BEFORE THE

STATE WATER RESOURCES CONTROL BOARD

In the Matter of:

Amendment to the Water Quality Control Plan for the San Francisco Bay/
Sacramento-San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality and on the Adequacy of the Supporting Recirculated Draft Substitute Environmental Document (SED)

PUBLIC HEARING

Joe Serna Jr. - CalEPA Headquarters Building
Byron Sher Auditorium
1001 I Street, Second Floor
Sacramento, CA 95814

Tuesday, January 3, 2017
9:00 a.m.

AMENDED DECEMBER 31, 2018
SEE ERRATA SHEET

Reported by:
Peter Petty
APPEARANCES

Board Members Present:

Frances Spivy-Weber, Vice Chair
Dorene D'Adamo
Tam M. Doduc
Steven Moore

Staff Present:

Thomas Howard, Executive Director
Eric Oppenheimer, Chief Deputy Director
Will Anderson, Water Resources Control Engineer
Les Grober, Deputy Director of Water Rights
Tina Leahy, Senior Staff Counsel
Erin Mahaney, Senior Staff Counsel
Daniel Worth, Senior Environmental Scientist
Yuri Won, Senior Staff Counsel
Jeanine Townsend, Clerk to the Board
Katheryn Landau, Environmental Scientist

Public Comment:

Adam Gray, Assembly Member, 21st Assembly District
Ella Strain, Office of Assembly Member Jim Frazier, 11th Assembly District
Gary Soiseth, Mayor, City of Turlock
Amy Bublak, Council Member, Turlock City Council
Larry Byrd, Modesto Irrigation District
Joe Alamo, Turlock Irrigation District
Ron Macedo, Turlock Irrigation District
Erin Foresman, U.S. Environmental Protection Agency
Jeff McLain, NOAA Fisheries, National Marine Fisheries Service
Donald Ratcliff, U.S. Fish & Wildlife Service
Dean Marston, California Department of Fish & Wildlife
Abigail Warner, Self
Michael Frost, Self
Penny Frost, Self
Hap Dunning, Tuolumne River Trust
Susan Stern, Tuolumne River Trust
Bill Martin, Self
Grant Wilson, Earth Law Center
Hicham ElTal, Merced Irrigation District
Terry Erlewine, State Water Contractors
David Braun, RootsKeeper
Tom Schwertscharf, San Francisco Bay Area Water Committee
Public Comment: (Cont.)

Kenneth Gibson, Self
Carlos Martinez, City of East Palo Alto
Stephen DeBerry, Bronze Investments
Joe Sallaberry, Self
Elizabeth Lasensky, Self
Margo Schueler, Self
Alyce Silva, Denair Future Farmers of America (FFA)
Bryson Prock, Denair FFA
Mark Holdeman, California Department of Water Resources
Mary Scruggs, California Department of Water Resources
Erika Lovejoy, Sustainable Conservation
Victoria Guinard, Turlock FFA
Jonathan Moules, Turlock FFA
David Aladjem, Downey Brand, LLP & Northern California Water Association
Charlene Woodcock, Self
Joe Daly, Tuolumne River Trust
Larry Kolb, Self
Erik Young, North Bay Trout Unlimited
Peter Mangarella, John Muir East Bay Chapter, Trout Unlimited
Alicia Thompson, Self
Nicole Sandkulla, Bay Area Water Supply and Conservation Agency
Adrian Covert, Bay Area Council
Vance Ahlem, Hilmar Cheese Company
David Ahlem, Hilmar Cheese Company
Chenoa Urchison, Denair FFA
Mike Tietze, Jacobson, James & Associates
David Ragland, Self
Kirk Wilbur, California Cattlemen’s Association
Darcie Luce, Friends of the San Francisco Estuary
Mark Gonzalves, Self
Barbara Barrigan-Parrilla, Restore the Delta
Tom Hicks, Self
Tyrone Jue, Office of San Francisco Mayor Ed Lee
Michael Carlin, San Francisco Public Utilities Commission
Ellen Levin, San Francisco Public Utilities Commission
John Herrick, South Delta Water Agency
Karen Wilson, Self
Barbara Daly, North Delta C.A.R.E.S.
Ashley McLeod, Self
Dr. Elizabeth Dougherty, Wholly H20
Virginia Van Kuran, Self

APPEARANCES (Cont.)
Public Comment: (Cont.)

Frances W. Brewster, Santa Clara Valley Water District
Chuck Knutson, Self
Todd Sill, Self
Lacey Kiriakou, Merced County, Self
Maureen Martin, Contra Costa Water District
Mike Curry, Johnson Farms
Timothy P. Ruby, Del Monte Foods, Inc.
Rien Doornenbal, Self
John Borba, Self
Rebecca Franklin, Association of California Water Agencies
Rachel Kaldor, Dairy Institute of California
Jon Rubin, San Luis & Delta-Mendota Water Authority
Michael Warburton, Public Trust Alliance
Paul Gardner, Self
Gail Srendanovic, Self
Charlotte Allen, Sierra Club California Water Committee
Crystal Sanders, Fish Revolution
Kelsey Linnett, Self
Rick Mazaira, Yosemite Outfitters Guide Service
Cindy Charles, Golden West Women Flyfishers
Sean O’Rourke, UC Davis
Jeanelle Steiner, Self
Aaron Orsini, Self
Gary Bobker, The Bay Institute
Tricia Geringer, Agricultural Council of California
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PROCEDINGS

JANUARY 3, 2017  9:02 A.M.

VICE CHAIR SPIVY-WEBER: If you want to speak fill out a blue card. We have -- Felicia is not here today. She won't be here, actually all week, because her aunt who essentially raised her is on palliative care and so she's staying with her. Wow, that got quiet very fast.

Good morning, we are here to receive public comments concerning potential changes to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary and supporting recirculated draft Substitute Environmental Document. Throughout the hearing, we will refer to these documents as the Plan Amendment, the Plan, and the SED.

I am Fran Spivy-Weber, Vice Chair of the State Water Resources Control Board. With me today on my left Board Member Dorene D'Adamo. To my right is Board Member Tam Doduc, who is also the owner of a new cat. (Laughter.) And to her right is Board Member Steven Moore. Chair Felicia Marcus, as I said, is dealing with a family emergency out of town and will be watching the hearing remotely. Hi. Other State Water Board staff are present at the front and back of the room to provide assistance as needed.
I have a number of general announcements to make. Some are procedural announcements and some will provide context to start us off before turning to staff for an overview. And it's fairly long, so settle in. I have to do it and we've done it at every hearing. And so the procedural announcements are pretty straightforward.

First, look around and identify the exits closest to you. If you hear an alarm we will evacuate the room immediately. Please take your valuables and your colleagues with you. Use the stairs, not the elevators. It's hard to use the elevators here. And exit to the relocation site across the street in Cesar Chavez Park, except it's raining and so just find cover. That is the place that we officially convene and would be called back in once the emergency is over.

If you cannot use the stairs, you will be directed to a protective area inside a stairwell and someone will assist you.

Today's hearing date is being webcast and recorded. When speaking, please use the microphone and begin by stating your name and affiliation. Please get close enough to the microphone that it is picked up, but not so close as to generate static, and you'll hear static.

A court reporter is present today, here he is,
and will prepare a transcript of the entire proceeding. The transcript for the hearing will be posted on the State Water Board's Bay-Delta Phase 1 website as soon as possible. If you would like to receive the transcript sooner, please make arrangements with the court reporting service during one of the breaks, or after the hearing.

As a reminder, today is day five of five days of hearings on the adequacy of the SED. Day one of the hearing was held in Sacramento November 29, day --

(Brief colloquy aside.)

-- day two was held in Stockton on Friday, day three was held in Merced on Monday, December 19. Day four was held in Modesto on Tuesday, December the 20th.

Additionally, for planning purposes, please be aware that the hearing day could be long since we want to hear everyone's comments. We will take a short break in the morning and a short break in the afternoon, or as needed for the court reporter. We will also take a lunch break, which may be less than an hour, but will be at least 30 minutes to give you time to get food. We expect to continue in the early evening or beyond, if necessary.

Finally and most important, please take a moment and turn off or mute your cell phones. Even if you think it's already off -- and we have some folks over here who can help us with that -- please take a moment to
double check.

I know everyone is eager to get started, but first I need to provide some background information on how the hearing will be conducted and information regarding the Order of Proceeding. Please bear with me through this opening statement. The statement is going to be read at the beginning of each day of the hearing.

This hearing is being held in accordance with the September 15th, 2016 Notice of Filing and Recirculation, Notice of Opportunity for Public Comment, and Notice of Public Hearing on Amendment to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary and supporting draft revised Substitute Environmental Document, and subsequent revised notices issued on October 7, 2016; October 18, 2016; December 9, 2016; and December 22nd, 2016.

This hearing fulfills requirements for receipt of oral comments as described in the Board's regulations in State and Federal law. The purpose of this hearing is to provide the public an opportunity to comment on the Plan Amendment and on the adequacy of the SED. The Board will not take formal action on the Plan Amendment and SED at the close of the hearing today. Rather, the Board action will occur at a later noticed Board hearing, during which time the Board may reopen the hearing to
allow for comments on additional potential revisions to
the Plan Amendments or as required by the Board's CEQA
regulations.

The final SED will likely be released in the
summer of 2017, depending on comments received. Please
ensure your comments today relate to the Plan Amendment
and the adequacy of the SED.

The September 15th, 2016 Notice required joint
presenters who would like more than three minutes to
present their comments to make their request by noon on
October 14, 2016, which was subsequently extended to noon
on November the 4th, 2016. Based on the requests
received, staff prepared a Draft Order of Proceedings
that was sent it to the Bay-Delta Notice email
distribution list on November 18, 2016. Additionally,
the Draft Order of Proceeding was posted on the Water
Board's Bay-Delta website. A revised Draft Order of
Proceedings dated December 6, 2016 was posted on the
Water Board's Bay-Delta website on December 14, 2016.

Now, there will be a test for those students
who are in the room on all of these dates, so I hope
you're listening carefully.

Accordingly, we will begin with any opening
comments that my fellow Board members would like to make.
We will then hear a presentation from staff. This staff
presentation provides background to the proposal and clarifying information. Following the staff presentation, we will hear from elected officials, followed by public comment. As we allow, some groups asked to present panel presentations. Rather than taking them all first, as we did during the hearings in 2013, we will alternate panels and a series of public commenters to enable individual commenters to begin earlier in the day. There will be no cross-examination.

Per the Hearing Notice participants are limited to three minutes, unless otherwise allowed by the Draft Order of Proceedings, which means I will count the speaker cards and cut the time to two minutes or even one minute if necessary to enable more speakers to speak without going late into the evening, so folks can get home. We have found that a focused comment on what you want us to consider in reviewing the staff draft is actually quite effective.

Speakers are limited to one opportunity to speak during the course of the five-day hearing. We do read your comments and they should be submitted by noon on March 17, which is an extended submission date. If you intend to speak, please submit a blue speaker card, up here to my right. You can find one in the back of the room.
As I noted, we allow a number of groups who requested to speak as panels at each of the hearings. They vary in number and approach. We have in many cases shortened the time requested to enable us to hear from more of the general public commenters, particularly in the later hearings, which more people signed up for.

There has been one change in today's panel presentations since the release of the December 6 second revised Draft Order of Proceeding. One panel volunteered to be more brief. That is good, keep that in mind, which we appreciate. For today the joint participant groups that requested to speak as a panel with additional time are the following. A joint presentation by California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, National Marine Fisheries Service and the USEPA. They have requested 90 minutes. The California Department of Water Resources has requested 15. The Bay Area Water Supply and Conservation Agency, 10. The San Francisco Public Utilities Commission, 10. The Bay Area Council -- now these are the ones that get the extra kudos -- 2 minutes, reduced from the original 10. Contra Costa Water District, 10 minutes. San Luis and Delta-Mendota Water Authority, 10 minutes. And a joint presentation on recreational interests organized by Trout Unlimited, 20 minutes.
I ask that one representative from each group fill out a speaker card for your panel. And if you haven't done this already now is the time to do it and you give that to Jeanine. Put the names and affiliation of each speaker. If you would like to follow the example of the Bay Area Council and use less time than was agreed upon please note your new estimated time on the card, and know you will please the people sitting behind you. Please be ready to present your comments when you are called.

There are several points about this hearing that need emphasis. First, please keep your comments limited to the purpose of this hearing, which is to comment on the Plan Amendment and the SED.

Second, we're required to respond to the oral comments we receive during this hearing, however staff will not respond to oral comments today. Board staff will prepare written responses to comments on the Plan Amendment and all significant environmental issues raised orally and in writing prior to the Board's taking final action in the next year.

Third, while I or the Board members may ask staff for clarification or information in the Plan Amendment and the SED, responses to your comments will not occur during this hearing. We have had and will
continue to have opportunities to speak with people
outside the hearing and that is extremely valuable to us.

But in the interest of hearing what folks here have come
here to say, we can't have a conversation with each of
you as much as we would like to. And that's absolutely
ture, just because we're quiet doesn't mean we agree or
disagree. We really do need to talk to each of you more.

We must also ensure that our decisions are based on the
record of this proceeding.

Fourth, because we're required to respond to
comments on the Plan Amendment and significant
environmental issues raised, please make the essence of
your comments clear to us, especially for those making
longer presentations and in your written comments. We
would appreciate you making a summary of the points you
have about the Plan Amendment and the adequacy of the SED
at the beginning or end of your presentation.

Finally, I realize that after all the
presentations are heard, some of you might feel the need
to respond to what others have said. We cannot provide
people an opportunity for rebuttal of these comments in
the hearing. If you have additional comments after your
turn to speak at this hearing, you may give us that
comment in writing by March 17, 2017 noon deadline, as
stated in the Fourth Revised Notice.
Now for a bit of context, we are here today to hear input on a Substitute Environmental Document and staff proposal for updating the Board's Bay-Delta Plan. The staff proposal calls for updated flow requirements for the San Joaquin River and its major tributaries and updated salinity requirements for the southern Delta.

The Bay-Delta ecosystem is in trouble and has been for some time now. The Lower San Joaquin River and its tributaries are a key part of the Bay-Delta System. South Delta salinity is also a vexing challenge, both for those in the south Delta and for those who rely on exports from the south Delta.

We are also in a separate process to deal with the rest of the system including the Sacramento River and the rest of the Delta. The Bay-Delta Plan lays out water quality protections to ensure that various water uses including agriculture, municipal use, fisheries, hydropower, recreation and more are protected. Keep that in mind. While all of you have a point of view as to what you are here to say to us, and about the Plan, and about the SED, remember that is it our job to ensure various water uses including agriculture, municipal use, fisheries, hydropower, recreation and more.

In establishing these objectives, the State Water Board must consider and balance all beneficial uses
of water. Not pick one and discard the others.

We know that flow is a key factor for the survival of fish like salmon. But the flow objectives for the San Joaquin River have not been updated since 1995, not substantially updated since 1995. And since that time, salmon and steelhead have declined. We also know that there are other important factors affecting the fishery, such as degraded habitat, high water temperatures and predation.

As I mentioned, staff will provide a short presentation to provide clarifying information regarding the proposal today. This staff presentation is different from the full staff presentation given on day one of the hearing on November 29th in Sacramento and the shorter version of the staff presentation given on days two, three and four at the hearings in Stockton, Merced and Modesto respectively. Both the full and abridged versions of the staff presentation are available on the Water Board's Bay-Delta Phase 1 website.

Today's presentation will respond to some of the issues that have come up in prior hearings, to clarify what the staff is proposing and what the proposal is based on while not refuting every misconception voiced during the hearings. There are some areas where we will absolutely need to have some clarification that Board
members specifically asked the staff to address during
the course of this hearing. And that will occur today.

Staff have proposed to increase the proportion
of water left in the river. This is a proposal to share
the rivers, whether times are wet or dry. They conceive
it as a block of water that they hope groups will come
together to shape and use in the most effective ways
possible. They also have proposed an implementation
program that embraces adaptive management and will
accommodate stakeholder settlements that can provide even
greater benefits to the ecosystem than flow alone.

The proposed 30 to 50 percent range is less
than 60 percent recommended in the Board's 2010 Flow
Criteria Report, which was a science-based report only,
but still represents a significant increase over the
current conditions. Some have already argued that the
proposed range is too low to improve conditions for fish
adequately while others are adamant that it is far too
high and the impacts on our agricultural communities far
too great.

In many cases it is one set of water users
feeling aggrieved by other water users. Our challenge is
to navigate all of those strong feelings, look at the
facts, and try to find the best answer we can. Felicia
was quoted in the newspaper, I believe just recently,
saying, "There is no sweet spot in this decision," and I think that's true.

Unfortunately, there is a lot of misinformation about the staff proposal out there, whether about its provisions or its intent, that have distracted commenters away from commenting on what is actually being proposed. This is unfortunate, because these issues are hard enough to deal with based on the real facts, let alone those that are imagined or manufactured. I see and hear the pain in the comments we have received already from both sides, much of it based on misrepresentation of what staff is actually proposing. Some of it based accurately on what is being proposed. These complex challenging times and matters.

In the end, as I said, the Board's job is to establish objectives that provide reasonable protection of the fishery and to balance that with other uses important to Californians, including agriculture and municipal uses. We definitely want to provide an opportunity for people to come together to propose better ways to meet those objectives by working together to restore habitat, manage the flows, deal with predation, and other things. We can't order people to do that, but we can accept alternative proposals. When people do that well, we have a record of accepting good alternatives.
So please help us do that. Critiques can help, and we are listening avidly to those, but what really helps even more is to suggest how we can actually improve on the proposal to meet everyone's needs better.

Our hearings in Sacramento, Stockton, Merced and Modesto were lively, to say the least, informative, definitely, and helpful, actually. Lots of disagreement, but also lots of suggestions. Thank you for your patience and for your attentiveness and for joining us today on this rainy day.

First, we'll hear from any of my fellow Board members who wish to speak. And after that we'll hear a staff presentation from Water Divisions Rights staff, Les Grober, the Deputy Director for Water Rights will lead the staff presentation. But first, any comments?

MS. D'ADAMO: I normally give an opening statement, but I'm going to hold off for the discussion at the end.

VICE CHAIR SPIVY-WEBER: Okay.

Staff?

MR. GROBER: Good morning. Good morning, Vice Chair Spivy-Weber, Board members and the public, thank you all for coming here today. I'm joined today on my left by Senior Staff Counsel Erin Mahaney, and on my right Senior Environmental Scientist Dan Worth, and Water
Resources Control Engineer Will Anderson.

As Vice Chair Spivy-Weber said I have not the usual presentation today, but rather a presentation that addresses some of the comments, concerns, questions that have come up. These are not to be construed as the response to comments on this. We're going to be providing a much more expansive response to comments and give all of what we've heard both at the hearings and in written comments more consideration. But this is rather to address what we saw as some of the major comments, concerns that came up during our workshop, hearing days, things like that.

I'll spend a little bit more time on some of these and a little bit less time on others. My goal, there's about 50 slides here, is to get through in about half an hour. So I will go through these quickly, so that people can see just an introduction to the information, because this like everything else that we've presented will also be on our website. So you can dig in, in a little bit more detail and look at the numbers. So the first topic that has come up a number of times is this --

VICE CHAIR SPIVY-WEBER: Before --

MR. GROBER: Yes?

VICE CHAIR SPIVY-WEBER: Before you go to the
first topic, will everyone who's standing who's not
supposed to be standing, sit. The Fire Marshall says we
have to have people sitting and there's tons of seats
right up here. It's a little bit in the front, but
there's some in the middle as well and the students won't
bite, I promise.

    Thank you, go ahead.

    MR. GROBER: And we also have an overflow room
if you want a room probably to yourself just next door in
Coastal. You can watch it on the web.

    I'm sorry?

    MS. TOWNSEND: I'm going to go sit over there.

    MR. GROBER: No, you're not allowed.

    So the first issue is carryover storage. And
this is a quote lifted from Appendix K, which is the
Program of Implementation language for the proposal. So
carryover storage is very much a part of the project.
That's the key take home, because we've heard questions,
concerns over, "Well, we see effects of the 40 percent of
unimpaired flow, but some of the effects are because of
this change carryover storage." And that is actually
true, you do see some effects of the carryover storage.

    In order to explore what would happen if you
didn't have carryover storage, and it's important to look
at this, because this is a big perturbation of the
system. It's a big change in terms of how reservoirs would be operated, because if more is left in the river and you continue to try to draw on the reservoirs also to maintain deliveries of surface water, there would be rather large effects. So as part of the overall project, because the goals are fish and wildlife protection, you need to set some number that wasn't observed in the past, some new number that would maintain the current condition and also achieve the goals of the project.

So in order to show what would happen if you didn't have these carryover requirements we just looked at -- and this is not part of the SED, this is not one of the alternatives -- but we looked at that 40 percent flow objective and said, "Well, reduce it to lower carryover." And what you see -- what happens -- and this is something I'll spend a little bit more time on, because you're going to see a few other exceedance plots here. By necessity much of the staff presentation has been looking at averages and looking at simple things, but there are a lot of these exceedance plots in the report, because they provide so much useful information.

And the way to look at this is that you see on the left side it shows the annual diversions on the three tributaries and the total quantity in terms of millions of acre-feet. And it shows under baseline, that top
line, it shows that the diversions can be maintained for much of the time except in about 20 percent of years that do have under the current condition not as much water available. It also then shows under the 40 percent objective -- that's the lower green line -- how you're more limited in terms of that water availability. So there 50 percent of the time it starts dropping out to something a fair bit lower than under baseline.

And as you would expect if you didn't have the same carryover rules, if you didn't limit the quantity of water that would be available for surface water, you allowed reservoirs to run dry, then you would be able to maintain water supply. One little interesting feature though is that by running dry you see in the worst years near that 100 percent it's actually even worse than under the 40 percent, because there is simply no water left because the reservoirs are dry.

This is far from an optimal condition as I'll show you in a moment, but this is showing in a little bit more detail, the effect in all years over average and the different year types. And particularly in those dry and critical years it means that if you didn't have the same carryover requirement you would be able to have a bigger water supply.

And as we've seen at some of the hearing days
was presented, we cannot exactly match, because all this
modeling is done in different way, but we can more
closely match some of what's been presented. And this is
just showing for one tributary and one reservoir, New
Melones, that you would have more frequently drawn down
end of September storage. And you would actually be
draining the reservoir it looks like there, in about ten
years.

And what does that do? Actually when I go back
if you look at that period just from '91 through '94 when
the reservoir is pretty much dry. Well, this is what
happens is you don't achieve the goals of the proposal,
because on the blue line you see what the temperatures
would be in the Stanislaus under the 40 percent
objective. And under the modified 40 percent or looking
at that different carryover you can see that you have
highly elevated temperatures, lethal temperatures much of
the time. You basically lose temperature control.

So another way to look at it for just looking
at the entire reach of the river, now from the right side
at the dam all the way downstream to the left side at
zero, to the confluence with the San Joaquin River. Blue
is showing at the 40 percent objective as we modeled it
and the dashed green is the modified 40 percent
objectives, much higher temperatures than under the
baseline condition.

So as you see I am going to do this rather quickly. The importance of June flows, there's also been the concern, a two-fold concern, why June flows? And it's two-prong, because the expressed concern is that there's not an importance or biological significance to it. And by the way, it's a large quantity of water, which helps to create some of that water supply effect. It's true that it creates some of that water supply effect in real time, but it is an important time period biologically. The higher flows are important.

We frequently, in the past, have focused just on what's the optimal time, that optimal April-May period. But there are tails of that period that are terribly important, especially if you consider the importance of not just pushing the fish out of the tributaries, but on through the Delta. Because that's part of the migration pathway and the intent of the proposal is to protect the fish and wildlife for the San Joaquin River and through the Delta.

And what does that flow do in terms of temperature? So since you're pushing the fish on through the tributaries and through Vernalis into the Delta an important metric to look at is what is a lethal temperature that can occur at that time period? And you
can see that lethal temperatures of in the higher 70s
occur at that flow of about 3,100 CFS. Why is that
important?

This is -- you are familiar with some of these
I think we presented in the past, we've certainly
presented them as part of workshops -- this is excerpted
from one of the tables in the SED. And it shows that
that flow of 3,000 CFS is achieved about 41 percent of
the time under baseline. And under the 40 percent
alternative 30 percent more of the time, so not quite
doubling. But it goes from 40 to 70 percent of the time
you avoid those lethal temperatures, because you have
those higher flows.

MS. D'ADAMO: But that's assuming that those
flows are used in June?

MR. GROBER: That's correct. And that's
another element of this, is that it has that benefit and
one of the points that you saw in one of the intro slides
is this concern or concept or tension between is it the
unimpaired flow that kind of tracks the natural flow and
do you have this water available in that month? Or do
you use it as a block? And you can't do both those
things, but it's important. The take home is that it is
important in June, but even if not provided in June, if
specific year conditions are such that you have a limited
quantity of water if you have to consider everything else. Again, because this is never about the optimal. It's about the tradeoff, there is no sweet spot. But if in the moment the real time operations provides information to support, well as important as June is, we need to use that limited quantity of water to provide it in April and May. As you'll see in just a moment, the slides will also show it's not a small block of water, which cuts both ways. It's a water supply issue, but it's also a block of water that can be used to the benefit of fish and wildlife.

MS. D'ADAMO: I just want to make sure that we realize though that in order to justify June, you have to show these big temperature benefits. But the water will unlikely be used in June, so it can't really be justified. If it's not used in June then there's really not much of a need for it, especially as we go through. I know you have the next chart on the fish presence, which I think what we need is a little more detail on the rotary screw trap information and the amount of fish that are present.

Maybe, not maybe but what I would like to see, is these numbers in wet and normal years. So that we can look at the benefits in June in wet years when you have fish that are present compared to in dry and critically
dry years where you've got higher temperatures and
unlikely much in the way of fish presence. And then kind
of help us to hone in on when might June be important
versus when it would probably be a waste and unreasonable
use of water to be using it in June. Which at that point
I guess we'd be looking at flow shifting or something,
but not to justify the use of water in June.

MR. GROBER: Sure, that will always be that
tension, because if not provided in June, but if it
continues to be part of the proposal it will be a part of
the block of water that will make those earlier flows
even of greater benefit. Because as we've heard during
the hearings, the prior days of hearings, is that the 30
to 50 percent proposal isn't enough. So that June flow
allows that 30 to 50 percent to be bumped up to the 40 to
60 percent. Those more beneficial flows for fish and
wildlife and in April and May period.

The point is it's a quantity of water that is
useful both in the moment in June, but also as a block.
And there's that tension because this proposal is not
about the optimal. It's about the balance.

VICE CHAIR SPIVY-WEBER: But I think what the
request is that you do at least two graphs here. One for
different year types, for the dry and critically dry, as
well as for the wet.
MS. D'ADAMO: Right.

MR. GROBER: And then so hold that thought, because it's --

VICE CHAIR SPIVY-WEBER: Okay.

MR. GROBER: -- not presented as part of this, but you'll see because we present more than just averages. And you can see some of the benefits or some of the costs by different year types, but also by different hydrologies.

MR. WORTH: May I say something?

MR. GROBER: And Dan has something.

MR. WORTH: So, part of the issue with rotary screw trap data in June is we don't have complete sets of data for the month of June. What often happens is the river becomes too shallow and the flows are too low and the traps become ineffective and they end up pulling the traps early in June. So we have maybe rotary screw trap data for the first couple weeks of June on average, but the traps are often pulled early.

MS. D'ADAMO: I'm sorry, that is just not going to work, okay? I've spent a lot of time on this issue and you do have access to this information. And the irrigation districts, I think can provide it. So I think to get a complete picture of June we need to get the rotary screw trap information. I know that it's
available for the Stan and the Tuolumne, I don't know
about the Merced. But I think we need to get the
information in all year types and if the traps have been
pulled then that should be taken into account.

But the information that I have, that I've
seen, that's been provided by the irrigation districts --
and I understood that they provide it to you as well --
so we can, I'm sure, work that out. But the information
that I have is that in dry and critically dry years we're
looking at less than 1 percent in June. And these
numbers may be less if you could go to the slide, for 13.
The numbers do, if you look at it in the aggregate, it
does look like there's some movement in June. But I
think if we parse it out and look at dry and critically
dry years versus especially the wet years, there does
seem to be much higher numbers.

So not only do we need to look at the different
year types, but I would ask that you get with the
irrigation districts to get the information and provide
it to us.

MR. WORTH: Yeah, we (indiscernible) --

MS. DODUC: I think, let me actually follow up
and ask a question based on that. I understand your
concern, Board Member D'Adamo, with respect to the dry
and critical years and the benefit of releases in June
based on current information that is available. But does that current information take into account the possible additional flows in the earlier months in those drier years that could result in different conditions in terms of the presence of what we're trying to protect?

MS. D'ADAMO: Well, I think that's a good point, but if you look at the different year types the wet years -- I think that there's -- I don't want to opine on it.

MS. DODUC: I'm not asking --

MS. D'ADAMO: I really don't know, but the numbers seem to go up in wet years. And so if we're looking at higher movement in wet years when there's a reduced impact on water supply that seems to be closer to the sweet spot, but if we're looking at a year type where the water supply impacts are much higher. So if you look at dry and critically dry years the water supply impacts are about 40 percent. Not 40 percent of unimpaired flow, because I know there's a lot of confusion on that, but an actual reduction in water supply by 38 percent I think is the number.

So that's a big water supply hit, and so what I'm looking for is comparing that to the fish presence in those critically dry years.

MS. DODUC: I understand that and the challenge
I think we all have is it's almost always simpler to estimate the economic costs associated with water supply than the economic benefit associated with fisheries. Well, with some exception. And so I acknowledge your point, but I also don't want us to lose sight of the fact that in considering the economic costs associated with reduced supplies in these dry and critical years, especially in the month of June, that we don't also lose sight of the potential benefit of these additional flows moving as a block in the earlier months of those years.

And unfortunately, and maybe we'll hear from some of the fishery agencies, you know, a lot of this is, yes, speculative on the benefit side. Which is our challenge, because it is easier to get information from the water agencies on the water supply impacts. But what we're also trying to do is to provide as much flexibility as possible to address water supply impact by also helping to move some of the flows around as a block. Perhaps to the earlier months in dry and critical years that may result in better fishery conditions as well.

MS. D'ADAMO: Well, sure. But then what you're getting is you're getting maybe some increased benefit in that period of time where the fish are actually moving. But if it it's in wet years anyways then you'd likely see some of the benefits regardless.
MS. DODUC: But if it's in --

MS. D'ADAMO: But I'm not saying not --

MS. DODUC: -- dry or critical years then perhaps you may be seeing additional benefits that are not being reflected in the current data that are currently being presented to us.

MS. D'ADAMO: That could be. I just would like to see -- the rotary screw trap information is available, so I'd like to see it. And I think that when we go to weigh and balance rather than having numbers in the aggregate it's best to see what it would be like in these different year types. Because as we balance certainly we would be looking at -- it's not just economic benefits of the fisheries, but, you know, for public trust values obviously.

But where there are higher costs I think we've got to figure out a way to reduce those costs and an obvious target would be June in dry and critically dry years.

MR. GROBER: I'm going to provide --

MR. MOORE: (Overlapping) Oh, just thank you for the discussion. I think it's a great discussion. I would just caution using empirical data based on the current conditions and operations to determine what's possible. And I think that's what Board Member Doduc was
MS. DODUC: Thank you. That's much more articulate than what I was able to express.

MR. MOORE: And empirically the way the system's been operated for decades has not been to look into the value of June flows in critically dry years. But I absolutely acknowledge this is an area as we come up with a balancing approach where we should make sure we have flexibility to protect water supply.

And so, you know, this is --

MS. D'ADAMO: Sure, but --

MR. MOORE: -- a key point, but we don't have enough empirical data on June in dry years with a fish-based flow management regime to have rotary screw trap data to reflect the benefits. I think that's key.

MS. D'ADAMO: I think that's fine, but I just want to add one other point as well and that is temperatures. You know, especially with climate change we're going to be seeing warmer temperatures and I'm concerned about moving things as a block of water is one thing. But in order to get to what's the amount of water that would be used to begin with if we're using a month where we could even be seeing higher temperatures. And this other chart that I think you already went through, Les, on lethal water temperatures, we're looking at quite
high temperatures that are even higher than I think the USEPA criteria numbers. So we need to be looking at that as well. You know, what's a wise use of water?

MR. GROBER: I was going to type -- I'm not going to add anything, because I was just going to reiterate what Board Members Doduc and Moore were saying. But some of that might fall out from some of the additional slides, so in the interest of time I'm just going to actually move forward and these couple of slides were just to show that that June month can be important. And as was already stated we have only very limited data upon which to show, because we've so flatlined the system that we only see it in the very wet years. We don't see those middle years.

MS. D'ADAMO: But this is a wet year, the year you show.

MR. GROBER: Yes. Yes, because -- well and that's because of the nature of the operation during above normal, below normal, those moderate years. That's when the water's all being stored. We don't have the data to show the higher flows, because it's all being captured for water supply or mostly being captured for water supply.

So this actually returns us to like the basic concept that's showing that the proposal is tracking,
though it's a fraction of, it's the 40 percent of the unimpaired flow. And this just shows in a very general way how we flatlined that system, so we simply -- and this is on average for '84 through 2009. But the observed flows, the red, show that we just tend not to see the signal at all, of those higher flows. So we have very limited data upon which to base determinations. And to quantify it this just shows that June is, if you just looked at the raw percent of unimpaired flow, it's roughly the 20, a little bit north of 20 percent of the unimpaired flow of the February through June months. It's disproportionately important however as a contribution to the unimpaired flow of the 40 percent, because Junes have historically been so low. You've heard me refer in the past to, in some months we're in the single digits. It's those June flows that can be 5, 6 percent of unimpaired flow at time, because that is when snowmelt is being captured and nothing is being run through.

So we're moving -- June has those two effects. It doesn't make it available to track the hydrograph into the flow conditions to which fish are adapted, and to which there is biological benefit. But it also takes away a large block of the water you would have to use to use that 40 percent. Because not to lose to sight that
40 percent is not the 60 percent that the scientific basis report said is needed, and certainly not 100 percent. So by being able to shape flows you can strategically try to achieve those higher percents.

So it's those two reasons why it's terribly important.

MS. D'ADAMO: Can we stop here for just a moment? If you could go back to slide 16, two slides, okay. This part puzzles me and so I'm wanting to better understand. You've got here June at about 20 percent and that's monthly contributions to the requirement, so it's my understanding --

MR. GROBER: Well, actually it's monthly. This is just if you looked at unimpaired flows and just said how much of it comes out in these different months?

MS. D'ADAMO: Right.

MR. GROBER: So it's not the contribution to the -- well to the requirement, so much -- and it gets -- and I think anticipating your question, it's June is a much bigger block of water in terms of the additional block, because June flows are currently so low. They're much lower than say April-May flows are, so even though it's a smaller percent of the total that comes out of the system it's a bigger quantity in terms of moving it up from the current condition.
MS. D'ADAMO: Well, it's my understanding that
the June flows result in about 45 to 50 percent of the
water supply impacts. So this is the contribution to the
whole pie and --

MR. GROBER: Yes.

MS. D'ADAMO: -- if you could go back again?
So I'm not quite sure why, but I think in these other
months like February -- let's just take February, for
example. There's probably not a lot of water that's
being moved into storage in some of these other months.
And so the actual reflection in terms of again getting
back to -- I'm just trying to get information out, so
that we can better analyze June.

It's my understanding that the water supply
impacts are about 45 to 50 percent as a result of June.
And this chart doesn't really reflect that and maybe you
have a different chart that does?

MR. GROBER: Well, that's why I'll try to move
on to the next charts, because it's a math issue in that
because June flows are so very low now by including them
and moving those up, it does have a bigger water supply
effect than this.

MS. D'ADAMO: Okay.

MR. GROBER: And that's probably I'll just jump
to the next one, which probably shows it most clearly.
If you take from these the numbers, the average again over all years, which is shown on the left side. If you recall the long-term average surface water supply effect is 293,000 acre-feet a year. Taking June out would reduce it to about 220,000 acre-feet a year, so reduce it by 73,000 acre-feet. So what is that? That's about -- it's not the 40 percent that you cited, but it's closer to 30, 30 plus percent.

MS. D'ADAMO: Yeah, so this might be an area where it would be helpful between now and the time you come back to us, to get with the irrigation districts. Because I'm getting different numbers and I just want to make sure that we've got the right information.

MR. GROBER: Sure. Sure, and this is about -- I apologize that this is going a little bit over, but it's just these are the important questions. There is more to it here, but I think a take home based on what you just said. There's different ways that this can be modeled. You can come up with different numbers. But these are based on our analysis, which also then includes the carryover storage amounts, things like that.

If you start making different assumptions you'll start getting much different numbers in terms of total water supply effect, to make different assumptions about groundwater and different things. So we try to
provide the flatter, here it is if you just change one
thing, with this. And then those were intended to be
kind of the longer time that I would spend on it, but
there's been this issue and concern. And a real concern
of multiple dry years.

Well, as you recall we showed some of these
exceedance plots. That's really the best way of showing
not just what happens on average, because we heard I
think a number of time averages don't tell the whole
story and staff definitely agrees with it.

First, before I even move to exceedance plots,
this is based on information that's in the SED and it's
comparing the -- and I'll just refer to the right most
column. We're showing it here for the three tributaries,
but it's showing the total estimated effect on surface
water supplies based on the 40 percent unimpaired flow.
So the baseline was a little over 2 million acre-feet a
year. And under the 40 percent it was that 293,000 acre-
feet less 1.775 million.

But a couple of other columns added there, the
next one is the baseline for the critical year average,
which is 1.6 million. And then most importantly under
the 40 percent alternative if you just looked at critical
years the average over critical years is 1 million acre-
feet. So it's half of what it is over the baseline
average of all years.

And for comparison, because it's been brought up it's like that drought period from '87 through '92, so when you have a series of dry years you would have this water supply effect that happens each and every year in that order of magnitude for a number of years. All of that information is in the SED and was considered in the SED. So we're certainly not hiding any water supply effect. It's a big water supply effect and it's biggest in those critically dry years.

MS. D'ADAMO: Again, though I think it would be helpful -- what I had asked for was to have some information on successive dry years. And so what this is showing is averages.

MR. GROBER: Well, so this is -- the '87 through '92, those were fairly similar. There was one maybe not critical year, but those are all dry years. So those are five years in a row when they were at that level.

MS. D'ADAMO: I think it would be helpful, I think the information is available for each of the tributaries. And the water supply information on successive dry years. We have that under baseline conditions and so what I -- as I recall what we had asked for was to overlay the SED on top of a series of
critically dry years. So just looking at the most recent drought for example. If we were to go back and pull up say Modesto Irrigation District's water supply allocations over the last five years, we'd be able to get information on what percentage were they shorted. You know, 20 percent, 40 percent et cetera. And then if we overlay the SED on top of that what would it look like? And the reason that -- I know this is getting down in the weeds -- but again getting back especially to a month of where we would not see big fish benefits, it's important to know what the water supply picture would look like over a period of successive dry years. So instead of say a 40 percent reduction what would you get in year one? Instead of a 40 percent what would it be, like 50 percent? And carrying it over year after year what would it look like? And we would see more frequent years in which there is zero or near zero supplies. And so looking at it in terms of averages it sort of masks what would be going on out there in the real world. And so especially if you have permanent crops if you've got zero or near zero there's zero options for you. So I think what we need to see is what it would look like in actual practice as opposed to just looking at the averages.

MR. GROBER: Yeah, and we have. And again it's
hard in a brief presentation, what's shown here is an
average over five years. And yes, it's still an average,
but it's because all the numbers were approximately that.
I don't have the numbers right in front of me, but there
are no zero years, which is I guess maybe that's the
important comment to make. Because if you're talking
about maintaining 40 percent of unimpaired flow in the
tributaries there is still some water supply available.
That means 60 percent is available during that time
period for other uses, so there is no zero supply.

And this is demonstrated at -- it's a
significant reduction that's going from over 2 million
acre-feet to just over 1 million acre-feet over a period
of five years. So that's a 50 percent reduction, but not
100 percent. But I hear your comment and we've shared
the full 82-year record of modeling, which shows all of
the variability and that's available. And we can perhaps
do more to show that time series to show what it is for
every year.

We did already -- as part of our analysis we
did the drought analysis, which compared that '87 through
'92 period with the most recent drought. And it's the
same magnitude of effect. I mean, there's some
differences, but it's about the same. We did that to
confirm that we've analyzed not just that 82-year record,
but also that takes into consideration the most recent drought.

So this theme of the SED does have more than averages. And I'm going to show a series of tables and figures with those exceedance plots, because staff agrees that to understand the effects of the proposal you need to understand more than just the long-term average. So we've looked at exceedance plots and tables for things like what would it do in terms of increasing flows, river flows. Also, reservoir storage, surface water supply reductions and also cropping. This then feeds into the economic analysis.

So this is one example that is difficult to see, but I'm going to zoom in on in a moment, but it's an example because we've also heard we have 3,000 pages or 3,000 plus pages of document. Well, a lot of it's filled with tables like this, which this is an example of an exceedance chart or table. On the left side it's showing what's the minimum over that 82-year period of record that we analyzed? What's the maximum, what's the average, but then also what happens 10 percent of the time, 20, 30. You know, so it gives you a sense for what's happening, not in a graphical form. I'll show you one of those in a moment.

But for example, well I'll zoom in first. So
I'm going to zoom in just to the -- that's just looking now at the left most side of it, is looking at the diversions. So if I look under the 40 percent what this saying, and we've presented, so here's the average surface water diversion. This is only looking at the Tuolumne. We have it for each of the tributaries. And it's saying on average it's a million or the average is 732,000 acre-feet per year under the 40 percent. And it's 851 under baseline.

And what this also shows is it shows where those deliveries of water start dropping off. So now looking across at the 50 percent under baseline it's still at 878, and under 40 percent it's still at 802. But you can see under 40 percent it starts dropping off dramatically, because in those drier years there's simply less water available for diversion.

Looking at it another way, and again I know I'm going through this quickly, but you can look at it at your leisure afterwards. It will be posted. This is showing the same information, but in terms of the deficit of water supply.

