

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, November 29, 2016

9:00 a.m.

Reported by:
Peter Petty

APPEARANCES

Board Members Present:

Felicia Marcus, Chair
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
Jason Baker
Yongxuan Gao
Les Grober
Tina Leahy
Kevin Long
Erin Mahaney
Yuri Won
Daniel Worth

Public Comment:

Deidre Kelsey, Merced County Board of Supervisors
JD Richey, Fish with JD
Stan Jones, Tuolumne River Trust
Gail Delihant, Western Growers Association
Danny Merkley, California Farm Bureau
Kyle Jones, Sierra Club
Scott Cantrell, California Department of Fish & Wildlife
Frank Quintero, City of Merced
Fernando Aguilera, Merced Soccer Academy
Ron Rowe, Merced County
Doug Obegi, National Resources Defense Council
Dr. Rene Henery, Trout Unlimited
Dr. Jonathan Rosenfield, The Bay Institute
Monique Reid, Hilmar High School, Future Farmers of
America (FFA)
Ethan Jones, Hilmar FFA
Kayla van Ruler, Hilmar FFA
Tabitha Xavier, Hilmar FFA
Jessica Garcia, Hilmar FFA
Kayla Silveira, Hilmar FFA
Abigail DeSalles, Hilmar FFA

APPEARANCES (Cont.)

Public Comment: (Cont.)

Lukas Teixeira, Hilmar HS FFA
Melissa Heredia, Hilmar FFA
Nicolas Muller, Hilmar FFA
Derek Rios, Hilmar FFA
Mark Silveira, Jr., Hilmar FFA
Brett Ramos, Hilmar FFA
Jorge Pantoja, Hilmar FFA
Wyatt Gaches, Hilmar FFA
Dr. Rachel Johnson, NOAA Fisheries, Southwest Fisheries
Science Center
Dr. Anna Sturrock, UC Davis
Gary Player, Kenny Lake Ventures
Heinrich Albert, Self
Keith Bennett, Self
William Morris, Self
Richard Denton, Contra Costa County
Vicki, Self
Barbara Barrigan-Parrilla, Restore the Delta
John McManus, Golden Gate Salmon Association
Brian Stompe, Sons in Retirement Chapter 134
Tim Sloane, Pacific Coast Federation of Fishermen's
Association
Mike Hudson, Hudson Fish Co.
Roger Thomas, Golden Gate Fisherman's Association
Dick Pool, Pro-Troll
Paul Johnson, Monterey Fish Market
Maria Finn, Real Good Fish
Anja Raudabaugh, Western United Dairymen
Don Franklin, Self
Patti Regehr, Self
Dave Warner, Self
Tim Goodson, Tim Goodson Calaveras Trout Farm
Malcolm Chichizola, Self
Regina Chichizola, Institute for Fisheries Resources
Steve Starcher, East Merced Resource Conservation
District
Hicham ElTal, Modesto Irrigation District
Peter Kampa, Lake Don Pedro Community Services District
Robert Gallia, Self
Katie Haldeman, Sustainable Conservation
Robert Dylina, Merced Chamber of Commerce
Mike Carpenter, Leap/Carpenter/Kemps Insurance Agency
Ken Elwin, City of Merced
Michael Warburton, Public Trust Alliance
Michael Boccadoro, West Coast Advisors
Arthur Godwin, Mason, Robbins, Browning & Godwin Law Firm

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P R O C E E D I N G S

NOVEMBER 29, 2016 9:04 A.M.

CHAIR MARCUS: Thank you for joining us,
particularly the students who are here.

This is the time and the place for the hearing
to receive public comments concerning potential changes
to the Water Quality Control Plan for the San Francisco
Bay/Sacramento-San Joaquin Delta Estuary and the
supporting recirculated draft Substitute Environmental
Document. Throughout the hearing, we'll refer to these
documents as the Plan Amendment, the Plan, or the SED.

I'm Felicia Marcus. I'm the Chair of the State
Water Resources Control Board. With me today on my left
is Vice Chair Fran Spivey-Weber, to her left, Board
Member DeeDee D'Adamo. To my right, Board Member
Tam Doduc, and to her right is Board Member Steven Moore.
Other State Water Board staff are present in the front
and the back of the room to provide assistance as needed.

I have a bunch of general announcements to
start out today. Some are procedural and a bit of
context as well, to start us off before turning to staff
for an overview.

First, some general announcements. Please look
around now and identify the exits closest to you. If you
hear an alarm we'll evacuate the room immediately, so

1 take your stuff with you, your friends with you. Use the
2 stairways not the elevators downstairs and exit to where
3 we relocate in Cesar Chavez Park, over near 10th and J
4 Street. You obviously don't have to wait with us, but if
5 you do, you'll know when the all clear is sounded. If
6 you can't use the stairs, someone will be around to be
7 able to direct you to a protective area inside of a
8 stairwell.

9 Today's hearing is being Webcast and recorded.
10 When speaking, please use the microphone and begin by
11 stating your name and affiliation slowly for the court
12 reporter. He's present today and he's going to prepare a
13 transcript of the entire proceeding. The transcript for
14 the hearing will be posted on the State Water Board's
15 Bay-Delta Phase 1 website as soon as possible. If you'd
16 like to get the transcript sooner, please make
17 arrangements with the court reporting service during one
18 of the breaks, or after the hearing day.

19 As a reminder, today is day one of five days of
20 hearings on the adequacy of the SED. Day two of the
21 hearing will be held in Stockton on Friday, December
22 16th. Day three of the hearing will be held in Merced on
23 Monday, December 19th. Day four of the hearing will be
24 held in Modesto on Tuesday, December 20th. The hearing
25 will conclude with day five of the hearing in Sacramento

1 again on Tuesday, January 3rd, 2017.

2 Additionally, for planning purposes, please be
3 aware that the hearing days could be long days since we
4 want to hear everyone's comments. We're going to take a
5 short break in the morning and a short break in the
6 afternoon, or as needed for the court reporter. And
7 we'll take a lunch break, which may well be less than an
8 hour, but at least 30 minutes to give you time to get
9 some food. The café downstairs is actually quite good.
10 We expect to continue into the early evening or beyond if
11 necessary.

12 Finally and most important, particularly to
13 some of us if not all, please take a moment to turn off
14 or mute, set on stun, whatever, your cell phones. Even
15 if you think it's already off or muted it's helpful to
16 check it again.

17 I know you're all eager to get started, but
18 first I do need to provide some background information on
19 how the hearing will be conducted and information
20 regarding the Order of Proceeding and please bear with me
21 through this opening statement. The statement's going to
22 be read at the beginning of each day of the hearing.

23 The hearing is being held in accordance with
24 the September 15th, 2016 Notice of Filing and
25 Recirculation, Notice of Opportunity for Public Comment,

1 and Notice of Public Hearing on Amendment to the Water
2 Quality Control Plan for the San Francisco Bay/
3 Sacramento-San Joaquin Delta Estuary and supporting draft
4 revised Substitute Environmental Document, and subsequent
5 revised notices issued on October 7th, 2016 and October
6 18th, 2016.

7 This hearing fulfills requirements for receipt
8 of oral comments as described in the Board's regulations
9 in State and Federal law. The purpose of this hearing is
10 to provide the public an opportunity to comment on the
11 Plan Amendment and on the adequacy of the SED. The Board
12 will not take formal action on the Plan Amendment and the
13 SED at the close of the hearing on January 3rd, 2017.
14 Rather, Board action will occur at a later noticed Board
15 hearing, during which time the Board may reopen the
16 hearing to allow for comments on any potential revisions
17 to the Plan Amendment or as required by the Board CEQA
18 regulations.

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

23 Now on to the Order of Proceeding, the
24 September 15th, 2016 Notice required joint presenters who
25 would like more than three minutes to present their

1 comments to make their request by noon on October 14th,
2 2016, which was subsequently extended to noon on November
3 4th, 2016. Based on the requests received, we prepared a
4 Draft Order of Proceedings and sent it to our Bay-Delta
5 Notice email distribution list on November 18th, 2016.
6 Additionally, the Draft Order of Proceeding was posted on
7 our website.

8 Accordingly, we will begin with any opening
9 comments that my fellow Board members would like to make.
10 We will then hear a presentation from staff. Following
11 the staff presentation, we will hear from elected
12 officials, followed by public comment. As we allow, some
13 groups asked to present panel presentations. Rather than
14 taking them all first, as we did the last time, we will
15 alternate panels and a series of public commenters to
16 enable individual commenters to begin earlier in the day.
17 There will be no cross-examination.

18 Per the Hearing Notice participants are limited
19 to three minutes unless otherwise allowed by the Draft
20 Order of Proceedings, which means I'll count the speaker
21 cards and cut the time to two minutes if necessary to
22 enable more speakers to speak without going late into the
23 evening, so folks can get home. Speakers are limited to
24 one opportunity to speak during the course of the five-
25 day hearing. We do read your comments and I recommend

1 submitting them. And we've found that a focused comment
2 on what you want us to consider in reviewing the staff
3 draft is actually quite effective.

4 If you intend to speak, please submit a speaker
5 card. You can find one in the back of the room. As I
6 noted, as we allow, a number of groups requested to speak
7 as panels at each of the hearings. They vary in number
8 and approach. We have in many cases shortened the time
9 requested to enable us to hear from more of the general
10 public commenters, particularly in the later hearings,
11 which more people have signed up for.

12 For today, the joint participant groups that
13 requested to speak as a panel with additional time are
14 the Natural Resources Defense Council, Trout Unlimited
15 and the Bay Institute, for 35 minutes total; the
16 University of California Davis and the National Marine
17 Fishery Service for 20 minutes total. And commercial
18 fishery interests, organized by the Pacific Coast
19 Federation of Fishermen's Association, for 40 minutes.

20 I ask that one representative from each group
21 also fill out a speaker card. If you think you'll need
22 less time than was agreed upon, please note your new
23 estimated time on the card, and know that you will please
24 the people sitting behind you. Please be ready to
25 present your comments when you're called. There was some

1 confusion about whether it would all be at the beginning
2 of the day or all at the end of the day, as I said we'll
3 alternate. So we will be getting to you during the day.

4 There are several points about this hearing
5 that I'd like to emphasize. First, please keep your
6 comments limited to the purpose of this hearing, which is
7 to comment on the Plan Amendment and the SED.

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

15 Third, while I or the Board members, may ask
16 staff for clarification on information in the Plan
17 Amendment and the SED responses to your comments will not
18 occur during this hearing. We have had and will continue
19 to have opportunities to speak with people outside the
20 hearing and that is extremely valuable to us. But in the
21 interest of hearing what folks have come here to say, we
22 can't have a conversation with each of you here, as much
23 as we might like to. I'm speaking to myself here, you
24 know. We must also ensure that our decision is based on
25 the record of this proceeding.

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

9 Finally, I realize that after all the
10 presentations are heard, some of you might feel the need
11 to respond to what others have said. We can't provide
12 people an opportunity for rebuttal of these comments in
13 this hearing. But if you have additional comments after
14 your turn to speak at this hearing, of course you can
15 give us that comment in writing by the January 17th, 2017
16 new deadline, as stated in the Second Revised Notice.

17 And then finally a little bit of context for
18 today, and I've had this conversation with many of you in
19 the room, but some people have not. We're here today to
20 hear input on the SED and the staff proposal for updating
21 the Board's Bay-Delta Plan. The staff proposal does call
22 for updated flow requirements for the San Joaquin River
23 and its major tributaries and updated salinity
24 requirements for the southern Delta.

25 The Bay-Delta ecosystem's in trouble and has

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

6 We're also in a separate process, I want to
7 emphasize this, to do with the rest of the system
8 including the Sacramento River and the rest of the Delta
9 that's just a little bit behind this one. The Plan lays
10 out water quality protections to ensure that various
11 water uses including agriculture, municipal use,
12 fisheries, hydropower, recreation and more are protected.

13 In establishing these objectives, the State
14 Water Board must adopt objectives that reasonably protect
15 beneficial uses, and consider and balance all beneficial
16 uses of water. Not pick one and discard the others.

17 We know that flow is a key factor the survival
18 of fish like salmon. And we know that the flow
19 objectives for the San Joaquin River have not been
20 significantly updated since 1995. And since that time,
21 salmon and steelhead have declined, precipitously. We
22 also know there are other important factors affecting the
23 fishery such as degraded habitat, high water temperatures
24 and predation.

25 Staff's going to provide an overview of their

1 proposal today, but just note that they proposed a flow
2 range of 30 to 50 percent of unimpaired flow, with a 40
3 percent starting point.

4 This is a proposal to share the rivers, whether
5 times are wet or they're dry. They conceive it as a
6 block of water that they hope groups will come together
7 to shape and use in the most effective way as possible.
8 They have also proposed an implementation program that
9 embraces adaptive management and will accommodate
10 stakeholder settlements that can provide even greater
11 benefits to the ecosystem than flow alone. That's been
12 lost in a lot of the dialogue.

13 The proposed 30 to 50 percent range is less
14 than the 60 percent recommended in the Board's 2010 Flow
15 Criteria Report, but it still represents a significant
16 increase over the current conditions. Some have already
17 argued that the proposed range is too low to improve
18 conditions for fish adequately while others are adamant
19 that it's far too high and that the impacts on our
20 agricultural community is far too great. Frankly,
21 there's a lot of misinformation about the staff proposal
22 out there, whether it's about its provisions or its
23 intent, that has created far more heat than light.
24 I'm saddened to see that, because these issues are hard
25 enough to deal with based on the real facts, let alone

1 those that are imagined or manufactured. I see and I hear
2 the pain in the comments we've received already, much of
3 it based upon misrepresentations of what staff is
4 actually proposing. So I encourage you to listen today.

5 In the end, as I said, the Board's job is to
6 establish objectives that provide reasonable protection
7 of the fishery and to balance that with the other uses
8 important to Californians, including agriculture and
9 municipal uses. And we want to provide an opportunity
10 for people to come together to propose better ways to
11 meet those objectives by working together. When people
12 do that well, we have a track record of accepting good
13 alternatives. So please help us do that. Critiques can
14 help, and we are absolutely listening. But what helps
15 more is to suggest how we can actually improve on the
16 proposal to meet everyone's needs better. Thanks for
17 your patience and for your attentiveness and for joining
18 us today.

19 Next, we'll hear a staff presentation from
20 Division of Water Rights staff and Les Grober, the Deputy
21 Director for Water Rights will be the lead staff
22 presenter.

23 We're in this large room, which is not our
24 usual hearing room, in order to have more room for all of
25 you. But I'm sorry we're so far away from you and that

1 we have to crane our necks to see all of you up front.
2 So just wave if you need our attention and we're looking
3 off that way.

4 So Les, take it away.

5 MR. GROBER: Good morning Chair Marcus and
6 Board members and the public. I am joined here today by
7 Erin Mahaney on my left, she's Senior Staff Counsel; and
8 on my right by co-presenters Dan Worth, Senior
9 Environmental Scientist; Will Anderson, Water Resources
10 Control Engineer; and Xuan Gao, Water Resources Control
11 Engineer.

12 Thank you Chair Marcus for already covering a
13 lot of this, but it's worth emphasizing that we're here
14 today, it's a hearing, to hear comments on two things.
15 It's on the SED, that's Substitute Environmental
16 Document, and the proposed changes to the Water Quality
17 Control Plan. And this is the first of five days of
18 hearing.

19 So the outline for my presentation or for the
20 presentation today is probably about an hour. I'm going
21 to provide a bit of an introduction and overview context
22 for the proposal. And then I'm going to hand it off and
23 we'll talk a bit about the fish effects, followed by the
24 models that were used to analyze, determine what would be
25 the impacts, the effects of the proposal and then some

1 next steps.

2 So the project, what we're here talking about
3 today, are two things: the San Joaquin River flow
4 objectives, for the reasonable protection of fish and
5 wildlife; and southern Delta salinity objectives for the
6 reasonable protection of agriculture. And the programs
7 of implementation then to achieve those objectives.

8 We've received a large number of comments in
9 the last round. This is a recirculated draft in 2012,
10 because we have a lot of additions to the document.
11 We've added information about clarifying the Plan area,
12 we've done additional work on operations and how that's
13 done, fish benefits. So this is a much bigger document
14 that includes a lot more information than the last round.

