a standard that was intended to help in the recovery of one or more endangered species, once that is in the standard, it is somewhat difficult to change.

What we are essentially urging is that the water quality control plan acknowledge that as endangered species

are recovered through the measures that the Board will take, that the standards be flexible enough to modify the standards as that occurs.

And, really, that leads to my third point, which is in the implementation schedule, the Board has really a very powerful tool. We recognize that the Board is faced with some immediate problems that we all face, that is the fisheries, their stabilization, recovery, and that is an immediate problem that we need to face.

But at the same time, we hope and trust that the Board will look at this implementation schedule as a way to mitigate the economic impacts, and most important of all, that the schedule be flexible enough so that as things begin to have their effect, and we particularly feel like there are non-water things that can be done, as those things begin to take effect and hopefully species will recover, that there is a ratcheting back of some of the water costs because the longer those water costs are there, the more severe the impacts will be.

Now, let me just close by saying, really, the Board is alone in its opportunity and its responsibility at this point to break the gridlock that we face in the Delta. We think the analysis and the recommendations that we have made and others will make in these workshops will be of some help to the Board. We sincerely hope you do, too, and we want to

convey to the Board our desire to continue to work with the Board as it proceeds through the process, and with that, we would be happy to answer any remaining questions.

MR. CAFFREY: We appreciate your comments very much, Mr. Hall and gentlemen.

Do Board members have any further questions?

Mr. Brown.

MR. BROWN: Just to thank you, Steve and Dave and Richard, for your participation and patience.

MR. HALL: Certainly, any time.

MR. CAFFREY: Any questions from staff?

Thank you very much, gentlemen.

Next we will hear from the power production presenters.

Do you gentlemen, Mr. Schneiter, Mr. Feider and Mr. Ferreira, want to speak as a panel?

MR. FERREIRA: Yes.

MR. CAFFREY: Please take a seat. Good afternoon, gentlemen, welcome.

MR. FEIDER: Good afternoon, Mr. Chairman and Board members and staff.

I am here today as part of a three-member panel to address power issues and facilitate that issue as a group as you have suggested at the outset.

My name is Jim Feider, Area Manager for the Western

Area Power Administration. With me here today on this panel is Dick Ferreira, Assistant General Manager of Sacramento Municipal Utility District, and Fred Schneiter, who is representing Northern California power agencies as their chairman.

The three of us support the Board's effort to improve the water quality standards in the Bay-Delta and we are here to try to provide a way to facilitate the issues that we represent.

We would like to reiterate our request that the impacts of the Bay-Delta standards on hydropower production be considered as a significant economic impact in this proceeding.

In line with that request and in response to your question No. 2 about addressing the economic impact that Western, as a federal agency in cooperation with power customers that we serve, are prepared to conduct modeling to determine the impacts of the various operating scenarios and we have been working with the staff of the Board to develop those economic impacts. We appreciate the reception the staff has shown us in that regard.

We, obviously will have to coordinate our efforts with the previous panel from ACWA because the last thing we want to do is to present confusing modeling results. So, the modeling that we would propose to proceed with will

hopefully be coordinated with their efforts.

I would like to emphasize that we don't think all the news necessarily has to be bad news, that the modeling may in some cases show some power enhancement, but if there are shifts to the spring season from the summer season, those impacts will be significant.

The impacts may be positive in average water years, but they may be significantly negative in dry year conditions, which we try to plan our power system against.

I have more details in my prepared testimony about the modeling aspect, and I will in the interest of time defer those, but I would like to emphasize that from the modeling perspective we will have to look at the environmental factors, including the impact on air quality. When hydropower takes a hit, we believe there are some air quality factors that have to be taken into account.

And as others have said today, there are many other variables affecting the operation of particularly the Central Valley Project, not the least of which is the CVPIA and the associated potential changes to Trinity River operations and restoration of the San Joaquin River, as well as the effort to redesign what the flood control parameters are going to be on the American River.

So, we will have to take those into account as we move along.

In response to your question No. 3 regarding interim implementation, Western believes that without knowing the significant economic impacts, at this time we cannot make a suggestion to the Board about interim measures. Western wants to be supportive of the Board's efforts, but at the same time, we want the burden of implementing the standards to be shared equitably.

If the implementation of a portion of the standards causes an undue hardship on the Central Valley Project, Western believes this portion of the standards should not be implemented without a decision by the Board to proportion the burden equitably among other users, and with that, Mr. Chairman, I will defer to my fellow panelists.

MR. CAFFREY: Thank you, Mr. Feider.

Mr. Schneiter or Mr. Ferreira.

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

Let me just, first, say if you are as successful in reregulating future flows in the Delta as you have been in this afternoon's schedule, I think this will be a very successful proceeding.

I certainly appreciate the opportunity to come back and add some additional input to what obviously is a very difficult and complex issue, and that is how to enhance and protect the waterway systems of the Delta.

If you recall, back at the workshop on June 14, I presented some testimony to the Board on the impact of reregulating flows on the American River as it affects the hydroelectric generation of SMUD's facilities. And at that time, the Board asked if I could come back and provide some details and try to quantify what these impacts would be if we were to shift some of the releases from summertime to springtime to wintertime.

I will try to respond to that request in my comments this afternoon.

First, let me express my support for the concerns expressed by Mr. Feider. As Western's largest customer, we recognize that the Central Valley Project will continue to make substantial contributions to meeting water quality standards in the Delta. We would also urge that we continue to work thoughtfully with the power interests and with the Board to avoid severe adverse impacts whenever possible.

For instance, depletion of storage in key reservoirs would reduce the generation below minimum pool and, therefore, completely deplete the generating capability at certain types of facilities. SMUD joins Western in offering to work with the Board's staff and to identify and try to mitigate impacts to hydropower during the next few months as the standards are being developed.

The draft standards proposed by EPA would have

serious impacts on SMUD's hydroelectric power generation.

In trying to grapple with this issue of what the impacts would be, it is certainly difficult without having some standards, and so, we tried to make some assumptions, tried to come up with some benchmarks to help give some order of magnitude of what the impacts might be on just our utilities here in Sacramento.

What we looked at was EPA's X2 standards that required additional release of 2-1/2 million acre-feet from reservoirs, tributaries to the Delta between February and June of critical dry years.

Obviously, we heard comments this morning that that number may be lower than that, but at any rate, we tried to use that at least as an assumption to try to get a handle on what the costs might look like.

If you take that assumption and the draft proposal that was looked at during the D-1630 proceedings and you had an allocation to reservoir, what that would have meant to SMUD would have been a shift of about 70,000 acre-feet of water releases from the summer period to the spring period.

These added releases would reduce the generation of eight power plants on the American River that is needed during the remainder of the year to meet the customers' demands.

The loss of generation capability is more serious,

however, than what can simply be mitigated by purchasing replacement power. Like water purveyors, utilities have an obligation to meet their customers' needs on a long-term basis in a prudent and reliable manner, and just like water districts that cannot continue to rely upon short-term purchases in the long run, power utilities also must plan to meet electrical needs on a long-term firm basis.

Replacing power at the SMUD hydroelectric project cannot replace all the functions that a hydroelectric project provides, whether you go to power purchases or whether you build fossil fuel fired generation;

particularly when you take a look at the backup support that hydro can provide to developing renewable resources and to provide a system that can control regulation as necessary in order to ramp up generation during the day and ramp down in the afternoon as you follow the peak throughout the day.

The great strides SMUD has made in developing demand side renewable resources has largely been possible due to the clean, cost effective and operational flexibility that its hydropower system offers to the Sacramento area and from purchases from the Western Power Administration.

Degradation of these hydro resources will have a profound impact, which I will describe, on SMUD's ability to make progress in this direction.

Also, in view of the fact that SMUD's power rights have no consumptive impact on the American River, and that most of the releases are regulated downstream at the Folsom Reservoir, SMUD would strongly urge that the Board continue to exempt non-consumptive hydro reservoirs from making releases to meet standards when there are further regulatory capabilities downstream for the Delta.

Comparing SMUD's ability to capture spring runoff for later beneficial use would do little, in my opinion, to solve the problems this Board is facing, but would have serious adverse impacts to the economy and the environment of the Sacramento region, which I will now describe.