For those that like a graphic more than a chart of numbers this shows all of those 82 years of record. In an exceedance plot it shows the baseline, which is the top in the dark blue and it shows you can basically
maintain deliveries on the river even under baseline conditions. There is less as it gets drier, but it stays pretty stable between 1 million and 800,000 acre-feet. But then starts dropping off in the 20 percent of wet year and in particular in the 10 percent of the driest years.

I say wet, in the driest years it starts dropping off. It drops off more dramatically under the 20 percent unimpaired flow alternative although a drop tracks it for the full 80 to maybe 90 percent of the time. But in 10 percent of the years there is less water available. And it drops off even more dramatically under the 40 percent unimpaired flow and 60 percent of unimpaired flow, so a lot more than averages.

And here, this is just lumping that same chart that was just showing the water supply availability. This is showing the instream flow storage and the instream flow as a percent of unimpaired flow, so a lot of information in the report. This same type of probabilistic information or statistical information rather is shown, is folded on through the economic analysis and the SWAP model using the 82 years of record.

This is just the slide that we had presented in our brief 20-minute overview where we come up with a conclusion of an average annual decrease in economic
output of $64 million, a 2.5 percent reduction. So staff recognizes how unsatisfying these average numbers are, which is why throughout the appendices -- and this just one example shown from Chapter 11 -- this is showing the exceedance curve of what happens to just one type of crop in just one district, South San Joaquin Irrigation District, for small acreage irrigation of dry beans, processing tomatoes, rice and safflower.

And it shows that fully 90 plus percent of the time there is full cropping of those crops and then it drops off, you can see on the right side, to something less during those driest years. But under the proposal it starts dropping off at about 35 percent of the driest years and over the 20 percent there is a very significant drop off.

The report has plots for all different crops, all different irrigation districts and it shows our work in terms of what then goes into -- from the SWAP analysis into IMPLAN. And this is then if you look at the overall results rather than looking at that one average number in the effect over all years -- this is again an exceedance plot, so it shows baseline -- that total annual economic output of $2.6 million. That's maintained, but then starts dropping off in 20 percent of years. As you can see under Alternative 3, it starts dropping off in 50
percent of years with the biggest drop off again
happening in the 20 percent of years. So these are very
big effects that are shown already in the SED.

And then another way of looking at, and again a
lot of numbers in the table, but just to show you that
the types of information that are in the report -- but
you can also get that information and see how it's a much
larger effect for Alternative 3. Bigger than that $64
million a year it means that that actually is
concentrated into the driest 30 percent of years. And it
can be upwards of $235 million or higher in the 10
percent of years.

So all of these additional concepts really
require more information, but I'm going to go through it
rather quickly. Groundwater has been a concern that's
been expressed. We analyzed what would be the effects of
the proposal in terms of increases in groundwater
pumping. And that was determined by getting information
from the districts. Most of the districts provided the
information that we requested and we used that to
determine different levels of maximum groundwater
pumping. And we chose to use the lower rate, maximum
rates of groundwater pumping, based on 2009 rather than
2014, because we determined that those are more likely
less unsustainable for a longer period of time.
That being said, the question of exactly how much groundwater pumping is going to happen in the future, exactly how much recharge is going to happen in the future when you're changing the system, and now that we have SGMA; because there is all sorts of things that can be brought to bear in terms of additional groundwater recharge, things like that. For all those reasons to come up with any other result than what we came up with here in the SED starts becoming really quite speculative. So we just based our information based on the observed response to shortage of surface water that have occurred in recent years.

MS. D'ADAMO: Based on baseline conditions?

MR. GROBER: That's correct.

MS. D'ADAMO: Not with SGMA, as you just said.

MR. GROBER: That's correct. So under SGMA the determination there is that there will be a cumulative additional impact that will have a greater impact on water availability for cropping is the biggest impact. As you would have to get sustainable in general even though you could potentially offset that with some greater recharge there would be bigger effects on water supply and even further reduced water supply.

The proposed salinity objectives -- did I just skip over -- two-fold reasons for reviewing the salinity
objective. One, is as I had provided in the introduction in the past, is this is all about the reasonable protection. It's both for the fish and wildlife, but also for agriculture in the southern Delta. It's not about the absolute protection, so the first component of this is let's just revisit and do what is reasonably required.

The second reason that we had to reassess is that there was litigation involving the Water Quality Control Plan and the application of the current numbers could not be applied to NPDES dischargers, because the court found that we did not do the necessary analyses. That necessary analyses -- so I'll come back to that in a moment.

So the first part I think that I've mentioned is that the determination -- and it's based on the science -- is that the salinity of the southern Delta is suitable for all crops. And that you could increase it between a range of about 0.9 to 1.1 and still be protective of all crops normally grown in the southern Delta.

This all gets very much more complicated very quickly, because it has to do with leaching requirements and how much rainfall you get. But even if you consider all of that, that you might have some yield loss, because
that's ultimately what it's about -- how high can you
have the salinity without having yield loss? But even
with these numbers there might be some selective yield
loss of about 5 percent during low rainfall years when
you don't get the additional leaching that would be
provided by that cleaner water. That being said, the
proposal is expected to improve water quality in that
February through June period.

So since we had lost on the litigation we had
to reevaluate and come up with a new Program of
Implementation that considered the effects on NPDES
dischargers. And we also had to consider those Porter-
Cologne -- the Water Code Section 13241 factors -- which
we have now done that. We've considered the past,
present and future beneficial uses of water. We've
considered the economics and each of these other things.

SalSim, another one where I have actually a
number of slides, because it's been presented that -- you
know, the famous only additional 1,000 fish. So the lead
slide here is that in analyzing, in using SalSim. This
is a model that has been actually frankly before the
Board for a number of years. It's been modified,
improved for a number of years. But we recognized in
using it we found limitations, which we've shared with
the California Department of Fish and Wildlife staff,
which is why our lead and our description on the use of
SalSim had these words. We recognized early on that it
wasn't doing some of the things that were thought that it
would do.

And some of this is tied to some of the earlier
discussion. We simply have not had conditions in these
tributaries that have been of benefit to salmon. And
since SalSim is an empirical model that is based on the
current conditions, it hasn't been able to show how
things would improve. So we recognized that early on and
worked with CDFW. And we had this introduction showing
well we weren't then going to run the model and say --
and then hide it -- so we say, "Here's why SalSim is not
the best tool to use. Let's present what we've done,
what we've learned, and then move forward."

So some of the limitations of SalSim even
before finding the problems with it, is that it has
priming years where you don't necessarily see any of the
effect for the early years. It also has a hot-wired
ocean crash, so you can't recover from that, so it's not
illustrative of any other years, and many other
uncertainties with the model. So this chart shows those
priming years and the last five years reflecting the
ocean crash, so just to kind of just take those things
out.
And again, this isn't the rationalization to say well here you can use SalSim. It's just showing our work and saying well as Jay Lund would say, "You know, not all models are wrong, some are useful." Well, some are less useful than others, especially if you identify problems with them. But one thing this does show is if you take out the priming years, if you take out the ocean crash, you start producing more salmon. It still begs the question, is it enough? This isn't a numbers game. Again, we didn't rely upon SalSim. What we relied upon instead are the temperature benefits that we'd expect and the floodplain benefits.

This slide just shows some of the other bullet point reasons of why SalSim, what we discovered, is not useful for the SED. And these are things that could potentially be improved and you might hear some of that from CDFW later today, but again this is only a model. It's only one tool. It's not the tool that we relied upon to quantify the benefits in the SED, which are very real benefits having to do with temperature improvements and floodplain inundation which would lead to greater numbers, production of salmon, and resilience of salmon.

MS. D'ADAMO: I have some questions here if you could go back? So I wish that you had the slides that you had included from the PowerPoint that you provided in
Stockton, okay the 16th. So there are some additional slides that you had that I spent some time going over on this, if you're not relying on SalSim what are you relying on, question.

And so on the temperature benefits you have a slide, and maybe you could come back toward the end of the day on this. But you've got slide 59 from the previous PowerPoint and it has information on the percentage, increase in percent time temperature criteria is achieved. And so just pulling out under the 40 percent we have here an area that you pulled out, 39 percent increase.

And so what I was hoping to do is hone in on some of the actual empirical data on temperature benefits, because just digging through here I think we're only talking about less than one degree. And so I would like some additional information. If you're not relying on SalSim, which it looks like with these adjustments maybe there's a way to shed some additional light on it. So instead of 1,100 fish it might be 7,600.

But you're saying that you're not actually relying on SalSim. You're relying on these other tools and so if you're relying on these other tools, I think it would be helpful for us to have specific information on what change would we see. Not a percentage change, but
what actual temperature benefits do you expect to see?
And if it's less than one degree it's kind of hard for me to understand how that could produce much more than the charts that you have adjusted showing perhaps as much as 7,600 fish. I just want to better understand it.

And then on floodplain benefits, we did receive some useful information from some of the NGOs on questioning the -- oh what was it -- the number of days. You had a chart, I think at the first Board hearing that we had, on the number of days that you would see an increase in floodplain habitat. And so that's an area that I'd like to better understand as well, because -- and I've raised this issue -- I was just on the Merced River this weekend and took a look again and spent some time just kind of walking along the river corridor. It's hard to see how additional flow would really make much of a benefit, on the Merced in particular.

And so I'm not questioning the need for floodplain benefits. I'm just questioning that flow will necessarily get us there. And I think this is why settlements are so important, because we probably need to have some actual restoration activities out in the rivers. So not to go too far off track here, but I think if we're going to rely -- if we're not going to rely on SalSim, but we're going to rely on these other components
we're going to need some additional information on how you get there.

MR. GROBER: Sure and since that was one of the specific interests, that was a subject of one of the workshops and so I would refer -- in response to your question, but to others that might have the same question -- we had more slides showing tables similar to some of the ones I've shown before.

For that one having to do with June temperatures showing, well here's not just the percent of the time that you're achieving certain criteria, but here's how much you're reducing temperatures at all different locations in the river. So we have those tables are in the Chapter 19 in the report. We have a number of those and some of those in the PowerPoints from the workshops that we and December 5th, December 12th.

Thank you.

The Merced River SAFE Plan, and I should leave with this, is that it's certainly good to see proposals that we -- you know, this is all about encouraging settlement, but the details are important. And since as we say, non-flow measure is important, but flow is equally important -- the limited information that we have we tried to discern and put in perspective what the SAFE Plan might be including. Because there was some
reference also to FERC proposed plans. So these are just
comparing different flows for the February through June
period by year type.

The current baseline FERC numbers, and then
also what's referred to by those developed at the
Strawman Merced River Settlement Agreement, and the final
FERC recommendations; and then to compare them with the
Phase 1 40 percent unimpaired flow. It's shown on the
chart as a minimum, but it's based on the median values,
because of course the staff proposal varies by year type.
But if you take all the wet years or all the above normal
years you can come up with a median flow.

So as you can see there's a pretty big distance
between those flows, so there is -- we'll have to as we
move forward and that's a good place to be -- we'll have
to be evaluating what those flows are and see how the
whole proposal comes together.

There was also comments and concerns that we
didn't rely upon or describe some of the fish studies
that have been done on the Tuolumne including temperature
studies, predation, population model studies. There has
been a lot of concern, disagreement out there with the
fish agencies with those studies. So these are just the
slides just showing some of the concerns about the
different studies and that the recommendations didn't
include certain things.

So for temperature it didn't include the effects on growth, disease, predation, behavioral responses, predation. It didn't consider the effects of the full range of conditions in year types. And the population model didn't account for high water temperatures, so some of the same failings as the SalSim model.

This concept and the concern with the unimpaired flow and block of water, I think we've perhaps already covered it sufficiently in discussion, but it's both those things. It's both important to get away from this thought of optimizing, but it's also important as providing a block of water, because the staff proposal is certainly not a optimal for fish. It's a balance, it considers all the other uses.

The flow recommendations, I think it had come up as an issue of like well how does what we're proposing compare to many of the other proposals? Since this has come up even back in the last release of the SED, I'm just showing an example from Chapter 3 of how the flow proposal -- the Alternatives 2, 3 and 4, which are the 20, 40 and 60 percent of unimpaired flow -- how those compare to different recommendations that we receive.

And this is just one example and it's comparing
it to The Bay Institute, the Natural Resources Defense
recommendations. As you can see their recommendation
kind of straddles between the Alternatives 3 and 4,
between that 40 and 60 percent.

Predation, the key point for this is that the
underlying conditions in the San Joaquin are because
they're so far from the optimal in terms of flow they
favor non-native species. There's less seasonality, the
variable conditions are gone, you're reducing the
resilience of fish, because temperatures are far less
than optimal, habitat is gone, so these fish are
migrating. And they're already weak and not -- failing
to thrive, so they are more prone to predation.

The conditions that salmon used to have to deal
with predators, including the improved temperatures,
 improved floodplain but also those high flows and pulses,
the safety in numbers, those are all gone. So there's
not enough fish to satiate the predators. Other things
associated with high flows that are of benefit of salmon,
not just in the San Joaquin but in the San Joaquin River
and the Delta.

And here's an example to show why it's
important to show all the data, not just some of the
data. This is a predation study that I had been referred
to in one of the previous hearings, and it showed very
little survival. But that was just looking in the yellow and the green. It was just looking at relatively low flow conditions. You can see at 482 and 495 CFS, the average flow, when it's higher you can see predation. That the number that survive is much higher as a total that is released, so you have to look at the full data set.

And then finally closing with the concern, which staff shares over disadvantaged communities. There was a discussion recognizing that there's the long-standing -- not just as a result of this program -- but there's long-standing issues in the San Joaquin and lack of access to clean drinking water that affects disadvantaged communities. And there's an acknowledgement that requiring the additional instream flow would exacerbate this ongoing problem.

So we also discussed that in part of implementing this, we would provide technical assistance and also direct consolidations for drinking water supplies where appropriate. And do other things to address the concerns and effects.

And with that sorry that I ran long, but hopefully we had a discussion over it as well, was helpful, and I and staff are available for additional questions.
VICE CHAIR SPIVY-WEBER: Thank you very much.
And for those of you who do not know, this is
the only opportunity that all of us can talk to each
other. We have to do it in a publicly noticed meeting
and so the questions that are coming from the dais are
very informative, very good.

In terms of elected officials, I only -- how
many more do we -- have two, just two?

MS. LANDAU: There's five.

VICE CHAIR SPIVY-WEBER: Five, okay. What I'd
like to do is take a break after the elected officials
have spoken. I know Larry Byrd asked for additional time
and he is an elected official. If he could do it after
the break that would be very helpful, because he wanted a
little bit of extra time. So it would be four:

Assemblyman Adam Gray, who's here I believe; Ella Strain
who is here for Assembly Member Jim Frazier; Gary
Soiseth, who's with the City of Turlock; and Amy Bublak,
who's with the City of Turlock.

So Adam Gray?

(Colloquy re: time to speak.)

VICE CHAIR SPIVY-WEBER: Well, three minutes,
but we'll have -- you know, we'll be accommodating.

ASSEMBLY MEMBER GRAY: Thank you. Can you hear
me now?
VICE CHAIR SPIVY-WEBER: Yes.

ASSEMBLY MEMBER GRAY: Thank you members, for providing some time for comment. In the interest of time I actually have a letter that I'm going to submit to the Board. You know, frankly from my perspective the report is so riddled with inaccuracies and misinformation and flawed analysis that we put those in the longer letter. And I'm going to make some briefer comments right now, more general in their nature.

These hearings have offered a very public forum to display the enormous disconnect that exists between protecting the San Joaquin Valley water supplies, environmental goals for fish populations, and what your Plan actually proposes. Environmental groups criticized this Plan at the first Sacramento hearing, for failing to demonstrate any legitimate benefit to salmon populations. And asked that the Plan incorporate non-flow measures, which they believe ecological goals cannot be achieved.

Agricultural interests have leveled the same criticism. That without non-flow measures, the proposal before you today simply wastes precious water without any discernible benefit.

You also heard from irrigation districts as well as local city and county officials, who explained in great detail that the proposal will jeopardize the
drinking water supplies of one-and-a-half million people in one of the most disadvantaged areas of the state. Where one in four live in poverty, where unemployment consistently remains five points above the rest of the state. In fact, the area put on the chopping block faces significant challenges beyond poverty. Challenges like being the largest contiguous health professional shortage area in California. Where life expectancy and educational attainment is among the lowest in the state, while violent crime rates, air pollution, and premature deaths are among the highest.

We disagree about the number of job losses this Plan will cause as well as how severe the economic impacts will be. Although I must point out that while SED predicts removing 300,000 acre-feet of water from northern San Joaquin Valley will cost just $68 million, your own economists working on the Delta Tunnels Project predict every 100,000 acre-feet of water has a total economic value of $1.4 billion.

The only source of consistent agreement throughout these hearings has been that all parties prefer the more immediate and enduring option of reaching voluntary settlements. Unfortunately, because of your staff's refusal to engage in discussions during the drafting of this report, failure to respond to comments
submitted on the prior version, and the disingenuous
manipulation of the facts contained in the latest
proposal there is a strong and justified belief that you
and your staff have not acted in good faith. The
obligation to restore confidence that legitimate
settlements can be reached to negotiations is squarely on
your shoulders today.

There are far too many flaws contained in the
current report for it to be considered a viable starting
point. My recommendation is that you call a mulligan,
send this report back to your staff, and with a directive
to start over. Quite frankly, the only other option is
to spend years bitterly fighting this out in court.

Thank you for your time.

VICE CHAIR SPIVY-WEBER: Thank you.

Ella Strain, and can the other two line up
behind her, so that we can move quickly?

MS. STRAIN: Thank you, Board members for
having this hearing today. My name is Ella Strain and
I'm here on behalf of Assembly Member Jim Frazier who
represents the 11th Assembly District and he wanted me to
make the following comments.

The communities in the 11th Assembly District
and surrounding regions depend upon a healthy Delta
ecosystem. The Board has taken on a massive
responsibility by updating this Plan and Assembly Member Frazier would like to extend his sincerest appreciation for the time they have allowed for public comment. It is important that everyone feels as though they have reasonable time to voice their thoughts and opinions.

A few concerns have come up when reviewing Phase 1 regarding the proposed flow objectives and southern Delta salinity standards. The proposed 30 to 50 percent increase in flows in the current Phase 1 SED is alarming, since as has previously been discovered through the best available science, the higher flows are needed in order to save the native species that are rapidly declining in the Delta.

During this process the Board should keep in mind the fact that these important fish populations, and the Delta's environment as a whole, have been disregarded in the past in order to benefit other areas throughout California. It is understandable that the Board must make their decision based on a careful balancing act between the competing needs from different regions. However, Assembly Member Frazier urges the Board to support water quality standards that are representative of best efforts to support the salmon population and other native fish that are currently suffering from previous decisions that supported water conveyance over
There are also apprehensions about the potential for the current proposal to weaken salinity standards in the Delta. The Delta communities rely on strong salinity standards in order to ensure a level of water quality that will not devastate the agricultural region, compromise rival drinking water, and destroy fisheries in this area. The Board should not take action that will put in place a system that will relaxes these standards to benefit agricultural businesses in the Central Valley while leaving the burden on the agricultural community in the Delta. Hurting this industry will inevitably lead to a loss of jobs in the Delta region.

Public health is also at stake here. The Board should consider the direct impacts on the residents of the Delta communities and their water supply that would result from the weakening of salinity standards in the southern Delta. This is a major issue that cannot be ignored when considering the proposed revisions.

Thank you again for taking the time to listen to the public's comments and concerns. Our office looks forward to working with you guys in the future on these important issues. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you very much.
Yes, Mr. Mayor.

MAYOR SOISETH: Good morning. My name is Gary Soiseth and I am here today not only as the Mayor of Turlock, and an employee of the Modesto Irrigation District, but most importantly as a proud third generation almond farmer.

As the leader of a city of 72,000 people in the middle of the Central Valley we're an agriculturally-based economy with over 3,000 jobs directly related to food processing from turkeys to milk to almonds to cheese. We created this economy to play to our region's strengths, which is why water is fundamentally important to our ability to maintain and create jobs in my town.

When I ran for Mayor two years ago, I focused on one major topic, water reliability. We started with 23 potable wells, since I've been Mayor we've lost 4 due to unsafe spikes in arsenic and nitrate levels.

As a city and farming community we have conserved and conserved and conserved some more. But we can't conserve our way out of a drought and we can't conserve our way to new sources of drinking water. So a year ago we worked with the Turlock Irrigation District to acquire 30,000 acre-feet of Tuolumne River water annually for 50 years. This was no small task. The agreement had been an idea for over 30 years, but Turlock
and Ceres were finally on a course to drinking water reliability. A reliability that is now threatened by the SED.

With the SED you have decimated our ability to provide for ourselves and you demand too much from our community. Turlock has met and exceeded every standard you have set for us. You've required us to stop discharging our tertiary treated wastewater into the river, so we embarked on a $35 million recycled water project to use the water on our farms.

You've required meters on our homes, so we installed them early. And then you use this already low level of water use as a baseline to cut even more for drought conservation.

You required us to meet stiff conservation targets. We have met them and will continue to do so.

And now you're requiring us to meet the groundwater standards set up by SGMA, which led us to embark on a surface water project to gain another source of water for our citizens. A project that can cost upwards of $200 million and will raise water rates to our already financially-strapped towns.

These are not easy targets to reach. They require steep investments. They require political will and they stretch the already fragile socioeconomic fabric
Let me put my community's sacrifice into perspective. One of the reasons I chose to speak here in Sacramento was because it can be easy to forget the faces of those that you met in Stockton, Modesto and Merced who will directly be impacted by your decisions.

Once such person is an 88-year-old Turlock farmer named Viola Brown. She has farmed the same 20 acres of ground since her husband returned from World War II and purchased it with his GI bill. They grew hay, wheat and sweet potatoes. And then they heard about a Cooperative named Blue Diamond who was encouraging people to plant orchards, specifically almonds.

Planting a permanent crop, a high-value crop in the 1950s without a large market was a huge risk. The orchard requires significant upfront costs and took four years to start producing. And when it did, the price per pound was weak. To make the farm payments she and her husband continued their full-time jobs at the nearby peach canneries and poultry slaughterhouses. Farming their acreage at night and never expanding past their original 20 acres, much like the majority of TID and MID farmers.

They lived within their means and strode to pay off the farm as quickly as possible. They're not out-of-
town investors growing thousands of acres of almonds. They're hard-working Californians that were able to pay off their farm, because their risk of planting almonds succeeded. Something that would have never been a reality without a reliable source of surface water and a TID canal that's at the back of their property.

If the SED is executed as it stands, and that lateral runs dry without any surface water, her orchard will be gone. She can't afford to put in a costly drip system for older trees that have a water root zone. And even if she could afford it, the establishment of a new well faces significant political and financial hurdles for her. And it runs contrary to our region's attempts to meet SGMA requirements.

Viola Brown is my grandmother. And her story has been repeated up and down the Central Valley for decades. While our region struggles with the nation's highest unemployment rates, lowest literacy rates, and ever-expanding number of disadvantaged communities farming was and is our values way of upward social mobility.

The SED single-handedly jeopardizes this reality for thousands of my neighbors, my families, and my friends. People like my grandmother are anxiously watching as you threaten their economic existence.
So in closing I ask you to look at the science, not cherry pick statistics. I ask you to look at all options to restore fish populations, both flow and non-flow measures. And I ask you to allow local input and decisions that will impact my local community. I want to believe that this Board has the best intentions of my community at heart. But the severe flaws that have been pointed out in the last few weeks in these hearings proves that your staff needs to revisit the document.

As a Mayor, I would never accept a staff report with this many inconsistencies on a dog park proposal, let alone a document that will shape the future of water in my region. So I urge you to take a more balanced approach to the SED. The fate of my city rests with you. The fate of thousands of farmers that grow your food rests with you. The fate of thousands of employees that process your food rests with you. And the fate of the American dream in the Central Valley still rests with you. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

This will be our last speaker before we take a break and -- go ahead.

COUNCIL MEMBER BUBLAK: Good morning. My name is Amy Bublak and I'm a Council Member in the City of Turlock. As a former police officer of two decades, I
have consistently stressed the need for a strengthened police force in Turlock. However, as a member of Stanislaus Regional Water Authority I have come to fully realize the importance of water security in our city.

As Vice Chair Vierra stated at the Modesto hearing the SRWA is a joint powers authority consisting of the cities of Ceres and Turlock. The purpose of the SRWA is to develop a regional drinking water treatment supplier by using surface water from the Tuolumne River.

Like you the City of Turlock is concerned with the declining fish population. However, we do take exception to the approach you are taking to improve the situation. Our economic base is agriculturally-related. Our main employers are food processors and over half of Turlock's residents work in town and are connected to many of the companies.

In addition to diversifying our dependence on groundwater, Turlock understands our responsibility to conserve water. Last year we pumped 5.6 billion gallons, about the same amount as we did in 1994. So despite adding 24,000 residents in the past 21 years we have been able to reduce by 34 percent. We know that we need to expand our portfolio of water resources.

For the past 25 years we have looked at various options to develop a surface water supply. This is our
single largest infrastructure investment since our 
communities incorporated. We recognize how critical 
surface water supply is to our communities. The Ceres 
City Council and our counterparts in Turlock embarked on 
this forward thinking and ambitious project. The bottom 
line is Ceres and Turlock lack the resources to invest 
millions of dollars with no assurance that a surface 
water supply will be available.

The SED further stresses our drinking water and 
water quality problems. The SED also takes away our main 
opportunity to gain groundwater sustainability in our 
region. I ask you to take a more balanced approach to 
addressing the fisheries concerns, which we all share.

I urge you to be more active in developing 
water supply projects, like the one in Turlock, to ensure 
the Central Valley's basic right to a safe, clean and 
avordable water supply is strengthened. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

We will take a 10-minute break. We'll come 
back at 10 of 11:00. We will have the three electeds who 
are still before us: Larry Byrd, Sue Alamo and Ron 
Macedo. And then we will move to the fish agency panel. 
And then we will take lunch, so it depends on how long 
that is. Probably it'll be a half hour for lunch. Thank 
you.
(Off the record at 10:38 a.m.)
(On the record at 10:49 a.m.)

VICE CHAIR SPIVY-WEBER: California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and USEPA please come forward and take you places as the panel.

(Colloquy re: speaker order.)

Okay. As they sit down go ahead and speak. Go ahead.

MR. BYRD: Are you ready for me?

VICE CHAIR SPIVY-WEBER: I am more than ready.

You've lost about a minute, so --

MR. BYRD: Okay. Thank you for giving me this opportunity. I'm Larry Byrd, a rancher and a Modesto Irrigation District Board member and employee for over 40 years. I wanted to today -- I wasn't able to give this presentation in Modesto, because I was under the weather and you guys gave our panel 45 minutes. So I kind of missed out, so thank you for letting me have a few minutes here today. I'll try to expedite this as quick as I can.

VICE CHAIR SPIVY-WEBER: Please do. If you can take less than five minutes that would be great.

MR. BYRD: Okay. So there's not going to be any charts, any modeling, or any graphs from Larry Byrd.
I'm just a blue-collar simple guy that knows the Tuolumne River. I've lived on the Tuolumne River for many, many years. I border it approximately seven miles of the upper Tuolumne, so I'm actually in the part of the Tuolumne where most of the salmon eggs are laid. So I'm very interested in the salmon and always have been.

I've followed this very closely since 1971, very closely. And then prior to that I did a little bit of research prior to '71 about the fish on the Tuolumne, because the water is about the fish is what I'm understanding.

So I want you to know I also did the releases for Modesto Irrigation District for the fish flows for 25 years in the Tuolumne. Not only border several miles of the Tuolumne and ranch it, but did the releases for the salmon industry or the salmon fish for over 25 years manually with a gate. Now it's all automated now, in conjunction with TID.

So I wanted to give you a little history that MID was formed in 1887. It was called the Wright Act, built La Grange Dam and completed it in 1893, and started our first flow of water in 1904 out of our main canal. That's the history I wanted to have, and now this is going to be mainly about the Tuolumne River.

And I'm concerned about science, I'm concerned
about modeling. I don't think anyone understands that Tuolumne better than I do and has lived it like I have. Now, I have watched this fish population fluctuate over years, okay? Since 1971, that I've been there paying attention to these fish. And it's always done this. On these wet years you get a wet year -- I'll give you an example, 2011 -- we ran large flows down the river and no salmon for four years as you guys know. We've been in a four-year dry period. This year we had one of our biggest numbers in the last 15 years; 3,521 fish this morning. As of last year at this date, 500. So all that water or no water, no water, and we have all these fish this year doesn't add up, but it adds up to me. Because I've seen this happen for years, it's just like this, it doesn't matter. It's a roller coaster ride. Some years you have 3,400 fish, some years you have 3 or 4,000 fish. It's just the way it is. It is never due to the water, because we run the same flows of water consistently. Especially the last four to five years, those have been consistent flows. And when I heard somebody say earlier single-digit numbers, but it's always 100 CFS plus. And we add a little bit of water to those flows to show our best foot forward. 

Okay. Now I want to talk real quickly about
doing restoration work on the Tuolumne. I introduced

Dave and Allison Boucher, who is the Tuolumne River

Conservatory, to a piece of land on the Tuolumne River 20

years ago. So if you scratch my back I've got a little

enviro here, because I am a conservationist. I am an

environmentalist. I want to preserve the land. I want
to preserve the river, but we've got to do it in the

right way.

We've got to do it to where we don't do more

harm in the river than we're doing now. I think what

we're doing now, in the flows that we're doing in this

gerger currently, are the answer. This is what's going

on. You see the fish numbers each year.

Also, we need to do more restoration projects.

Allison and Dave did a beautiful restoration project on

the upper Tuolumne at Bobcat Flat where they purchased

this 200 acres of ground. And I helped them find this,

get there, why would I do that? Why would I be working

with an environmental group on the river? Because I want

that river to be the river they want it to be. I want to

see those fish. I want to see the wildlife, which we're

seeing.

By the way, a contradiction to what you might

have heard the other day and what I heard in one of the

hearings -- the eagle, the Bald eagle and the beaver were
the two comments I heard -- they're not seeing them like they did. Very untrue. We have such a beaver problem on the Tuolumne River it's unbelievable. And the Bald eagle is up there everywhere, everywhere on our ranch. So we're seeing them everywhere, so I just wanted to dispute the idea that we're not losing wildlife on the Tuolumne whatsoever.

I know I've only got a couple of minutes --

VICE CHAIR SPIVY-WEBER: Can you wrap up?

MR. BYRD: -- in closing let me do this, I hated to close yet, because I have a lot to say but here we go. In my opinion, my professional opinion and the guy that lives the river for all these years, more water doesn't produce more fish. But if we do joint ventures with the Tuolumne River Conservatory or even MID and TID and we do these restoration projects like they're doing, I see some gain in that. I see where we can help things out.

I'm real concerned that if we don't pay attention to this that we're going to shoot ourselves in the foot. When I see a large water flow, a lot of times we're not seeing the fish, because we screwed them up.

One more thing I'm going to leave you with, I've never seen a smolt in that river after March 15th. There's no spring-run Chinook and by then all the smolts
have been worked down the river, so I've never seen that. I want you to know that, so when you're talking about those after March flows they're very unnecessary. It's not there, it's just not there, why waste that block of water on something that's not there?

It's working what we're doing. We'll continue doing what we're doing. And I promise you that MID and TID are willing to do restoration programs on that river or anything besides those flow measures that will actually do more harm than good.

I'm talking from my heart. I'm not talking from my head. I've got all the graphs here that you guys have. I've got all that, I've studied it. I'm telling you, that's not the answer. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

MR. BYRD: Thank you for listening to me.

VICE CHAIR SPIVY-WEBER: Joe, I'm sorry -- I said Sue -- Joe Alamo and Ron Macedo.

MR. ALAMO: Thank you, Vice Chair and members of the Board. Like you said, my name is Joe Alamo, I'm currently the President of the Turlock Irrigation District Board of Directors and have served as a Board member for the past seven years.

I'd like to thank you for extending public comment for an additional 60 days. This extension will
allow TID and others impacted by this proposal additional
time to provide a complete technical analysis of the SED.
Also I'd like to say thank you for holding your hearings
in Modesto, Merced and Stockton last month.

In Modesto you heard from TID that there are
alternatives other than just flow to improve fisheries.
You've also heard the passionate pleas from our
residents, businesses, and growers in Modesto and Merced.
So I have no reason to rehash those points today. Today
I want to focus on three specific points that those who
attempt to vilify Central Valley agriculture may have
conveniently ignored or perhaps overlooked.

I'm unsure where the Board falls on these
areas, but I'd be remiss today if I did not mention them.
Point 1, TID's diversions from the Tuolumne River for
farming have been the same since 1926. Fluctuating, of
course, along with the water type year. Turlock
Irrigation District has served the same 150,000 irrigated
acres for close to a century. Our farming footprint
hasn't increased over the last 100 years. Rather our
district is a model for what should be -- sustainable
farming looks like in California.

Some groups speaking in front of you have
implied or outright stated that excess diversions for
farming have damaged the fishery in our region over the
past 90 years. However, TID's diversion paradigm has not changed in the last 90 years. During this time ensuring flows have actually increased. Point Two, the average parcel size within TID is less than 30 acres. It's been conveniently, for some advocates of increased flows, to label TID growers as corporate farmers. However, that is not what TID is and is not who our over 5,800 growers are.

I would also like to respond to your staff presentation a little bit. According to our own analysis in 2014 and 2015, we would have had a zero allocation for any of our growers under the new SED paradigm if it was in place in the past.

So to close with my final point, this SED as written does not give us the room to work with the various agencies to do the things that the river needs and deserves. Our agencies can either plan for a decade-long legal battle or we can actually do something meaningful for the river without harming our region.

I'm asking you to thoroughly review the best and incorporate TID's pending technical comments and recent science conducted on the Tuolumne. After you have reviewed all our comments, please communicate with us and our experts to revise the SED over the coming months. Allow us the opportunity to work together to arrive at a
collaborative solution that minimizes the impacts to the region and can maximize the benefits to the fishery.

There's a better way and the Turlock Irrigation District is here to help you guys find it.

VICE CHAIR SPIVY-WEBER: Thank you.

MR. ALAMO: Thank you.

VICE CHAIR SPIVY-WEBER: Yes, sir.

MR. MACEDO: Good morning, members of the Board. My name is Ron Macedo and I've been on the Board of the Turlock Irrigation District for seven years as well. I've farmed in Turlock my entire life. I grow pumpkins and run a corn maze and a pumpkin farm there and we have the pleasure of introducing about 2,000 kindergarteners a year to agriculture there through field trips. I'd like to continue to do that.

I have some comments on the document. The only numerically quantified assessment on the fishery in the SED is the fall-run Chinook salmon. I know the staff has said the SalSim model is flawed and were, quote, "Surprised to see that it didn't produce a lot of fish." End quote. SalSim shows an average increase over baseline production of 1,103 fall-run Chinook salmon at 40 percent unimpaired flows.

Based on the admission of staff that the SalSim model and results are flawed I have one simple question.
Why are we still moving forward with this process? If the main model to show the benefit to the fishery is not accurate, how can staff be recommending any flow conditions at all? You need to put off this process, don't rush this. There is no reason to vote on a document that isn't 100 percent backed by science. The impacts to my operation and the community will be devastating.

Go back to the drawing board. Allow the districts and other stakeholders to provide input to fish population models. Allow the science to be defendable. Let's get this right. Let's not settle for a Plan that's based on averages and riddled with errors. Let's have factual, quantitative and beneficial results.

Your document can't be fixed. Stop this process, get the districts involved, and let's develop a Plan that we can all live with. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you so much.

Now we will move to the panel, and then we will have at the end of the panel there are four people who need to leave early, and I will ask them to speak. Abigail Warner, Kevin O'Brien, Penny Frost and Michael Frost.

And then we will take a lunch break.

Go ahead, thank you.
MS. FORESMAN: Okay. Good morning, Vice Chair Spivy-Weber and members of the Water Board. I want to say thank you for granting additional time to EPA and the State and the Federal fisheries agencies to summarize our comments on the proposed water quality standards and the Phase 1 draft, in the draft Phase 1 update to the Water Quality Control Plan.

My name is Erin Foresman. I'm an Environmental Scientist for USEPA on their San Francisco/Bay-Delta team. And I'm joined today by my colleagues from the National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department Fish of Wildlife. And we collaborated on this panel of presentations, so that we can be efficient with your time. And so that we had a chance to integrate Clean Water Act and Endangered Species Act concepts, so we can speak with a unified voice for aquatic resource management.

So I'm going to get started today and these reflect some of Vice Chair Spivy-Weber's introductory comments. And this helps me set up the framework for EPA's review. So EPA's review of proposed water quality standards is subject to the requirements and the goals in the Clean Water Act. And water quality standards are intended to protect many different beneficial uses, which you see examples of pictured on the screen.
So you have municipal water supply for drinking water and watering lawns, agricultural water supply for crop irrigation, aquatic life beneficial uses for coldwater habitat and migratory habitat and spawning and rearing. And then you have recreational uses for swimming and boating and commercial and recreational fisheries.

And we know in the SED process the State Water Board has said that the existing standards aren't protecting aquatic life beneficial uses. But we also thought it was important just to observe that the latest list of the impaired water bodies shows that 85 percent of existing beneficial use impairments are to aquatic life beneficial uses. So we very much support the State Water Board's effort to update water quality standards in this effort for the Phase 1 update.

We specifically support the State Water Board's effort to update flow standards to improve aquatic life beneficial uses. So this chart should look familiar to you. It was presented by your staff on November 29th in their presentation and it shows fall-run salmon adults, relative to flow levels that the juvenile cohort experienced two-and-a-half years prior. And we can see here that higher flow levels for juveniles generally result in higher numbers of adult salmon.
I also drew a line across the top, this is something I added to the chart, that shows the salmon doubling target for the salmon protection objective. This is the portion for the Lower San Joaquin River Watershed. And it represents the estimated naturally returning adults for fall-run Chinook salmon for the Tuolumne, Merced and the Stanislaus rivers. And that is an estimate of about 78,000.

So this figure really shows that freshwater flows in the Lower San Joaquin River Watershed play a significant role in determining abundance of fall-run Chinook salmon adults, attaining the salmon protection objective and protecting the beneficial use. All of which support the Water Board's actions to adopt flow standards and improve conditions for this commercial fishery and for aquatic life uses overall.

So the next several slides summarize our main points in the comment letter that we submitted. So first, I want to focus on the narrative objective. And the proposed narrative objective is an application from February to June much like the numeric objective. And we agree with the text of the narrative objective and all summaries here, but it's to provide flow conditions that support and maintain the natural production of viable native San Joaquin River Watershed fish populations.
migrating through the Delta.

So we think the text is good, but we think it should apply year-round. And to support that we used this table for the SED, Table 7-4, and it shows that target fish species are in the system year-round. The dark colored boxes and the light gray boxes together show the primary occurrence and non-primary occurrence periods in the system.

We've talked with staff about this for several years. And we understand it will cause a large delay to go back and make the narrative objective year-round. So instead of suggesting that we recommend slightly modifying the text of the narrative objective to state the implementation of the Lower San Joaquin River flow objectives should not cause adverse impacts to fish and wildlife from July to January. So just in the months outside the window of the narrative objective.

MS. D'ADAMO: I have a question on that?

MS. FORESMAN: Yeah?

MS. D'ADAMO: Are you proposing that that be in the table?

MS. FORESMAN: Uh-huh, Table 3, yes. We submitted it in our letter and we have the text in there. So next I'm going to focus on the numeric flow objective. The SED proposal is for a 30 to 50 percent
unimpaired flow range at the confluence of each one of
the tributaries: the Stanislaus, Tuolumne and Merced
rivers. And the implementation plan suggests starting at
40 percent of unimpaired flow. And this has been
discussed as having a block of water to use for aquatic
resource management.

The proposed block of water approach, we feel
has a better chance of success, if we define the
equations and the measurements that determine the size of
the block of water in Table 3 of the Water Quality
Control Plan. And we're making this recommendation,
because that provides instream users and consumptive
users a way to calculate and estimate how much water they
will have to work with during that month or season.

The next recommendation we have, and this
speaks a little bit to Les's presentation earlier, is to
identify reservoir storage targets again in the
objective. And I put the assumption that was used in
modeling in the little blue part of the beaker there, the
end of your September storage of 300,000 acre-feet.
That's the assumption that was used in the modeling, in
the SED and we did see substantial habitat benefits,
which we were very encouraged by. But we're concerned
that those benefits won't actually occur if we don't have
some sort of decision rule that holds some water in the
reservoirs to be used when it's needed for temperature mitigation.

So my next four points work very tightly together, so I'll try to weave this in a way that makes sense. We're also recommending that the starting percent of unimpaired flow be included in the objective in Table 3, not just in the implementation plan. And we want to couple that with a biologic goal for shifting percent of unimpaired flow within the approved range.

So an example of a biological goal is perhaps using a freshwater survival rate for achieving salmon doubling. This would be for fall-run Chinook salmon. So if you have a freshwater survival rate that is achieving doubling within a specified time period you could pick three to four salmon generations or approximately ten years.

Then if you're achieving that rate then you can reduce your percent of unimpaired flow within the approved window to below 40. If you're not achieving that rate then you need to increase your flows to above 40. And we feel like this is a good way that you can use a biological goal coupled with the percent of unimpaired flow to ensure that you're actually making progress toward achieving the salmon doubling objective, or I'm sorry, the salmon protection objective.
Then the next point I want to make is we're recommending that we add a percent of unimpaired flow compliance point at Vernalis. As I explained earlier the proposal is to have compliance points at the confluence of the Stanislaus, Tuolumne and Merced rivers. But once that water enters the lower stem, the stem of the Lower San Joaquin River, then it's really not protected anymore. And if you add a percent of unimpaired flow compliance point at Vernalis it'll increase the likelihood that those waters actually get to Vernalis.

And one reason this is so important is that we need the flow range at Vernalis to promote survival through the Delta. And that is part of the intent for Phase 1 update of the Water Quality Control Plan. And this is a very important piece that I want to make sure I get right, so I'm going to check my notes, but we need to be thinking of the next phase and ensuring that flows at Vernalis are high enough to provide an uninterrupted San Joaquin River corridor through the Delta.