15 To provide context for that timing about what's
16 happened when, you can see on this graphic that it's not
17 completely linear. On the left side, 1995 to 2006,
18 that's a big period. But that 1995 is the last time we
19 did a big update of the Water Quality Control Plan, with
20 a minor update in 2006.

21 A few other things on this timeline that I'll
22 be referring to, that staff will be referring to. We've
23 had in 2009, when we issued the Notice of Preparation for
24 this update, that was also the time of the Delta Reform
25 Act that required a number of things, including the

1 preparation of a Flow Criteria Report that we did in
2 2010. We released the draft of the SED and the Water
3 Quality Control Plan in 2012. And now we're at the point
4 where we've recirculated the draft and we intend to get
5 this back before the Board for their consideration in the
6 summer of 2017, which is really a good segue for a main
7 point to make. That the Plan is out of date.

8 As Chair Marcus said, it's been 21 years. And
9 in those intervening years, as identified in the 2006
10 Update, there's a critical need for this update, because
11 species have been declining. And with that, we've had
12 Endangered Species Act restrictions both in the Delta,
13 also in the San Joaquin River and the Stanislaus that has
14 caused less water to be available.

15 It's also as part of the Water Action Plan
16 that's been prepared, it's the Administration's desire to
17 implement those -- the co-equal goals. How do you both
18 achieve a more sustainable, reliable water supply and
19 also protect the ecosystem? So this is about doing all
20 of those things and catching up with new information and
21 new needs.

22 A map of the area that we're talking about,
23 this is showing the Lower San Joaquin River and the
24 principal tributaries for what we're proposing: the flow
25 objectives; the Merced, the Tuolumne and the Stanislaus

1 River; as well as that area north of Vernalis and the
2 southern Delta between Vernalis and Stockton, where we're
3 proposing updated southern Delta salinity objectives.

4 A little bit more detail here showing the
5 affected area, and the big highlighted area that's
6 showing the watershed of the Lower San Joaquin River,
7 meaning for the watersheds of the combined Merced,
8 Tuolumne and Stanislaus River. And it shows some of the
9 principal irrigation districts on the valley floor that
10 will be much affected by this, because the principal
11 effect as you'll be hearing, of course is less water
12 available for human uses, principally for agriculture,
13 so that would be put towards the fish and wildlife
14 beneficial use. So it shows many of the districts there.

15 So the purpose and goal, it's worth stating,
16 because really what are we trying to achieve? And we've
17 said it several times, but it's worth punching. We're
18 looking to establish reasonable protection for the fish
19 and wildlife protection; also reasonable protection of
20 southern Delta salinity objectives. It's not absolute
21 protection, which is why this document is so big. We go
22 into so much detail, because how do you make that very
23 difficult decision? How do you determine what's
24 reasonable? So all of this is intended to do all of
25 that.

1 And when you talk about what the principal goal
2 is, it's kind of focusing on flow. It's like, "Well, why
3 the focus on flow?" Because scientific studies in much
4 of that species decline, the scientific studies that have
5 gone on over the last ten years and even beyond that,
6 show that flow is the factor that is important for the
7 survival of fish like salmon. And there's many direct
8 benefits of flow including with additional water comes
9 lower temperatures, more optimal temperatures for fish
10 and wildlife, increased floodplain. But it also affects
11 other things. It affects predation. It affects the risk
12 of disease, things like that.

13 That being said, the document -- and the Board
14 recognizes that there is need also for non-flow measures
15 and they can be an important part of the solution -- but
16 the Board has limited authority for those and yet that's
17 another big part of the document we have. It's much has
18 been said and some of it disparaging, it's the 3,000-and-
19 some-page document. There are several hundred pages on
20 looking at those non-flow measures and how those can be
21 brought to bear in the effects.

22 So getting more at the why this? Why it's
23 important and why flow? This chart shows -- on the y
24 axis it's showing the difference in the salmon abundance
25 between two year periods: the 1992, the more recent, 1992

1 through 2011 versus the 1967 through 1991 averages. And
2 it's showing that for several Central Valley streams.
3 And off to the right you see how the abundance has
4 decreased markedly, most markedly of all of those in the
5 Stanislaus, Tuolumne and the Merced.

6 So this answers two questions: it's like why
7 the San Joaquin and why now?

8 CHAIR MARCUS: Can I ask you a question, I
9 won't take a lot of time with questions, but I hadn't
10 seen this slide before. Is the reason the American River
11 up so high, do you attribute that to the group management
12 of the American River where folks came together to figure
13 out how to manage flows better and do other things?

14 MR. GROBER: That's a good question and good
15 lead-in, because it does show us where there's some
16 agreement in terms of how to manage you achieve multiple
17 goals. This is not to suggest that there's not more
18 there to do, and everything's always a bit more
19 complicated. But and there's also -- well part of the
20 reason for the San Joaquin down and Sacramento up -- I
21 mean the American River up, is also as you'll see in some
22 of the description, it's which ones are hit hardest
23 certainly with regard to flow? And which have the
24 greater flexibility and have already used some of that
25 flexibility to achieve increases?

1 MS. D'ADAMO: But this is related to natural
2 production, you're not including hatchery fish here?

3 MR. GROBER: That's correct.

4 MS. D'ADAMO: Okay. And some of the other work
5 that you have though on fish benefits, like you'll
6 probably get to it, but is that natural on fish benefits,
7 because the focus is --

8 MR. GROBER: That's, well, I mean some of it is
9 just -- well as you'll see and maybe that's a question to
10 save for when we're talking about the fish benefits and
11 effects, because what -- all of the benefits are intended
12 to improve natural production. But could have
13 improvement overall, because it's about just improving
14 conditions for all fisheries, but specifically for
15 salmon.

16 So the other one, just to punch why flow is
17 important, here, there's actually two y axes. On the
18 left side is escapement, or returns of adults. Those are
19 the bars that you see going up and down, kind of highly
20 variable, as opposed to the right side y axis, which is
21 the tributary discharge, the total tributary discharge in
22 the San Joaquin River, two-and-a-half years prior.
23 Because there's that relationship between a successful
24 outmigration and then later returns. So by shifting that
25 flow two-and-a-half-years earlier, you can see how all

1 those peaks tend to generally line up. And it really
2 gets at how why flow is central to the improvement of
3 success of salmon and other species.

4 That being said, and also to mirror punch what
5 Chair Marcus, what you had said, this is a very hard
6 thing to do. And referring back to the 2010 Flow
7 Criteria Report, that was a report that the Board
8 prepared where we didn't consider other uses of the
9 water. It was just like, well what's the science to
10 inform all of this? And what that determined is that if
11 you weren't looking at agriculture, municipal,
12 hydropower, those other things, that it would take 60
13 percent of this thing called unimpaired flow to protect
14 fish and wildlife.

15 And I should digress for a moment and define
16 the unimpaired flow. It's basically saying that that's
17 the quantity of water that you would receive if it
18 weren't being impaired for storage or consumptive use and
19 things like that. So that's a big number and it's a big
20 number in particular when you compare it against what is
21 currently being used in the Basin. Currently in the
22 Basin, up to 80 percent or more, there are certain months
23 during the critical period where the flow proposal that's
24 being proposed -- the February through June -- where you
25 can have unimpaired flow that is in the single digits.

1 It can be 5, 6 percent of unimpaired flow. There it
2 really gets to a question of not -- if it's not how much,
3 but clearly that small fraction is not enough to achieve
4 success, so some minimum flow is important.

5 A distinction now between what we're doing and
6 what the 2010 report did, now we are considering other
7 uses. So we're considering agriculture, municipal,
8 industrial, recreational, hydropower. And we need to
9 strike that balance to reasonably achieve the fish and
10 wildlife protection goals. And that's why the staff
11 proposal is for that 30 to 50 percent range, with a
12 starting point of 40 percent, which has an adaptive
13 implementation component, which gets to -- well actually
14 a little bit more about why it's hard, just to punch,
15 because I think you've also said it but it worth saying
16 again. No one will be happy with the number, because
17 it'll be too little for some and too much for others, but
18 it's what we've got to do.

19 But this gets us actually to the next point,
20 which is what you also made about encouraging
21 settlements. And there's an element of the proposal that
22 helps to facilitate that. Central to the proposal is
23 adaptive implementation saying well, it's not just the
24 one number, as we currently have not, it's a range. And
25 it's an adaptive range that does a number of things. You

1 could respond to changing conditions, but it also
2 provides an opportunity to fall somewhere within that
3 range if you bring other things to bear, such as those
4 non-flow measures that I identified. So perhaps you can
5 do more with less. If you put directly floodplain
6 restoration, things like that, more direct control of
7 other stressors, you can achieve more at the lower range
8 of the percent of unimpaired flow. It also allowed some
9 general flow shifting. Also, as I said, this would also
10 provide durable solutions to this issue.

11 So, and we're looking to -- and this is why
12 we've also been making -- having more meetings out in the
13 affected area, because it's really in the affected area
14 where these -- that's where these durable solutions can
15 grow from. And the settlement discussions are going on
16 being led now by the Natural Resources Agency.

17 So before describing what the proposed flow
18 objective is, a few words about the current objective.
19 The current objective is only at one location in the San
20 Joaquin River, the San Joaquin River at Vernalis where it
21 inflows to the Delta. And it's in the form of minimum,
22 monthly, average flows that vary by what are your type
23 and by month and includes a pulse flow in April, May.
24 And the only current, responsible water right holder is
25 The United States Bureau of Reclamation.

1 In contrast the flow objective is proposed to
2 be applying to the salmon-bearing tributaries of the San
3 Joaquin River, the Merced, the Tuolumne and Stanislaus.
4 And it has two pieces: a narrative objective, which is
5 about maintaining the inflow conditions that would
6 support and maintain the natural production of viable,
7 native San Joaquin River fish populations migrating
8 through the Delta. And then it has that numeric
9 component, which is that 30 to 50 percent range, with a
10 starting point of 40 percent.

11 I've already referred to the adaptive
12 implementation, and it's adaptive not just to accommodate
13 or allow for settlement, successful settlements, but also
14 to adjust within that range to get the biggest bang for
15 the buck. So it's not intended to be ridged adherence
16 with say a flat 40 percent. But you can use that as a
17 block of water for that February through June time
18 period, so that you can have a much higher amount to
19 achieve a pulse flow as makes sense and less at other
20 times.

21 So it's allowed to be adjusted in the February
22 through June period. And it's also intended to have some
23 portion of that that you can shift for months even
24 outside of that February through June period. So to
25 address temperature impacts that might occur otherwise if

1 you weren't able to use some block of that water to
2 achieve temperature goals beyond that February through
3 June period.

4 CHAIR MARCUS: And doesn't it also allow you,
5 if you have a collaborative process at the local level,
6 to adjust the flows more to when you see the fish as
7 opposed to something on a calendar, which is what we
8 would have to do?

9 MR. GROBER: Yes and that's actually the next
10 point it envisions. And again this is intended to
11 provide the framework, but then can get smarter with that
12 collaboration and with settlement. Because as described
13 as part of this adaptive implementation, is this thing
14 called the Stanislaus, Tuolumne and Merced Working Group,
15 which would be an implementing entity, which would
16 include the fish agencies. It would include those that
17 would be responsible for providing the water and others
18 that have expertise and interest in figuring out how to
19 best manage the water supply.

20 So it would, among other things, do things like
21 that. It will see what is the time that you would want
22 to best manage for in terms of achieving the fish and
23 wildlife protection goals.

24 It also would wrap into it how you would
25 introduce non-flow measures into the suite of actions

1 that you're doing in conjunction with the flow and the
2 other things listed here. How do you determine whether
3 or not this is succeeding, so one of the things that it
4 identifies is the development of biological goals, things
5 that you can measure, things that you can achieve just by
6 the manipulation of flows, and other things in the
7 tributaries. So we'd be looking at abundance, size,
8 things like that, things that can be achieved just by
9 making improvements in the Lower San Joaquin River
10 Watershed and not tied to success through the Delta or
11 ocean conditions. So that there's power in this entity
12 to achieve the overarching narrative of fish and wildlife
13 protection goals. And in crafting this STM Working Group
14 it's intended that this can be one and the same things as
15 what falls out of voluntary agreements or any settlement
16 discussions.

17 The current southern Delta salinity objectives
18 now are variable year round. It's April through August,
19 during the principal irrigation season. It's 0.7
20 millimhos per centimeter and it's based on the salt
21 sensitivity of a growing season of beans. And higher in
22 the winter season, or generally the off season September
23 through March, of 1.0. And there are four salinity
24 compliance stations: three in the southern Delta and one
25 in the San Joaquin River at Vernalis. That's the San

1 Joaquin River at Vernalis is the only riverine system,
2 the downstream point on the San Joaquin River. The other
3 three are internal stations in the southern Delta.

4 The proposed objective, and this is going back
5 to reports that were done several years ago showing that
6 -- and again this gets at the reasonable protection of
7 the salinity objective in this case -- is that 1.0
8 objective and changing the units here to be consistent
9 with the SI measurements now. It's the same as
10 millimhos, but 1.0 year around at all of these locations.
11 That would be one proposed change. The other one is to
12 have three compliance locations changed to channel
13 segments, recognizing that there's such variable
14 conditions in the southern Delta so the program
15 implementation has initially measurement, monitoring,
16 better understanding of how variable conditions are here.
17 But the intent is to better understand them and then
18 better determine compliance based on the salinity in the
19 entire reach, rather than a single location, which might
20 be affected by a very local discharge and not
21 representative of the entire area.

22 But the intent of this proposal is to recognize
23 also, and be reflective of the current conditions. So
24 the program implementation would continue to require the
25 Bureau of Reclamation to maintain that seasonally

1 variable 0.7 EC at Vernalis April through August, and 1.0
2 September to March. That in effect, during the
3 irrigation season, provides assimilative capacity in the
4 rest of the interior stations in the southern Delta.

5 So other requirements, and some that I
6 mentioned already, is that Comprehensive Operations Plan
7 would provide that information about variable conditions
8 and continue to monitor and determine what would be the
9 effects of the State and Federal projects on water levels
10 and flow conditions that could affect salinity as well as
11 monitoring and reporting.

12 And the last point is perhaps the most
13 important point. This is a package, the proposal, it's
14 the San Joaquin River and southern Delta salinity. The
15 increased flows proposed for that February through June
16 period will have the other, the added benefit with regard
17 to Lower San Joaquin River and southern Delta, of
18 improving salinity conditions overall. But the overall
19 changes are expected to be -- we're not going to be
20 discussing further the salinity today. We're going to be
21 focusing on the flow, because this proposal doesn't
22 really change the current condition in the southern
23 Delta.

24 So the rest of today we're going to be talking
25 more about the modeling that was used, the effects, the

1 fish benefits. Just to provide a little bit of overall
2 context for that this is kind of a map view of the
3 affected area. How do you do an analysis this
4 complicated, this scope? So we impose some order on it,
5 by looking at well what are the major reservoirs in the
6 area? That's looking on the Merced, from south to north
7 on the Merced, the Tuolumne and the Stanislaus, and
8 flowing into the San Joaquin River.

9 And modeling for the baseline condition, what
10 do we currently have? We have existing requirements on
11 the Merced and the Tuolumne that are FERC requirements.
12 With regard to flow on the Stanislaus we've got Bi-Op.
13 And we have our San Joaquin River at Vernalis
14 requirements on the San Joaquin River. And the proposal
15 here is for unimpaired flows to be achieved basically at
16 the confluence of those tributaries just upstream of the
17 San Joaquin River. So it's intended now compared to the
18 one location at Vernalis, to provide protection to all
19 the salmon-bearing tributaries.

20 CHAIR MARCUS: So, just to -- I don't know if
21 you can do the math off the top of your head, it's not --
22 you're not proposing us starting. Again, it's a range of
23 30 to 50. Let's just, for the sake of argument, take the
24 starting point of 40. It's not diverting 40 percent of
25 what's being currently used back in. It's the increment

1 above what's already required?

