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
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Thursday, July 14, 1994
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SPEAKERS:

THURSDAY, JULY 14, 1994, 9:30 A.M.

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MR. CAFFREY: Good morning. My name is John Caffrey, Chairman of the State Water Resources Control Board. Welcome to this continuation of the Delta Workshop.

We read a statement into the record yesterday as to the purpose of this particular session. I will forego the rereading of that. I see a lot of familiar faces in the audience, and I am sure everybody knows why they are here, and I will forego the introductions. You can read our names and know who we are.

So, with that past us, we will get right to the presentations. We still have about 16 presentations. I don't know if all the individuals have decided to come back today, but I will start with the reading of the names, and if somebody is not here, I will put the name further back and try it again toward the end.

The first card is Ross Rogers, General Manager of the Merced Irrigation District. I believe, sir, that you are representing Mr. Rogers?

MR. ROBBINS: That is correct. Mr. Rogers is at the Ag Power meeting this morning and will not be able to be here, so I will be appearing on his behalf.

MR. CAFFREY: Thank you, sir. Would you identify yourself for the record?

MR. ROBBINS: My name is Kenneth Robbins, the General Counsel for Merced Irrigation District, and Merced would like

to make just a few brief comments. Most of what we had to say was said yesterday, and I think that may be true of what we are going to say today.

It's important, I think, to emphasize certain points that are coming before you.

The reason the Framework Agreement executed by Club Fed and the State Board, among other things, pledges to minimize overall costs in water dollars in achieving environmental protection and in meeting those requirements the Board, by virtue of that pledge, must also be pledging to attempt to correct issues in the Delta that are in existence from factors other than flow.

The Delta Tributaries Agency Committee in its June workshop provided you a list, certainly not an exhaustive list, but the list of what we believe are some of the major factors causing problems in the Delta and I thought that we would talk about a couple of those problems this morning because they deserve some special emphasis.

One of those is having to do with introduced species. Carl Winkler, who is familiar to you, the Chief of the Delta Planning Branch of the Department of Water Resources, has estimated as much as 90 percent of the aquatic species in the Delta are exotic species in terms of population numbers. It would appear that because of the competitive success that those introduced species are having in the Delta, merely

supplying more flows is really not going to fix the Delta. That is particularly true in light of some of the predatory species such as the striped bass.

Now, with respect to the striped bass, the Environmental Protection Agency's approach to gauging the health of the Delta included the striped bass index or at least, at least enlarging the habitat range of the striped bass.

One of our directors, when we were discussing this, asked me to convey to you his thoughts in the matter. He has been reading a book about the Serengetti and he said that it is very much like a biologist who knows the predatory relationship between lions and zebras. If you know that relationship, you probably can gauge the number of zebras in a district by counting the number of lions, and that's what the striped bass was intended to do. If you know how many striped bass, you probably know about what the rest of the Delta is doing. But just because you introduce more lions in the district doesn't mean you're going to have more zebras, and that's apparently what the logic is of expanding the habitat for striped bass, is that somehow by having more striped bass, we will also have more prey. I think the opposite might very well be true.

We suggest that you leave the striped bass alone and let it indicate whatever it indicates since that's what it's

supposed to do, and concentrate our mitigation efforts elsewhere.

Kern County has introduced some information to you in the form of their economic analysis. The main point they make in any economic analysis is you have to subject the information that you are developing to a reality check and we think that theory should flow through to all other aspects of the Delta analysis.

Whenever you are talking about factors and potential solutions to the Delta, we ought to back away from some of the technical information we get from time to time because we do have a tendency, particularly in the water world, to get bogged down in minutiae, and to take a look at the big picture from time to time and see if it passes the smell test, and some of these models, particularly the economic analysis, which we will discuss in a minute, have real problems. You heard yesterday what some of those problems were.

I also want to talk to you a little bit about transfers before we kind of get into the economic issue, because, as you know, the Merced Irrigation District has attempted to make a 60,000 acre-foot transfer since the spring of 1993 to entities west or south of the Delta. Let me see if I can describe our view of what has occurred there, because in our view, since the transfer was being proposed during times in which the water could be put into the stream for fish

flows, i.e., in the spring, for outmigration of smolts and in the fall for attraction flows, it was going down the Merced River, the natural channel of the San Joaquin, helping the salt problem and certainly helping at Vernalis. It was not increasing Q WEST. It wasn't affecting that as coming from the south side of the Delta.

If any transfer upstream of the Delta could be made, this transfer is the one that should be made, and our experience has been this: After agreeing about the price and the amount of the water to be transferred, the regulatory process involved us meeting on many different occasions with six different Federal and State agencies who produced 23 different recommendations, all speaking for different sides of an issue.

For instance, in our dealing with Fish and Wildlife, we had the refuge people talking to us about duck water and we had the fish people talking to us about outflow, and the net result of that is that we have now transferred, of the 60,000 acre-feet, 30,000 to the Bureau for outflow, and we are still awaiting the transfer of the water south of the Delta.

Now, we understand that an opportunity may be open quickly to make that transfer. Yes, sir.

MR. BROWN: You said the Bureau took 50 percent of the water for carriage?

MR. ROBBINS: They purchased it. They did not take

it, they purchased it. They had money, apparently, through the CVPIA and Fish and Wildlife was requesting the water. Both of the agencies, the buying and the selling agencies, agreed to go ahead and sell that to the Bureau for outflow purposes.

MR. BROWN: At the same price you negotiated with Westlands?

MR. ROBBINS: That is correct. However, both of the projects still insisted that we have refill criteria even for the outflow, and the refill criteria not only had to concern itself with making sure that water, which in the future would have gotten to the Delta had the extra layer been in our reservoir, but also that during refill operations of Lake McClure that we comply with all of the biological opinions for the Delta, including those which may come in the future, that didn't even exist at the time we were trying to make these transfers. We had no ability to gauge the exposure that we had with respect to that refill criteria. Those obstacles haven't been overcome.

I would suggest to you that the transfer process itself has become so adversarial as to almost eliminate the potential transfers of non-project waters from north of the Delta to south of the Delta with any kind of expediency that is expected by this Board and by others who are reviewing this process. These transfers simply aren't going to take place in

the kind of volumes with the kind of quick reaction times that everybody seems to be telling us is going to take place.

And let me tell you the real reason. It is not because those people who are acting on behalf of the agencies are doing a poor job. They are not. The system has evolved to the point now where it's become so adversarial that if everybody does their job well, no water gets transferred. And that's the real crux of the problem.

The evolution of the water transfer system in California is out of sync with what you are being told is actually occurring here, at least with respect to non-project water.

Let me also, then, turn attention a little bit to --

MR. STUBCHAER: Mr. Robbins, is that because you need to use the project facilities to wheel the water?

MR. ROBBINS: Exactly.

MR. STUBCHAER: Can you use the State facilities without going through the same hurdles?

MR. ROBBINS: No, we cannot. In fact, the State Project and Federal Project were both involved in these negotiations because the transfer had the possibility -- and in fact, this extension will be coming to you later, and I am not sure how much of this I should be getting into.

We have an order from you now that allows us to transfer through the 31st of August, and in July we are in the

process of applying for an extension to allow some transfers in August. The projects are telling us that on the 18th of July, they will have the capacity to begin making the transfers, but they may go into August, in which case we will have to switch from the Federal Project to the State Project in order to complete the transfer.

Also, there's a block of water that's been transferred in October which will act as a fall attraction flow, but will all be picked up by the pumps and taken south, and so we need additional permission for that, and on it goes. The answer is both of the projects are involved in this transfer, and I think future transfers will involve them both because of the need to switch back and forth based upon take limits and capacity and that sort of coordination.

MR. CAFFREY: Mr. Brown.

MR. BROWN: Where is the bottleneck occurring for nonproject water? Is it occurring with State Water Board staff, Bureau of Reclamation --

MR. ROBBINS: No, in fact your staff has been extremely helpful in trying to expedite these matters. The breakdown occurs in attempting to get the resource agencies and delivery agencies to agree upon how the water will be handled, how it will be transferred, who will pick it up, who will move it, how it will be used, the flows, when and if they can get them at proper times, and just getting people to

take responsibility for making decisions.

My personal view as counsel in this matter is that nobody came to the table with authority to act because of the uncertainty of what was facing them was so great.

We were attempting to transfer water at a time in which the pumps were down, for lots of reasons, including winter run at first, and ultimately the Delta smelt. There turned out to be a lot more smelt this year than anybody thought were in the Delta. They were too close to the pumps, so they were exceeding the take limits.

So, the variables were so many, and the potential range of the changes in the variables were so great and the danger of going outside the parameters of those variables was so high, that nobody would make a decision. It was really a difficult time for everybody, and I do not fault the people involved. I want to make that clear. I think they were doing their job.

Any other questions about that?

MS. FORSTER: Yes, thanks for asking if there are any questions. From that experience that you have had, can you put that down in a workable form that maybe this doesn't have to be a repeat performance? I mean, have you learned enough to help others and let folks like us understand what the problems are so that we go around and we talk about these issues, we are through that hurdle and ready to help people in

the decision-making process for water transfers?

MR. ROBBINS: We have talked with both the Bureau and the State Project about doing a critique of this process. It's kind of a learning process of what we view are problems that need to be solved. One of those problems is going to come before you and that is the issue of refill criteria, and here is the real issue. If we are taking water that's in our reservoirs at this point that happens to be temporarily surplus to our needs, and we are putting it down the river during times that are fish friendly, and particularly on the San Joaquin, helping Q WEST and helping the problems at Vernalis, etc., and that water also goes to outflow, so that the water got to the Delta and helped the Delta, why do you have any refill criteria at all?

For instance, in later years, the danger is that the Delta won't have gotten water that we spilled sooner; in other words, the 60,000 acre-feet that are on top of our reservoir in future years would have been spilled to the reservoir sooner in large water years, but for this transfer. Well, the problem with that is that in those large water years, you don't need that extra water in the Delta. I mean, you've got too much water in those years, so why can't we take water off the top of our reservoirs now and transfer it without having refill obligations. That's particularly true of outflow, and even if it is transferred water there comes a point at which

these refill criteria mean we can't fill our own reservoirs because we have transferred in an effort to help the rest of the State. So, that's going to be a real problem to face in the future and that is an issue that you can't help us with.

MR. BROWN: Who establishes the refill criteria?

MR. ROBBINS: Right now, that's kind of the irony of the thing because it is really a subject of negotiation between the projects because they are the ones that are impacted, i.e., if we don't fill in the later years, they don't get to pick it up sooner, so right now the refill criteria is strictly a matter of getting across the table from the Bureau and the State Projects and arguing about who has to be responsible for that, and we need to have some predictability about what that's going to be.

That's particularly true, since they are now thinking that they have to hold us accountable for operations in the Delta during our refill operations that may be affected by future biological opinions on species that aren't even listed right now, particularly the splittail.

MR. DEL PIERO: That's the second time I've heard that assertion. That sounds like some biologist playing a lawyer.

MR. ROBBINS: I agree with you.

MR. DEL PIERO: I don't know how any condition can be

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placed upon anyone with any kind of water rights based on some potential listing of some maybe species. I mean, the relationship between that and reality does not exist. So, attempting to establish some type of flow criteria or release criteria or diversion criteria predicated on something that is so ephemeral as that --

MR. ROBBINS: We use those exact same words. How can you do that. In fact, somebody in that room, and there were at one point 28 of us, said, does your boss know what you are saying here? Is this really the position of the Department of Water Resources?

MR. DEL PIERO: A better question would be does their chief counsel know?

MR. ROBBINS: Well, in any case, those are the kinds of hurdles that are cropping up in these negotiations.

MR. CAFFREY: Mr. Brown has another question.

MR. BROWN: I can see where the Central Valley Project could be impacted by their criteria that they have out of the Stanislaus and other rivers up there. What impact does the State have on this, the Department of Water Resources?

MR. ROBBINS: Well, because the State Project may be necessary to help carry out the transfer.

MR. BROWN: But you are not using the State facility; are you?

MR. ROBBINS: We may if we have to use the August

window to transfer water.

MR. BROWN: But this 60,000 acre-feet, didn't that go down the DMC?

MR. ROBBINS: It is currently designed to do that. However, because of the operations that have occurred in the Delta, the Federal project is only available through July 31. After that we will have to pick up transfers in the State project because they will have the capacity then.

MR. BROWN: That, of course, involves then the Department. Was the Department involved in the RICA criteria?

MR. ROBBINS: Yes, they were. In fact, it was they who suggested that's what we had to live with.

MR. BROWN: Maybe our staff, Mr. Pettit could investigate, if you would, what relationship would exist from taking water out of Lake McClure, how we would be involved as a State agency, in the RICA criteria. I don't understand that.

MR. PETTIT: We will look at it separate from Mr. Howard's responsibility.

MR. CAFFREY: That is not a subject of this hearing, but we will certainly look into that.

MR. ROBBINS: I guess the whole purpose was to tell you that the transfers aren't the easy, dreamable things everybody seems to think they are going to be. It's just not working out that way. There are possibilities for it to get

to that point, but at this point, rarely because of the take limits and the need to coordinate the two projects and their capacities, it is just very difficult.

MR. CAFFREY: Any other questions of Mr. Robbins?

MR. ROBBINS: I have a couple of remarks, but I think I've taken enough of your time. Most of those basically went to the economic analysis. There are several points I wanted to make and that is I think I heard yesterday from one of the authors of the Silberman Model, for instance, that there was no accounting for real world activities. Basically, they used theoretical modeling. Farmers don't switch from high to low crops that quickly. A switch takes a whole lot of capital and we don't have that and in the absence of somebody buying excess water needed to meet the standards of the Delta, we're not going to get the capital, either the farmers or the District, to switch to these low-flow, high value crops. So, if that is, in fact, in our future, some part of the standards ought to be designed around compensation. In other words, we are not going to be able to switch as quickly as you think, particularly since yesterday you heard testimony that in some areas of the San Joaquin Valley, default rates are very high. During the Depression, Merced Irrigation District owned 50 percent of itself, and we don't choose to try to head back in that direction.

Also, any standards should take into account the

multiplier effect and neither of the two models had any multiplier effect, and neither of the two models that EPA used had, in its economic analysis, any multiplier effect, and finally, one other point is that those analyses looked at single-year, average-year impact, and we think that your standards are really taking into account the very high possibility of another multiple-year drought. In 1991, many of us were faced with zero surface water deliveries to our clients until we had the miracle March. Miracle March came too late for the banks to loan farmers money to plant, so we had substantially reduced acreage, even though we had a little more water than we initially thought we would.

So, the promise that as storage goes down over multiple-year droughts, the ability to react to dry years that come along is reduced and so not only the cumulative effects of the lost agricultural production should be used as an economic indicator, but the cumulative loss of storage should also be used when you are analyzing any potential impact for standards in the Delta. Thank you.

MR. CAFFREY: Thank you very much, Mr. Robbins. Any questions from staff? Thank you, sir.

Tom Zuckerman -- a good sense of timing, Mr. Zuckerman. I understand you are here in place of Mr. Nomellini, who spent the entire day with us yesterday. I am sure he explained to you about it.

MR. ZUCKERMAN: He told me it was a particularly enlightening experience.

MR. CAFFREY: I suppose you could call it that.

MR. DEL PIERO: Dante is well known for his truthfulness and candor.

MR. ZUCKERMAN: My name is Tom Zuckerman, and we have previously submitted some written copies of comments that we intend to address to this subject and to this workshop, and as you know, we have been in attendance and participating in the previous workshops, and rather than just hew strictly to the questions for today, what we are trying to do is pick up ones that we understood to be the desire that some of the Board members expressed in the previous hearings to try to get some idea as to how we would approach the general problem, and I will attempt not to read this statement in its entirety, but I would recommend it to you for close study. It closely resembles the approach that we have recommended to the Board previously, most recently in response to some of the staff of the D-1630 decision, and as time goes on, at least as I read what we have written, it wears well.

I think there is a good deal of wisdom in it, and although it predictably takes the position that you probably would expect to hear from people representing the Delta, I think recent events have borne out some of the intelligence of it.

The principal points that we make and want to make as firmly as we can is that we think it is increasingly clear now that the Board must make a strong commitment to reversing the declines in the significant natural introduced fishery species, depending upon this estuarine system. Your options have been narrowed to some degree by the action of Club Fed agencies and it becomes fruitless to try to avoid that and not address those issues at this point because you will be preempted from the process, I think, if you do.

The best information beyond that would indicate that we need to move the mixing zone back into the broader, shallower channels of Suisun Bay if these organisms are going to be given a reasonable chance of reversing the downward spirals and recovering and thriving, and so one way or another, whether it is 2X or Q Plus or Z Minus, or whatever the terminology, that basic issue needs to be met and addressed if we are going to have any success in this process at all.

Inevitably, that will require more outflow and that will impact the remaining water available for use for export projects and use in the Delta and use upstream.

What we are basically urging the Board to do is to understand that when the export CVP and State Water Projects were formulated, decisions were made about who was to pay the risk of deficiencies at that time. It took several years and

a couple of lawsuits for the courts finally to announce that, yes, the CVP is required to provide salinity repulses to the system and the Racanelli decision makes that very clear at this point. With the State Water Project there wasn't any doubt about it. The legislative history of it with the Delta Protection Act and the things that were going on at that time and the very terms of the contract that the State Project entered into with its customers, make it crystal clear that deficiencies in the project, either from the inability to complete construction of the major features of the project which were originally contemplated, which ran all the way up and down the north coast, and several other facilities in the Valley, and the uncertainty related to what it was really going to take to protect the water quality in the Delta for resident uses, the fisheries, agriculture and so forth. That risk was being allocated to the contract holders and there are provisions in the contract as to what to do about the deficiencies that relate to or appear from the supply that they thought they were going to have originally from the original design of the project with all of its features, plus the assumption that you could adequately protect the Delta by providing a thousand parts per million chloride line somewhere around Jersey Point and Emmanton. Those facts didn't happen.

We didn't complete the water conservation features of the project and it turned out, based upon experience, that

that level of outflow wasn't adequate to keep these fisheries from declining. But that burden is contractually and legally on the export project. It is not something that should be allocated on some sort of pro rata basis from all water users, and you need to keep that in mind.

Otherwise, I suppose we are all going to be making an appointment with Mr. Statham and talk to him about his agenda to solve the problem or something, so there is a major trust issue here that needs to be resolved.

MR. DEL PIERO: That joke went over a few people's heads. Stan Statham is purporting to split the State of California into three pieces. Not everybody south of --

MS. FORSTER: We Southern Californians never heard it. We don't talk about it.

MR. DEL PIERO: You didn't get it, that's right.

MR. ZUCKERMAN: Well, he makes considerable hay up here on that particular subject. As I say, I'm not going to harangue you with the details of the statement, but one thing that I think bears repetition here, because some of you probably haven't heard this before, but the burdens upon the Delta, specifically the agricultural Delta, are immense, and even though we don't pay for our water directly in the sense of paying a per acre-foot charge, we do bear the burden of returning the water back to the channels and maintaining the levees, and those are important issues for you to consider

because past studies have shown that if the Delta were not farmed, and the seepage that inevitably fills up those Delta islands was not controlled and the ground surface was not kept relatively dry, that the increase in consumptive use in the Delta over what is used to farm would be in the range of two acre-feet per acre. So, we would be using about 40 percent more water in the Delta simply by evaporation if farming did not continue in the Delta or in some other fashion and somebody was paying the expense of maintaining the levees and keeping the water surface below the surface of the land.