So in many ways the success of Phase 2 is really dependent on the flow range that we identify in Phase 1 to make sure that we can successfully move juvenile salmon from Vernalis through the Delta.

MS. D'ADAMO: But then maybe what you're not -- maybe what you're looking for is a block of water, a
certain amount of water, as opposed to unimpaired flow. Because unimpaired flow especially -- well it could get pretty low.

MS. FORESMAN: Well, so there is the base flow standard at Vernalis which is 1,000 CFS, which I think is substantially lower than the 30 to 40 percent range that's being proposed in most years. And I think that what I mean to say is that we need that range to be high enough to promote that survival through the Delta.

Did that answer your question?

MS. D'ADAMO: (No audible response.)

MS. FORESMAN: Okay.

Okay. A few words on adoptive management, my colleagues are going to cover this on more detail. Adaptive management will be part of the implementation and we support the State Water Board using active adaptive management to shape flows and to really get the most we can out of the water in the river for this beneficial use.

We feel like it will be more successful if at the outset, the rules of the working group participants are defined. That there is some structure and function for decision-making processes that the work group participants can use. And that they don't need to use their precious time to come up with that at the beginning.
to provide some criteria to trigger management actions
and to do some work ahead of time, so that we can
identify targets for shaping flows. And I think doing
all of these things will set up the working group for a
successful start.

And last, but definitely not least, we're
recommending that the State Board establish an
independent monitoring assessment and science program,
recognizing that adaptive management is being relied
upon, so heavily for implementing the standard. And that
you'll need data sources you can trust. And right now I
don't you're collecting all the data that you'll need to
make informed decisions. And this is a more efficient
way to get the data that you need to the decision makers,
than identifying individual monitoring requirements for
individual users.

So in summary, instream flows are needed to
protect aquatic life uses all year. We're recommending
that you adopt standards that are well defined and
protect the beneficial use. We recommend that you
identify a structure and targets for adaptive management
and to establish a monitoring assessment and science
program to give adaptive management process the
information it needs.

And with that, I will hand it off to Jeff.
MR. MCLAIN: Good morning, Vice Chair and Board. My name's Jeff McLain. I'm from the National Marine Fisheries Service. I'm the Division Manager in the California Central Valley office. I'm happy to be here to share some of our comments.

First thing I wanted to talk about was the NOAA Fisheries role, or otherwise known as National Marine Fisheries Service. The West Coast region of the National Marine Fisheries Service manages approximately 90 species of fish, along the coastline that are dependent on the marine environment. Many of those are commercial fishing species and many also depend on the estuarine environment.

And so, in our case, the fish that are in the San Joaquin area that are germane to this discussion, is the California Central Valley steelhead, as well as designated critical habitat of the Central Valley spring-run Chinook salmon.

We also have the Magnuson-Stevens Fishery Conservation and Management Act, which designates essential fish habitat for Pacific salmon in our area that we're talking about. And then finally, there's a reintroduced population of Central Valley spring-run, upstream of our area in the San Joaquin River Restoration Program we designated a non-essential experimental
population several years ago. And downstream of the
restoration area, those fish would be simply Central
Valley spring-run.

So our first comment is related to the 40
percent default and 30 to 50 percent range that you
proposed. And as discussed in the documents, in the
prior documents as well as the SED, the 60 percent
unimpaired value would be the best for increasing
survival and perhaps a recovery of our species. However,
we recognize this isn't a recovery plan. And there are
many, many factors that you are taking into account.

We agree that 40 percent is a good start for
the start of this. And we want to make it clear though
that we don't expect to achieve recovery with that 40
percent. According to our assessment we think 40 percent
would likely have higher flows on the Stanislaus River
slightly, and higher flows on the Tuolumne and Merced
rivers, that would benefit fisheries.

We have commented on this before. We do feel
that a year-round flow schedule is important. Both of
our species are commonly in fresh water for far longer
than the February to June period. And so we feel that
the whole year needs to be looked at. We also recommend
a flow criteria at Vernalis similar to what EPA was
talking about.
So this is just an example of the 2e flow schedule on the Stanislaus River. This is a requirement in our 2009 Water Operations Biological Opinion that one of the requirements to move the water, we have to have a flow schedule. It's called the 2e flow schedule that designates different parts of the season, the fishery season so to speak. It gives you bits of water for outmigration cues as well as just outmigration flows. And then there's water use for fall attraction and winter rearing purposes.

And this varies by water year type. And you can move water between these chunks of flows here. We've provided a detailed review of this in our recent letter to you.

Well, I was happy to see that in the staff report that you talked about the reservoir constraints, because that is one of the things that we found. We saw that there was a need to have some carryover for the system to not crash. And so thank you for the report this morning. We do feel that those constraints should be in Table 3 or somewhere in the Plan, so that we have those out front.

Getting back a little bit more to the Endangered Species Act side of things, the Environmental Protection Agency will request consultation with the
National Marine Fisheries Service. And in that process, we're going to have to look at the environmental baseline of the population. And then apply the effects of this project on the baseline. And so we did want to make it clear that as stated already -- in fact, Vice Chair, you already said this morning that the species are in trouble -- and yes our species are in trouble. And substantial efforts are going to be needed to reverse the declining trends that we're seeing.

The two little graphs on the left there just show the difference between historic and current distribution of Central Valley steelhead. And you can see it's been dramatically reduced. The graph on the lower right is taken from the SED and it just shows the magnitude of the decrease in the flows. And these are just two of the factors that we're dealing with.

MR. MOORE: You know, on this point this is something that we've talked about a bit during these hearings. And looking at these maps the historic range, to some extent that's not real helpful to the discussion today, right? But what's interesting is the timing. Given the map that shows where the rim dams are what I'm struck by is that those changes to the system, the physical changes, really predate the observed decline in salmon numbers by a long time.
1967 to 1991 is your baseline you use for your salmon doubling goal in the CVPIA. And with this map we're looking at here, with its rim dams, they were in within during that period. The 1967 to 1991 period, we have what I think you would say are acceptable salmon numbers.

And so I think it's a real -- we have to be clear that something's happened since the physical alterations that we need to address. So I just think when we look at these historic maps, sometimes it's a bit of a distraction, because that's not really what we're aiming for. We're aiming for achieving what is in the map with the dams in it that we were able to achieve prior to the -- which is setting up our doubling goal.

So I want you to help in your testimony, kind of focus us there. What are the factors that you've observed since the physical alterations? That helped?

MR. MCLAIN: Yeah.

MR. MOORE: Because if you look at the spikes, the testimony talks about we do see good salmon numbers during wet years and it's true, you know? But are they less than previous wet years? And so I think we need to focus the discussion a little bit about what's attainable.
MS. D'ADAMO: Well, especially if you look at the system as a whole, right? I mean if you look at including the San Joaquin and the Delta, the changes with respect to the entire watershed.

MR. MCLAIN: Yeah, thank you. I will add that this does show a lot of resilience in salmon and steelhead. It takes time for populations to go down and go up. And when we see year-to-year changes in abundance, that can be not necessarily a population level change. It can be a specific to a watershed or specific flow conditions. But I would have to defer to our scientists on the actual population dynamics part of it. We certainly can bring more information back if needed on that.

MR. MOORE: Thanks.

MR. MCLAIN: Yeah.

A little bit about the adaptive management process, we do support the idea of adaptive management process. We just have a hard time figuring out what the structure of that process would look like and we'd like to see more clear biological goals and objectives. And any adjustments of the protective measures should be linked to meet the narrative fish and wildlife protection objectives.
I should probably revise that bullet to say
NMFS is reluctant to spend a lot of time on the adaptive
management process. We're just short on staff and a very
intense adaptive management, we are concerned, would take
a lot of time. And we're concerned is that we couldn't
represent our fish. And so any improvements in the
direction and structure would be helpful for us.

We did notice that there was some language in
Appendix K that talked about protecting the water as it
went down into the Delta. And we would like to see that
actually in Table 3 or somewhere in the Plan. We need
more scientific basis for the flows at Vernalis as well.
We would like to see that water protected all the way
into the Delta. And presumably, if we're going with the
30 to 50 percent range and the 40 percent start, the
flows would be pretty good at Vernalis assuming that's
the case and that water was protected, so.

And finally we had our economics expert from
the Science Center, Dr. Cameron Speir, review the
economics analysis. He right up front stated that, "Yes,
there's a slightly less than 3 percent change in regional
economic output in employment." He found some agreement
with that and then but he did feel that there was an
overestimate in that. And that was definitely the higher
end of things. Primarily due to the context, the
regional context, he looked at prior times when there
were cutbacks and found that it was lower -- impacts were
lower than anticipated, based on prior times.

In summary, I'll just state that we would like
to see a year-round flow schedule that would be better
protective of the various life stages of our fish. Thank
you for the carryover storage discussion this morning.
We would like to see more biological goals and objectives
associated with the adaptive management process, as well
as clearer direction in structure. And again, we feel we
should protect that water as it flows through into the
Delta.

VICE CHAIR SPIVY-WEBER: Thank you.
MR. MCLAIN: Thank you.
MR. RATCLIFF: Good morning, Vice Chair and
Board, and thank you from the Fish and Wildlife Service.
My name is Donny Ratcliff. I'm the Central Valley
Supervisor as of this last week. Before that, I was the
Assistant Program Manager at the Anadromous Fish
Restoration Program, so I've worked with CVPIA since
about 2009 with the Fish and Wildlife Service. This is
the California Department of Fish and Wildlife, sorry.
We're the other. We used to be Fish and Wildlife and
Fish and Game, and that was easier.
Well, I'd like to start by saying the Fish and Wildlife Service is extremely appreciative to the Board, to the Board staff. We recognize, I think especially from the CVPIA perspective, just how much work goes into an endeavor like this. We've done that -- something similar for 20 plus years -- and boy it's an awful lot of work still. And to start an endeavor like this and to be so willing to take comments from experts and the public is very much appreciated.

I will focus mostly today on the Fish and Wildlife Service's interest and responsibilities, mostly related to the geographic scope of Phase 1 at this point. We do obviously have Endangered Species Act regulatory issues and concerns in the Central Valley, mostly related to Delta smelt. But that will come mostly likely with our review of Phase 2. Most of the review that I will summarize today comes from our restoration staff under CVPIA. And some of the other staff that works out of our Lodi Fish and Wildlife office, with non-anadromous or non-CVPIA target fisheries.

So we will go much more in-depth in our letter, which we're preparing right now, into individual specific points. But for today I've tried to group some of our comments in three general areas. And those would be flow-related needs for fish and aquatic habitats,
measureable goals and objectives -- things that we can
work towards to measure success -- and adaptive
management. And try to give some perspective of where
we're at right now, because we are undertaking a very
similar process of trying to move towards implementation
via adaptive management and more science-based framework
at CVPIA.

So to start when thinking about flows and how
they impact fish and habitat within the rivers, we were
very pleased to see the shift from the previous version
of the SED to the current revised version, utilizing a 7-
day running average versus fourteen. But we would also
like to highlight a couple of points that we think should
be considered when the adaptive management implementation
actually occurs.

And that's that by solely using a 7-day running
average there is still the potential that with short,
high-intensity storms that may only occur over a few
days, that you may decouple the managed flows that you
would release from the benefits you would be getting from
some of the other natural benefits that come along with
the storm event. But also some of the additional water
supply that may come in from below the rim dams or via
groundwater.
It may also limit your ability to spatially and temporally connect floodplains and other beneficial habitats. You may actually get a longer temporal connection depending on how those flows are shaped, but you may connect much to less habitat by not being able to basically add to what the system is naturally getting from storm events.

So this next slide is a graph. This is just a short snapshot utilizing flows from the Stanislaus in 2009 from just after the start of February to about the end of March. The white line here is based on the flow record that we have from 2009, from that time period, what would be released basically instantaneously. What's 40 percent of unimpaired flow, without any operational constraints?

The blue line is what you would get with straight releases based on a 3-day average. And the yellow line is a 7-day average. So what we want to point out here in the green circle is notice the spikes that you get. The magnitude of those spikes with both the white and blue lines, versus the yellow line representing the 7-day average. Again, this is just with straight releases based on those averages.

We see a difference in magnitude there of over 1,500 CFS. We also then, if you noticed the red arrow
down at the bottom, potentially start to see a decoupling
from the benefits you might get beyond just flow from the
storm event: barometric pressure changes, cloud cover,
natural turbidity, some of the other things that we
believe influence fishes' success and survival and
potential to outmigrate. Those cues that they naturally
developed through natural storm events.

Now, you potentially have missed that entire
peak. And so again we are pleased to see that move from
a 14-day to a 7-day average. But we would urge the
Board, staff, folks to make sure that when the adaptive
management process is being further refined that we think
about what additional flexibilities we might be able to
add to get those benefits of coupling with storm events.

MR. MOORE: I appreciate this. This gets to
the heart and soul of why I'm doing this job, why I'm up
here, is to better engineer biology, because I get
backgrounds in both. And this is a key point. Not only
are you missing benefits during when the natural cues are
happening, but look at that shoulder on the yellow.
That's a big chunk of water that's in the name of fish
that everyone who wants to see fish survive, from all
perspectives, can be very frustrated with. Because
that's a bunch of water that's not going to get the
benefit, because we've averaged based on an operational
constraint that we are imagining, okay?

We're imagining that we have to stay with the
7-day approach. We can do better. In water distribution
systems, in sanitary sewer collection systems, we operate
better than 7-day averages. We can operate rivers in
that way as well.

And so I think this is a key graph. I
appreciate the time you've put into this and your
explanation of it. And I'm talking to my friends in the
irrigation districts, in the City and County of San
Francisco with these comments. But I'm interested in how
we -- and DWR for that matter -- how we modify our
operations statewide to be more real time. Thank you.

MR. RATCLIFF: Okay. So now I'd like to shift
a little bit. Obviously we are very closely tied to the
SED or the salmon protection objective, although we call
ours the CVPIA doubling goal. But we also do an awful
lot of work, or attempting to start doing an awful lot of
work with some of the other CVPIA species. We have
focused an awful lot on fall-run Chinook and they are
obviously a very important species. But we at the
program have, after 20 years, started to try to improve
the science, in recent years, on some of the other
species that we're charged with doubling as well.
And so specifically for the San Joaquin portion of the Central Valley, one of the species that we have focused greatly on since about 2011 are white sturgeon. And this was prompted by writing the San Joaquin River Restoration Program, Fisheries Plan, Management Plan, and finding that the common belief amongst California fisheries managers was that sturgeon, both white and green, did not use the San Joaquin. And yet we had reports from anglers, for many years, from our friends at the Department of Fish and Wildlife, that sturgeon anglers were actively catching fish in the San Joaquin, well above the confluence of the Stanislaus. So not just slowly migrating a little bit out of the Delta.

So in 2011 we started an effort to find and identify the population and the habitats they might be using of white sturgeon in the San Joaquin. And what we found in the past five years is that adult white sturgeon definitely do use the San Joaquin every year. They are in the main stem every year. We have over 80 fish acoustically tagged now with 10-year tags in them. And we're able to pick them up every year, throughout the year.

We've also then seen in a couple of our drier years, as much as we would like to have not experienced them they've given us a good test case, that with a very
modest amount of flow that not only are those fish present, but they appear to be cueing to spawn. And we've actually documented successful spawning in a couple of fairly lean water years.

So these next two slides are examples of that from the 2012 and 2016 years. What we have here is stream flow in cubic meters per second on the left y axis, stream flow in cubic feet per second on the right, because I could not get my sturgeon biologists not to leave their metric axis on there. And January through June, on the x axis.

The top white line, the solid line, is flow within the main sub San Joaquin in what we call the Stanislaus Reach, which is generally downstream of the Stanislaus up until about the Tuolumne confluence. And the dashed line below it is the Merced Reach. So that's San Joaquin River flow, mostly in the Merced River Reach confluence and just slightly above.

And the verticals bars that you see in the graph are documented sturgeon spawning events where we have collected actual eggs, sturgeon eggs, after these flow events. And so we put sturgeon egg mats out in the river. It is very much a needle in a haystack hunt, but we have successfully been able to find some of these and age the eggs and tie them back to the date of spawning.
MR. MOORE: Real quick, just to help illustrate this flow regime, how much was sort of uncontrolled flow in these events versus really methodically controlled and determined by pulse flow agreements between the agencies and the districts?

MR. RATCLIFF: Specifically, I guess we haven't done the analysis back to where they may have been managed flows for salmon or other species. I can definitively tell you that none of these are anything but natural flow events as far as relating to sturgeon. We've never, to this date in the San Joaquin, released any managed flows specifically to target sturgeon.

MR. MOORE: I get that. But really my question was more just for the audience and ourselves really, to understand this flow regime we're looking at. How human-caused is this hydrograph versus storm events that got away from us?

MR. RATCLIFF: Okay. Yeah, so I can come back to you with that on 2012. I'm a little less familiar -- I will say in 2016 -- because my Direct Report who works on this -- and I had quite the wager when he told me he knew when they would spawn -- this is moving to 2016, same type of graph. That first event you see, just to the right of the March label, was completely an actual storm event. That was towards the tail end March, last
year when we had a couple of days of a really strong rain event that pelted the San Joaquin Valley for about a day and a half, a pretty incredible lightning show came along with it. So he may remember. And sure enough, within three days, we had sturgeon eggs in our mats.

And so we believe, at this point, that we can forecast that something along the lines of a bump of 1,000 to 1,500 CFS cues these fish and potentially something lower than that. And so, we wanted to illustrate this to show that there are other species in the system that may benefit from how we craft these spring flows. It appears that variability, on a very short time scale, in the main stem at least for sturgeon, can be extremely beneficial. With what I hope we can all agree with a fairly modest amount of water, considering some of these modeled results we've seen for protecting some of the other species.

Another example, this is not from our CVPIA program, this our Delta Juvenile Fish Monitoring Program, one of the services components of the IEP Program and the work we do there. This graph shows a comparison of our catches in the Lower San Joaquin of Sacramento splittail from 1994 to 2012. So the y axis here you have an index of recruitment success. And so this is in May to June, after spring spawning events of Sacramento splittail
larvae that are sampled that we believe have successfully recruited into the population.

On the x axis then you have what is basically an average of the 45 days between March and May at Vernalis, when we had the 45 consecutive highest days of flow. So even there are low flow days in there, in that time period, these are the 45 consecutive highest days in that time window. And what you'll see is that in the years that we've had higher flows during that time period we have four of our five highest years of successful recruitment of splittail.

Obviously, there's a large area in there between about 7,000, 7,500 CFS and somewhere in the 14,000 to 15,000 range that we don't have data points for. But again, here's another species that's benefitting from these increased springtime flows.

In addition to those other species, as you've heard from Jeff and probably heard in other presentations, there are other needs for other salmonids, Central Valley steelhead and potentially spring-run Chinook, as they are reintroduced to the area through the San Joaquin River Restoration Program. I hope I've shown a little snapshot of what we believe our sturgeon needs within the spring, but there are also sturgeon needs outside of that window, as well as splittail and other
native fishes.

And so as with our colleagues that have presented before, we agree that there should be consideration of year-round needs of fish and how flows will affect. Especially when adaptive management comes to potentially making decisions about how you would change things in the spring and how that might affect water availability or operations in the rest of the year.

Additionally, building upon the comment that was made earlier, the comments from both EPA and NMFS, the downstream or ultimate fate of the water that is released is crucial, both at Vernalis but also downstream.

And here’s a graph of this, I guess, kind of balancing the line between Phase 1 and Phase 2 in our mind, where we have long-term work that has gone on with our office and several of our collaborators, related to VAMP. And then survival studies after it where we have coded-wire tagged fish released in the main stem San Joaquin. The blue diamonds here are coded-wire tag returns. The two red diamonds are fish that were acoustically tagged in 2012.

This is flow at Vernalis measured when these fish were released and estimated survival to Jersey Point. So from the release point at Durham Ferry to
Jersey Point, and a few fish released as Mossdale, through the Lower San Joaquin. And again the general trend is that when there's a higher flow, upon release in the lower main stem San Joaquin, we do see better survival of these fish albeit still relatively low and something we'd like to see higher.

So getting past and kind of on to the next section, and this speaks more to our time with CVPIA, thinking about goals and objectives. And I understanding the things that are in Appendix K currently speak to specific objectives, whether numeric versus whether narrative. But we have both of those in CVPIA. And I can tell you from experience, our program could tell you from experience, that trying to compare narrative goals is challenging. Especially when you bring in multiple potential beneficial uses whether those are fish-related or any other beneficial use.

When it comes to make decisions about alternatives, not having potential numeric targets or goals to weigh the pros and cons against, is an extremely challenging endeavor. That goes beyond just comparing and accountability when it comes to reporting. And it goes to real-time tracking. It can be extremely challenging and ineffective to determine how effective your decision may or may not have been without some
numeric target to track toward.

And again, as has been mentioned previously, at this point we think that the narrative salmon protective objective, or the CVPIA doubling goal in our world, that is reflective of what's proposed in the revised SED of the 40 percent unimpaired flow, will be very challenging to meet.

We certainly believe that a move towards recovery and better conditions is there, but we've done modeling in the past. A report from AFRP in 2005 for the three tributaries showed our estimates to show what it would take to see a 53 percent increase towards the doubling goal. So think of it as just slightly over half of doubling. You'll see in wet and above normal years, we're in the 30s, up towards 38 percent on the Stanislaus and Merced in an above normal year. We get beyond that and we start to see, at least from our modeling results, unimpaired flow rates that would be required at 50 percent and above, up towards 60 percent like we've heard from other folks that have done these analyses, to truly move towards the doubling goal.

And so while we understand the need to balance benefits to all of the different things being considered by the Board under this SED, we also want to convey how important it will be to think about how this 40 percent
of unimpaired flow is utilized and how flows may be
crafted to receive the maximum benefit if we are truly
going to see a move towards doubling.

VICE CHAIR SPIVY-WEBER: And are you
considering the habitat enhancements that -- the use of
these flows for habitat enhancement. Is that what you're
referring to?

MR. RATCLIFF: Absolutely. I mean at this
point in 2005 -- and so things have changed -- we would
need to update this to give your our current estimate of
real numbers. That was with the habitat work that had
been done by our program and others at the point. And
the assessment of other areas that would be activated by
flow releases that aren't active habitat restoration.
There's been work done since then that we would need to
incorporate.

Obviously, the bread and butter of our program
is to continue to work on habitat restoration and so we
very much appreciate through the hearings, hearing that
folks believe, a lot of folks believe that a combination
of flows and habitat restoration, are really what is
needed along with addressing other potential limiting
factors. But at this time yes, this basically was real
time in 2005, so these numbers would have changed some
certainly.
MR. MOORE: And I'm interested in this table too, because it relates to a lot of our discussion and comments we received about the critical years being so stressful and difficult for the water supply perspective. And yet here you indicate it's really important for the fish, but how much can we take this sort of off the linear scale?

And you don't have to answer this now, but this came up with some of the NGO comments. Does it make sense in critical years to move to more of a triage approach and not a hard percent unimpaired flow approach? Here it's, "Oh, look at the benefits for the salmon doubling." But isn't it true, that's not when salmon double. That's when salmon lay low. Maybe hang in the ocean for that year, because of no pulse naturally would come.

So I just want to maybe encourage you in your comments to think of creative ways that we can do effective fish management through the critical years without maybe having such a big water supply cost.

MR. RATCLIFF: Absolutely.

MR. MOORE: Thanks for that.

MR. RATCLIFF: I just also wanted to show that this is an example of where we've moved our narrative doubling goal very similar to your salmon protection
objective. Two numbers, both for Central Valley-wide, which you have on the left here for all of the species and runs of Chinook that we work with, the CVPIA. And then just a snapshot, this is not the full table, but we have those targets natural production targets by watershed.

So the number that was shown there in the EPA presentation was the combination of those bottom three numbers, that 78,000-ish fish that would need in the San Joaquin Basin for doubling comes from the Stan, Tuolumne and Merced.

And so this is just to show you that we really had to go here early on to be able to report tracking, to be able to analyze what we might do in one watershed over another, and we do this Central Valley-wide. And I think that as Phase 2 rolls out this is something that we're going to want to think about if we're going to really be able to incorporate adaptive management.

So finally I wanted to hit just a little on adaptive management, and again we're in the middle of this process at CVPIA, so it's near and dear to our heart right now. At least you're not doing it with a 20-year-old program. We're having to change horses in mid-stream. And it makes an interesting extra layer.

At its face, adaptive management looks awful
simple to a lot of folks I think. And this is a very simple diagram that comes from our Department of Interior technical guide on adaptive management. And the idea is that you identify a problem, you design something to fix that whether it's a specific project or a program, or a plan. You go and implement that, monitor it, evaluate the data you've got in front of you and adjust how you manage.

But it's a lot more complex than that. And every one of those circles requires an awful lot of effort. And the reason that I brought this here today was to tell you that for those of us in the room that are scientists and are exposed to adaptive management early on, we think about this from how it's implemented as a scientist, right? How you would design your project, your monitoring plan, how you would pay for and collect data. How you would analyze that data and how you would turn that analysis into something you can give to a manager to help him make a better decision.

But I'm learning right now, in real time, with CVPIA, that there's a whole other circle to this and that's the governance and the logistics of it. And especially as you get into a large program and move away from adaptive management on a small scale, you have to think about the time and the resources. And so starting
with measurable goals and objectives from the front end, narrowing the decision space, realizing that a huge part of adaptive management is to foster creativity. And to be able to analyze different proposals and decide what you think will help you best achieve your objectives and lean from that and adapt through time is extremely important.

But what we learned at CVPIA, I think in the last four years -- the last two years extensively where we put in an awful lot of time and resources and we've had an awful lot of partners that have come to speak to you, a lot of the same folks participating in our processes -- is that without having some of that governance and some of those larger 30,000-foot level sort of side boards and general objectives on the plate for those folks to help narrow their decisions base, we've spent an awful lot of time and resources with those folks.

And so we've come an awful long ways in two years, but I think that this is something that we felt like in our review of SED really stood out to us. That we would urge you to think about how you work with the Board or through other folks, to give the SED and working group and other folks who'll be helping you, devise and implement this adaptive management plan some sideboards.
Something more about objectives that you really want them
to consider when developing the models and the decision
process and how they might implement an adaptive
management program.

MR. MOORE: Yeah, certainly we have language in
Appendix K that starts toward this correct staffing. I
mean, we look at within six months of adoption the Bay-
Delta Plan Phase 1, we would have biological goals
established. Is that in --

MR. GROBER: That's correct, yes.

MR. MOORE: Is that consistent with what he's
talking about here?

MR. GROBER: Yes. And to recognize the
importance of having a numeric goal as well, as opposed
to just words.

MR. MOORE: Right.

MR. RATCLIFF: And we were very pleased to see
that. We very much support it. It's ambitious. And so
we would love to work with you and help on where our
processes -- and if we can share some lessons learned and
help each other out, fantastic. It's very noble to want
to manage programs these ways. It's also very hard.

So finally, the general recommendations that
you will see in our letter are to, "Consider fish and
habitat flow related needs for all of the native species
throughout their life cycles." And we feel this has been
done fairly well in the SED. There's been an awful lot
of work done here and we appreciate that. But we do have
some other species that we do think some recent work has
shown will also likely be impacted, and in many cases
benefited, by implementation of this objective and
exactly how it's been implemented. And should be
considered when we're thinking about adaptive management
for the system, not just for any of the individual
species or runs.

Secondly, to think about where we can, "Define
measurable goals and objectives," more. To really jump
start where we can jump off with our partners on adaptive
management and further define the process, the governance
as much as possible, and the decision space that folks
might have in that. I think hopefully, we will be in a
lot of the same situation that Jeff said for NMFS, other
than with through CVPIA we have local habitat restoration
coordinators that would very much want to be involved in
the process. But our ability to expend those resources
and assist would be greatly improved with a little more
guidance on the front end, I think.

So with that, I'll -- this is a San Joaquin
River sturgeon. And if you're less than 29 years old in
this room, this fish is older than you, just over eight
VICE CHAIR SPIVY-WEBER: Go ahead, Dean.

MR. MARSTON: Good morning, Board members and Board staff. My name is Dean Marston. I'm an Environmental Program Manager and oversee our fisheries projects in the central region and I'm headquartered out of Fresno. And one of the projects I oversee is our Lower San Joaquin River and San Joaquin River Tributaries Anadromous Fish Restoration and Research Project.

We acknowledge that this has been a long and trying process for you all and that you have a difficult challenge before you to balance competing beneficial water uses. That said, as the trustee agency for California's fish and wildlife resources, and we're charged with conserving them for future generations, we're compelled by the science that's been brought forward to date to conclude that the San Joaquin River ecosystem and the south Delta ecosystem is in decline and that change is needed. And that we agree with the SED that a revised flow regime is needed.

Reduction and flattening of the San Joaquin River's hydrographs have altered the physical, chemical and biological characteristics of the San Joaquin River, and its tribs. And have created habitat conditions that have compromised anadromous fish by making them sick,
injured, unhealthy and susceptible to predation.

Reduction and flattening of the hydrographs has favored the proliferation of non-native species, substantially contributive to the decline in anadromous fish population abundance, making these populations non-resilient to stochastic mortality events, such as ocean conditions.

A return to a more natural flow regime hydrology would reverse these trends and could preclude the need to develop a TMDL for water temperature impairment, which is now legally required given a water temperature impairment listing.

A more natural flow regime would help support a portfolio effect for fry, parr and smolt contribution to adult production via a presentation that was given to you by Dr. Sturrock and Dr. Johnson earlier in this workshop process. And adding more adults being produced in the San Joaquin would actually level, if you will, or more level the adult Chinook production in the fall -- overall Central Valley fall-run ESU.

And lastly, a natural flow regime would create a boost in natural production thereby reducing the need for hatchery fish.

MR. MOORE: Before you go on, this is the first that the TMDL issue's been raised in the five days, could
you quickly tell us which reaches and are they proposed listings or just listing for temperature impairment?

MR. MARSTON: They're existing listings for temperature impairment. And on the main stem San Joaquin, it goes from the confluence of the Merced downstream to I want say Vernalis or Mossdale, I forget the exact demarcation. And then each of the three tribs on the Merced, the Tuolumne and the Stanislaus River, it goes from the lower rim down, down to the confluence.

Regarding implementation, implementation should be based on a systematic watershed-based approach and should focus on achieving connectivity between tributary watersheds and the Bay-Delta to protect anadromous and non-anadromous native fish species.

Regarding monitoring, a strong effective monitoring program will be indispensible to managing and evaluating implementation. Progress towards goal attainment is needed and a comprehensive monitoring program is a pathway to accomplish this.

Regarding adaptive and collaborative management, the Department supports collaborative adaptive implementation of a block of water. Recognizing that there is a distinction between annual real-time operations and longer-term adaptive management.

Decisions on use should be tied to achieving biological
goals and objectives and be coupled with effectiveness
monitoring.

Regarding strengthen decision making, decisions
on implementation of flow, say percent of unimpaired flow
and non-flow, should be tied to achieving clearly defined
fish and wildlife narrative objectives. This includes
decisions on adaptive adjustments to the February through
June time period. That includes flow shape by, for
example, percentage of unimpaired flow and also flow
shifting.

Regarding governance, the Department supports
flexibility and alternatives to the STM work group where
there are voluntary agreements in place. The Department
supports strong leadership and facilitation by the Board
for the STM work group including such things as early
establishment of the STM group, i.e., within 180 days of
the adoption of the amendment. And development of
government structure like operating rules -- how it's
going to operate, timing for products, things like this.
Also, focus participation of the STM so that the group
remains affective or to consider subgroups or forums to
allow additional stakeholder and water user involvement.

Lastly, require use of biological goals to
guide and inform adaptive management. It's a common
theme that you've heard here this morning.
Regarding voluntary agreements, the Department appreciates that the Board recognizes the efforts to secure collaborative voluntary agreements. Voluntary agreements should accelerate implementation while also increasing the synergies of individual actions both flow and non-flow throughout the watersheds, according to an agreed upon schedule of implementation.

Regarding the Board's use of SalSim, we acknowledge and recognize the Board used SalSim and found issues, that is in better stated errors resulting in less fish than would be expected given empirical data. And I, as the Project Manager for the Department would like to apologize to the Board for the fact that this model does in fact have a couple of errors. I'm going to take ownership here. So we found that the egg mortality is excessive, it was killing off eggs in the fall during the spawning time period only over a few days. And it should have been occurring over a much longer time period, say two weeks to a month.

So that calculation in the model has been fixed, if you will. It's corrected to behave as it should given the underlying empirical data that was used to inform that mathematical calculation.

Then in the spring, juvenile mortality was insufficient, because flow level was overriding the
effects of temperature. So that was also fixed and
errors have been corrected and the detail of this will be
provided to the board in our comments here in mid-March.
We've recalibrated the SalSim model. And again the
detail will be provided in our formal SED comments.

This is a graph showing Mossdale water
temperatures amongst other things. And there's a lot of
information here. And this comes from the Board's HEC-5Q
water temperature model. And basically what you see,
it's kind of hard for the colors here, but you'll see the
sinuous lines showing water temperature prediction at two
places, Vernalis and at Mossdale. And the purple line,
the elevated line for temperature on the right axis --
and this is for the baseline Board's model run -- and it
shows that temperatures can exceed 100 degrees Fahrenheit
during the February through June time period.

And then on the left y axis, looking at flow in
cubic feet per second, you'll see a green line that kind
of moves up and down a bit between 0 and 5,000, say at
the 2,500 CFS range for the years January of 2000 to
about the end of 2004 -- excuse me -- end of 2003. And
then basically it bottoms out to near zero. So the flows
in this particular baseline at Mossdale go to near zero.

And all at the point that I wanted to make here
with this is that the HEC-5Q water temperature model
provides the inflow and the water temperature data to run SalSim. So if the flow data and the temperature data are inaccurate, then by default regardless of the issues I said earlier with SalSim, SalSim's error is going to be - the output is going to be in error as well.

So I don't want to belabor this, other than to say that in the process of developing decision support tools, finding and fixing bugs is a standard operating procedure. That's just how they go, you know? Our cell phones, our software, we're getting patches all the time. It happens. Do we want it to happen? No, but we fix it, we find it and we fix it.

So a combo of elevated water temps and reduced flows at Mossdale, a lack of results and substantial juvenile salmon mortality for not only salmon entering the Delta, but also for salmon survival through the Delta. And adult salmon production estimates as I said are likely substantially lower than they should be, given the factors that we've just discussed.

So there's been some talk about the importance of June flows. So what we have here, a lot of action going on here, but what we have a graph depicting on the x axis the period of time in early April 2011 through the end of June 2011. And then on the y axis estimated juvenile Chinook salmon catch at Mossdale. And this
represents the -- we heard some comments earlier about
the District's rotary screw trap. Well, the Department
has been conducting a Mossdale/Kodiak trawl to develop an
index of outmigrating fall-run Chinook salmon juveniles
for the period April through June, for the past 30 years.
And we see here in this particular that there's a big red
box over there and you can see the caption for yourself.
The smolts leave the San Joaquin River in June when flow
is provided.

And then just in the red there, it might be
hard for folks to see, but just remember the juvenile
portfolio effect described by Drs. Rachel Johnson and Dr.
Anna Sturrock in that all life states are important.
We're trying to protect the genetic integrity of fall-run
Chinook salmon.

And just as important, and maybe not more
important for fall-run, is late fall-run. Because they
come in and spawn in the San Joaquin River tribs in say
the late December/January time period. And given five or
six months for the eggs to hatch and juveniles develop
and out-migrate out they're fallen right in to this June
time period. So it's critical for this species of
Chinook salmon.

And then here's another example of a wet year,
in 1999. I don't want to belabor the point other than to
say that in June, we still have a fair amount of
juveniles outmigrating from the San Joaquin River tribs
making it to Mossdale, and are captured here and depicted
here in our graphic.

And then lastly, I just want to say that this
is basically the trend. When we have more San Joaquin
River tributary flows in the spring, we get more juvenile
salmon entering and exiting the Delta, which leads to
more salmon production. Does it happen every single
year? No. We get things like ocean crashes, but the
data collected to date indicates that probability is, is
that when you have more spring flow, you're going to have
a greater number of juveniles. And when you have a
greater number of juveniles, they're going to survive at
higher rates, to and through the Delta. And we're going
have more adults being produced for ocean fisheries and
then for escaping spawners to come back to spawn in the
fall.

So we might ask the question, is flow important
in light of the SED. Again, a busy graph here. On the x
axis we have a number of years, 1995 through year 2015.
And what it's depicting here is the naturally produced,
or wild produced, fraction of escapements. So this is --
the data for this is from the Department's fall-run
Chinook salmon escapement surveys in both the Tuolumne,
which is the red line, and in the Stanislaus, which is
the blue line.

And the way that we fractioned out on an annual
basis the number of wild fish or naturally produced fish,
versus the number of hatchery fish, is to take a look at
otoliths, the little ear bones from the fish after
they've spawned and died. Then we can capture them in a
survey, and then conduct analysis. And this analysis is
paid for by the Fish and Wildlife Service, conducted by
UC Davis, and also paid for TID.

And my apologies to Modesto Irrigation
District. I understand that they are they were also a
funder for the analysis of otoliths.

So what we have are basically three categories
here, looking up the y axis from the bottom to the top.
We had a wet-year period, a dry-year period, and then
I'll get to that far-right period in a moment. But
basically the Tuolumne Basin is twice the size of the
Stanislaus and had twice the annual runoff approximately.
And we see in wet years is that we get a response in
terms of natural production on the Tuolumne when the
Tuolumne's actually releasing water. And it far, far and
away exceeds the number of fish that are being produced,
those naturally produced fish that are being produced on
the Stanislaus.
And then we go into the dry-year period, to the one in the middle, and we see that production crashes if you will in both cases, but it's better on the Stanislaus. And it's known that in dry years the instream flow schedules on the Stanislaus are better than on the Tuolumne or actually even on the Merced. And that just has to do with the way the agreements have been worked out through the years.

But there's been another interesting thing that's happened over the last 20-to-25 years. And that's depicted by that red dash line, which actually exceeds into the far right, but just for illustrative purposes I kept it where it is. And just to show that there's been non-flow restoration actions that have occurred both in the Stanislaus River Basin as well as in the Tuolumne, but they have been predominantly being constructed in the Tuolumne River Basin downstream of La Grange Dam. By the order of tens of millions of dollars greater in magnitude in terms of effort and expenditure and construction spent on doing non-flow habitat restoration measures in the Tuolumne.

So now I'm going to go to the far right column there. So if non-flow actions are driving production than that blue line that starts to rise in the more recent time period should be red, not blue. But we find
the exact opposite. So the question is, "Well, what happened?" So we looked at that to try to answer that question. So I know there's a lot of words here. I just go the graph itself and what it's depicting. And this shows the years 2009 through 2015. And then again, the natural salmon adult escapement on the right y axis. And then you see the Tuolumne in the red and the Stanislaus in the blue.

And these data are from FishBio Weir Count that the districts pay for. And then again the on/off analysis paid for by TID, Fish and Wildlife Service, conducted by UC Davis, and also the Department of Fish and Wildlife providing the otoliths. And again my apologies to Modesto Irrigation District for not listing them as a funder.

But we again asked ourselves well what happened here? So we've effectively -- and you can see here, I'll read them for you here -- so we effectively had in situ experiment occurring in the SJR tributaries that allowed us to evaluate emphasis on flow versus emphasis on non-flow.

And we found that the Delta BiOp operation and RPAs flow increases were implemented in approximately 2009. This effectively brought spring flows in the Stanislaus to approximately 40 percent of unimpaired.
And we recognize that there's a little bump in production in 2011 for the Tuolumne, which gave it some reprieve. But otherwise the populations have generally dropped. And I'm talking about naturally produced populations. However the Stanislaus population has shown a steady rise throughout.

So the take home is that these results indicate that restoration actions have primarily focus on flow improvements are by far out-producing those results produced by emphasis on non-flow actions.

MS. D'ADAMO: Do you include the non-flow measures that have been implemented on the Stanislaus?

MR. MARSTON: The --

MS. D'ADAMO: So on the Tuolumne you're looking ---

MR. MARSTON: The answer is yes. We recognize that non-flow actions have occurred on the Stanislaus. But the actions that have occurred on the Tuolumne far outweigh the amount of restoration action that's occurred on the Stanislaus in the non-flow sense.

MS. D'ADAMO: And what non-flow measures are you considering on the Tuolumne?

MR. MARSTON: Gravel reintroduction, floodplain improvement, riparian improvement, gravel mining or gravel pit fill-in. Those are the ones that come to mind
immediately. I mean, we could provide a whole list to you in our comments and probably will.

MS. D'ADAMO: I would just -- I think we should get maybe more information on this, because it's my understanding that the non-flow measures that have been implemented on the Stan, Honolulu Bar and I forget the name of the other project, but they are successful, non-flow restoration projects. And --

MR. MARSTON: And we are not -- if I might finish, if you might -- we're not saying that they're not successful. We're just saying that the non-flow actions by themselves are not as productive as they could be in the absence of flow increases. And that restoration actions tied to a revised flow regime would provide a multi-pronged approach to reverse a decline. But absent an increase in flow they won't by the selves create substantial improvements in anadromous fish populations. Restoration actions augment flow benefits, but they do not replace them.

MS. D'ADAMO: Right, so the projects on the Tuolumne, I think, a couple -- one in particular that was quite costly -- the Special Pool?

MR. MARSTON: SR9 and 10, Special Request 10?

MS. D'ADAMO: Right. I mean it is quite costly to move the gravel into this area. And it seems that
that was not a very successful project, because the pool is quite large. And there still maybe flow challenges, but also predation hot spots in that area.

And so I guess I'm just pointing out -- I don't know the answer to these non-flow issues -- but when I've been out on both rivers the non-flow measures that were implemented on the Stan have been -- and I've been out there with representatives from the irrigation districts, but also the NGO community -- that those are successful non-flow projects. And on the Tuolumne not so much so.

And so I would expect through adaptive management and some of the discussions hopefully that you'll be having as part of the settlement discussions and otherwise, that there'd be some lessons learned about what types of projects might be the ones that you'd want to focus on, in terms of the non-flow measures. And so I don't know if this is an apples-to-apples comparison.