2 MR. GROBER: That's correct. And I think
3 that's because --

4 CHAIR MARCUS: And that varies depending on
5 where you are?

6 MR. GROBER: -- that's some of what's
7 misunderstood. It's currently now on each of these
8 tributaries something on the order of Merced and the
9 Tuolumne is like 20 percent of unimpaired flow on a long-
10 term average. On the Stanislaus, it's the low 30s, so
11 this is bumping that up, so it's not taking an additional
12 amount that is 40 percent. It's just bringing it up to
13 that minimum.

14 CHAIR MARCUS: Right, and that's not to
15 minimize that its significance, but just it's --

16 MR. GROBER: But it's not as big as it
17 sometimes is presented. It's like it's not taking
18 another 40. It's just bringing it up to 40.

19 CHAIR MARCUS: Right.

20 MR. GROBER: Yeah. And this is when I hand it
21 off now we'll discuss what some of those effects are.
22 And as you say they're big, but not as big as sometimes
23 some might think to put that in perspective.

24 Skip over. So Will, will be going over this in
25 a little bit more detail, but I just to provide the

1 context for Dan, talking about the fish benefits. This
2 is a very simple schematic that just shows the models
3 that we used to determine the effects. So the core model
4 is the Water Supply Effects Model. And that basically
5 says if you keep more water in the rivers there's going
6 to be less available for other uses. So you will have to
7 run that through for the CEQA Impacts Analysis for those
8 things shown on the right.

9 But for the lead-in for Dan, it also tells you
10 what will the flows be in the rivers. So you can run
11 that through models and analyses to see what level of
12 increased floodplain inundation would occur, what level
13 of temperature improvements would occur. So this kind of
14 shows how that all works together. But it's as simple
15 as that, but of course it becomes much more complicated
16 in all the details.

17 And when I refer to the complexity, that's a
18 good caution here to say that we're not doing a project
19 level analysis for this. It's a big analysis. It has a
20 lot of moving parts, but it's ultimately a programmatic
21 analysis of what is likely to happen and it's to
22 determine what are the effects of the principal effect,
23 which is a reduction in surface water availability for a
24 variety of uses. And we have that. It's available in
25 the chapters in the SED as identified there. And then

1 the fish benefits, that's that new feature that we didn't
2 have in 2012 that are in Chapter 19.

3 And with that, unless there's questions on this
4 introduction, I would hand it off to Dan to talk about
5 some of the fish benefits. Here's the hand-off.

6 CHAIR MARCUS: Well, you're all on it.

7 MR. WORTH: Good morning, my name is
8 Daniel Worth. And I'm a Senior Environmental Scientist
9 for the Division of Water Rights. Today, I'm going to
10 provide a brief overview of the benefits to fish from the
11 proposed project.

12 This project proposes to increase instream
13 flows during the February through June time period. And
14 this figure shows the average three tributary instream
15 flows for different flow scenarios including baseline, 30
16 percent, 40 percent and 50 percent, of unimpaired flow.
17 The axis on the left shows average February through June
18 instream flows in 1,000 acre-feet.

19 And the axis on the bottom shows water year-
20 types. All year types are shown on the left. That's a
21 combined of all years that were modeled. And then
22 there's also wet to critically dry years. You'll notice
23 that in drier years, the proposed project has a larger
24 increase in instream flows compared to wet years.

25 Under the 40 percent unimpaired flow proposal,

1 averaging annual instream flow between February and June
2 would increase by 288,000 acre-feet, or approximately 26
3 percent.

4 So how does improving springtime flow
5 conditions benefit the ecosystem? The benefits include
6 restoring the pattern in some limited magnitude of flow
7 that are more closely aligned to the flow conditions to
8 which native species are adapted. And this has the
9 benefit of improving attainment of temperature criteria
10 and increasing floodplain inundation, resulting in
11 greater survival and resiliency of native fish.

12 This table provides an example of how
13 temperature conditions could improve on the Merced River
14 at River Mile 38. If I could draw your attention to the
15 red box I will walk you through how this table works.

16 So on the left, we're going to evaluate
17 temperature changes to core rearing salmon habitat,
18 during the month of April. And we're going to use a
19 temperature criteria of 60.8 degrees. And then you'll
20 see that under baseline conditions, temperatures of 60.8
21 degrees or less were achieved 43 percent of the time at
22 this river location on the Merced River in April.

23 Under the 20 percent unimpaired flow
24 alternative, you'll see that there is an additional 3
25 percent of criteria compliance. And that number is

1 additive to baseline. So under the 20 percent
2 alternative, this criteria of 60.8 degrees would be met
3 46 percent of the time. So all those numbers under the
4 unimpaired flow percentages are additive to what you see
5 at under baseline. By the time you get to the 60 percent
6 unimpaired flow, you're achieving that temperature
7 criteria approximately 90 percent of the time.

8 So there should be a red box here on one of
9 these. So this figure shows a different way to look at
10 the temperature changes that could occur under different
11 flow conditions.

12 If you'll look on the bottom axis, you'll see
13 different river mile locations. River Mile zero is the
14 confluence between the Merced River and the San Joaquin
15 River. River Mile 52 is at Crocker Huffman Dam. River
16 Mile 38 is what I highlighted in the last table. And
17 those numbers correspond to the alternatives that you saw
18 in the last table. Although 20 percent is not shown
19 here, because it essentially tracked baseline and just
20 added more numbers and clogged up the figure.

21 So you'll notice that you see 43, 21, 11, 8 and
22 5. And those correspond to what you see in the red box
23 here. Although they're shown slightly different. So at
24 the Crocker Huffman Dam release, we see that that
25 criteria is met 100 percent of the time, under baseline,

1 which is the light blue. So there's no room for
2 improvement at that location, during this month.

3 At River Mile 38, again under baseline the
4 criteria was met 43 percent of the time. And by the time
5 you get to the 60 percent alternative, which is the dark
6 blue at the top, again the criteria can be achieved
7 approximately 90 percent of the time, which is the same
8 as the last figure shown. This figure also shows that as
9 the water travels downstream, the temperature is
10 increasing in the river, thus achieving the criteria less
11 often. And it also shows that increasing instream flows
12 can improve temperature conditions at all river locations
13 in the Merced River during this month.

14 So when you're looking at different river
15 locations in different months and different rivers, we
16 end up with lots of tables. And this table is an attempt
17 to try to consolidate and provide a summary of all of the
18 temperature benefits for all tributaries. This example
19 is just during critically dry years, but it combines all
20 three rivers.

21 This table shows the average annual mile days
22 of temperature compliance. Mile days is simply the
23 number of miles meeting a temperature criteria each day
24 and then added together for a given month or a given time
25 period. 100 percent attainment here means that all

1 rivers are meeting the criteria for their entire length
2 for each day of that time period.

3 If you'll take a look at the red box on the
4 left, I'll walk you through how this table works. The
5 first red box shows that there was a 38 and 22 percent
6 attainment of maximum temperature compliance in April and
7 May respectively under baseline conditions. And the
8 second red box shows that attainment increases to 64 and
9 46 percent maximum attainment under the 40 percent
10 alternative for April and May respectively. Thus
11 achieving and approximately doubling of the available
12 temperature habitat that meets the temperature criteria
13 during these months on all rivers combined.

14 MS. D'ADAMO: What are the numbers for June,
15 this is just April and May?

16 MR. WORTH: Yeah. This is just a few months as
17 an example, but we do have additional tables in Chapter
18 19 that show other months.

19 MS. D'ADAMO: All right. Maybe you could pull
20 that out? I think that would be helpful to look at June
21 as well.

22 MR. WORTH: Okay.

23 MS. D'ADAMO: Because I'm noticing on the other
24 chart, on 28, there's a slight decrease in June, 28.

25 MR. GROBER: If I may? This is an excerpt,

1 because this is an example where the document is quite
2 data rich. This is trying to walk through the type of
3 analysis that was done, so that previous table was
4 excerpted from the Executive Summary, which in and of
5 itself is a summary of a series of tables. Because we're
6 talking about temperature improvement over very large
7 areas and over very large times. But so I have in front
8 of me here for the equivalent for the June, if you look
9 at the number for smoltification for June, it's a lower
10 number. It's looking at the 40 percent it's achieved
11 under baseline only 2 percent of the time. And the
12 improvement is up to 7 percent. And for summer rearing,
13 the numbers are 13 and 31 percent respectively.

14 So all of those numbers are elsewhere in the
15 document. And that actually is a very good example of
16 two things. This is complicated and there's lots of
17 information for people to look at and determine. But
18 most important point is that none of these analysis were
19 intended to be an optimization of what you could achieve
20 with a block of water. It's intended to show just the
21 raw, if you put more water at it, this is what you're
22 going to achieve. But it really gets back at the
23 adaptive implementation and the settlement element. If
24 you more strategically use these quantities of water, you
25 can better manage when you release water and what you

1 want to achieve when. Because you can't achieve absolute
2 protection as these numbers show even if you throw a lot
3 of water at it. It's about how to be smart about the
4 limited quantities of water that we have.

5 MS. D'ADAMO: It's just hard to see how the
6 temperatures could actually increase in June. Is
7 carryover storage included and assumed in this, in these
8 charts?

9 MR. WORTH: Yes. There is a carryover storage
10 requirements that were modeled. And Will could probably
11 talk more about that now or later on.

12 MR. MOORE: One thing on the process, in
13 addition to these assumptions on thresholds. So what
14 we've heard during the discussions with local folks who
15 have studied this system a long time, is these
16 temperature criteria that you're using as an
17 illustration, may not be the final say on what
18 temperature criteria are appropriate for the San Joaquin
19 tributaries.

20 And so does this process that you've set up in
21 Appendix K, the STM Group, the adaptive implementation,
22 have we provided enough flexibility so that these
23 thresholds -- which if they change, change the percent of
24 attainment of temperature targets based on flow, as you
25 know the model shifts based on those thresholds -- have

1 made provisions in your proposal to enable a
2 reconsideration of these temperature criteria and
3 therefore the flow management decisions?

4 MR. GROBER: That's a great question. We're
5 not proposing temperature criteria. These are the
6 current USEPA criteria. And that really gets at again
7 how complicated this is and why this is crafted and
8 intended to have this adaptive implementation component.
9 For what we're showing here, it's just to have a point of
10 reference in terms of how do increased flows, compare to
11 a baseline condition? It's not to suggest that that has
12 to be what's attained. It's all going to be about how to
13 get the biggest bang for the buck and achieve the goals
14 that the STM Working Group or the settlement group as it
15 becomes a STM would intend to how to best manage a
16 limited quantity of water.

17 MR. MOORE: Right. So I think it's a key point
18 that this is illustrative of some quantitative benefits
19 if you assume a certain threshold. And then that can
20 shift based on adaptive implementation and scientific-
21 based recommendations.

22 MR. GROBER: That's correct.

23 MR. WORTH: And I'll just add, we used
24 temperature criteria to illustrate changes. And if you
25 were to change these temperature criteria up or down a

1 couple of degrees, we still see the same pattern of
2 changes. The river's either getting colder or it's not
3 getting colder. And but it is complicated. You have
4 distribution, you have a bell curve. Sometimes the bell
5 curve shifts one way or another. Sometimes it narrows.
6 Sometimes it widens out. So it's a really complicated
7 topic and we've tried to illustrate it a couple of
8 different ways and show the patterns.

9 MS. D'ADAMO: But let's get back, though to my
10 question on carryover, because it's not making sense that
11 the numbers -- that there'd be a percentage increase
12 especially in June, because storage is going to be drawn
13 down. So there's an assumption made on carryover?

14 MR. GROBER: Well, just to be clear when you
15 say a percentage, a percentage increase, this is -- to be
16 clear the percentage increase is an increase in the time
17 that a temperature goal would be achieved. And this is
18 just based on a straight -- the example here, it's
19 looking at a straight 40, so no flow shifting or anything
20 like that.

21 There might be determinations to shift flow to
22 earlier times, but that is the quantity of water that
23 would occur. But in the modeling, and as Will describe
24 later, there were assumptions that had to be made in
25 terms of reservoir operations and carryover storage, in

1 order for this to occur. And also feeds into the water
2 supply effects, because requiring more carryover storage,
3 though not an express requirement of the proposal, but
4 the way it's modeled if you're not going to have large
5 temperature impacts we had to make assumptions about some
6 different level of reservoir operation. That will have
7 both a water supply effect and also a temperature benefit
8 if you will.

9 And so we can talk more about that when we talk
10 about the modeling.

11 MR. WORTH: I'll just add that in June, there's
12 maybe carryover storage influencing the temperatures, but
13 there's also huge increases in flow under some of these
14 alternatives. This is February through the end of June
15 flow requirement, so there is quite a bit of additional
16 flow in June. As you get into the summer and into the
17 fall, then carryover storage becomes very important and
18 potentially shifting some of the February through June
19 water to say the fall time period, is potentially very
20 important.

21 MS. D'ADAMO: Yeah. Go ahead, Will, or
22 Mr. Anderson.

23 MR. ANDERSON: So when we add flow, February
24 through June, we're really having to re-operate the
25 reservoirs in other months as well. I believe in the

1 Merced, in June, that may be an artifact of the fact that
2 we have some vamp flows in baseline. And when those get
3 taken away, it may change the system there. So there's
4 the overall carryover storage changes, which are
5 necessary for greater reliability, both of cold pool and
6 of delivery, that do tend to change the temperatures year
7 round. And so this is a roll-up summary of 34 years.

8 And so some months -- most months, most Junes, get
9 better. There may be some that get slightly worse and
10 some get more worse. But that particular one, I'll get
11 back to you on specifically, what that June shows there.

12 MS. D'ADAMO: Okay. Okay, so let's just get
13 back to the carryover then, so carryover storage is
14 required or not required? But you have it in the model.

15 MR. ANDERSON: It is in the model as a
16 parameter that's a necessary constraint for reoperation.
17 If we don't to some extent adjust the carryover storage
18 guideline, then we will see warmer temperatures when we
19 allocate more water to stream flow. So that it is, and
20 to some extent a balancing that will need to be optimized
21 in implementation, to get to the heart of exactly what
22 the tradeoff is between increased reliability of cold
23 pool and delivery and our desire to release these
24 February through June flows.

25 MS. D'ADAMO: Well, I think we should see what

1 the charts look like without carryover, so that we can
2 analyze those tradeoffs. In other words I don't want to
3 speak for you, but I'm hearing you say that there would
4 be temperature impacts in some months, without carryover
5 storage.

6 MR. WORTH: Well, the water that goes down the
7 stream in February through June has to come from
8 somewhere. It either comes from diversions or it comes
9 from storage. If you don't limit -- if you don't include
10 storage rules, the water will come from storage. The
11 reservoirs could potentially be drained to zero.

12 MS. D'ADAMO: Right.

13 MR. WORTH: So there has to be some type of
14 storage requirements.

15 MS. D'ADAMO: Okay. So if there has to be
16 storage requirements, then it should be in the project
17 objective. But it's not in the project objective, right?

18 MR. WORTH: I don't know if Erin or Les wants
19 to talk about the --

20 MR. GROBER: I'll find the -- it's not
21 expressed as the form of a requirement. But the program
22 implementation recognizes that in order to achieve the
23 increased flow objectives and to achieve temperature
24 goals and to not have adverse effects on temperature at
25 other times of the year, it includes language that says

1 in the implementation of this, in the subsequent
2 implementation of this, the water rights or conditioning
3 water rights, things like that, that it would include
4 requirements related to carryover storage reservoir
5 operation.

6 MS. D'ADAMO: Okay. So I know --

7 MR. GROBER: But it doesn't include -- and the
8 reason for not including any -- the modeling shows how it
9 can happen, but it's not prescribing how it must happen,
10 consistent with the interest in achieving settlement and
11 how do you most smartly implement this thing. So rather
12 than prescribing it at this stage, any kind of reservoir
13 operation, it says well this is how it could happen in
14 the numbers we present. But it clearly could happen in
15 other ways that would take less water.