So, that in and of itself is something that you need to bear in mind. What do we need to do to keep the Delta farms on some basis that continues to maintain the levees which reduces the need for outflow to repulse salinity because those levees do a good job of making the hydrology of the Delta more efficient and align what outflow is occurring to keep the salt out in the San Francisco Bay and to avoid the additional consumption that would be taking place if the Delta became generally flooded.

The Delta can't withstand a lot of additional expense because farming is a very thin economically marginal activity. So, you just can't turn around and start imposing a bunch of costs, whether by regulation, direct fees, and expect this contribution to continue for all time.

The other things that we have asked you to look at in

the past, and I think there's reason to do so as we just can't sit back and allow development to take place all over the State without looking at what our available water resources really are.

There is a limit, I mean, I play golf, but to me there is a limit to how many golf courses we need to continue to build out in the desert areas which create per capita consumption rates in the Coachella Valley of over 500 gallons per person per day, and in some cases up to 800 gallons per person per day.

We have to start thinking, you know, with the limited resources situation, where those resources are most beneficially applied.

And if we take the position, as others have urged you to do, we will have all these people down here and we will have to continue to send them more water and there are going to be more people and we're going to have to keep dividing the water of the State to meet all these things that are inevitably going to happen in the future, and we are going to be in big trouble, because the water supply isn't getting larger. You keep shifting it away from areas where it is being used to support these environmental resources, and the economies of the Sacramento Valley and the Delta and so forth, and where are you going to stop.

So, this Board needs to exercise its considerable

authority and say, we've got to make some sense out of this. We can't just continue to pay obeisance to the statistics given to you by the Chambers of Commerce and people like them, that we are going to continue to have greater populations here, there, and so forth. Somewhere planning has to take place. It makes more sense to plan for the use of these resources in the areas of origin, and I think that is probably why the Legislature in its wisdom was amenable to passing area of origin laws and the Delta Protection Act. The water is here, we can accommodate agriculture here, you know, and why do we have to try to irrigate the desert and that series of concerns. Those issues are outlined in the statement, as I say, I've tried not to just slavishly read through it for you. I hope that you will consider it, and thank you very much for your patience. If you have any questions, I would happy to try to respond to them.

MR. CAFFREY: Thank you very much, Mr. Zuckerman, a very fine presentation.

Do the Board members have any questions? Anything from staff at this point? We will certainly read your statement with interest, Mr. Zuckerman. Thank you very much.

MR. ZUCKERMAN: Thank you.

MR. CAFFREY: Alex Hildebrand and Dave Whitridge. Welcome, gentlemen. Good morning.

MR. WHITRIDGE: A lot of what we have to say has been

covered before, and I will try to summarize it. Between the two of us, I am sure it will be well under the 20 minutes.

I passed out yesterday our comments and today I am handing out a report that was done, a study done by the South Delta Water Agency called the Johnston-Orlob Report. I will get to that in a minute.

The South Delta Water Agency recognizes at this point the Board is only considering additional objectives in its water quality control plan, and if new objectives are established, the method of implementing them will be addressed in subsequent proceedings.

However, we feel that issue Number 3 which you have noticed, about the implementation by the Central Valley Project and the State Water Project during the interim necessarily raises the question of water rights and the priorities between these projects and other projects.

We think it is important and this follows what Tom Zuckerman said in regard to implementation, the Board has to keep in mind recognizing the unique obligation as well as the unique impacts of the State and Federal Projects.

These include the legal obligation imposed upon them by the Delta Protection Act, the Watershed Protection Statutes, and the unique impacts of massive Delta diversions and the importation of about a million tons of salt a year by the CVP into the San Joaquin watershed when full contract

deliveries are made.

These also include the unique salinity control obligations imposed upon the CVP under Federal statutes.

Once the Board has insured that the projects are maintaining all these unique obligations and redressing their unique impacts, we have some suggestions as to how the Board should go around looking at other impacts and other parties. And I won't go into all that now. We have a list which has been provided to you. All of this will come up in more detail in the Water Rights phase. But we have laid them out because we think it is important for the Board to get some of the ideas that we have. These are mainly for design to implement the 1991 objectives of the Board that have not yet been enforced for water rights, but they could also be useful for some of the things that are being talked about by EPA and helpful for the whole ecosystem of the Delta.

In regard, particularly, to the proposals by the EPA, the one that concerns us the most, as you may know, is the striped bass salinity objective on the San Joaquin River as far upstream as Vernalis, and we agree somewhat with Mr. Robbins' earlier statements. I think that this certainly needs to be looked at as a non-native species, and what we are doing here in terms of an entire ecosystem.

In addition to that, I think we agree with the comments the Board staff sent to EPA, that upstream drainage

control be undertaken to address the San Joaquin salinity objectives for striped bass.

We have also supported a proposal laid out in the Johnston-Orlob report for the control of timing of the entry of this drainage to the river to coincide with the available flows and water quality needs. That's a May 1993 Draft by Bill Johnston and Jerry Orlob, and that's what I passed out today.

We think it analyzes very well the possibility for controlling the timing of some of this drainage so it is at non-damaging levels. It is certainly something that should be looked at with the lack of a Valley drain which we think some sort of drainage facility is ultimately needed, but is obviously a long way off.

Finally, I would just like to comment for a minute on some of the statements made by Ken Robbins earlier for the Merced Irrigation District. We are very concerned, obviously, with water transfers and we particularly support transfers down the San Joaquin River that would help meet salinity control obligations and benefit prior rights. This is mainly needed during the summer.

Now, when Mr. Robbins says the transfers are fish friendly, that may be true, and I think most of these people who are meeting with Merced Irrigation District are concerned about the transfers being fish friendly, but they do tend to

reduce the available water in the watershed for other purposes, for meeting prior rights and so on, and we think the Board needs to examine these and make sure they are not only fish friendly, but they are water user friendly. The last particular one that Merced -- we object to the protest and said we would drop the protest if some of the water comes down as transfers in August, which is a time it is most needed for water quality.

I think that is one thing the Board needs to keep an eye on to make sure they are benefitting all uses in the Delta.

Secondly, in regard to the refill obligations, I think the Board needs to get involved in that, too, because the refill obligation should be coming down, the water that is credited to the project for the refill, the Board should assure that that comes down into the system when it is needed, particularly for water quality because that can relieve some of the burden on New Melones and so on.

So, I do think the Board needs to get into the refill obligations and make sure they are being used beneficially.

That is all I have unless the Board has any questions. Alex has a few comments.

MR. CAFFREY: Thank you, Mr. Whitridge. Maybe we will wait until Mr. Hildebrand is finished and we can ask both questions if we have any. Good morning, Mr. Hildebrand.

MR. HILDEBRAND: Good morning, Mr. Chairman. Thank you.

First, let me just augment slightly what David just said about Ken Robbins' presentation. We would agree with most of what Mr. Robbins said. The institutional gridlock is real serious and needs to be addressed. However, when he refers to a meeting with 28 people debating these things, I'll bet there was nobody in that room who was worried about maintaining sufficient flow into the Delta from the San Joaquin River during July and August to meet our water rights and to minimize the requirements on New Melones for dilution water.

When you release more water for fish in the spring and the fall, you are actually exacerbating the salinity problems because we have more dilution than we need at those times and you are then using up water which would be needed at other times, not only in the summer, but also in March and early April, to reduce the salinity in the river, so these transfers, depending on how they are timed, can be helpful or they can actually be adverse to the salinity problem and can cause an increase in demand from New Melones which is already enormously over-committed.

So, I make that caution about fixing this thing without getting those considerations into the mix.

However, with that caution, we would agree with the

other things that Mr. Robbins has said.

Mainly, however, I would like to comment or address some misconceptions regarding irrigated agriculture which appeared to underlie some of the statements that you have been hearing in this workshop and previous workshops. Although not directly stated very often, there seemed to be two underlying assumptions, first, that agriculture will sustain no long-term damage if it is subjected to wide fluctuations in water allocations from year to year in order to provide relatively constant water allocations to industrial and domestic and environmental uses. And second, that as the human population grows, the allocation of water to grow food can appropriately be substantially diminished in order to provide water for other uses without any social impacts, but people do eat.

Yesterday the Heritage Institute provided an academic proposal which made several very dubious assumptions and omissions. The proposal looked only at the farm gate receipts without regard to such things as differences in growing different crops and need for market continuity. It also disregarded the impossibility of maintaining the agricultural infrastructure and paying for high-cost equipment if crops are suspended during numerous years, and I understand you heard also about how people can go bankrupt trying to pay their fixed costs in those situations.

For example, as pointed out by Mr. Conover, alfalfa,

which is one of the crops they would like to do away with, is a low-risk crop which must be available on a steady basis to sustain the dairy industry.

Another one of their pet peeves is irrigated pasture, but irrigated pasture is a necessary adjunct to some dairies and also to provide dry season forage for cow-calf operations to operate the rest of the year on rangeland that requires no developed water supply.

Still, other consequences of intermittent fallowing have been disregarded, but I won't go through the whole litany of them for you.

Then both the Heritage Foundation and Bulletin 160 assume that we need not grow more food in order to feed the 20 million more people that are forecasted for California over the next 30 years. The Bulletin 160 scenario would result in less than half as much water per capita to grow food at that time where we would have that two-thirds increase in food consumption in the State.

Confusion is also caused by statements such as agriculture has increased production by 50 percent over 20 years without increasing its share of water allocation. This confuses delivered water with consumed water. In the Central Valley, it is only the consumed water that affects the total water supply. Almost all the rest is reused either from ground water or from return flows to the stream system, some

of it by surface return, some by subsurface return.

So, progress has been made and will continue to be made in increasing proportion to the biomass that is produced which is edible, and thereby increasing the food supply that can be grown from an acre-foot of water.

However, those are rather modest increases, and there is just no way that they can be sufficient to compensate for a 50-percent reduction in the per-capita allocation of water to grow food.

The Board should not accept the motion that agriculture can recover from repeated substantial interruptions in its water supply even for crops that are scorned by academia. It should also not accept the notion that substantial reductions in the per-capita allocations of water to grow food will involve no risks for California's growing population.

I leave those thoughts with you. Thank you.

MR. CAFFREY: Thank you very much, Mr. Hildebrand. Are there questions from Board members? Anything from staff? Thank you, gentlemen, very much.

Andrew Hitchings, good morning, sir.

MR. HITCHINGS: Good morning, Mr. Chairman and Board members. My name is Andrew Hitchings with the law firm of DeCuir and Somach and I'm submitting these comments on behalf of the Glenn-Colusa Irrigation District. Sandra Dunn was here

yesterday, but we didn't get to her, so I am filling in for her.

MR. CAFFREY: It was a long day. Both she and Mr. Nomellini took off on vacation.

MR. HITCHINGS: She wishes she did.

As you may note, GCID first acquired water rights on the Sacramento River in 1883. GCID currently serves 140,000 acres of farmland and 25,000 acres of wildlife refuge with water diverted from the Sacramento River.

GCID provides water for 1200 families in both Glenn and Colusa Counties. The estimated crop value produced with this water is approximately 100 million dollars.

Clearly, GCID has a vital interest in the outcome of this Bay-Delta process and, therefore, GCID offers the following comments to the key issues raised in the State Board's Notice of Public Workshop.

With regard to key issue 1 pertaining to the State Board's evaluation of the alternative Fish and Wildlife standards, GCID is not here to present to the State Board any specific alternatives for review.

However, GCID has studied the various proposals put forward during this proceeding. GCID will continue to evaluate these proposals and will provide the State Board with its specific comments as appropriate.

In the meantime, GCID urges the State Board to

consider standards that are based upon an ecosystem and multi-species habitat approach. It is critical that the State Board recognize that the Bay-Delta is only one part of a much larger ecosystem.

Moreover, the State Board must avoid actions that could adversely affect beneficial uses of water upstream on the Sacramento River. These upstream uses include Fish and Wildlife and recreational uses as well as agricultural and municipal and other consumptive uses.

The State is likely to obtain the result it seeks to achieve only through a comprehensive, broad-based approach to the problem facing the Bay-Delta.

GCID urges the State Board to avoid establishing standards that are based on recreating some loosely-defined historical condition. The Bay-Delta system as a whole no longer operates as it did historically. Hydrodynamics of the Delta have been modified, the community of the species has changed and the Delta is home to a much larger urban population. Thus, it is unrealistic to believe that we can restore the Delta to a presumed historic state. Instead, the standards considered by the State Board should be based upon the current physical setting, not some hypothetical past condition.

In addition, the State Board must evaluate and address numerous factors other than Delta outflow that affect

the health of the Bay-Delta estuary.

Water Code Section 13241(c) mandates that the State Board consider water quality conditions that can be reasonably achieved through coordination of all factors affecting water quality in the Bay-Delta. These factors have been well identified through the testimony presented at previous workshops and this workshop.

The State Board does not have jurisdiction to regulate all of these factors. However, under Water Code Section 13140 and sections following, it does have the authority to adopt State policy for water quality control which must be complied with by other State agencies and departments that do have the necessary authority to regulate.

Finally, and perhaps most importantly, the State Board must consider and adopt standards which can achieve a reasonable balance between all competing uses of water.

With regard to key issue 2 pertaining to the evaluation of the economic and social effects of alternative standards, the State Board must realize that to date little, if any, analysis has been conducted on the social-economic impacts of any proposed standards on the Sacramento Valley and its dependent communities.

Most of these evaluations have been associated with impacts caused by exports south of the Delta.

GCID is presently investigating the nature and the

extent of the economic analyses which could evaluate how the implementation of various alternatives would impact the Sacramento Valley and its residents.

However, it is unclear what forum will be made available by the State Board for the interested parties to provide the economic analyses results that are developed. If the State Board is considering involving the interested parties in some kind of technical workshop, GCID would like the opportunity to participate in that process.

In the Notice for this workshop, the State Board requests recommendations from participants on methods to be used to analyze the economic and social effects of the proposed alternatives. In particular, the State Board seeks recommendations on the appropriate method to estimate the extent of the water transfers likely to occur after reductions in Delta Water deliveries.

Key to the development of this information is, however, an agreement on the basis from which the analysis is to begin. GCID firmly believes that the baseline must begin with a clear recognition of water right priorities and area of origin principles.

If water right priorities and area of origin protections are not confirmed as part of that baseline, there is little likelihood that any water transfers will occur. Water transfers can only be accomplished if there is

certainty. That certainty can only be provided to the preservation of existing water rights priorities and area of origin protections.

With regard to key issue number 3 pertaining to whether the State Board should request the Central Valley Project and State Water Project to implement portions of the Draft standards prior to adoption of a water rights decision, GCID is concerned with the possible precedent that could be established by requesting the CVP and the SWP to meet water quality standards prior to holding a water rights hearing for decision.

The law is clear that the State Board should not implement standards which allocate flow without first complying with the due process protections provided through a water rights proceeding. However, based upon the provision in the framework agreement between the State and Club Fed which provides that an agreement will be sought between the Central Valley Project and the State Water Project and that they will operate to meet proposed standards by 1995, GCID believes that it is proper in this limited situation to request such an agreement be pursued.

It is important, however, that any agreement reached between Club Fed and DWR maximize the use of the 800,000 acre-feet dedicated by the CVPIA in order to minimize any additional adverse impacts to Central Valley Project

contractors.

That concludes our submittal.

MR. CAFFREY: Thank you very much. Are there any questions by Board members?

MR. PETTIT: Just a comment with regard to your question on page 3 about the economic impacts, etc., the Board doesn't have any Board-sponsored work group or further discussions scheduled for that particular purpose, but if you were here yesterday, I think you probably heard a number of the parties have been meeting to discuss the economic analysis and if Glenn-Colusa isn't tuned into those discussions, and would like to be, if you will contact either Mr. Howard or Mr. Griffin on our staff, they can make sure that you are made aware of any of those future meetings that occur.

MR. HITCHINGS: Okay, thank you.

MS. FORSTER: That was my issue exactly, just what Mr. Pettit said.

MR. CAFFREY: Anything else from Board members? Anything from staff? Thank you very much. We appreciate your being here.

I have a card from B. J. Miller, but I believe he is not here, and he did leave a note yesterday that he would probably not be able to be here. His note indicated that he was representing the San Luis Delta-Mendota Water Authority, also Westside Water Users Association, Santa Clara and San

Benito Counties, and he had hoped to speak in support of ACWA's presentation yesterday on their comprehensive plan, and the note also indicated that he supports an additional workshop with that concept.

I do not see Tom Berliner in the audience. Is there someone here for Mr. Berliner? He was here all day yesterday. I will put his card to the back and call him again later this morning. Gary Bobker -- I think Mr. Bobker has arrived, representing the Bay Institute of San Francisco. Good morning, sir.

MR. BOBKER: Good morning.

MR. CAFFREY: You were here all day yesterday, too. We appreciate your presence.

MR. BOBKER: No problem. I am Gary Bobker, and I am the Policy Analyst at the Bay Institute of San Francisco, and I would like to reiterate and expand on some of the comments I made in the first workshop.

I figured since I have been silent in the last few workshops, I have got to get my licks in before the workshop process ends.

I trust I can talk about the relationship of this process to EPA's current Bay-Delta rule making and then touch briefly on some of the issues that were not addressed by EPA which are germane to the issue that was raised in the workshop Notice as to alternative standards that are necessary to

protect the estuary.

First of all, we believe and we have stated in the past that in general, EPA's standards incorporated the best available science and offer at present the best available regulatory scheme on which to base increased protections for the estuary. The Federal rule making reflects both the extensive technical evidence that was compiled by the State and Federal Resource Agencies Estuary Project, the Board in its many Bay-Delta proceedings and other entities, and it really has been an open process in which the input of all stake-holders has been sought.

In summary, the standards' packet that EPA has proposed offers the most comprehensive water quality protection approach now available.

We urge the Board not to reduplicate the Federal process, but to accept the EPA rule making activities and turn its attention to timely and equitable implementation of the standards. I am going to reserve detailed comments on what the implementation measure should be until the initiation of the water rights proceedings, because I think, although implementation of water rights concerns are obviously of enormous importance, they are more properly dealt with in those proceedings, and that has been a problem all along, that we tend to mix implementation of water rights in the standard-setting process and get away from the goal that we are trying

to achieve in setting standards.

I would also like to comment on the process between stake-holders that was mentioned at several points yesterday. We believe that there exists a growing level of agreement among interested parties concerning the proposed standards from EPA and we have been a party to those discussions and continue to work with other stake-holders to narrow the areas of disagreement and we hope to soon be able to make material available to you and interested parties that was generated from those discussions.

Despite that effort, I also, at this point, want to emphasize we have not found most of the EPA standards to be valid. We believe that the biological justification for those standards continues to be very strong, particularly the criterion and the other components of the estuarine habitat standard, and we will be providing newer technical analysis of the flaws and some of the criticisms made of the estuarine habitat standard in the near future to the EPA and to the Board and others.