First, just a brief background on how SMUD uses power production and the potential impacts that it could have on the district. Runoff in the American River occurs largely during the November-through-June period, some of which can be diverted to reservoir storage and it is later released when the demand for power is much higher, and it has a higher value during the summer period as we just heard from an earlier speaker. Storage is also reserved for critical dry years when inflow is inadequate to meet demand.

SMUD utilizes generation from eight powerhouses on the American River for two primary purposes. One is for system control and regulation and the other is for providing peaking capacity during the summer months.

Regulation is the way that utilities adjust generation, as I just described, to meet the changing load. It is required to keep the electric service not only in Sacramento but in the entire interconnected grid. This is accomplished by keeping units on line in automatic controls which adjust generation instantaneously to meet changes.

Many renewable resources such as wind or solar power increases the utility's need to regulate and to compensate for the variable output of many of these renewable resources.

Peaking power is generated during periods of heavy electrical demand on the utility's system, primarily during the summer months. For example, in SMUD's system, about 80,000 acre-feet of water is needed during the summertime to produce 660 megawatts of hydroelectric generation. This is water that is in addition to the additional releases needed for regulation, so we have a base load of releases which are needed for regulation and a block of water that is released during the summertime to meet the peaks like we are experiencing here in Sacramento today.

In all years SMUD's reservoirs are operated to conserve adequate water supplies to meet these needs even in critically dry periods similar to 1976-77.

Any change to dry-year demands for releases will have an impact on the planning and operation of the hydro

system.

If the Board were to require such a real-time contribution from upstream reservoirs, such as the one I just described for SMUD, and assuming the two and a half million acre-feet in the X2 standards, and assuming that the allocation was based upon the reservoir capacity in the draft standards using the 1630 method, then we would essentially have four impacts on the SMUD system.

Let me just briefly describe what they would be:

First, dependable capacity to generate power during summer peak hours would be reduced by the 70,000 acre-feet of less storage. This would result in 660 megawatts of capacity, which would be almost impossible or extremely difficult to replace here in the air basin of Sacramento because of the siting restrictions and limitations. That 660 megawatts converts to 60 million dollars a year in lost generation capacity for Sacramento.

The replacement costs of 60 million dollars a year would be equivalent to about six to ten percent on the overall rates for Sacramento County. Price and reliability of electricity are key factors in attracting and retaining industry and jobs. Higher utility bills increase living expenses for over one million residents in Sacramento County and reduce disposable income which would have an effect on the local economy.

Second, let me just reiterate the point that was made earlier, the difference between summertime releases versus springtime releases. In our system the value of the springtime releases is about one-half the value of the summertime releases for the energy component alone. That would add another four million dollars a year to the cost, just because of the lost energy value.

Third, the whitewater rafting industry has a development on the American River which is the third most popular run in the nation and it is entirely dependent upon summer releases from SMUD's reservoirs during the times when peaking power is produced. SMUD's releases are coordinated with the rafting requirements to support this important industry.

To the extent its present summer releases are shifted to the spring, less water would remain for the rafting industry and the quality of recreation experience in the region would suffer.

Fourth, SMUD has made a major commitment to meet the President's global climate challenge change and is attempting to reduce its CO2 emissions by the year 2000.

SMUD's commitment to renewable demand-side resource programs are helping us to fulfill this commitment and that means we need to depend more and more on hydrogeneration on the American River plus purchases from the Central Valley

Project.

Reductions in hydrogeneration would convert to additional releases of 70 tons of emissions to replace the lost generation of 660 megawatts.

Let me just conclude by saying SMUD supports the Board's intent to improve water quality in the Delta, and also, support the Board's efforts in working with the staff to try to provide additional information so you can understand what the impacts would be.

I am not suggesting that some of these impacts -- I tried to give you some quantitative analysis without going through a detailed study of what the potential impacts would be in terms of coming up with annual dollars, so I would like to conclude by saying that the impacts on power production can be minimized in at least two ways: Adopting standards which provide flexibility in critical dry years would reduce the severe impacts on hydrogeneration both on our system and on other hydro systems. And avoiding severe drawdown of key power reservoirs would also help mitigate the impact on hydrogeneration.

So, with that, I will conclude my remarks and be happy to answer any questions.

MR. CAFFREY: Thank you, Mr. Ferreira.

Mr. Brown, do you have a question at this point?

MR. BROWN: You are buying Montana power for about

two and a half cents a kilowatt hour. How is that working out for you, question one?

The second question is, is the power that you were looking for to replace these losses, is it peaking power that you are concerned with or on-line power?

MR. FERREIRA: To your first question, Mr. Brown, Montana Power, we have contracted probably with over 30 electric utilities within the Pacific Northwest and Southwest. We buy power from Bonneville and any number of utility districts which vary from 15 mills up to 2 cents or 2-1/2 cents. What that does is displace this more expensive fossil-fuel purchase from other utilities.

MR. BROWN: Is the outlook for that very bright or is it just an interim solution to the problem?

MR. FERREIRA: That doesn't replace capacity, Mr. Brown. What it displaces is energy. What I was referring to in my testimony was the impacts on the installed capacity, but certainly it has a beneficial uses in terms of reducing our annual costs by lowering our operating fuel costs associated with buying from a neighboring utility, but we still have to have that capacity within our system.

We are under contract to meet our peak loads. And then, in the efforts to replace the Rancho Seco generation, which is about 950 megawatts, we are planning to replace about 350 to 400 megawatts of that with renewable resources,

which is principally solar. We will be dedicating a 50-megawatt wind power development next month, I think it is August 18, and we plan to develop another 300 megawatts of renewable resources, which includes biomass, geothermal and other renewable capabilities.

MR. CAFFREY: Ms. Forster.

MS. FORSTER: I have just a question that addresses your participation in the hearings.

Aren't you a pretty new interested party in the Bay-Delta hearings? Were you real active in the 1630 hearings, and then the water quality plan?

MR. FERREIRA: I am not sure I was working for Sacramento then.

MS. FORSTER: I mean the power. I never heard the arguments or the input before in just monitoring the hearings, and I think it is very valuable. I just was never aware of it before. Maybe I just didn't come on days when people in the power industry were speaking.

I also wondered if maybe you were motivated to play a more active role due to the air emission requirements that weren't as emerging in the mid-eighties when they started these Bay-Delta hearings, as they are today.

It's not an important part of the record. I just don't remember listening to a lot of this before, and I am just curious on how you came into the family, as they call

this now.

MR. FERREIRA: Again, I wasn't with the District at the time of the Bay-Delta hearings. I understand that because the proposed standards were not implemented, did not affect the releases for non consumptive uses, is probably one reason we were not as high a profile as we are today.

Certainly, from the standpoint of air quality, which is an important impact, it is a significant in terms of understanding the socioeconomic impact of that as well as the impacts of the lost generation.

MR. CAFFREY: Mr. Brown.

MR. BROWN: I think SMUD is one of the few power entities that has an in lieu of program or rebate program.

I want you to turn in my old inefficient refrigerator.

MR. FERREIRA: Great. We probably could use it here in this room this afternoon.

MR. BROWN: But they have a wonderful program of pulling in some of the inefficient units, refrigerators and, I suspect, other units.

How is that working out for you, and I did get my hundred dollars back.

MR. FERREIRA: To date, we have been successful in recycling over 80,000 refrigerators here in Sacramento, and if you look carefully at statistics, the refrigerator today

uses 50 percent of the energy that the refrigerator ten years old used, so if anyone has a refrigerator over ten years old, through SMUD's program, you can save money in the next three years.

Thank you for the opportunity.

MR. CAFFREY: Mayor Schneiter.

MR. SCHNEITER: Good afternoon, Mr. Chairman and members of the Board and staff, I am Fred Schneiter and I'm here also as Chairman of the Northern California Power Agency.

The Northern California Power Agency and the CVP Customer Technical Committee are pleased to present these comments to the State Water Resources Control Board's final workshop, maybe the final workshop, for the Bay-Delta standards.

Our objective in appearing before the Board is threefold: To reiterate CVP power uses support for fish and wildlife restoration in the Bay-Delta;

And (2), to provide quantity and quality information on the economics, social and environmental benefits which the Central Valley Project hydroelectric generation provides to California;

And (3), to identify the potential impacts of alternative solutions to the Bay-Delta problems on CVP power.

Our goal is to assist the Board in the development of measures to restore the aquatic resources in the Bay-Delta through scientifically sound and economically efficient methods and to suggest ways to implement these in a balanced manner.