16 MS. D'ADAMO: Right. So I just think it would
17 be helpful for us to know, as we balance, I think it
18 would be helpful to know if the project is not requiring
19 carryover storage. And I'm not saying it should, but if
20 it doesn't require carryover storage we should know what
21 the benefits and the impacts are. We should know what
22 these numbers look like without carryover storage. So
23 that then if in the settlement discussions or Program of
24 Implementation, a carryover storage operational
25 constraint is decided by whomever, whether it's the STM

1 group or those that are involved in settlement
2 discussions, that they would have and we would have that
3 information on how important is it to have a carryover
4 requirement? Because what we were trying to do, in
5 providing benefits to the fish, could actually harm them.
6 And for us to see what those temperature -- what those
7 temperature increased would be. Because right now this
8 is showing an increase in the number of days to meet the
9 EPA criteria. But I imagine if it were run without the
10 carryover storage requirement, we would actually see a
11 decrease in some months.

12 MR. GROBER: It wouldn't be in the February
13 through June period, but it would be other times of year.
14 And too, it would be -- I'd say I don't think it's an
15 overstatement to say it wouldn't be impossible to run
16 without changing operation rules. But if we're imposing
17 this new constraint, if you will, of having to release
18 more water to achieve an instream flow, that water has to
19 come from somewhere.

20 If you simply model it to run reservoirs down,
21 you will go to very low points in the reservoir by trying
22 to maintain demand for other water uses. So it would
23 have the effect of reducing say some of the water supply
24 effects, but it wouldn't be -- it would be, I guess, I'm
25 not sure what one would achieve with that what if,

1 because it would have such large redirected effects on
2 temperature at other times of the year, so as not to
3 achieve --

4 MS. D'ADAMO: Right. But that's not in the
5 project. The project, as the objective that we have
6 before us, does not include carryover storage. I'm just
7 saying I think we should have it in the chart, so that we
8 can see what would it look like without. Because there
9 will be a big push to include carryover storage, so we
10 should understand what those benefits are.

11 MS. MAHANEY: And to clarify though, there's a
12 couple of elements to consider in the draft objectives in
13 Program of Implementation. And one is the adaptive
14 implementation methodology that allows for flow shifting
15 to address temperature impacts later in the year. And
16 then the -- as written right now, the Program of
17 Implementation also clearly expresses the intent to avoid
18 those coldwater pool impacts through carryover storage
19 requirements.

20 And as Les said, the staff's thinking was that
21 those were better developed at a project level rather
22 than imposed right at the Water Quality Control Plan
23 level. And so there definitely is the intent right now
24 to avoid those impacts, so the project does include that
25 provision currently. It doesn't have the detail for each

1 specific reservoir, for example

2 CHAIR MARCUS: Yeah, I see the rock and the
3 hard place that you're between. I mean based on the
4 comments we got the first time around, where folks said
5 you should assume reasonable at reservoir operations, but
6 you can't read people's minds and you're asking for
7 people to come up with something that makes sense. And
8 yet folks will -- I don't know what the right phrase to
9 use is -- make mischief with any opportunity to -- see,
10 but the more we explain, this is just points out the need
11 to explain and have information and connect the dotted
12 lines maybe a little more.

13 You know what's in that document. You
14 understand what the Program of Implementation means.
15 Most people don't. I have struggled with this notion for
16 awhile, so just take it as a suggestion to illuminate as
17 much as possible, where folks don't have to talk to you
18 to understand how to cross walk it. That would be my --

19 MS. D'ADAMO: Yeah, I think it just helps to
20 know the tradeoffs, because this is showing the trade-off
21 in terms of benefit on temperature. And it's also
22 showing a greater water supply effect under this, not the
23 project but how you think it would be operated with
24 carryover. And so getting a different set of charts that
25 would show a reduced water supply impact, but increase

1 potentially during certain periods, during certain
2 months, an increase in temperature. Then I think that it
3 would just help us --

4 CHAIR MARCUS: Illustrate.

5 MS. D'ADAMO: -- yeah, help us to better
6 understand this is a recommendation. We have decisions
7 to make. And then more importantly for those that are
8 engaged in productive discussions on settlement, it would
9 -- as long as you have that information -- I think that'd
10 be helpful for them to have it as well.

11 MR. GROBER: We certainly have that. And
12 getting a little bit ahead, we have two days of technical
13 workshop, where this is getting into the really important
14 details on December 5th and 12th. And the assumptions
15 used and how we did the analysis will certainly be one of
16 the subjects we'll be covering there. But I just want to
17 caution or disclose, because -- I'm glad Chair Marcus
18 said you'd said that -- what we attempted to do here is
19 to show a way that this can be operated and analyzed that
20 we think is most likely. Once we start going down the
21 path of other what ifs there would be -- so if I'm
22 hearing the comment correctly we would then need to well,
23 let's not assume any additional reservoir operation.

24 It's not going to be a very interesting result
25 as I'm not sure if we would drain the reservoirs, but

1 we'd come close to it in some years and we'd lose all
2 temperature control for many months. So that wouldn't
3 necessarily provide a lot of great insight, because
4 that's why we have the language, which I think is worth
5 reading just into the record here that we have in the
6 Program of Implementation, because we wrestle with this.
7 How do you actually do this without going too far and
8 making assumptions about how operations must be made, but
9 rather recognizing that something about this will have to
10 be done. And then show our work.

11 So I'd like to just read, "We say when
12 implementing the San Joaquin River flow objectives, the
13 State Water Board will include minimum carryover
14 reservoir storage targets or other requirements to help
15 ensure that providing flows to meet the flow objectives
16 will not have adverse temperature or other impacts on
17 fish and wildlife, or if feasible on other beneficial
18 uses." And we also go on to say -- because it's worth
19 noting it's important as well -- "The State Water Board
20 will also take actions as necessary to ensure that
21 implementation of the flow objectives does not impact
22 supplies of water for minimum health and safety needs,
23 particularly during drought periods."

24 CHAIR MARCUS: Is that because normally in the
25 cadence or the timing of this, we do the Plan objectives.

1 And you would also do something like carryover storage in
2 the water rights implementation phase, or a settlement
3 acceptance phase? Is that the distinction that that's
4 the place you do it, rather than in the Plan itself?

5 MR. GROBER: I don't know that there's an
6 always in terms of we've done this enough where we've
7 actually prescribed such a flow that could have such a
8 large effect. But it's certainly recognizing the large
9 change now, that it's something we'd look at. I mean
10 this kind of goes back to some of the issues that we're
11 facing now, on the San Joaquin River and relying only on
12 the Stanislaus in terms of if you don't -- we've seen
13 that problem here based on water rights, contractual
14 obligations, things like that. And that we've had
15 difficulty achieving all of those goals. So --

16 CHAIR MARCUS: Yeah, in some ways I think what
17 Board Member D'Adamo is getting to is to illuminate the
18 implications of what we do in the Plan. We may need to
19 see some more things, even though you've put a lot of
20 data in and may need to pull it out for us.

21 Just to remind folks in the audience, you may
22 wonder why we're having this conversation with staff,
23 when many of you are waiting to talk, but we're only
24 allowed to be all five of us hearing things at the same
25 time and talking when we're out in open session. So

1 particularly in this first hearing -- I mean we can go in
2 twos and ones to ask our individual questions, but there
3 is a benefit to us being able to hear each other's
4 questions. So please bear with us. This is actually a
5 working session. And if you know us, you realize through
6 the many different regulatory things we do we actually
7 listen to each other, we listen to staff, we listen to
8 folks. And we change our proposals and it evolves over
9 the course of this period. We're very much hands-on, so
10 please bear with us, because we don't have the
11 opportunity to do with the five of us very often.

12 We'll probably not need as much time to do this
13 at our subsequent hearings.

14 MR. GROBER: So I think this is the value of
15 having multiple days of hearing and also these technical
16 workshops. So I think at a minimum what we'll be
17 providing during the technical workshops, and we can
18 report back at the hearing as well, is just more detail
19 about the assumptions used for the carryover storage that
20 were used.

21 And then also explore a what-if, if we'd had
22 something different. At least I'm not sure the level of
23 detail, but I understand what you're getting at. It's
24 like what would happen if you weren't to do that, because
25 there would be some other effect on this? So we can be

1 better prepared to do that at least narratively and as
2 quantitatively as possible.

3 I'll give a side-long glance to Will and our
4 modelers to see how -- if it will be easy to show our
5 work and what we've done. But to go to that next step
6 and do a what if, we'll see how much additional effort it
7 will be and when we can get that to you.

8 MS. D'ADAMO: I think that would be helpful.
9 And, you know, I don't want to take up too much more
10 time. I do plan on going to the workshop, so we can talk
11 about this more at that point. I'm just trying to square
12 what you just said that maybe it would be incorporated
13 during the Program of Implementation. But there's some
14 language in the document that clearly says that it is not
15 a requirement. And so I'm just trying to square that.

16 So that if it's not a requirement -- I'm not a
17 CEQA attorney, but it just seems to me that we need to
18 analyze the project that's before us. So maybe when we
19 are at the technical workshop you can provide that
20 information and there can be a little more discussion on
21 the.

22 MR. ANDERSON: The point is well taken and I'll
23 be happy to provide that. I'm not sure by next Monday,
24 but as soon as possible.

25 MS. D'ADAMO: For the 12th.

1 MS. MAHANEY: Yeah. And just to help, perhaps
2 attempt to clarify any potential confusion, in terms of
3 the CEQA document the analysis may -- it wouldn't
4 necessarily know what requirements may be imposed. So
5 maybe there's some ambiguity there, because we don't know
6 for sure. And so maybe that's where the perception that
7 it's not a requirement is coming from.

8 But again the draft objectives and the draft
9 amendments to the Water Quality Control Plan and the
10 Program of Implementation do express an intent to impose
11 a requirement to minimize and coldwater pool impacts.
12 And as Chair Marcus identified this is a difficult issue,
13 because as a general principal we want to approach that.
14 Bt you don't know what the facts will be on the ground as
15 you move into the site-specific analysis and any
16 conditioning. So it is a challenge to address those at
17 this stage.

18 MR. MOORE: And recognizing that there is some
19 discomfort and understandably so on all sides,
20 agriculture perspective, environmental perspective on
21 trusting these variables moving forward within this
22 proposal. I think the spirit, and correct me if I'm
23 wrong, of the Program of Implementation language is not
24 to establish ridged storage requirements, because in our
25 experience with Sacramento temperatures in the last three

1 years, we have understood how things change on the
2 ground, as you've said.

3 And so the requirement is narrative, as I read
4 it in the proposed Program of Implementation to consider
5 it and to empower a collaborative process, which you're
6 calling the STM Group, which has all the stakeholder
7 representation on an annual basis. And you used the term
8 project. When you say project, is that referred to the
9 annual process that's proposed in the Program of
10 Implementation to have a proposal on January 10th of each
11 calendar year that the State Water Board or the Executive
12 Director reviews and approves, as a product of the STM
13 Group.

14 I mean, I asked this question to try to get
15 more comfort level in the process that you're proposing
16 for a collaborative effort each year. And when you say
17 project, are you referring to that effort each year?
18 And the deliverables that come to the State Water Board?

19 MS. MAHANEY: When I refer to the project I'm
20 referring to the totality of the Bay-Delta Plan
21 Amendment, which includes the draft objectives, the
22 Program of Implementation, and the requirements within
23 that Program of Implementation including the STM Working
24 Group process and that sort of thing. Again this is a
25 permanent programmatic level, because we don't know how

1 precisely the community will develop site-specific
2 projects and the specifics of how it will be implemented.
3 But we have done our best to analyze it at that
4 programmatic level.

5 MS. D'ADAMO: I understand that, and I can't
6 remember -- I've read so much over the last month -- but
7 that in this analysis it is assuming carryover 700,000
8 acre-feet on the Stan, 800 on the Tuolumne, 300 at the
9 Merced. So whether we're flexible or not this analysis
10 is assuming carryover at a very specific level.

11 And I'm actually trying to help here, because
12 if that's not needed then we should do a different
13 analysis. And say, "Gee, it might be needed, it might
14 not. And if it's not needed, or it's needed at a lower
15 level, the water supply effects are going to be lower."
16 And that would help for a lot of people that are here in
17 the room and elsewhere to alleviate their concerns,
18 because we are showing water supply effects, especially
19 in critically dry years, you know, as a pretty high
20 reduction. You know, like 34 percent or I don't remember
21 exactly what it is, but pretty high numbers in the years
22 that matter the most.

23 And of course, those are the years that matter
24 the most for fish as well, which is why we need to be
25 looking at these temperature issues. But if it's not

1 going to be required, then we should get the information
2 out. I actually think it will help the discussion.

3 MR. GROBER: It's worth noting for this,
4 because this is going to be a theme in terms of the
5 assumptions that we make for replacement water, for
6 groundwater as you'll be hearing as well. We can't know
7 exactly what it's going to be. In fact, we've put in the
8 document, a lot of these things are speculative.

9 Your point is well taken that it can certainly
10 be something better or less, but an error we certainly
11 didn't want to make is to underestimate what would be the
12 potential effects. But neither do we want to overstate.
13 We tried to land where we thought is reasonable in the
14 end. But this is what this hearing and what these
15 workshops are all about. If it can be shown, "Well, you
16 know what? It seems based on our review of the models,
17 it looks like you could achieve these temperature goals
18 and do more for water supply by having a less stringent
19 reservoir operation." That would be I think great news
20 overall.

21 But so that's why we look forward to getting
22 information, answering questions at the workshops and
23 also receiving comments.

24 CHAIR MARCUS: Go ahead and resume.

25 MR. WORTH: So now I'm briefly talk about

1 floodplain benefits from increased flows. This figure
2 shows the relationship between floodplain and discharge
3 on the Tuolumne River, on the vertical axis. That's
4 over-bank area in acres or floodplain area in acres. And
5 on the x axis it's discharge in CFS. So this figure
6 shows that as discharge increases, the area of floodplain
7 inundation also increases.

8 And we can use this relationship to estimate
9 potential changes to floodplain inundation under
10 different flow scenarios.

11 CHAIR MARCUS: Do you want to just do two
12 sentences on why floodplain inundation is important for
13 fish, for those who don't know?

14 MR. WORTH: Yeah. One of the main benefits of
15 floodplain inundation is that there's food sources that
16 are not available within the river channel. So there's
17 terrestrial insects and worms and bugs that are typically
18 not available to the fish. And when you inundate
19 floodplains that extra amount of food becomes available.
20 And fish on floodplains has been shown to grow much
21 faster. Growing faster helps survival and helps fish in
22 the long-term returning as adults.

23 CHAIR MARCUS: Thank you.

24 MR. WORTH: Now we are looking at annual
25 average floodplain inundation on the Tuolumne River

1 during April through June. The left access shows
2 floodplain inundation in acre days. Acre days is the
3 number of acres inundated each day and then added
4 together for some time period.

5 CHAIR MARCUS: So with acre days and mile days?

6 MR. WORTH: Yeah, mile days was for
7 temperature.

8 CHAIR MARCUS: I feel like I'm going to speak
9 about my life in mile days from now on. I don't know
10 about acre days.

11 MR. WORTH: Yeah, so we use mile days for
12 temperature compliance and acre days for floodplain
13 compliance. And this is the annual average, April to
14 June period. And this shows that under baseline there's
15 some amount of acre days that are inundated on average.
16 And under the unimpaired flow percentages, we see
17 increases in the average inundation.

18 This figure shows something similar to the last
19 slide, except now we are looking at just the drier water
20 year types, instead of all the water year types. The
21 data indicates that floodplain improvements will be
22 greatest during drier water years as those are the years
23 that we saw the biggest changes to flow under these
24 percentages, unimpaired flow.

25 And with that, I'll turn it over to Will

1 Anderson.

2 CHAIR MARCUS: Hi, forgive me, Will. Because
3 I'll try and set up, so I can see you.

4 MR. ANDERSON: My name is Will Anderson. I'm a
5 Water Resource Control Engineer in the Division of Water
6 Rights. And I'm here today to talk about some components
7 of the analysis that was done to create the effects
8 analysis and the results that you'll see today, that Xuan
9 will present, and are included lots of detail in the SED
10 document.

11 And I would refer to Appendix F.1 for more
12 information on the modeling. And also the workshops next
13 Monday to talk about the modeling and the following
14 Monday to talk about additional technical topics of
15 concern, related to the modeling and effects analysis and
16 economic analysis to inform folks who are making written
17 comments for the January deadline. And I'll be very
18 brief today and just show a couple of snapshots and
19 schematics of what the models are and what they do, just
20 to provide some insight. I'm happy to answer any
21 questions.