I would also like to comment on some of the remarks that were made yesterday by the Department of Water Resources during their presentation. DWR seems to continue to suffer some confusion over issues that are related to flow and salinity. First of all, the Department continues to misinterpret the Federal Clean Water Act by drawing an

artificial distinction between water quantity and water quality, a view that is not shared by the U. S. Supreme Court, as expressed in its recent decision in Washington Department of Ecology versus Jefferson Public Utility District.

On the other hand, the Department fails to recognize distinctions when they do occur, specifically, by confusing issues of outflow, salinity and the X2 standard and what it is designed to achieve.

The need to provide increased outflow to meet the transport requirements of fish, eggs, and larvae where flow is the water quality parameter that we are trying to regulate, shouldn't be confused with the need to maintain adequate shallow low salinity habitat in Suisun and San Pablo Bays for estuarine dependent species where salinity is the water quality parameter for regulation; nor should it be confused with the use of salinity as it correlates . species abundance or co-variant to significant causal factors.

I would also like to just make a brief comment on DRW's remarks on the use of X3 which they propose as an alternative to X2, which kind of baffles me a little bit. Obviously, X3 is close to X2 and it is not surprising that the two values have a tight linear relation and perhaps it would be justified to use either X2 or X3 as an independent variable in the regression against species abundance. But, even if you assume that X3 is as well related to variables as X2, X3 would

still have a different intercept. In other words, mean X3 would still be further downstream than mean X2 and provide the same level of protection and would probably have to have the same level of water supply impact.

Be that as it may, I am not passing it around, it's beyond my technical expertise.

Returning to the main topic of alternative standards, as I have stated in the past, we believe that the Board shouldn't reinvent the EPA wheel, but there are clearly a number of water quality requirements for fish and wildlife that aren't addressed in the Federal rule making, particularly the need to protect critical habitat areas in addition to the Delta and Suisun Bay and the requirements of fisheries that occur outside the peak spring spawning immigration period.

In the past, we have urged both EPA and the Board over the course of many years to address these issues and alternative standards. The need for such measures has not lessened over time, obviously.

I will just very briefly discuss what I think some of those additional fish and wildlife requirements are.

Although the fish and wildlife uses of San Pablo Bay and the brackish tidal marshes of Suisun Bay will, I think, receive important incidental benefits from EPA's standards, discreet separate measures that are designed primarily for those areas should be adopted for the San Pablo to provide

extensive areas of low salinity and shallow environment which constitute critical habitats for estuarine dependent species and those benefits need to be captured in Federal and State rule making activities.

The Suisun marshes provide nursery habitat for aquatic species, wildlife habitat for a number of endangered plant and animal species that are unique to the brackish water ecosystem, and they are also a significant source of organic carbon.

Increased salinities threaten the viability of brackish marshes, and just as we consider assuring salinities to protect aquatic habitat in Suisun Bay's open water, we need companion measures to assure low salinities during the growing season in the marshes.

We and other environmental organizations have made recommendations to EPA on how best to increase water quality protection for those habitats, and our material has been provided to the Board during the past workshops.

I also mentioned that while EPA's standards focused on the critical late winter through spring spawning migration period, protections are needed for species with habitat transport requirements during the rest of the year. That was a big concern about the D-1630 hearings. We raised concerns over the vulnerability of the fish species during the fall and winter period if the intent was an increased export later in

the year.

I was particularly glad to hear the National Heritage Institute yesterday, to hear the presentation of the National Heritage Institute yesterday with recommendations to protect one of the primary species at risk, the spring run salmon, which is uncontrovertibly faced with the prospect of extinction; but we generally support the NHI recommendation for protections in the period from November to January.

Another important opportunity, also related to salmon protection, is for the Board to adopt requirements that govern the physical water quality characteristics, temperature, flow, export operations, etc., that affect fall-run chinook survival, and I imagine those protections will be along the lines recommended in the earlier proceedings, D-1630 by the U. S. Fish and Wildlife Service.

The proposed salmon smolt survival indices that EPA formulated would then serve as a very good measure of the success of physical water quality requirements for salmon, and function much the same way as the striped bass index was intended to before the striped bass standards in D-1485, hopefully with a much better feed-back mechanism.

One more comment: Most proposals to protect salmon that are concerned with dairies downstream of the tributaries see the Delta as enemy territory and consequently focus on moving salmon outmigrants quickly through the system. That

reflects an unfortunate fact, and that is, the interior Delta is a dangerous place for salmon, but it is also a fact that the Delta has been an important rearing habitat for salmon races and just as we are hopefully poised to begin restoring habitat for estuarine-dependent species through estuarine habitat standards and other measures, we also need to begin the process of reclaiming the estuary as friendly territory for salmon and other anadromous fish species, and that concludes the remarks I would like to make at this time. Thank you.

MR. CAFFREY: Thank you very much, Mr. Bobker. Are there questions from Board members? Ms. Forster.

MS. FORSTER: In the beginning of your comments, you talked about meeting with a coalition of people and a growing level of agreement. How close do you think your final product will be, and I will tell you why I raise this, is because you know we have the request for this additional workshop, but it is a concern by our staff that has to prepare the information, that they were expecting to start as early as next week, and I think that workshop in August wouldn't impair them from beginning, but the quicker you all know that they are going to need time to do runs with DWR to look at alternatives. I worried about meeting our deadline that everybody is holding great faith in, of December 15, if your processes don't finalize.

MR. BOBKER: Well, I don't suggest that our processes are a substitute for your process, and I think that you need to continue to speed toward the goals that you set for yourself, which, you know, hopefully will result in some positive results at the end of the year or for next year. And I don't see major changes coming from the State whole process, but that's my interpretation. I really can't characterize without the other parties on what will or could come out of that.

We haven't joined in the call for an additional workshop for the precise reasons that you have raised. The record, as I understand, will be open and there's an opportunity to submit additional material, and I think that if you leave it at that, you give all of us an impetus to provide that material.

MS. FORSTER: Our chairman just said to me we are not going to miss our deadline.

MR. CAFFREY: I wanted to make sure that Ms. Forster's comment was understood. We are all worried about the importance of getting your input, but we made a commitment about the timing, and that timing is very critical, and we are going to produce.

MR. DEL PIERO: He is going to make us work on Thanksgiving.

MR. CAFFREY: That's right. I had a question, Mr.

Bobker.

MR. BOBKER: Let me just add one thing. In the calls that I heard yesterday for an additional workshop, there were a number of reasons for it. One of the reasons I heard from both urban and agricultural water users was they wanted time to present more comprehensive recommendations. That's one part of the reason. Another would be to make available some of the results of our discussions. We are working on preparing summaries of the meetings that we have had and those will probably be available very soon, so I don't see that process we have been in holding up or calling for an additional workshop that far in the future. You will have that material before long.

MR. CAFFREY: I was going to ask you, I don't even know if I can frame it in a discernible way, but you know, we seem to be getting kind of an undercurrent in our proceedings, and maybe this is just my inference, but that perhaps it might be necessary to rethink the role of the striped bass in the Bay and in the Delta and how they relate to the critical anadromous species such as the salmon that are protected by the Endangered Species Act.

I'm not sure, I mean I understand that the striped bass is a predator, but I am wondering if you have any comments on that relationship and whether or not the Board ought to be reviewing the relationship between striped bass

and other species.

MR. BOBKER: Well, I think there are valid concerns about the effect of striped bass on endangered species populations. When the population is at extremely low levels, and it's highly vulnerable, obviously, you have to be very concerned about whatever the inputs are that are going to possibly cause it to go extinct. If striped bass predation is a problem, it needs to be dealt with.

However, at this point, I think probably the most appropriate way to deal with striped bass, the problems that striped bass cause for endangered species, is through the Endangered Species Act process. I think that striped bass in general since the time of their initial introduction probably caused major problems in the estuary, but subsequently seem to exist in a state of coexistence with most of the species in the estuary. I don't think striped bass has during the 20th century been a major cause of species extirpation. I think striped bass is an important resource in the estuary and also protections for all species is going to benefit striped bass, so it is not really like you can separate striped bass out.

I think we should continue with measures that both incidentally and specifically protect striped bass, but we need to look at the time of those protections, and I think that's probably more appropriate to occur through the consultation process than through the Board's taking any

action on striped bass.

Also, we note that the same source of measures that would protect striped bass will protect salmon and vice versa. In D-1630, the Board concluded that salmon measures would protect striped bass. Do we not protect salmon because we might also, at the same time, protect striped bass? I think that if you undertake measures that are based on a species, you are going to increase the abundance of the species at risk, as well as the striped bass.

MR. CAFFREY: Any other questions of Mr. Bobker? Anything from staff? Thank you very much for being here.

Mr. Berliner, I see you have arrived this morning. I know you waited a long time yesterday, as did some of the other speakers, and we appreciate that. Glad to see you made it back.

MR. BERLINER: We didn't want to miss the exciting testimony. There are two sets there.

MR. CAFFREY: While we are passing these out, I needed to ask you, Ms. Leidigh, about the 20 copy concept. Apparently, we did have some questions on that yesterday and you might share your answer with the audience.

MS. LEIDIGH: Yes, I was asked by one of the parties how they were supposed to provide copies to the other parties of these copies that come in later. It is easy enough to provide 20 copies to the Board for the Board's use, but there

was some concern that everybody would have their own idea of who the other active participants were.

I want to just inform people that we do have a mailing list of active participants and that can be obtained from Tom Howard. All you have to do is give him a call and he can give you a copy of it.

MR. CAFFREY: Thank you very much. The good news is that we have the list available. The bad news is there are a lot of parties listed. There are about 150 listed on the shortest list we have. All right, thank you. Mr. Berliner, please.

MR. BERLINER: I am Tom Berliner, representing the San Francisco Public Utilities Commission and, also this morning, speaking on behalf of San Francisco and the East Bay Municipal Utility District concerning issue number 3.

I'm going to primarily focus on number 2 this morning. Regarding the first issue, San Francisco endorses the proposal by the California Urban Water Agencies and so I don't think there's any more I can say on that question, even though I do want to address the striped bass that was discussed a few minutes ago.

In addition, we support another workshop. We think it would be valuable to have the additional work before the Board. As Mr. Bobker said, we are working, we are in the process of developing some summaries of the meetings that were

held, and work is continuing. There are different views on the work CUWA has done on an alternative standard. We are still discussing questions relating to the proposal of a numeric standard versus a narrative standard. There are questions on the biology and we think it would be useful to provide another opportunity, and I also agree with Mr. Bobker's characterization that ought not to slow down your work.

On the question of issue number 2, the economic and social impacts, our recommendation is that the Board invite or convene a group of economists to focus on these questions. We have been working with the Environmental Protection Agency through their regulatory impact analysis process and there are some very real difficult problems out there that the economists have to deal with.

I was encouraged by the testimony yesterday that seemed to track pretty well the way that San Francisco was looking at the economic issues and I will provide you with a couple of comments in a minute about the economic costs that we have been analyzing, but I think it would be valuable particularly concerning the issue of what the base case ought to be and the assumptions regarding water transfers and availability of alternative sources of water.

There are some different views on this and it would be valuable to have that debate among economists, particularly

if it is coordinated with the EPA. Again, I don't think that's going to slow down the efforts, because the meetings with EPA have been ongoing for several months. I think it is more a question of including the additional economists from the Board and any other interested parties that might participate, but there has been a pretty robust discussion so far and I think it would benefit from the Board's input as well, so I think it could be well coordinated.

I did want to emphasize the importance of the economic question because the impact from a water shortage is significant. We are just in the process of completing a commercial and industrial study for the San Francisco service area which, as you know, is about 2.3 million people in parts of Alameda and Santa Clara Counties as well as the entire San Mateo and San Francisco Counties. We haven't finished the residential impact study. The California Urban Water Agency has been working on that and we are basically part of that effort on the residential side, but we did do the commercial and industrial study for our own service area.

And while the study is not yet available for public review, it will be shortly. We are just in the process of finishing the task. We do have some numbers though, and I thought you might find those interesting.

We analyzed the impact from two perspectives, a welfare loss and a production loss perspective, and we assumed

shortages of 15 and 30 percent, and we did that because we didn't have any other basis for assigning shortages.

So, we felt that those would represent at least orders of magnitude that could be analyzed further depending on what shortage may result either from this or other regulatory proceedings, and I should comment that San Francisco is already in a situation of shortage.

Our demand exceeds our supply by about 10 percent. A production loss scenario basically reflects how current water agencies are handling their shortages, which is really by requiring an across-the-board reduction in use. That is as opposed to a welfare loss which basically says that the higher value uses would be willing to pay more for water and that they would avoid the degree of economic impacts by simply buying their way out of the drought.

As far as we know, the California Urban Water Agencies have not allowed that process to take place. They basically distribute water on a shortage basis throughout their customer base and have allowed people to react on that basis rather than saying this industry will get X amount and this resident will get something less than their full entitlement.

There are exceptions to that rule and we have some exceptions in our own service area as well, both on the commercial and industrial side and the residential side.

In terms of production loss, we see the most significant numbers in that arena at the 15 percent level. Our study has estimated losses per year of 583 million dollars in basically a reduction in gross domestic product similar to a GNP concept for the service area.

At 30 percent the number just becomes unbelievable at about 4.9 billion dollars per year of economic loss. And the reason for that is that once you cross certain thresholds, there's basically no recovery. It's a downward spiral at that point.

MR. BROWN: Tom, I didn't quite understand. Would you please repeat that figure?

MR. BERLINER: On the production loss side, everybody has to bear the shortages. So, at an across-the-board reduction of either 15 or 30 percent, looking only at the commercial and industrial sector, assuming that they would have a 15 percent loss in the available water supply over the historical level, and this is on average, the loss would be 518 million dollars per year in lost productivity. And then under a 30 percent scenario, it balloons to 4.9 billion dollars and this is an area of about a 60 billion dollar economy.

The bulk of these losses are in the industries that you would expect, the high tech arenas, and tourism suffers somewhat heavily as well because the hotels take a big loss,

but it is basically the high tech industries that are the most water dependent.

Looking at it on the welfare loss side, which is basically an economic efficiency side, the losses are substantially less. I have heard these numbers in front of you, but I have to say that they are not sure that they are achievable, at least under the way the drought and shortages are handled. But looking at the welfare loss methodology, at a 15 percent level we are talking about 35 million dollars a year, and under a 30 percent shortage, we are talking about 218 million dollars a year. Of course, these are not exact numbers. They are estimates.

So, I think the numbers are significant, and the point of the testimony is that the economic impact is important and we need to get a good understanding of it and this is just one agency's work and it needs to be coordinated with lots of other agencies.

But I will say that in reviewing the approaches that have been taken, everybody has taken the same approach. There was no difference of opinion and these were people that were working independently of one another. We didn't confer with anybody else when we started our studies, and we are now in the end game as far as the studies are concerned, and we have seen everybody has taken the same approach.

So, I think the approaches are valid and raises a lot

of issues about how water is managed and how we distribute shortages.

MR. CAFFREY: Mr. Stubchaer has a question.

MR. STUBCHAER: You mentioned that you are already 10 percent short in San Francisco.

MR. BERLINER: Our service area is.

MR. STUBCHAER: That's the whole service area. Does that mean that 15 percent is above that 10 percent, or is inclusive of that 10 percent?

MR. BERLINER: It is inclusive of the 10 percent.

MR. STUBCHAER: It means you are already obtaining perhaps 400 million dollars or so of this economic impact?

MR. BERLINER: We have not done a real fine measurement of the impact of the shortage, so we don't know that answer at this point. But I think it is one of the issues that the economists are going to need to address, which is, is there a current economic loss, and one would assume that there is.

We have heard from several of our customers in the high tech area that are very concerned about the availability of their water supply and there have not been certain plant expansions because of the unreliability of water.

MR. DEL PIERO: Are not those the ones down the Peninsula?

MR. BERLINER: Yes.

MR. DEL PIERO: They are not within the City and County of San Francisco?

MR. BERLINER: No, in our service area we serve municipal water supply, we serve to all of the counties I mentioned earlier, and we wholesale to customers down the Peninsula who, in turn, retail to several --

MR. DEL PIERO: Just for the edification of the Board, how much of the water that you serve out of the City and County, what is the percentage of the water that you serve that goes to areas outside the City and County of San Francisco?

MR. BERLINER: About two-thirds.

MR. DEL PIERO: Two-thirds?

MR. BERLINER: Yes.

MR. DEL PIERO: So, that 10 percentage shortage, if it were taken, would not be taken by the City and County of San Francisco, it would be taken in the area where you provide contract water?

MR. BERLINER: It would be taken by the entire service area.

MR. DEL PIERO: Including the City and County of San Francisco?

MR. BERLINER: Yes.

MR. DEL PIERO: Is that pursuant to an ordinance?

MR. BERLINER: It is pursuant to our legal

relationship to our customers down the Peninsula.

MR. DEL PIERO: A contractual relationship?

MR. BERLINER: And Federal statutory as well as Court decisions interpreting that. So, we are as anxious to drought-proof the City as anybody.

On the third issue, which is a question of the CVP and State Water Project potential assumption of part of the standard. We didn't really want to testify on that today. We had some testimony prepared which has been submitted. San Francisco and East Bay Municipal Utility District joined together and brought in some meetings with the other urban agencies. We think we've agreed on a response to that question which we would like to get before you before the August workshop, and we will submit it in writing if there is not a workshop.

But basically, we are concerned about creations of de facto caps and preemption of the process. We think we have some good perspective on how the issues can be addressed and we would like an opportunity to bring that to you at a later date.

Before concluding, I did want to address the striped bass question since it came up. And I thought the question asked of Mr. Bobker was perhaps worthy of another point of view.

The California Urban Water Agency, as well as San

Francisco on its own behalf, has suggested that the striped bass standards be dropped, and frankly, our view is there are two very good reasons for it. One is, it is an indicator specie and as the rest of the system recovers, so, too, should striped bass.

We submitted some testimony that was prepared by Dr. Moyle that provides a number of reasons why striped bass ought not to be protected specifically at this time, probably one of the most compelling being it is not a threatened species of any sort. But the other issue is really one that it's an indicator specie and if it is an indicator specie, it will recover along with the rest of the ecosystem, and if not an indicator specie, then maybe we ought to be really questioning, do we want to do anything about that fish, because it is not threatened, it is a predator, it is an introduced specie. In any case, Dr. Moyle's comments have been submitted for the record.

The other issue is that it is really a salinity problem, and if the Board should choose to address striped bass, it really ought to do so on the non-point source and the point source discharge side rather than through increased reservoir releases from the San Joaquin reservoirs.

So, I think there's a couple of reasons to relook at the striped bass question.

That's it.

MR. CAFFREY: Thank you, Mr. Berliner. Are there any questions from the Board? Mr. Pettit has a question.

MR. PETTIT: Could we get back to the current supply question for just a moment? Is the 10 percent shortage a current average shortage, or is it this year's shortage? How is that number derived?

MR. BERLINER: It is a shortage based upon a normal year's use. A normal demand in the service area is about 273 million gallons a day. And our firm yield is about 242,000.

MR. PETTIT: Thank you.

MR. CAFFREY: Questions by others? Mr. Griffin.