I might comment also that we do have an ongoing relationship with the staff now.

Question 1: What fish and wildlife standards should the Board evaluate as alternatives in this review?

We recommend that the Board adopt standards that address the wide range of factors that experts have identified as responsible for changes in fish and wildlife habitat and populations in the Bay-Delta.

In its evaluation the Board should consider the actions of all Federal, State and local entities which control the use of Central Valley Project water resources or influence conditions in the Bay-Delta.

The Board should also consider the cumulative effects of all fish and wildlife restoration activities currently under way or planned by Federal, State and local agencies, such as the Bay-Delta standards, the Endangered Species Act requirements, the Trinity River restoration project, the San Joaquin basin action plan.

The combined effect of these various efforts must be

addressed in an integrated manner to achieve maximum benefits to the environment and to protect the business and residents of California.

Although we have not developed a power customers' alternative to offer the Board, we are working with the Board staff on ways to utilize available modeling tools in the evaluation of alternative standards.

The second question: How should the economic and the social effects of alternative standards be determined?

We will discuss modeling methods developed to evaluate the implications of alternative standards on CVP power customers.

However, before discussing these methods, the benefits of the CVP hydropower to the economy of California must first be clearly understood. We emphasize these benefits not to argue against protection of fish and wildlife, but CVP power customers are presently supporting extensive measures to restore the fish and wildlife resources of the Central Valley and are willing to make additional sacrifices as appropriate to address the problems of the Bay-Delta.

The five specific benefits of the Central Valley Project power are: Clean, renewable CVP hydroelectric power avoids the release of substantial quantities of carbon

dioxide, nitrous oxide and other pollutants into the atmosphere of Northern California;

The CVP hydropower resources maximize the value of other power resources utilized by our members, including renewables, efficiency measures and purchases of energy from the Pacific Northwest and other suppliers.

The restoration fund surcharges paid by the Central Valley Project power users support numerous fish and wildlife restoration measures that benefit the aquatic resources of the Bay-Delta.

Revenues from the sale of hydroelectric power make an important contribution to repaying federal investment in the Central Valley Project facilities reducing the cost borne by the other users of the Central Valley Project, and access to Central Valley Project power helps publicly owned utilities fund a wide range of vital social service programs such as police, fire, parks, libraries and recreation from the electric revenues they receive.

These economic environmental and social benefits will continue as long as Western's rates remain competitive with the prices of other power supplies available to western's customers in the marketplace.

The current margin between Western rates and the price of alternative power supplies is quite narrow. Western's current average power rate is approximately 30

mills or 3 cents per kilowatt hour.

In addition, customers pay a surcharge to the Central Valley Project Improvement Act restoration fund which brings the total cost of Western power to nearly 32 mills or 3.2 cents per kilowatt hour.

This is very close to the price of energy in the Pacific Northwest which costs us up to 35 mills or 3.5 cents a kilowatt hour.

Moreover, in the recent competitive power solicitation sponsored by the California Public Utilities Commission, developers offered to build gas-fired combustion turbines for as low as 3-1/2 cents a kilowatt hour. These figures show that there is little room for further large increases in Western rates before municipal and other customers that have access to both power markets consider alternative sources of energy that would have negative effects on Western revenues, the California economy, and the quality of the environment.

If CVP power becomes uncompetitive through a substantial loss of generation capacity or both, the cost imposed on California's economy and society could be substantial. For example, electricity prices could escalate if Western's hydroelectric capacity is reduced through sharp reductions in the amount of water stored behind CVP dams and/or if the value of the energy is reduced by sharp

increases in generation at times when the energy is in lesser demand; that is, during the spring.

The long-term impacts of such operational changes should be of serious concern to the Board and all of our citizens.

Loss of CVP energy and capacity would also upset the integrated resource plans which Western customers have developed and which Western requires to insure the most efficient use of this valuable renewable resource.

Virtually all of the options for replacing the lost power would entail greater emissions in Northern California and neighboring states, jeopardizing the improvements in air quality that the residents of these regions demand.

In addition, higher power costs would hurt publicly owned utilities that depend on revenues from electrical utility operations to fund vital social services, including police, fire protection, parks, libraries, recreation and other uses.

State and Federal facilities lacking access to both power markets would also see their power bills rise requiring offsetting cutbacks and service, and higher taxes.

Within this context, we now turn to a description of the methods used to assess the impacts of the alternative Bay-Delta standards on the CVP power users. In general, the implementation of new Bay-Delta standards will change the

operation of the CVP facilities and thereby change the amount and timing of CVP power generation and capacity and consumption of CVP project use power.

These changes in hydropower generation capacity and project use power will affect both the quantity and nature of the power available for sale to Western's customers, and Western's cost to provide these services.

Changes in the quantity and cost of power marketed by Western will in turn affect (1) the revenues available for Western for repaying federal investment in the CVP; and (2) the costs of power to municipalities, thereby affecting the rates these agencies must charge their consumers and the revenues available to fund community services.

NCPA and CVP customer technical committee has evaluated these changes in the CVP operations in the past and we use the same modeling tools to assess the implications of the proposed Bay-Delta standards and alternative implementation approaches. The first step in the analysis involves the use of PROSIM hydroelectric models to simulate CVP-SWP water operations and calculate CVP generation.

Next, the PROSIM or the Y production cost model is used to determine the quantities of CVP hydroelectric power generation available to satisfy Western customer demands.

The output from the PROSIM model defines the maximum

energy and capacity available under the defined environmental water operational constraints.

The models are run for a base case and additional cases assuming alternative water standards and implementation methods.

Comparing alternative cases, the changes in CVP generation and capacity are determined and the impacts of these changes are estimated. The economic and environmental impacts caused by customer needs to produce or generate replacement power can thus be determined.

In addition to the replacement cost, the impact of operational changes on the cost of CVP power can be estimated. The increased costs result from spreading Western's capital and operating costs and restoration fund obligations across the reduced sales volume.

> The last question is: Should the State Water Resources Control Board request the Central Valley Project and State Water Project to implement portions of the draft standards prior to adoption of a water rights decision?

In general, NCPA believes it would be desirable to begin the long process of improving fish and wildlife in the Bay-Delta as soon as possible.

However, we recognize the Board will need to conduct a water rights proceeding to address the implementation of

the standards.

In conclusion, NCPA and its members reiterate their support of the Board's efforts to protect fish and wildlife resources in the Delta and in NCPA's view, this objective can best be achieved through an integrated approach that is cost effective, based on the best scientific information available and provides maximum flexibility to the operators of the facilities.

If I could, I would like to make a comment on Board Member Forster's question on why we are now more high profile.

MR. CAFFREY: Please do.

MR. SCHNEITER: Small municipalities such as mine provide maybe a quarter of the public service budget through elective revenues and stuff like this, in addition to community-based organizations, and today the cost of power that we buy is being affected by Federal, State and regulatory and ESA and a lot of different issues, and in the past we could probably step back and just crank up some more generation. We can't do that as easily as we could in the past, so I think it is important we be a part of the process that works with the agencies to maybe accommodate a solution that's best for all of us now.

Thank you.

MR. CAFFREY: Mr. Brown.

MR. BROWN: Mr. Schneiter, what impacts do you anticipate the Central Valley Project Improvement Act will have on your resources?

MR. SCHNEITER: We have been working with the committees to lessen the impacts. I can't speak technically to that, but I know our staff has been involved. We have members that have a very active role in that and we hope to lessen the impact and contribute to the solution, but I don't have a detailed answer for it.

MR. CAFFREY: Any other questions of these gentlemen?

All right, thank you, gentlemen, for taking your time. We appreciate your input.

Finally, Mr. Clark, we get to you. Thank you for your patience and we thank everyone for their patience.

MR. CLARK: Mr. Chairman, I am Tom Clark, General Manager of the Kern County Water Agency, and I have with me the immediate past President of the Board of Directors of the Kern County Water Agency, Fred Starr.

Our current President, I think, is north salmon fishing or something like that. He is not available today.

MR. DEL PIERO: Somewhere in British Columbia.

MR. CLARK: Right.

We are a panel of two here and what I hope to do is just provide you some insight from Kern County Water Agency. We do not have a written statement available for you today.

We will be providing one as quickly as possible.

I think I would like to really open by letting you know what we have been going through in Kern County as it relates to your workshop process and ultimately promulgation of water quality standards.