22 So Les has already shown the basic flow chart
23 of the water supply effects model, the impacts analysis
24 that comes from the allocation of surface water, and the
25 impacts from that. Also how that feeds the temperature

1 model.

2 Board Member D'Adamo's point goes to the heart
3 of the matter of when we change the reservoir operations
4 we will then see temperature results from that. And then
5 we had to iterate multiple times to find a set of
6 operational constraints that did not make temperatures
7 worse. On average the number days that these particular
8 temperature criteria were achieved, so it is an extremely
9 salient point to keep in mind as we go through this.

10 Here, I'm going to show the CALSIM's schematic,
11 which you don't have to --

12 CHAIR MARCUS: This is where a word girl goes
13 like "Ah!" and then like --

14 MR. ANDERSON: You don't have to see all the
15 different aspects, but it shows in the CALSIM model
16 developed by The Department of Water Resources and the
17 Bureau of Reclamation they have represented the system.
18 And come up with a complete set hydrology for 82 years,
19 from 1922 to 2003, for the three major inflows on the
20 Stanislaus and Tuolumne and Merced River, the three major
21 reservoirs, operation, all of the demand notes that
22 represent the irrigation districts and diversions along
23 the rivers. And the reaches and stream flows as well.

24 And so we have taken this schematic framework
25 and incorporated it into a spreadsheet that we found

1 easier to work with and manipulate to put in the
2 unimpaired flow requirements and other requirements for
3 our comparative analysis.

4 So the very key part of this in the spreadsheet
5 is to allocate water between stream flow requirements and
6 surface diversions. It involves the use of the storage
7 constraints such as the carryover storage. And sometimes
8 we have minimum allocations, so that that will give a
9 minimum amount of diversion in most years. And there's
10 an incorporation of an annually varying demand, which is
11 from CALSIM, which is how much diversion is needed to
12 meet agricultural requirements. And we'll see a little
13 later on how that affects the need for groundwater when
14 surface water is not available.

15 In a little more detail, this is a basic
16 schematic of a river, in this case the Tuolumne River,
17 where we have the major rim dam reservoir, a release from
18 that reservoir. We have a Lagrange Dam would be the site
19 of the major diversions. We also consider the CALSIM
20 local inflows to that hydrologic series as well as return
21 flows from the district operations. So the unimpaired
22 flow target will come into play at the downstream reach,
23 above the San Joaquin River in the Tuolumne.

24 So in this case, we will calculate how much
25 water is already there, based on the returns and inflows

1 and then only release what is needed to meet that
2 unimpaired flow requirement from February through June.

3 This is a plot of some basic results just to
4 illustrate the difference between baseline and a 40
5 percent of unimpaired flow scenario. The blue line that
6 we see is the stream flow, is the amount of unimpaired
7 stream flow in cubic feet per second, as estimated at
8 Lagrange. And the red line would be the baseline
9 condition. And the green dotted line is what would
10 happen in the 40 percent scenario from February through
11 June.

12 So we see a series of dry and critical years
13 with a fairly wet year in '93 and an extremely wet year
14 in '95, in which case the reservoir spills and there's
15 quite a lot of release in the river. We see the baseline
16 in 1990, '91, '92 is fairly low and we'll see what that
17 effect is in the temperature in a minute.

18 But for the analysis it's basically comparing
19 the baseline scenario for 82 years with the unimpaired
20 flow alternatives. The baseline incorporates the
21 existing environment, which is a CEQA phase at the time
22 of the 2009 Notice of Preparation for this project. And
23 it incorporates the stream flow requirements of Decision
24 1641 and the Vernalis Adaptive Management Program, which
25 were in effect at that time. Also, the stream flow

1 requirements of the biological opinion for Salmonids on
2 the Stanislaus and the FERC stream flow requirements on
3 the Tuolumne and Merced.

4 The alternatives are in the main SED document:
5 20 percent, 40 percent and 60 percent of unimpaired flow
6 from February through June and with adaptive
7 implementation, we can shift that to other months, at 40
8 percent and greater. And that offsets some of the
9 temperature impacts that may occur from the reservoirs
10 being drawn down more, earlier in the spring.

11 Now, I'm going to show a plot of diversion
12 results, so this is the amount of surface water that is
13 allocated both in the CALSIM Model and the WSE Model.
14 And it's intended to show the 82-year time series of
15 1,000 acre-feet of diversions. And our spreadsheet model
16 essentially represents the same logic that's in CALSIM.
17 And we do see that many years' demand is higher. We can
18 confer from this that demand is varying and that there
19 are some shortage years. So we see four or five years
20 out of the 82-year series that due to droughts, diversion
21 delivery is severely constrained in the baseline
22 condition.

23 So we've taken the results from the water
24 supply effects model, based on our alternative, and put
25 that into the temperature model. A little bit of

1 background. This is a program developed by the U.S. Army
2 Corps of Engineers Hydraulic Engineering Center. That's
3 the HEC part of it, H-E-C. It basically is used to
4 assess the effects of reservoir operations and the
5 temperature and hydraulics downstream. This was used in
6 a program that CALFED did a peer review in 2009, for the
7 San Joaquin version and the recent update is in 2013, by
8 the California Department of Fish and Wildlife.

9 We used diversion. And they had a couple of
10 different ones. They had a historical calibration one
11 and they had one that also used the calcium flow balance,
12 which is important because it takes the flow at these
13 reaches and nodes from CALSIM and then it allows us to
14 take our WSE Model results and put them right into this
15 temperature model for the comparative analysis.

16 So next I'm going to show you we're going to go
17 back to this 1990 through 1995 period and I'm going to
18 pick out one year out of that, so we can just see an
19 example of what happens in terms of temperature. For
20 1990 in the Tuolumne River, this shows the daily 7-day
21 average of daily maximum temperature. So that's the
22 basis by which we interpret the temperature criteria
23 recommended by EPA.

24 And they're still not in guidance though we see
25 a high and low temperature target. That's because for

1 life stages, there's a core rearing life stage and also a
2 smoltification value that we saw in the other table for
3 the months from May through June.

4 Now, the upper line, the light green line, the
5 solid line represents the baseline condition instream
6 temperature, 7-day average of the daily maximum
7 temperatures. And we see that in up until March there's
8 -- well up until February there's no change. In
9 February, there's a little bit of change.

10 After March, we start to see a greater change
11 between baseline and the 40 percent alternative. And it
12 amounts to five degrees, six degrees. And then in June,
13 it could be as much as 10 to 12 degrees or more
14 difference at this point, which is River Mile 38 and I'm
15 not going to show it today, but it essentially will move
16 this cold water further downstream when we have a greater
17 release. So that's the difference between being marginal
18 on meeting this particular criteria and being more
19 assured of reaching it.

20 CHAIR MARCUS: Can I just stop you for a
21 moment? I was thinking I would try and let you finish,
22 but I do want to check with the court reporter is whether
23 you need a break now or can -- great.

24 Go ahead.

25 MR. ANDERSON: So the next slide here is a

1 longitudinal profile for the same year, April of 1990.
2 And like Dan's figure showed, we've got upstream on the
3 right at New Don Pedro Reservoir and then the water is
4 released and it goes downstream right to left. We see
5 this very cold, initially, at the release point. And in
6 April of 1990 we see a warming trend. The top line is
7 the baseline condition. The dotted red line just below
8 that would be 20 percent of unimpaired flow in April.
9 And the green line below that would be 40 percent of
10 unimpaired flow.

11 We see diminishing returns at the 60 percent
12 level, which is the bottom purple dotted line. And we
13 also see the two temperature criteria here, for core
14 rearing and smoltification. And that the baseline
15 condition essentially at 3/4 river, the monthly average
16 of the 7-day average of daily maximum temperatures on
17 average exceeds both of the criteria downstream at 3/4
18 river. And for the greater instream flow requirement, on
19 average would meet these criteria.

20 I'm next going to talk just extremely briefly
21 about groundwater use assessment, because I know it's a
22 topic of great interest and just what was done in this
23 analysis. Essentially, what we've taken is the water
24 supply effects for surface water and how much diversion
25 is available to meet demands. And if there's enough

1 surface water available, based on the allocation logic,
2 then those demands are met with surface water.

3 If there's not enough surface water, then it
4 assumes that groundwater is pumped to meet demands up to
5 a certain capacity, which we had to come up with an
6 estimate of what capacity -- of what level of groundwater
7 was available or would be available under the scenario to
8 meet demands.

9 Now, we used various data sources to come up
10 with these 2009 era levels of maximum pumping. Some of
11 these were the ag water management plans. Also, we sent
12 some letters to irrigation districts asking what the
13 maximums might have been. And we also got estimates for
14 2014, which were much greater due to additional wells
15 being drilled and the actual observation of greater
16 pumping during the drought.

17 Now, we based our analysis off the 2009 levels,
18 because we thought that it would be less unsustainable
19 for one. And additionally, if we estimate greater
20 pumping than the economic effects of the shortage of
21 surface water are masked, so that we don't see that.

22 (Phone creates electronic interference.)

23 Is that this phone or somebody else's?

24 CHAIR MARCUS: Yeah, somebody has a phone near
25 a microphone. It's better to move on.

1 MR. ANDERSON: So we'll talk a lot more about
2 the groundwater effects in the technical workshop. But
3 Xuan will show some of the results, but I'm going to
4 quickly try and wrap up here. We are aware that in the
5 future pumping may be limited by the SGMA, the
6 Sustainable Groundwater Management Act. And it's
7 difficult to speculate exactly what those effects will
8 be.

9 But one of the things that in order to estimate
10 the groundwater pumping we have to have an understanding
11 of the district water balance. And that would be these
12 basic components from the surface water diversion into
13 the distribution system. Some is lost to seepage from
14 the canals or regulating reservoirs or returns to surface
15 water. Some is used for municipal uses. And the
16 remainder of applied surface water would then go the
17 field for farm gate level. If there's not enough surface
18 water then we'd see pumping. Some of that applied water
19 would either percolate and the majority of it will
20 evaporate and transpire in the growth of crops.

21 So this is essentially the generalized water
22 balance that we've interpreted from ag water management
23 plans to come up with average numbers for efficiencies
24 and seepage and percolation as they go into that
25 groundwater balance. And the workshop will cover that in

1 much more detail.

2 This is a time series example of the ground
3 water use analysis of replacement of surface water in a
4 time of shortage. This represents baseline conditions on
5 the Merced, for the Merced Irrigation District. And
6 essentially, we see the bottom part of this graph shows
7 the nominal or minimum groundwater pumping that's every
8 year that maybe to places that do not have access to the
9 conveyance and distribution system.

10 The blue area represents the amount of surface
11 water used to meet the total demand, which is the black
12 line at the top. You see that the total demand varies
13 with the climate year. In dry years it would be more, in
14 wet years it would be slightly less. And we see the
15 brown represents additional groundwater that's pumped in
16 drought periods to meet the demands.

17 And when there is a white gap between the brown
18 and the black line, that would represent the time when
19 demand exceeds the capacity of available surface water
20 and pumping. So just a snap shot, that's all I'm going
21 to get into for right now. In the scenarios, we see a
22 lot less surface water. And then that will increase the
23 pumping.

24 So essentially for the economic impacts for
25 agriculture, we have to go through a series of

1 calculation steps. We start out with the instream flow
2 requirements and the water supply effects, which affects
3 the changes in surface water availability. Then we have
4 the change in applied surface water, which is the actual
5 amount of water at the field, based on that graphic that
6 I showed about the water balance within the district.
7 Based on the groundwater use analysis, we would evaluate
8 the changes in groundwater pumping and any shortages that
9 would then occur if groundwater was not available to meet
10 that demand.

11 So the change in applied water we have fed into
12 the state-wide agricultural production model. This was
13 developed by UC Davis and we've seen some results and
14 analysis of that in the most recent drought, an
15 application of that particular model, which predicts the
16 changes in agricultural revenues, any shifts in cropping
17 patterns, and essentially involves an optimization of the
18 use of water in the changing availability situations.

19 Now after SWAP, based on the change in
20 agricultural revenues, it would then project that out to
21 the region-wide effects of employment, total economic
22 sector output, and the value added additionally by the
23 crop activity and the changes in revenues. So Xuan will
24 talk a little bit about those impacts.

25 MR. MOORE: So the end plan model gets to the

1 issue that beyond just the work plan, the farm area, the
2 agricultural area, it's the community that is supported
3 by that economic productivity?

4 MR. ANDERSON: Correct, it's an assessment to
5 project out the limited costs out to what would be the
6 greater area.

7 MR. MOORE: Like the car dealerships or not
8 just the strict agricultural output, but other economic
9 output that's dependent on a core of agricultural
10 productivity?

11 MR. ANDERSON: With that I'll pass it over to
12 Xuan Gao.

13 MS. GAO: Thank you, Will. Good morning
14 everyone. My name is Xuan. My name is Xuan Gao. I'm
15 going to present to you a summary of the major impacts
16 that our proposal would have.

17 This table shows the estimated effect on
18 average annual surface water diversion from the three
19 tributaries under different flow objectives. As you can
20 see, on average the 40 percent unimpaired flow objective
21 would result in a 293,000 acre-feet or 14 percent
22 reductions in water availability for surface water
23 diversion compared to the baseline. These are the
24 overall water supply effects that could occur in areas
25 that rely upon water from the three tributaries,

1 including the major districts in the Plan area and the
2 City and County of San Francisco.

3 This figure shows the breakdown of the 14
4 percent reduction in surface water availability under the
5 40 percent unimpaired flow objective by water year type.
6 As you can see here during the wet years there will be
7 almost no impact on diversions, because of the abundance
8 of flow to share. The most significant impact on
9 diversion would occur in the driest years.

10 Requiring more water to remain instream for the
11 reasonable protection of fish and wildlife would reduce
12 the amount of surface water available for consumptive
13 human use. Reduced surface water availability would
14 affect groundwater resources, agriculture and drinking
15 water. The effects on groundwater resource include
16 decrease in groundwater pumping -- sorry, increase in
17 groundwater pumping, decrease in groundwater recharge and
18 a lowering of groundwater levels that could affect
19 groundwater quality ultimately.

20 For agriculture, the flow proposal could change
21 cropping patterns and reduce irrigated acreage, which
22 could in turn reduce agriculture production and revenue.

23 For drinking water supply, service providers
24 may need to construct new wells or deepen existing wells.
25 Again, the lowering of the groundwater level could have

1 negative impact on groundwater quality and affect sources
2 of drinking water.

3 My presentation today is focusing on these
4 three areas, but there are other impact analyses in the
5 reports.

6 This slide shows the average annual estimates
7 of groundwater pumping in all modeled irrigation
8 districts by year type under the 40 percent unimpaired
9 flow objective. We estimated that under baseline
10 conditions on average the districts pumped 260,000 acre-
11 feet per year. Under the 40 percent unimpaired flow
12 objective the average annual pumping would increase to
13 364,000 acre-feet. Although, as you can see in this
14 slide, most of the increase would occur in dry and
15 critically dry years.

16 Here we have average annual estimates of
17 groundwater recharge in all irrigation districts by year
18 type. Groundwater recharge includes distribution
19 seepage, regulating reservoir seepage and deep
20 percolations. Under the red bars are the baseline
21 conditions and the blue bars are the results under the 40
22 percent unimpaired flow objectives. So you can see under
23 the 40 percent unimpaired flow objectives, there is an
24 80,000 acre-feet reduction in annual average recharge.
25 That is because distribution seepage and deep

1 percolations are reduced in the 40 percent unimpaired
2 flow objective.

3 Again, most of the reduction occurs in dry and
4 critically dry years. There is only minor reductions in
5 recharge in the wetter years.

6 This figure shows the average annual estimate
7 of groundwater net input in five irrigation districts
8 under different flow objectives. Groundwater net input
9 is the groundwater recharge minus the groundwater
10 pumping. And it does not equal to overdraft as it does
11 not include estimates of natural recharge, stream to
12 aquifer interactions, and aquifer to aquifer
13 interactions. The point in this that we should take from
14 this slide is that although the groundwater net input
15 would be reduced as compared to baseline, under different
16 flow objectives, but as you can see here, even at 40
17 percent unimpaired flow, the districts still have a net
18 positive contribution to the groundwater input.