MR. GRIFFIN: How many instances do you have of businesses curtailing production as a result of this 10 percent shortage?

MR. BERLINER: We have been told by at least one high tech manufacturing company that they aren't expanding their plants in our area because of the water reliability problem. There was also a comment from the same company, a lineal technology, that had they known about the problems and how severe they were at the time that they did some plant work, that they wouldn't have done it.

We also had an inquiry from Pepsi about the location of a plant, whether we could assure them of a water supply. They needed about 2 million gallons a day and we told them no. The questions are coming up. I don't know the frequency of

them, but we know that we have heard from some companies where water consumption is a major portion of their concerns, and they are very concerned.

I think you probably also have seen the letter from several Northern California business leaders expressing concern over developing standards for the Delta. So, the business community is becoming much more aware of the need to establish standards, and as far as we know, there are a lot of concerns about reliability of water supply.

I know a plant located down at Fremont has become very concerned about their supplies and has raised questions with us. But I am not aware that they have done anything to cut back.

The other thing I would add is that a lot of high tech companies are spending millions of dollars and tens of thousands of dollars per acre-foot to ensure their water supply as well as to ensure the quality of the supply which, for their high tech processes is crucial. And one of the reasons that they are located where they are is because of water supply issues.

MR. GRIFFIN: I would certainly be interested in seeing the study when it is ready.

MR. BERLINER: We will supply it.

MR. BROWN: A few years ago you were successful in Placer County Water Agency transferring quite a bit of water

to the Delta, pioneering in that work, and I know you have been negotiating or discussing with other agencies on the East Side for possible transfers into the Hetch Hetchy system. Do those look like they will have some success?

MR. BERLINER: Those discussions are in their very early stages, and I think it is way too early to tell. They are really just at their inception. We have had to start over a couple of times due to changes in personnel and whatever, but we are definitely pursuing the voluntary water transfers looking at the East Side and looking at ways to avoid having to bring it through the Delta.

MR. BROWN: Thank you.

MR. CAFFREY: Ms. Forster.

MS. FORSTER: Tom, have you been going to any of these meetings where the economists are talking about the economic impacts of the Federal standards?

MR. BERLINER: I went to the first two or three of those meetings. After the IRA came out, we were very concerned about the way they were handling the issue of costs related to water transfers and costs related to Reclamation. I haven't gone to the most recent, but our economists have.

MS. FORSTER: Are the environmentalists also participating?

MR. BERLINER: As far as I know, they have been. I attended at least one meeting where one of the modelers for

the environmentalists was there talking about the availability of transfer capacity in the Delta.

So, as far as I know, they have been somewhat involved, but they may be very involved. I don't know because I haven't been at the last few meetings.

MR. CAFFREY: Any other questions? Thank you very much, Mr. Berliner.

Bill DuBois and David Guy. We are going to break at about a quarter to 12, or as close to that as we can and then if we are successful in doing that, we will be back at 1:15. Good morning, sir.

MR. GUY: Good morning, members of the Board. I am David Guy with the California Farm Bureau Federation. We are here today on behalf of our 75,000 member families throughout the State, the largest agricultural organization.

I think something that is important to consider -- I think you have been hearing from a lot of purveyors and other organizations, but most of these organizations do not represent people. We are here today, I guess, in a certain way to tell you that your decisions do affect people, and I know you are aware of that, but we would just like to remind you that this does affect people and it does affect families throughout the State.

Our member families take water from all of the water courses throughout the Sacramento and San Joaquin Valleys.

They also take water from Metropolitan Water District, and in the high desert from the State Water Project, so we have a pretty diverse interest in this proceeding and that is what the premise for what we are talking about today is going to be.

I think it is also clear that your standards are probably going to affect agriculture somewhat significantly. I got Mr. Anderson's comments yesterday, which were pretty appropriate, and when he suggested that now is really the time that the Board needs to consider the policy, because we all know that there's going to be a water rights proceeding at a subsequent time, but right now is when the policy decisions need to be made because it may be too late by the time the water rights proceeding comes along and that's what we want to present to you today.

First, we suggest to you that agriculture is critical to this State, and I know there are some who don't believe that, but it is very critical, and also we want to suggest that you try to set your standards and do so within a water rights framework.

So, first, let me just touch on the idea that agriculture is critical to the State. I think it is not generally brought up in water rights proceedings, but there's two acts in the different codes that I would like to point to you and urge you to read.

First is the Williamson Act, and I cited that in our written material and it basically states some very strong legislative values as to the importance of agriculture in this State. And it is important as productive open space. It provides a tax base and it has many values that are far-reaching.

The second is the Delta Protection Act of 1992, and I think Mr. Zuckerman and Mr. Whitridge both have suggested to you the importance of Delta agriculture, and I think you can read the legislative directive on that in the Delta Protection Act of 1992.

The bottom line is that agriculture relies upon a reliable and affordable water supply and that is really what this proceeding is all about. So, therefore we urge you to develop a comprehensive package, as everybody else has suggested you also do to basically return control of the Delta to the State Board, and I think we are very much behind that.

I think there's a couple of points that you should consider in doing that. The first is that I think this needs to be positive, and it needs to begin from today. We can't go back and change a lot of the things that have already been done in this State, so I think we need to look at what is happening today and work in a positive way looking forward.

And I think it also, as you very well suggested, will

also require measures that are outside of your jurisdiction and we very much endorse your apparent belief that you go outside of your jurisdiction and at least make recommendations when appropriate.

So, let me talk a little bit about this framework within the water rights and how we believe this can be a comprehensive solution to the Delta. The first is that water transfers must work. I think you have heard many people talk about that and I don't think there is any question that water transfers need to work. And in your standards and water quality control plans, you must provide for geographically diverse water transfers. I won't go into any more detail on that. It is also important to note that water transfers are also available under Water Code Section 1707 for environmental purposes, and we saw the National Heritage Institute talk a little bit about that yesterday, but that is existing law and it is a mechanism that can be used in the future.

The second point that I would like to mention is efficient water management practices and what has been going on with that. We believe that a conservation ethic is important in California. As Alex Hildebrand mentioned, it is not limitless and there are some limits on how that can be done. It must be done in a feasible and physically possible manner, but it can be done.

To tell you what we have been doing on that, we have

recently sent letters to our farmer and rancher members throughout the State telling them essentially and providing guidance for them on how they can conserve water and essentially protect their water rights. And so that is something that I think is going to happen, and we are essentially providing the legal guidance for the farmers and ranchers to do that.

Another thing that is important, and Bill DuBois is here, is the State Water Conservation Coalition. They presented their efficient water management practice policy statement to you on June 15. Bill has been very much a part of this. We believe that this policy statement will be a guide for efficient water management practices, both on the farm and by the agricultural water suppliers throughout the State and that this will, in a sense, free up some water for water quality and environmental purposes.

A third part of our proposal is the idea of physical solutions and basically the physical solution is the way to achieve the optimum utilization of the waters of this State.

And there are three. There is a host of physical solutions that could be achieved in this State, but we have recommended just three of them to kind of give you an idea of some of them. The first is some sort of a Delta facility, and I won't go into any detail on that. We support very much the Bay-Delta Oversight Council planning process. Our president

has been an active part of that and we support that and hope the Board works closely with BDOC and that the standards again allow BDOC to work in this process so that we can achieve this Delta facility, whatever it may be.

The second part of the physical solution that we recommend is the screening of diversions. Now, screening, we believe, is part of a comprehensive solution. Again, it is not a panacea and it is not something that should be done on an absolute blanket basis throughout the State, but if it is done in the proper way and with proper funding from different sources, then I think that can be very much of a comprehensive solution, and to that extent we would support screening as part of the comprehensive solution.

The third physical solution that we mention in our discussion is this idea that we do not believe that there is a right in California water to divert at a point upstream when a point downstream is also available. And I believe that within the water rights context that some of the Bay area purveyors could take some of their water at a downstream point which would result in additional water in the Delta, and in that case, it also would mean that the Bay area purveyors would not lose any of their water due to cutback. They would essentially retain their full water rights.

To go back to the next part of the comprehensive solution, we feel that the area of origin protections have

been pretty well addressed by a lot of the different parties in this proceeding, but area of origin protections must be addressed and must be considered in your water quality plan considerations.

Then, the next consideration I would like to give is water supply planning. I think Mr. Zuckerman touched on it a little bit, but I would like to take a little more detailed stab at it, and I think it's time the Board begins to take a hard look at new uses of water in California. It is pretty simple to say that the rate of development in California is challenging the ability of the infrastructure to keep pace, and that includes the State's water supply.

I think DWR Bulletin 160-93 supports that assertion and what we have done is we have supported very actively in the Legislature this year AB 2673, which is the Cortesi bill that will essentially strengthen the relationship between land use and water planning in this State.

We have supported that and we will continue to support that in the future. We believe that the Board, however, has some additional authority in this regard, especially under Article 10, Section 2, to essentially require that new uses of water in fact be proven and adequate before development is approved.

We are not suggesting that development is not proper, only that it must have a water supply.

MR. DEL PIERO: 2673 got out of the Assembly on one vote; is that correct?

MR. GUY: That's my understanding. I do not spend time on legislation. It's now in the Senate. So, we believe that the Board, again, has some authority under Article 10, Section 2, Water Code Section 100 and Water Code Section 275 to in fact enforce this requirement that all new uses are reasonable. It quite simply is not reasonable to allow new development without a proven and adequate water supply and as we have seen throughout this State that is borne by agriculture throughout this State.

Then, let me just talk a little bit about certain components of the levels of protection that will be reasonable if they are followed. The first is that we believe you should proceed only under State law. There has been a lot of talk about the Clean Water Act, but I think it is important that you keep your focus during this procedure that you are only proceeding under Porter-Cologne and State law, and obviously the Clean Water Act is a consideration for EPA and others, but at this point I think you should keep your focus, and that's important, as I will talk about in just a moment.

Another point in considering the standards is to minimize the outflows in the Delta. Again, we have heard a lot of talk about outflows, and we firmly believe that outflows are not the solution to this. They may be necessary

to a certain extent, but they are not the solution, and therefore, they should be minimized as much as possible.

The third point under this is that a lot of other folks have suggested and we suggest that you delete the striped bass criteria at this point. Others have spoken eloquently on that, so I will not go any further on that.

Then, my final point, and back to the idea that State law is important, is to consider anti-degradation, and just keep in mind that there has been a conscious decision in this State to divert water out of the Delta for a lot of years and that this goes back well into the early history of California.

And again, we cannot go back in time. We must start from today and we, like everybody else in this State, would like to keep the water of this State at as high a quality of water as possible. And we realize that certain degradation has occurred to these waters over time and we hope that will not occur in the future. But it is important to consider that the Board does have authority and has suggested in its anti-degradation policy that the waters can to a certain degree, be degraded if it will achieve maximum benefit to the people of the State of California, and I just might suggest that that may, in fact, be the case after you take a hard look at all of this. Thank you.

MR. CAFFREY: Thank you very much, Mr. Guy. We will reserve the right to ask you questions after Mr. DuBois.

MR. GUY: I don't think Bill has anything to say unless you have any questions.

MR. CAFFREY: I thought you were waiting to speak. Are there any questions of these gentlemen -- did you wish to add something?

MR. DuBOIS: I will comment on a couple of things if you will permit.

MR. CAFFREY: Please.

MR. DUBOIS: The first thing I wanted to mention to you is that what Alex Hildebrand said, his comments on water for food in California. I think that's particularly important, and we would certainly endorse his statement on that.

And another thing is Mr. Conover's comments on the value of alfalfa. I think it's real important for you to consider what he said. One other thing that particularly impresses me is that in my own area where I operate, which is in Imperial Valley, that's a 500,000 acre irrigated area, and 200,000 of that is in alfalfa. Almost another 50,000 of it is in Sudan grass and coastal Bermuda, which is used for fodder for animals, and the primary market, of course, is the dairy industry, and the dairy industry is a stable market, and with a growing population in California, unless we want to turn back over the primacy of some of the northern states to the dairy industry, and I don't think that California is anxious

to lose that part of its economy, it's going to be an increasing market for alfalfa. And that is one of the places where I am particularly concerned with Bulletin 160's prediction that there's going to be a couple of hundred thousand acres left of it in the near future.

So, I want you to examine that pretty carefully. David reminded you that we had presented to you this program on efficient water management practices for agricultural suppliers and for all farm uses. We expect to have that in print. The Department of Water Resources is printing it and it will be available and we certainly want to distribute copies to your activity when those are available.

Thank you. That is what I had to say.

MR. CAFFREY: Thank you very much, Mr. DuBois. Are there questions from the Board members? Ms. Forster.

MS. FORSTER: I am reading your comments very quickly on the proposed rule making for screening. I think last week I was reading about a negotiated, regulatory negotiation or negotiating rule making on screening. Have you been participating in that?

MR. GUY: I think there are people here in the audience that would be able to discuss that more. I see Mr. O'Brien and Mr. Lilly, and both might be involved in that. I have not participated, no.

MR. CAFFREY: We need to chew on Mr. Lilly. I don't

know that Mr. O'Brien has a card in.

MR. LILLY: I will warn you, if you are going to ask about fish screens, Mr. O'Brien is the person.

MR. CAFFREY: He's your expert. (Laughter.)

MR. GUY: I think he has a card in whether he wants to or not.

MR. LILLY: He may be asked to whether he has a card in or not.

MR. CAFFREY: Mr. Stubchaer has a question.

MR. STUBCHAER: Bill, is alfalfa an abundant crop in neighboring states to California?

MR. DuBOIS: I think it would be, particularly in Nevada and Arizona, probably Oregon, too; they have the water in the right places to grow it, but I think they are faced with largely the same problem as the San Joaquin Valley is, and perhaps even a more severe problem there.

MR. STUBCHAER: I think we heard during the D-1630 hearing that alfalfa should be imported to the dairies rather than grown in California. How far can alfalfa be economically transported, do you have any idea?

MR. DuBOIS: I was going to say it seems to me that is a proposal that must have been made by the trucking companies or the railroad because it is an expensive proposition compared to the value of a ton of alfalfa to cart it around the State.

MR. CAFFREY: Mr. Brown.

MR. BROWN: I probably should make it clear, at least for my own information, if not for others, that alfalfa in the Imperial Valley, you will get seven or eight cuttings.

MR. DuBOIS: We cut it year around.

MR. BROWN: Okay, you will get six to seven tons or more per year?

MR. DuBOIS: Hopefully ten.

MR. BROWN: Ten tons per year. There are other lands throughout the State and elsewhere, of course, that aren't nearly as efficient as the alfalfa grower, particularly in the Imperial Valley, so there may be some other marginal lands that are struggling with yields of considerably less than ten, three or four, that might be a consideration.

MR. DuBOIS: That is true. Some of the high desert areas only make two or three cuttings a year, but surprisingly, a lot of those have total yields almost equivalent to Imperial Valley's yield. They just do it a whole lot quicker. Their alfalfa rests all winter and then really produces in the summertime.

MR. BROWN: That's a superior quality of alfalfa up there, as I recall.

MR. DuBOIS: Yes, it is.

MR. BROWN: So there's a lot of varying reasons why some areas should be considered and others not. I would

suggest that Imperial Valley is one of the best places in the world to grow alfalfa.

MR. DuBOIS: Well, the objective of a lot of farmers is to get into vegetables so they can make a lot of money, but after they have gone into vegetables and lost a lot of money, they come back and raise alfalfa.

MR. DEL PIERO: Anytime they have that idea, Bill, tell them to check the lettuce market for the last three years.

MR. DuBOIS: That is right.

MR. CAFFREY: Anything else from Board members? Staff? Thank you, gentlemen, very much.

Let me do some thinking here. I don't know if we have all the people in the audience who have submitted cards from yesterday. Is Mr. Bingham here? He did speak yesterday, but there was another card in separately. I guess he is not going to be appearing today. Is Laura Hoover here? Would you like to come forward and address the Board?

MS. HOOVER: Yes.

MR. CAFFREY: Good morning.

MS. HOOVER: I'm here representing World Water Impact Network, or World WIN which is a project of Community Alliance Family Farmers Foundation.

This is nerve wracking, I've never done this before.

MR. CAFFREY: Relax, we are actually nice people.

You may hear differently as you sit in the audience. I won't say that for Mr. Del Piero.

MR. DEL PIERO: I will do everything I can to make you nervous.

MR. CAFFREY: We do a good guy-bad guy up here. Please feel comfortable and we are very happy to have you here, and we appreciate your taking the time as a citizen to come here and address us. I am sure that you are going to tell us something that is going to be helpful, so relax.

MR. DEL PIERO: Would you like to sit down?

MS. HOOVER: Sure.

MR. CAFFREY: There's a microphone at the table.

MS. HOOVER: I'm here representing World Water Impact Network, or World Win, which is a project of the Community Alliance Family Farmers Foundation, and I would like to address key issue number two.

World Win participants include the California Institute for World studies, California World Legal Assistance, California Rice Industry Association, public elected officials, farmers, business owners, and others concerned about the impact of water quality on the future of agricultural communities.

I also work on a farm outside of Winters in Yolo County.

World Win was formed to represent the community

interests in all water policy discussions. Too often the interests of farm labor, small scale farming and small businesses have been overlooked in these discussions even though the results of changes of water policy may have significant and long-term impacts on the future of our communities.

Our coalition is especially concerned about adverse social and economic impacts which will be a consequence of reductions in water availability to agriculture.

Over the past six years, we have seen reductions in water deliveries to agriculture in the Central Valley due to drought, water banking, and changing environmental standards.

Due to this, we have witnessed increases in unemployment, increases in social service needs, lost tax revenue, and a general downward trend in the economies of agricultural communities.

These problems, unless addressed now, could intensify and become long term.

Because changes in Bay-Delta standards could further degrade the economies of rural areas, we believe it is important to be especially aware of the potential problems.

When changes in State and Federal policy reallocate a critical resource like water, an assessment of the potential environmental, social and economic impacts needs to be made. If major impacts are concerned, then it is the responsibility

of public agencies to avoid, or at least to mitigate them. World Win is conducting research that is quite relevant to the key issues outlined for this workshop. We are quantifying the impacts of water cutbacks to agriculture that occurred during the drought of 1987 to 1992.

First, we are measuring the direct impacts of the water cutback to agriculture by compiling a comprehensive geographic description of which water districts and regions experience reduced deliveries.

The California Institute for World Studies maintains an extensive data base that describes cropping patterns on specific agricultural parcels from year to year. The State's data base allows us to directly measure returns in harvested crops in each water district.

We also take account of shifts from one crop to another, for example, when one farmer shifts from a more water-intensive crop to a less intensive water-use crop. By quantifying reductions in harvested crops as a result of water cutbacks, we can then estimate the corresponding reduction in actual labor demands. In so doing, we use seasonal labor demand coefficients for each crop that is reported by the U.C. Cooperative Extension economists.

For example, almonds require 14 person-hours of labor per acre per growing cycle.

Processing tomatoes requires 34 person-hours per

acre. Fresh market tomatoes requires 63 person-hours per acre, and cantaloupe require 133 person-hours per acre.

In summary, our research will result in the description of changes in labor demands as a result of the water cutbacks to agriculture in the drought of 1987 to 1992.