MR. MARSTON: In closing, the Department appreciates the State Board's efforts. At the core of the Department's interests throughout this process, as the state's trustee agency for fish and wildlife, is the undisputed fact that the Bay-Delta ecosystem is in crisis. The Department will move ahead tirelessly to work with the State Board and other stakeholders to develop solutions to reverse current trends, while
reasonably protecting all beneficial uses of water within
the framework identified in the SED and proposed
amendments. Thank you.

MS. D'ADAMO: I have one more question.

VICE CHAIR SPIVY-WEBER: Sure.

MS. D'ADAMO: Okay. So I can't tell this slide
number, but the June flows -- one, two, three, four --
maybe back up five slides -- on the importance of June
flows.

So, and I do recall the testimony that Dr.
Rachel Johnson and Dr. Anna Sturrock provided and this is
an accurate quote, but there's other things that they
said as well. Mainly that it depends on the year type
and possibly on better monitoring to determine whether or
not the smolts are present as to whether or not June
might be an important use of water.

And so just looking at here what you're saying
on the importance of June flows, and we've heard a lot
about flow shifting, are you saying that this unimpaired
flow regime -- it would be best to implement it in June -
- to actually utilize the flows in June?

MR. MARSTON: I'm saying or depicting -- the
Department's depicting here that there is advantages to
fall-run Chinook salmon production by having flows in
June.
MS. D'ADAMO: Okay. So I'm trying to, you know, I understand in a perfect world it sounds like what you're saying is June flows are important. But my question is if you were to have this opportunity for flow shifting -- and you kind of have to rank at what time the Department would recommend the use of the flows, especially with carryover storage, et cetera -- would you actually use June for those flows?

Or would you suggest to shift doing some -- using the unimpaired flow block of water from June shifting it around to a different time frame?

MR. MARSTON: And you can imagine that's a complicated question that you've asked and so the immediate thought that comes to my mind is that it depends. And it depends on a real-time management sense, right? Because effectively what we're trying to do, based on what we've seen in the past, is that we have a population that crashes, all right? Crashes in every dry-year period and rises up again in a wet-year period. And what we're trying to do is reduce the crash that occurs.

In other words dampen the peaks and also shorten the duration between the two maximum development time periods. So it could be that on -- yes, maybe when a decision's made that we can forego flow in June in a
particular year, say a current year, by way of example to
accomplish some other biological objective that we're
trying to achieve. In order to keep the population from
crashing we may choose to do that.

And I can't think of one off the top of my
head, but the opposite decision might be made. You know,
it's maybe more important from a genetic integrity
perspective to allow a greater number of juveniles to
leave the basin in a particular year. And so therefore
June flows aren't important or we might decide that on a
late fall-run, we've got to have some June flows in a
particular year. So it depends.

MR. MOORE: Oh, I've got a --

VICE CHAIR SPIVY-WEBER: Go ahead.

MR. MOORE: Thanks. While I have the panel
here, in my travels to the different rivers and learning
about the different studies that have been conducted, I
thought it was compelling there's some developing science
around temperature tolerance.

And I asked Mr. Grober on November 29th, and
staff, if these temperature thresholds we're using, that
are often derived from science in the northwest, if they
were refined based on science in these tributaries, which
is the southern-most runs that may have more temperature
tolerance. Would some of the thresholds change in terms
of the flow needed to achieve temperature thresholds that protect the salmon and achieve biological goals.

So and the answer was, "Yeah, sure. If those thresholds change you don't need as much flow to meet temperature, right, if the thresholds are higher." So I just wanted to give you the opportunity to comment on the state of the science on temperature tolerance in the Stanislaus, Tuolumne, and Merced rivers and Lower San Joaquin and what you think of it. And where that's going and some problems with it that you see or some science advancements that you're seeing.

MR. MARSTON: Well, I'm not a scientist, but a little aware that that is hotly debated. And we haven't seen any evidence to go with anything other than the existing criteria we're using.

MS. FORESMAN: So I do know, well we have encouraged, through our work with the Delta Stewardship Council, getting more science for thermal plasticity. Tying to really figure out what are the thermal tolerances for Central Valley Chinook. And I think that the temperature criteria you're referring to are EPA's Region 10 temperature criteria that were developed in the Pacific Northwest.

And we have a little bit of science on the Central Valley Chinook and I think O. mykiss as well.
But it is just really starting to get going. The temperature guidance that was developed in the Pacific Northwest took ten years. It did all kinds of different types of studies and the newer science that we have now is using physiology and different tools than were used in the Region 10 guidance. So I definitely think it's worth exploring to figure out -- I certainly think it's worth exploring to figure out is thermal tolerance for the southern-most part of the range showing physiological plasticity in these species? And trying to figure out what are appropriate temperature bounds for each one of the life stages that are important in this system.

So I certainly thing that that's worth looking into, but I don't think it's a short exercise. It would take many years and lots of different types of studies to really come up with a range that you have confidence in managing with.

MS. D'ADAMO: Well, that's a good question, because I think TID in collaboration with -- I don't remember who the science -- UC Davis?

MS. FORESMAN: It's Nann Fangue at UC Davis.

And if I'm thinking of the right study, and she's doing temperature physiology studies with a new tool. You kind of put a fish on like a -- it's almost like a little fish treadmill, sort of thing. And you expose them to
different temperatures and you figure out their thermal
tolerance. And they did O. mykiss, so they did
steelhead.

And then we paid Nann Fangue to also look at
fall-run Chinook salmon and we used hatchery fish in the
laboratory. That's one of the reasons you really need
multiple studies, because well-fed fish in the laboratory
perform a lot better than starving fish in the river. So
and that's just one of the examples of needing to look at
different physiological metrics, such as growth and what
are egg tolerances, things like that. So that you get a
broad picture for each life stage to have a range that
you're confident is protective.

Did that answer your question about it? Okay.
Thanks.

MR. MOORE: Good answer, thank you.

VICE CHAIR SPIVY-WEBER: Any other questions
from Board members?

(No audible response.)

Great. Thank you very much. This has been
incredibly informative and I assume to the staff as well.

I will have four speakers: Abigail Warner,
Kevin O'Brien, Penny Frost and Michael Frost. If you
could come down to the -- to just be lined up.

Go ahead. Thank you.
MS. WARNER: Hello. My name is Abigail Warner and I'm from Palo Alto. I'm here because throughout high school and parts of middle school, I was given the wonderful opportunity to spend time in the Bay-Delta every summer with my nana and Sea Scout group learning fishing and doing various activities. I believe the Delta deserves to be preserved or at least conserved not only for future kids like me, but for also for the fish and ecosystem that resides in the Bay-Delta and the Lower San Joaquin.

Now, I understand that agriculture is a huge chunk of California's economy and is a large employer. However, around 2,200 salmon farmers will lose their jobs if the flow of the San Joaquin remains this low. It's also important to note that the highly-feared agricultural job losses would not be caused by allocating more water towards the watershed, but instead would be caused by those who could have saved thousands of jobs and water by investing in irrigation technologies, farming high-value water efficient crops, or implementing numerous other strategies with long-term payoffs.

Everybody who was here today, or has voiced their opinion past hearings, values the Bay-Delta and its water at some significant level. No one wants the Delta destroyed. The reallocation of water would restore the
watershed's proper chemistry diminishing the growth of cyanobacteria and increasing oxygen levels allocating or allowing the ecosystem to flourish and naturally maintain its health.

These reasons, restoring the chemical balance, lowering agricultural waterways, saving the salmon, and preserving it for recreational use are why it is so important to conserve this water source to the quality it needs to be at by reallocating water towards it. Thank you.

VICE CHAIR SPIVY-WEBER: Kevin O'Brien?

Penny and Mr. Frost, Michael Frost.

MR. FROST: Thank you. I read a book called "A Short History of Progress," by Ronald Wright. It's a very, very good book, highly recommended. He describes a situation called a progress trap where innovations create new problems to which society is unable or unwilling to solve. Or, inadvertently create conditions that are worse than what existed before the innovation.

Some progress traps that he went through in the book, two of them were Sumer, current day Iraq, the confluence of the Tigris and Euphrates rivers. And over millennia a large irrigation system, overgrazing, and land clearing resulted in desertification and soil salination. So we take a look present-day Iraq, it is a
dry dusty desert. Thousands and thousands of years ago it was covered with trees and it had a very fertile Delta there. So there's definitely some parallels to California.

Easter Island, another one, logging to make statues and boats destroyed the ecosystem and lead to war and collapse and everyone left the island.

Another one is the Aral Sea, the fourth largest lake worldwide. The 1950s and '60s, Soviet agricultural innovations allowed for the diversion of the two chief water sources, two rivers, to grow cotton in the desert, which sounds very similar to Kern and Westlands. The Aral Sea experienced a 90-percent reduction in size and a 10,000 percent increase in salinity. And it's an absolute ecological disaster today.

You know we're dealing with, in a larger scale here, reductionist management. You know, forgetting to look at the whole picture. So what we're asking today is for the Board is to set policy to manage agriculture in a living ecosystem. It's necessary to understand that we're living and farming in the context of an estuary. Working with nature instead of against it, will benefit the region in the long term.

And recognizing Kern and Westlands and their impact is imperative. You know we're dealing with the
southern Sierras all the way up to Mount Shasta is one system. We like to break things up and look at little pieces of them, and that's what we're doing today, which is what we're doing. But it's important to take a look at the larger picture.

And also take a look at, where are the misaligned incentives? Which assumptions need updating? We're dealing with a zero-sum game extinction levels of Delta smelt, salmon, amongst others. Time is a variable by which everything is measured. And what are we solving for today? This quarter? This year or this decade?

Please, take a very long-term prospective, multi-generational. Permaculture, dry farming, urban rainwater capture, and other shared sacrifice will help us maintain a healthy ecosystem.

VICE CHAIR SPIVY-WEBER: Thank you.

Penny?

MS. FROST: My name is Penny Frost. I enjoy visiting the Bay-Delta Estuary to go fishing, see the wildlife, and learn about life on earth. Today, the numbers of fish are very low, extinction levels. Something is badly wrong. I am asking this Board to increase freshwater flows all the way to the ocean to keep the fish alive.

We do not know the long-term costs of a further
degraded estuary and the fish extinction. Please make
the core freshwater flows a priority for my generation.

VICE CHAIR SPIVY-WEBER: Thank you. Thank you
very much.

(Applause.)

We'll take a break for lunch, but we will start
with -- I have about 60 cards of individuals who would
like to speak. And we want to hear from each of you. I
will intersperse these cards 10 at a time with panels
that are -- that will occur before us. But we will be
here late.

We will start at 1:00 o'clock precisely,
precisely at 1:00 o'clock, with Hap Dunning followed by
Terry Erlewine, Susan Stern, Bill Martin, Grant Wilson,
John Borba, David Braun, Kaylen Herbert, Tom
Schwertscharf, Kenneth Gibson. And if you could be --
put yourselves over right here, so that you can go right
up to the microphone, that would be very helpful.

Thank you. See you at 1:00

(Off the record 12:38 p.m.)

(On the record at 1:00 p.m.)

VICE CHAIR SPIVY-WEBER: I think we're ready to
get started.

I see that Hap is here. We have Hap Dunning
followed by Terry Erlewine, Susan Stern, Bill Martin,
Grant Wilson, John Borba, David Braun, Tom Schwertscharf, Kenneth Gibson, Stephen DeBerry -- who's going to take two minutes -- and Carlos Martinez, who's also going to take two minutes.

Then that will be followed by the California Department of Water Resources. And then we'll go back to more speakers.

MR. DUNNING: Well thank you very much, I'm --

VICE CHAIR SPIVY-WEBER: Be sure and announce your name and your affiliation.

(Brief colloquy aside.)

VICE CHAIR SPIVY-WEBER: I'm sorry, Hap. All these last-minute things, they don't take away from your time. Okay, go ahead. Thank you very much, Mr. Dunning.

MR. DUNNING: I am Hap Dunning. I'm a Board member for the Tuolumne River Trust. I'm here in that capacity.

And I want to remind you of what a predecessor Board did in 1994. Decision 1631, I'm going to mention very briefly, because I see some strong parallels between what happened back in the '90s and what you're trying to do now. As I'm sure most people in the audience know, 1631 was about the restoration of Mono Lake. And you'd had on the one hand, environmental groups pushing hard for full restoration or close to full restoration. You
had a very powerful city, Los Angeles, resisting and apprehensive about what the detrimental consequences might be.

The Board reached what I regard as a compromised decision in providing full restoration of the lake to a certain level, but certainly not the level that it was before the diversions. Some areas that were important, waterfowl areas, were not to be restored under the Plan.

But the point is, the point I want to make is what the Board did was enough to put the lake on a good restoration path. And most important of all Los Angeles, this major city in our state, was able to make a number of accommodations, so it wasn't really damaged by what happened. They could accommodate more people with less water -- I'm not going to go into all the things they did -- but here's where I see similarities to what you have today. You have environmentalists pushing for implementation of what that study showed back in 2010, 60 percent unimpaired flow. You have others resisting, understandably very apprehensive about what this might do to San Francisco or to the agricultural districts.

But I think, as was the case back in the '90s and the early part of this century, accommodations can be made. This can be done in a step basis. And as you work
toward a much better environmental situation for the river I think those now in opposition may be able to adjust more than they realize. Thank you.

VICE CHAIR SPIVY-WEBER: Terry is -- has Terry come back in?

MS. TOWNSEND: No, he is actually on his way.

VICE CHAIR SPIVY-WEBER: Okay. Susan Stern?

MS. STERN: Good afternoon. My name is Susan Stern, I'm a Board member of the Tuolumne River Trust, a former Board Chair of Camp Tawonga, one of the family camps on the middle fork of the Tuolumne. I'm a hiker, a birdwatcher, and a consumer of Central California's abundant bounty of produce.

I'm very concerned about the health of the complex ecosystem, which is the San Joaquin Delta fed by its major Sierra tributaries. Canoeing with the Tuolumne River Trust, many past Novembers I've witnessed the crashing number of spawning of Chinook salmon in the lower Tuolumne below La Grange Dam. In June I had portaged my canoe, because of the invasive water hyacinth near the confluence of the Tuolumne and the San Joaquin.

Every February I go bird watching at the California Department of Fish and Wildlife area at Grizzly Island. I worry about the health of the ecosystem for the multiple species that rely on the
health of the Suisun Marsh. Some animals, like the
California Clapper rail and the Suisun shrew live
exclusively in that title wetland. Rare and threatened,
endangered species, include the salt marsh harvest mouse
and Peregrine falcon, California Ridgway's rail and
others.

I believe it's crucial that increased and
improved flows from the tributaries go into the San
Joaquin Delta. The current 20 percent unimpaired flows
from the Tuolumne is unsustainable for all. Chairwoman
Marcus has stressed that a 60 percent standard represents
what fish would have asked for if fish could talk. I
believe that would be ideal. However, I understand we
need to strike a balance for many interests for our
common good. The Bay-Delta is a public trust.

I would urge the Board to choose my preferred
goal of 50 percent unimpaired water flow. I believe we
can all make that work. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

Bill Martin?

MR. MARTIN: Thank you. My name is Bill
Martin. I am a San Francisco resident since 1972 and a
customer of the San Francisco Public Utilities
Commission. During those years I have hiked, camped and
fished all over the Northern California watersheds. I've
fished the Tuolumne, I've hiked around Hetch Hetchy.
I've fished in the Merced and the Stanislaus. And I've
kayaked and fished throughout the Delta. I've paddled in
the Delta with otters, sea lions, with the sky dark with
migrating and cackling geese. In spite of all we do and
all that we continue to do, the Delta does hold on. Life
does continue, although at a fraction of its previous
levels.

Your proposal for higher flows in the Delta is
one step in helping this entire estuary. In the June
2016 election over 70 percent of Bay Area voters approved
Measure AA, a parcel tax of $12 per parcel to fund
restoration projects in San Francisco Bay. That's over a
million votes. I don't see them lined up behind me to
speak today, but I hope that you'll consider those votes
as you make your decisions about the -- relative to the
SED.

Also, in July of 2014 the San Francisco Board
of Supervisors approved Resolution 288-14 urging
protection of the San Francisco Bay-Delta Estuary. And I
quote from that resolution, "The San Francisco Bay-Delta
Estuary helps to power the region's economic engines, is
the globally recognized symbol of our region, and its
health reflects on our region's capacities, values and
vibrancy." I believe that over 70 percent of Bay Area
voters would agree with that statement.

Some opponents claimed that habitat restoration, including approved spawning gravels, floodplain nurseries, would be enough to restore the salmon populations. But as we heard earlier today that myopic view ignores two critical elements. First, the science is clear that higher flows are needed along with those habitat restorations. And second, that salmon are not the only endangered species that will benefit from these higher flows. The entire estuary and all the creatures that depend on them need these higher flows.

Please do all you can to make that happen.

Thank you very much.

VICE CHAIR SPIVY-WEBER: Thank you.

Grant?

MR. WILSON: Thank you, Board members, for this opportunity to comment. My name is Grant Wilson and I am the interim Director of Earth Law Center. We are a nonprofit that advances legal rights for ecosystems and species to exist, thrive and evolve.

Earth Law Center is concerned that the SED does not adequately protect Bay-Delta water quality, particularly as it pertains to aquatic species and habitat. The SED recommends a flow requirement in the San Joaquin River and its tributaries of 30 to 50
percent, with a starting point of 40 percent unimpaired flow from February to June. But these flow requirements are inadequate, both under the Clean Water Act and ethically, as they represent another step towards the extinction of numerous fish species.

Under the Clean Water Act state flow objectives must fully protect beneficial uses. With their multiple-use designations, flow objectives must support the most sensitive uses, in this case fish and aquatic life uses. Ecosystem and species needs cannot be balanced away. The SED's flow requirement will fail to protect fish and aquatic life, whether fully or reasonably.

According to the State Water Board's 2010 Flow Criteria Report, an estimated 60 percent of unimpaired flow in the San Joaquin from February to June would be protective of aquatic life, fish and wildlife beneficial uses. State and Federal Fish and Wildlife Agencies have also testified that similar amounts are necessary to restore fish populations.

However, the SED's flow requirements fall well below this threshold and will predictably fail to correct the continued decline of salmon and other fish species. The SED itself explicitly recognizes that the Bay-Delta is in an ecological crisis, yet it fails to put it on a path towards recovery. In order to comply with the Clean
Water Act and protect the most sensitive beneficial uses, the State Water Board must adopt flow criteria similar to the recommendations of the August 2010 Flow Criteria Report.

Additionally, many are calling for a minimum of 50 percent San Joaquin flow in order for salmon and other species to have a shot at survival and we agree this is a step in the right direction.

We are also concerned with the State of Emergency Change Provision in the SED, which would likely be used to further weaken these already inadequate standards. With regards to drought we can no longer call them emergencies and significantly weaken our environmental protections. Droughts have always occurred with regularity in California and will continue to increase in frequency and severity as climate change impacts worsen. We must treat drought and climate change impacts on water as the new normal. And we must update the SED to prepare for rather than succumb to these challenges.

In sum, I urge the State Water Board to call for revisions to the SED in order to restore flows and protect the ecological health of our waterways. Thank you.

VICE CHAIR SPIVY- WEBER: Thank you.
John Borba has graciously given up his space and introduce yourself.

MR. ELTAL: Hicham ElTal, Merced Irrigation District. I didn't mean to have to speak today, but there was a couple of things that the Board brought up and I would like to just clarify. One of the questions was about the continuous drought, like multiple years of drought. And yes, even without the SED in 2015 the Merced Irrigation District had no diversions from the Merced River. So it could have that impact and that would be multiplied.

Another thing, for example, the median runoff to the Merced River is about 850,000 acre-feet, which is the smallest of the three tributaries. The total inflow to these reservoirs in a critically dry year was like 200,000 acre-feet. So it's less than a quarter. And if you have about 100,000 acre-feet of certain commitments, be it riparian water, refuges, and other districts, so basically you're left with about 17 to 18,000 acre-feet.

So to say that there's 60 percent that you could still do something with, it doesn't mean that you'll always have the 60 percent, because there's a certain amount of water that you have to divert regardless of the type of year. We have no way to say to those folks that we provide water to, on their
commitments that, "It's a dry year. I can't give you water." So basically, we rely on the storage from previous years to supply water in any critically dry year. There's not enough water in the river.

Another point that I want to bring up is the SAFE Plan. I'm kind of disappointed that the SAFE Plan was brought up in that fashion today, because it was brought up on the base on flow when we have been saying along, "It's not a flow only. It's flow and ecosystem, the river system restoration."

(Timer beeps.) Man, that was three minutes? Okay, can I finish? Can I ask you a question, Board or?

VICE CHAIR SPIVY-WEBER: Go ahead and finish.

MR. ELTAL: Yeah, so basically it's a combination of things, it's not one. And by the way, it's not less water than the FERC Environmental Impact Statement, it's the same amount of environmental system, it's not less than that plus other restoration.

And the other thing is we looking at your graph that -- it shows the amount of escapement versus the flow of how do you explain 2008, for example, it had a higher escapement but less -- it was a critically dry year. And also how do you explain the highest return out of the salmon to the Merced River this year?

So all these things, I think they need to be
taken into consideration.

VICE CHAIR SPIVY-WEBER: Thank you.

MR. ELTAL: And one last point which also was brought up today, just to kind of answer that, is there is a capacity to the rivers to accept salmon. I mean, there will be a point of diminishing returns. You could dump all the water you want to, but there's only so much room for spawning in the rivers even after you do the restoration. So that's something that we need to look at.

VICE CHAIR SPIVY-WEBER: Thank you. And you were on a panel before, so you have gotten extra time. Could you please fill out a blue card, so that we have your name?

MR. ELTAL: I did. I did.

MS. D'ADAMO: So I have a question, probably not for you to answer now, but because I'm really trying to get the answer to this. So if you could take, in your written comments to us, if you could take the last five years of drought and compare your baseline conditions in terms of your water supply allocations -- percentage of reduction as opposed to inches, because I know staff is looking at percentages -- so percent reduction under the baseline conditions compared to the SED, the objective that's contained in the SED, not with carryover, okay?
And what would that look like? So, in other words, in one year if you had 20 percent what would it look like with the SED without carryover and then with carryover, each year in a row.

MR. ELTAL: Will do.

MS. D'ADAMO: Okay. And then the second request is what percentage impact do the districts have with -- does Merced have with June? What, of the overall impacts, what percentage is contained in June? Thank you.

MR. ELTAL: Will do, thank you. Sorry about that.

VICE CHAIR SPIVY-WEBER: Thank you.

Terry, followed by David Braun. And just line up right here. And then Tom, Kenneth, Stephen and Carlos.

Hi, Terry.

MR. ERLEWINE: Thank you for letting me step in. I represent the State Water Contractors, who are 27 water agencies that have contracts with the State Water Project. We've commented on the first draft of the SED on Phase 1 and we've commented on Phase 2 also.

We had three points that I wanted to bring up. One of them was the concerns that we've raised in the past about the appropriateness of using unimpaired flow
as opposed to functional flows. And what we've commented
on before is that for salmon and most fisheries that it's
really the functions that are provided by flow, things
like temperature, turbidity, nutrients that are the
primary drivers. And those are not directly addressed by
unimpaired flow. So that's the first point.

Second point, which is related to water quality
in the south Delta and the Phase 1 SED, does tend to
confuse impacts from the export projects with other
impacts. And there's water quality impacts in the south
Delta; a lot of those are occurring from local
degradation, inadequate flow. There's an implication in
many places that those problems are caused by the
barriers in the south Delta. And that's not completely
accurate. So that's a concern.

And the last one is a technical concern with
the SED that the groundwater impact analysis, I think,
really needs improvement. Ignoring the requirements of
SGMA that a long-term overdraft not be allowed and to
effectively allow -- provide that there would be long-
term overdraft that could continue. That's not an
appropriate assumption. And the analysis is not done to
identify what the effects, even if you did allow that
long-term pumping to occur, what would the effect on
stream flow be? And those effects are not identified.
There's existing analysis tools that are available:

there's groundwater models by the USGS, groundwater models by the Department of Water Resources, those could readily identify those impacts. And those were not included in the SED and they really should be.

Thank you for letting me comment. I'd be happy to answer any questions.

VICE CHAIR SPIVY-WEBER: And I assume you'll send it in a letter with those points?

MR. ERLEWINE: Yeah.

VICE CHAIR SPIVY-WEBER: Thank you.

MR. ERLEWINE: That's what I forgot to tell you, too. We will be sending a letter.

VICE CHAIR SPIVY-WEBER: Okay, great.

MR. ERLEWINE: Thank you.

VICE CHAIR SPIVY-WEBER: David and followed by Tom. I don't see Tom standing up here or Kenneth. Oh, there he is. Okay, good.

MR. BRAUN: Hi, good afternoon. And my name is David Braun, I'm with a group called RootsKeeper. And I want to thank you very much for allowing me to comment. And thank you for your proposal to increase water flows.

It's my understanding that you did -- the Water Board did an analysis in 2010 that called for a 60 percent flow. I would advocate for what your science
concluded, that would seem reasonable. If you run the
numbers I understand that upwards to 400,000 salmon used
to run in these rivers. With 1,000 now there in these
rivers we are looking at about a quarter of 1 percent.
That's collapse, that's a crisis. And I have much
respect for what you do. I know that you're under
immense pressures. But for the charter and the
responsibilities of this Board, I would say to be
considered a success, if this gets any worse you have
failed. I don't know how to say that nicely.

Also, worthy of consideration is that there is
a tree of life that is connected to this water flow, to
these fish, to this estuary, to all of the different
organisms. We get half of our oxygen that we breathe
from the ocean. I haven't heard anyone commenting or
talking about this, but these species go out and are food
supplies and live and breathe and are an essential link
in the food chain in our ocean, not just our estuaries.
How on earth can we say that we are leaders on climate
change if we can't even facilitate a reasonable amount of
good health in our own estuaries? Any growth has to be
sustainable.

Now, I hear lots of folks -- obviously it's a
very difficult situation -- that need water for various
uses for their lives. But any growth that's not
sustainable is short-term. And if we kill our oceans and
if we kill our rivers, so someone can have a job growing
almonds that we export to Japan for a super-high price,
then we have failed. Because that person will have that
job only until we run out of oxygen, until climate change
exacerbates the world, until our rivers and our oceans
are completely dead and we're eating Soylent Green.

This is where we're headed: 200 years, 300
years of society, we have not been living in these sort
of organized societies for very long. It's a very short
period of time and to do this much damage in such a short
period of time we are completely abdicating our
responsibility to leave this planet for the future
generations. And for that I implore you, 60 percent, no
less.

VICE CHAIR SPIVY-WEBER: Thank you.

Tom?

MR. SCHWERTSCHARF: Yeah. Hello, my name is
Tom Schwertscharf and I'm speaking in favor of increasing
water flows to protect fisheries. I'm a member of the
Sierra Club. I have past certifications from the State
of California for Water Treatment Operator Grade III and
registered Environmental Health Specialist. I was also
certified as a Water Quality Analyst Grade III by the
American Water Works Association. I currently volunteer
at a Salmon Habitat Restoration Project in Marin. And I've sent you some more detailed things about the biology and chemistry that I'm concerned about.

The one thing I wanted to point today was that the -- let me just get this up here, okay -- one of the groups that wasn't represented here today that's part of the State of California is the California Bioassessment Program. And I went to their last conference up in Davis. And they've been putting together these programs for the state for about 24 years. And I would urge speaking with them, because they have some really great recommendations about flows and duration for preserving salmonids and other fisheries. And they're tied into the food web, so they look at what are the fish eating, what kind of condition do those species need? And so, adjust the flows for that. So, I'd definitely get in touch with them.

The other thing I'm concerned about is whether you're diverting water through tunnels or you're diverting it in other ways, it seems to me over the last ten years or so that we've been talking about this the broader scientific community has been kind of shut out. And I know that I hear a lot of stuff about it, it's a fair stakeholder process, but if you shut out this scientific community that's not a fair process. And I've
seen that going on in the last ten years.

The final thing I wanted to say is it kind of gets lost that San Francisco Bay is such an important body of water. And we have tourism, we have fishing, sailing, we have the shipping terminals. And we need a healthy Bay to keep all of that going, so don't just think about the Delta, think about the Bay also. Thanks a lot.

VICE CHAIR SPIVY-WEBER: Thank you.

Kenneth?

MR. GIBSON: My name is Kenneth Gibson, I'm from Oakland. I'm a customer of the East Bay Municipal Utility District. This is the third of five Phase 1 hearings that I have attended.

First, let me say Ahéhee’, Ahéhee’ lah. (phonetic) Thank you. Thank you very much for the attentiveness you have shown to all the presentations and the citizen speakers at these hearings.

In the mid-1950s when I was a young boy my family moved to Dinétah, the Navajo nation comprising most of northern Arizona. At that time windmills were scattered across the plain, drawing water from well throughout the semi-arid land. The same technology is used there today, drawing water from the same aquifers to provide water for sheep and horses, occasionally to deer
and coyotes and to people, freely. The aquifers remain
useful and safe across the vast land. Please work with
the sister agencies of the state to protect the aquifers
through the state from being treated like dumps for
waste. Irrigation water and rainwater runoff could be
more naturally stored in this way throughout much of the
urban and agricultural state.

During the current drought I began looking at
the pricing structure of urban water. My professional
background is commercial lending and finance. Tiered
water rates could be used much more effectively to
provide potable water for essential household use at low
cost, while charging the full delivery cost of larger
volumes of water used for irrigation in gardens or
wherever. In fact, more and steeper tiers with better
comport, with core expectations than water rate tiers
reflect the cost of delivering water.

Fixed charges may make it easier for water
agency planning, but they are unfair. Tiered rates based
on employment could also be extended to commercial and
industrial water users. High-volume uses of water for
irrigation or certain industrial uses would thus be
incented to work with urban water agencies to make
maximum use of recycled water.

Tiered rates could also be applied to
agricultural lands. Again, the cost of irrigation water for agriculture should not be based on the amount of land you own, but on the number of jobs the farm provides. Of course, rural delivery of water would continue to be much cheaper than water delivered for urban uses. But it should not be a free ride. For too many years I've seen water sprayed high into the air over the Central Valley fields on hot summer days. I've also seen water sprayed into the air when it's raining. Central Valley fields, like those in peoples' gardens, must be served water at a high enough price that they will honor it and treat it with respect.

I urge you on the State Water Resources Control Board to declare new expectations for water use in California. Natural agriculture will be protected. The claims of First Nation peoples to preserve their cultural fishing practices will be protected. And the state will accommodate urban and rural population growth, not by diverting evermore water from its natural purposes, but by using less water much more wisely.

VICE CHAIR SPIVY-WEBER: Thank you.

Carlos Martinez for two minutes and then Stephen DeBerry.

MR. MARTINEZ: Good afternoon Madam Chair, members of the Board. My name is Carlos Martinez. I'm
the City Manager of the City of East Palo Alto. For those of you that may not be familiar with the City of East Palo Alto, we're a small community about 30 miles south of San Francisco. To the north we're bordered by the City of Menlo Park and to the west by the City of Palo Alto. However, we're not the City of Palo Alto, even though East Palo Alto is in the middle of Silicon Valley, in the Valley of Wells. We are composed of a minority and disadvantaged community. About 65 percent is Hispanic, 15 percent approximately is African-American and we have a good percentage of Pacific Islander, about 7 percent, and the rest are other races.

When the city was incorporated we received a relatively small water allocation of 2 million gallons a day. And we have been conserving, conserving, conserving to the point that we are actually using about 43 gallons per capita per day, which is much lower than the BAWSCA region that uses approximately 60 gallons per capita per day, or the state average.

Due to that the City Council had to pass a Water Connection Moratorium last September. As a result of it we have been processing, but we won't be able to entitle a number of projects. Just to mention a few, we have a couple of projects that are proposed that would create 1.4 million square feet of space, which creates a
substantial number of jobs for our community. There is the primary school. This is a project proposed by the Zuckerberg Foundation that would provide quality educational opportunities for low-income residents in East Palo Alto. And not only that, but also support health services, wrap-around services, for approximately 500 children to have better educational health opportunities. All of that has been -- is impeded by the limited amount of water.

And if I may just, to wrap up, the point is --

VICE CHAIR SPIVY-SIDE-BEER: Very quickly, very quickly.

MR. MARTINEZ: -- yeah, the point of my testimony is to urge the Board to consider these types of impacts and also allow time for negotiative voluntary agreements to take place, so that the SED goals are achieved while mitigating the potential negative impacts to minority and disadvantaged communities.

VICE CHAIR SPIVY-SIDE-BEER: Thank you.

MR. MARTINEZ: Thank you for your time.

VICE CHAIR SPIVY-SIDE-BEER: Stephen?

MR. DEBERRY: Hello, my name is Stephen DeBerry. I run an investment firm called Bronze Investments, which focuses on social-impacted investing. We're in the business of supporting companies that have
products or services that have a positive impact on lower-income communities, like East Palo Alto. Our investment strategy we describe as an eastside investment thesis. We're really working to address the fact that East Palo Alto has such radically different life experiences than, literally, the other -- if I had my high-school quarterback arm I could still throw a rock across the freeway -- to five times more jobs.

What I can tell you that I think is a non-obvious but really important thing to understand, is that in the middle of Silicon Valley where property prices have gone up 75 percent in the last 6 quarters, 18 months or so, East Palo Alto is basically the only community that has undeveloped land. And in a market that is spiking the way it is you might ask yourself, "Why is no one developing property in East Palo Alto?" The reality is -- and I'm living this reality, you can go into East Palo Alto, you can invest the capital to buy land. You could invest the capital to build a building. What you can't do is get an occupancy permit from the Fire Department, because there's not enough water to flush toilets, have people wash their hands.

And this matters. It's not just about real estate, but ultimately what it is about is the jobs that would come with those buildings. And in a community like
East Palo Alto that's struggling to increase its property
tax base. And to keep the people of color who have been
in that community there instead of being pushed out of
what is arguably the most, the deepest economic
inflection point in human history, we need to have more
water, so that we can build and bring in the kinds of
companies that will give job access to the folks who are
already there in that community.

   So look, I'm a fisherman. I'm a patriot of the
state. I love the outdoors and support everything that's
been said, but I want a full consideration of the species
including the people in East Palo Alto.

   So, I'd urge you to consider and support this
negotiated settlement.

   VICE CHAIR SPIVY-WEBER: Thank you.
   MR. DEBERRY: Thank you.
   VICE CHAIR SPIVY-WEBER: Next will be the
California Department of Water Resources.

   And then we'll follow that with 10 more people,
but I have an offer. For those who are willing to speak
for just one minute, you can line up here and speak for
that minute and jump the queue. So, if anyone is willing
after the Department of Water Resources makes their
comments, please line up.

   Go ahead. Thank you, Mark?
MR. SALLABERRY: Good afternoon, my name is --

VICE CHAIR SPIVY-WEBER: No, no, no --

MR. SALLABERRY: -- is Joe Sallaberry. I am a
farmer from Turlock. And I bought my farms, one of them,
in 1965 and the other one in 1983. And I struggle. I
mean it was hard to make my payments, so I started doing
pump work. And I did night work, service work, 24-hours
a day for 35 years. I made the payments on my ranch,
both of them paid for. It'll be three years ago I made
my last, final payment. Now, when I bought those ranches
I didn't see in my deed anything that says that you guys
own my water, EPA own my water. I didn't see any of that
in my deed.

And you really guys, think that --

VICE CHAIR SPIVY-WEBER: Are you speaking for
one minute? If you are, then you should sit down. Thank
you.

MR. SALLABERRY: Okay. Let me -- that guy --
the environmental demonstrator, he took quite a while.
So let me finish it?

VICE CHAIR SPIVY-WEBER: Okay. Finish it.

MR. SALLABERRY: -- let me finish it, because
you've got something to hear. This is getting ridiculous.
You guys are getting like a runaway truck without brakes
going down in the hill. This is unreal.
VICE CHAIR SPIVY-WEBER: Okay, thank you.

MR. SALLABERRY: This has got to stop.

VICE CHAIR SPIVY-WEBER: And could you give your name to the court reporter?

MS. TOWNSEND: We already have it.

VICE CHAIR SPIVY-WEBER: Oh, we have his name.

Okay, that's very good. Thank you so much, sir.

And now we will hear from the Department of Water Resources.

MR. SALLABERRY: How would you guys like to pay 60 percent of your wages to support this, because that's exactly what you're trying to take out of my paycheck.

VICE CHAIR SPIVY-WEBER: Okay, thank you.

MR. SALLABERRY: Sixty percent, would any of you guys want to pay 60 percent of your paycheck? If that guy in there wants to pay 60 percent of his paycheck to support this --

VICE CHAIR SPIVY-WEBER: Thank you. Thank you, thank you, thank you.

MR. SALLABERRY: -- because that's exactly what you are asking for me.

VICE CHAIR SPIVY-WEBER: Could we have -- could you -- from the Department of Water Resources?

MR. SALLABERRY: Let me give you my card.

You're welcome to call me anytime.
VICE CHAIR SPIVY-WEBER: Okay.

Go ahead.

(Colloquy off mic to set up panel.)

MR. HOLDERMAN: Good afternoon Vice Chair Spivey-Weber and members of the Board. My name is Mark Holderman. I'm the Chief of the South Delta Branch in the Bay-Delta Office of the Department of Water Resources. And I'll be presenting today, a brief summary of the key topics of interest to the Department, which will be also detailed in our written comments that we're providing by March 17th. And I'll see if this clicker works.

(Colloquy re: presentation setup.)

VICE CHAIR SPIVY-WEBER: If you don't mind, I'll call a couple of public? For those who want to speak for just one minute, we would love to hear you. But be sure and slowly say your name and your affiliation.

MS. LASENSKI: Elizabeth Lasenski, Davis, California. I'm here on behalf of the salmon and the other fish.

I just want to say that the salmon are essential to the environmental quality of the Delta. And actually to consumers like myself, they're very important. And according to the 2010 State Water Board
Report, 60 percent of unimpaired flow between February and June would be fully protective of fish and wildlife. And I urge you to go with the science and respect the science and go with that recommendation. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

MS. SCHUELER: I'm Margo Schueler. I'm speaking for myself as a retired pipeline construction superintendent for one our major metropolitan water companies. Ten percent of the water, in this state it's considered a good record in the urban infrastructure if only you're losing ten percent through leaks. The infrastructure crisis is sucking our rivers dry.

If we fix the pipes, renew our infrastructure and make the investment in our urban distribution systems we don't have to have this argument about the rivers and taking more water out of them.

Thank you.

MS. SILVA: Hello, my name is Alyce Silva. I am a member of the Denair FFA and I am currently serving as the Denair Chapter Historian. We are located in the Stanislaus County and agriculture has an immense impact on all of our lives in the community.

I was born into a agricultural family and have been raised around the ag community my entire life. My dad and his siblings owned a family dairy and it was sold
two years ago. Since selling, my dad has worked for another family-owned dairy/farm. The dairy has two sites, each around 2,000 cows, with a total of about 4,000 cows between the two sites. Along with the cows this family has many acres of land that are used to grow, which is necessary, to feed the animals.

If the proposed Plan takes effect we are forced to send more water into the Bay-Delta for fish and wildlife use. Many families will suffer. Not only will people like my dad be in danger of losing their job, but prices are going to skyrocket. If we are not able to grow our crops locally, because of a shortage of water, we are going to have to import the crops from foreign countries. This will increase costs for farmers all over, which will in turn require them to raise their prices in order for them to see a profit and be able to pay their employees with feed -- and their families.

This price will increase direct affect to consumers. We will see prices for meat, fruits, vegetables and nuts, and any other agricultural related products -- if the Bay-Plan Delta goes into action, we will all be left struggling for the sake of a few fish.

Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

MR. PROCK: Good afternoon. My name is Bryson
Prock and I am the current Vice President of the Denair FFA Chapter at Denair High School. Denair is a small community, on the outskirts of Turlock. Our small community is big on teamwork and everyone carrying their own weight. I saw this firsthand as one of the only 16 young men who played on our varsity football team, that at one point played a game with only 12 players and won against teams twice or three times our size. We'd held them scoreless. How did we do this? Teamwork.

I represent the third generation of my family, who works in our family dairy, hay, and beef cattle business. Together my family overcomes great challenges and obstacles such as low prices, labor challenges, or other regulations you propose. How do we do this? Teamwork. What your staff has proposed is a one-sided approach to solving a multidimensional water framework within our expansive state. There is no teamwork. And this Plan is all about forcing farmers and communities into doing things the way you want them done.

My dad has often been heard saying, "If we all row the boat together, we will get where we want to go faster. If we all row on our own, all we will get is choppy water." Please quit rowing on your own and row together with our communities.

Teamwork is more -- is how we move mountains,
so please join the team whose lives depend on agriculture
and let's work together to make California great again.

VICE CHAIR SPIVY-WEBER: Thank you.

Now, Mr. Holderman? I don't think we can have
any more disruptions. I don't know.

MR. HOLDERMAN: Well, I'm just rolling with it,
it's fine then. Actually, I would like to also again,
say that DWR appreciates the opportunity to review and
comment on the Board's draft revised SED. We recognize
the hard work and the long hours that you and the Board
staff have put in to developing this SED. And the
tremendous effort yet to come as you review and consider
the comments from so many stakeholders.

We found portions of the SED to be well-
documented. However, for the reasons I'll mention today
and we'll provide in our detailed comments, we suggest
various revisions to the SED to make it more factually
accurate and consistent with California Water Law.

Our comments will focus on the remaining topics that I
have on this outline slide.

An overarching comment on the SED is that the
document, including its implementation plan, contains
language assigning responsibility for portions of the
Water Quality Control Plan to specific parties, including
DWR. Such assignments should be reserved for Phase 3 in
the Plan update, because the Plan update provides a
foundation for considering the implementation elements in
a subsequent proceeding.

DWR believes it is inappropriate to include
language within the Water Quality Control Plan and SED
that dictates a result during the subsequent Water Rights
hearing. This would be contrary to the procedural
protections afforded to DWR and other affected water
rights holders. It is the position of DWR that all
language assigning responsibility to a particular party
or parties within the SED and the proposed Water Quality
Control Plan should be removed.