19 The increase in groundwater pumping would not
20 compensate for all of the reduction in surface water in
21 some years. That means our net agricultural water
22 demands would increase as compared to baseline.

23 With greater agricultural water shortage,
24 cropping pattern would likely shift to more towards crops
25 that have a higher net revenue per unit of water use.

1 The slide that you are seeing here shows the SWAP results
2 for average annual irrigated acreage in the seven modeled
3 irrigation districts. Compared to baseline, irrigation
4 acreage would decrease by 23,000 acres, under the 40
5 percent unimpaired flow objective.

6 So how does this translate to revenue? Here we
7 have the SWAP results for agriculture and revenues for
8 all seven irrigation districts. Compared to baseline,
9 crop revenue decreases by about \$40 million under the 40
10 percent unimpaired flow objective, which is about 2.5
11 percent decreased from the baseline.

12 This table shows the estimated effects of
13 reduced agricultural production on regional economy. The
14 baseline estimates of direct revenue based on crop
15 production was about \$1.5 billion with an additional \$1.1
16 billion generated through indirect and induced effects.
17 The total sector's output was about \$2.6 billion. Under
18 the 40 percent unimpaired flow alternative, total sector
19 output is estimated to decrease by \$64 million. And that
20 is about 2.5 percent of the baseline sector's output.

21 So service providers relying heavily on surface
22 water would need to supplement their supplies with
23 groundwater, as Will just explained. The reductions in
24 surface water supply would therefore affect entities that
25 rely upon groundwater by increasing the need to deepen

1 their wells or construct more wells to continue access to
2 groundwater, increasing groundwater pumping costs,
3 degrading groundwater quality, and making groundwater
4 unavailable in some areas once groundwater level dropped
5 to a value that makes groundwater pumping no longer
6 economically feasible.

7 Now, I will turn to Les to conclude.

8 MR. GROBER: To provide a -- not sure if it
9 could be called a wrap, but to bring us back to the
10 beginning, maybe that's a good place. Just to really
11 punch some of the starting thoughts and themes behind
12 this I know -- well, Chair Marcus is smiling.

13 CHAIR MARCUS: I don't mean to be smiling, but
14 you keep talking about punching. And so it's just sort
15 of --

16 MR. GROBER: Well, punching, maybe that's too
17 violent, to make the point.

18 CHAIR MARCUS: To make the point, yeah.

19 MR. GROBER: To make the point, yeah. This is
20 very hard. It's technically hard. It's technically
21 complex. We're talking about a very valuable resource.
22 We're talking about competing uses of water, competing
23 interests, but I think it's summed up here with this kind
24 of citation excerpt from the Water Code. It's what we're
25 required to do. We're required to attain the highest

1 water quality, which is reasonable, reasonable.
2 Considering all demands being made and to be made on
3 those waters and the total values involved, beneficial
4 and detrimental, economic and social, tangible and
5 intangible. But it's why we have a big document. That's
6 why we're here today. It's why we have more workshops,
7 because we want to hear all about how to make it better
8 or thoughts on it to help the Board, because you will
9 have the tough decision to implement this thing that's on
10 the screen.

11 So next steps we've already referred to, I
12 think it's very valuable, we have during this four-month
13 comment period we have had several meetings that have
14 already happened. We're communicating, explaining what
15 we're doing, how to navigate the document to help people
16 better inform their comments.

17 To continue to do that, we have two days of
18 technical workshops starting this coming Monday and the
19 Monday after that. At the first workshop, the topic will
20 be Water Supply Effects, Temperature Model, Ecological
21 Benefits. And the following Monday, December 12th, will
22 be Groundwater, Ag Economic Effects, Salinity, and the
23 City and County of San Francisco Effects. And this is
24 all then still provides another month after that to help
25 people better understand what we're doing, so they can

1 provide really targeted comments. So at least the
2 comments won't be misunderstanding what the proposal is,
3 but the added value of comments to help this Board
4 decide.

5 Some projected dates there. We have the
6 comment period as January 17th. And we anticipate based
7 on this that we'll get a lot of comments. We'll have to
8 provide a response to comments and any revised documents
9 that we would try to get out by May, so that it would be
10 before the Board for consideration in July.

11 And this also shows the continued dates for the
12 public hearing that are going to be down in the affected
13 area on 16th, 19th and 20th in Stockton, Merced and
14 Modesto. And then wrapping it up here on January 3rd.

15 And with that information that's on that slide,
16 with that it concludes our staff presentation.

17 CHAIR MARCUS: Thank you very much, Les. I
18 appreciate it and appreciate the time. I know your
19 presentations will be shorter at the other hearings, but
20 we'll probably need to figure out how to mark this
21 particular hearing and direct people to it for the
22 overview. I don't know how we'd do that technically and
23 figure it out --

24 MR. GROBER: No, with our --

25 CHAIR MARCUS: -- on YouTube what minute to

1 tell people to come in to see it.

2 With that, I think what we ought to do is take
3 a break. And we will take a ten-minute break. I suggest
4 since we'll take a later lunch, closer to 1:00 o'clock,
5 that if you have needs, blood sugar or otherwise, you
6 grab a snack downstairs and we'll come back in ten
7 minutes.

8 [Off the record at 10:58 a.m.]

9 [Back on the record at 11:11 a.m.]

10 CHAIR MARCUS: All right, we have an awful lot
11 of speaker cards. I suspect we will have more as the day
12 wears on, so I don't want to be sanguine about where we
13 are in this.

14 As is my bias, and I hope our panelists will
15 bear with me, I'm going to do it in batches of ten or
16 eleven. And I'm going to start with public comment, so
17 I'm going to call all ten of your names. And then I'll
18 give you a heads up in order, but kind of get a sense of
19 what your order is. We should probably implement the
20 screen. We'll figure out how to do that for the next
21 hearing, the screen thing if we can that the ARB uses, so
22 people can see it up above. And then I'll move to our
23 first panel and we will certainly get through the
24 speakers and the panel, and maybe another set of speakers
25 before we break for lunch.

1 Please stick to your three minutes and remember
2 it's not word count that helps be effective. It's just
3 what you're telling us the five of us, is what you really
4 want us to look at and pay attention to, as we go over
5 the staff draft, look at all the comments, and make our
6 suggested revisions. It's an iterative process.

7 We don't have any electeds today I'm taking it,
8 right? Kevin, Jason, any electeds or?

9 MS. KELSEY: Right here is one. Here's one
10 standing up.

11 CHAIR MARCUS: Oh, come on down.

12 Yeah, I think that one has the thing up, so
13 it's probably -- this one people have to lean. Oh, thank
14 you.

15 MS. KELSEY: Oh, push your button, now it's
16 green.

17 MS. KELSEY: How's that? All right, well thank
18 you for allowing me to have three minutes. My name is
19 Deidre Kelsey.

20 CHAIR MARCUS: Oh, hi.

21 MS. KELSEY: I'm from Merced County, hello
22 again. Nice to see you, it's been about 15 years
23 Felicia, since you were working with us.

24 CHAIR MARCUS: Yeah, I love this bringing the
25 band back together.

1 MS. KELSEY: We got some good work done on the
2 UC Merced Project and it's doing very well.

3 I'm here today to represent the Board of
4 Supervisors in Merced County and also to let you know
5 that the river, Merced River, goes through my district
6 from one end to the other, from one side of the county to
7 the other. I've been pleased to represent the area for
8 21 years and I'll be retiring at the end of this year.
9 But I'm here to talk about some of the things that are
10 being proposed and the concerns that our county has
11 regarding them.

12 The timing in the schedule of the release of
13 the revised SED has created barriers for people to
14 provide input and feedback on the proposal. Right before
15 Christmas some of the meetings -- California State
16 Association of Counties, California Association of Water
17 Agencies -- are being held in Southern California. And
18 it just makes it difficult for us to be able to share our
19 concerns when we have some of the elected officials and
20 important people that are related to this project unable
21 to attend.

22 We do appreciate the addition of the public
23 hearing in Merced. Thank you very much. And we also
24 had, I think it was Mr. Howard who came to Merced, and we
25 do appreciate his presentation that he made.

1 We are still in a drought and that's one of the
2 big impacts that we're worried about, that it hasn't been
3 considered. I don't know what stage this drought is in,
4 if it's a 100-year drought, if it's a 150-year drought,
5 how long it's going to last we don't know. But it's
6 troublesome to us, because of the groundwater impacts
7 that we're looking at with your proposal on top of the
8 SGMA requirements that we have.

9 In our area, a lot of our groundwater basin,
10 it's recharged by the aquifers and also by the
11 agriculture that goes on in our area. It sinks down.
12 Under this proposal impacts on groundwater are going to
13 be brushed aside and we're concerned about that, because
14 we do depend on groundwater a lot. Not just the
15 agriculture, but the cities. We should not be punished
16 for choosing to stay in agriculture and we do want to
17 stay in agriculture. It's our economy. It's the main
18 provider of tax, property tax, in our county, agriculture
19 is. We tax every single thing related to agriculture and
20 it funds our schools. It funds our community. It funds
21 our county.

22 Merced County has some of the oldest and most
23 senior water rights in the State of California. This
24 proposal impacts that. The community has developed and
25 funded a complex water-distribution system. And we built

1 one of the earliest reservoirs in the state that provides
2 a reliable water supply that benefits agriculture, the
3 economy, the cities, and the groundwater basin. Leaving
4 an existing and available multimillion-acre-foot
5 reservoir always close to empty is a stranded asset and a
6 failure in water management.

7 While the SED Economic Analysis shows an
8 economic impact of 433 job losses, and a \$64 million
9 impact to the regional economy over three counties, two
10 other independent economic analyses tell a different
11 story. These independent analyses show approximately 900
12 jobs lost in Merced County alone and economic impacts
13 closer to 231 million.

14 Thank you very much for your time.

15 CHAIR MARCUS: Thank you very much for coming
16 down here. I'll try and catch up with you in Merced.
17 It's nice to see you again, I really appreciate it.

18 All right, our first batch after that will be
19 -- and forgive me if I mispronounce your names if I'm not
20 reading this right: Mark, I want to say MacLeod, Northern
21 California Guides Association; JD Richey himself, Fish
22 with JD though, I'm guessing. All right, well that's a
23 great email. Stan Jones from the Tuolumne River Trust;
24 Gail Delihant from the Western Growers; Danny Merkley
25 from the California Farm Bureau Federation, Kyle Jones

1 for Sierra Club; Scott Cantrell from the California
2 Department of Fish and Wildlife; Frank Quintero from the
3 City of Merced; Fernando Aguilera, President of the
4 Merced Soccer Academy and downtown Merced business owner;
5 and Ron Rowe of Merced County.

6 So three minutes each, Mr. McLeod followed by
7 JD Richey followed by Mr. Jones.

8 Mr. MacLeod?

9 (No audible response.)

10 All right, we'll put MacLeod aside for the
11 moment. Mr. Richey followed by Mr. Jones followed by
12 Ms. Delihant.

13 MR. RICHEY: Hello, thank you for having me.
14 My name is JD Richey. I'm a fulltime fishing guide for
15 the last 20 years here in the Central Valley on the
16 rivers and the Delta.

17 And my industry is in disrepair right now.
18 It's in total collapse and that is due to our epic
19 failure of the fish runs these days, as you guys alluded
20 to earlier. And that is most -- the main reason for that
21 is our lack of water. We can't have fish without water
22 in the rivers. And so I have had to move my operations
23 to Alaska and I'm also considering moving out of state,
24 because I can't sustain my livelihood here anymore.

25 And I'm a small fish, obviously. I'm one guy,

1 but one guy I have clients who fly in from out of town,
2 so I leave we don't have any more people flying into
3 town. So you have airline tickets. You have restaurants
4 the people eat at that come fish with me, the hotels, a
5 bunch of local businesses. I have \$100,000 worth of
6 boats that I bought at local dealerships, a \$50,000
7 truck. All this stuff that adds up and it's a
8 trickledown effect. So just, I go away I guess it seems
9 small potatoes, but it's a big ripple down.

10 I go to the tackle shop and spend tens of
11 thousands of dollars it seems like every year. I talked
12 to the local owner of the tackle shop here in Sacramento,
13 the manager. He said when we had closed salmon fishing a
14 few years ago his shop lost a million dollars. That's
15 one shop. So there's more than just -- you know, I hear
16 refer to it, "Oh, they're just stupid fish," and all
17 that. It's a lot more than that. And so it's one of
18 those thing that I think we need to look at the bigger
19 picture. There's a lot more to this than just fish
20 versus farms. I mean, we all need to get along here
21 obviously.

22 So the real thing though is if I go away I'm
23 just a small cog in a \$1.4 billion salmon fishing
24 industry in California. That's with a "b" billion and
25 those are 2006 numbers, unfortunately. That's the

1 current numbers we have right now, but 1.4 billion,
2 that's a big number. And so if I'm thinking about moving
3 completely out of state how about everybody else in my
4 industry? That's a big hit to the state, so that's just
5 something to kind of think about. It's more than just
6 fish.

7 And then a quick biology lesson, most people
8 know that Salmon die after spawning in the river, right?
9 But do you know why? It's because they're bringing the
10 carbon and the protein from the ocean back to the
11 relatively sterile Inland environment, which gives the
12 Basin a whole shot of protein and food. So it's more
13 than just the fish, it's more than people, it's more than
14 the farms, it's just a big, big picture.

15 So anyway, thank you for your time. I
16 appreciate it.

17 CHAIR MARCUS: Thank you very much.

18 Mr. Jones followed by Ms. Delihant followed by
19 Mr. Merkley.

20 Oh, hi Kyle.

21 MR. K. JONES: Hi.

22 CHAIR MARCUS: What?

23 MR. K. JONES: Was that me?

24 CHAIR MARCUS: No, Stan Jones is next.

25 MR. K. JONES: Oh, I'm sorry. I had it wrong.

1 CHAIR MARCUS: That's all right, you're coming.

2 MR. S. JONES: My name is Stan Jones. I've
3 spent my entire life except when I was serving with the
4 Navy in Vietnam in -- I was born in Richmond, a third of
5 my life there, last two-thirds of my life in Sacramento
6 County. I became aware of the Delta at a very early age
7 in the Bay, because of salmon fishing with friends who
8 had boats and a little kid who can't see over the
9 railing, but we're going out. So I became aware of water
10 from being on the water and the importance of it.

11 And one of the things my father told me was,
12 "Don't take a short-term view of a long-term commitment."
13 And the long-term commitment is that your decisions today
14 aren't going to affect me at age 70, but they will affect
15 my children who still live here in this area, and will
16 affect our general community of people. So I appreciate
17 that you're taking the time to do analysis and to come to
18 sound conclusions by taking a long-term view of that,
19 that will help our future very much.

20 While boating I became associated with the
21 Tuolumne River Trust whose Director is here behind me.
22 And in that capacity I learned more about the importance
23 of water quality for all of us. It isn't just about
24 agriculture. It isn't just about fish. We drink the
25 water. We pee in the water. We reprocess water and we

1 put chemicals in the water, a lot of the nitrates and
2 gold, ammine, and all those things from the mining
3 operations.

4 One of the two things that I don't see in the
5 presentation that I would -- and as the Tuolumne River
6 Trust we're advocates for the river and it's to be a
7 healthy place as best it can be, which is your goal.
8 That's your stated goal and I appreciate that. What I
9 don't see are two things. One is I don't see any
10 analysis that talks about sedimentation in the aquamarine
11 environment, both in the Bay and up in the tributaries.
12 If you go to Discovery Park down the street from here you
13 see a crystal-clear American river, which I live along,
14 and the Sacramento River, the Big Muddy. But silting
15 effects and buildup, affects the environment for the fish
16 on the bottom.

17 The other thing I don't see in -- haven't seen
18 in your presentations, and not that you haven't covered
19 it, is what I'll just refer to by the word hypoxia,
20 having to do with oxygen environment. You talk about
21 water flows, but fish and algae and all the things that
22 are part of the ecosystem there that also make healthy
23 clean drinking water also are affected by this. And I
24 don't see any of that in your presentations.