As you know, we have had a team of consultants that are dedicated to this process pretty much full time. That includes David Schuster and it includes Cliff Schulz on the legal, Paul Bradovich working for us on the biological, Chuck Hansen, even though we can't claim Chuck as our own, Chuck is a biologist for the State Water Contractors, and what you will find somewhat unique this year is that the State Water Contractors, you will see us all here but in different forums.

For example, Metropolitan and some of the others are in the CUWA group and then you have the urban agencies group, and then you have the Kern County Water Agency group.

But Chuck has been doing a tremendous amount of work on the biology of the Delta. All of the State Water Contractors support his participation in the process even though it is not necessarily the mantel of the whole group of State Water Contractors coming in with a proposal as a group.

They have been actively working in this process as well as Dr. Robert McKusick, who is the President of the Northwestern Economic Associates. They were referred to

earlier here. Dr. McKusick has done extensive studies on the impacts of shortages on the San Joaquin Valley. He started with us a number of years ago, more than ten years ago, doing work for Kern.

We commissioned him in 1990 to document the impacts of the 1991 shortage where we had a hundred percent ag shortage in Kern County.

He then expanded that study to include the economic impacts on ag San Joaquin Valley-wide.

Then, I think he repeated that work in 1992, and then more recently, has been working with the team of economists with EPA on revision of their economic studies. So, I don't think that you have seen him in your process formally yet, but he will be dedicated to that process, so when I look through your questions here, particularly as it relates to your question No. 2, what about the economics, well, our answer is we think it is very fundamental. We are appreciative that the Board considers that being this important and that we will, in fact, dedicate Dr. McKusick to that process.

Fred and I won't be able to answer all the detailed questions in terms of the economic studies, but I want to mention that we do support it.

As it relates to your question 1, what fish and wildlife standards should the State Water Resources Control

Board evaluate in alternatives in its review? We actually went through quite a local process just within the last few weeks.

We had Dave Schuster down to meet with our full Board of Directors and the 15 agencies that contract with us in Kern County.

And maybe for some of you that may not be aware of who we are, Kern County Water Agency is the largest agricultural contractor in the project with about a million acre-feet of the contracted 4 million acre-foot entitlement.

We are also the third largest M&I contractor with about 120,000 acre-feet of M&I entitlement. So, we have a large stake on both the M&I side and the agricultural side.

As I mentioned to you earlier, we are a wholesaler within Kern County. We wholesale to about 15 different agencies within Kern, 12 of which are agriculture and 3 of which are M&I.

We went through a process two weeks ago to review the work of our consultants and make the decision in terms of this workshop today. The decision of our board was to not come in here today with a specific proposal on what we think we should do in the Delta, i.e., the response to question No. 1.

You have got the commitment of our experts, the consultants and so forth, to work with you and your staff as

you go through this process for the next six months to see if we can come up with a plan that really is a comprehensive plan that works for everybody, that type of thing.

But our board was reluctant to come in today with a specific plan because their desire is to emphasize to you the importance of what I call institutional arrangements, assurances or guarantees. I don't know what label you put on them, but I will cover a number of them here.

In fact, I was pleased to see in the questions to Club Fed you are asking what I consider to be some of the institutional questions, like the shelf-life issue and just how much water are we talking about here.

So, I will cover a number of those subjects.

With respect to the third item, should the State Water Resources Control Board request the Central Valley Project and State Water Project to implement portions of the draft standards prior to adoption of a water rights decision, I think it would be fine if the Central Valley Project did that.

Actually, to be more serious about the response, we heard about that sometime ago and it's gotten cranked into the framework agreement. I assume the reason it's there is that, you know, the obvious is we have a very delicate situation here between the State Board and EPA. None of us knows for sure where that's going.

I am making the assumption that it's the desire of the State to be able to show progress in meeting new standards as early as possible because, you know, the water rights phase is going to take some period of time.

I think my answer would be very similar to Roger Patterson's in that we are very concerned about that provision.

The Central Valley Project and the State Water Project now have a long history of meeting Delta standards when no one else is, so now, when you say, well, gee, will you come in on a voluntary basis and comply early, that's yet to be seen. It is an open question. I think it depends on the circumstances. What are we talking about, what are the terms, what are the conditions, that type of thing.

I would also like to pass on to you that when we addressed our Board of Directors and our member agencies, the policy makers, and our policy makers down there, we are very close to the water users in our area. When I talk with my directors, Fred here, for example, farms on the west side of Kern County. He is a director of my agency. He happens to be a voter, an elected director. All of our directors are elected by popular vote, and he is very close to the situation in terms of trying to survive the State Water Project.

I don't want to take a lot of time here going over

subjects that maybe we have touched on before, but I can't overemphasize to you that when we go to our policy people and they are in the condition they are in, and we say to them, I'm talking about the professionals, and we say we think it is a good idea that you support a process with the State Board that is going to increase your water shortages; and when we come in under conditions we have got in Kern, and very quickly in 1990 we had a 50 percent shortage, in 1991, a 100 percent shortage, and in 1992 a 55 percent shortage, and in 1993 we had a full water supply, but a late allocation. We didn't know we had the water until April. In 1994 we are back at 50 percent.

The think what, frankly, is scaring the hell out of us is that last year we had a 150 percent water year and we filled Oroville and we filled the San Luis Reservoir, so as we came into 1994, both reservoirs were brink full.

We were coming into the year, the effects of the drought had been eliminated at that point as far as storage in the facilities, so we had the best possible condition we can be in. Admittedly, we hit a critical year again, but this is like year one of the 1928 through 1934, and you are familiar with that. And the project was supposed to carry us through that seven-year dry period with nominal shortages. That was the basis for design, that was the basis for payments.

So, here we are in year one of a shortage and we are at 50 percent. Now, as we go into year two, we are being told by DWR that we will probably have an allocation starting in December of somewhere between 10 and 20 percent, maybe 25.

Now, how much we ultimately get in '95, of course, is going to depend on how much it rains. But we are facing a possible catastrophe on the project, particularly as it relates to the take limits on endangered species. They are preventing us from moving water south.

I would like to point out to you that when you look at the sum total of the impacts in our area, I don't really have the numbers in mind for all of those years, but we have over 100,000 acres out of production. We had 150,000 out in 1991. We had about 50,000 come back in 1992, but I don't have the final numbers for this year, but I know we are still at 100,000 plus.

Now, the uniqueness of the State Water Project, and I am not saying this to de-emphasize the impacts of the Central Valley Project, but the repayment within the State Water Project requires that we pay the bill whether we get the water or not.

Now, Kern County's bill with the State is 70 million dollars per year, 70 million dollars for a million acre-feet that we are contracted for. If we get half of the supplies,

the bill is adjusted nominally, maybe by a few million dollars to account for power costs.

But that fixed obligation stays with us for all of the short years that I have talked about. Since 1990, you know, we have got a fraction of our contracted rights, but we have got 100 percent of our bill.

On the Central Valley Project, as I understand it, and it's a disaster on the Central Valley Project, you know, they were at 35 percent this year.

Now, as I understand the repayment of the Central Valley Project, they are not locked into -- of course, it is not a full-price project in the same sense of the State Water Project. We are a full-priced project. They do not have the added impact of having these huge fixed obligations.

So, when people have testified here and said we think transfers work, and if these shortages occur in the high value crop area, which our area is, then they can go out and buy water.

Well, when I've got growers that are saddled with a fixed obligation, they don't have the money to go buy water, and so, they are being priced out.

So, I don't want to go on ad nauseam here on the seriousness of the issue, but I don't want us characterized, I have heard it before, agriculture has its head stuck in

the sand, they are not progressive, they don't want to give up water, you know, they just want to stonewall.

Well, we are fighting for our lives and when we go to our people and say, take more shortages, if we are going to convince the people in Kern County to support a program, it is only going to come with what I consider the institutional assurances that I believe the State Board can give us, and just very quickly I would like to read through a few of them.

MR. CAFFREY: Please.

MR. CLARK: I will make these very quick. A lot of them you have heard before, but a comprehensive agreement, and I call this federal buy-in to the State Board's plan. I think the feds need to buy into your plan. I don't think you need to buy into their plan.

I know that ultimately there may be litigation, but the State Board controls the State water rights. I don't think that the State Board should fall over itself trying to meet federal standards as the feds necessarily perceive them.