Changes in labor demands, however, are only one part of the picture. We are also concerned with the impacts of the water cutbacks to agricultural life on small communities. This will be quantified using easily-available empirical data. We suggest that you use an independent measure of recent local economic trends.

For example, you can analyze sales tax revenue in such incorporated cities as Arvin, Coalinga, Corcoran, Dos Palos, Firebaugh, Gustine, Hanford, Huron, Lemoore, Mendota, Newman, Patterson, and San Joaquin.

Other sources would be business license fee revenues in the same cities, property tax assessments by region, economic conditions of special districts, and the values of agricultural properties by region.

Finally, unemployment rates should be analyzed by determining the duration of employment, the peak seasons of employment demands and the annual earnings of those who are employed.

We would be glad to discuss our research methodology further with the Board, and we are pleased to find that you

are undertaking this kind of analysis, and if there are any questions about our research, we will be glad to meet with you. Thank you very much.

MR. CAFFREY: Thank you, Ms. Hoover. Are there questions? Mr. Brown, first.

MR. BROWN: Ms. Hoover, I understand the cities of Firebaugh and Mendota right now are having about 40% unemployment; is that correct?

MS. HOOVER: Yes.

MR. BROWN: The status quo as things are today and when Public Law 102-575 is in full operation, it will mean further reductions in water, I'm sure. I just thought that they were experiencing severe unemployment right now, and of course, the property values have plummeted.

MS. HOOVER: Yes, and they are having trouble paying back their bonds for the public high schools and such.

MR. BROWN: Land that was worth 3500 dollars an acre two or three years ago is worth 500 or 600 dollars an acre, if you can find a buyer?

MS. HOOVER: Yes.

MR. STUBCHAER: I find your presentation quite interesting and well done. I want to ask Mr. Griffin, do you have the data or the coefficient, the factors she mentioned on labor per unit of agricultural area?

MR. GRIFFIN: No, we do not. It is a topic of great

interest to us and I would like to request some information from you.

MS. HOOVER: I will give you my card.

MR. GRIFFIN: Do you have any studies already completed and written that we could review?

MS. HOOVER: No, we are working on it right now. It should be done in the next few months.

MR. GRIFFIN: I certainly would like to have a copy when it is ready.

MR. CAFFREY: Perhaps preliminary information that could be used in our economic analysis if the timing doesn't work out otherwise.

MS. HOOVER: Okay.

MR. CAFFREY: We certainly welcome and encourage your participation with our economics unit. Any information you can give them verbally or in writing, please communicate with them.

Any further questions from Board members? Anything else from staff? Thank you very much, Ms. Hoover. You did a very fine job even though you say you were nervous.

I think this is probably as good a time as any to break. I said we were going to try to break about a quarter to 12:00. It is twenty to now.

Let me just tell you who is going to talk to us this afternoon. We have Jim Chatigny, Alan Lilly, Lowell

Lindowski, Russ Brown, David Vogel, and Jim Easton. Those will be the presenters this afternoon.

We will be back at 1:15. Thank you all very much.

(Noon recess.)

THURSDAY, JULY 14, 1994, 1:15 P.M.

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MR. CAFFREY: Good afternoon. We will get back to our presentations. Mr. Del Piero will not be joining us this afternoon. He is representing us somewhere on the eastern side of the Sierras. He is on his way over there for a regional board meeting and Mr. Pettit will be leaving us in about 45 minutes to join in a Water Policy Council meeting in the Resources Agency, but the four Board members who are now here will stay, of course, and we will be hearing this afternoon from Mr. Chatigny, Mr. Lilly, and I mentioned earlier Dr. Brown, Mr. Golb, Mr. Easton, Mr. Lindowski, Mr. O'Brien. Mr. O'Brien did decide to submit a card. After all, you had no alternative, Mr. O'Brien.

All right, Mr. Chatigny. Welcome.

MR. CHATIGNY: Good afternoon. Again, it's a privilege to be here. As I said last time, I was a long-time listener and first-time caller. Now I am a second-time caller.

I was going to bring you up to date on the brown ring syndrome that I talked to you about the last time when we made that flight to Phoenix, and I am sure the brown ring --

MS. FORSTER: I look now when I am flying.

MR. CHATIGNY: I had a flight scheduled to Long Beach last Saturday, but America West wasn't cooperative, so I was

not able to do that to catch you up to date, so I apologize.

MR. BROWN: I am probably just oversensitive to a brown ring, but that's all right.

MR. CAFFNEY: I knew that would come up -- sorry.

MR. BROWN: It's all right. Staff had a brown bag the other day.

MR. CHATIGNY: I am Jim Chatigny, General Manager of the Nevada Irrigation District and also Chairman of the Delta Tributary Agency's Committee.

I am here this afternoon as Chairman of DTAC for the beginning part of this.

As we discussed in our comments for the June 14th workshop, DTAC is composed of 30 water purveying agencies located upstream of the Sacramento-San Joaquin Delta on both the Sacramento and San Joaquin Rivers. Under key issue number 1, which wildlife standards should the Board evaluate as alternatives in this review? I passed out yesterday a five-page document which I will just paraphrase and pick out certain sentences here as we go through this. But in our detailed comments for June 14, DTAC noted that many factors have directly influenced the fish and wildlife resources of the Delta. We noted that the recent declines in Bay-Delta fisheries coincided with four of these factors. One was the increased SWP and CWP exports, increased commercial fishing, several new introduced species, and higher levels of

pollution.

The Board, therefore, should develop and evaluate fish and wildlife standards and other actions that will specifically address and/or reverse the adverse effects of these recent developments.

Any new fish and wildlife standards should have these following objectives:

Standards must be aimed at improving the Delta, both as a nursery area and as the fish migration path, and the Board should not simply order greater Delta outflows.

The standards must offer credible benefits to all aquatic resources. The standards must be flexible enough to maximize water transfer opportunities, and water transfers probably will be the best method for mitigating the impacts of reduced supplies in export areas plus still honoring the area of origin statutes.

Because many of these factors that cause declines in the Bay-Delta fisheries are not flow-related, simply increasing Delta outflow will not solve all of the Delta problems. Instead, the Board should include other standard actions and recommendations in the Water Quality Control Plan.

Some of these factors, like water pollution, are within the Board's jurisdiction. The Water Quality Control Plan therefore should specifically address water quality actions the Board and the Regional Water Quality Control

Board will take to reverse the adverse impacts caused by water pollution.

There are some factors that are not within the Board's jurisdiction, and these are things that we are going to have to be working on together as we move along and try to find the answers that we need for improving the Delta.

Then, under key issue number 2, how should the economic and social effects of alternative standards be determined. In what is undoubtedly a significant understatement, the Board's Notice for key issue two for this workshop states, standards for the Bay-Delta estuary have the potential to affect a large portion of the State.

We agree that significantly greater Delta outflow requirements will have serious economic impacts throughout California, and particularly in the regions where water supplies are reduced or shifted to ground water.

We in DTAC have not yet made an analysis of the specific water supply or economic impacts of any alternative set of standards. This analysis is rather difficult or impossible until the details of the standard implementations are known. Nevertheless, it is clear that the Board should not follow the approach that is taken in the Draft Regulatory Impact Assessment of EPA's proposed Delta water quality standards. That approach was defective for many reasons, and I have outlined that significantly, which I won't go through

a lot, but we do know and we have heard from other commentators through all your hearings that there are some flaws in this assessment, so I will leave that to you to read and then respond to any questions from the staff or from your Board.

There are times where the Draft Assessment completely ignores the limitations on the amount of capital that will be necessary for the shift from low to high-value crops. And you heard much about that in the last day and a half.

The Draft Assessment does not analyze the cumulative multi-year economic impacts of droughts lasting more than one year.

And then the assessment totally ignores the secondary impacts of reductions in agricultural production.

In summary, the economic analysis is faulty because it makes unrealistic assumptions about the likelihood that economic impacts could be transferred from high to low value crops. It totally ignores applicable physical limitations and limitations from California water law and applicable contracts that we have all entered into.

It also is faulty because it indirectly assumes that substantial amounts of capital that would be required for large assumed changes in water delivery systems would be available because it ignores the groundwater impacts and the multi-year drought impacts that would occur and because it

ignores the economic multi-year impacts that would result from reduction in primary agricultural production.

And then under key issue number 3, should the Water Resources Control Board request the Central Valley Project and State Water Project to implement portions of the draft standards prior to adoption of the water rights decision? And in our comments for the June 14 workshop, we emphasize the importance of area of origin laws, and Mr. Brown added onto that quite a bit and we in DTAC in the mountain regions do feel that the area of origin laws must be protected. These laws specify that water that is required for beneficial use and public trust resources in the Delta, and areas tributary to the Delta, may not be exported.

Because Delta exports are limited to surface water, additional water needed to protect Bay-Delta resources must be obtained by reducing exports or providing new sources of water. This should not or may not be obtained through involuntary taking of water that is needed in areas of origin.

This key issue addresses only potential voluntary actions by the Central Valley Project and State Water Project. So, such actions would not violate the area of origin laws, so we therefore do not have any comments at this time, but we'll be working with the Board and your staff as we go into the further decisions on the Delta.

If I may, I would like to make one comment about

water quality. As I was coming here this morning, on our local radio station, we have a very small radio station, but the Director of Environmental Health was on the radio being interviewed by one of the disc jockeys and they were talking about septic systems.

Right now, the Regional Board has a 100-foot setback from a well or a live stream for a septic system.

Well, the conversation went on that they are looking at reducing this from 100 to perhaps 75, and then perhaps 50 feet and perhaps 25 feet. So, in our mountain counties where we live, half of the people are on septic systems and where our streams are conveyance facilities, we are being hit by water quality problems, too, just as the Bay-Delta perhaps is.

So, the waters that we have there are going to be needed to dilute some of this contaminant because we are still certain that 100 feet probably is too small a setback as we look at the water quality problem that we experience in the mountain counties. Of course, we have to do a water sanitary survey by direction of the State Health Department, and hopefully we can maintain these further setbacks to protect our water quality. If we can't, it is going to take additional water supply to meet those quality requirements within our own local areas.

But again, I would like to thank you for the opportunity to be here to present our position on these three

key issues, and we are available to the Board and staff at any time to offer our assistance. Thank you very much.

MR. CAFFREY: Thank you, Mr. Chatigny. Are there questions from the Board members? Ms. Forster.

MS. FORSTER: You saw me groping around here. I was looking for what you were reading from. This is what I have. I didn't see your other handout.

MR. CHATIGNY: We have Delta Tributaries that was handed out yesterday morning. It was going to be delivered yesterday, but we will make sure you get it if you don't have it. But we did bring several copies yesterday.

MS. FORSTER: I have one question. People have come up and expressed that a lot of groups are working together and sharing ways that they might be able to reach consensus. Is that happening -- are you folks involved with that? Are the area of origin people, the mountain counties, looking at what CUWA is doing and the urban people and the environmental groups and some of the agricultural groups? Are you following and participating?

MR. CHATIGNY: We have been in conversations, I know, with CUWA and with some of the other groups, yes, ma'am. Of course, it's going to be a long process, but then everybody's position is not everybody' else's position, so as I said in the Nevada Irrigation District handout, it is going to be a given and take. Everyone is going to have to work towards

this. We don't have a Solomon's sword that we split the baby with.

MR. BROWN: Jim, you might take a minute and explain to Board member Forster and others a little bit about the Mountain County Water Resources Agency and it's --

MR. CHATIGNY: Certainly. The Mountain County Resources Agency was formed probably 15 years ago and it included most of the mountain counties, El Dorado, Placer, Nevada, Tuolumne, Mariposa, and they formed together as a group along with all the water agencies in those counties who help protect their area of origin and their water rights, and they have been active. We have had several meetings with our legislators. We meet on a bimonthly basis, and we have proposed some legislation and we are in the process of doing some more of that at the present time as a means of protecting our water rights.

Mr. Brown, prior to the time he became a member of the Board, was an active member, when he was with his engineering firm, an active member in the Mountain Counties, and I think we have done quite a bit. We have been active in ACWA and the Mountain Counties Resources Association parallels or basically mimics our Region III of the Association of California Water Agencies.

And we have picked out five different key issues that we are looking at and that's the area of origin water rights,

mandates which are not very germane to this hearing, and wild and scenic river designations that will hamper or prohibit additional development of water supplies. When and if the need comes to make more storage available, with the wild and scenic designation of the river, it will all but prohibit that as well as the production of hydroelectric power in the future.

Mountain Counties have been active and we will be getting more active.

MS. FORSTER: Thank you.

MR. CAFFREY: Anything else of Mr. Chatigny? Thank you, Mr. Chatigny. Next is Alan Lilly. Good afternoon, Mr. Lilly.

MR. LILLY: Thank you, Mr. Caffrey. Before I get started, I hope you have these documents entitled, Comments of Amador County Water Agency, et. al., and following your suggestions, we submitted it to you Tuesday morning.

MR. CAFFREY: We appreciate that.

MR. LILLY: It's only one page and a half long, so hopefully you have all had an opportunity to read that.

MR. CAFFREY: It was Mr. Del Piero who was particularly assertive about those pre-submittals and we appreciate your compliance.

MR. LILLY: I am sorry he is not here. I am sure he would have some good questions, but I appreciate the rest of

your attendance to this.

I'm Alan Lilly from the law firm of Bartkiewicz, Kronick, and Shanahan, and I am here today representing four members of DTAC, and those are the Amador County Water Agency, Brown's Valley Irrigation District, Yolo County Flood Control and Water Conservation District, and the Yuba County Water Agency.

I am not going to repeat the discussions of the area of origin statutes. You have heard them from many people and certainly very eloquently this morning from Mr. Zuckerman. And we certainly wholeheartedly agree with those comments that these statutes need to be enforced and followed in this process.

I will just note one point on the staff's use. The argument from Metropolitan Water District seems to be that the State's constitutional prohibition on waste and unreasonable use is some broad authority for this Board to simply cut back beneficial uses in the area of origin because that water is needed in the export areas or to mitigate the impacts of the exports from the Delta. And we disagree with that. We agree that the constitutional prohibition stops wasting of water and using more water than is necessary for a particular beneficial use. I don't think there is any dispute that the Racanelli decision makes this very clear, and also, sources of pollution are prohibited.

And I think the Rice Industry Association's last workshop made very clear the substantial gains that they have done in the rice industry in reducing pollution.

But it would be going another whole step to say that traditional uses of water for agriculture at the most efficient levels that are possible under normal agricultural practices are unreasonable simply because more water is needed for Delta outflow to mitigate the impacts of the project, and we certainly disagree very strongly with that.

Stated very simply, if the area of origin statutes are going to be obeyed, then implementation of Delta outflow requirements cannot be done on a pro-rata basis where everyone contributes a certain percentage of their use. Instead, it has to be what I call a reverse priority basis, which is the way California water rights normally are implemented where the junior rights have the first obligation to meet the outflow requirements and the senior water rights holders are only impacted to the extent necessary after the juniors have been cut off.

Going on to my second point, yesterday we heard from Tom Clark from the Kern County Water Agency about the very serious water problems in Kern County, and we sympathize with their plight.

Frankly, I think the concern on behalf of my clients and other users of water in the Central Valley is that

improper implementation of Delta outflow requirements would lead to similar problems in the Central Valley, and particularly in the Sacramento Valley. It is just not appropriate for those foreclosures and other truly drastic impacts to be carried forward into the areas of origin.

Kern County agencies took certain risks when they agreed to the State Water Project, in supporting it and very clearly reaffirmed the area of origin statutes at that time, and it is not appropriate for that risk now to be transferred to various areas of origin, and we are very glad that Mr. Clark recognized that fact and confirmed his agency's support of the area of origin statutes.

My next point is about a disturbing trend and maybe I am just paranoid, and I hope it is just unreasonable paranoia and not a true fact, but there's a trend in the State Board notices, and frankly, in the framework agreement, and I am concerned that this concept of equitable allocation is being repeated so much, and I guess I will say that in California water law, I have noted phenomenon where people keep talking about a phenomenon for a long enough period of time that people start thinking it's an accepted dogma or paradigm when it's never been fully scrutinized and tested, and I am concerned that is what is happening with this concept of equitable allocation.

I guess you really can't object to something

equitable, I mean equitable by nature is good, reasonable and fair, but I think there's a certain assumption that is starting to really become pervasive and that is that equitable allocation means everyone's beneficial uses have to be cut back to meet Delta outflow standards, and I really hope that that assumption is not becoming dogma in this process for two reasons.

First of all, it is a very important legal issue. I went through this in detail in the last workshop about the legal arguments supporting the area of origin statutes, and I think equitable allocation or across-the-board allocation would violate those, and probably more important, I am concerned about the Water Board prejudging this issue before we get to a water rights hearing, and even more serious, prejudging with the wrong result.

As we said before, it would really be violating the most fundamental agreement that was ever made between Northern California and Southern California for the area of origin principles to be ignored and have some sort of an across-the-board allocation.

So, I really do hope the Board will take these comments seriously and just, at the very least, not kind of accept this trend by osmosis, but keep an open mind until the time comes for that issue to be fully evaluated.

Maybe we can resolve it through the discussion

process we are doing, but if we can't, and this Board has to make a final decision, we hope that by the time that does happen, the Board will still have an open mind to really evaluate that and reach the proper legal result.

Regarding the issue of number 1 for today's workshop, the alternative standards, we listened with great interest to the Natural Heritage Institute's presentation yesterday, and frankly, I have to say on the surface, the concept of an environmental water fund appears to be a good idea and, frankly, entirely consistent with the area of origin statutes. And also, I guess I have to state we're very heartened to hear them say that increasing environmental protection is really a desired goal for a majority of Californians, that it is reasonable for all Californians to pay for that obligation and not to have it simply be imposed on certain water users.

And also, we are heartened that estimates are that the costs would be fairly modest.

Now, we do have the same concerns that Mr. Brown and others raised yesterday and today, that the Natural Heritage Institute analysis hasn't considered the third-party, multiplier effects on the community and so forth, and obviously, those are very important effects, and we appreciate the fact that the Board now has a staff economist on board to evaluate those, so while we support the general concept, we do want, we do want to send a very clear caveat, particularly for

the economic analysis that more than just simply the value of the crops, the farmer has to be considered for subsidy process, but frankly, it does make sense that the reductions in water use come from where the water use is being put to the least value, but with the caveat that there's compensations on the people who have the ability to pay the area where the water is being used and when it would be fallowed to make up the increased Delta outflows.

On that point, I have said this before, this is a big process and the Water Board, I know, is under pressure to solve this process, but I don't think you should be ashamed to ask for help from other agencies when it is necessary to truly solve the problem. And I think an environmental water fund needs to have legislation to be implemented.

And in essence, we are talking about a tax or some other funding mechanism that's beyond this Board's authority, but I don't think you should be afraid of it or back away from it simply for that reason.

I think it would be a big mistake to use your limited water rights authority to implement funding for an environmental water fund in an inefficient way when the Legislature can do it so much more efficiently.

And frankly, I pulled out the Porter-Cologne Act last night, and Water Code Section 13,242(a) is right on point. It was nice to find a statute that agreed with what I was saying

here.