25 My time went up.

1 CHAIR MARCUS: Oh, I didn't hear it.

2 MR. S. JONES: So anyway thank you for
3 listening and caring about the water in California.

4 CHAIR MARCUS: No, thank you. Thank you very
5 much. I think my dad would have liked your dad, he used
6 to say similar things. He would always tell me to be
7 wary of people who have very simple answers to very
8 complicated topics, so same idea. Yeah.

9 Ms. Delihant followed by Mr. Merkley followed
10 by Kyle Jones.

11 It's better. That tends to be better for
12 really short people or people are in chairs.

13 MS. DELIHANT: That one's for really short
14 people.

15 CHAIR MARCUS: Yeah.

16 MS. DELIHANT: I'm Gail Delihant with Western
17 Growers Association.

18 CHAIR MARCUS: Hi.

19 MS. DELIHANT: Our growers are from California,
20 Arizona and Colorado. We provide 50 percent of the
21 nation's fresh produce, vegetables, fruits, nuts and we
22 have about, I think it is 30 percent now, of the organic
23 market. So food security is very import to us as well as
24 water.

25 As you're aware there's about 350,000-acre-feet

1 of water that could possibly just go pour the fish out to
2 the ocean. There's been a lot of water go to the ocean
3 in our view, over the last couple of years, because we
4 weren't able to pump that water down into San Luis. And
5 we've seen over the last couple of years, during this
6 drought too, that the water managers of the state who
7 have managed the water in this state for decades and
8 decades pretty successfully haven't really been at the
9 table significantly. And when I mean at the table, I
10 mean at the table every day rolling up your sleeves with
11 your staff trying to hammer this out, in making sure that
12 there are really reasonable efforts to move this water.

13 One of my farmers said, and now I'm going to
14 quote him, he said, "As a farmer I don't use water, but I
15 transform it into food and fiber for human beings." At
16 the end of the day everyone is an agricultural water
17 user. Multiple times a day we are agricultural water
18 users. And if a person wants a tomato it takes me,
19 water, to make it for them. That's how we see farming in
20 California.

21 And this effort is while I very appreciate your
22 staff's presentation here today, because it's the first
23 time I've heard it about settlement agreements, which I
24 think are just critical to manage the water in the state.
25 Especially since we don't have any more storage. We're

1 wanting to use all this water and we haven't built any
2 more storage to manage it. And across the street at the
3 Capitol we talk about climate change a lot and try to
4 implement laws and regulations with regard to climate
5 change. It's not going to be that cold, cold snowpack in
6 future years. What do we do then?

7 I haven't read the 3,000 pages and maybe you
8 have addressed climate change in there. But I do, in my
9 last couple of seconds, want to reiterate everything that
10 folks are going to say here, the farmers are going to say
11 here today. But I also want to also remind you that the
12 cumulative effect of all the regulations this state has
13 on agriculture will surely see a decrease in agriculture.
14 We're looking at probably 800 small farms disappearing,
15 once this gets implemented if it isn't changed.

16 So thank you.

17 CHAIR MARCUS: Thank you very much.

18 Mr. Merkley followed by Mr. Jones, the other
19 Mr. Jones followed by Mr. Cantrell.

20 MR. MERKLEY: I'm one of those short people.

21 CHAIR MARCUS: Hi. Well, you can use that one
22 if you want.

23 MR. MERKLEY: Thank you, Chair Marcus, members
24 of the Board. Danny Merkley with the California Farm
25 Bureau.

1 I'll start by going back to 2009 after the
2 Comprehensive Water Package passed. Vicky Whitney, then
3 Deputy Director of Water Rights, asked me, "What are we
4 supposed to do with this?" And I don't want to sound
5 overly critical, but it sounds to me by the proposal that
6 I've heard today, the presentation from staff, that
7 they're still trying to figure out what they're supposed
8 to be doing here. It didn't sound very convincing. It
9 didn't sound like they were very sure of themselves and
10 I'm a little bit frustrated with that.

11 I would ask where the science is here and
12 really show up the science that shows more water is going
13 to benefit. I'd like to see where the past has shown
14 that throwing more water at the fish in these years has
15 made improvements. I realize the Water Board is one part
16 of the element of looking at the environment, the species
17 and whatnot, but it seems to me that there needs to be a
18 better coordinated job with other agencies, other
19 departments including locals to look at all the other
20 stressors that are impacting the species.

21 And I don't mean to be cute or funny, but it's
22 almost like we're throwing so much water at the fish
23 without regard to other water benefits. And that's how
24 it looks out in the real world where I'm coming from,
25 that we're almost drowning the fish by throwing so much

1 water at them. It's not improving things. It's shown
2 it's not improving anything, so have some real concerns
3 about that.

4 I was a little surprised at the presentation
5 towards the end with regards to groundwater, drilling
6 more wells, drilling deeper wells. I know it's not the
7 case, but it came across as though there was absolutely
8 no recognition that we got SGMA moving forward. We dealt
9 with a piece of legislation just this last year that
10 would have forbidden drilling new wells in many of these
11 areas.

12 The Central Valley Project was built and the
13 need was envisioned, because of decreasing groundwater.
14 Now, in recent years for a lot of reasons we've taken
15 away the surface water supply; in some areas 100 percent,
16 50 percent. We're back in the same boat and this is just
17 compounding that, so these are very, very serious
18 concerns. I'm not getting technical, because as you know
19 I'm not technical. This proposal is a taking, and it's
20 taking legal water right away.

21 Lastly, I'll just end with this, the voluntary
22 agreements? I don't understand how they're going to work
23 with all this uncertainty. I think it sends people
24 racing to their corners trying to figure out what they're
25 going to do and not looking to come to the table to make

1 voluntarily agreements with all the uncertainty. So --

2 CHAIR MARCUS: Well, the certainty comes from
3 giving a good voluntary agreement. It's up to folks to
4 come up with them.

5 MR. MERKELY: Wow, okay.

6 CHAIR MARCUS: Yeah, we've invited it, so.

7 MR. MERKELY: Okay.

8 CHAIR MARCUS: Thanks.

9 Mr. Jones followed by Mr. Cantrell followed by
10 Mr. Quintero. Sorry, there were two Mr. Joneses.

11 MR. K. JONES: It happens a lot. I should
12 probably just change my name at this point.

13 CHAIR MARCUS: Yeah, I suppose you get used to
14 it. Yeah.

15 MR. K. JONES: Good morning, Kyle Jones with
16 Sierra Club, California. As an organization we've been
17 concerned for a long time about the health and the
18 history of the Delta and making sure that it continues to
19 be an ecosystem that is alive in California. It's the
20 heart and hub of our water system and it serves a
21 critical role in the state and protecting it is
22 paramount.

23 We appreciate the Board's efforts and think
24 that instream flow proposals are the right way to go and
25 are happy that this is moving forward after quite some

1 time. But we are concerned that it's going to be
2 insufficient as proposed. I think we've seen with the
3 information today that at the 60 percent level there were
4 much better performances of species on the tributaries
5 than at the 40 percent. And we're concerned that if we
6 set the lower standard that we're going to go through all
7 this process and exercise only to see that it might not
8 work.

9 And so given the need to prevent an
10 unsustainable amount of diversions from these streams we
11 think going to the more protective standard that is
12 backed by the science would be the smarter alternative in
13 seeing how that affects the ecosystem.

14 So we urge the Board to be as protective as
15 possible and set that higher standard. Thank you.

16 CHAIR MARCUS: Mr. Cantrell, hello.

17 Followed by Mr. Quintera, followed by Mr.
18 Aguilera.

19 MR. CANTRELL: Good morning, Chair Marcus and
20 Board members. My name is Scott Cantrell and I'm the
21 Chief of the Water Branch of the California Department of
22 Fish and Wildlife. I'm very pleased to be here today and
23 provide you with a few remarks on the State Water Board
24 Substitute Environmental Document to support proposed
25 updates to the Water Quality Control Plan for the Bay-

1 Delta.

2 This phase of the update process proposes new
3 and revised San Joaquin River flow objectives for the
4 protection of fish and wildlife beneficial uses and a
5 revised salinity water quality objective for the southern
6 Delta. And includes a Program of Implementation to
7 achieve these objectives.

8 The Department is very grateful for the
9 tireless work that the Water Board staff and Board
10 members have put in over many years to update the 2006
11 Bay-Delta Plan through a Plan Amendment Review process.
12 The Department has provided both oral comments and
13 written statements on many occasions to the Water Board
14 based on best available scientific information.

15 The scientific process involves defining
16 problem statements, collecting and analyzing data, and
17 forming and testing hypotheses. Of course, this process
18 also involves change over time, but the recirculated
19 draft SED incorporates best available science today.
20 Thank you for incorporating many of the Department's
21 recommendations. The Department will be submitting a set
22 of formal written comments on or before the due date of
23 January 17th, 2017.

24 At the core of the Department's interests
25 throughout this process as the state's trustee agency for

1 Fish and Wildlife is the undisputed fact that the Bay-
2 Delta ecosystem is in a crisis and has undergone a regime
3 shift. Reduction and flattening of the San Joaquin Basin
4 tributary hydrographs over many decades has altered the
5 physical, chemical and biological characteristics of the
6 rivers that feed the Delta.

7 These ultra-flow characteristics favor the
8 proliferation of nonnative species that compete with
9 native fish species. Flow alteration has also impaired
10 ecological functions necessary to support healthy
11 ecosystems and habitats upon which native fish
12 populations depend.

13 Poor water quality conditions, exacerbated in
14 recent years by the drought, are driving several Bay-
15 Delta fishes toward record-low abundance and possible
16 extinction. We need an alternative approach and we need
17 one now if we are to reverse this decline in fish species
18 before it is too late.

19 The Department acknowledges that there are many
20 contributing factors to the decline that have so worried
21 us as Fish and Wildlife trustees. We understand and
22 recognize that estimating the precise flow needs to
23 protect fish and wildlife beneficial uses is difficult,
24 because of all the other complicating factors that can
25 affect the viability of the Chinook salmon, Steelhead,

1 and other fish and wildlife resources.

2 Despite this difficulty we believe the Board
3 has documented the scientific evidence necessary to
4 support their recommendations. And we also believe that
5 implementing non-flow restoration actions along with a
6 revised flow regime provides a sound scientific approach
7 that will go a long ways toward reversing the decline of
8 the fish populations.

9 So just in conclusion the Department
10 appreciates the State Board, recognizes its efforts to
11 secure voluntary agreements to advance the restoration of
12 flows and improve conditions in the tributaries.
13 Accelerating ecosystem benefits is an attractive outcome
14 for our Department, which is a driving interest in the
15 Department's pursuing voluntary agreements. So --

16 CHAIR MARCUS: You should wrap, because you're
17 over. Is that all right?

18 MR. CANTRELL: Yeah, that's fine. Thank you.

19 CHAIR MARCUS: Sorry, I just -- there are a lot
20 of people, so appreciate you coming and all the hard work
21 you've put in.

22 Mr. Quintero followed by Mr. Aguilera followed
23 by Mr. Rowe and then we will move to the panel.

24 MR. QUINTERO: Good morning and thank you for
25 the opportunity to address the Board. My name is Frank

1 Quintero and I serve as the Economic Development Director
2 for the City of Merced.

3 We are community that is just enjoying coming
4 out of recession while other communities have experienced
5 that turnaround. We are also a community that has been
6 fighting double-digit unemployment for a number of years.
7 The Plan as proposed, based on an independent economic
8 study, will impact our area by \$231 million. This
9 represents job losses between 900 to 1,000. That's
10 another additional point that we will have to combat and
11 find and generate other jobs within the community.

12 We are seeing a trend, residents are moving
13 from high-priced coastal areas to the Inland areas. The
14 question is, as they come in and we build more housing,
15 are we going to have sufficient water supplies to serve
16 the new residents that come into our areas?

17 Also, I work with a number of food processors
18 looking to bring job-generating opportunities to our
19 community and also continue to hold California's economy
20 as the 6th largest within the world. Without water we
21 are having to turn away these particular food-processing
22 industries and other wet users that are contemplating the
23 Valley and Merced as their home. Thus we're having to
24 turn away jobs. That's something that we don't want to
25 have to do.

1 We've been blessed with UC Merced put in our
2 community. They are aggressively working on a 20-20
3 Expansion Plan. Imagine this, 1.3 million square feet of
4 new construction, over a billion dollars of industry --
5 or excuse me, a billion dollars being invested into the
6 community through the Plan. However, will we be able to
7 accommodate the 10,000 students that it will ultimately
8 serve without there being adequate water resources? We
9 are concerned as a community for water quality, for
10 quality of life. We are concerned for our economy,
11 because while we are heavily dependent upon agriculture
12 the lifeline of any economy is water.

13 Thank you for your time.

14 CHAIR MARCUS: Thank you for yours. Go
15 Bobcats.

16 Mr. Aguilera followed by Mr. Rowe.

17 MR. AGUILERA: Good morning.

18 CHAIR MARCUS: Good morning.

19 MR. AGUILERA: My name is Fernando Aguilera and
20 I'm a resident of Merced, President of Merced Soccer
21 Academy, and also a downtown business owner. I am here
22 on behalf of 3,800 youth and parents in our organization
23 plus thousands of additional family members. Our youth
24 are between the ages of 3 and 18 years old.

25 I am here to present you with only three days

1 of work collecting signatures from over 700 concerned
2 community members that are opposing to what you are
3 trying to decide.

4 Our players come from all kinds of families
5 with parents that are firefighters, teachers, and
6 lawyers, but a high percentage of our players come from
7 families whose parents work in factories or are field
8 workers. The majority of our kids live in what we would
9 consider the other side of the tracks -- I'm sorry, I'm
10 nervous, because this is the first time that I talk to
11 someone like this -- and from low-income families. The
12 fact is all of our youth are at a disadvantage. Their
13 community is overrun with gangs, drugs, and crimes, there
14 are few jobs. This is their daily reality. From my
15 view, our entire community is in the wrong side of the
16 tracks. There is nowhere to go. Our kids must live with
17 adult negative influence in their lives.

18 So now, because you are deciding of cutting our
19 water supply what does that say about their future? Tell
20 me?

21 At the Merced Soccer Academy we create a voice
22 of hope for many of them in a safe place to be. We
23 operate a local youth center that the City had to close
24 five, six years ago due to its own economic difficulties.
25 A year ago the Academy received an opportunity from the

1 City of Merced to run the program at the center. Now our
2 youth receive support from adults. They receive and help
3 with the homework and they have a place to go now.
4 They're receiving a break from the host of negative
5 influence trying to put them into a life of crime. That
6 is affecting too many of their friends.

7 These young men and women from our organization
8 are given the opportunity to travel around the state and
9 even to Mexico. They see professional youth soccer plays
10 and in other communities and when we returned home they
11 asked me, "Why not us? Why not in Merced?" Myself and
12 many other coaches are trying to tell them, "Yes, we can
13 do it. You can do anything you want."

14 But I'm hoping with this over 700 signatures it
15 brings an awareness of our concerns. You are the
16 decision makers. I need to know how I can go back to my
17 community and tell them we want to have less water.
18 Right now we are losing hundreds of trees. Our gardens
19 are dry. And now, how I can go and talk with these kids,
20 how I can go and talk with these families, "Look, they're
21 already taking water from us, but they want to take even
22 more water."

23 Thank you --

24 CHAIR MARCUS: Thank you, Mr. Aguilera.

25 MR. AGUILERA: -- for allowing me to speak to

1 you guys, thank you.

2 CHAIR MARCUS: Thank you for coming.

3 Can you guys also check what's going on with
4 that buzzer, because it's really hard -- I don't want to
5 have to look at that -- it's better when it beeps on
6 time. And it didn't beep on time, so can you try and
7 figure that out?

8 I'm sorry, thank you very much, just in
9 fairness to all the other people back there. Oh, thank
10 you for submitting your comments, appreciate that.

11 Mr. Rowe?

12 MR. ROWE: Good morning Chair and Board
13 members. My name is Ron Rowe, Director, Merced County
14 Department of Public Health, Division of Environmental
15 Health.