I think there has to be a coming together. There should be a compromise, but I think there should be a federal buy-in and that we should have a comprehensive plan, one that does produce shelf life.

As regards the Endangered Species Act, I have asked

numerous people how do we control the Endangered Species Act and new listings and so forth. The answer is, I guess you don't.

So, then, our suggestion to the Board in that regard, let's assume that you come up with a plan that requires X acre-feet from the water users, what we would want you to do is cap us on that obligation with the State Board.

Now, if a new agency comes in with a new listing that requires more water, take it out of their block of water that we have already dedicated, so in other words, you would have something like, you know, on standards, we have critical year relaxations, you might have ESA relaxations, so if you have a series of standards here that require water from the water users and you get a new hit as far as new obligations to meet new water-related requirements in the Delta, that the adjustment comes within the block that -- that it does not represent a new increment to the water users.

We think that there should be linkage to the long-term solution. We think you should make reference to the BDOC process and what your intent is in adopting these standards, that these standards are interim.

We are all scared to death that the strategy of the environmentalists is to say no to a Delta solution so that they can maximize the amount of water that has to be

dedicated to the Delta because of the inefficiency of the system.

So, if today we have to dedicate a large quantity of water to solve the problem, we would request that the Board make it clear that that is strictly temporary and it is subject to adjustment, and particularly, an adjustment downward if there are efficiencies that can save water.

The idea that environmental standards always have to be upwards, I don't understand the logic of that.

So, that's another item that we would want.

The environmental fund, now Mr. Del Piero, we had a discussion at the first hearing and I mentioned to you that one of the things we did not care for from the State Water Project was that there was an environmental fund that proposed that we contribute more money to environmental restoration, and I said, we have been paying a lot of money, the State Water Project. It's been alone in the Delta for 30 years. The federal agencies just got here through Miller-Bradley.

And the chart that I gave you is a real rough attempt to show you exactly what we have been spending through the State Water Project. This chart, or this table, shows the summary of expenditures through 1992 and it is broken down by category. The sum total of all of our expenditures in the Delta through 1992 are 352 million dollars. That's

principal amounts. That does not include interest and carrying costs.

And you can, at your own leisure, go through that and read through the various items that are listed here.

But we will be providing you through this process, if you will notice, this is an abstract report by Ernst & Young, Phase 1 Report on the State Water Project Environmental Mitigation Expenditures on the Delta Area.

We will be providing you a complete report on this issue. In fact, they are going to do a phase 2 report which is a line item by line item audit of expenditures in the Delta.

We are putting a lot of money in the Delta.

Now, if, in fact, let's say the State Board develops a plan that requires money, that thinks that money should be spent a certain way -- I'll give you an example right now. We are putting a lot of money into protecting the last indicator species of the Delta.

You have heard about the more recent one. Delta smelt is now the indicator species. It used to be striped bass. We are putting a lot of money into the striped bass program.

Now, if the choice is to ultimately protect native species, it really doesn't make a lot of sense that we are in the business of propagating a lot of striped bass.

That's something we ought to look at.

Attached to that table, and I won't take the time to go through them line by line, but there are a number of programs that are ongoing programs that the State Water Contractors are putting money into for environmental programs.

I am told that our annual expenditures right now on environmental-related programs are on the order of 16 to 20 million dollars. Now, that's cash out of the pocket. That's not in-house costs of the Department of Water Resources staff. That is cash out of the pocket contributed to fish and game and other programs that we have ongoing.

So, I wanted to provide you with this so that hopefully you are abundantly aware that the State Water Contractors, including Kern, have for a long period of time put our best foot forward to put money into the Delta.

The other item I have got here is South Delta facilities. I mentioned this at the first hearing and I will provide you more information on that.

The federal agencies, and I would hope the State Board through the balancing process-- everybody says let's give the projects flexibility. Then, when I listen to the testimony of Fish and Game and others, it seems as if they are proposing constraints 12 months out of the year.

I would hope that the Board would look progressively

at what kind of flexibility realistically can we provide the projects.

Now, the South Delta facilities were married with the internal standards by the Governor in his water policy statement, and I would encourage you to read that.

Now, one of your past members of the Board, after 1630, I asked the question, why don't you address the South Delta in 1630 and the answer that I got from that past Board member was, Tom, we don't have any authority over the South Delta.

I think you have got lots of authority. You have got the authority to allocate water, you have got the authority to set standards. I would encourage you to communicate to the Club Fed group, including the Corps, the Corps is the key interest here because it requires a 404 permit to enlarge South Delta channels, that it is the policy of this Board that South Delta facilities be developed and be developed as soon as possible.

In fact, I thought that we could even link some of the South Delta facilities to adoption of these standards.

I also thought you were talking about voluntary compliance, you want us to step forward to voluntary compliance? How are you going to help us get South Delta on line, because that facility will give us the flexibility to move water over a shorter period of time when it is least

environmentally damaging. We need the ability to move water south, so if we are going to be constrained, that's the only thing I can think of on the shortfall that you can do for us that will give us more flexibility.

MS. FORSTER: Help me, Tom, tell me a little bit more what you mean by the South Delta. I am missing something.

MR. CLARK: Okay, the South Delta included -- it's a project by DWR. We installed four pumps. There were existing six pumps at Banks, and those six pumps were installed back in '68 and produced about 6600 cubic feet per second.

They added four pumps to those six, so I think we have ten, and those four pumps added another 4,000 cubic feet per second capacity at Banks. Now those pumps can be operated at full capacity only when there is extremely high flows on the San Joaquin. We operated them a few times last year when we had the big flows on the San Joaquin and we were able to move a lot of water.

Now, the only way you can operate them year in and year out when you have big flows is to dredge the South Delta channels. Now, that's what remains to be done.

My understanding is it is a project that would cost maybe 150 million dollars. I haven't looked at the hard numbers lately. But even though it is expensive and I am here advocating it, and I am kind of somewhat out on a limb,

I have gone through this with Dave Schuster and he tells me, yeah, it makes a lot of sense. I talked to Dave Kennedy about it and he said, well, Tom, you might put up 150 million, but yet, we are going to be constrained on pumping by smelt and winter-run salmon, so you can't run the pumps.

Well, at some point in time I've got to assume we are going to be able to work with federal agencies that will give us the flexibility they are talking about. So, I mean, if we make all of our decisions on constraints, then I think we have got a real problem.

This is the difference, I think the Board is a policy maker of the State on water, I don't think you merely sit here to regulate, and as a policy maker, I think you can drive a lot of processes through the power that otherwise can't get done.

If it is left up to DWR to try to do South Delta through the normal process, we are looking at five years or longer.

If you, as the Board, in dealing with Club Fed and in terms of your willingness to adopt interim standards, condition that on getting the South Delta built quickly and facilitate the process; bring the Corps of Engineers in, find out what does it take to approve South Delta, and use that leverage that you have got constructively to provide flexibility for the project. I think it makes a lot of

sense. At least try it.

On the water rights phase, I have spoken to this before, we are supporters of the area of origin. We do, however, feel that all parties tributary to the Delta should be brought in. Even though we support the area of origin statutes, we believe that everybody should mitigate their impacts.

I think I will end with that. I have a few others here, but they are not nearly as important, and if I may, I will turn to Fred here and he can just give you a first-hand perspective of all this.

MR. STARR: My comments are going to be very brief. It is the end of the day and as Alan Simpson said last night on the confirmation hearing of Judge Breyer, he said, I won't get a lot of legal mumbo-jumbo from you, so I'm not here to give you mumbo-jumbo.

As Tom outlined, the State Water Project is operating in an ongoing state of crisis, I think we all know that, with the conditions that exist today.

Water districts in Kern County have high levels of default on lands within their districts. We have one district with 27 percent of the land now owned by the district that's been defaulted. They have another 13 percent in the status of going into default.

So, these are serious matters in our area. These

create the domino effect that we have talked about before within those districts. As those lands default, the added costs go onto the other landowners and that creates a problem in the bigger sense of the word.

So, additional takes of water will add chaos to the problem that must have a real long-term solution, and I think Tom is trying again to offer interim solutions because a lot of us feel that without a Delta fix or a Delta peripheral canal, or some type of facility, we will not ever see a resolution of this problem.

I may be a heretic in saying that, but to me it has to be said. The time is approaching when we can't ignore the reality that exists today.