Furthermore, any measures to protect beneficial
uses that are related only to flows and water allocations
should be postponed to the Water Rights phase the Board's
proceeding.

Regarding the San Joaquin River flow
objectives, DWR believes that the SED relies, in part,
upon incomplete and out-of-date scientific information.
The SED also lacks information on the impacts of
predation on salmonids. It does not consider the Delta's
historic flooding and saltwater intrusion.

One consequence of this reliance is the
mistaken conclusion that there exists consensus about the
benefits to fish species of a barrier at the head of Old
River. The SED fails to acknowledge that there are various regulatory agencies prescribing the actions related to the barrier, which may lead to incompatible operational requirements.

DWR believes that unimpaired flow objectives are ill-suited for real-time operations. While theoretically feasible, there are several hurdles that must be overcome before water project operators can use computed unimpaired flow for real-time operations. The primary hurdle is that some of the necessary data are not available in a timely manner.

We also question a primarily flow-only approach to protecting fish. DWR recommends a more flexible approach that takes into consideration other actions to protect fish species, such as EcoRestore and the Delta Smelt Resiliency Strategy. It is only through a careful analysis of flow and its intended benefits that SED will adequately analyze how to protect beneficial uses.

MR. MOORE: Yeah, on this point I can't let that go without having staff perhaps provide a little bit of a clarification.

Clearly, unimpaired flow is carefully calculated metric the Department uses. And yet, as we've discussed extensively for days, this can be a surrogate for real-time flow in terms of real-time operation. So,
my question is can't we achieve, with basic flow-
monitoring technology, some information that's more real-
time on a 3-day basis that is not strictly academically 
unimpaired flow as calculated by the Department, but 
something that's akin to it that could be operationally 
useful?

MR. GROBER: The detailed answer to this 
question is something that we're going to have to answer 
when we get into the implementation, but you're 
identifying the tension that we saw this morning. The 
why a 3-day or even an instantaneous is better. 
Somewhere between the instantaneous and a 7-day becomes - 
- we just start pushing against what is feasible in terms 
of measurement.

The Department already posts information in 
terms of real-time flow. If you look at that daily 
information it's kind of glitchy, because it relies upon 
estimating storage in reservoirs, determining numbers by 
difference. All of those things, once you get to a daily 
time step become very hard to measure. But it starts 
evening out over some time period. Seven days seems to 
be a potential sweet spot there. The last time we went 
out, we went out with a 14-day. A 14-day, you really 
start losing some of those optimal conditions.

The bottom line is to the extent that you
cannot precisely measure it in real time this is
something that you can always catch up, because the
requirement would be based on ultimately what does come
down. So it's really not much of an issue in terms of
determining the days, because you might not know it
exactly day to day. But you certainly will know it in
sufficient time in arrears to operate to it.

MS. D'ADAMO: But in follow-up isn't unimpaired
-- I mean, this is -- I actually think a block of water
and adaptive management through a settlement process,
ideally, where you've got a whole team of people working
on the needs of the river in combination with non-flow --
I think that's probably the best way to go. But in the
meantime, we're using unimpaired to calculate a block of
water, because we're talking about using flow shifting
anyway. So, it's not being used.

I mean, whether it's 3-day or 7-days in that
chart that Board Member Moore, you called out that NOAA
had, about how it was -- it can be a little bit unartful
at times if you use a certain running average. In the
end, isn't it going to get down to, or shouldn't it get
down to functional flow? And so this block of water
wouldn't be used as unimpaired flow. It would be used as
a block of water that a team would determine what's the
best, highest use for that water.
MR. GROBER: Well, that's precisely one of the reasons to try to operate down to that 7-day and if possible even shorter, because that becomes -- that's one of the functions as was shown is important in terms of cueing various biological functions.

That being said, there is difficulty with it. This can always be trued up in measuring that block of water. We shouldn't lose sight of the fact that the current objective is based on unimpaired flow, the determination of water year type. And then backing up from that, on having a flow requirement. All of it a month in arrears. So that's far less than optimal than the proposal, which is trying to both tighten up the operation to achieve some of those -- some of the peakedness and some of the cueing and the timing -- to agree more with the what's happening in real time, but mindful of the difficulty of doing so.

So, it's trying to achieve really, the best of both worlds.

MS. D'ADAMO: Right. But I mean, the --

MR. MOORE: Yeah. Because I have to say, Board Member D'Adamo, my ideal is real-time operation. I mean, I respect the block of water approach. I think we can accomplish a lot. So I'm not absolute, but I think where possible agreements and real-time ability to deploy has
to be built within it. Otherwise, it becomes biologically meaningless. So I think what Mr. Grober is saying is there's a balancing here between the approaches.

MS. D'ADAMO: Yeah. I mean, I was going to get into this at the end, but now might be a good time as well. If you look at Table 3 -- and there's a lot of talk about flow shifting, carryover storage -- but the objectives are in Table 3. And Table 3 has unimpaired flow and it's the 30, 40, 50 percent range.

And probably what we should do -- now's not the time to debate this and get a legal analysis -- but I think we should as we follow up with staff, get a better understanding. It gets back to the issue that was raised on day one and that “what is the project?”

So the project that's being analyzed, and I know you had a chart or a slide on it, that it's contained in Appendix K. Appendix K, my understanding is the Program of Implementation, it's how it would be implemented. But the objectives have an unimpaired flow and it doesn't have anything in there on flow shifting. It doesn't have anything in there about this flexibility of the block of water.

So, I agree. I'd call it tension. I'd call it a legal tension as well.
MR. MOORE: Anyway, yeah. So you're not going
to make comments on the flow standard without getting a
big discussion up here.

MS. D'ADAMO: Yeah.

MR. MOORE: But I'm sure we'll have more
discussions with you, with the Department about this
concept, because I don't think I got the whole story in
your overview there.

MR. HOLDERMAN: Well, I agree. I think a
workshop with our staff and your staff to go over,
particularly our operators, on how they operate the
releases from the reservoirs and the travel time and all
that in trying to figure out if they can do that in a
real-time situation, which right now I don't they can.

So, moving onto this slide on water quality the
SED contains inappropriate and erroneous information on
water quality within the south Delta. Including water
levels within the SED is inappropriate, as water levels
do not affect water quality. Assimilative capacity of
local channels is related to net flow, not water levels
or tidal flux.

And it has been shown frequently in passport
proceedings that the temporary barriers in the State
Water Project pumping do not change net flow in the south
Delta. Temporary barriers are installed as mitigation
for the SWP impacts. And water levels are designed to maintain or improve circulation in the area when compared to what would be present, absent the barriers in State Water Project pumping.

The barriers are not specifically designed to improve water quality, but by sometimes modifying the culvert openings to improve circulation, which by the way is always at the expense of water levels, the barrier can sometimes, but not reliably, improve water quality in poor circulation areas that are upstream of the barriers.

While the Board has in the past has recommended DWR continue to install the barriers, DWR does not agree the barriers should be required by the Board in a Water Quality Control Plan or a Water Rights Order, because the barriers are not a significant or reliable tool for meeting south Delta water quality objectives that DWR, frankly, should not be responsible for.

DWR does not degrade water quality in the south Delta. The salt loadings in the south Delta occurs from salts centering in the south Delta at Vernalis and agricultural and M&I discharges in the south Delta downstream of Vernalis. DWR does not discharge salts in the south Delta and has no reservoir on the San Joaquin River from which we can release dilution water.

The exports from the south Delta at Banks Pumping
Plant removes some salts from the system, but the pumps are used in a dynamic sense to provide water supplies to south of Delta customers and to minimize adverse impacts to protected fish. Therefore, it is not practical to use the pumps for south Delta salinity control, as this may have unintended adverse impacts to export water supplies and fish.

Regardless, the removal of salts from the south Delta area due to export operations will have little effect on south Delta water quality objectives.

As to the factors that do impact water quality, DWR has conducted many years of data collection analyses regarding impacts to the State Water Project on south Delta water quality and hydrodynamics. Tremendous staff time and effort continue to be dedicated to gathering and validating that information.

Because of these efforts, DWR and the Board possess sufficient information to appropriately assign responsibility for south Delta water quality objectives. Therefore, the SED should be modified to reflect the actual impacts in the State Water Project on south Delta water quality. Namely, that DWR's operation of the State Water Project export facilities and the temporary barriers improves water levels for local water users, maintains net flows, maintains or improves circulation,
and can occasionally improve water quality in the south Delta from what is otherwise naturally available.

The SED recognizes that there is a considerable amount of salt loading in the south Delta downstream of Vernalis, which occurs primarily through local drainage return flows. The additional salt load is not attributable to either the CVP or the State Water Project. And it is not reasonable to expect the water projects to control it. The SED documents this when it proposed 0.7 EC at Vernalis and 1.0 EC in the interior south Delta compliance stations during the spring and summer irrigation season. DWR agrees with that proposal.

However, if the Board is to set reasonable objectives for salinity in the south Delta it should also allow for the degradation of water quality in the fall and winter months by setting salinity objectives downstream of Vernalis at a higher level than the objectives set at Vernalis. This change would account for the high salt loading from normal agricultural soil leaching that typically occurs in these months.

Although the SED evaluated and discounted a 1.4 EC year-round objective at the interior locations, DWR recommends a 1.3 to 1.4 EC objective during the fall and winter months when the Vernalis objective is 1.0 EC.

DWR recently contracted with consultant ICF to
conduct a study and report evaluating salinity patterns and effects of tidal flows and temporary barriers in the south Delta. The study identifies the source of high salinity water in Paradise Cut and Sugar Cut and explains how this higher EC water is tidally mixed with the Old River flow and increases the measured EC at the Old River near Tracy Road Bridge Station, or the ORT Station, as we call it, the "Old River Tracy."

The report provides an increased understanding of the south Delta channel flows and salinity patterns. It explains the effects of CVP and SWP pumping on south Delta salinity. And it demonstrates that export pumping and barrier operations do not increase the measured EC at the ORT Station or the frequency of D-1641 exceedances. This report, which we are -- just completed, will be available to the Board and will be available online to the public early this month, probably in a week or two.

In addition to this recent study and report, it has been repeatedly shown by past field studies and reports that salinity at the ORT Station is heavily influenced by saline return flows that originate in Paradise Cut and Sugar Cut. Consequently, it is not reasonable to set salinity objectives at this location. It may be more reasonable to continue the Middle River and Brandt Bridge locations as compliance stations. The
DWR recommends that the Board discontinue using the ORT station as a compliance location.

The objectives for the proposal alternatives include meeting water quality objectives throughout channel reaches, rather than through previously specified compliance locations that are in D-1641. Such an approach to monitoring water quality would place additional responsibility on DWR to control for in-Delta diversions and discharges, factors that DWR cannot influence.

Flows downstream to the compliance locations at Old River at Tracey Road Bridge and Old River at Middle River are naturally low during the irrigation season. Modeling indicates that almost all the incoming flow is diverted by in-Delta uses. And the reduced amount of flow returned to the channels is of worse quality. Therefore, controlling and monitoring for water quality within channel reaches could be very difficult and costly. Nonetheless, DWR believes it should not have the responsibility to ensure water quality within the south Delta.

DWR also has concerns with respect to the SED and evaluation of impacts to groundwater and implementation of Sustainable Groundwater Management Act, or SGMA. The SED acknowledges that groundwater in basins
subject to SGMA will be impacted by the increased flow alternatives, some of them significantly.

The SED also assumes that groundwater sustainability plans can bring the basins to sustainable conditions without considering the impact of additional groundwater pumping caused by meeting the proposed alternative flow requirements. Deflecting the burden to address unquantified impacts from additional groundwater pumping to the groundwater sustainability agencies would result in a failure to reach sustainable groundwater management in the basins.

The SED states the annual average groundwater balance can be expected to be reduced in terms of the equivalent about one-inch across the subbasins. It isn't clear what this means, as the adverse impacts cannot be evaluated or compared when pumping is expressed qualitatively and location-specific information is not provided.

DWR believes that the extent of impacts of groundwater pumping should not be averaged across the entire basin. DWR recommends the amount of additional groundwater extracted to replace the loss of surface water deliveries should be expressed as a volumetric unit, such as acre-feet, and be location specific.

Also, the groundwater data are not current and
are not reflective of groundwater conditions affected by the current five-year drought. Groundwater extraction and subsidence has increased significantly during the drought and groundwater elevations have not recovered. DWR recommends the starting point for the evaluation of the alternative should reflect current groundwater conditions, should be more location-specific, express impacts in quantifiable units, and take in consideration future climate change impacts.

MS. D'ADAMO: I have a question on that last slide. So we had a speaker -- I wish I could remember who it was, maybe about five back -- that said that our staff's analysis is inadequate on groundwater and that it should analyze the SED with SGMA. And that the Department has some information that our staff could use in developing that analysis. Is that accurate? Do you have information that could help our staff in the development of an analysis with SGMA?

MR. HOLDERMAN: Well, I'm not the expert in groundwater. We do have an expert here that may be able to answer that question if you'll allow her to come forward.

MS. D'ADAMO: Yes, I think it'd be helpful. And I'm not remembering -- does anyone remember? The speaker mentioned a couple of reports that are readily
available at the Department.

MR. GROBER: I think it might have Terry Erlewine with the State Water Contractors.

MS. D'ADAMO: Oh, that's right. It was Terry, yeah.

VICE CHAIR SPIVY-WEBER: Be sure and identify yourself and clearly your affiliation with the Department.

MS. SCRUGGS: I'm Mary Scruggs. I'm with the Department of Water Resources and I work in the Groundwater section.

I'm not sure what report is specific, but SGMA is just starting right now. And GSAs, groundwater sustainability agencies, and the groundwater sustainability plans, are being developed. The GSAs are required to put together by April of this year. Plans are not due until 2020 or 2022.

And so, there is a lot of existing data. The data that was used in the SED went up to 20 -- I mean, sorry, 2010. It doesn't include information on groundwater from the drought. And so the conditions have worsened, as Mark had said in our comments, and so that starting point should be from where it is. So SGMA is requiring local agencies, the GSAs, to bring the groundwater basins to be sustainable by 2020 or 2022.
Several of these basins are critically overdrafted. The additional requirements of groundwater pumping on unimpaired flows would increase that burden onto the groundwater, but it's unclear -- it's not quantitatively described in the SED -- to how much. So, they're already working at a deficit. What further deficit are they going to have to be working at to be able to be sustainable?

So, hopefully -- and there is data available on groundwater levels, but there's also a lot of holes in groundwater. Groundwater is one of the ones we just don't have all that data. And you can't go back and get historical data if it wasn't already collected. So it's moving in the right direction, but there's a lot more work to be done.

MS. D'ADAMO: Well then how would you, if you think it should be a more specific detailed and quantitative analysis, how would you recommend going about that?

MS. SCRUGGS: If you're going to -- what volume would be taken out and what basins would that be? So what would that be extracted and where are they now? And so what's that additional part that would be taken of where they are. That's what would be needed. Does that help?
MS. D'ADAMO: Yes. And do you have any information that could assist in coming up with a range of what a potential groundwater management plan would look like in terms of the range that would be needed for the basin to rebound?

MS. SCRUGGS: There's several sources. There's existing data that we have, there's local agencies that have groundwater management agencies or irrigation districts. The Department released the regulations on what's needed in the groundwater sustainability plans, so it would be a matter of looking at the particular subbasin. What volume would that be considered to be -- would be replaced, the surface water that would be replaced by groundwater -- and looking at it in a specific subbasin.

And that's what will be looked at in preparing and developing the groundwater sustainability plans. And in these areas that are critically overdrafted, they are going to have to figure out what do they reduce or how do they bring in more supplies to recharge that groundwater. So, additional burden of pumping on the groundwater is just it's digging a deeper hole, so how do you dig them out?

And the way the SED was written, is it acknowledges that it will have a significant impact, but
it also plays off saying that SGMA will take care of groundwater. Well, SGMA can't take care of groundwater, unless everything is taken into consideration. So in areas where you've got critically overdrafted basins and you're putting more burden onto it you're going to worsen the situation. So, is it tipping the scale to make it no longer sustainable? Or what will happen?

I mean, it's going to take years to be able to get these basins to recover.

MS. D'ADAMO: Okay. Thank you.

MR. MOORE: I actually think based on the staff's briefings over the last couple of years we have taken recent groundwater data into account. We've looked at 2014 pumping rates -- I mean, correct me if I'm wrong, but I don't know if I agree with this bullet that I'm looking at right now as far as we haven't taken any of that, the drought, into account.

MR. GROBER: I think we can all agree that groundwater is a big issue that will have to be resolved, but we used the best data that we had in front of us. So, I think what I've heard is that there haven't been other reports that have come up with the storage levels, the groundwater pumping rates. But we have. And I'm just looking in the Executive Summary, where we've exactly tried to do that. And we have a groundwater
chapter where we've done a mass balance, where we have quantified the increase in groundwater pumping that we think would occur based on 2009 rates of groundwater pumping, recognizing that that's lower than the full capacity, based on 2014. And I think as I'd said earlier, mindful of using a number that is less unsustainable.

What the sweet spot is, what is sustainable is an impossible question to answer. I expect there will be a lot more information in the next few years, but we did do that analysis to look at any number of ways what the current levels of groundwater overdraft are and how this would increase those rates of groundwater overdraft.

MR. MOORE: That's right. And also, this is a water-supply-focused discussion. And I haven't heard anything about water demand management in that discussion yet, as far as SGMA goes. Thank you.

MR. GROBER: And that's correct. Thank you for that, because I think it's worth pointing out that the principle effect of the proposal would be to reduce the quantity of surface water available. That will have an effect. And then the next effect that we see would stem from that would be some level of increased groundwater pumping. But the project itself is certainly not requiring or advocating increased groundwater pumping,
it's just observing what has happened when there has been
water shortage.

MS. D'ADAMO: If we could get back to -- one of
the things that I found confusing in going through the
staff analysis is this metric for determining an impact,
so many inches. And I think what I'm hearing you say is
that we shouldn't be looking at it from a broad level, we
should be looking at the local subbasin. And that
information, at least the current state, is compiled --
the current information that you have is compiled by
subbasins.

MS. SCRUGGS: Correct. If you average it
across the entire subbasin, you know where are the wells
actually going and where's the pumping? So, if all the
pumping is in one area, averaging it across you've now
averaged it, so you're not really seeing what's
happening. Groundwater is very location-specific. So
depending upon is you're aquifer more productive in an
area. Do you have area subsidence? Are you increasing
that? It's location, location, location.

The data that was used in the reports that were
referenced was DWR reports and it was a groundwater
report, but it was based on data up through 2012 --
sorry, 2010 and 2009. We haven't compiled further than
that, because that was last we've done.
There is data out there and it's available, but it's a matter of compiling it and getting it and evaluating it. And that's what will be happening under SGMA on the basins and on developing these sustainable groundwater management plans, they'll have to be looking at their specific basins and getting that data and bringing it up to date. But there's been a significant impact to groundwater with the drought over the last four or five years.

MS. D'ADAMO: Yeah. And I'm just thinking that with all of the testimony that we've had from disadvantaged communities and concerns about drinking water wells, schools, and in certain communities like Planada, and I think Denair, it does seem that those impacts already are quite localized. And I don't know enough about what's causing those localized impacts. Is it the -- are we talking about shallow wells? But there are shallow wells throughout the region. But these are communities that seem to get hit. And so it does seem that spreading it out through across the entire subbasin isn't going to give us the information that we need in order to determine those disadvantaged community impacts that have been highlighted.

MR. GROBER: But I think as you are hearing
here, we don't have that, the detailed information, certainly not in reports. So we've done actually quite a bit for a programmatic analysis to know what the overall effect. And we say some words that we can't know exactly where these are all happening, but we do identify that there have been locally areas that have already groundwater problems. And that they are not going to get better with having reduced surface water availability.

MR. MOORE: I think this gets to the issue, and it's a bit of a legal issue, but in terms of are we doing an adequate job of describing the potential impacts? And how much granularity is necessary? And what kind of threshold of significance that we need to do for this exercise? I mean, we're definitely encouraging comments on this. If we're too coarse in our analysis, and as you point out there may be specific areas that are vulnerable in the SED project area, we're listening. But in this discussion I didn't hear a lot of detail from DWR saying, "Oh, you ought to look at this report, because --" or "This new CASGEM data really gives insight into this area. That should be highlighted in the SED."

So I just want to manage everyone's expectations here. This is a disclosure of potential impacts. It's really dependent -- the level of granularity of this analysis is dependent on available
data. We can talk about, academically, what we've missed
and all the important points about hydrogeology and its
heterogeneity. But there's available data. And then
there's an acceptability, to some degree, to accept a
qualitative analysis of disclosed impacts. I don't know
if you have any comments on that.

MS. WON: Well, yeah. I would echo your
statement that we can only do what's reasonably
foreseeable. And that's the standard by which we are
going to be held in a court of law.

MS. D'ADAMO: So I'm going to just jump in
here. I think that that's a good way to describe the
issue is what is legally required of us? But on SGMA in
particular, this is a top priority for the administration
and so is drinking water. And so I think --

MR. MOORE: For this Board.

MS. D'ADAMO: Yes. So, I think you may be
correct from a legal perspective. I think from a policy
perspective we need to do more, to the extent that we
can. And so, if you do have some reports that you could
help identify to turn, to point staff in the direction it
would be greatly appreciated. Because I think that we
have an obligation from a policy perspective to do more
on the SGMA issue.

And I know there was a slide that staff had on
today's presentation on the disadvantaged community issue, in saying that -- there was the last bullet there, I'm looking for the slide, I'm not pulling it up here -- but that the disadvantaged community analysis would be done as part of groundwater sustainable plans. That's not something we should be kicking down the road. I mean, that's something that we should be looking at to the extent that we can incorporate it into the analysis.

VICE CHAIR SPIVY-C WEBER: Go ahead.

MR. HOLDERMAN: Okay, I'll be wrapping up quickly. I'll just talk about climate change and then move to my summary slide.

The last update of the Water Quality Control Plan was over a decade ago and flow objectives for the San Joaquin River have not been updated for over two decades. During that time our understanding about climate change impacts has substantially improved. However, the knowledge has yet to inform the Water Quality Control Plan and in fact, will not significantly do so, even in this update as the hydrologic analysis for the Water Quality Control Plan does not consider future climate change impacts.

Further, continual updating of the Water Quality Control Plan will continue to include the hydrology of the past, which is becoming increasingly
irrelevant for water resources planning. For instance, the continued inclusion of hydrology from the first half of the 20th Century will dampen the impact of the increased variability experienced in the last half of the 20th Century and the markedly increased warming experience since the turn of the century.

Since Water Quality Control Plan update processes can last 10 to 20 years, or more, the SED evaluation of impacts should consider future climate change impacts as part of the analysis.

This last slide is a summary of the major topics I wanted to talk about today. The key issues I'd like to leave the Board with are: Consider other actions besides flow that can potentially be more effective at protecting fish.

Assign responsibility for water quality degradation to those responsible for the degradation.

Recognize from years of modeling and study data, including a recent report that you'll soon see, that south Delta's salinity problems are not caused by the State Water Project.

Revise salinity objectives that account for degradation downstream of Vernalis in the fall and the winter months.

Recognize that the Old River Tracy Station is
not a reasonable compliance station for measuring overall
south Delta water quality. And compliance by reach is
going to be very problematic.

And also apply DWR's recommendation that the
Board's SED include groundwater and climate change
impacts.

That completes DWR's presentation today. We
appreciate the opportunity to provide our oral comments.
We'll soon be completing our more extensive and detailed
written comments. And we look forward to working further
with the Board and Board staff as this process moves
forward. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you. Any
questions? Okay.

I have ten cards that I will read off. And if
you could line up, so that you can move in very quickly.
And if you can keep it to two minutes it would be great.
We will set the clock for two minutes. If you have to go
over a little bit to make your point we'll take that into
account, but we'll set the clock for two minutes.

Erika Lovejoy, Victoria Guinard, Jonathan
Moules, David Aladjem, Charlene Woodcock, Joe Daly, Larry
Kolb, Erik Young, Peter Mangarella, Alicia Thompson.

Go ahead, Erika.

MS. LOVEJOY: Hi. I scheduled mine for three
minutes, but I'll do my best. I --

VICE CHAIR SPIVY-WEBER: Please do.

MS. LOVEJOY: Okay. I'm Erika Lovejoy with Sustainable Conservation, a nonprofit that's working on water issues statewide. We recognize the urgent need to address the species declines and ecosystem changes that occurred in the San Joaquin River and Delta system and we appreciate your effort to do a balanced approach.

In order to address the problems impacting the environment in local communities we believe that a fully integrated approach is needed. And that should take into account not only an adaptive strategy for managing flows in wet versus dry years and implementation of non-flow restoration actions, but also water conservation, agricultural water use efficiency, and groundwater recharge at a meaningful scale.

Then further evaluation also needs to be made too, and options spelled out for disadvantaged communities, as you all have been talking about. We think that's really important, especially with the anticipated increase in groundwater pumping that's likely to occur.

Now, we're going to submit more detailed comments on those items, but today I'd like to recommend specific actions for the Water Board to encourage
development of settlement agreements that include a wide
spectrum of non-flow action. So, we strongly believe
that increased flows in the San Joaquin system must be
accompanied by badly needed habitat improvements in order
to adequately address fish and wildlife beneficial uses.

So first, we recommend creation of a roadmap to
help potential project proponents to understand how to
acquire partners and to plan, develop, and implement
restoration projects, okay? So restoration isn't
necessarily a key area of expertise for many water
agencies. And guidance on how to get the work done is
really needed.

Next, there's also a need to help identify
potential funding sources and collaborators for projects.
And the Water Board could dedicate regional staff to help
identify viable projects and help to store them along
through the permitting and implementation process.

Finally, we believe that programmatic, or
simplified permits, should be developed now to cover a
variety of estuary restoration actions. If you're going
to get these projects done, you can't wait till later, so
that would definitely save time and money and get more
projects done and create a lot of incentives. Because
otherwise, if some of these actions aren't taken into
advance I'm afraid that folks aren't going to pursue
these voluntary settlement agreements.

VICE CHAIR SPIVY-WEBER: Thank you.

MS. LOVEJOY: Thank you.

VICE CHAIR SPIVY-WEBER: Victoria.

MR. MOORE: Yeah. And that area of
programmatic permitting, we talk about it a lot. And
different regional boards have advanced this prospect a
lot. And so, we certainly are aware of that and want to
encourage that and appreciate that. It is a multi-agency
commitment and so it requires our Water Boards to work
the other permitting agencies, but certainly, are very
interested in that.

And good to see you Ms. Lovejoy. I haven't
seen you since Santa Clara Basin --

MS. LOVEJOY: Yes.

MS. GUINARD: Hello, my name is --

MR. MOORE: -- back in the '90s. Sorry.

MS. GUINARD: Hello, my name is Victoria
Guinard. I'm with the Turlock FFA. And I'm here more
importantly on behalf of Turlock, along with other
communities as a whole. So ultimately, I'm not here
today to give a spiel about my family, farm or anything
of that nature, because I actually grew up with no
agricultural background whatsoever. I joined FFA simply
to become more involved in any way possible; hence the
reason why I am here today.

However, I do feel that regardless of whether or not I have an agricultural background, agriculture is constantly reflecting not only my life, but impacting my community as a whole, for the simple fact of being that one our greatest socioeconomic opportunities and opportunities for successes. And where we've actually seen the majority of our successes is directly from the agricultural realm, where we've seen job opportunities. Where we've seen students within the FFA program, which is the largest youth organization across the nation, is constantly revolutionizing individuals' mindsets in order to ensure that they have opportunities for success within the future.

So ultimately, today I'm not necessarily advocating for a world where we're not going to see any benefits towards the fish industry. But I'm ultimately suggesting a way in which we're capable of increasing the opportunity for negotiations, where we're going to see the agricultural industry still in the spotlight. Especially taking into consideration the benefits not only on the economic standpoint, but to our day-to-day lives.

We have to realize that it's not just our lives in the future that are going to be impacted, but its
youth organizations where we have 635,000 members within the FFA program; 85,000 of which are residing within California as of right now. That's 85,000 peoples' futures solely anticipated and solely relying on an agricultural industry that were currently jeopardized within the California realm. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

Jonathan?

MR. MOULES: Hello, my name is Jonathon Moules. I'm a senior at Turlock High School and a four-year member of the Turlock FFA Chapter. As you can see, I am wearing the -- (Timer beeps.)

(Laughter.)

VICE CHAIR SPIVY-WEBER: Time's up.

MR. MOULES: Okay. As you can see I'm wearing the blue and gold jacket that you've seen multiple times over the course of these meetings across the Central Valley. And as you can already probably figure out, I'm the son of a farmer. And of course, this proposal will affect our family's livelihood as farmers. But over the past few months there have been many different and redundant testimonies on how the unimpaired flow proposal will be affecting family farms and other professional businesses and organizations.

But one matter has not been discussed -- on how
it'll affect everyday K-12 students. According to the California Department of Education 2015-2016 school year database of how many children are on the free or reduced lunch program, nearly 67 percent of those students in Stanislaus County, 61-and-a-half percent in San Joaquin, and 80.6 percent in Merced County students are on this program.

The Free Lunch Program is granted upon families where their yearly income is at or below 130 percent of the poverty line. And reduced price is granted upon those who are between 130 and 185 percent. And keep in mind that the poverty line for the year of 2016 was about $25,000 for an average family of four.

The Lunch Program requires all students who come into the cafeteria to eat lunch to take the main meal, which can vary from being a sandwich to nachos, to take a fruit or vegetable, and a milk. And which every part of that meal is, obviously, an agricultural commodity. Not to mention how the water quality in schools will fall if more groundwater has to be used. But anyways, the full price of the meal varies from $2.00 to $3.00.

The question that you need to answer is will the estimated jobs being lost affect a number of families needing to use the School Lunch Program? And will the
full price of those meals have to be raised and therefore
decrease the number of students eligible for those free
and reduced lunch programs in the counties stated
previously and other surrounding areas?

    Thank you very much for your time.

VICE CHAIR SPIVY-WEBER: Thank you.

David.

MR. ALADJEM: Good afternoon Vice Chair Spivey-
Weber and members of the Board. David Aladjem, Downey
Brand, here this afternoon on behalf of the Northern
California Water Association. Northern California Water
Association, NCWA, and all of its member organizations
very much appreciate the opportunity to speak this
afternoon and also, the extension of time for comments.
We will be providing extensive comments at the March
deadline.

    The Board is well aware of Northern California
Water Association's interest in the Sacramento Valley.
You maybe wondered why are we here this afternoon on the
San Joaquin. The short answer is that the approach taken
by your staff on the SED, the unimpaired flow approach,
we believe is fundamentally wrong-headed. We believe
that it involves an outdated, regulatory mindset that
especially takes a meat axe to this problem where we
need a scalpel.
What we've been proposing for the last few years, as many of you know, is what we call a functional flow approach. What it does is it starts with Water Code Section 13000, the basis for Porter-Cologne. And it says let's treat all of the beneficial uses as equally meeting in your Water Quality Control Plan. It then says let's look at all of those beneficial uses, all of the needs for the environment, for agriculture, for urban uses and let's figure out what those needs are. And then let's figure out -- and we call this functional flows -- what flows are necessary to meet which specific purposes. Not an unimpaired flow approach that literally says we're going to have a huge amount of water without tying it very closely to the needs of fish or agriculture or urban areas.

This morning Member Moore, you used the phrase, bioengineering -- let me please finish --- and we think that's exactly the right way for this Board to approach it. We urge that you take that type of an approach and rely upon the Delta Science Panel's recent report from November that did not identify unimpaired flows or even flows at all as one of the limiting factors in the Delta estuary.

Thank you very much for your time.

VICE CHAIR SPIVY WEBER: Thank you. And we
look forward to those comments.

Charlene?

MS. WOODCOCK: Hello, my name is Charlene Woodcock. I was born and raised in Arcadia in Southern California. And childhood trips to the desert taught me that I lived in an arid country and the water is precious and needed to be treated with great care.

VICE CHAIR SPIVY-WEBER: Can you bring your --

yes, there. Perfect.

MS. WOODCOCK: Later, camping on the Eel River in the Redwoods taught me the close relationship between the richness of those woods and the inner-dependence between them and the water and the salmon.

At a time of water scarcity, what's needed is conservation and efficiency. Not only of water, but of energy. The health of the Delta is essential to our economy as well as to California's water system and the diversity of fish, plants and animals it supports, and people.

We want our salmon fisheries to thrive, not to be sacrificed to industrial agriculture profits.

Inadequate freshwater flows are damaging the Delta and the salmon and steelhead populations and the larger California economy.

There have been a couple of mentions of the
suffering of disadvantaged communities, for lack of adequate water. At the same time we see very wealthy communities, perhaps adjacent as in Palo Alto and East Palo Alto, where there's a great deal of water waste, extravagant use. So it seems to me some need exists to do a little evening of water use. In Southern California I've read in recent years that water districts have recognized that they can't continue to expect the water from Northern California, so they're investing in water cleaning and recycling plants.

In view of the drought's effects and the escalating consequences of climate change we can no longer allow California water policy to defer to the demands of industrial agriculture. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you very much.

Joe?

MR. DALY: I'm Joe Daly, a founding Board member of the Tuolumne River Trust and currently on their Advisory Board. And for more than 35 years I was a river outfitter on the Stanislaus, Merced and Tuolumne rivers. I will give you the Reader's Digest of what I was going to say. But the three points I was going to make would be: 1) having to do with flows, 2) having to do with technology and 3) having to do with attitude.

With regarding flows, the evidence this morning
was just simply overwhelming. This, I think what the
scientists said, just means we have to have a greater
flow: 50 percent is better than 40 percent, 60 percent is
better than 50 percent. And we cannot continue what we
have presently for our flow through that Lower San
Joaquin. It'd be almost like driving around on four flat
tires.

Secondly, in terms of technology, there are
companies out there that I think can do much to help.
And I think the experts within the Board should reach out
to a company like XiO in San Anselmo, California. They
have worked with municipal and mutual water communities
to help with devices that are cloud-controlled and
brought about some tremendous efficiencies. And so I
would encourage you to contact them and have a
conversation, but I'm sure there are many other companies
out there too. And by the way, I don't own any stock in
that company.

Third, and this could well be the most
important point for you all, and that is the attitude
that we all take now. Pretty much it's an "us versus
them" attitude. And we really do need to move away from
that. The young man that spoke earlier about teamwork, I
think there's some merit in that. I think we're getting
people of very diverse points of view into the same room.
It might be knocking heads a little bit, but I think it's worth getting beyond that. Otherwise it's going to be a bigger challenge for all of you.

Thank you very much. I do have a petition signed by 1,200 people I'd like to submit to you all concerning increased water flows on the lower flow.

Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

Larry? Larry.

MR. KOLB: Thank you Madam Chair and Board Members. I think of the many things that this Board gets involved in none is more thankless than this one, this kind of thing, of reallocating water in the interests of the environment. So I want to say, "Thank you." I think that makes me a committee of one, but I just -- just so once you could hear that. And I want to express my admiration also for the quality of the staff work and for the patience and good graces of this Board in attending hearings in places where you're going to get nothing but criticism. So, thank you for that.

Much of the testimony has been concerned with economic impact of reducing some of the water. All the crops grown in California amount in normal years to around $36 billion. That's the highest in the country by a big measure. However, I'd like to note some other
California institutions that are not in agriculture.

For example, Apple has revenues of $234 billion last year, Google at $75 billion, Intel at $55 billion. These and other innovative firms like Facebook and Sales Force and Twitter and eBay, to say nothing of Hollywood and Aerospace or our great universities, they help drive the state's economy, which is currently at $2,500 billion. So, if you take the $36 billion as a percentage, it's less than 2 percent of California's. And if you include all of the indirect ones and you generously define them it's well under 10 percent. So, this is not a giant engine of growth in California. I think we want to have successful, sustainable, profitable farming. But there are other priorities, as well. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

Erik?

MR. YOUNG: Hello, my name is Erik Young and I'm President of the North Bay Chapter of Trout Unlimited, one of 13 local grassroots chapters that Trout Unlimited has in California. Our chapter has slightly over 900 members, who live in Marin, San Francisco and San Mateo counties. These members belong to our organization, because they believe in the importance of trout and salmon in their habitat. We spend many
volunteer hours in direct support of that belief. As an organization, Trout Unlimited prides itself on working on a collaborative basis with agencies, landowners and ranchers in achieving results, which benefit coldwater fisheries.

Why do we care about maintaining river flows? Enjoying the peace and freedom that comes with being out in nature. Spending precious time with our friends and family outdoors in a beautiful watershed. Looking forward to, and planning for a trip and all the preparation that entails, creating memories that last a lifetime. Just standing alongside a swiftly-flowing river on a cold morning. And the thrill and uncertainty of having even a small chance to catch and release a fish.

All of our members, whether they fish or not, support and appreciate knowing that healthy fish populations exist in the rivers, which are the focus of today's meeting. And perhaps, most importantly, we want to ensure that these experiences are available to future generations.

In considering our requests for freshwater flows that are adequate to support fish populations, please also consider the economic contributions that recreational fishing makes to the California economy.
We buy equipment, we stay in local hotels, and eat at local restaurants when we travel. We provide revenue to the California Department of Fish and Wildlife in the form of licenses and fees. We pay a 10 percent federal excise tax on fishing equipment that goes directly towards supporting local conservation.

Thank you for providing this forum today and for considering our views.

VICE CHAIR SPIVY-WEBER: Thank you.

Peter?

MR. MANGARELLA: My name is Peter Mangarella and I'm going to keep this very simple. I'm the President of the John Muir East Bay Chapter of Trout Unlimited, which covers Alameda and Contra Costa counties. The mission of TU is to protect and restore coldwater fisheries. Our Chapter supports the State Water Resources Control Board in the efforts to help farmers, commercial and recreational fishermen, urban and industrial water users, and environmental groups cooperate on the issue of increasing river flows into the Bay-Delta.

As a student in the '60s, 1960s, I fished the Tuolumne River in the high country, as well as the lower river prior to the completion of the New Don Pedro Dam. At that time, the flows in the river were much higher
than they are today. Following graduation, I worked as a civil engineer. And today I'm retired.

I live with my wife in Oakland. I try to conserve water. I disconnected my irrigation system. During the rainy season, all roof runoff is diverted to the garden. I wash my car at a carwash, which recycles the water. I converted my concrete driveway to gravel to infiltrate the rainfall. My wife and I have become more aware of the water required to produce different foods and think more about the implications of our food choices on water usage.

These are small steps in the big picture surrounding this issue, but many small steps help. Considering climate change, drought, the potential extinction of salmon and steelhead, we Californians need to come together and agree that water conservation and water-use efficiency can play an important role in increasing flows in the rivers that I fished 50 years ago.

Thank you.

VICE CHAIR SPIVY-SPIVY-WEBER: Thank you.

Alicia?

And we have two -- I'm going to call two panels. And if you could come up and sit together, one is the Bay Area Water Supply and Conservation Agency and
then the Bay Area Council, which reduced its time from
ten minutes to two minutes. So, we'll have both of them
after Alicia. Thank you.

MS. THOMPSON: Thank you so much. Thank you
for your time and for being here. We have an extremely
multidimensional issue here on our hands and I think that
river flow rates are just one piece of the puzzle as
we've heard a little bit today.

Although I agree with the increased flow rates,
I think that many other systems need to be implemented
simultaneously. One of them being, let's offer some
subsidies and some incentives for farmers who are
conserving their water resources and implementing more
conservative practices.

Let's focus on groundwater recharge. We've
heard a lot earlier about how we know very little about
groundwater and how it's so critically overdrafted at
this point. We're pulling much more out of the ground
than we're replenishing and it's going to hurt us, I
think, and be extremely detrimental in the long run.

Let's start putting a tax on wells and water
that we're taking out of the ground. Other states are
doing this and it's something that California hasn't
started, but I think that it's a public resource. And
buying land shouldn't give landowners unlimited access to
the resources below them, at least without some sort of monetary exchange for the resource. We can take that water tax and put that into research for groundwater and start to learn more about the movement and distribution of groundwater and how to efficiently replenish it.

I think we can continue to make habitat improvements and build more surface storage and catchment systems.

I feel like my generation inherited a water debt and crisis that I don't want to pass on to the next. As a Water Board, you have immense power to protect our state's natural landscapes. You have the power to leave a positive legacy for future generations. Central Valley is blessed with uniquely fertile soil and it behooves us to take advantage of that resource.

And there's a certain amount of water that's also needed for agriculture. I wholeheartedly agree with that. I grew up in Turlock and my family is deeply rooted in ag. However, there are ways to provide food for families without destroying ecosystems that make this state what it is. We can't put short-term interests above long-term sustainability. No new practices are going to be installed and implemented until there is a driving force requiring us to do so. We can be that driving force.
Transitioning to new irrigation systems may be difficult and initially costly, but there's no price tag on having healthy and sustainable watersheds for all generations. So, although I think it's very important to increase flow rates I think we should also be investing our energy and money into solving the water issue holistically.

VICE CHAIR SPIVY-WEBER: Thank you. Thank you very much.

Les, we should consider hiring her. She's quite good.

After these two panelists, we will take a short break of ten minutes.

(Colloquy re: speaker order.)

MS. SANDKULLA: Good afternoon Madam Vice Chair, members of the Board. My name is Nicole Sandkulla. I'm the Chief Executive Officer for the Bay Area Water Supply and Conservation Agency. I too will keep my comments short in respect for your time and the time of everybody here today. BAWSCA represents the interests of the 26 water suppliers who purchase on a wholesale basis two-thirds of the water that's produced by the San Francisco regional water system, which is operated by the SFPUC, the San Francisco Public Utilities Commission.
On September 15th, 2016, this Board released your recirculated draft Substitute Environmental Document. This State Board proposal could cause substantial reduction of water from the Tuolumne River to the Bay Area for the 1.7 million residents, 40,000 businesses, and thousands of community organizations in Alameda, San Mateo and Santa Clara counties whose water interests BAWSCA represents.

The proposal's purpose, as you know, is to update the Water Quality Requirements in the San Joaquin Delta. And to establish minimum flows in major tributaries, including the Tuolumne River, which supply the San Francisco regional water system.