Talking about programs of implementation in water quality control plans, it says they shall include several different things, (a) a description of the nature of actions which are necessary to achieve the objectives, and here's the important part, including recommendations for appropriate action by any entity, public or private.

That's pretty broad, and I think there is no question that includes recommendations for new legislation, and clearly that is what the Legislature had in mind as problems of water in California evolve, new statutes may be necessary, and this appears to be a case where that may be necessary.

Frankly, one of the big problems we had with Draft Decision 1630 was that the fees that were proposed in that, we had a couple of problems -- one was there was a question whether the Board had legal authority to deal with that, and obviously a statute could address that concern; and the other problem was the impacts. As a rough estimate, we figured the impact on an average farmer in the Sacramento Valley was 10,000 dollars. The impact on an average urban water user was about 10 dollars per year, a factor of a thousand difference, and we think that with legislation adjusting that point, this tremendous discrepancy would be addressed and addressed in a way that really would be reasonable for all Californians.

Finally, going to issue number 2 for today's

workshop, we haven't commented in detail on the potential economic impacts, really because we think the implementation of those is a big uncertainty. It's very difficult for us to comment, and of course, we think the implementation should rest on the two projects solely under the area of origin statutes.

But in the interest of completeness, I would like to reference some exhibits that my clients submitted at prior Water Board hearings, and I know your notices have asked for us to reference prior exhibits where appropriate.

It turns out all my clients have been involved in threats to their water supplies in hearings before this Board, so I will cite real quickly from the Lower Mokelumne River hearing. Amador County Exhibits 2, 3, 9 and 10 addressed potential impacts on Amador County.

From the Bay-Delta hearings from 1992, Exhibits WRINT Yolo County Flood Control and Water Conservation District 2 addressed potential impacts in Yolo County, and then from the Lower Yuba River hearing in 1992, YCWA Exhibits 13 and 16 addressed the impacts.

Those exhibits all addressed economic impacts that would result from increased flow requirements, but basically, the result would be the same, the economic impacts from reduced water supplies in the county of origin. I should qualify, the Yolo exhibits were directly for Bay-Delta and

other instream flow requirements.

The final point I would like to make, and I am sorry I have to keep doing this, but we keep hearing this from Fish and Game and it is very disturbing and I do have to respond. Once again, yesterday, the Department of Fish and Game argued that the contributions for Delta outflows should come from each tributary according to some sort of sharing formula. We have been through this before many times, and I will just say it again, it is simply not appropriate and would violate the area of origin statutes; and furthermore, as discussed by NHI yesterday, it could be inefficient causing the fallowing of higher value crops than is truly necessary.

In essence, what the Department is trying to do is use the Delta process as a second attempt to get this Board to order higher instream flow requirements for rivers like the Yuba and the Mokelumne where the Water Board has already held hearings.

During the hearings on those rivers, the Department of Fish and Game did not give adequate scientific support for its proposals, and we believe very strongly that it still does not have adequate scientific support for those proposals, and in any case, it should not be allowed to use the Bay-Delta hearing process to address instream flow requirements in Delta tributaries.

You've got a big enough problem to solve with just

the Delta in this hearing, and the instream flow requirements on any particular tributary should be addressed through separate hearings that the Water Board is holding on those tributaries.

So, with that, I will close and thank you all for giving me the opportunity to make these comments, and I will be glad to answer any questions you may have.

MR. CAFFREY: Thank you, Mr. Lilly. Ms. Forster has a question.

MS. FORSTER: Mr. Lilly, this morning somebody raised the issue of screens, and yesterday when Fish and Game were here, they touched on some of the work they were doing in different areas on endangered species, and I am trying to put together in my mind, and it is not really that critical to say, and it is probably not a part of the specific issues for the hearing, but I am trying to put together an understanding of what we are doing all around the State to restore and enhance fisheries.

And I think that before we are through with this process, the people that you represent, if there is anything you could send over, because there must be a connection that will lead to peace of mind. There must be something that will be an important part of the final scenario to explain the whole story of what California is doing to bring back the fish and wildlife resources, and that's why I asked a little bit

this morning about what is happening with the proposed rule making for screening. How long is that going to take? Are we going to be able to experience improvements within a relatively short time frame? Are we looking at 20 years? I read in the Western States Water Newsletter today that some states for salmon fisheries, and I know that this would be alarming, but Washington and Oregon have stopped their commercial fisheries of salmon, so there is a whole story out there that is disconnected and not being told very well, and so anything that you have from the area of origin would be real helpful.

MR. LILLY: You know, I have to say I'm really encouraged by this process. I think maybe it is just the culmination of knowledge over the years. We have all been through so many of these Bay-Delta proceedings, but the level of knowledge is certainly far higher today than it has ever been before, and I agree wholeheartedly with you, we are not going to solve California water problems just by looking at the Delta, just by looking at the upstream areas, or just by looking at the ocean fishery, because with anadromous fish, obviously, they all three are crucial.

I'm heartened because I think it is very clear that the Board for the Bay-Delta process has to realize that it is part of a much larger context.

Now, let me just comment on the screening issue

briefly, and I will take to heart your comments because they are very good requests.

We mentioned at the last workshop, and I will repeat it today, that it is our position very strongly that if there are impacts associated with upstream diversions, the place to address those is at the upstream point of diversion. Very similar, if there is a problem with pollution in an upstream area, the place to address it is at the discharge point. It is not appropriate to say, well, the upstream users are killing fish through unscreened diversions, therefore, they should have to make greater Delta outflows. The connection is too tenuous.

And frankly, the diversions upstream are going to have very differing impacts on the amount of fish that are entrained at each one. My clients tend to be in the furthest upstream areas where there aren't as many anadromous fish runs. There certainly are some on the Yuba River, as this Board is familiar with, and those issues are being addressed, and frankly, that was one of the issues at the Lower Yuba River hearing. It's our position that particularly on the South Canal there has been some dispute that there's a very adequate fish screen, but I will just say those are important. They need to be considered as part of the context, but I think they should be addressed locally rather than through some kind of indirect attempt at mitigation.

Now, as far as what the specifics of what NMFS is doing on this rule making, because my clients don't divert from the Sacramento River and the Delta in the area the rule making is proposed to take place, I don't have direct involvement in that, and as much as I hate to pass the buck, I am going to do it because I know Mr. O'Brien's clients are specifically involved very heavily with the Sacramento River issues, so I would like to defer to him on the specific details and scheduling of the NMFS rules.

MR. CAFFREY: Questions by other Board members? Anything from staff? Mr. Lilly, thank you very much.

MR. LILLY: Thank you.

MR. CAFFREY: I'm just trying to find out if some of the folks are here. Is Mr. Lindowski here? Mr. Lindowski is not here. He was here yesterday, so we will take him off the list.

Next we are going to hear, I believe it is a joint presentation from Dr. Russ Brown and Jim Easton. Is that correct, are you all speaking together as a panel?

DR. BROWN: Separate.

MR. CAFFREY: Is that just a strategy, they each get 20 minutes. Let me do this, your presentation is joint inasmuch as you have asked to be in a certain order because each speaker bears a relationship to the other two. We have a little, not that we want to stifle you, but we have a

logistics problem here. We have two Board members that have to leave in about an hour and we want to hear your presentation as well as Mr. O'Brien's, so that we can wind this up around 3:00 o'clock. Is it possible for each of you -- I believe Mr. O'Brien, you've asked for only 5 minutes. Is it possible for each of you gentlemen to hold your presentation to a maximum of 15 minutes?

DR. BROWN: I may not be able to. I may be a full 20 minutes today.

MR. EASTON: I can do mine in 5.

MR. CAFFREY: That helps. We will give you 20 minutes, Dr. Brown. Is Mr. Vogel out there? Mr. Vogel, we remember you. Good to see you again. How much do you need, sir?

MR. VOGEL: Fifteen.

MR. CAFFREY: That will work out fine and we can get to Mr. O'Brien so everybody can be here to hear the presentation. We thank you all.

DR. BROWN: I am up?

MR. CAFFREY: Good afternoon, Dr. Brown. Did you bring us some more diskettes for our computers?

DR. BROWN: Yes, whenever you would like to trade in the monthly model for the daily model, I will make a swap with no upgrading cost.

MR. CAFFREY: Mr. Stubchaer has schooled us well.

DR. BROWN: I am Russ Brown and I work for Jones and Stokes and my testimony actually is shared between myself and two of the other resources scientists at Jones and Stokes, and we thought this was the final workshop in the series, and in a sense, we tried to put all of our good ideas down on this last presentation. This is sort of a hallway talk from Jones and Stokes of what you might do with the Delta.

We will start with the first overhead. My testimony today is the third paper, because the three testimonies were related in some of the concepts, so we put all three together, and so I am discussing from the third paper out of this booklet. I hope you have a copy.

MR. CAFFREY: We have it separate.

DR. BROWN: This is my first overhead. Do most people in the audience have these diagrams? These are the color versions. So, what I want to talk about today could be labeled in general the Delta water allocation dilemma. The Delta, of course, has many dilemmas, but perhaps this is the crux of it.

So, I have a diagram that shows the available water supply coming from snow pack or rainfall and moving through the upstream reaches and I'll just characterize the beneficial uses there as reservoir storage and release, agricultural diversion and drainage, and municipal diversion and discharges. Of course, there are other beneficial uses, but

we will go with these three. So, we end up at the Delta with Delta inflows, and the challenge is how to allocate the Delta inflow among the various beneficial uses that can be made of that water as it flows into the Delta. And I'm characterizing beneficial uses into three general categories in my presentation. The first we will call water supply. The riparian diversions that are made within the Delta and Suisun marsh for various beneficial uses is my first sort of example of water supply uses of the Delta inflows.

The export pumping is done predominantly in the South Delta, but also at the Contra Costa and North Bay and that represents a second example of the water supply category of beneficial uses.

Using salinity control as a second category of uses, we have the traditional salinity control for mineral content for irrigation or for water supply, which is my first example of a salinity control water use and we have been discussing among each other the possible use of water for estuarine habitat management which would be a second example of salinity control beneficial uses of water that's flowing to the Delta.

Finally, I have just two examples of the third category that I will be describing today, fish beneficial uses or beneficial uses involving fish. We can imagine that water could be used for fish transport or for fish protection and fish protection would perhaps be characterized by export

reductions to protect fish that are in the Delta at a particular time. The take limits would perhaps be in this category.

So, I know what you are anxious to hear today is how to get out of the Delta dilemma, and so my main theme or main point this afternoon is that we are recommending that you choose to implement what we are going to call adaptive management, and perhaps you have heard the term before, and are wondering what it is. In particular, as we think of the six ways that we might potentially allocate water, adaptive management involves three things.

First, you have to have quite a lot of information about the actual system and so I'm going to be reviewing our contention that daily data from the Delta is available and can be used for guiding or framing the decisions in this adaptive framework.

Secondly, you need to have objectives for the resource and in this case we are characterizing them as beneficial uses and some allocation or balancing among the chosen beneficial uses.

The third thing is that you have to, with the monitoring, see whether your controls, your management actions have actually resulted in these objectives or changes toward those objectives. So, that is what adaptive management is.

And I have my homemade joke for you now. I just

celebrated my 20th anniversary, so this is a married joke. In adaptive management, the husband would recognize that as adapting to your wife's management. But this is not what we mean. What we mean by adaptive management is that the management would adapt to, in this case, your husband to, in the case of a marriage, live together happily. In the case of the Delta, we need to change our management to improve it over time, to match reality, the reality of the Delta.

I'd better go to my second overhead. This is my tic-tac-toe diagram. It is actually misplaced. It is the third figure in your document, so if you would switch to this. What we are suggesting for what you should implement in December of this year, or as soon as you are able to get your document out, is something that may look the same in that it will be a document, but the contents could be quite different than what has been released in the past, because this could be a system of Delta standards which are categorized into three different purposes.

The first purpose of some of the Delta standards would be requiring this daily information that I have spoken about before. That differs every so slightly from what you asked for in decision D-1465 (sic) because there you ask that the monitoring be done and here you will be asking and actually requiring that the data be recorded on a daily basis much as the pollution discharge reports are turned in to the

regional boards.

The second category of standards will be those most familiar to us. These are minimum protection requirements. These are fixed ahead of time, are relatively inflexible, although they may depend on hydrologic conditions, but they provide a minimum protection for each of the beneficial uses in some kind of a chosen balance, perhaps not equitable, but chosen ahead of time as the balance, as your goal.

The third type are the ones that I would like to try to illustrate because these are less familiar, and we are calling these Adaptive Allocation Objectives. The trouble with these at first is that they look squirmy. They are wiggly. You are not exactly sure what you are trying to do. They are relatively broad goals and you are intending with your available management actions to reach an objective, but you can't be sure ahead of time how to get there, and reminding you of what I have spoken on before, it is because the Delta is highly variable and very uncertain, and I call it a semi-natural ecosystem.

We have done a number of things in the past. It is different than a pure natural system, but it retains much of the natural system's characteristics. And so we are required to get this daily information and apply on top of the minimum protection standards these adaptive management standards.

I have just illustrated quickly a run-through of some

of the sort of what would be the ultimate matrix of these standards that you could put out in a new document as early as Christmas.

Under daily information needs, just to run through the resource categories with me, we know tremendous amounts about our water supply, how much flow is coming out of each tributary reservoir, out of each unregulated reservoir, but we are not taking advantage of that knowledge, because it is not being reported out.

Perhaps the most common resource that we are using for Delta analysis is the DAYFLOW data base which are the daily Delta inflows, but I am suggesting that there is a whole wealth of daily information about our water supply that should be required as an actual Delta standard, because this would then give the basis for understanding actual channel flows or where the water came from. This is the basis for considering the origin of the water and the prior water rights that may be attached to that water.

If all that information is attached to the Sacramento inflow so that you know what projects it came from, this gives more information for doing this adaptive allocation which involves a number of fairly involved rules, or might, of how to, given this makeup of the inflow, allocate water.

In the area of salinity control we can do a lot more with the available conductivity data and other data that you

required in 1978 under D-1485. We just need some help to get that information processed and built into the adaptive management framework. The most difficult to explain to people is perhaps under the fish protection category. Do we really have sufficient information here to do this adaptive management of the Delta, and I am suggesting that there is much more quantitative or could be much more quantitative fishery resource information than is currently used. This is a caricature, but we basically are making decisions based on annual index values, that is, we accumulate a time series of effects to the Delta management, one data point a year. You cannot learn very fast with one piece of information a year. You decide what your effects in the previous year were.

We're suggesting that there needs to be a fisheries currency that is equivalent in level of detail to our accounting for acre-feet and CFS flow rates, and I suggest at this point it is basically the distribution and abundance of the organism of interest in units of fish per acre-feet.

If you know on any one day what the distribution pattern for fisheries was in units of fish per acre-foot, you would begin to have the tool to manage that distribution, to push the fish where you think they belong, to allow them to move to where you think they belong.

And so we need a tremendous amount of help, and I am suggesting that possibly information standards required by you

by Christmas in the area of fish abundance distribution patterns is a step in the right direction.

I'm going to leave this general matrix and try to give some more specific examples of what I'm trying to describe here in the area of these adaptive allocation standards. In the interest of time, I'm skipping over minimum protection requirements because we are all familiar with these. These are fixed outflow values for a month or fixed maximum salinity values for a month, and in the short time remaining I'm going to try to explain that third category of standards that I am suggesting you implement.

Could I try my next overhead. This overhead could have been up just a minute ago. What it is saying is reminding you again of the availability of historical daily data as well as the current Delta conditions. And if these were available on an updated basis through, perhaps, the C DEC System which has satellite or phone links to data collection apparatus and has the ability for individuals to call up and get this information, we would have the technological structure for doing this adaptive management, that is, all the research scientists or resource managers would have full and equally shared access to all historical and current information using the historical or current information to make today's decision. And I have just listed out the types of information that we could add to what we already have on

this daily basis. But go ahead and give me my next overhead, please.

I have moved down, and I'm in the bottom right of my tic-tac-toe matrix. I'm trying to explain some adaptive allocation standards as applied to the fishery resource in particular, and this diagram just reminds us of the three basic elements in adaptive management.

The first thing that we need is information sources on the resource, and in this case, the Delta water resources, we will say, so this would be a whole series of information sources. I have illustrated them with water quality monitoring, our information on the Delta hydrodynamics, the fish abundance sampling translated, in my scheme at least, into actual density of fish at locations on days.

We have quite a lot of information on the salvage records, the hatchery records, both on the amount of fish grown and the release dates, when they are expected, and then as a possible future, many other types of information could be blended into this adaptive management once we are rolling.

The next step in the role, though, is to do some evaluation of that data and so perhaps this is a step most absent from current Delta management. We actually have quite a bit of data collection going on, but there's not very much consistent ongoing improving analysis, matching some of these evaluation activities that would be mandated by your both

interim and long-term standards to evaluate the habitat conditions in terms of the fish or organism needs for habitat. To estimate the transport patterns resulting from the already given Delta inflows, we're all left to our own devices at the moment to estimate where the water is going. Much more of this can be described and agreed on.

To estimate the distribution and abundance pattern, this is there to replace the annual index of fish population which gives you relatively little information for managing that fish population.

We certainly do estimates of entrainment losses, but what if we knew them on a day-to-day basis. This is being illustrated in the current year with the take standards for both winter run and Delta smelt which are actually dependent upon the cumulative entrainment through a month or through a period. But these evaluation activities that you would be doing based on the monitoring that you've already required is a new element of the standards that you should consider actually mandating, that these middle evaluation activities be taking place.

Finally, we have the control, the primary controls that we are thinking about putting standards on, and what are some of these? Well, you might schedule transport flows in the river. Now, it might already be based on consultation with Fish and Game or Fish and Wildlife as to when stocks are

expected or organisms vulnerable to diversion.

We are doing salt gradient control or talking about it by pushing the estuarine gradient out to a certain location, and we are doing it with flow, and that's a control that we might implement.

We operate the facilities like the Cross Channel or Montezuma Slough gates to achieve objectives. We certainly control pumping, and we have some ability to schedule or control the magnitude of hatchery or -- this is meant to represent other things that you do to affect the Delta, things that are under your direct control.

Could somebody tell me where I am on time?

MR. CAFFREY: You have 19 seconds. Don't know how much more you have, Dr. Brown, but as I say, we have some of the Board members who are on a tight schedule and if you need much more time, I would be inclined to ask you to let the other two speak. How much more do you need?

DR. BROWN: I think I'm ready to finish.

MR. CAFFREY: Okay.

DR. BROWN: I will go to my last overhead. The main points I have tried to make are that we should change our thinking in the December document, moving everyone involved with the Delta to a daily time step in their thinking in how they will monitor and how they intend to operate the facilities and how they will report the response of the

various resource elements to the management action.

We should plan to have all that data in a central place so that it can be shared, so that the decision-making processes of what caused the decision to be made will be shared.

This is a sort of consensus that would be supplied immediately simply by requiring this sort of daily information.

Secondly, there probably needs to be some minimum protective standards of the sort that we are already familiar with. So, one choice would be let D-1485 stand. There may, though, be some of the D-1485 standard elements that actually are aimed at providing an objective and may not be efficient in doing so.