The comments today, to me, were classic when we said we can sleep better when the fish are happy. You know, my 50 employees on my ranch, and I am just one grower in that area, but you know, they would be happy if they knew they had a job next year, so that's basically where we are at.

We need help. We need a resolution to the issues.

You people, as Tom said, can be policy makers, and I think Governor Wilson will be a leader in the process as you deal with it.

MR. CAFFREY: Thank you, Mr. Starr and Mr. Clark. We appreciate your comments, and are not insensitive to the dilemma you face.

Are there questions from Board members?

Mr. Brown.

MR. BROWN: Kern County has certainly been on point with many of these tough issues agriculturally. The water costs to your growers with full allocation, and, Tom, I think I heard you say $75 an acre-foot with full allocation.

MR. STARR: That's canal-side California Aqueduct. It doesn't include in-district costs and capital costs.

There was over 200 million dollars in bonds sold just in Kern County by the districts to distribute State water and there's a big debt service within Kern.

MR. DEL PIERO: That may be the single biggest problem; is it not?

MR. STARR: Actually, what I am finding, we are looking at this other district loan, the single biggest problem is the State bill. It is not the district debt service. It is small by comparison. The State bill is the one that's killing us.

MR. BROWN: Water marketing and moving water around works for other districts. That doesn't have the fixed cost of the State attached to it, but that's not a very viable option for growers that are on the edge right now to add another 100 or 125 dollars an acre-foot.

MR. STARR: That is correct. May I just add to that, Mr. Brown? I think one of the points I was going to mention

was that as the utilities evidenced, they have a $300 income item on an acre-foot of water, and just as a matter of information from a grower perspective, you know, I think we generate approximately between 350 to 450 dollars per acre-foot on farm products for consumers.

We don't really drink the water. We are producing a crop that people use for something that the dairymen outline. You know this, but I'd like to get it on the record. We are really producing something that the consumer wants and that's the value that I see on our operation, and it does go up higher on some of the tree crops and some of the high intense crops, but you know, on the average farm I would say 350 to 500 dollars an acre-foot is generated in ag products.

MR. BROWN: If you grow strawberries you can handle that kind of cost. If you are growing the traditional crop in Kern County, it is certainly difficult. There is an option that was suggested that sounded good, the purchase fund by the National Heritage Institute. They made a good presentation and a good report, the same as what I think I heard Tom mention, environmental fund, and I would assume they are one and the same, but even if an environmental fund were set up, how do you visualize that fund working with the fixed costs that you are now saddled with? Is there a way that those costs could be negated through the environmental

fund because the water is being diverted now from your agency and it is going to help the environment to meet those obligations?

Do you see a way that you could come out and work with that kind of program?

MR. CLARK: I couldn't see their charts and so I got bits and pieces of their presentation, but if I understood what they were talking about, it is generating this big mammoth fund that would acquire water -- you would generate the fund statewide through a formula, and then you would use it to purchase water to meet Delta outflow criteria.

Quite frankly, you know, whoever is the manager of the fund, which I assume is going to be the State, if you are interested in acquiring water for the Delta, you are going to go out and buy the cheapest water, you are not going to buy our water.

MR. BROWN: The point is, it may free up your water to go to your agency if they could buy other water through that fund.

MR. CLARK: I was intrigued by what they had to say.

MR. BROWN: There may be a fair way of allocating these costs.

MR. CLARK: In fact, I agree wholeheartedly with you on that. Our feeling is that, I mean, you look at the cost of the State Water Project, in fact, it is no secret, you

know, Senator McCorguodale has had a series of hearings and we are going to testify on August 1 about restructuring the financing of the State Water Project.

And we think that the State Water Project financing, for example, if you think this is bizarre, you should look at it. It was structured back in the sixties when they anticipated the project.

MR. CAFFREY: It seemed like a good idea at the time.

MR. CLARK: Let me tell you what we have got. We have paid 700 million dollars into the project so far and we are on the hook for 3-1/2 billion dollars, and then, you know where our water supply is going. That doesn't sound like a very good deal to me.

MR. BROWN: What are you doing about that?

MR. CLARK: Well, I'm not going to disclose everything we are doing about it. We have got a lot of lawyers, I will make no bones about it. This is a live-or-die issue for us, and I made the comment to some people the other day, if we are going down, it isn't going to be easy. It is going to be a struggle. We are going to go in every direction we have to, to and including litigation against the State, and we feel somebody has failed us along the line here.

We were told in the sixties to contract. We were told the project would be built out, there would be no

problem, the water supply would be there and it would be affordable. These are the representations made by the State to our agency.

Our folks contracted. They signed up for 75 years. They encumbered their land. They sold bonds to distribute the water, and now we find things are changing, and this is something you should be aware of from the perspective that it appears that policy is changing, that the policy today isn't what the policy was in the sixties, and there is a push toward fish and wildlife purposes, but we are not going to stand by and let our water be taken from us and dedicated to some new policy or new purpose, and leave us with the bill. It is not going to fly.

MR. BROWN: I think I heard that the first time, and it is a very serious matter.

MR. CLARK: Can I give you one piece of data here?

MR. BROWN: I want to make sure I got the figure down here. Did you say there was 17 percent of the land now that the district has taken back because of default?

MR. STARR: Twenty-seven percent in this one district.

MR. BROWN: Is that Berrenda-Mesa?

MR. STARR: Thirteen percent more in the status of being taken over.

MR. BROWN: How much throughout your whole agency?

MR. CLARK: How much is in default? I would have to say that maybe 70,000 acres for a number.

MR. BROWN: You are going to be pursuing -- did I hear you say then, the environmental fund to where it might be able to play catch-up ball with where you are?

MR. CLARK: I am not following you on that. When you are saying environmental fund, are you talking about the concept proposed by NHI?

MR. BROWN: Yes.

MR. CLARK: Well, we would like to take a look at it. I can't pass judgment on whether an environmental fund concept would work for us or not.

MR. BROWN: You will look into that, I suspect?

MR. CLARK: Sure.

MR. DEL PIERO: The areas where you are realizing the greatest number of defaults, what is the primary crop grown in those areas? Why are you realizing a greater percentage of defaults in, like Berrenda-Mesa?

MR. CLARK: Well, they have a higher pumping lift. Among our districts we pass all the costs straight through to the district and they go straight through to the landowner. The areas with the higher pumping lifts are the ones that get hit first.

Now, when people have talked conceptually that the best thing to happen if agriculture has to go out, let it

take the worst land out first. Well, it is just the opposite. It is where the cheapest water is and this is prime land. It is almonds, pistachios, grapes, permanent crops.

MR. BROWN: It's the best land.

MR. CLARK: Did I answer your question?

MR. BROWN: Yes, thank you.

MR. CLARK: If I could, just to get it in the record, because I know you questioned earlier the Club Fed, and I liked your questions and I think Patrick Wright is very good at what he does. I don't think they ever answered your question.

They said, well, we have listened to everybody and the number is now 500,000 and 1.1 million, and then I heard the Board members, Mr. Stubchaer and Ms. Forster, I think you both asked, maybe others, what does that mean, and I think that they talked a long time without answering your question. I think your question was, is that the cap? What I was hearing throughout a nonanswer is, no, it is not the cap.

You have been bringing up, what about take limits and people have been avoiding that like the plague. You are right for doing that, and I have got numbers that I requested. These are DWR numbers that I will give to you. It's what is happening this year and it is a little scary.

In January, this is pumping foregone by the CVP and the SWP this year due to winter run and due to Delta smelt.

Now the pumping foregone does not necessarily relate to a water loss of the system. For example, there's a lot of water pumping foregone in January that we would have pumped, but the system was full. We had a full San Luis Reservoir, and all the demands are being met, so not all this is a shortage.

But I would say that in a critical year like this, most of the water is almost one for one. If you couldn't pump it, we could have used it.

In January, 320, acre-feet, and that is due to winter run and primarily to the Q WEST problem.

In February, it is 310,000 acre-feet, again winter run and Q WEST and take limits of winter run.

In March 390,000 acre-feet winter run, Q WEST and take limits.

April, 160,000 acre-feet, winter run, Q WEST and take limits, smelt outflow in April.

Now, these are limitations at the pumps. I haven't talked yet about how the reservoirs are being drawn down.

In May, 120,00 acre-feet and that is smelt, and you have read all the articles about how the projects are destroying the smelt and I'm sure by now you know what the summer tow-net survey shows, that we have a hell of a lot of

smelt out there.