BAWSCA understands the value of the Bay-Delta ecosystem and that the status quo is not sustainable. In nine words, BAWSCA supports the objective of the Bay-Delta Plan: simple, clear and understandable. In twenty words, BAWSCA will work with other stakeholders to protect the water quality in the Bay-Delta for the humans, fish and other wildlife. Again, simple, clear and understandable.

BAWSCA is already committed to exploring scientifically proven ways of rehabilitating fish habitat in the Tuolumne River, such as gravel augmentation, managing fish predation and ensuring the flows support
habitat improvements.

Now your document, the SED with its appendices, is large and a complex document. And I sincerely appreciate the extension of the comment deadline that you have provided. The SED raises a number of concerns, including the unproven presumption that other water supplies or transfers will be available to the Bay Area in times of shortages, to make up for the water reductions due to increased flows.

BAWSCA is also concerned that the SED fails to take into account the likely actions in times of shortages of other water suppliers, who use the largest portion of this supply.

Lastly, BAWSCA is concerned that while the SED recognizes that implementation of the flow proposal is expected to result in potentially significant economic impacts in the Bay Area, a full analysis of these impacts is actually not included in the draft SED. So, as part of our comments on the draft, BAWSCA will providing this Board critically important data about the potential environmental, economic, and other impacts of the proposed actions that must be considered as part of any decision on the Bay-Delta Plan.

So, I brought with me a map today I'd like to share with you. And it shows my 26 member agencies in
San Mateo, Santa Clara and Alameda County. I will call
out in particular -- we did have a representative here
from East Palo Alto, who is one of my member agencies.
And this map shows what the residential-per-capita use
was in the service area during the most recent mandatory
reduction period. And you'll note that there are 10
water suppliers that serve 55-gallons-per-capita per day
or less during that period, including the City of East
Palo Alto. And that there are only 3 that serve more
than 80, which is actually the statewide average.

And we believe, looking at this, it really hits
home that conservation is an essential responsibility of
our agencies and their water customers that they serve.
At the same time we believe it is equally important for
this State Board to understand and acknowledge that
municipal water users, specifically in our three-county
area, need a reliable supply to support the economic
viability of their communities.

In a recent Chronicle article, State Board
Chair Felicia Marcus, shared her opinions on the Bay-
Delta Plan and the SED. Chair Marcus is correct that
this is not an effort to choose a winner between the
urban and agricultural water users or the environmental
advocates. BAWSCA agrees. This is an effort to protect
the water quality of the Bay-Delta for all users: for
humans, fish and other wildlife.

The solution may be out there, but everyone will have to do their part. The Governor has indicated his strong support for negotiated voluntary agreements to resolve this issue. BAWSCA is committed to continuing to work closely with the diverse interests and stakeholders to develop that shared solution. This should be a strategic process, not a legal brawl. It is about sharing the river for our mutual benefit. It requires tough action and respect for all interests, ingenuity, open minds, sticking with the facts, crafting a solution in which all users can survive and thrive.

BAWSCA is pleased to help. I thank you for the opportunity to speak to you today. And I will leave copies of this map and my statement with your secretary.

VICE CHAIR SPIVY-WEBER: Thank you very much.

MS. SANDKULLA: Thank you.

VICE CHAIR SPIVY-WEBER: Adrian?

MR. COVERT: Good afternoon, my name is Adrian Covert. I'm the Vice President for Public Policy at the Bay Area Council. I'd like to thank the Board for providing this opportunity to provide public comment on
the Bay-Delta Water Quality Control Plan.

The Bay Area Council is the San Francisco Bay Area largest multi-sector business association, representing the largest employers in technology, biotechnology, finance, trade, utilities, engineering and construction and much more.

The Bay Area is home to California's most valuable economic asset. The San Francisco, Oakland, San Jose Metropolitan area boasted a $667 billion economy in 2015. If this region was its own country, it would have the 22nd largest economy on earth. San Jose's economy alone grew at a rate of 8.9 percent in 2015, outpacing even China. Despite only have 17 percent of the state's residence, the Bay Area generates about 30 percent of the state's general fund revenues.

But the Bay Area economy cannot function without water from the Tuolumne River. Water from the Tuolumne River accounts for approximately 85 percent of San Francisco's fresh water and about 55 percent of the fresh water for the 1.8 million described by our previous presenter in the BAWSCA service area, across four counties. If the Bay Area's Tuolumne River users were their own hydrologic region, they'd have the lowest water rates in California.

Residents in the San Francisco-BAWSCA combined
service area used just 54 gallons per day over the last 12 months, compared to the statewide average of 82 gallons. San Francisco residents themselves used just 41 gallons per person per day in 2015, one of the lowest in the industrialized world. However, the San Francisco Public Utilities Commission estimates its users would face cuts up to 50 percent during droughts with rationing beginning immediately after a first sign of drought.

This level of rationing could only be avoided by major investments in new supplies that have no certainty of being able to be procured. Because the Bay Area is already the lowest water user in California, these cuts would leave our region no place to go. And could have devastating economic impacts by crippling our already overwhelmed housing supply and undermining water-intensive institutions such as hospitals, academia, the biotech industry and data centers.

Between 2011 and 2015 the region created 500,000 jobs and just 65,000 new units of housing. This imbalance has led to skyrocketing and inequality and the widespread displacement of poor and middle-class families.

VICE CHAIR SPIVY-WEBER: Are you wrapping?

Because you had two minutes.

MR. COVERT: Okay.
VICE CHAIR SPIVY-WEBER: Sorry.

MR. COVERT: I originally had ten.

VICE CHAIR SPIVY-WEBER: I know.

MR. COVERT: And I foolishly took off seven.

VICE CHAIR SPIVY-WEBER: And I moved you up, because you had two.

MR. COVERT: Okay. Give me one more minute, if you don't mind? Thank you.

By 2040 the region is projected to create an additional 1.3 million jobs necessitating 820,000 new households. The draft SED, we fear, could forever and completely put solving the region's housing crisis out of reach and force our employers to expand elsewhere.

In conclusion, the Bay Area likely creates more economic value per gallon of Tuolumne River water used than is created by any other water source in California, and probably the United States. The Bay Area Council applauds the Board's intent to improve the ecosystem of the San Joaquin River and its tributaries and appreciates the difficulty in balancing the human needs of water and the environmental needs of water.

We urge the Board to take whatever measure is necessary to meet these competing needs through voluntary agreements.

VICE CHAIR SPIVY-WEBER: Thank you.
MR. COVERT: Thank you for considering our views.

VICE CHAIR SPIVY-WEBER: Thank you very much.

We will take a break until five minutes after 3:00. And Joe Sallaberry will be the first person up followed by Vance Ahlem, David Ahlem, Mike Tietze as in "pizza," David Ragland, Elizabeth Lasensky, Kirk Wilbur, Darcie Luce, Mark Gonzalves, Barbara Barrigan-Parrilla and Tom Hicks.

(Off the record 2:54 p.m.)

(On the record at 3:05 p.m.)

MR. V. AHLEM: Ready?

VICE CHAIR SPIVY-WEBER: Yes.

MR. V. AHLEM: Okay. Good evening, Madam Vice Chair, thank you for your time today. My name is Vance Ahlem. I'm a fourth-generation farmer from Merced County. We're farming the same ground we settled in 1901. I currently oversee farming operations that provides direct employment to 50 people, with a payroll of about $2 million to our local economy a year.

Each year we constantly reevaluate irrigation practices to gain efficiency and better use valuable water supply that we currently have. Some of these upgrades have been going away from flood to center pivot irrigation technology, minimal tillage, and even dipping...
into the technology sector for soil mapping for evaporative transportation rates to help us better use the water we have. While these are helping reduce our water use I fear that further cuts would hinder our ability to produce high quality feed and food for the audience, who all looks well-nourished today, and I'm glad to see that.

I was going to hit on the SalSim report, but we've already acknowledged that as flawed and changes need to be made to it. So having said that I would like to ask staff if there is any other potential flaws, matrixes that are wrong that they have found, or how we proceed from here.

I think a great model was shown today on your adaptive management by the U. S. Department of Interior and we have definitely assessed the problem. We have a design, a design that's flawed, and going further with implementation on the flawed plan will lead to not only more economic damages to the Valley, but also will not get you the desired increases in fish population you want. So I implore you to please take a step back, look at all the available science out there from the IDs, from your own department, from the FERC relicensing going on with TID, and reevaluate before we make a fatal mistake. We have one chance to get this right.
In closing, your groundwater impacts, I feel, are another thing that needs to be addressed. I currently do farm in an irrigation district that has no water. We have raised our fees 300 percent to start addressing SGMA and these unimpaired flows could damage all of that work. Thank you for your time.

VICE CHAIR SPIVY-WEBER: Thank you. What irrigation district are you in?

MR. V. AHLEM: Eastside Water District.

VICE CHAIR SPIVY-WEBER: David?

MR. D. AHLEM: Good afternoon. My name is David Ahlem. I'm the President and CEO of Hilmar Cheese Company. Hilmar Cheese Company is located in Hilmar, California. We presently employ nearly 1,000 Californians and receive milk from nearly 200 family dairy farms located in Merced, Stanislaus, and San Joaquin counties.

I'm here today because I'm concerned about the long-term viability of ag in this region and the communities that depend on a predictable and reliable supply of water. Our employees and the families supplying us milk will be directly impacted by the proposals we are considering here today.

I've got three requests. Fully consider the economic impact. Milk's California's number one valued
ag commodity and the dairy industry is responsible for 65 billion in economic activity. I'll leave a report that details that. This economic activity is dependent upon a reliable supply of pasture and field crops. Forage crops are foundational to a cow's diet. There are no nutritionally adequate substitutes and importing these feedstuffs is not economically feasible. If forage crops are nearly eliminated under the 40 percent unimpaired flows, as the SED predicts, dairy farms will be eliminated, local food production eliminated, and all the beyond the farm jobs that are dependent on this fresh milk supply.

The SED fails to fully consider the value of the loss of forage crops by failing to consider the downstream impacts. When these are fully considered, I believe the impacts of the proposed unimpaired flows will have a devastating economic impact on this region.

Two, recognize that disadvantaged communities will be hit the hardest. Water is the lifeblood of our communities in this region. This region is home to 1.5 million people, most of whom live in disadvantaged communities. Milk is a fresh, perishable product that cannot be transported long distance. If a milk supply is not readily available, dairy processors will be forced to close or relocate out of state, taking their skilled
year-round jobs with them. Hilmar Cheese Company alone represents $100,000 million in annual payroll and nearly 1,000 jobs. In our case, Merced County would be the hardest hit, where the unemployment rate is 8.6 percent, already 60 percent higher than the state average.

In the end, this decision will hurt people and the most disadvantaged communities in the state. This is why I believe it's critical we understand the impacts and mitigate the negative outcomes for people in this region.

MS. D’ADAMO: Thank you. I have two questions.

MR. D. AHLEM: You bet.

MS. D’ADAMO: Okay. So first of all to the extent that you're able to answer this question, because I understand -- well first of all, how many producers do you rely on?

MR. D. AHLEM: Two-hundred.

MS. D’ADAMO: Two-hundred?

MR. D. AHLEM: Yes.

MS. D’ADAMO: So do you have a sense of the forage crops that are supplying the two-hundred dairymen? In other words, you know, just --

MR. D. AHLEM: What are they?

MS. D’ADAMO: Yeah. Are they supplying their own, on average, or what sort of a crop mix are you seeing?
MR. D. AHLEM: It's a mix, so it's either they're growing their own or they're relying on neighbors to sell them those products as well.

MS. D’ADAMO: Okay. So to the extent that we are making any assumptions that a dairyman may retire their forage crop, so that the water can be moved to somebody with permanent crops, does that make any sense?

MR. D. AHLEM: No, not on an ongoing basis, it's just not practically feasible. So on a small degree from -- possibly, but forage is key to a ruminant's diet so nutritionally you can't replace it. There's not a substitute, so if forage goes away you're talking about importing and the distances are so far that it's not economically feasible. You're going to see cows leave and dairies leave the state before you see that happen, if we have unpredictable and unreliable water. And the chances of that are even greater if you consider the SGMA impacts that we're looking at as well.

MS. D’ADAMO: Okay. And then that was my next question and that is where are you going to get the feed if you happen to have a dairy where you're reliant on -- maybe you don't have enough land to grow your own forage crops entirely and you're reliant on your neighbors -- where are you going to get that feed? And I hear you saying that those dairies would likely be slated for
closure. But if you got feed from someplace else where would it be coming from?

MR. D. AHLEM: You're going to struggle to find that up and down the Valley if we're all in this basket, so it's already a competitive market for feed. You're looking at bringing in feed from out of state and that's just not economically feasible.

MS. D’ADAMO: Okay. Thank you. Thank you.

MR. D. AHLEM: So?

VICE CHAIR SPIVY-WEBER: No, that's it. Thank you.

MR. D. AHLEM: That's it. That's my time, so I just encourage bring all the stakeholders to the table and get a good settlement out of this, so thank you for your time.

VICE CHAIR SPIVY-WEBER: Thank you. Thank you.

Chenoa?

MS. URCHISON: Good afternoon, I'm Chenoa Urchison. I am the Secretary for Denair Chapter FFA. And first off I'd like to thank you on behalf of my FFA chapter and any kids who have come here and spoken. As members of FFA we'd just like to thank you for giving us your time, to come up here and speak.

First off, I would like to talk about how I could be affected by the proposed revision, but I think
that we need to step back and take a look at the bigger picture. Back in 2012, when the Bay-Delta Plan was revised a draft clearly stated, and I quote, "That there would be a significant, but unavoidable impact to our region." Well, since then our region has worked tirelessly to cut down and conserve water usage. And has done so quite successfully.

Please tell me that we didn't waste billions of dollars building dams, hatcheries, canals and farms in efforts to have a reliable source of water that was supposed to be ours for over 100 years. So I say to the Delta our region has been generous enough, even years later after all the water conservation efforts, you still want more. The fact of the matter is our region has nothing more to give. It's time to start thinking of the vast impact this proposed Plan will have, the lives and futures and jobs of countless people in our region will affected.

All in all I'm asking that you sit and rethink all of the impacts, no matter how small you think that they might have. Revise and rethink as much as possible. I urge you to reconsider. The State Water Board has already taken so much for our region, so I just ask you to keep this one question in mind. What if this time you're asking for too much?
VICE CHAIR SPIVY-WEBER: Thank you.

Mike Tietze, as in pizza, Tietze.

MR. TIETZE: Yeah, Mike Tietze. Thank you for allowing me to comment this afternoon. I'm a certified hydrogeologist and engineering geologist in the State of California. I'm currently working for Stanislaus County to help them develop and implement a discretionary well permitting program under their new groundwater ordinance, which was the first in the state adopted that was deliberately aligned with SGMA. Currently, we're in the process of gathering regional data to characterize groundwater conditions and assessing available tools for the same. I'll get to that a little bit later.

We all understand that the SED comes on the heels of a long and detailed evaluation of unimpaired flow benefits to aquatic habitat. And that as a programmatic document it's not going to be able to analyze the impacts in as much detail. However, the approach taken to groundwater impact evaluation in the SED represents a fundamental imbalance in how ecosystem benefits are evaluated compared to regional adverse impacts to water supplies.

Specifically what I mean is this, where on one hand work on evaluating instream ecosystem benefits was informed by several scientific panels, there were no
panels to inform the impact analysis. Instream processes were evaluated using several models, but the approach to groundwater resource evaluation was very generalized, based on an incomplete water budget, and did not include any modeling.

So on the one hand the ecosystem effects are able to -- the ecosystem evaluation is able to predict specific temperature profiles along the streams, acre days of floodplain inundation and it's tied very clearly to benefits, outcomes and objectives. On the other hand the groundwater impact analysis uses a regionalized theoretical metric of one inch of draw-down to predict whether significant or adverse impacts to water supplies will occur. That metric is very abstract and there's no explanation how it was derived, why is it not one-half inch or two inches? And it's virtually impossible to tell even the approximate location of where adverse impacts will occur.

Finally, the ecosystem analysis spans a range of potential conditions whereas the water supply impact analysis is based on a single groundwater use scenario. The scenario was selected ostensibly as the most likely outcome, but no evaluation was performed to see if it actually meets the criteria for being sustainable under SGMA.
VICE CHAIR SPIVY-WEBER: Thank you.

MR. TIETZE: For a meaningful analysis, we would expect that at the very least there would be a sensitivity or an uncertainty analysis done.

VICE CHAIR SPIVY-WEBER: Thank you.

MR. TIETZE: And as it is, I believe it leaves the state vulnerable to criticism of a policy bias.

VICE CHAIR SPIVY-WEBER: Thank you very much.

MS. D'ADAMO: Sir, I have a request that as part of your written comments, could you provide recommendations as to how a more detailed analysis on groundwater could be done so that we could incorporate SGMA? And I'm not just saying just that it should be -- suggesting that you say it should be done -- but providing very specific information about the current reports and information that could be readily available, so that the staff would be able to incorporate it into its analysis?

MR. TIETZE: Yes. And in fact if I could just add for a moment? I have to respectfully, but emphatically disagree with what was said earlier about all the available tools having been used. C2VSim is a model that was specifically developed by DWR for this kind of evaluation. And it's currently being utilized by several local efforts in Merced, Stanislaus and San
Joaquin counties, and would be very capable of doing this kind of evaluation without having to go to protracted lengths to gather additional data.

VICE CHAIR SPIVY-WEBER: Thank you.

David?

MR. RAGLAND: Hello. Thanks very much to the Board and to all of the people that have worked so hard on this Plan revision and to everyone who's come to give their input. My name's David Ragland. I'm a family man, an entrepreneur since I was 14, an employer. I'm a civil engineer and land surveyor in Senora, California. Famous now locally as the yokel who jammed his Thule box against the parking garage roof.

I began my working career at 14 in the sport fishing industry, tying flies and working at Johnson's Bait and Tackle in Yuba City. My stepfather and my friends and adopted uncles also all worked and depended on the rivers as guides and at Johnson’s. I was a poor kid, living in a campground that wished it was a trailer park, living on salmon and other fish. My brother Miles was a commercial fisherman out of Bodega Bay who had to change careers due to declining stocks of salmon and other fish, with disastrous results on his life.

Diversion, one definition is the action of turning something aside from its natural course. The
irrigation districts and San Francisco are very good at this with respect to water. Another definition is something intended to distract attention from something more important. And I'm thinking that these folks are even better at that. Have you seen the information campaigns? Even their names are not honest, "Worth your fight." Worth my fight to help them continue devastating the Tuolumne River, so that they can keep extracting six-tenths of a billion dollars in revenue a year? How about, "Save the Stan?" It should be called, "Save the Stan for the people who dammed it, removed the upper 60 percent of the spawning area, and take about half of the average yearly flow out of it."

They even describe these river flow increases that we're now talking about as diversion and taking water from the river -- the exact diametric opposite of the truth.

VICE CHAIR SPIVY-WEBER: Thank you so much. Elizabeth? Elizabeth Lasenski. She already spoke, Okay.

Kirk?

MR. WILBER: Members of the Board thank you for the opportunity to address you today. My name is Kirk Wilber and I represent the California Cattlemen's
Association including a number of beef producing families within the plan area.

We will be filing more extensive comments with the Board prior to the deadline. Today, I wanted to focus on some concerns that CCA has about the economic analysis done within the SED.

Firstly, the SED significantly under examines the potential impact of the proposed Plan changes on the beef industry. Throughout all of Chapter 11 and the Appendix G, I think there's about five paragraphs that speak specifically to beef production. That's simply not enough analysis. Not only does the SED fail to properly examine the impacts on the beef community, the conclusions drawn from a scant analysis also fail to accurately reflect the economic burden that the new faux standards would impose upon the beef producing community.

The SED acknowledges that under reduced surface water conditions summer pasture can become scarce and may limit grazing opportunities, resulting in potential reductions in herd size. What the SED fails to acknowledge, however, is that California's cattlemen have already significantly reduced herd sizes in response to the ongoing drought and further reductions will imperil their economic viability.
The SED downplays the loss of pasture resulting from reduced surface water availability by mentioning that Cal CAF operations are able to substitute other food sources for irrigated pasture land. But the SED fails to appreciate the significant economic burden of securing and transporting that substitute feed source. The SED predicts that the impacts upon grazing are less than significant, because much of the pasture in the plan area is unsuitable for conversion to other crops or nonagricultural uses. However, the risk of conversion is far from the only relevant concern. This analysis ignores any consideration of whether that pasture continues to have any economic viability for that rancher's livelihood. Additionally, the SED overlooks the reduction in agricultural land values that would attend the reduction in water supply reliability.

Finally, I just wanted to state that all of those harms that I've mentioned will be exacerbated by the failure of the SED to account for the Sustainable Groundwater Management Act. That will reduce water supply even further and will increase those harmful effects upon ranchers.

In conclusion, if I may real quick, I don't see this as a situation where we're asking you to prioritize agriculture above other beneficial economic uses -- or
beneficial uses, I should say. What we're asking is
simply that you fully examine the other alternatives to
strike a better balance among all beneficial uses
including agriculture. Thank you.

VICE CHAIR SPIVY-WEBER: Darcie? Darcie Luce?
Darcie Luce?

MS. LUCE: Hello. Thank you, Board members and
Vice Chair Spivy-Weber for the opportunity to speak to
you today. My name is Darcie Luce and I'm with Friends
of the San Francisco Estuary. And as our name implies,
we urge actions that ensure a thriving, resilient Bay-
Delta Estuary for generations to come. Just a few
thoughts today, to be articulated further in our comment
letter.

Number one, the economic harm anticipated by
farming communities and urban areas has been a
significant focus of these meetings. But the economic
benefits of these recovered river systems have received
less attention. The revised SED does a much better job
than the previous version in referencing potential
economic benefits including fishing, recreational values,
and nonuse or existence values.

However, the SED makes quantitative estimates
of impacts, but only offers a qualitative analysis of
some benefits leaving us with trying to balance hard
numbers against an incomplete narrative description. We know that a monetary value can be ascribed to a healthy river system, whether or not people intend to use it for recreation or other active uses. And its value can be calculated as provided by some examples in Chapter 20 of the SED. In fact, one of the most comparable examples in Chapter 20, the 1990 Upper San Joaquin River study would indicate a possible total willingness to pay a benefit of almost $20 billion annually, in 2009 dollars, as a result of restoring salmon on the Upper San Joaquin River through higher instream flows.

Furthermore, the value of ecosystem services that restoring these rivers and their salmon populations could provide in the form of nutrient cycling, sediment transport, soil and water quality, reduced water treatment requirements, aquatic and terrestrial food webs and other services. All of that could total in the hundreds of millions of dollars. A quantitative estimate of these benefits should be developed or you run the risk of underestimating their value.

Secondly, adaptive management strategies must balance flexibility with strong enough safeguards to protect and restore salmon and other fish and wildlife, water quality, sediment transport and the river ecosystems. These safeguards should be maintain natural
variability and a hydrograph to ensure these benefits and
enough flows must be available for them to be successful.

And finally, voluntary settlement agreements
must achieve the benefits that the Water Quality Control
Plan is responsible for. And the SED provides an
important backstop to these discussions and ensures that
a key system recovery does not get bargained away in the
process.

Thank you very much.

VICE CHAIR SPIVY-WEBER: Thank you.

Mark?

MR. GONZALVES: Good afternoon, and thank you
for holding this meeting. My family has been in
California since the 1700s. My ancestral grandmother was
a Melones Indian and she was the first recorded Native
American to marry a Spaniard in the 1700s, which was
officiated by Junípero Serra. And I think about what the
river systems were then.

You said we can't go back to the beginning.

But when we're arguing over 10 percent of the water if
you think historically what have we done to the
California rivers, which one is still thriving and
sustained like it was originally? I don't think there's
a very big answer to that question. So to -- and
gradually through mining, diversions, farming, it is
incrementally destroyed, gradually, gradually, gradually.

So now when we're here talking about this 10 or 15 percent of water we all recognize that river systems are essential for the life of California. So we have to incrementally revive it through special application, better irrigation.

But the focus should be to have a thriving river system, which we don't have right now. So anything we can do to that is essential and we have to think of the big picture. You know, we can't think of the next 10 years. We should be thinking of the next 300 years.

Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

Barbara followed by Tom.

MS. BARRIGAN-PARRILLA: Vice Chair Spivy-Weber and Board members, first I want to wish you all a Happy New Year. I wish you peace and prosperity and good health. And today, I'm here to ask of you to grant the same thing to the people and fisheries of the Delta.

Recent news reports over the vacation break explain that fish are not rebounding. Not because flows don't matter, but because we have depleted the estuary of flows for far way too long. We can no longer split flows in a way that favors unsustainable growth. This is why the SED is flawed, 40 percent unimpaired flows will not
save or restore fisheries or protect urban and
environmental justice residents from degraded water
quality.

When I'm talking about unsustainable growth,
I'm talking about what I saw on my family trip to L.A.
and back. The west side of Kern County, on the south end
of Kern County, has all new sticks of almond fields as
far as the eye could see. And they're all young juvenile
almond trees all the way planted up through Westland
along the I-5. There are more green lawns in L.A. then
there are in the urban areas around the Delta. There's
no shared sacrifice being asked of Californians to
preserve the Bay-Delta Estuary.

What is proposed in the SED is only enough
water to prolong time until we reach extinction of
fisheries -- fisheries, which support multiple economies
in the Delta and coastal economies. A lack of needed
flow will also lead to a weakened salinity standard that
will impact domestic use of water for hundreds of
thousands of people in the Delta, agriculture jobs, and
tens of thousands of people who are subsistence fishers.

If the Board rules a 40 percent average
unimpaired flows, and a weakened salinity standard, are
the new standards for the San Joaquin River then you will
make the Delta the sacrifice region for California. The
State of California will be writing off the Bay-Delta Estuary for unsustainable agricultural development in the San Joaquin Valley. And the State of California will be writing off the people of the Delta for exports of almonds.

My last sentence is that this will violate social, economic and environmental justice policies as set by the State of California. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

Jeanine, did you have something?

(No audible response.)

Okay. Tom. And after Tom could the San Francisco PUC come up and have a seat in front? Yes, go ahead.

MR. HICKS: Vice Chair and other Board members, thank you for the opportunity to speak. My name is Tom Hicks and I'm here in two capacities today. One is as a San Francisco resident, married, I have two children, five and seven, and they are having their first day back in school today. They couldn't be here, but at the very least we are recreationalists. We enjoy the Tuolumne River. We enjoy our time away from the urban sprawl of the Bay Area and we get out to the Central Valley and many places. And we just make any appeal to restoring
the environmental values that are obviously the backdrop
of this epic public debate.

But more specifically and the second reason why I'm here today is in my capacity as an attorney. I'm a water attorney. I'm not here on behalf of any client today and I'm not getting paid. I drove up to San Francisco on my own dime. But at the very least I do represent a number of landowners and increasingly public interest organizations that, when they look at the SED and they see a big section on voluntary agreements, for some of us that's shorthand for a section of the Water Code called Section 1707.

These voluntary tools do risk going into machine gun fire of sorts if agencies like the Wildlife Conservation Board are putting publicly backed water bond dollars on the table for the assurance that the State of California and Californians, are getting an environmental benefit that enhances stream flow. Whether it be groundwater sustainability or other mathematics and metrics it becomes very difficult for any so-called petitioner to initiate a petition that might run the gauntlet of trying to come out of any of these tributaries: the Merced, Tuolumne or Stanislaus.

And again, this is only Phase 1. Phase 2 has other tributaries in the Sacramento that each could voluntarily
bring a contribution to an instream flow target outside
the regulatory gambit of Endangered Species Act, the
Clean Water Act, and of course the Public Trust Doctrine.

So all I would ask is that the state agency do
its utmost to protect the integrity of those expenditures
of public dollars for environmental values, but
recognizing that it's not a all or nothing regulatory
gain. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you. Thank you
very much, Tom.

And after the San Francisco PUC has their ten
minutes for their panel I will ask for those who want to
speak for just one minute, one minute, you can jump the
queue. You can start lining up over here about five
minutes into their presentation. Thank you.

So Michael -- oh, I'm sorry.

MR. JUE: Good afternoon, Board. Thank you for
the opportunity to present today and I thank you for your
patience all day in accepting comments from everyone. My
name is Tyrone Jue. I'm a Senior Advisor to San
Francisco Mayor Ed Lee, and today representing Mayor Lee
and the City and County of San Francisco.

The City and County of San Francisco owns and
operates the Hetch Hetchy Regional Water System, which
provides a reliable, high quality water supply to 2.6
million people in the Bay Area. Eighty-five percent of our system's water comes from the Tuolumne River and it is a critical pillar supporting the economic vitality of the Bay Area and the State of California.

Over the last decade, San Francisco and our regional customers have been making significant investments to improve the reliability of this system. We are now completing a $4.8 billion program that will improve our ability to deliver water after a major earthquake. And that also includes new water recycling and groundwater facilities.

We deeply care about the Bay-Delta ecosystem as the defining characteristic of our region. And believe that another defining characteristic is our regional water system and how our San Francisco and regional partners efficiently use water from that system.

We appreciate the Board granting a 60-day extension to allow for further discussions. And believe that a voluntary settlement is the best path to achieve the balanced solution required that will both improve the environment and provide sufficient water for our region and other important interests.

I would now like to turn it over to Michael Carlin, Deputy General Manager from the SFPUC.
it's a pleasure to be here today. I hopefully will not use the entire 10 minutes that we have, because I'm trying to sell some minutes in the hallway to some folks. (Laughter.)

I just wanted to make some comments. We are going to submit a comment letter and it's going to be much more detailed than the comments I make today. But just to put things into perspective, we hear lots of things about how much water do we divert from the Tuolumne River and such. We divert about 14 percent of the unimpaired flow. And when you consider the Tuolumne River is about 1.8 million acre feet, that's a pretty low number.

The second thing is when you look at the entire Delta we're 0.7 percent -- 0.7 percent of the unimpaired flow in the Delta. That's all the rivers, everything. And we serve about 7 percent of the state's population and businesses in our service area. So when you look at the impact to us, and I'll talk about this a little bit, it's not proportional to the amount of water that we actually divert. And we want to make sure you understand that, because it really hurts us in a lot of ways. You heard from other people testifying, our wholesale customers, Nicole Sandkulla, the Bay Area Council, you know, our water use is really low. Right
now the average water use in our service area, including San Francisco, is 54. When you look at just San Francisco it's 41. And you've got to remember that number is 41, because we'll talk about that a little bit later about the impact to our customers during dry periods. It's not during the high wet periods, it's during the dry periods when everybody is suffering across the state.

Now one of the things that you talked about today, and I appreciate, is the adaptive management and the adaptive implementation of the flow measures. And I think this is really, really important, because one of the things that we don't see in the document that we need to kind of consider -- and we saw this in the recent letter from the State Board Chair to the Governor -- is creating a framework for accepting voluntary agreements. I think this is the way to go and it would exceed the proposed fish and wildlife objectives that you have proposed.

At the same time you're actually working on the Sacramento River. And we need to understand how the Sacramento River impacts the San Joaquin River, because it is an ecosystem. And you can't consider these things in isolation. And how they kind of fit together in the end with everything else that happens, is important.
One of the points -- when I go back to saying 0.7 percent of the unimpaired flow into the Delta -- please remember you have a State Water Project, a Central Valley Project that actually takes more water out of the Delta than our 0.7 percent. But we're asking to pay a huge price for that. So what is the impact on our system? We have long-standing agreements with the Modesto and Turlock Irrigation Districts. And that's what really kind of drives -- these are contractual agreements. We go back over 100 years on the river, and many of them are here today, and making sure that I say everything correctly. But in a drought or if we had to give up water, we would have to give up 52 percent of the water, based upon the agreement we have with the Modesto and Turlock irrigation districts. That's what really hurts us in a dry year.

If this unimpaired flow is just a straight objective, a standard that has to be met, even in a critically dry year it hurts really hard in the Bay Area. Remember that 41 gallons? Imagine you only have 20 in a dry period, so every resident has 20 gallons of water per day to use. Four five-gallon buckets, just think of it that way, and how are you going to use them? And that's in multiple dry years whether it's at 223 million gallons a day, which we're delivering now, or 265 million gallons
a day.

We're looking at it every which way of how to do this and the uncertainty that we have is basically, we do not know if we can actually build projects to make up the difference or have water come from someplace else to make up the difference. We have a contractual obligation with our wholesale customers, 184 million gallons per day, again a contractual obligation with our customers. San Jose and Santa Clara are not permanent customers with us. They're interruptible. Would you like to tell the Mayor of San Jose that we have to interrupt his water supply, because we no longer have a reliable source of water to serve them? I don't think so.

You heard from East Palo Alto today. East Palo Alto has hit their contractual limit. They're trying to work something out with other communities, such as Palo Alto, but the uncertainty of the reliability of the water system going into the future right now has pushed everybody away from the negotiating table. So it has a lot of impacts on housing and jobs in our service area.

What is our response to your proposal? Well, we need to take action for the fish. But we disagree with your staff's proposal, plain and simple. Our comments will focus on our potential water supply impacts, our doubts about the benefits for the fish and
wildlife, and if there's a better way we can do this, we're going to propose it. And based on the information that we've done with the irrigation districts, we heard staff kind of say something about those today. I don't agree with those, but that's okay.

So we'll continue to develop our comments with our partners on the San Joaquin River, with the Modesto and Turlock irrigation districts, with the San Joaquin Tributaries Authority. And we are actively exploring voluntary agreements and we will continue to explore voluntary agreements because that's the better way to go.

In the end we think that is going to be painful and costly to come to an agreement with all these parties. It's not going to be easy, but it'll be durable. It'll be lasting. And it'll get for the environment something sooner rather than later if we have to go into some sort of protracted litigation.

So we're hopeful and we are willing to work with you, your staffs and all those other parties, to see if we can come up with a solution that we can all agree to across the board. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

Go ahead.

MS. D'ADAMO: I have a question. First of all thank you for your leadership on the settlement and
discussions, and thanks for all of the collaboration that
the City has been involved in with the agricultural
communities. I think it's a partnership that could
really set the standard for other places in the state
with this whole fish versus farm and urban areas versus
rural areas. What you're doing can pull the pieces
together and so really appreciate your work on this.

The question that I have for you has to do with
your economic analysis. So I will just be very up front
that there have been questions about the analysis that
the City had submitted in the last round. And I know
that you're updating it. And so just want to give you an
opportunity here to maybe shed some light on the analysis
that you already submitted, and any changes in
methodology or approach that you'll be using in the most
current SED that's before us.

MR. CARLIN: Ellen?

UNIDENTIFIED SPEAKER: Mike, do you want me to
answer?

MR. CARLIN: No, it's okay. It's not a
Jeopardy show. (Laughter.)

I'm calling up Ellen Levin who's the Deputy
Manager for our Water Enterprise and she's the closest
one to the economic analysis.

MS. D'ADAMO: Yeah, and the reason I ask --
we're going to get your comments, but I always think it's helpful to just hear from folks sort of on the highlights and some of the key areas that we should be looking for when we get your comments.

MS. LEVIN: Sure. I'm Ellen Levin. I'm the Deputy Manager for Water at the San Francisco Public Utilities Commission.

The analysis that was submitted in 2013, that supported our comments on the SED for 2012, was actually an analysis that was done to support a Federal Energy Regulatory Commission administrative law judge proceeding in 2009. We didn't have a lot of time to produce comments on the 2012 SED and so our socioeconomic used the bases of that analysis to look at what would happen if we had a 50 percent reduction in supplies on the San Francisco PUC's regional water system. And that is what was presented.

We have since updated that analysis and we are using the same economist, David Sunding from UC Berkeley. He will be producing a revised analysis. He will be using the same models, but using updated economic information for the Bay Area, including updated demand projections as well as income projections for the Bay Area that will result in a different socioeconomic affect, but using the similar methodology.
VICE CHAIR SPIVY-WEBER: When will this be available?

MS. LEVIN: It'll be submitted with our comments in March.

MR. CARLIN: Thank you.

MR. MOORE: Hold on. Thanks, good to see you.

Real quick, I was confused on the numbers a little bit, so when you're saying 0.7 percent of --

MR. CARLIN: Unimpaired flow to the Delta.

MR. MOORE: -- unimpaired flow to the Delta, is that CCSF diversion or is that --

MR. CARLIN: 1,000 acre feet.

MR. MOORE: -- is that all of the diversions from the Tuolumne River?

MR. CARLIN: No, that's just San Francisco's diversions.

MR. MOORE: Okay. Okay.

MR. CARLIN: So that's in 1,000 acre feet. It's similar to what East Bay Municipal Utility District diverts as well.

MR. MOORE: Right, yeah. A similar size service area.

MR. CARLIN: Uh-huh.

MR. MOORE: Okay. Thanks, good to see you.

MR. CARLIN: Good to see you.
VICE CHAIR SPIVY-WEBER: Thank you very much.

Now we'll go to the one-minute people. And

John Herrick is the lead here. This is by his personal
request and actually it was recommended by DeeDee as
well.

MR. HERRICK: That I get one minute?

VICE CHAIR SPIVY-WEBER: You get one minute.

You go to the front of the line.

MR. HERRICK: Thank you very much, John Herrick
for the South Delta Water Agency. At the Stockton
hearing meeting we put on evidence for you, so I won't go
through that except to say that that makes the salinity
part of this easy, we think. And that is that the SED's
recommendations for salinity changes is based upon a
report that uses information that can't be used to
calculate leaching fractions. And instead we've
presented evidence of harm by local farmers and a report
that indicates that salt does and is building up in the
soils. So at this point, in my view, it looks like
there's no scientific evidence to support a change in the
standard. There's evidence to suggest that there's
damage that's being done under the current situation.

So I'll leave it at that. The last thing I'll
say is Mark Holderman's left, but apparently I have to
sit down with DWR again and discuss causes and effects.
But thank you very much, that's under one minute.

VICE CHAIR SPIVY-WEBER: Thank you.

MR. MOORE: That's good. I'm glad to hear about the sit down. That will be good.

VICE CHAIR SPIVY-WEBER: And say your name -- no come up -- say your name and affiliation.


VICE CHAIR SPIVY-WEBER: Okay. No, that's all right.

MS. WILSON: So thank you, I think the first hour was about salinity and I missed it. But I'll listen to the broadcast on that.

So two things that I haven't ever heard you mention at these hearings, that one is the fact that the carcasses from fish decaying or being predated upon and the -- you know, what comes out of the animal, becomes a lot of fertility in all of the Valley actually. But it begins usually where the salmonids spawn and die.

The other thing is that I appreciate your attention to scientific detail. Oh gosh, but when you're trying to get counts of native fish I would suggest that you use your influence to make every single hatchery fish marked. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.
MR. MOORE: Thank you. And we did actually discuss that issue on November 29th. There was -- if you want to look at the video, there's some good testimony about the contributions of salmon carcasses to soil.

MS. WILSON: What was the date?

MR. MOORE: On November 29th.

MS. WILSON: Thank you.

MR. MOORE: Yep.

MS. DALY: Good afternoon, my name is Barbara Daly and I'm with a group out of Clarksburg in the north Delta, called North Delta C.A.R.E.S. And I have been listening to the different broadcasts and I listened to the one especially from Modesto, where Felicia Marcus, Board Member Marcus, seemed very receptive to asking for solutions and input. So I have a question. If we do have solutions or something to input, how is there a way to engage with you on it and not just share it with you? And I don't know if you can --

VICE CHAIR SPIVY-WEBER: No, we can set up an appointment with one of our assistants or through Jeanine.

MS. DALY: Through Jeanine?

VICE CHAIR SPIVY-WEBER: Look forward to it.

MS. DALY: Thank you.

VICE CHAIR SPIVY-WEBER: She will refer you to
the right person to set it up.

MS. DALY: Okay. Perfect.

VICE CHAIR SPIVY-WEBER: Thank you.

MS. DALY: Thank you very much.

VICE CHAIR SPIVY-WEBER: Next?

MS. MCLEOD: Hi, I'm Ashley McLeod and I am one in 40 million people who live in California. I'm going to be as fast as possible, because my dad could teach me how to follow the rules.

The Delta is in need of help in a couple of ways. There is an intrusion of salt that is happening in the Delta that is affecting the agricultural community and the surrounding communities, as well as the wildlife around and in the Delta is declining. The staff proposal recommends 30 to 50 percent of unimpaired flow with a starting point of 40 percent in the critically dry years. The Water Board staff should know that the SED is in need of revision in salmon population and economical impact alone.

I would like to stress that I feel the public is not yet well aware enough to appropriately discuss this topic. I would like to give the public some things to think about on top of the predation and restoration on the river. (Timer beeps.) Oh, I'm sorry. With the chance of 40 percent less water our agriculture in the
Central Valley is in trouble. David Sedlak said it best when suggesting four new water tops to our state: Storm water harvesting, water reuse, water conservation and seawater desalination. The public has not yet had an appropriate amount of time to prove out all aspects to say that this Plan will work.

There is just not enough water in California currently to say that we can let go of 40 percent of unimpaired flow. Flow is necessary for the health of the river. We just need to bring all the puzzle pieces together for a better life here in California. Currently as we stand, one will win, one will lose, and it's all bad.

VICE CHAIR SPIVY-WEBER: Thank you.

DR. DOUGHERTY: Hi, my name is Dr. Elizabeth Dougherty. I'm the Director of Wholly H2O. We do education on water conservation and water reuse and I want to thank the Vice Chair and the Board for the opportunity to speak.

I just want to mention first of all, that in my household we use 17 gallons a day of water in the winter and 20 gallons a day in the summer. So the suggestion for the SFPUC that their residents would somehow be stressed on 20 gallons a day, I just want to say there's no stress in my house, so it can be done easily:
rainwater reuse, gray water reuse. So here we're on this planet for 4.4 billion years, there's been a water cycle that has functioned unbelievably well, right? Same water, same planet, 4.4 billion years, until the last 200 years when humans decided that out of the 8.7 million estimated species on this planet, we should take the water for us alone.