My example of that would be that by named months forcing cutbacks in pumping. Over the long term, those are the months when striped bass eggs and larvae are most vulnerable. Striped bass eggs and larvae may not be the managed species anymore, and fixed month cutbacks may not be appropriate, but in general consider D-1485 as a fixed minimum.

Almost everything else we would like to do with the Delta should be considered as this third category. The objectives may be very clear. The day-to-day implementation and therefore the numerical criteria that you might end up with

that is the record of how you operated this, will not be determined ahead of time. It can't be because things are too variable.

I just wanted to end, then, that if this is hard to grasp, that there actually have been quite a number of adaptive standards in the previous documents. Consider D-1485 where the general objective was that things should be as good as they would have been without the projects. This actually required a comparison and a comparison is an adaptive management objective, that you want it to be as good as something else.

There were, of course, built into it a whole series of adjustments based on hydrologic conditions, what we sort of call the year-type. That is an adaptive approach, and the Cross Channel gates were always meant to be adaptively closed. That may not have been used, but the concept was there.

So, forgetting the rest of this, Jones and Stokes -- we are offering to join in the deliberations of staff in the period between now and Christmas so that at your direction your staff could direct us to do, using the models or the historical data sets that we have sort of accumulated, to do this sort of analysis, using our resources for your job. So, we are making that offer to join you in much the same way that other agencies have contributed their models or their staff time, and we want to make that offer to your staff.

We think this concept of adaptive management could be implemented in the document that you release in December.

Some of the information requirements will be easily described, some of the fixed minimums can be pulled over from previous standard documents, and these new adaptive management techniques can be laid out, some initial objectives even put down, and progress made toward this concept.

Thank you, and I'm sorry for being a little long.

MR. CAFFREY: That's all right, Dr. Brown. We appreciate your thoughts.

We are going to hold our questions until we hear all three presenters. I trust you will be staying in case we have questions.

DR. BROWN: Yes.

MR. CAFFREY: We will take Mr. Vogel or Mr. Easton next. What is the preference. Mr. Vogel, good afternoon, sir. Welcome, Mr. Vogel, good to see you again.

MR. VOGEL: Good afternoon. My name is David Vogel and I'm here on behalf of Delta Wetlands.

A little bit about myself -- I have 15 prior years' work experience as a fishery scientist with the U. S. Fish and Wildlife Service and the National Marine Fisheries Service. During most of the 1980's I was the principal Fish and Wildlife Service person in charge of conducting salmon research projects on the Sacramento River Basin endangered

species. I even had various assignments as a Fish and Wildlife Service Division Manager for Idaho, Nevada, and California. Over the last four years I have been a consulting fishery scientist working on a wide variety of fishery research and restoration projects in Idaho, Washington, Oregon, and throughout Northern California.

The key issue I am here today to talk about is issue number one, the potential for using the fish survival indices as a potential tool to set standards for the Delta.

I have provided the Board and staff with extensive written documentation. I believe it is about 16 pages of technical information that covers this topic, and within that, I talked about the consideration of the use of the fish survival indices, the limitation of present models used to develop industries under consideration by the Board in setting standards, my recommendations on how to improve those indices, and last, some of the ideas I have on adaptive and informational standards the Board may wish to consider for the Delta.

It is my understanding that the Board may utilize the fish survival indices as a tool to help develop fish and wildlife standards. I want to emphasize fish survival indices could be a useful tool towards developing those standards if those indices are based on empirical data reflective of what I call real-world conditions. However, it is important that

the Board recognize the limitation of the existing models under consideration because those limitations will ultimately influence the effectiveness of your standards if those models are used. Most of the studies right here and now are focused on the Fish and Wildlife Service salmon model. The Fish and Wildlife Service has advocated ever since 1987 when I participated in the hearing the use of the salmon model in the Delta, and most recently, I believe was in January 1994 in the Federal Register EPA has also proposed the use of the salmon model for the Delta.

You have heard a wide variety of critiques from various fishery scientists ever since the model was introduced in the late 80's. People talk about the statistical appropriateness or inappropriateness of it, the confounding influences of water temperatures, etc., and I'm not going to talk about those here. They are actually covered in past hearings.

However, I will talk about a topic here that has an extremely important influence on how that model is used and quite surprisingly, this particular aspect has never been flushed out since 1987.

It was not my role at that time to bring this out because at that time my charge with Fish and Wildlife was to talk about water quality and water quantity needs for salmon in the Sacramento River Basin upstream of the Delta

independent of the issues within the Delta that we face here.

So what I would like to do is give you my characterization of a profound assumption that is inherent in the foundation of that salmon model that you really should seriously consider, and much of this is derived from my many years of experience conducting literally dozens and dozens of similar type experiments. Much of this now has been acquired through direct observations, quite literally direct observations such as scuba diving and underwater videography. Some of this footage has been shown on nationwide nature documentaries such as PBS and even some footage has been shown on Nightline.

MR. CAFFREY: We won't hold that against you.

MR. VOGEL: As you know, the Fish and Wildlife Service conducted survival tests by releasing hatchery fish that were tagged at various locations throughout the Delta and captured them at Chipps Island and looked at the relative sparse survival for those different groups of fish. But what I would like you to do is sit back for a second and try to visualize how those experiments were conducted, how they were implemented.

Briefly, it goes as follows. They go up to a hatchery like the Feather River Hatchery or the Coleman National Fish Hatchery, load large numbers of fish, tens of thousands of fish in these hatchery trucks that contain very

cold water. Those fish were then trucked 100 miles or so downstream to the Delta and then dumped in broad daylight into the warm water. Now, the receiving water is much warmer than the water in those tanks.

Okay, now if you were standing there on the riverbank and visualized this, this is likely what you would see. You would see the driver of the truck pull the plug and see a wall of water go out, but if you look down in the water, you are very likely to see a bunch of white slipping out of the bottom and at the same time you will see a lot of fish scatter upstream and then you will likely see a lot of predatory fish scurrying to gobble up these little fish like popcorn.

At the same time, if you walk downstream, you will see this enormous mass of hatchery fish drifting downstream near the surface in daylight.

Now, the reason that I bring that up and try to visualize this, as I've often said in the past and in chapters in books I've written, this sounds somewhat trite, but the reason I bring this up here is that the Fish and Wildlife Service has made a very important assumption that is the foundation of the salmon model that's stated as follows: All juvenile hatchery fall-run chinook salmon used in the Delta survival experiment were assumed to behave as wild fall-run smolts. Now, that sounds like an innocent and somewhat innocuous assumption, but it is an extremely profound

assumption because it is the foundation of everything you've heard to date on the salmon model.

Clearly, this hypothesis has to be carefully tested to avoid the risk of implementing Delta standards which may not measurably benefit fish or alternatively, could result in worse conditions for fish.

Now, I use the word quote, "smolt", unquote and you repeatedly have heard smolts over many years in the yearlings, and if there's nothing else you get out of my testimony, I would ask you that in all future hearings whenever someone says quote, "smolt", unquote, ask them, how do you know that fish was a smolt.

Now, the way EPA describes smolt and this is the 1994 Federal Register, they described it as a salmon in the process of acclimating to a change from a fresh water environment to a salt water environment. Now, that's true. That is an accurate definition, but it is quite simplistic because there are very complex morphological, physiological, and behavioral changes associated with the transformation of a parr salmon to a smolt salmon.

My point here is that all baby salmon are not alike. In my belief, it very probably is an invalid assumption.

Now, I don't want to discredit the model to the point that you think there's no hope for these fish to survive, because that's not what I'm here to say. I am an advocate and

I truly believe that fish survival indices will be a very valuable tool to ultimately develop useful fish and wildlife standards, and I also believe that there is a lot of valuable research that was done in the past, and with a little bit of more sophisticated effort and better analytical tools, that in particular pulled down from the Pacific Northwest, we can do a better job as far as understanding what fish survival indices would be appropriate.

Now, back to this thing about trucking the fish. I have looked all over the literature, I have provided all kinds of background on it. There is a guy up in Oregon who has probably done the best job of characterizing the impact of how you truck fish and the ramifications of why those fish really aren't reflective of natural fish behavior and he says as follows, talking about trucking fish:

Primary and secondary physiological stress response factors undergo major reactions consequent to handling and transportation procedures. Physiological reactions such as the elevation and circulating levels of Cortisol initiate a cascade of events that appears to hinder essential performance characteristics of juvenile salmonids, including disease resistance, sea water osmoregulatory ability and rate of outmigration.

So, clearly the fish that were used in those tests, in my mind, are not representative of wild smolt.

Okay, what do we do about that? Well, there is actually quite a bit we can do about it and there's a lot of folks in the Northwest who are doing something, as we speak, to overcome these problems. There's some very sophisticated and widely used and accepted analytical tools to ensure that the fish you are testing are smolts. I am not going into all the details that provide all the scientific documentation for it, but there are certain things that you can use so that you can actually tell whether the fish is a smolt. There are things such as dumping them in at night, you can bring them down at night, acclimate them for 24 hours, which is what they do in the Northwest, and release them at night under natural conditions. You can hold control groups of fish back and monitor their latent mortality to ensure the numbers of fish released are really the ones that survive.

And then, last, you can also monitor using much more effective techniques for natural smolt outmigration.

And I would also like to point out there's a lot being done in the Northwest. About two months ago I was up on the Snake River, and you are performing a tour and demonstration at Lower Granite Dam on Lower Snake River, and the Corps of Engineers and the National Marine Fisheries Service gave us a demonstration of very, very useful tools they are using right now on quite literally day-to-day water management and fisheries management on the Snake and Columbia

Rivers.

This is the way it goes. They have surgically implanted transponders in the endangered salmonids that were released up in Idaho and as these fish migrate downstream through the series of dams, all that information is compiled by computer, and every night without exception it is downloaded to a central computer in Portland. That computer then has the ability to compile and allow that information to be accessible by anybody, the regulatory agencies, the fishery agencies, professors conducting research, by 8:00 o'clock the next morning.

And it's quite frustrating, I guess, for me when I come back to California and I see these beautiful tools where they are literally using day-to-day management, and it makes me realize that California is quite a bit like an island, that there is a lot of knowledge, a lot of tools that are already being implemented today elsewhere that have a tremendous application to the issues we face right now here in California, specifically with the Delta.

I won't go into all the conclusions. They are all provided in the last couple of pages, in the interest of time. And there's some very, I think, enlightening things that would be of a lot of benefit to the Board in applying informational standards related to the hearing, and also adaptive standards.

You might want to consider utilizing the proposed

Shasta temperature control device to artificially increase late winter and springtime temperatures in the river basins to accelerate growth and increase the rate of smoltification and so you can quite literally get the fish moved out of the system before it is a major problem later in the spring or early summer.

That concludes my comments.

MR. CAFFREY: Thank you very much, Mr. Vogel. That was very interesting. Would you be able to stay in case we have questions after we hear from Mr. Easton?

MR. VOGEL: Yes, I would.

MR. CAFFREY: All right, Mr. Easton.

MR. EASTON: Members of the Board, I am Jim Easton and I am here to discuss hearing issue number 1. It is Delta Wetlands' view that it's very important for the Board to establish standards that create an equitable and efficient use of Delta resources and a balanced and practical approach to Delta management.

What I would like to discuss with you is some of the ways you might consider going about setting those standards and then some of the institutional issues that you might consider. It is a tough task to identify specific standards that you can propose and perhaps implement by the end of this year.

However, through various testimony that you have heard, it is clear that it is possible to do several things at

this time. First, you can establish daily information standards that require data to be collected and shared on a real-time basis. These standards should define what daily information is available and what needs to be developed in the future to accurately describe and evaluate other proposed standards.

Second, you can determine now and adopt minimum protection standards. Some of them have already been designed and others can be now.

Third, as Dr. Brown described, you can develop at least a framework for setting what Dr. Brown described as adaptive allocation objectives. And these are very important steps toward establishing a Delta management system that will efficiently use Delta resources and effectively protect the Delta ecosystem.

Other entities in coalitions have testified that it is possible now to establish the framework with the ultimate goal of developing standards that would provide a comprehensive protection program.

Other standards, such as the adaptive allocation standards, will have to be formulated and tested over time.

In addition to the setting of numerical standards, it is very important to consider the period that's to be used in determining compliance with that standard.

There's been a lot of negotiation and dispute

regarding these averaging periods and compliance periods and I am sure those of you that went through the 1630 hearings can remember vividly, and those same debates still continue where you have the operational flexibility and water needs of the diverters on one hand balanced against the needs of the fisheries and habitats to have continuous compliance with standards that have been set with the intention of protecting them.

Therefore, in addition to setting various categories of standards, it is very important to focus on the periods that will be used for determining compliance. In general, the shorter the actual multiple day running average is for a standard, the better the protection is for the fisheries and habitats that are intended to be protected.

As Dr. Brown indicated today, and with which we certainly concur, the Delta world should move rapidly to real time management.

One of the benefits of daily management is the improved ability to have short averaging periods for standard setting so the intended fisheries and habitats have the benefits realized consistently and constantly.

We are urging that the shortest averaging period possible be established for every standard that your Board proposes and adopts.

Dr. Vogel testified today on behalf of Delta Wetlands

and he has raised a concern related to the development of Delta standards that some scientific tools upon which the Board has relied to a great extent may be seriously flawed. These problems can be corrected over time, but the key point for standard setting purposes is to recognize the limitation of these tools and their deficiencies if they are to be used in the Board's initial standard setting.

We suggest that the Board should seek simultaneously to improve these tools and develop new ones that will provide a comprehensive, reliable, accurate and consistent scientific basis for the current and future standards.

There's a lot of ways in which flexibility of standards is important. Not only is there a clear need for flexibility in using scientific tools that must be changed and improved over time, but there must be a flexibility in setting the standards themselves.

As Dr. Brown testified with respect to his adaptive allocation standards, there are various requirements that have to be balanced with one another. For example, in many situations, meeting a Q WEST requirement may very often duplicate or result in a Delta export limit. A Q WEST standard and Delta Cross Channel gate closure might involve the consideration of trade-offs rather than make a decision that results in duplication. Every gate closure, every flow requirement and other mechanical adjustment has to be

understood in the context of the entire hydrodynamic system of the Delta.

If we do this, we will avoid, and it is essential to avoid, the duplicative, ineffective or wasteful standards. The resource is too precious to not be as efficient as we possibly can in these.

And that's going to require the establishment and careful consideration of trade-offs rather than just the blind adherence to a standard.

The effectiveness of adoptive allocations can be tested with modeling that has been developed and used extensively by the project, and by others such as the Jones and Stokes model, which has been mentioned.

One of the issues that underlies many of the questions stated in the workshop Notice is who or what entity is and will actually manage the Delta.

The standards the Board is going to establish are a very important part of an overall management system for the Delta, but unless those standards and the other aspects of the Delta Management Program are consistently and wisely applied, the objective that you are striving to achieve here will not be achieved.

I know the Board members, Brown and Stubchaer, and perhaps all of you, have been involved in a project or program management of large, complex programs or projects, and you

know, as I know, that the larger the program or project is and the more complex it is, the more important it is to have a single entity or single individual who is responsible and accountable for the success of that program or project.

And so I would strongly suggest to you that in establishing these standards you also give a lot of thought to how this management system is going to be applied. The Delta master concept described by Dr. Brown in earlier workshops could be one of the ways that you choose to manage the Delta. This concept could also be very important because that entity could also formulate and implement a comprehensive plan to obtain much needed scientific information, together with the development of an appropriate means of evaluating, disseminating, and using that information to improve Delta management.

I think all of us realize there's some pretty heavy-duty decisions being made on some pretty weak science, or some not-so-good science, and there is a crying need for better science that will allow the Delta master, or this Board, or whomever is going to manage the Delta, to improve standards, and I think that this is going to be an iterated process, one where we continue to improve the way we manage the Delta.

The Delta master is not just an academic idea, but it is one that fulfills the need, as I have stated, for a single-management entity that possesses the experience, expertise,

courage, and clout to be objective, decisive and fair in managing an extremely complex system.

And the Delta master idea might be new only in the Delta context. I am sure many of us are familiar that the water master concept has been used in the management of complex interstate stream systems, and the management of ground water basins, and perhaps one of the most important benefits in this concept is that it would allow immediate response to information and make possible the daily management of the Delta.

A system can be designed so that the Delta master's authority and jurisdiction would not detract from the authority or jurisdiction of this Board or any other agency. Optimally, it would enhance the powers of those agencies by allowing immediate translation of information to action.

It is our view that one of the most important goals of this proceeding has to be to come as close as possible to a means of managing the Delta on a real-time basis. Everyone would benefit from that approach so long as it allows a practical amount of operational flexibility to the project operators and diverters.

Daily standards would reflect the movement toward actual daily operations. It would be both far-sighted and practical.

Finally, on a little bit of a procedural note, we

notice with interest on item 2 on the Agenda today some very important information that the Board was asking in an attempt to have the economic analyses that are going to be made by perhaps your own staff and consultants and others to be consistent with one another and to evaluate the consistency and applicability of those economic models.

We would suggest to you that it would be equally important to do the same thing when it is applied to models that are focused on the other two aspects of the Delta management, that of water costs and fish and wildlife population and habitat. And we would suggest to you, Mr. Chairman, that perhaps an examination and evaluation of the models that address themselves to water allocation costs and fish population and habitat might be an appropriate subject for your August workshop, if you choose to have one.

You have heard the offer by Jones and Stokes to make available the transport model SOS and daily SOS to assist your staff in evaluating the proposed standards. We join in that offer to make that available to the Board at no cost.

In closing, we want to urge you to consider carefully establishing the daily information standards Dr. Brown has outlined. We think that would be of significant help in establishing other standards.

The minimum protection standards, which were the second category, can also be set and begun to be implemented

this year. The adaptive allocation standards will require more time and a trial period to test their usefulness because we can't try them and test them all by the end of this year. Certainly, the framework under which they can be tried and tested should be a part of your initial standard setting, and we would strongly suggest you try some of these as soon as you possibly can.

Some may think that what I have said has been self serving. We certainly hope not. The Delta Wetlands project is a unique water supply project in the Delta that may not come to fruition if the Delta resources are mismanaged, and that unhappy consequence will be minor compared to the dreadful statewide economic consequences and the loss of opportunity to restore and protect one of our most valuable and diverse ecosystems.

And that concludes my remarks. Do you have any questions you would like to ask us, any of the three of us.

MR. CAFFREY: Thank you very much, Mr. Easton. Are there any questions from the Board members.

MS. FORSTER: Is there someone else to speak?

MR. CAFFREY: Mr. O'Brien will be speaking next.

MS. FORSTER: I have some things to talk to you about, but do you care if we just get through the last speaker?

MR. EASTON: That's easy.

MR. CAFFREY: Thank you. We appreciate your indulgence, and we give you and Mr. Hall from yesterday badges. Mr. O'Brien, good afternoon.

MR. O'BRIEN: Thank you, Mr. Chairman and members of the Board. I was not planning to speak today, but Ms. Forster indicated an interest in hearing about the status of the fish screening proposal. I would like to address that briefly. I would also like to make some follow-on comments to the comments made by Mr. Robbins this morning about the transfer process. And I would like to say I do endorse the comments by Mr. Lilly and Mr. Chatigny and Mr. Robbins this morning as well.