The thing that is most objectionable to me is how people distort everything that's going on. This is an advocacy process and I guess people feel in an advocacy process you cannot be so forthright, but what these numbers just in summary -- these are on take limits now. We are not on standards. This is take. We are talking about 1.3 million acre-feet so far this year. That is the number for this year.

So, when you have a little footnote that says except for take limits, it is going to have to be addressed. Somehow we are going to have to get to this and I would hope that the Board in terms of whatever we need to do here on a plan, you have to make it concise, you have to make it so that the water users have something that if you are asking them to buy into something, you have got to present them something they can buy into.

If we don't deal with these variables, you know, i.e., the take, you are not going to get our support because these people aren't going to know where they stand any more than they do today because next year, you know, the State Board standards are X and ESA is Y.

Anyway, thank you very much.

MR. CAFFREY: Thank you very much, Mr. Clark and Mr. Starr, we appreciate your comments. We also appreciate your

continuing communication with our staff. Thank you.

Mr. Nordstrom.

MR. NORDSTROM: Mr. Chairman and members of the Board, my name is Michael Nordstrom representing the Tulare Lake Basin Water Storage District, which is the single largest agricultural contractor. We are located immediately north of Kern County Water Agency and because we are an ag contractor located in the same general area as Kern County, our interests are closely aligned.

Therefore, rather than iterating a lot of the points that Tom Clark brought up, I will just simply join in his statement.

The Tulare Lake basin has been participating in the process with the State Water Contractor consultant. One of the things I would point out is that I was pleased to read in here that the State Board is going to keep the process open, that there will be consultations between the staff, the Board and the participants allowed, and we certainly endorse another workshop, as Steve Hall recommended.

I would answer the questions Mr. Del Piero brought up with Mr. Hall regarding districts participating or nonparticipating in the framework agreement that they produced. Today was the first time that I heard about that and that was the reason we haven't endorsed or been a part of it, but that's not to say that we wouldn't have

participated or we wouldn't have endorsed the plan. It is something we heard about today.

Anyway, that's all I have unless you have any questions.

MR. CAFFREY: We appreciate your statement, Mr. Nordstrom, and you waited a long time today.

Any questions of Mr. Nordstrom at this time?

Thank you.

Any questions from the staff?

MR. HOWARD: No.

MR. CAFFREY: Mr. Hoag.

MR. HOAG: I am Lyle Hoag representing the California Urban Water Agencies, which is a consortium of major urban water providers in California. We serve about two-thirds of the State population and about three-quarters of California's 600 billion dollar a year economy.

Obviously, we have a vital interest in the resolution of the Delta issue.

I am going to do my presentation in approximately three minutes, and that means I will simply cut to the key issues that we wanted to point out to you. I wanted to just tell you very briefly the status of a couple of pieces of work that I know you are interested in.

We took your counsel very seriously about getting out there and working with other interest groups and working

hard and seriously toward substantial conclusions, and we are making good progress at that. We have had ongoing technical review sessions with the environmental groups. These have been favorably structured and productive.

I have a draft of the results of that work. It is not finished and ready to submit today, but it will be very shortly and we will be doing that jointly with the environmental folks.

We have been working in a series of workshops with agricultural districts and that is the work that produced the framework statement that accompanied Steve Hall's letter to you yesterday. We have been a participant in that and would, of course, have preferred that all of the agencies be involved, but it simply hasn't been possible, but it's been a fairly large group and it certainly is an open group, and the work will continue, and the consensus there will broaden, I believe, as the next few weeks go on, and we will return with more results.

The urban folks themselves have been working hard toward getting a consensus set of recommendations that include a fair amount of details. Tomorrow my board meets all day on this issue and we will again work hard toward that, and those are the reasons why we support Steve Hall's request for either an adjourned or a new workshop because there's a lot of work which is just about that close to

completion.

Of course, it could be submitted in writing, but as you know, it has more impact and, of course, more visibility if we can stand before you and present that material, so we certainly do join in the request for that additional workshop and we believe it will be worthwhile in terms of substance and additional detail that we will be able to put before you.

On balance, we are quite pleased with the efforts and the results that have come out of these consensus discussions. They are tedious, they are not particularly efficient, you know that about consensus work. It takes a lot of time, a lot of meetings and a lot of talk, but we have been as productive as any consensus work that has gone on that I have been involved in, and so, we are pleased that we have done it per your suggestion, and we think it has been worthwhile.

Now, let me go to the questions on this workshop and just make some recommendations in a fairly general form for the reasons that we don't have the details filled in, so in each of these we will be back to you, if we may, and fill in more details, but let me state them as recommendations.

We recommend that the Board adopt a comprehensive ecosystem protection plan for the Bay-Delta as part of this proceeding. The key words there are that we are asking, as

Mr. Hall also did, that you begin with the framework document that we presented as a starting point for your deliberations, that that comprehensive plan be a part of these proceedings, and essentially, that the concurrent action on your part knowing full well that not all the pieces of a comprehensive plan are going to be worked out between now and December, or between now and next March or April, that it is going to take a lot more time.

There is a lot more than this. There will be more known and more available before December, but nonetheless, we are talking here about a framework approach which will leave quite a lot of work to be done.

Almost every group that has appeared before you has used the words *comprehensive management plan*. It's become a buzz word of all of us in this business.

What we are trying to do to make that more real is say, what do we mean by a comprehensive management plan, a comprehensive protective program? What do we think needs to be included, how does it relate to the other problems for which you may not have immediate jurisdiction, how does it relate to the other parties, the feds and others, trying to get more real with that kind of plan and that kind of role, so that you can do something with it. It is not particularly easy.

That document represents, I think, the first sort of

concrete evidence that people are being more real in this regard.

We also happen to think that these things are just one more piece of evidence that is new today in California water. We take that very seriously and we believe it is one in which all the responsible parties demand an equitable environmentally responsible solution to the Delta issues.

It is quite amazing to me and those of us who have been around this business for the last few decades, the difference in attitude and the difference in view and philosophy expressed by the parties now. They do, indeed, differ from past decades and past years and past proceedings. We take that as a very hopeful sign.

Let me move on with our recommendations. The second one, we recommend that you adopt on the schedule that you have set for this proceeding, a Bay-Delta water quality plan. This plan that many people label standards, should be adopted as an element of the comprehensive ecosystem plan that we described, and it should provide equivalent biological benefits to the EPA proposal with modifications and there have been considerable that you have heard about, and should include a salinity-based estuarine habitat standard expressed either in terms of salinity or outflow, or a combination.

You have heard much about that and you will hear

more, like a sliding scale and alternative compliance features which are pretty much in hand. We have about a 90 percent concurrence on what those should look like, and we will be back to you with details on those to mitigate water supply risks and a goal for improvement of salmon smolt survival.

Again, you have heard something about that today and I think that's nearing a fairly strong consensus as well.

Certainly, we recommend that you codify in whatever appropriate way your intent to establish the role of factors other than outfall and to implement balanced programs which require improvement in all these areas.

What I am saying in another way, you have heard it before, is that we want evidence that the next bite of the apple is not automatically out of outflow, but that we do have a good handle on all of the other influences here. We are prepared to say what their relative importance is.

We do have mitigation or improvement programs in each one of those areas and we urge that the Board is committed to proceeding with those other factors and not simply looking to outflow as has been the tendency in the past.

And finally, we recommend that you establish within the plan and its implementation following up, appropriate project operational controls and requirements, and I won't give you the laundry list of them. Some people have done

that today. We will do that in the material when we return to you.

I told you last time that we were undertaking additional work in these areas that would be completed this year, and since that time, we have gotten a commitment for funding of the first phase of that, a half-million dollars. The urban agencies have stepped forward with that amount of money to go forward quickly with that work.

It is real, it is not just talk, and it will involve several times that amount of money in total, but we have that in hand and we will be proceeding. So, I think that's some good news. We all have to work very hard to stay on the schedule that you have set. We intend to do that and hope to be helpful and productive, and that may have exceeded my three minutes.

MR. CAFFREY: That is perfectly fine. You asked for ten.

Ms. Forster.

MS. FORSTER: I have a quick question, Lyle. Some parties when they talk about the Federal/State relationship and an aggressive plan, they don't explain some of the distinctions that I used to hear, and there are some things that the State does that are related to flows that EPA doesn't do.