And I just want to mention that for salmon, which someone here called a cute fish, is a keystone species. And that's a species that other species depend upon. And if they are taken out of the system, the system falls into collapse. So what we're talking about here are not just cute fish or sportsmen or recreational only, but we're talking about the health of the planet in a long-term fashion. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

MS. VAN KURAN: My name is Virginia Van Kuran. Thanks for this opportunity to speak before you. I've already submitted my comment letter and my name is on the petition that you received from Tuolumne River Trust. I'm a resident of Santa Clara County, and I wanted to quote from the resolution in support of improving the Bay-Delta ecosystem that the Santa Clara County Board of Supervisors submitted.

Their following principles be applied: A
healthy Bay-Delta Estuary, recognize the protection and
restoration of a healthy, sustainable Bay-Delta Estuary.
It includes improvements in habitat, water quality flows
and water supply to support fisheries, wildlife and a
resilient ecosystem. Habitat restoration, provide for
the restoration of native habitat to protect endangered
fish, wildlife and plant species and to improve the
ecological functions of the Bay-Delta Estuary as a whole.

VICE CHAIR SPIVY-WEBER: Thank you.
MS. VAN KURAN: Thank you.
VICE CHAIR SPIVY-WEBER: Thank you so much.
Now, we'll have five more speakers: Francis
Brewster, Chuck Knutson, Todd Sill, Lacey Kiriakou and
Jon Rubin.

The first one is Francis, hi.

MS. BREWSTER: Good afternoon.
VICE CHAIR SPIVY-WEBER: Oh two minutes, I'm
sorry two minutes, yes.
MS. BREWSTER: Two minutes, yes.

Good afternoon, my name is Francis Brewster.
I'm a Senior Water Resources Specialist with the Santa
Clara Valley Water District. We are the primary water
resource management agency for Santa Clara County
providing water supply, flood protection, and
environmental stewardship for Silicon Valley and its 1.9
The District supports the ultimate goal of improving the Bay-Delta ecosystem and water is clearly an important component of that restoration. However, given the stakes involved we urge you to take a more reasoned and balanced approach to addressing ecosystem needs.

Santa Clara County relies on water from the Delta Watershed for 55 percent of its water supply on average; 40 percent is conveyed through the Delta by the State and Federal water projects. And, 15 percent or 60,000 acre feet per year comes from San Francisco's regional water system. Any reductions in San Francisco's supplies will put significant additional pressure on Santa Clara supplies.

Your staff's analysis shows impacts as high as 45 percent reduction in supplies to San Francisco's regional system during a repeat of the '87 to '92 drought. This level of reduction will have a significant impact in Santa Clara County. Your staff's analysis asserts that there will not be a supply impact, because San Francisco will be able to secure transfer supplies to make up the difference. Based on limited success despite a considerable commitment of resources during the recent drought, San Francisco and Santa Clara will be hard pressed to find the volume of transfer supplies that your
staff envisions.

In dry years demand exceeds available transfer supplies and sellers face political and environmental pressure to abstain from transferring water outside of their region. In years when transfer supplies were more plentiful, conveyance capacity across the Delta can be limited. In 2016, there was no conveyance capacity for transfers. Conveyance losses were also high, as much as 35 percent of purchased water can be lost in transit.

The Santa Clara Valley Water District has long been committed to sustained reliable water supplies as well as environmental stewardship. We will continue to encourage the State Board to develop solutions that will meet both of these objectives.

VICE CHAIR SPIVY-WEBER: Thank you.

Chuck?

MR. KNUTSON: I would like to have three minutes if possible?

VICE CHAIR SPIVY-WEBER: Really, there are 35 people behind you.

MR. KNUTSON: Sorry, I didn't know there was that many, okay.

VICE CHAIR SPIVY-WEBER: So I would love to give it to you, but I'd then have to give it to everyone else.
MR. KNUTSON: Okay.

My name's Chuck Knutson and I was a fishery biologist, senior fishery biologist in California for 34 years, and I've been retired for the last 10 years. So I'm here representing myself and I thank you for your time.

So based on my field experience during the '70s and '80s, and statistical analyses of salmon production and fresh water flows on the San Joaquin, I found a good positive correlation back then between freshwater flows down the tributaries from February through June and returns of adult salmon two-and-a-half years later. The reasons were that higher spring flows increased freshwater habitat for salmon juveniles, prevented lethal high water temperatures from forming in the lower tributaries and main stem, improved the safe passage of juvenile salmon down the tributaries through the Delta and into San Francisco Bay, and increased planktonic food production for salmon in the fresh water-salt water mixing zone of the estuary.

Besides salmon, freshwater flows also are highly beneficial to other estuarine species that depend on the estuary for food and reproduction. Examples are Dungeness crab, lowery (phonetic) white and green sturgeon, steelhead, California halibut, sharks and rays,
and forage species, such as redfin shad, Pacific herring and various species of smelt and shrimp. Many fish-eating birds such as kingfishers, herons, grieves, turns, pelicans, sea gulls and mergansers feed on the these forage fish. Adult fish are also important for mammals that depend on them, such as river otters and sea lions.

It is critically important that this food web and nursery area be protected and improved with increased freshwater flow as estuaries are one of the most productive ecological systems in the world. So without significant improvements to instream flows, the implementation of non-flow measures while beneficial, will not meet the salmon objectives alone as required by law or protect fish and wildlife beneficial uses.

So best available science demonstrates that current flows are insufficient to protect public trust resources and uses within the Basin or the Bay-Delta.

(Timer beeps.) Already?

VICE CHAIR SPIVY-WEBER: That's what everyone says, sorry.

MR. KNUTSON: Well, I'll send you a longer comment letter.

VICE CHAIR SPIVY-WEBER: I would love it. That would be great.

MR. KNUTSON: All right, I hope you read it,
because it gets better.

VICE CHAIR SPIVY-WEBER: I will read every word of it, I promise.

MR. KNUTSON: Okay. Thank you.

VICE CHAIR SPIVY-WEBER: And Barbara Daly, you spoke earlier for the one minute and I don't have a card for Barbara, do you?

Okay, come on up, Chuck. Chuck Knutson?

MS. TOWNSEND: Oh, yes. You have the card for Barbara, because it's got the piece of paper attached to it.

VICE CHAIR SPIVY-WEBER: Oh, Barbara? Okay. I'm sorry, it's a new one. Okay.

Okay, so Todd Still? (sic)

MR. SILL: When one has so little time to speak, you can't afford to be subtle.

MS. TOWNSEND: Can you say your name?

MR. SILL: My -- she just -- Todd Sill.

VICE CHAIR SPIVY-WEBER: Uh-huh, Todd Sill.

MR. SILL: I think -- I don't want to be an opponent of anybody, the fish people or the farmers. But we're operating on two different sets of truth here, because the truth I hear is that this water is going to replace water from the Sacramento River that goes down to the twin tunnels and gets shipped down south. The truth
to the fish people is that this water is for the fish, so we're operating on two different sets of truth. So it's really hard for us to negotiate or compromise or settle.

I'm not sure which -- I know who I believe, because I witnessed down in Modesto kind of how disingenuous the Board treated Modesto Irrigation District by making them speak at the end of that meeting when they were the host. And they didn't get to speak before a packed crowd, standing room only. So, you know, there's not much time like I said. And I don't want to be the opponents of the fish people, but somebody has forced us to be. So now we're at this standstill.

So I guess my only question since I have so little time, faced with the survival of the fish or the survival of your family, your friends in your communities, what would you fight for more and what lengths are you willing to go to? If you answer that question truthfully you will have a better understanding of our mindset. There's no fish in this world that is worth my family, my friends, or my community.

VICE CHAIR SPIVY-WEBER: Thank you so much. And I'm not quite sure how the order gets put together, but I am quite sure that the irrigation district was consulted about this, so I will double check. But I think that that particular criticism is probably
misplaced. I guess --

MS. DODUC: And can I just quickly add that I assure you while they may have presented last, that did not at all diminish the importance and relevance of what they had to say. I thought it was an excellent presentation by the district.

MR. SILL: Yeah, but our community didn't get to see how MID stood up.

VICE CHAIR SPIVY-WEBER: Okay. That's fair, thank you.

Lacey?

MS. KIRIAKOU: Good afternoon Board members, I'm Lacey Kiriakou. I'm the Water Resources Coordinator for Merced County. In Merced County we've been working closely with the other water management agencies in our groundwater basin to coordinate and implement the Sustainable Groundwater Management Act. Though Merced County faces undesirable results in five of the six sustainability indicators identified by DWR, such as subsidence, which you heard about from the Merced County presentation at the December 19th hearing; and the lowering of groundwater levels, which our County Superintendent of Schools talked about, we are still committed to managing our high priority critically overdraft Merced Subbasin in a sustainable manor, as
required by SGMA. This proposal threatens our path to sustainability by restricting the most significant instrument we have for addressing our groundwater issues and that surface water recharge.

It's imperative that before the Water Board makes such a far-reaching policy decision on the SED that you have all of the information about the impacts that taking 40 percent of unimpaired flows will have, especially under SGMA, which will be in effect in the very near future. Without knowing the effects that this proposal will have on groundwater and the economic impacts with SGMA in place, you cannot truly make an informed and balanced decision.

Merced, Stanislaus, San Joaquin counties have partnered together on an independent economic analysis of the SED, which looks at both pre- and post-SGMA economic impacts. And we will be sharing the study with you and encourage you to examine the findings, which demonstrate that the economic analysis in the SED severely underestimates the potential regional impacts. And it clearly shows the potential effects both with and without SGMA implementation.

Thank you for the opportunity to speak and I hope you take into account the hundreds of comments you've heard over the past several weeks highlighting the
concerns and threats that this proposal poses to our communities. And the many studies, reports, and analyses by our counties and irrigation districts on the SED.

Thank you.

VICE CHAIR SPIVY-WEBER: Thank you. Thank you very much.

And Jon, you're on the panel, so do you want to be on a panel or do you just want to speak for two minutes?

MR. RUBIN: Either way I am the panel, so I can speak now or --

VICE CHAIR SPIVY-WEBER: Two minutes.

MR. RUBIN: It would probably be about a little bit longer than that.

VICE CHAIR SPIVY-WEBER: Well, then you should be on the panel and Contra Costa is before you, sorry. So Contra Costa, you should be coming up. Maureen Martin. And then Jon be prepared after those comments. Thank you. Go ahead.

MS. MARTIN: Wait to get -- oh and now the waiting is done.

VICE CHAIR SPIVY-WEBER: Twenty minutes.

MS. MARTIN: Good afternoon, Board. Thank you. My name is Maureen Martin. I'm from the Contra Costa Water District and I want to thank you for the
opportunity to provide comments on the Phase 1 SED. I also want to thank your staff for a lot of the work that they've done. They've been very responsive to a lot of the requests we've made, so we really appreciate that.

So we have four key things to talk about today.

The first is our number one concern is Delta water quality throughout the Delta, but specifically at our intakes. And despite what the SED concludes we still remain concerned that there could be water quality degradation in the Delta absent standards violations. And we feel the SED is inadequate, because it did not evaluate the full range of potential Delta water quality changes and Delta operations. And finally CCWD requests that water quality management plans be required for all operational and adaptive management plans that are being developed as part of the Water Quality Control Plan.

So a little bit of background about Contra Costa Water District, why we care about Delta water quality. We have four intakes, I hope you can see them. They are the green dots on the map here. The western-most intake is on the western edge of the Delta. That's our Mallard Slough Intake, followed by Rock Slough, moving inward, and we have our Old River Intake and our Middle River Intake. And the purple area shows our service area. We serve just over 500,000 customers. And
the red line is your plan area. And you can see that our
Middle River intake is right on the plan area and yet an
analysis of water quality at our intake was not included
in the SED, and so we have concerns about that.

But all of our operations in our facilities are
based on Delta water quality and when we talk about Delta
water quality we're mostly talking about salinity. We
have our Los Vaqueros Reservoir that we built originally
in the '90s. We expanded it from 108,000 acre feet to
160,000 acre feet in 2012. And we are currently
evaluating further expansion of it with the regional
partners, many of whom you've heard from today including
San Francisco, BASCWA, Santa Clara and others, to improve
water supply reliability in the area.

And so this is a graphic of why and how water
quality in the Delta affects Contra Costa Water
District's operations and so this is a graphic. The dark
line represents salinity throughout the water year at our
intakes. It's just a representative salinity, so you
start with October over there on the left and then
September. And the green -- and the dotted line I should
say -- is this water quality threshold.

So we operate our Los Vaqueros Reservoir to
provide a consistent year-round water quality. So the
Delta goes from salty to fresh depending on the
freshwater flows and we use this off-stream reservoir to pump water into the reservoir when the Delta is fresh, and release it when it is salty. And so when the salinity is below that threshold, we're able to directly divert to our customers or divert to storage for release later when water quality in the Delta is above that line.

And so as water quality salinity in the Delta, you move the salinity above that line, that has a lot of impacts in terms of limiting our opportunities to fill our reservoir and further requiring more releases to be made to maintain that water quality. And so I just want to also just draw your attention to there are quite a few months where right now it's below the line, by the threshold, by just a tiny bit. So even small increases in Delta salinity at our intakes can have a pretty large effect on our operations and the cost of our operations.

And so, just like I said, despite what the SED concluded that the water quality in the Delta is going to improve, as a result of all the changes made, we have some concerns. Specifically, that some of the key assumptions in the modeling cannot be implemented as they've been modeled. And so the block of water concept requires perfect foresight, so the 40 percent unimpaired. So the way the modeling works is it's able to look forward for the entire water year and determine if there
is enough water in the system and decide, "Oh, I need to shift flows," or things like that. And the model is able to make those decisions with perfect foresight and we all know that that won't really be able to happen.

And so the operations that have been modeled -- I know we've talked a lot about the carryover storage requirements as well and so I won't go into that -- but really what we've heard about this carryover storage and the flow shifting is that these sort of act like de facto mitigation requirements. So they are in there to offset impacts. And so what we would recommend is that you actually display the range of potential impacts, and then discuss the possible changes in operations that could be employed, and potentially a range of operations, to offset those impacts rather than describing them as adaptive management that isn't required as part of the Plan.

And so this graphic over here is from your modeling. This is from the WSE model and this shows the change in Vernalis salinity with and without flow shifting. And so the blue line represents what your conclusions in the SED are based on that, you know, in outside of the February through June window salinities will continue to decrease, because there will be flow shifting available into those months.
However, because they're not required and the implementation in their model is based on perfect foresight, we have reason to believe they won't actually be implemented as they've been modeled. And so you can see with outflow shifting salinity at Vernalis will actually increase in several of those months.

We also believe that the SED is inadequate, because the baseline does not reflect existing conditions. I recognize that it reflects conditions potentially at the time of the NOP, but those are no longer current conditions. But really importantly it did not evaluate the potential water quality impacts outside of that red line we talked about, the project area. And it really didn't evaluate degradation in water quality beyond compliance with those objectives.

And as many people have discussed here, it did not evaluate changes in Delta operations. And not just ours, but the CVP-SWP projects as well. And so all of those combined have a big impact, can affect Delta water quality throughout it. And we believe that deferring the evaluation of those changes in Delta conditions until Phase 2 is not sufficient. So even though I recognize you'll be evaluating the changes to the Plan in phases, the evaluation of the potential impacts need to be considered in the full area, I think for each phase.
So we came with solutions as well, not just a list of complaints. In order to rectify some of the inadequacies of the SED we request that the baseline be updated to reflect current conditions, that a full range of potential water operations are analyzed. I know that we've talked a little bit about the with and without the carryover storage, but also with and without flow shifting. That you include an analysis of changes in Delta water quality and operations. And on this point I would like to offer to the staff, we have developed a CalSim model that is integrated -- can be integrated with your WSE model -- so that we have spent a lot of time, so we can make that available.

And we will make it available in our comment letter that we'll submit in March. But in terms of being able to facilitate that information, making it into the next version of the SED, we'd be happy to work with your staff to provide that technical assistance in those modeling products. And so with those additional analyses, we hope to see a broader range of potential impacts and describing of its impacts. And, you know, any impacts need to be mitigated rather than balanced away by adaptive management.

And lastly, we would like to request that water quality management be a key component of all of the other
management activities that are being considered. I know you've heard a lot about fish and other beneficial uses, but sometimes it seem as though the water quality in the Bay-Delta is not receiving as much attention in terms of the development of those management actions when they're being developed. And so we want to ensure that as those plans are being developed, specifically the STMs of that Adaptive Management Plan and the Comprehensive Operations Plan proposed for the State and Federal water projects, also include water quality management plans. And we would like to participate in the development and review of that particular portion of those plans.

And we also recognize that a similar type of plan would need to be required in development of Phase 2. So thank you.

MR. MOORE: And on that point, I mean -- oh sorry, on the water quality management plan, see that's what basin plans are, you know? And that's kind of what this Water Quality Control Plan is supposed to be. And so I think on that point are you thinking of other examples around the state that you would point to as a model for a water quality management plan that you're looking for or is this something kind of novel?

MS. MARTIN: Well, I think that this is the best way we could come up within your adaptive management
framework. And so being able to ensure that changes in water quality are properly modeled and evaluated when the other objectives of your Plan are being developed. So absent -- so we could suggest that we have these hard and fast water quality objectives that need to be met. And you do have those. You have the narrative and the numeric objectives.

And yet there still can be degradation in the absence of violation of those standards, right? And so what we would like to ensure is that we work with those folks just to know ahead of time potentially what the management of the operations will be. And how they will affect Delta water quality, so that we will be able to provide input. And most of the time I think that they really -- they won't necessarily be in conflict. You know, you can see that the flow shifting is provided for temperature management. And so that decrease in salinity in the modeling and so I don't think that it's necessarily conflict. I think that Delta hydrodynamics and salinity are quite complex.

And so actually we showed that we have water quality intakes throughout the Delta. Sometimes an increase in Vernalis flows can be a decrease in water quality, because San Joaquin is a lot saltier than the Sacramento River. So depending on the mix of waters,
where you're getting them from, we would expect to see
even a degradation under certain conditions with
increased flows at Vernalis, depending on the cross
channel operation, and the exports.

And so we just wanted to -- this was our way of
trying to ensure that even if there aren't violations of
standards that water quality is still a consideration and
the improvement and the maintenance of water quality in
the Delta is a priority.

VICE CHAIR SPIVY-WEBER: Thank you very much.
MS. MARTIN: Thank you.
VICE CHAIR SPIVY-WEBER: Now, we'll have ten
speakers, again two minutes. Mike Curry, Tim Ruby,
Kelsey Linnett, Rick Mazaira --
MS. TOWNSEND: Those two people are on a panel.
VICE CHAIR SPIVY-WEBER: Rick and --
MS. TOWNSEND: Kelsey.
VICE CHAIR SPIVY-WEBER: -- Kelsey, okay. So
John McManus, Adrian Covert, Rien Doornenbal?
MS. TOWNSEND: Adrien Doornenbal is not on the
panel.
VICE CHAIR SPIVY-WEBER: Okay. Hicham ElTal,
MS. TOWNSEND: Hicham already spoke in John
Borba's spot.
VICE CHAIR SPIVY-WEBER: Okay.
MS. TOWNSEND: Which, but John Borba does still want to speak.

VICE CHAIR SPIVY-WEBER: Okay. And Rebecca Franklin and Rachel Kaldar, so John Borba will be third from the last.

MS. DODUC: And as they are coming up, if I might say something to clarify, because I see Ms. Daly is still in the room and I wanted to make sure she hears this before she leaves. North Delta C.A.R.E.S. is a party in the WaterFix hearings and so Ms. Daly is well aware of the ex parte prohibition associated with that.

So when the Vice Chair invited you to come in and meet with us to discuss solutions for this proceeding, it's with the caveat that the solution does not involve the WaterFix or the tunnels, because we still cannot discuss that, all right? Thank you.

VICE CHAIR SPIVY-WEBER: Thank you, very much.

Okay. Mike Curry, followed by Tim Ruby, followed by John McManus.

MR. CURRY: Good afternoon, my name is Mike Curry and I'm employed at Johnson Farms in Denair. Johnson Farms is a family-owned and operated almond farm and huller-sheller that's been operating, or farming, in our local community for well over 100 years. We are extremely concerned with the revised SED and its proposed
unimpaired flow and carryover requirements. As you know, California produces 50 percent of the U.S. fruits, nuts and vegetables, much of which are grown from the Central Valley.

Your Board's proposal will not only severely impact our local region and its communities, it will have far reaching impacts on families across the country. In the U.S. less than 10 percent of a family's income is spent on food, compared to some developing countries where 75 percent of a family's income is used for food. This Plan, as proposed, will shift food production to other regions of the world, greatly reducing job opportunities in our area, collapse our communities, and increase food prices throughout the U.S.

Equally concerning is the SED doesn't account for the damaging effects it will have on groundwater quality and sustainability. If implemented, the SED be the direct cause of groundwater reduction in our communities.

Currently, we employ 18 full-time team members and during harvest we employ 40 more additional people, many of whom return year after year. We provide financial support to scholarship funds and youth organizations targeting disadvantaged children. We are stewards of the land and we believe in a strong, viable
and balanced ecosystem. We are incredibly resourceful
and are continuously innovating new ways to conserve our
resources.

However, if the SED is implemented as currently
proposed we estimate a minimum of 750 acres of our land
will have to be fallowed as a direct result of
groundwater depletion. We will be forced to lay off
long-time employees, who we consider family. And future
generations of the Johnson family will not be able to
continue its heritage of farming and supporting its
community as it has done for so many years.

And finally we urge the Board and its staff to
abandon the proposed SED and begin meaningful dialogue
with the mindset of reaching balanced solutions to
preserve the vital resources our communities are so
dependent upon. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you so much.

Tim Ruby followed by John McManus -- go ahead
and line up, it's faster -- Rien Doornebal. Go ahead.

MR. RUBY: Thank you for the opportunity to
comment today, I'm Tim Ruby from Del Monte --

VICE CHAIR SPIVY-WEBER: Oh, can you get the
mic closer so that we can --

MR. RUBY: Okay. I'm Tim Ruby from Del Monte
Foods, Incorporated. And I'm the Corporate Environmental
Water Manager and I'm a soil scientist. And I've worked at Del Monte for 16 years. And we're -- Del Monte is very concerned about both the Phase 1 and Phase 2 projects for the Bay-Delta Plan.

Del Monte has packed fruits and vegetables in California for 125 years. And our continued operations for another 125 years depends on reliable sources of both surface and groundwater. Del Monte operates a tomato processing facility in Hanford and a fruit packing facility in Modesto. Our two California factories are business critical and employ 3,500 employees during the summer packing season months. The facilities are responsible for approximately 14,000 contracted acres of local farmland and approximately 550,000 raw tons of fruits and tomatoes annually.

Del Monte fully concurs with the underlying purpose and goals for the new flow objectives, and applauds the Water Board's efforts to formulate a very complex adaptive management approach for maintaining and improving salmon and steelhead populations in the Lower San Joaquin River and its tributaries.

Del Monte is very concerned that the Lower San Joaquin River Alternative 3 may be too aggressive. In particular, we are very concerned that this level of protection may not measurably improve fish populations
over the less aggressive Alternative 2. And would be
much too impactful in negative way on the region's
fragile farm economy, and already strained groundwater
resources. Del Monte projects that implementation of
Alternative 3 will measurably impact its ability to
continue to source, harvest locally grown tomatoes and
fruits, shorten its seasonal factory packing days causing
job losses, and increase fixed production costs at both
of our California plants.

Del Monte projects that 53,000 growers, 2,200
acres and 73,000 raw tons of fruits and tomatoes, with a
current value of $18 million historically grown within
the basin will be in jeopardy if Alternative 3 were fully
and aggressively implemented by the Water Board, as
stipulated in the SED.

VICE CHAIR SPIVY-WEBER: Thank you very much.
Thank you.

MR. RUBY: We do urge you to go back and look
at Alternative 2. We think there could be some tweaking
with Alternative 2 that will cause less of an impact on
our local economy and our business directly. We think
there are some opportunities to look at there --

VICE CHAIR SPIVY-WEBER: John McManus is next.
I'm sorry, thank you, sir.

He left. Rien Doornenbal.
MR. DOORNENBAL: My name is Rien Doornenbal.

My wife Lieske and I farm northwest of Escalon. We farm in the South San Joaquin Irrigation District.

I was pleased to hear that the Board recognizes that predation is a problem, but the solution suggested to increase flow to somehow move predatory fish out of the way to become less of a threat to the native species sounds to me rather fishy. The irrigation districts have suggested reducing the number and size of predatory non-native fish by increasing sport fishing pressure -- the suggestion so far has been ignored by all of the other stakeholders. We feel that this is disingenuous. This is an issue that makes us wonder if the other stakeholders are acting in good faith.

I'd like to address another elephant in the room and that is water rights. South San Joaquin Irrigation District and Oakdale Irrigation District share water rights. These water rights allow these two irrigation districts to divert water that is the result of snowmelt from a specific geographical area in the Sierras. MID and TID have similar water rights. These are senior, adjudicated, and pre-1914 water rights.

Are there problems in the Delta? Certainly, we could spend all day speculating how they came about. But let's not forget that there have been many changes.
(Timer beeps.) I have 40 more words. There have been many changes in the state's water system that affect the Delta, that came after SSJID, OID, MID and TID started diverting. We feel the Board is trying to put the whole problem on our backs.

I cannot predict how the water rights issue will play out. But I will predict, with 100 percent certainty, that those of us with senior, adjudicated, pre-1914 water rights will go to the mat to protect what we have.

VICE CHAIR SPIVY-WEBER: Thank you very much.

John? John Borba, followed by Rebecca Franklin, followed by Rachel Kaldor, and then the long-awaited Jon Rubin.

MR. BORBA: I'm John Borba, grower and cattleman. I've used Merced River water for 66 years. The Merced River flow, an average of 1,000,000 acre-feet per year. MID diverts 550,000 acre-feet of which 300,000 is sold to its growers for use on 100,000 acres; 250,000 is consumed by people with riparian rights, system distribution seepage, and evaporative loss; 450,000 acre-feet continue down the river to the Delta for fish and wildlife and other uses thereof.

The water is first accumulated in our watershed, then contained in our Lake McClure behind
Exchequer Dam, then distributed in coordination with
government officials with rules and regulations thereof.
Our containment and river rights are pre-1914 in
accordance with the law of the land. You are presently
on average receiving nearly half of the Merced River flow
and when you want it, plus the bottom 115,000 acre feet
of McClure belongs to you and we deliver 15-second feet
to the Merced Wildlife Refuge.

MID constructed and paid for Exchequer Dam
containment. If Exchequer Dam were constructed today,
the cost would be one and a quarter billion dollars.
Merced Irrigation, I mean MID irrigating 100,000 acres
also influences with underground recharge, another
400,000 acres totaling one-half million acres with a crop
value of three-quarters of a billion dollars and with a
land, equipment and capital improvement value of $10
billion.

We have built these improvements,
infrastructure and inputs for over 100 years. We have
had a cattle ranch for 80 years, which is also a private
fish and wildlife preserve with no fishing or hunting
allowed. The large creek within depends -- (Timer
beeps.) -- I've got eight sentences. The large creek
within depends on small amounts of MID flow change over
flows. During the drought, this creek dried
intermittently and we lost fish. If increased Merced River flows were required we are concerned that would occur more often.

Merced River has the least reliable and the lowest yielding watershed of all major rivers north. We also deliver the highest concentration of salt, 700 parts per million, after entering the San Joaquin. Merced River flow requirements have been maximized and balanced considering all aspects of this project, but we are interested and want to do our part to enhance the life of the fish with the MID, Merced River SAFE Plan.

VICE CHAIR SPIVY-WEBER: Thank you.

MR. BORBA: Thank you.

VICE CHAIR SPIVY-WEBER: Rebecca followed by Rachel.

And then Jon, you can come and sit up here all ready.

MS. FRANKLIN: Good afternoon Vice Chair and members of the Board, my name's Rebecca Franklin, with the Association of California Water Agencies. ACWA represents more than 430 public water agency members that collectively supply 90 percent of the water that's delivered for agricultural, industrial, and municipal uses statewide. Our membership includes a number of irrigation districts and water districts that you've
heard from throughout this public hearing process. We appreciate the hearing process you've held as well as the recent 60-day extension that you granted on the written comment period. We want to underscore all of the comments you've received regarding the need for a more open, transparent, collaborative approach to developing this Water Quality Control Plan. The Water Quality Control Plan must be developed in a manner that's consistent with the direction outlined in the California Water Action Plan and established state policies, including the Delta Reform Act, the Sustainable Groundwater Management Act, and the Human Right to Water Act.

The current unimpaired flows approach will not help the state achieve its policy objectives and will actually undermine established state policies by increasing groundwater overdraft, making investments in storage projects irrelevant, and negatively impacting disadvantaged communities as you've heard about a lot. The current proposal will also have a devastating impact on California's economy and the disadvantaged communities that comprise 40 percent of the area affected by this Plan. This is an unacceptable outcome for a Water Quality Control Planning process, the objective of which is to balance out all establish beneficial uses of water.
Considering these negative outcomes, the best available science must support the unimpaired flows approach as the only approach that will achieve desired ecological outcomes.

The 2012 Delta Independent Science Board peer review of this approach states that flow is but one of many stressors affecting fish and wildlife. And the choice of flow criterion metrics needs to serve the broader needs of ecosystems as well as individual species. Given the altered hydrodynamics of the Bay-Delta ecosystem simply adding water to the system will not achieve desired ecological outcomes. Flows must be applied in a manner that's functional to available physical habitat and timed appropriately for aquatic species life cycles.

The Coop identifies the need for an integrative multi-pronged approach to determining ecological flow needs. ACWA's member agencies have demonstrated their interest in such an approach and have the technical ability to help inform the process if they're included. Just one more thing, ACWA encourages the State Water Board to continue to work with the Natural Resources Agency on negotiating voluntary settlements and to engage stakeholders in an open, transparent, collaborative process that incorporates the best available science as
this process moves forward. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

Rachel?

MS. KALDOR: My name is Rachel Kaldor. I'm the Executive Director of Dairy Institute of California. Dairy Institute is a statewide trade association representing the manufacturers of milk, cheese, cultured dairy products and frozen dairy products. We are absolutely supportive of the work of this Board, the staff, and allied experts to sustain and improve water quality and the ecosystem. I'm here to testify in support of a balanced approach, one which benefits the Tuolumne River, related water systems, and all that depend on them.

Our members rely on dairy farms to supply milk to Central Valley dairy processing plants that then go on to serve a global market. Dairy farms and processing plants are the source of thousands of year-round well-paying jobs in Central Valley communities, most of which would suffer significantly higher unemployment and loss of tax and business revenue if these operations were forced to leave.

Looking to the future, as our farms and plants modernize, employees with these year-round jobs also gain employment education and training. These opportunities
drive their futures and the well-being of they and their families. They also foster the innovation vital to our affiliated industries and that innovation keeps our farms and processing plants in operation.

We urge the Board to implement science-based options such as non-flow measures that would help the salmon population and increase the health and operation of the river. We would also urge the Board to consider carefully the impact of unimpaired flows on the state's and regions' critical need for groundwater management and recharge.

Viable solutions are those that achieve the balance to sustain both our treasured resources and our citizens. I appreciate the opportunity to testify before you today. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

Jon?

MR. RUBIN: Yes, thank you. My name is Jon Rubin. I'm General Counsel for the San Luis & Delta-Mendota Water Authority. Madam Vice Chair, members of the Board, staff, it's a pleasure to speak to you and I will be brief.

I have two general comments. Let me first start with the Delta Independent Science Board. The Independent Science Board was created as a result of the
2009 Delta Reform Act, as you're aware. And it's in existence to provide oversight on scientific research, monitoring and assessment programs. And its objective is to strengthen the science underlying Bay-Delta programs and the application of that science within the Bay-Delta.

The Independent Science Board, as you may be aware, is reviewing and preparing comments on a draft Scientific Report that your staff has prepared for Phase 2 of the Water Quality Control Plan. My understanding is that the Independent Science Board that has released the draft of those comments is intending to finalize them on January 12th.

The draft comments that were released in December present some fairly fundamental questions with regard to the Phase 2 draft Scientific Report. And I do want to highlight three here today.

First, the Independent Science Board, in its draft comments, questioned why the State Water Board's draft Scientific Report only considers an unimpaired flow approach to setting flow regulation. They question the lack of quantitative treatment of any effects from non-flow stressors and questioned the limited description of possible methods for reducing effects of non-flow stressors. The Water Authority raised these questions, or noted these questions in its comments on the Phase 2
draft Scientific Report. And I note them today, because
I believe these three questions -- and there's others
that they raise -- are directly applicable in this Phase
process.

The questions that the Independent Science
Board has raised with regard to the draft Scientific
Report for Phase 2 are questions that were raised in this
Phase 1, when the draft Scientific Report underlying the
documents that are before you today, were released for
public comment. I do want to emphasize the first
question that the Delta Independent Science Board has
raised -- the failure to consider approaches other than
an unimpaired flow approach. To me this is a large and
very problematic failure that exists in Phase 2, but it
again is a problem and a failure in Phase 1.

And you've heard and you've seen the results of
the focus on unimpaired flow today, I'm sure at the other
hearings that you've attended. By focusing on unimpaired
flow you set a paradigm that's -- the question that's
before you is how much water for fish versus how much
water for people? This is a paradigm that has been
employed for the past quarter century by the State Water
Board. And it's a paradigm that's failed to provide the
desired protection for beneficial uses.

It places the State Board in an untenable
position of choosing winners and losers. And it also places you in a position, if the desired results are not realized, for pushing for more water for fish at the expense of people. Science, policy and law support consideration of alternative approaches. Alternative approaches that may avoid the State Board being placed in the difficult circumstances I just noted.

Alternatives that could be presented to you, but haven't yet are approaches that you've heard today from other speakers, like an approach that's based on functional flows. Other approaches are based on regression or statistical analyses. By following an alternative approach solutions focus on the needs of fish and the needs for people. It allows solutions that do not necessarily sacrifice one for the other. It allows solutions that do not place the heavy burden of flow, the burden that exists when you rely upon flow as a master variable. It allows solutions that consider flow, a call on non-flow measures to mitigate for non-flow impacts that have occurred within the system.

The second comment I want to raise is again a comment that was raised earlier today. And it concerns the conflation of authority. That the Phase 1 documents that are before you today conflate authority that you have under your water quality planning versus your water
right planning. And because of the conflation of your authorities, if you adopt the update as proposed, you will be violating the law.

The example I provide to you today concerns the Program of Implementation for southern Delta salinity objectives. Under the law, the Water Quality Control Plan and its Program of Implementation are not to assign responsibility for achieving objectives. The proposed updates and the Program of Implementation do just that.

As examples, the Program of Implementation assigns to the Bureau of Reclamation requirements to meet south Delta salinity as a condition of its water rights. And that's on page 42 of the Program of Implementation. Page 43 has a similar statement obligating DWR and Reclamation to meet salinity requirements, as condition of their water rights. And page 45 has a condition on DWR and Reclamation's water rights with regard to operation of agricultural barriers.

So let me close by highlighting the three -- the concerns that I've raised today. You have concerns raised by the ISB in Phase 2 that are equally applicable to this Phase 1 and need to be addressed and more specifically, the failure to consider a regulatory approach other than an unimpaired flow approach. And you have the documents before you that conflate authority,
your water quality and water right authority.

These are significant concerns. Their significance however, is amplified by the fact that you're updating your Phase -- you're conducting your Phase 1 update within a very complicated regulatory environment. An environment with multiple other regulatory processes underway, all of which are focused on similar resources, and all of which have similar goals.

What the Water Authority recommends is that the State Water Board expand the analysis that's before you to address the concerns that I've highlighted. And to develop the Phase 1 documents to support or complement a unified institutional structure. That the State Board develop the Phase 1 documents to help bring a sense of order and singular purpose to the many processes that now exist within the Bay-Delta. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you. Any questions? Thank you very much.

I have 10 more speakers, Michael Warburton will be first. Michael, could you come right up right now? Deanna Wulff, Mark Chow, Paul Gardner, Leah Rogers, Carol Fitzgerald, Bart Westcott, Gail -- Gail, you'll tell me how to do it -- Charlotte Allen and Crystal Sanders.

Thank you. Michael?
MR. WARBURTON: Yeah. I'm Michael Warburton. I'm Executive Director of the Public Trust Alliance. It's a non-profit, which represents public interests in California's waters, which you devote a great deal of attention to.

My brain is fried. I haven't understood a lot of what's been said and, you know, some people said, "We own it." And the thing is that things don't have value. People give it value. And when you have different people, they put different values on things. And so a lot of this is totally predictable differences in perception. People talked about different truths. And the scientific evaluation has to include an institutional analysis of where the uncertainties are coming from, because both camps of people and fish are claiming that their truth is the truth. And the thing is that both are the truths.

And with that kind of thing when you have voluntary settlements, some things get traded away. And I think the process should be transparent enough, so that people can understand what's being traded away by whom and who disagrees with who. So I'm just saying at the end of a day like today, I'm blitzed.

And I haven't gotten any further, but I hope you have.
VICE CHAIR SPIVY-WEBER: Thank you. I hope we have too.


MR. GARDNER: Thanks for the opportunity. I'm a small business man. I'm a salvage contractor in Silicon Valley and I'm here today, because I'm concerned about the river though, and its inhabitants. And as a way of expressing myself I wrote this following little story, which I hope you'll let me read.

The human walked into the Court of the Honorable Ronald E. Salmon. "Why are you here?" the Judge asked. "We petition the Court to take a major portion of the water of the Sacramento-San Joaquin River Delta," the human answered. "What right do you request this?" "Well, we need it and we are more intelligent and more sophisticated than other species." "More sophisticated?" "Yes. We have advanced technology and communication and transportation and war. We have been to the moon."

The Judge probed. "Has your technology benefited the earth and all its inhabitants?" "Well," said the human, "Many species have gone extinct and there's been some environmental destruction." "Some?" snapped the Judge. "It seems to me there's been a lot of
environmental destruction. Have you at least benefited all humans with your technology?" asked the Judge. "Uh, no. Not exactly. There are many humans that have suffered. We could be doing a far better job with food, health care, energy and more. That's for sure."

"My fine scaled friends have not harmed anyone," the Judge said. "They benefit many other species, both plant and animal kingdoms along the way. In fact, they provide many jobs to those of your species. How will the taking of this water affect my fine finned brothers?" the Judge asked? "Well," said the human, "It depends on how much water we take. (Timer beeps.) Many, perhaps all of you will die. That's just the way it is," replied the human.

"And you think this might help?" the Judge asked. "Well," said the human, "We have a lot of humans to feed." "As there is no other way?" asked the Judge. "Well," said the human, "This is the easiest way. We haven't necessarily explored all the other options."

"You seem to be a very arrogant species," declared the Judge. "Wouldn't methods exploring all the other conservation measures before taking such a drastic step? I deny your petition. Don't come back 'till you have explored all the options and ensured the lives of all species and the health of our precious Mother Earth."
Thanks for your time.

VICE CHAIR SPIVY-WEBER: Thank you.

Leah.

MS. SREDANOVIC: Hi. Thanks for your patience.

I'm Gail Sredanovic. I am a member of San Mateo County Democracy for America and Chair of the Social and Economic Justice Task Force. I led them in a study of water issues and we were surprised to learn that there are five times as many water rights as there ever has been water in the State of California. And to learn that salmon habitat is water, plain and simple, that salmon flows coincide with water flows.

The club has taken a position against the twin tunnels and the County of San Mateo, the County Board has passed a resolution reminding everybody that the State Water Resources Board determined in 2010, that to protect the public trust resources in the Sacramento-San Joaquin Bay-Delta ecosystem, 75 percent of unimpaired runoff from the Sacramento-San Joaquin Watershed should flow out of the Delta. Also, in their resolution, they noted the need for regional self-sufficiency to reduce reliance on exports from the Delta. And they also noted that protecting the economic viability of industry and other businesses in the Bay Area was needed. And that part of this is protecting the shoreline of the greater San
Francisco Bay-Delta ecosystem.

I would also note since I live in Menlo Park, that in East Menlo Park where we have Facebook and tons of jobs, that the low-income residents are being driven out by rising rental costs. And if similar processes go on in East Palo Alto, the City Council may get money and the developers may get money, but similar processes will drive out the disadvantaged community. And I'm very concerned about this. I would urge you not to be overly persuaded by this particular sub-argument.

Thank you for your time and patience.


MS. ALLEN: I'm here, you finally got someone.

(Brief colloquy aside.)

MS. ALLEN: I'm Charlotte Allen. I'm the Co-Chair of the State Sierra Club Water Committee. I'm not here to speak for the Sierra Club, because I'm not advocating for anything. I just thought I'd do a little fact-checking on the claims of economic disaster that you've been hearing. I'm speaking to this little one-page chart that I've left you copies of. And I thought what would be useful instead of talking about modeling was just to look at two years in similar points on the
economic cycle. And I picked 2006 and 2014, both of them
about six years out from major economic collapses. The
2008 one being a more major collapse.

The difference between these two years is that
SFPUC water deliveries were 25 percent lower in 2014. So
we're going to see the impact of a 25 percent reduction
in water deliveries. Unemployment however, was down 15
percent in 2014 as compared to 2006. The NASDAQ, which
is kind of a rough indicator of Bay Area economy was up
75 percent between 2006 and 2014. And the median home
value, which is probably a better local indicator of the
economy for the San Francisco Metro area, was up 10
percent between 2006 and 2014.

So if I was kind of a radical I might say that
the 25 percent decrease in water deliveries had a
positive impact on the Bay Area economy. But I'm not
going to say that. I'll just say it has no discernible
impact on the Bay Area economy. I would urge you to look
with skepticism on the claims of economic impact and look
at history. A similar history might enlighten us about
the Central Valley. The 20th Congressional District in
the San Joaquin Valley has been crushingly poor since the
1940s in years of plentiful water and no water.

So take the claims of economic disaster with a
grain of salt and a dose of history.
VICE CHAIR SPIVY-WEBER: Thank you so much.

And finally Crystal Sanders. And then the last panel, the joint presentation on recreational interest, if you all could come up and have a seat up here that would be great. Thank you.

Go ahead, Crystal.