As you know, I sent each of the Board members following the last workshop a document which had been submitted on behalf of our clients to the National Marine Fisheries Service in response to their advanced notice of the proposed rule making regarding the proposal to require screening and diversions on the Sacramento River and in the Delta.

The essence of the proposal is that rather than adopt a unilaterally mandatory screening rule, why not sit down in a process which is established under the Federal Administrative Procedures Act called Negotiated Rule Making, get a technical committee together and figure out what the best way would be to attack this problem.

And specifically, we suggested a four-point approach. Number one, let's agree on the criteria by which a particular pump needs to be screened. If a pump is on record as taking three fish through an entire irrigation season, it makes no sense scientifically or economically to require a screen for that pump. We ought to all be able to agree on that.

Number two, let's do some testing of some of the pumps that we think may have problems and figure out the level of the problem.

Number three, let's prioritize the pumps on the system, figure out the ones that need assistance the quickest.

And number four, let's try to identify some funding to help these districts deal with this problem.

It doesn't take an economist to figure out that the debt service on a 5 or 6 million dollar fish screen for an agricultural district with 20 or 30 thousand acres of irrigated land, that they're not going to be able to carry that debt. If this is going to be imposed, there simply has to be some funding mechanism that is set up to assist these districts.

We have not received a formal response to that proposal. We have been told through informal channels that it was favorably received. It is being reviewed. I think legally it is sound. I think there's a policy decision NMFS needs to make on whether this kind of cooperative approach is

the way they want to go. If they don't choose to go that approach, it is our position that they would have to do a lengthy environmental impact statement before they can adopt any rule.

I think this approach will result in the fish being protected a lot faster and a lot more effectively and we are very hopeful that NMFS will agree with that.

Any other questions in particular, Ms. Forster, that I could answer?

MS. FORSTER: I am trying to get a better picture of what is happening with Fish and Wildlife, and that's why I asked that question this morning, because if we are going to do this comprehensive look, it is important to be able to point to the areas that are finding success. I mean, they must all fold into salmon restoration some way or another.

I remember 1630 where everybody wanted to screen all diversions, and then the fund was supposed to help with the screening and I haven't heard a whole lot of that same information at these hearings, but yet I have been trying to follow your situation and read whatever I can, so that is the reason I brought it up.

MR. O'BRIEN: I think it is very wise for the Board to take that kind of comprehensive look at this situation, because I think the worst possible outcome would be if we focused all of our resources, limited as they are, on one part

of the problem, let's say you require a screen on every pump in the Sacramento Valley, and that costs 100 million dollars, and we find out ten years from now that it was really ocean harvest that you needed to be focusing on, then that 100 million dollars hasn't really solved the problem and that would be a terrible outcome, and I think the Board understands that and I commend the Board for that sort of comprehensive approach.

I would add, however, and this follows on what Mr. Lilly said, I think the issue of fish entrainment is something that can't be dealt with on a regional basis or even a river-by-river basis. It has to be dealt with on a pump-by-pump basis. I think it is difficult in the context of this Bay-Delta-type proceeding for this Board to really do the sort of focused inquiry that it is going to take, and I think the NMFS process, in my mind, offers more hope that we can have an extended process to focus specifically on that issue and certainly keep this Board informed to what we are doing.

MS. FORSTER: Thank you.

MR. O'BRIEN: The second, just brief comment, following on Mr. Robbins' comments this morning about the transfer process, I recommend that it is a little bit off the beam as far as what this workshop is supposed to be about. But it is my view, and I think the view of many of the water right holders that water transfers, if properly done with

proper controls, provide a real opportunity for this Board to begin to untie this Gordian knot which is our Bay-Delta problem. Like Mr. Robbins, I have been involved recently in some transfers, and frankly, I think the process is increasingly seriously broken and I think ultimately this Board is going to have to play a role in fixing it.

My personal view is that a big part of the reason why the process isn't working is that the two water projects have, in large part, usurped the role of this Board in the decision-making process to approve water transfers. That's happened under the guise of their authority to approve the conveyance of transferred water under Water Code Section 1810, but frankly, the way it works in real life is that the projects in essence are put in a position of having the de facto veto over proposed transfers, and a lot of these issues never get to the Board because transfer proponents are told at the outset or in this process that the projects won't support it. They won't give conveyance capacity and therefore, there is nothing to transfer.

I think we all understand that the projects are not exactly disinterested parties in the transfer process. They operate projects, they have project contractors that are very influential with the project and they should not be the ones who are involved in making the substantative decisions of whether a particular transfer will or won't result in injury

to water users, which is the legal standard that applies in the Water Code, and I would hope that either through this process or through some other process, the Board could take a real hard look at that.

I will give you just one brief example. The Bureau of Reclamation is proposing transfer guidelines that would apply to transfer of base supply water held under the Sacramento River water settlement contract which is water rights, not project water and these guidelines will give the Bureau approval authority over transfers involving these water rights components whether or not we are using Bureau facilities at all for the transfer.

So, if one of my districts includes the county that wants to transfer water to the County of Sacramento by letting it flow down the Sacramento River, the Bureau of Reclamation is saying, we have the right to come in and review that and approve it before it even goes to the Water Board, and these are currently proposed guidelines. I think that's inappropriate. We have told the Bureau that and I think the Board ought to tell the Bureau that at some point. Thank you.

MR. CAFFREY: Thank you, Mr. O'Brien. Mr. Stubchaer.

MR. STUBCHAER: Why do they claim they have authority on transfers that don't use their facilities?

MR. O'BRIEN: I think their claim, Mr. Stubchaer, is that under their contract, they have to approve all transfers

involving water in the contract. Our view is that that certainly applies to the project water component, but when we are dealing with the base supply water right component, they really don't have any substantive - approval authority.

MR. BROWN: Kevin, don't they also lay claim to return flows?

MR. O'BRIEN: Yes. That is a very significant issue.

MR. BROWN: They also claim deep percolation is also return flow.

MR. O'BRIEN: There is a very big controversy, Mr. Brown, as to how you account for deep percolation in water transfers. The State Water Code Section 1720, I think, makes it very clear that deep percolation to groundwater basically should be considered consumptive use, and therefore, that water should be available to transfer, but the Bureau and the State don't follow the State Water Code in that respect, and I think it is frankly outrageous that the Legislature has spoken clearly on that issue and we have got a State agency and a Federal agency simply refusing or choosing to ignore that because they don't like the outcome.

MR. BROWN: Mr. O'Brien is raising a good point, particularly with deep percolation, particularly where you are making a transfer within basins particularly contiguous to one another, you can have one transfer that would have a charge of deep percolation moved over to another block of ground

and charge deep percolation on that because they are going to have it in addition, so you have one block of water and two pieces of ground with two deep percolations assessed, and that precludes economically the transfer of water. I mean, it needs some follow-up, and I am not sure how we do that.

MR. STUBCHAER: I would like to make a comment. It appears to me that that's a two-edged sword. If you say deep percolation is consumptive use, then the people in the San Joaquin Valley who you heard from yesterday would be quite unhappy because they say that deep percolation is not consumptive use as long as it is available for reuse or additional use, unless it is overlying a salt sink.

MR. O'BRIEN: I was not here yesterday. Was that in a transfer context?

MR. STUBCHAER: No, it is consumptive use that counts, not diversions; deep percolation is not a consumptive use, so it is just kind of a different context, but it is the same concept.

MR. O'BRIEN: And I recognize, Mr. Stubchaer, there's some important and difficult policy issues here. I guess my main point is I think those decisions ought to be made by this Board which is an independent regulatory authority, not by project operators who have a vested interest in doing these things a certain way.

MR. CAFFREY: Thank you very much, Mr. O'Brien. Any

questions from staff of Mr. O'Brien? Thank you, sir, we appreciate your comments and your being here and waiting as long as you did, as did many others.

That takes us now back to the question and answer period of Dr. Brown, Mr. Easton, and Mr. Vogel. I believe Ms. Forster had some questions.

MS. FORSTER: I guess I was just going to ask Jim if this concept of the Delta master and the other information that you shared today, have you shared this with CUWA and the groups that are meeting, as a tool to use? I mean, it reminds me of something the San Diego Board is looking at doing for San Diego and that is that they have found 15 regulatory programs that are doing the same thing, so they want to do a super computer. A super computer is going to show a lot of information, both good and bad, that might not have been so obvious before.

And I am intrigued by your idea because of the dark side of doing these issues. You never really know if what you are doing is working and it's hard to know if we have the methodology to say is this experiencing any success. It would be like a super computer that all these different agencies would find a valuable source and I am not a computer expert like these guys are and I have heard so many people say those things don't work. You think they are going to work and then they tell us these horror stories. I'm the sociologist of the

group and I think these kinds of things are wonderful new news of workable tools and I am sure the Chairman is going to say you should offer your assistance to the staff. I am just wondering how much you have broadcast this to the other interested parties and if they go wow or if they go um.

MR. EASTON: To my knowledge, we haven't discussed it with CUWA or others that have been trying to coalesce on some recommendations regarding specific standards. We have not shared this with them.

I would just like to comment on something you said about the super computer. There is a great deal of need for us to use the computer more in gathering and as a tool to analyze the information that is available, but I think it is far more important that there be established an entity with people in it who have the knowledge and the courage and have the big picture of what is going on in the Delta in order to use the information that could come from a network such as you have described to adequately manage these precious resources. I think it is the people rather than the technology that's going to make a success or failure out of management of the Delta, even though there is a great need for better science and better use of that science utilizing the computer.

Dr. Brown, the question that might occur to you that is related to this is we know that we have a number of talented scientists in the agencies and in the conglomerate

that they call the inter-agency ecological program, and we might ask ourselves, why aren't we getting more useful information from them. We know them as talented scientists, and I have only one idea to explain it, and it has to do with this: Because the standards are fixed and were set back in 1978, there is sort of no one to show the results of your sampling or your studies. In other words, you can get together with each other and say, look what I found this year. Isn't this interesting, concerning striped bass or whatever you are studying, but there was sort of no one to show it to who would make anything new happen and so, in some sense, it is simply that, there was not the Delta master or an ongoing management framework that was willing to change how they operated, and so because there is no one to show it to, it doesn't get shown, and we are saying if you were to implement this adaptive management framework, even minus some of the parts in December, there might be a real change in how the individual scientists now perceive their jobs and write their reports because now there is someone to take their results to, and the Delta might change as a result of their studies, and so this may have some catalytic effect on what is presently going on.

MR. CAFFREY: Mr. Stubchaer had a question.

MR. STUBCHAER: I have a question. Mr. Easton, were you here all day yesterday?

MR. EASTON: I was.

MR. STUBCHAER: You heard the discussion with members of the Club Fed on adaptive management?

MR. EASTON: That was extremely interesting.

MR. STUBCHAER: On what their thoughts of what a suitable time period was, not one day, but one to three years, the triennial review; and the standards which we adopt, certain parts of them have to be approvable by the EPA, so do you have any comments on how to come up with adaptive standards that are approvable by EPA?

MR. EASTON: That certainly is the major legitimate concern, but I think that if we don't go towards adaptive management of the Delta, we are going to be faced with the situation of wastefully managing the Delta. I personally think that the statement that was made that we should do this on a one to three-year basis is an unreasonable one, just from a common-sense standpoint of what is needed to manage the Delta. We either have the information, or we can get the information. We have the tool and the computer to be able to assemble that information and evaluate it quickly.

There's no reason that I know of that we should not operate that way to manage this resource. To do anything less is going to do it inefficiently, I believe.

MR. STUBCHAER: That is fine, but that didn't quite answer my question.

MR. EASTON: Are you asking me, Mr. Stubchaer, how you are going to get approvable standards? I don't know the answer to that question.

MR. CAFFREY: Let me try the question another way. Lest anybody in the audience doesn't know it, you were at one time the executive officer of this Board, Mr. Easton, and I think you are quite knowledgeable about the laws and the procedures of the Board. What is it specifically that you are asking the Board to do, and by that I mean you know what a water quality plan is. What aspect of what you are describing could legally be included in a water quality plan for submission or non-submission, if you will, to EPA. We have talked around here for several days about a comprehensive plan. There has been discussion about, you know, what does and what doesn't get submitted to EPA, what I hear you talking about is a management technique as much as anything else, and if you try to convert it to standards, if we are talking about daily standards, or whatever, if they are not implementable without the system, I am not sure I understand what we are about.

MR. EASTON: You are going to help me with the legal part of this. Let me see if I can address the question. I think that the Board has not only the right but the responsibility to be concerned that the standards that you are going to establish are going to be implemented, and as I

mentioned before, I think these standards constitute the majority of a Delta management system. And I think if standards are promulgated and standards have been promulgated in the past, recent past, and what we have had in the Delta is chaos because, in my estimation, we have seen control of what happens in the Delta shift from one agency to another agency and back to another agency.

I think that the Board has the responsibility to see to it that there is responsible management of the Delta, not just responsible standards, but responsible management for the Delta. I believe, and please, those of you who are far wiser than I, correct me if I'm wrong, I think you have the power to do that or at least to propose it. Again, you cannot usurp the authority of other agencies and I am not suggesting that, and I hope we pointed that out, but somebody has to be a facilitator, a coach, a big-picture person, somebody who knows everything of what's going on, and they may have to rely on the authority of the U. S. Fish and Wildlife Service or NMFS or the California Department of Fish and Game, but what needs to happen is that this information needs to be translated quickly into action and that can be done, but the management mechanism to do that needs to be established by someone, and I believe your Board has the power and the responsibility to do that, Mr. Chairman.

MR. CAFFREY: If we do, I don't know that. And maybe

it goes to what mode we are in. We are in the water quality standard setting right now, and in that mode I suppose we would have the authority to make suggestions as to how the standards we set in that same mode might be implemented or ramped, or whatever way you want to describe it.

But the actuality of requiring the operators to implement a management system, to me, is something that has to take place, at least in the water rights process, if not even in some higher venue.

I'm not sure. I like the concept as an academic concept and I don't mean academic in a derogatory way. You know, in a perfect world, I think these are very interesting concepts, and I would love to be able to see that capability, but what I think about when I hear it is the tremendous cost, and you know, and who has the authority to make somebody do it.

The thing that goes through my mind is that if I were operating a major system such as the State Water Project or the Central Valley Project and I became aware of this concept, and I am sure they have all listened to it, I would be very interested in finding out more about it, and if I felt it was a compelling and productive thing to do, I would certainly start looking for the resources or at least trying to cost it out and see if it was something we could do. I don't know to what extent you have talked with the management agencies, water

management agencies. I am talking about the two major ones, at least.

MR. EASTON: They wouldn't like this, I don't think.

MR. CAFFREY: If they say they don't like it, that doesn't mean you give up.

MR. EASTON: I am not suggesting we give up. I guess what we are asking the Board to consider, and I recognize that before you really get to the management of the Delta, you have got to go through the water rights process, but I thought I heard it articulated by the Board at the beginning of these series of workshops that you intended to go into the Water Rights hearings with some very specific guidelines and very specific ideas of what should come out of those hearings.

And I guess what we are suggesting now is that while you are considering standards, also consider, even though you may not be able to implement this system immediately, what kind of system is needed to determine and effectively implement these standards.

MR. CAFFREY: I think this is a semantic colloquy and I am not disagreeing with you, but that's why I used the term "suggestions" because, again, I am not a lawyer, but one of the ways a comprehensive plan could work is it would be standards set for the review and approval of the U. S. EPA and then there would be a section or sections that deal with other constraints that would tell the parties what the parameters

are and what we are going to consider in the water rights process, but I am not even sure that legally even that constrains the Board.

They might be nothing more than suggestions even to ourselves.

I'm looking at Barbara Leidigh, if we were to develop such a plan and get into the water rights process and find we wanted to go with a scope that was different than that, we would have the authority to do that, would we not, and then go back and change our plan?

MS. LEIDIGH: With water rights, clearly what the Water Code says is that the Board is to consider the contents of the Water Quality Control Plan in deciding on the allocation of water. That is not an absolute mandate for the Board to implement all of those directly before it can do something a little bit different in a water right decision, and at that point, it would make sense for the Board to then go back and revise the water quality control plan.

MR. CAFFREY: Thank you, Barbara. None of my comments, by the way, are in any way at all to cast doubt or aspersions on what you are proposing. Again, I think these are very interesting and important concepts. I am trying to make sure I understand what you are suggesting that we do and that I also understand what our capabilities are.

MR. EASTON: What I am proposing extends beyond the

traditional role of the Board. It extends beyond the traditional role of any single regulatory agency I know of, but it is sorely needed, and that entity or that individual does not have to possess all of the regulatory authority necessary to deal with the problems in the Delta, but somebody needs to take a piece of information and say, this means X, and therefore, we should consider the following alternatives to deal with that and then get it put into action with the agencies that do have authority so that a decision can be made on a timely basis for how to deal with that particular condition or problem.

MR. CAFFREY: Mr. Brown.

MR. BROWN: Thank you, Mr. Chairman. What Mr. Easton is saying, and I think it makes really great sense, in that there is a little precedent that has been set. There's a little precedent that has been set for resolving problems of this magnitude.

It's one thing to come up with a solution as far as the standards and to identify those requirements. How to implement those requirements may be just as important as what the requirements are, is what I hear Jim say. I don't know whether that is the responsibility of this Board or some other entity, but certainly the implementation process is extremely important in what we do, and I would hope that we would have some thought and consideration given to how the process should

be implemented, maybe even in addition to how or what agency or agencies should be part of the implementation process.

The water master is certainly one concept, one idea, and one that should be considered. Thank you for your thoughts.

MR. CAFFREY: Anything else from the Board members? Anything from staff?

Thank you, gentlemen, for a very good discussion.

Let me announce that we have completed all of the cards and that based on the number of requests we have had verbally and in writing for an additional workshop, that we will schedule one more workshop. As to the scoping of the workshop and the actual date, that will be determined in the next several days and then we will put out a Notice.

I anticipate and don't hold me precisely to this, but I am looking at staff, I anticipate that we would be looking to having that workshop in the next four to six weeks.

MR. HOWARD: Hopefully, in the August 20 to 30 period.

MR. CAFFREY: Possibly in the early 20's of August, then.

Let me again repeat that because of our commitment in the framework agreement and in other venues to complete our Draft Plan by December, that we would certainly require our staff to continue on their current work schedule to start to

prepare those parts of the Draft that need to be prepared in any event, and we will look forward to any additional information that you bring to us in the next workshop and we will, as I say, scope that with some precision so you will have an idea what we will be looking for the next time we meet.

So, thank you all for your help and for attending this workshop and we will see you again in August.

The workshop was concluded.

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REPORTER'S CERTIFICATE

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This is to certify that I, ALICE BOOK, a Certified Shorthand Reporter, was present during the Workshop of the STATE WATER RESOURCES CONTROL BOARD, STATE OF CALIFORNIA, held in Sacramento, California, on July 13 and 14, 1994;

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

That I thereafter caused my said stenographic writing to be transcribed into longhand typewriting and that the preceding Volumes V and VI, constitute said transcription;

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

Dated: July 29, 1994

Alice Book

ALICE BOOK