Have the parties that have been working on the

consensus groups and the frameworks and stuff, have they changed their feelings? Is that still an important factor that people are saying we want to keep this plan? And you have one that addresses the flow and one where the State has control of water allocations, and Californians want to see that continue, or has it all melted into one happy family and you don't care about all these issues anymore?

MR. HOAG: Of course, it is important and we will be including specific recommendations on that. Most of those are legal issues, not things you will hear from a tired old engineer, but there's a lot of work being done on that.

I think the feelings are as clear and strong as before and we don't believe that the concept of a comprehensive plan needs to serve to muddle those distinctions. The notion of a comprehensive plan within which all these other things are occurring does not eliminate the bright line of separation of responsibility between water quality and flows.

MS. FORSTER: I was just curious. I don't get to talk to anybody anymore, so I don't have any idea of how you see all the shift. I don't get to talk to the interest parties anymore, and you get to see the shift and we don't see it as much as you do because you are all out there working together and we are just sitting here listening.

MR. HOAG: We will be pleased to talk to you more.

MS. FORSTER: I don't think it is possible.

MR. CAFFREY: Are there other questions of Mr. Hoag? Anything from staff?

All right, thank you very much, Mr. Hoag.

MR. HOAG: Thank you for staying so late.

MR. CAFFREY: Thank you as well.

Mr. Golb, you waited a long time as well.

MR. GOLB: Thank you. In the interest of moving quickly, I will summarize my remarks so we can all go home and sleep happy thoughts.

I am Richard Golb and I am Executive Director of the Northern California Water Association. We represent 45 agricultural water districts, water companies and individuals in the Sacramento Valley and 600,000 acres of farm land.

My remarks relate to the second question in the workshop notice, but I do have some general comments on the first and third as well.

Regarding the first question, I would again encourage, like many others have done, encourage the Board to look at a comprehensive plan that pulls in coordinated efforts. You know, it seems to me that right now you have got a number of federal laws, State laws that are all seeking to restore parts of the Bay-Delta and its tributaries. It would be nice if all those actions were

coordinated. Maybe that is not possible, to have it all in one shop, but it would be nice to have all those activities moving in the same direction. I think that would achieve real efficiency there.

Additionally, I would encourage the Board to look at all the factors involved that significantly impact fish and wildlife resources and enlist other State agencies and direct, if possible, federal agencies to do the same thing.

It is a complex problem. It is not going to be resolved solely by increasing outflow.

Also, I would encourage the Board as it moves to the next phase and begins work on the implementation plan, that it does so consistent with all relevant State laws, including the area of origin protection statutes.

I was again heartened to hear Tom Clark of Kern County say that they do support the area of origin laws.

Regarding the second question of social and economic effects, I would encourage the Board not to use the approach or methodology that EPA employed to prepare their regulatory impact analysis. The analysis prepared by EPA which evaluated costs associated with reduction in water supply seriously underestimated the economic effects and potential social effects that would have resulted from the proposed standard.

Assumptions by EPA that only low value crops would be

affected over simplifies the opportunities available to a farmer to reduce the effects of reduced water supplies.

To their credit, EPA recognized their problems early on and it is my understanding they have been working hard to revise both their assumptions and the model that they used to prepare this.

The social and economic analysis the Board undertakes should be rigorous. It should analyze the direct and indirect economic and social effects both immediately and long term. The analysis should include a review of current social and economic impacts.

The proposed standards will also uncover important information the Board should have prior to making any decisions regarding final standards and implementation of the plan.

Here is an example: A snapshot of Sacramento agriculture reveals a large percentage of the population lives in rural areas and, of course, the predominant industry is agriculture. According to employment data from the State of California, farming in the area derives 30 percent of its jobs in certain counties. Since water is the most critical input for agricultural crops, water supply reductions is where the regulatory action strikes these communities particularly hard, and the impacts hit a region already struggling and less able to withstand the impacts.

The Sacramento Valley, like many rural agricultural areas throughout the state, is depressed. Social and economic data from the California Department of Health Services indicates that when compared to the whole of California, Sacramento Valley has a greater percentage of the population dependent on welfare, a higher unemployment rate, as high as 20 percent this year in Colusa County, higher percentage of people living below the poverty level and a mean family income over $10,000 less than the average county in California.

In addition, this year the water supply outlook in Sacramento Valley is not one of abundance, but overall scarcity, approximately 131 agricultural water districts and individuals are receiving a supply of 75 percent due to the drought. These districts serve over 400,000 acres of productive farm land.

In addition, there are roughly 20 agricultural districts in Tehama and Colusa Counties that are receiving 35 percent water supply due to the drought, ESA restrictions, and the CVP Improvement Act. These districts serve nearly 140,000 acres. So, all told, you have over 150 districts serving over 500,000 acres of land in the Sacramento Valley this year short of water.

One of the oft-repeated economic errors is the popular economic theory that as agricultural irrigation

prices increase or water supplies decrease, farmers will respond by shifting to so-called higher value crops, and as the theory goes, to avoid the economic hardships.

Unfortunately, this is not what is happening. Consider the case of the Westside Water District in Williams, California. The Westside Water District, a federal CVP contractor within the C Canal service area, consists of 16,000 acres and serves farmers who provide or grow roughly processing tomatoes, vine seed and a variety of oats and other crops, including wheat. Prior to the completion of the C Canal, farmers in this area grew wheat and safflower, relying upon mother nature and occasional summer rainfall.

In 1991, when irrigation water became readily available, farmers began producing higher value crops such as tomatoes, vine seed, yet since 1990, farmers in this district throughout the service area have seen their water supply decreased and today wheat and safflower are the crops again predominant in this water district.

There is also a lot of acreage that has been idle as a result of the uncertainty. With the decreasing water supply, farmers are growing more of the lesser value crops, wheat and safflower, and less of the higher value vine seeds and tomatoes. Why? Because the long-term uncertain water supply has forced them to minimize their risk by planting

fewer acres of the higher value crop which has a certain water supply need.

With water supplies uncertain and decreasing, the majority of the acreage then has been planted to lesser value wheat and safflower crops that require in this district less water, but also, less labor and generates less economic return to the farmers and the surrounding communities.

As this case illustrates, a cursory analysis of yet to be proposed water quality standards will not suffice. An in-depth analysis is critical so the Board may actually understand the real effects that standards will have upon the State.

As the Board prepares this analysis, I would also encourage it to consider environmental benefits that Northern California provides. As I mentioned in great detail during the last hearing, upstream rivers provide significant benefit to wildlife species that may be considered wildlife resources of the Delta.

In addition to wildlife habitat, water use in the Sacramento Valley is pretty efficient and is used several times prior to its eventual flow back into creeks, channels and eventually into the Delta.

Industrial use water does not flow back to the system. It percolates to the groundwater basin or provides

environmental benefit.

The configuration of creeks, streams and irrigation systems in the Sacramento Valley allow for the reuse of tailwater from upstream irrigation. In fact, there are a number of districts that rely solely upon tailwater for irrigation. One of these is the Colusa basin drain.

There is an area of almost 50,000 acres that grows predominantly rice that relies almost exclusively on tailwater runoff from Glenn-Colusa Irrigation District. There are two other Sacramento River districts further north this year that have had a very difficult time because the Sacramento River contractors were cut back, so that has reduced the tailwater runoff so some districts don't have water.

Finally, moving to question 3 on the implementation of standards prior to adoption of a water rights decision, we represent agricultural water districts, water companies, individuals that hold long-standing water rights, and so we are concerned about the possible precedent to be established by asking the State Water Project and the Central Valley Project to meet water quality standards prior to the water rights decision.

It is our understanding that the State Board cannot implement standards which allocate flow without first complying with due process protections provided by a water

rights proceedings. But it is also our understanding, however, as Roger Patterson stated earlier today, that the recent framework agreement between the State and federal agencies provides that an agreement would be sought under which the Central Valley Project and the State Water Project will operate to meet the proposed standards by 1995.

In this case, given the circumstances, we would request that such an agreement be pursued.

That completes my remarks.

MR. CAFFREY: Thank you, Mr. Golb.

Any questions of Mr. Golb from Board members?

Anything from staff?

Thank you, sir.

At this time, we will close and we will see you all tomorrow at 9:30.

We have some 16 cards to go through tomorrow, so we will be here at 9:30 in this room.

Thank you very much.

(The hearing was adjourned.)