MS. SANDERS: Hi. I'm Crystal Sanders. I live in San Francisco. I'm a fisheries biologist, Founder of Fish Revolution and on the Board of SalmonAid. Fish Revolution works with chefs, restaurants, and other businesses in the greater Bay Area to implement sustainable seafood sourcing practices and to transform their seafood purchasing practices to ensure healthy oceans and business success.

Wild salmon is not only an iconic California species, it is key ingredient on my clients' menus. And salmon is one of the most recognized and desired fishes that they offer. And wild salmon is really the only sustainable options for these businesses to choose. The problem is that local wild Chinook salmon is so hard to get, and the price is too high, and availability is too uncertain for many restaurants and businesses to rely on it for their menus. This is harmful to both their businesses and their sustainability goals.

Restoring the San Joaquin River and her
tributaries could lead to tens of thousands more salmon
in the ocean every year -- even more if we go up towards
the 60 percent recommendation. This would make supply of
salmon more reliable, less expensive, and while keeping
these economic benefits of salmon sales in our local
area. In most years, the San Joaquin has less than 30
percent of its natural flow. The Water Board's current
proposal to increase that to only 40 percent is
inadequate. The best science tells us that it's too low
to support reliable salmon productivity in this valley.

Please protect our wild salmon fishery, the
restaurant and fish-related businesses like mine that
rely on wild salmon by following the science to restore
at least half of the flow to the tributaries to the San
Joaquin. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you so much.
And who is leading the panel?

MR. MAZAIRA: I'm not sure we have a leader.

VICE CHAIR SPIVY-WEBER: Well, who starts the
panel then?

MS. D'ADAMO: I would say just go down the row.

VICE CHAIR SPIVY-WEBER: Okay. Start with Kate

-- Kelsey.

MS. LINNETT: Thank you. Good afternoon, Vice
Chair and members of the Board.
(Colloquy re: audio setup.)

VICE CHAIR SPIVY-WEBER: No, and introduce yourself.

MS. LINNETT: Thank you, turned on the mic. My name is Kelsey Linnett. Good afternoon Vice Chair, members of the Board. I live and work in San Francisco and I recently discovered that I love sport fishing. My first time was last spring. I was enamored and not just because I was dating the captain of the boat. (Laughter.) Before I met him, I had no idea that someone like me could go out fishing. I wrongly assumed that the world was relegated to a few old geezers and some hunting enthusiasts. I thought you had to have been taught by your father or come armed with a set of fishing poles and a well-stocked tackle box.

Then I stepped on to the boat, a 50-foot sport fishing vessel called the "New Easy Rider." During salmon season it leaves the dock in Berkeley nearly every day at 6:00 a.m. sharp. If you don't have your own rod, you can rent one. There's room for up to 25 people, each with a spot along the edge of the boat.

The first stop is the bait dock where they sell live anchovies. A few silvery scoops into a couple of buckets and we're off through the Bay, under the Golden Gate Bridge, around Point Bonita and into the ocean.
That's when you get to fish.

You fish for salmon with a trolling method, which means mimicking a school of anchovies to attract the salmon to bite. You drop the line with a small weight attached to a sink release, trailed by leader line and a hook threaded expertly through the anchovy, so that it spins in the water. The boat slows down to a crawl and you wait for the fish to bite. The fish don't discriminate. They bite for newbies and veterans alike and some days they don't bite your line at all.

When you get a bite you yell "fish on" and then the deck hands help you weave over and under the other rods as you slowly reel it in towards the boat. You follow the fish sometimes all the way around the boat before it gets close enough to get a net and haul it onto the deck. It is exhilarating. Your adrenalin is going. Your forearms start to give if you're fighting too hard, and you are singularly focused on that fish at the other end of the line. If you pull too hard the fish will break the line. And if you're too soft, then the fish can wiggle free from the hook. And this adventure continues for a full day. Sometimes up to 12 hours.

In the course of managing your rod, you might be lucky enough to see whales and sometimes a shark. You hope not to see a sea lion, because they will steal your
salmon once you've hooked it. When you catch a salmon it is the most beautiful creature. And it is so, so delicious. You learn to eat the whole fish and share what you're not going to eat. And let me tell you, that everybody likes getting some fresh salmon.

Some additional points about the activity.
It's very inclusive. All generations from kids to retirees can participate. All abilities and expertise are welcome. I went on a fishing trip with two people who were blind. It's very multi-cultural. Fishing is universal. And it fosters connections. When you're on a boat all day fishing together, you talk to people. You trade stories and you learn. You experience the ocean firsthand and the fishery. And you form a deeper connection to nature and your food source.

It's also a way to mark occasions. I've seen people come on the boat to celebrate birthdays, to bond with their work colleagues. And there's an annual memorial charter to recognize all the people that have passed.

It's a destination and it's stimulates the economy. It allows commercial fishermen like my boyfriend to diversify what his boat does beyond commercial crabbing and support his two kids. People travel from all over to come out sport fishing. They
stay in hotel rooms, they purchase food, they buy their fishing licenses. And it supports the entire infrastructure from the Berkeley Marina to the fuel dock to the bait dock. In short, if sport fishing were no longer viable it would be an irreplaceable loss to the community and the state.

The fishermen all know, because they've lived it, that the salmon population has dramatically decreased to the point of scarcity. It used to be that in the ocean, outside the Golden Gate the salmon would be where the feed were. And now it's spotty. As a result, the fleet watch each other closely and if one boat lands a fish they all race to get to that same spot just like kids fighting over the last cookie.

The State Water Resource Control Board has this once in a generation opportunity to restore the salmon fishery, so that more avid fishermen can catch a fish or two, which is the limit. In my opinion, it's not a question of fish versus farm. It's about stewardship and inclusion. Access for everybody to have the opportunity to catch a fish is not too much to ask.

I am in support of increased flow at the maximum levels in the Phase 1 proposal, because that is the minimum flow necessary to restore the salmon population. You have that power and it's the right thing
to do. Thank you.

MR. MAZAIRA: Madam Vice Chair, Board, thank you for the opportunity to speak to you and thank you very much for the openness that you have in hearing our comments during this comment period.

My name is Rick Mazaira. I am the owner and operator of Yosemite Outfitters Guide Service at the headwaters of the Merced and the headwaters of the Tuolumne. I have a permit standing in the Stanislaus National Forest, so I also guide there. And I'm very familiar with these waters and it was good to hear that you went for a walk through those rivers.

I would say that this issue is not about fish versus food, because food and fish, well, fish are food. I would say this very simply. It is about stewardship. It is about a bigger picture that we need to consider and that we need to keep at the forefront of our minds.

I am also a manufacturer's representative for rod and tackle companies. And it's a $2 billion a year industry that has been depleted, not just because of drought, but because of many reasons. Some would call it mismanagement, some would call a lack of foresight, some would call errors of our past. The opportunity we have is now.

And I don't envy you. I do not envy you. I
have to make hard decisions. Like I have to choose how
to communicate to international people that come to
Yosemite and want to fish. And I have to not only avoid
crowds, but follow the law. And as a steward I make sure
not to pressure certain areas, because I don't want to
over fish populations. But you have to choose with the
facts and science and you're getting -- it's almost like
the bad kid in the choir that ends up in front of the
microphone. You hear all the sour notes of everybody's
agenda, screaming at you every day.

So what I would say is you need to parse out
the facts. Do what's best, because it's not anecdotal
that I look at my Steelhead Report Card and see --
because it's January 1st, or 3rd now and you have to turn
in your Steelhead Report Card every year -- and I'm a
steelheader. It's known as the fish of a thousand casts.
I looked at my report card this year and there was the
most zeroes I've seen. Zeroes representing days where
there was no catch. And that squarely rests on some of
the decisions that are in this proposal.

I would also suggest to look past some of the
lazy fact finding, is what I'm going to call it. You can
find out how many people caught fish. Guides like me
have to report that to Fish and Game every time we go
out. You can find out harvest records, which could give
you an idea of percentages as well. There's information out there. I would suggest that not only you look at increasing the flows, but look at a holistic plan to restore the ecosystem. And to provide all people a livelihood, because this is how I pay my mortgage. And I've got four kids. They're looking at school.

Thank you very much for your time.

MS. CHARLES: Hello. My name is Cindy Charles. And I'm the Conservation Chairperson for the Golden West Fly Fishers for the last 16 years, and a former Conservation Chair for the California Federation of Fly Fishers. I am here today to support the proposal by the State Water Board to increase the flows on these rivers. This is our last, best chance to attempt to restore the severely degraded tributaries of the San Joaquin.

I grew up in San Francisco, drinking Tuolumne River water and learned to fish for salmon on fishing trips with my father. These life-changing outings were the reason for my degree in Zoology from UC Berkley. For the last 20 years I worked in banking and finance. I can understand both the science and the complex economics of water. Climate change, population growth, and the switch to permanent crops have placed increased demands on water resources.

The Tuolumne, Merced and Stanislaus rivers have
always been my favorite rivers. My now adult son's first fishing trip was on the Tuolumne. Some of the salmon I caught with my father began their life in the spawning gravels of these three rivers. It is not only family farms that have a connection to these rivers. My family has a multi-generation connection too. Fishing and healthy abundant salmon are part of my family's life and history. I fear a future without salmon to share with my grandchildren.

I have fished the lower sections of the San Joaquin tributaries for 25 years. I have been witness to the diminished quality of the aquatic resources and seen habitat degraded over many seasons and many water year types. This rapid decline of these once great trout, steelhead and salmon fisheries has occurred in all three tributaries. The numbers of people seeking recreation in natural areas is increasing annually, as is the economic importance of these visitors.

The citizens of California, the same people who sacrifice their water during periods of drought deserve a chance to recreate on healthy, environmentally functioning rivers. Rebalancing the beneficial uses of these rivers is overdue. Do Californians deserve to live in a place that is so degraded that salmon are just a memory? No. They don't. Let's not trade our chance for
healthy, functioning river systems and the vibrant ecosystems that they support for a salty snack that is mostly exported.

I urge the State Water Board to stand firm on the proposal to increase the flows of the San Joaquin tributaries, to support the restoration of the Bay-Delta system, which is so vital to so many species of wildlife and not only fish.

I thank you very much for your time and your consideration.

MR. O'ROURKE: Good afternoon, Madam Vice Chair and Board members. I'm Sean O'Rourke and I'm a PhD geneticist, working at UC Davis, in the College of Agriculture and the Environment.

My research focus is salmon and steelhead genetics. We work with state and federal agencies, Native American tribes, other universities and anglers up and down the West Coast from California, Oregon, Washington, Canada, Alaska and also into Russia and Japan. We obtain genetic samples from fish and we use them to discover how fish populations are related and what genetic mechanisms they have evolved to allow them to thrive in different environments.

I love fish. I've been an avid recreational angler all my life. I fish for salmon and steelhead on
the Sacramento, Feather, Trinity, Klamath, American, Eel and the Tule rivers in California. I also fish the ocean as often as I can. I bring friends, family, and students in our department out fishing with me. Friends come to fish with us from all over California, other parts of the U.S. and even other countries.

I'm certainly not the only angler that would appreciate having more salmon and steelhead in the Central Valley where so many of us live. I help run a fishing forum with over 37,000 members. So there are many, many anglers who are interested in getting more water for our fish. We all buy licenses, tackle, gear, bait, fuel. I have three boats myself. Angling not only provides significant economic benefits, but also a quality recreational experience for individuals and families in our state.

If there were increased salmon and steelhead in the San Joaquin Basin, it could provide additional angler opportunity and many of us would love to take advantage of that opportunity. The San Joaquin Basin used to have an epic run of a type of salmon called Spring Chinook. From time immemorial, these fish would come up river during the spring. And over the summer in cold, clear pools high up stream, prior to spawning in the fall. Not anymore. Due to water withdrawals and dams those fish
were wiped out. What's left in the basin are fall-run Chinook and steelhead. And their numbers are holding on by a thread. By providing higher flows, we can finally hope to improve our salmonid runs. Many anglers believe it's very simple to help fix the dire fish situation. More water equals more fish.

And I just want to add recreational and commercial anglers stand by family farmers. But when we see vast oceans of corporate farms producing bumper crops during droughts, towns without any water meters and lush urban landscaping using imported water, many feel this is an unjust situation. So I'll close by saying fish need to have much more increased consideration about our water allocation choices going forward. Perhaps we can look at the Trinity River Record of Decision as a model compromise for all users of the resource. Thank you for your time.

VICE CHAIR SPIVY-WEBER: Thank you. Are there any questions? Thank you very much.

I have four speaker cards, Jeanelle Steiner is first. Is Jeanelle here?

MS. STEINER: Yeah, I'm here.

VICE CHAIR SPIVY-WEBER: Okay. So come on up.

Aaron Orsini, Gary Bobker, and Tricia Geringer.

(Colloquy re: people in attendance.)
VICE CHAIR SPIVY-WEBER: Go ahead.

MS. STEINER: First of all I want to thank you, each one of you, for all that you have been through and all that you're offering to this process.

My name is Jeanelle Steiner. And I'm a fourth generation Californian and I'm an environmental educator as a professional. And I took a vacation day in order to put my word in for future generations, for all species.

While I appreciate that you're getting outcries from all communities, and I feel for all those communities, I urge you to, as human beings, to think of the big picture here. Our ecosystems and long-term sustainability is our highest objective here for the health and well-being of everyone. So I urge you to choose the maximum flow for the San Joaquin River and it's clearly -- we clearly need to set a new standard for what our water carrying capacity can be. And I have faith that with the creativity that we have available to us in California, that we can work together to come up with creative solutions. So I think the human needs and the economic needs will be a challenge. And I'd like you to be awake to what's at stake, the potential extinction of more species and at some point if pushed further, possible ecological collapse.

An intact ecosystem that sustains the entire
delicate web of life and its long-term sustainability should be the highest objective. Thank you.

VICE CHAIR SPIVY-WEBER: Thank you.

Aaron?

(Colloquy re: microphone setup)

MR. ORSINI: My name is Aaron Orsini and I am a fishing captain out of Bodega Bay. I've been asked to come here and speak and share my life from Dr. Bill Bennett, with the US Davis Watershed Center and the Bay Institute as well as Golden Gate Salmon Association.

It's been an interesting one listening to everything that's going on here. I think all I can do is kind of share my life and some of my experiences. I grew up in Bodega Bay and both my parents were charter boat fishermen. And I've seen the fishing out of Bodega Bay go from very extensive, very expensive, lots of boats, as much as ten head boats, to one head boat and a few struggling six-pack businesses.

I grew up with my parents losing their jobs repeatedly, actually not just once and finding new jobs, but once and finding new boats and once and finding new boats. I've seen my uncle who's a commercial fisherman all my life go to different fisheries. I've seen all of those collapse.

I personally have been struggling just the last few
seasons to make a living fishing.

I love the ocean. I love fishing and I love salmon. I'm sorry, I can't convey more in just two minutes. What has been done isn't enough. And it's been poorly done. (Timer beeps.) You have an opportunity to do something else. I'm not saying it's the right thing or done perfectly, but it needs to be done differently. People's lives -- I hope you listen to a lot of people who have put a lot of time and effort and expertise and have spent their lives creating some kind of alternative plan.

Good luck making your decision.

VICE CHAIR SPIVY-WEBER: Thank you so much. Gary?

MR. BOBKER: Gary Bobker, Bay.org. The Bay-Delta Estuary deserves the kind of protection and attention that we give to other national treasures like the Chesapeake and the Everglades, but instead we're letting it collapse and we're all to blame. And the time to do something about it is long overdue. Salmonids are not just -- this is not just about fish. It's about the fact that salmonids are the indicator of a healthy ecosystem. It doesn't take much for fish like salmon to succeed. And the fact that salmon are either declining or locally extinct is evidence of just how degraded this
ecosystem is and how beneficial uses are not being protected. And that is your job.

There's overwhelming scientific evidence that major increases in flow are the effective action to take. It's a red herring to talk about flow versus non-flow, because as you have heard time and time again the science is that flows are -- it takes flows whether you do habitat or predation measures or not. In fact, it takes flows to make those be successful. It's also a red herring to talk about unimpaired flows. That's a method for providing flow conditions, which happens to be a good one. But the real issues is what's the level of flow you're going to provide? If you want to base it on the best evidence we have about what makes salmon return, positive recruitment at 5,000 CFS and doubling at 10,000 CFS, go ahead and do that instead. The water supply impacts will probably be bigger, but you'll achieve the end goal.

The water supply impacts are important to talk about. I think it's also important to note that, as many speakers have talked about, in many cases they're exaggerated. In many cases they can be mitigated. And with all due respect to the fine people in the Central Valley, in the agricultural industry, I think that some of those concerns are misplaced, that they're
surrogates for the many other issues that the
agricultural industry has to deal with, whether it's
trade policies or world markets. But water is actually
not the thing that is going to make or break that
economy.

I will end by saying that I went through the
last round of the major update of the Bay-Delta Plan in
the late '80s and '90s. It took nine years for a Board
that changed radically, because the members didn't last
long enough. It took nine years for the State of
California to adopt water quality standards. I never
thought that I would go through another period where I
thought it's going to take that long.

You're not going to have a rabbit pulled out
the hat by anybody else. It's up to you. You've taken a
long time. It's time to move to a decision expeditiously
and one that will protect the beneficial uses. Thank
you.

VICE CHAIR SPIVY-WEBER: Thank you.

And finally, Tricia Geringer.

MS. GERINGER: Good evening, Vice Chair and
Board members. Thank you so much for sticking out
through the evening. Tricia Geringer, Vice President
with Agricultural Council of California. We represent
over 15,000 farmers throughout the states. And our
farmers are producing locally grown, healthy products like peaches, almonds, dairy products, apricots, raisins and many other healthy nutritious items that our population loves to put on their kitchen tables. And we like to say that our members are closer to you than your own neighbors, because their products end up on your kitchen table and they're in your lunches.

I want to thank you for holding this hearing and all of the December hearings and for continuing to take in stakeholder inputs. And thank you also for extending the written comment period to March 17, as the Chair Marcus recently stated, in order to create "positive opportunities" for engagement and negotiation, which we could not agree with her more and we believe is crucial going forward.

Our organization would like to express concern over the impact of the proposal on dairy farmers in a region that is a great contributor to California's vital dairy industry. Our Council represents over 75 percent of milk produced in California. And if, as the Appendix G of the SED states, the proposal would limit, "the economic feasibility of growing feed crops," this would be very challenging news for the dairy industry, which is already struggling as was previously stated by another speaker.
And also you have heard, at I believe it was the Modesto hearing, the industry is already in a very strict regulatory environment. And this would be incredibly challenging, increase costs and as mentioned before could potentially cause dairy folks to leave. And frankly no other state or nation can match the regulatory compliance efforts of California's dairy community. So we know we do it best here, so we would like to keep it here.

It is also important to note that our state's almond industry is deeply connected to dairy, through the hulling and shelling market. So any disruption in the dairy community also impacts almonds and that community and all of those jobs.

I appreciate very much the conversation pertaining to SGMA. And I know the Board is keenly aware that there are many questions regarding the impact of SGMA and we encourage those continued conversations and we support that request for further documentation and reports from your sister agencies in order to seek further information that can be incorporated into the analysis going forward.

We also support, and respectfully ask the Board to work with local water leaders and officials, on non-flow alternatives and support their comments to that
Finally, we urge the Board to continue to engage those of us on the stakeholder side going forward and prior to making any final decisions. Thank you so much.

VICE CHAIR SPIVY-WEBER: Thank you.

Did I miss anyone who turned in a blue card and I didn't call your name?

(No audible response.)

Okay. Thank you all for hanging in there with your interest, cooperation and participation today, and throughout the hearing.

Before I close, are there any -- you mentioned that you wanted to make a closing statement and if you two are interested, now is the time.

MS. D'ADAMO: Thank you. The hour is late. And I first of all want to thank my fellow Board members for their patience. I know I've had a lot of questions throughout and I am not usually so willing to take up precious time. But I've spent a lot of time on this and I'm going to use -- since this is it, it's going to go back to staff and then we'll have those meetings and I won't get a chance to talk to you again -- so I'm going to use this time to again point out some of the main concerns. And I know that you've already heard about a
lot of these concerns, but I would like to put it into
some better context here.

So first of all, we all know that we're
required to balance and we've been talking a lot about
the sweet spot. And I'll just say that despite years of
effort, and a lot of effort from staff, I don't think
that what they're presenting to us is the sweet spot.
And that is my own opinion. That's my conclusion and I
know that you all may feel differently, but I just want
to let you know why I don't think we've hit the sweet
spot.

There've been a lot of discussions about
settlements. And that settlements is what usually comes
out of these reports, because it is a big challenge to do
a Water Quality Control Plan. And in the past what we've
seen is that staff will put out a document and that will
help drive the discussions toward settlement. And I
absolutely agree with that process. But I think what's
happening here is that staff has put a target out that is
claiming to be balanced. And because it's imbalanced,
that is what is going to drive people to try and avoid
something that is so terribly impactful.

And so I'm just pointing this out to say that
where I think we all ought to end up with, is where a lot
of the commenters have encouraged us to look closely at
settlements. And to continue to continue the dialogue, get more information, so that we can end up with settlements.

The concern that I have is that if we don't get out some additional information and if we don't show some willingness to move the mark, that it is going to make those settlement discussions very unlikely, because we have pushed it to the limit that we've got some folks that I'm very concerned that they'll just pack their bags and go to court.

And so the areas that I've been focusing on is not to say that these rivers don't deserve our attention. It's not to say that these rivers shouldn't have additional flow. I think we need to give it more attention, because I feel so strongly that we need to have a comprehensive package. And that flow alone isn't going to get us the benefits that staff is saying.

In fact, we had the NGO community on the first day of these hearings on the 29th, say that there are questionable benefits as to what our staff is saying on, say for example, floodplain. And so if you look at the 2010 Flow Criteria Report, and if we just focus on flow, you need to have a lot of flow in order to achieve the higher benefits, according to some. And because that would be such a challenge we've got to -- you know, there
are other options for us to look at here as far as the combination of flow and non-flow measures.

And looking at sort of the key areas that I've spent a lot of time with the irrigation districts, I've spent a lot of time out in the community. And what is really, I think you know you keep hearing this over and over again, the areas where we keep hearing the greatest challenges would be June, lack of dry year relief, SGMA and the carryover storage requirement.

So let's just take carryover storage. I actually think carryover storage is a key tool that we probably need to have as part of the package. Now these irrigation districts can come to us with settlements that could include carryover storage as part of a voluntary agreement. But if we have it in a plan, that I fear is going to cause the irrigation districts to fight and go to court instead of working with us on a comprehensive settlement that would include carryover storage.

As far as June and dry year relief, I have been pushing for these things in conversations with staff for quite some time. And what -- I have to be honest -- what's frustrating is instead of getting some information about, for example on June, what we get is cherry-picked wet years that show fish moving in June. And I've learned a lot through this process. I've learned there
are fish moving in June. And I think that information is helpful, but let's look at all year types. Let's look at all year types. Let's look at the rotary screw trap information. I think we should have that information, so that we can come to a decision as to whether or not what is before us is balanced.

And then as far as dry year relief, same thing. I remember from the hearing on the 29th in November, we asked for an overlay of successive dry years, for example the drought. And what we get is averages. And if you're out there trying to run a farm an average doesn't make a difference. What matters is how much water do you get this year. And so I think we need to get the information of what it would look like with successive dry years.

And staff said that there wouldn't be years that are at zero. Well, that just doesn't make sense, because I know that during the drought, even Merced Irrigation District, they had zero. So something's not quite connecting here. I think we need to spend a little more time on that so that we can get information on what successive dry years look like. And I know there've been other comments as well on dry year relief, so I think it would be helpful for staff to come to us with some alternatives that we could look at with respect to critically dry years.
And then on the fish benefits, I'm looking forward to getting the updated information from the Department of Fish and Wildlife on SalSim. And it looks like staff even though is not relying on SalSim, made an attempt to make some adjustments. But then also indicating that it's relying on temperature benefits and floodplain analysis. I think we need to get more information on that.

Temperature benefits in particular, looking at the percentage of increase I don't know what that means. I think we need to have some information on exactly what temperature improvements are we likely to see. And the fish benefit, in particular, I think merits having a workshop. We did hear from the NGO community as well that they're interested in having biological objectives. And I know it would be a big challenge to go back and redo the document to get very specific targets. But one way to get started is to have more information on the actual benefits and whether that's with improved CalSim temperature benefits, floodplain benefits.

And then the last thing is SGMA. I think it's just disingenuous for us to say that well gee, we're looking at this from a programmatic level. And that at a future time when SGMA is implemented, that's when they can look at these issues with respect to the
disadvantaged communities. And that it would just be too
speculative.

I think one commenter said there's a lot of
things that we have in here that we went further from
speculation, like on temperature and floodplain. So why
not on SGMA? It's a priority for this Administration and
for the Board and I think that communities deserve more
and we deserve more. We deserve more information on what
this project would look like once we have SGMA. And so I
think working with the Department of Water Resources and
the irrigation districts hopefully we can get some
additional information.

And really what I'm looking for is in these key
areas, is getting more information to us, so that we
could be in a better position to be able to determine
whether or not what staff has brought forward is balanced
or whether we should be making some additional
adjustments.

So thanks for the opportunity to give you these
comments and for bearing with me throughout all these
hearings.

VICE CHAIR SPIVY-WEBER: Not a problem.

Go ahead.

MR. MOORE: Great, thank you DeeDee. Those are
well organized and a logical outgrowth of the many
thoughtful comments we've received. And then I think you've stimulated some excellent discussion through the five days plus that we've been engaged with stakeholders on these issues.

Let me just say thank you to everyone who spent a significant amount of time preparing your remarks and traveling and attending these hearings. I hope that you've learned as much as we have in terms of insight and nuance into water management and how many moving parts there are. And how many human lives, as in everyone, is touched by water in different ways.

Some insightful comments today about how we related to water a little differently, depending on where we're from. You know, how we treat it and how it's important for us to respect mutually each other's perspective on how water figures into their lives. That's a key point. And I think moving forward, I hope that we engender a culture of respect around folks' relationship with water. And then also challenge ourselves to evolve that relationship with water.

It's pretty exciting what we've even been able to discover in the last 10 years as a Water Board system as we look at not just in silos of water quality, but looking at holistic water resources, multi-benefit type approaches, and the type of projects that have gone in
the ground. They're really great and they represent partnerships across many backgrounds and perspectives.

And just the ownership of these innovative infrastructure projects. The infrastructure can be natural. It can be concrete and steel. In the end, we're getting better in California at doing this and I hope that this process can engender that culture to keep it going.

So I've provided about eight pages, nothing too crazy or fancy or technical, to staff about some of the - some key questions we should answer that have been reasonable questions folks have brought up. And I won't go over those eight pages. I'm going to take a little time here. Like Deedee says, this is a big issue, and as big as it gets. And here we are, the opportunity for at least the four of us to chat, and Felicia's out there somewhere. And so we can kind of go back and forth a little.

Maybe I'll have a chance to respond to some of those good points you've brought up. You know, you've heard me bring up this point many times about taking the concept of a linear unimpaired flow percentage, which is as you point out the heart of the existing 1995 Bay-Delta Plan, however more course that is compared to this proposal. And is there a way we can, in response to the
comments about evaluating a reasonable range of alternatives, should we get a little more sophisticated looking at critical years?

And are we comfortable making a proposal about working with the fish agencies, the water users, in crafting a management approach during critical years that maintains a reasonable level of protection, but doesn't have a severe water supply impact. Because it seems that is the rub. That is the crux of the conflict is the concern. Like TID modeled a strict 40 percent unimpaired flow and saw just the last couple of years, which were critical in the San Joaquin Basin, how that might have led to no deliveries. And that seems like an outcome we should avoid.

You know, the 20 to 300-acre farms in that area are a critical fabric of our California culture. It's a sustainable culture, because it co-existed with healthy fisheries for generations. And it's only been the last couple of generations where we seem to have bumped up against sustainability on the ecosystem side.

So let's respect that and think of some side boards, maybe in a response to comments on how we can address those situations, which you even brought up about from the prospective of the San Francisco Bay Area municipal water supply perspective. It's really those
consecutive dry years in critical conditions where they run into potentially irreversible type impacts. So I want us to think long and hard about that idea.

I'd like a little more explanation why the American River, Yuba River, Battle Creek, other tributaries in the Central Valley have better salmon returns and indicators than the Lower San Joaquin tributaries, when we compare those two before and after periods. The 1967 and '91, which is that period we're using as a basis for salmon doubling and then the more recent decades. You know, is this related to -- what factors are at play? Are there enforceable flow objectives? Is the ongoing working group arrangement, perhaps with required deliverables, institutional framework in place in these locations that creates durable outcomes? And what kind of a package of flow and non-flow measures are present and is state assistance a part of those? You know, I'd like a little bit more insight into what works and how we can replicate that.

And acknowledging Board Member D'Adamo's concern I don't want this process to drive folks, with venerable senior water rights, into a strictly defensive posture. I want this to be a partnership and so I don't want to push the proposal so hard that we're driving folks away instead of to the table to solve problems.
I think the points about disadvantaged communities are important. So in terms of having some answers they don't have to be the -- as we discussed earlier -- the SED, it's not our responsibility to predict the future with a great granularity. But I think that's an area where we need to provide additional insight as to where the vulnerable areas in the project, the plan area are with respect to dependence on groundwater.

And from a water infrastructure perspective I'm concerned about the comments on surface water treatment. And we've talked about this. I've talked to staff about this. And we just need to have an answer to that question about the assets that we're actually helping to fund and our Drinking Water Division wants to see happen to for water quality. And our Division of Financial Assistance is putting money on the table to make these investments.

We just need to have a little bit more of a refined response about where will that be a problem or where is there flexibility built in? I feel that the testimony has been a little exaggerated. But I'd like to see more facts on the issue. I don't think it creates a $55 million stranded asset, but there may be situations, scenarios where the envelope might be being pushed too
You know one thing that came up a little bit today was about water quality. I used to work at the Regional Board level and it's not trivial to me that temperature is an impairment right now. These rivers are impaired due to temperature. And when you look at our TMDL implementation around the state, a little more smarter targeted management of flow, ends up being a real important tool for temperature management. So that's not lost on me. That's an area that needs -- it's a problem that's been formally identified and it's related to what we're talking about. And so the temperature benefits, we have to look at that fairly seriously.

But there's also other water quality benefits that we haven't talked about. We've talked about the fish benefits, the floodplain. But this issue of a more sustained healthy river system that's a little more charged year after year, is going to have water quality benefits related to nutrient cycling and potential harmful algae blooms. I'd like to know a little more.

We heard today about the bio-assessment work. Some insight about what the bio-assessment metrics in these systems tells us today about water quality, because bio-assessment's a great integrator about water quality. And I'm not sure what kind of historic
information we have that we can compare it to, but you hear me bringing this issue up a lot. Something was working a lot better not that long ago in the, say the '70s and the '80s. What was the management regime then that was producing more a productive system that we're not seeing now? Because the physical alterations, people rightfully point out, most of them were already done at that point. And something's been happening in terms of the dynamics of the flow regime. Many have commented that the wild salmon are gone on the Lower San Joaquin or there's a carrying capacity. We couldn't have more fish if we tried. I just think we have to answer those questions. What's possible? And we look at the historic record for that.

I want us to do a good job of answering the question about -- as I pointed out with the surface water treatment advancements that we support, we don't want to undermine those. Similarly, we don't want to undermine the work of our FERC relicensing efforts. Let's just make it clear in how this proposal connects to those and how it builds on it or fills gaps that you would identify that the FERC relicensing flows don't address. And how responsibility for meeting the overall flow proposal doesn't necessarily have to rest solely on the FERC relicensing entities. Because that's an issue that's
come up and is a good concern that we need to provide answers.

It was good to hear from the recreational panel, recently. And I think when you talk about the effects on disadvantaged communities, there's a drinking water effect that we're concerned about, but there's a recreational opportunity effect. And I'd like us to answer that question that came up in Modesto about how the water quality of low flows in the summer or in the spring might be affecting the opportunities for disadvantaged communities, low-income folks to enjoy recreational opportunities or strengthen families, keep kids from going to lives of crime and drugs and that sort of thing.

There was a question about non-flow measures. Does it include dam removal? I don't know if that's a viable issue in the Tuolumne. I'm interested in the full range of non-flow measures.

And there was a predator removal pilot on the issue of predation in the Mokelumne River that was brought up during the Modesto hearing that sounded interesting. I'd like to know more about the viability of those methods as a package within the non-flow measures that might be possible.

So there's so much to cover I can't give it all
enough credence. I appreciate everyone's passions. Like I said in my opening remarks, I respect those passions, that commitment to stewardship and problem solving. We didn't introduce this, I don't believe, as any kind of effort to take any water by any means. I think what I wanted to maybe distill in everyone's minds is my top goal is taking the current Bay-Delta Plan and improving it. It hasn't worked. We tried.

It was an experiment where we put the sole responsibility for meeting the aquatic life beneficial uses on the State and Federal water projects. We tried the experiment for over two, three decades now. It hasn't worked. Having a flow requirement Vernalis for the entire complex San Joaquin Basin. We gave it a shot and tried to make it work with New Melones releases. And we weren't able to pull it off.

We did learn some things along the way. And that relates to Fish and Wildlife's presentation today is that there was more flow in the Stanislaus, because of this experiment, using the Central Valley project. And so we do see some scientific information there that we can learn from and incorporate into a joint fact finding solution. But it didn't work.

So, I think the spirit of the proposal is to roll up our sleeves together, senior water rights, junior
water rights, all interests in the healthy rivers and share in the solution. And figure out what can we live without in every tributary in the Sacramento-San Joaquin system to make sure that there's healthy rivers for future generations. It's a shared solution, a shared responsibility, and we'll respect senior water rights all the way. But we have to roll up our sleeves together, because the experiment we tried with the previous Bay-Delta Plan, it can't work. And the science shows that.

So I look forward -- and the idea of voluntary settlements, it's great but I support the State Water Board moving forward with the proposal with good modifications to make sure people don't get left holding the bag, have that uncertainty that affects the family farmers. But we have to move forward, I think, to make sure that people have motivation to come up with those creative solutions. And it's our responsibility to be in there with them rolling up our sleeves, learning along the way.

So thanks to everyone for your thoughtful input. And we certainly are taking it very seriously. And look forward to continue to work with you.

MS. DODUC: Thank you. I will also echo Board Member Moore's gratitude to everyone for participating in all the hearings, for reading all the materials, for
providing your stories, your suggestions, your concerns. And definitely we will, like Board Member Moore said, we've all learned a lot during these hearings. And certainly I, like my colleagues, have a list of issues that we'll be following up with staff on. And I'm sure it will grow, once we receive your written comment letters. So I won't go into all of that today.

I may also concur with a comment Board Member Moore made about respecting each other's perspectives. And I think one of the strengths of this Board is that we have five Board members from different backgrounds, different expertise, different perspectives. And we all respect each other's perspectives.

We don't often -- well, we don't always agree and we should not. But I think the discussions we've had, the input that each Board member has provided, ultimately will allow us to move forward, I think, with a stronger decision that this Board will make. I don't know what that decision will be. I don't know what decision I will be making, because there's just a lot of information yet that we need to consider. But I think amongst the five Board members, I have a unique perspective in that much has been talked about the 1995 Water Quality Control Plan, the last major update to the Bay-Delta Plan, which has not been successful as Board
Member Moore pointed out. Well, I will confess that I was actually on the Board staff as an engineer and worked on the 1995 Plan that was eventually approved by the then State Water Resources Control Board.

And my supervisor at the time was of now Executive Director Tom Howard, who was in charge of the Bay-Delta section at the time. And I'm going to paraphrase something he said to me around 1995, so it was a long time ago, but it was significant enough that I remember at least the context of what he was trying to convey to me. And that was it was the Board staff's job to do their best technical and policy analysis to gather the most relevant data that is existing. And to bring forth those analyses and those recommendations to the Board, giving in mind all the challenges involved in terms of incomplete information, in terms of lack of resources to carry out maybe some of the analyses that we would like, in terms of the various pressures that accompany any major water decisions in California. It's the staff's job to do their best in gathering that data, in providing the analysis, and presenting it to the Board. But it is the Board members' responsibility to make that decision.

And my concern is that the Board staff has spent quite a bit of time analyzing data, preparing
information, presenting us with their recommendation.

And I agree, it's not a sweet spot. I don't, however, would argue that it's not the staff's job to find that sweet spot. It's the staff's job to present us with their best analysis and recommendation. And it's our job to make the best decision possible, given the information that we have.

And while I would love to have more data -- I think we would always like to have more information, more complete analysis, better economic information, better benefits analysis -- in terms of what these actions will result in. And while we all, I think are aware of what's at stake not just for the fisheries and the ecosystem, but for our growers, for cities, I mean for all of us in terms of these decisions I would caution us to -- I agree with Board Member Moore -- to not continue to be the bottleneck in this very important effort.

There will never be a perfect solution. There will never be complete data and analysis for us upon which to make decisions. We have to make decisions based on what is best available at the time, based on our understanding, based on our hopes and expectations, based on all the different perspectives that is provided to us. And I would say, with all due respect to Board Member D'Adamo's comment, that it hasn't been a staff proposal
that has led to, I think some of the major settlement
agreements in the water rights arena, but actually Board
decisions for better or for worse that have led to, for
example, the Yuba Court. I think was one of the
successful agreements that have been implemented in
California.

So again, I would urge my colleagues that yes,
there are questions that still need to be answered. That
the input that we are receiving from these hearings and
from the written comments will ultimately lead to more
discussions by us, but ultimately I would encourage us to
move forward with adoption of a proposal, I mean of a
Water Quality Control Plan, as soon as possible this
year. Because I think we're running out of time.

And it's not just time, in terms of time for
the ecosystem, but also time for all of those who are
being impacted by the lack of uncertainty associated with
us not making a decision, not having a Water Quality
Control Plan in place, not having a set of standards and
objectives in place. So we do have that responsibility,
as Board members, to make the difficult decision.

The late, great Don Maughan, who was Chairman
of this Board for the longest time, and who was Chairman
when I first joined the Board staff, called it a
superhuman task. And it truly is. But it's not going to
be made any easier by delaying decisions waiting for a sweet spot or a complete information that will never come.

So it's a hard task. And I have faith in all of us. I have faith in everyone who's participating in this effort, to make our best decision possible, our best effort, our best step towards providing as balanced a solution as we can with the data that we have. But also recognizing that we cannot take years and years in order to take that next step.

MS. D'ADAMO: Just because I think we should use this as a chance to have a dialogue a little bit here, I'm not proposing that we take years and years. I think there's a lot of information that is readily available. And I'm talking about months, using the time with the extended comment period, to get this information out. And I appreciate, Les, what you have said earlier, that a lot of this is in the SED. I think just calling out some of these areas where you've seen themes to pull it out of the SED, so that you can provide it to us. I think a lot of the information probably is already in the SED.

And I agree this is not -- it wouldn't be staff expected to be driving these settlements. It'll be Board action. But it's also, I think, incumbent upon us to be
looking at what can best drive those settlements. And just not to go back and reiterate, but just looking at one item in particular, carryover storage. Including that in a Water Quality Control Plan will be very challenging. But through settlements, it's absolutely possible.

It's no different than the non-flow. I think what we've heard over and over again is that really flow alone isn't going to do it. We need additional flow, but we need some action on non-flow measures. And so what's the best way to accomplish that? Settlements. Settlements, just like carryover storage I think can best be accomplished through settlements.

So what I'm looking for is a way for us to help drive this discussion instead of being silent, as we have been, over a period of years, because we needed to give staff the opportunity. Now I think it's important for us to weigh in during this interim period to help focus, to help better focus, the discussions and help to provide a path towards settlement.

VICE CHAIR SPIVY-WEBER: Thank you. Thank you Board members, definitely thank you.

And thank you, the public who stayed to listen to this, because I think you have been given a glimpse as to the kinds of discussions that we will be having over
the next several months. And I hope -- I agree -- it
should not be the next several years.

I want to thank you for the time that you have
spent trying to help point us in the right direction on
this issue. Not just at this hearing, but at all your
preparations for the hearings. Your written comments as
well. And there is still time to put in written
comments, March the 17th is the deadline. So I urge you,
even if you have said things here, that you put those
things in writing. And they don't have to be long.
In fact if they're long, it gets even more difficult.

If they are short and we have bullet points,
that's perfect, perfect. Because we do understand what
it is you're talking about. You do not have to explain
it to us. We absolutely get it. And we take it
seriously. So the better you are able to put your ideas
into bullet points and just fill one piece of paper, one
side of one piece of paper, that will be wonderful.

The Board will take oral comments of what we've
heard over the last five days of this hearing, which have
taken place over the last month or a little more than a
month, as well as the written comments that we receive.
And will consider them in the preparation of the final
SED. If you have further comments you may submit them by
noon, noon, that's 12:00 o'clock, noon, on Friday, March
the 17th. I can't tell you how many times people say, "Oh, I thought it was the end of the day." No, it is noon.

Once we have certified -- we have the certified transcript from the court reporter for the entire five-day hearing we will post it on our website. You may continue to follow this project on our website and all future notifications will continue to be sent out on the Bay-Delta notices email distribution list. And if you're not on that list and want to be on that list, let Jeanine know.

The Board anticipates that the final SED and revised Bay-Delta Water Quality Control Plan will be completed by this summer. However, the timeline will depend on the comments received. Therefore, at a future Board meeting the Board will consider whether to approve the final SED and revised Plan, so there are many steps yet to go.

So this is not the end. This is the end of one phase that will --

UNIDENTIFIED SPEAKER: Phase 1.

VICE CHAIR SPIVY-WEBER: Yeah, Phase 1 of Phase 1.

And with that I want to thank you for your time and the hearing is now over. Thank you.
(Whereupon, at 6:05 p.m., the hearing was adjourned and
the five-day hearing was concluded.)

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REPORTER’S CERTIFICATE

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 3rd day of January, 2017.

PETER PETTY
CER**D-493
Notary Public
TRANSCRIBER'S CERTIFICATE

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were transcribed by me, a certified transcriber and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 8th day of February, 2017.

_________________
Myra Severtson
Certified Transcriber
AAERT No. CET**D-852
DIVISION OF WATER RIGHTS ERRATA SHEET

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SIGNATURE: [Signature] DATE: 1/2/2019

ERIN FORESMAN