16 Merced County has established a record of
17 progressive actions related to water management including
18 water well construction standards more stringent than
19 state standards starting in the 1970s, cooperative and
20 collaborative engagement of regional water managers in
21 the '90s, integrated regional water management planning
22 in the early 2000s. And most recently the adoption and
23 implementation of a non-ministerial conditional CEQA-
24 based Groundwater Mining and Export Permitting Ordinance
25 effective April 2015.

1 Merced County has also developed a regional
2 surface water-groundwater interactive model to assist us
3 in developing and implementing groundwater sustainability
4 plans, an important component of the Sustainable
5 Groundwater Management Act.

6 Our understanding of the local surface and
7 groundwater system is already proving --

8 CHAIR MARCUS: You might want to pull the --
9 just pull it closer, so that everybody can hear you
10 better.

11 MR. ROWE: Sorry about that, is that better?

12 CHAIR MARCUS: Yeah, if you just pull it closer
13 you don't have to lean over.

14 MR. ROWE: All right.

15 So Merced County has recently experienced
16 reductions in water surface supply and has documented
17 impacts to groundwater supplies during the recent and
18 ongoing drought. One-hundred-and-ninety-six entities
19 locally applied for emergency assistance due to domestic
20 well failure. The sight of temporary water tanks in the
21 yards of these individuals receiving trucked-in drinking
22 water supplies for residents is staggering and it is
23 impactful. And I think it's a vision of what could come
24 with SED.

25 The cost of domestic well replacement on

1 average ranges from \$10 to \$25,000 per domestic well.
2 Replacing domestic wells at \$17,500 each can have an
3 economic impact of about \$1.75 million per 100 wells
4 replaced or more when they're deeper. Irrigation and ag
5 wells replacement can range from 30,000 to more than
6 200,000.

7 It's important to note that Merced County is by
8 definition a disadvantaged community. The
9 disproportionate impacts to DACs due to water-supply
10 loss, is exceptionally problematic. Impacts from the
11 unimpaired flows proposal will likely include additional
12 land subsidence and related groundwater storage losses,
13 groundwater quality impacts and more. Merced County is
14 experiencing historic land subsidence impacts, affecting
15 infrastructure and diminishing flood protection on a
16 large scale.

17 Considering the time limitations today I'll
18 close with these comments. Reductions in surface water
19 supply has current and likely significant and unavoidable
20 impacts where surface water is reduced more in the
21 future. The SED Analysis may underestimate economic
22 water supply and quality-related impacts. The SED does
23 not quantify groundwater quality and groundwater storage
24 losses or land subsidence impacts although Section 13000
25 of the Water Code requires the State Water Board to do

1 so.

2 The SED does not integrate surface water models
3 with readily available groundwater models. Merced
4 County's disadvantaged communities may lack the resources
5 needed to respond to the impacts related to unimpacted
6 flows in the region.

7 CHAIR MARCUS: Thank you.

8 MR. ROWE: Thank you.

9 MS. D'ADAMO: I have a question. First of all,
10 thank you for your testimony, 196 domestic well failures,
11 did I get that right?

12 MR. ROWE: Yes. That's correct, that was the
13 application number that we had from folks that were
14 impacted.

15 MS. D'ADAMO: Over what timeframe?

16 MR. ROWE: About a year and a half.

17 MS. D'ADAMO: All right, and then you may not
18 be the correct person to ask this, but since you're with
19 the County maybe you can work with others to get this
20 information. I agree, I think that we should probably
21 have more information on groundwater levels, impacts,
22 subsidence. Especially in Merced, because there's
23 already that subsidence problem over there in Western
24 Merced County, you know, that borders Madera. And I
25 don't know enough about where that is in relation to the

1 Plan area, so it would be helpful if not today, maybe at
2 the Merced hearing, if someone from the County could help
3 to eliminate some of the information about subsidence in
4 Merced, flood control. I know just already with what
5 little subsidence there is the Eastside Bypass has lost,
6 I guess 25 percent of capacity. This is just information
7 that's kind of off the top of my head; I don't know how
8 accurate it is. So anything that you all can do to
9 provide some additional information, I think would be
10 helpful.

11 MR. ROWE: Great, thank you. We'll be happy to
12 do that.

13 And I want to thank Les and the State Water
14 Board for their efforts today. Thank you very much.

15 MR. MOORE: I'd also be interested in
16 information from the Environmental Health Department
17 about harmful algal blooms and how the surface water
18 quality has been, trends there both in the Merced River
19 and the nearby San Joaquin River.

20 MR. ROWE: Great, there is additional
21 information that we can share at the next hearing related
22 to algal blooms also in some of the reservoir systems
23 during low water.

24 MR. ROWE: Thank you.

25 MR. MOORE: Thank you

1 CHAIR MARCUS: Great.

2 All right, Panel One, thank you for your
3 patience. Let's bring on Panel One, which is NRDC, Trout
4 Unlimited and the Bay Institute for 35 minutes if you can
5 come on down.

6 Then I'm going to try and move to before we
7 take a lunch break, the group from the Hilmar Future
8 Farmers of America. Thank you for joining us. There are
9 a lot of you and I have 11 cards. I've taken the liberty
10 of taking some of their later cards and combining them.
11 I think that will delay the next panel until after the
12 next -- the next set of players until after the following
13 panel. But I think the total delay will end up being a
14 matter of 15 or 20 minutes, maybe 15 minutes more. So I
15 am taking a shot that the adults or the older adults in
16 the crowd would prefer to let the Future Farmers go, so
17 that in case they have a bus to catch back they can take
18 it early, although we encourage them to stay and listen
19 to everybody as long as they can.

20 MR. OBEGI: Thank you Chair Marcus, Board
21 members and staff. My name is Doug Obegi. I'm a Senior
22 Attorney with the Natural Resources Defense Council.
23 I'll be giving some introductory remarks and then passing
24 it off to my colleagues here.

25 I have three main points I'd like to make about

1 the Program of Implementation in the proposal. First,
2 and I apologize, I'm fighting a cold, so if I'm
3 unintelligible please kick me under the table or tell me.

4 CHAIR MARCUS: I'm going to use that cold
5 excuse next time.

6 MR. OBEGI: You don't want to get a cold, this
7 cold at least.

8 CHAIR MARCUS: No, I'm just going to say I have
9 a cold.

10 MR. OBEGI: NRDC believes that we do have an
11 opportunity right now to significantly improve conditions
12 and to finally achieve the salmon doubling goal that's
13 been enshrined in the Water Quality Control Plan for more
14 than 20 years. Unfortunately, as we review the document
15 -- and this is still work in progress as we continue to
16 review the document -- we find three major flaws.

17 One is that the Substitute Environmental
18 Document fails to demonstrate that it's likely to achieve
19 the existing plans, the salmon doubling objective. The
20 second is that the Board cannot legally balance away
21 achieving that objective. It has to consider things like
22 improved water use efficiency, water recycling, and
23 habitat restoration and water transfers in any balancing.
24 Third is that the Program of Implementation is
25 substantially flawed and provides too much discretion

1 regarding the flow volumes, shaping, and shifting of
2 flows, and an unworkable governance scheme that means
3 that the objectives are unlikely to be achieved.

4 So just stepping back, more than 20 years ago
5 this Board adopted a salmon doubling objective, which
6 staff alluded to earlier today. Which states that,
7 "Water quality conditions shall be maintained, together
8 with other measures in the watershed, sufficient to
9 achieve doubling of natural production of Chinook salmon
10 from the average production of 1967 to 1991, consistent
11 with the provisions of State and federal law." And this
12 was intended not to restore the historic abundance of
13 salmon in these tributaries and elsewhere in the system,
14 but to increase populations so that we could have
15 sustainable fisheries for the long term.

16 Under state law the Water Board is charged with
17 developing Water Quality Control Plan and the Program of
18 Implementation must demonstrate how it will achieve those
19 water quality objectives. More than ten years ago, the
20 Court of Appeal held that the time for determining what
21 was necessary to achieve the salmon doubling objective
22 was when they formulated the Bay-Delta Plan, both in 1995
23 and when they revisit that plan. And that is our new
24 opportunity today.

25 It's very clear that we are failing to meet the

1 salmon doubling objective. The Board approved the
2 Vernalis Adaptive Management Program, which was an
3 experimental program that provided flows lower than what
4 was required for in the 1995 Water Quality Control Plan.
5 In 2006, more than a decade ago, the California
6 Department of Fish and Wildlife comments that the Plan
7 was failing to achieve salmon doubling, that salmon was
8 declining, and that there was substantial evidence that
9 the declines were due to inadequate spring flows.

10 Now, all of us believe that there are other
11 factors that affect salmon, both within the watershed and
12 outside the watershed, and our focus really is on
13 maintaining those conditions within the watershed that
14 are necessary in the tributaries and lower river,
15 necessary to achieve salmon doubling.

16 So when you look at a graphic like this, which
17 is the Salmon Doubling Chart for the Tuolumne River
18 comparing that baseline period average of 18,949 fish
19 with the Anadromous Fish Restoration Program doubling
20 target of nearly 38,000, and you see this decline,
21 obviously that's not due solely to conditions in the
22 tributaries. For instance, in 2008-2009 we saw bad ocean
23 conditions, which contributed to and in synergy with bad
24 conditions in the rivers, led to the collapse of the
25 fishery.

1 So the first point I want to make is that we
2 need to revise the water quality objective and the
3 Adaptive Management Program in the SED to be consistent
4 with the existing salmon doubling objective. Right now
5 the narrative objective for this proceeding is a much
6 vaguer standard that doesn't actually explicitly tie to
7 the salmon doubling objective, nor does the Adaptive
8 Management and Program of Implementation do so.

9 The second point is that the Substitute
10 Environmental Document fails to demonstrate that the flow
11 and non-flow measures are actually likely to achieve the
12 salmon doubling objective, at least provide the
13 conditions necessary to do so.

14 Secondly, as I mentioned before, the Board does
15 need to balance the different beneficial uses of water,
16 but it does so in developing the objectives. It cannot
17 balance away meeting the objectives in the Plan. And
18 when you consider balancing you have to consider not just
19 the impacts, but also the benefits of flows such as
20 improved water quality in fisheries as well as
21 considering alternative water supplies.

22 In 2013 we provided comments, technical
23 comments, regarding improvements in water use efficiency,
24 for ag. We will obviously do the same for communities
25 like San Francisco and the Peninsula that rely on water

1 where there are huge opportunities to invest in
2 alternative supplies.

3 In addition, the Water Board does have the
4 authority in this proceeding to require investments in
5 habitat restoration and other measures to achieve the
6 Plan objectives, particularly where that reduces the
7 water cost.

8 I'd also point out one thing to consider is
9 that there has been a lot of commentary that this is
10 really part of the Delta Tunnels Plan. NRDC strongly
11 opposes that plan. And as we had noted several years
12 ago, under California law the water users here that might
13 have to give up flow can prevent the export users from
14 diverting that flow by dedicating it to in-stream use, or
15 by reaching a transfer agreement to sell some of it and
16 invest in water supply alternatives locally and in
17 improvements in efficiency and storage.

18 Finally, we have major concerns with the
19 Program of Implementation and the excessive discretion
20 that's provided there. Things like the annual decisions
21 on the percentage of unimpaired flow aren't sufficiently
22 tied to achieving the objectives and the salmon doubling
23 objective. Decisions on flow shaping aren't even
24 analyzed in the SED. The discretion allowed here would
25 allow you to reduce flows for four months and then dump

1 them all in the last month. You need to have much
2 tighter rules on that and shifting flows to the fall
3 months is incredibly damaging in terms of achieving
4 improvements in spring flows. And we encourage you to
5 drop that entirely.

6 Finally, in light of the time I just want to
7 reiterate these three points. NRDC does not support the
8 existing proposal, we believe it's inadequate. We
9 encourage you to revise the Substitute Environmental
10 Document to explicitly incorporate salmon doubling into
11 both the new objective in the Plan as well as the Program
12 of Implementation. To limit the discretion in the
13 Adaptive Management Implementation Program, so that you
14 really are tied to achieving those biological objectives,
15 but you're not creating a governance scheme that's going
16 to expend a lot of energy every year without really
17 thinking through what data is available to make those
18 decisions. And then finally ensure that whatever flow
19 alternative and non-flow alternative you, the Board,
20 adopts will actually achieve those necessary conditions
21 in the river.

22 Thank you.

23 CHAIR MARCUS: Thank you. Thanks for being so
24 specific.

25 DR. HENERY: Good morning.

1 MS. D'ADAMO: I'd like to get copies of these
2 and I had been asking for it, so I don't know if it's
3 possible for someone to send it to my assistant? I'd
4 like to get hard copies. Thanks.

5 CHAIR MARCUS: Yeah, we should all get them.

6 MR. LONG: The electronic copies were sent, the
7 PowerPoints have been sent here. Is this it?

8 MS. D'ADAMO: Okay. And so I'm going to just
9 gripe for a minute.

10 CHAIR MARCUS: Go ahead, go ahead.

11 MS. D'ADAMO: This is an ongoing concern, so
12 please if you could ask the panelists to submit them in
13 advance, so that we can get them in advance. I would
14 love to have yours before me was you're doing your
15 presentation, so I can take some notes. Thank you.

16 DR. HENERY: Absolutely, duly noted. Thanks of
17 for the heads up.

18 Good morning, I'm just going to -- I'm Rene
19 Henery, California Science Director for Trout Unlimited.
20 I'm going to build a little bit on the comments of my
21 colleague from NRDC. Before I do though, in the short
22 presentation formats it can be really easy to just jump
23 to all of the key points that we're really hoping you
24 swallow. But I do want to take a minute to just
25 acknowledge all the work that's been done, say a number

1 of the comments that TU included in our last round of
2 comments including a request for a robust adaptive
3 management process that includes a range of stakeholders
4 appeared in this new document, and we are really
5 appreciate of that. And of all the energy that's been
6 put into this process, so thank you.

7 The key points I want to cover really quickly
8 basically all revolve around how essential it is that the
9 proposed flows support the conditions required by fish
10 populations. And you just heard Doug articulate that.
11 Those fish population targets have been established by
12 CVPIA and what we're really looking for when we review
13 the SED is, is there compelling scientific evidence that
14 the proposed flows will meet the fishes needs?

15 And in order for that to occur, and to make
16 that transparent, we really would like to see those flows
17 evaluated against quantitative, science-based objectives
18 for what habit conditions and biological population-
19 related conditions are indicative of success relative to
20 the CVPIA targets.

21 The second point I'm going to make in the
22 presentation, and that I want you to retain is that
23 quantitative objectives related to those things already
24 exist. There's really great ones in the Central Valley
25 Flood Protection Plan appendix. While you all have been

1 doing your work, a number of the NGOs, the state
2 agencies, and initially some of the water districts
3 worked on objectives for the Stanislaus River that are
4 now available. The EPA has temperature objectives, so
5 there are a bunch out there that can be used right away
6 to reveal the extent to which the proposed flows are or
7 are not effective at meeting the needs of fish.

8 And the big reasons for applying the objectives
9 are not just to make sure that the proposed flows meet
10 the needs of fish, but also to constrain flow management
11 so that it's always maximized for biological benefit in
12 the way that Doug was articulating. And also to
13 facilitate the integration of this process with all of
14 the other regulatory processes that are going on and are
15 going to need to come together in order for us to be
16 successful.

17 So really quickly, proposed flows should
18 support conditions required by fish populations. Fish
19 habitat is composed of many components, it's not just
20 water obviously, it's vegetation, it's substrate. And in
21 order for a fish population to be successful all of those
22 conditions need to be met and they need to be met for the
23 varying needs of each of the individual life history
24 stages. So flow is a very important variable, but it's
25 really only as important as it is working with all of

1 those other things.

2 Objectives, as we all know when they're smart
3 as it were they allow us to quantify established targets
4 and provide a basis for monitoring progress towards
5 achieving the habitat conditions. And then as an
6 expression of those habitat conditions, the population
7 success in the fish that we're hoping for. So last time
8 I sat with you all and we talked about this I showed a
9 picture of "Field of Dreams" and said, "If you don't
10 build it, they won't come." And now, you know, we're
11 talking about building it and that's real exciting. We
12 just want to figure out okay, if we want to attract
13 baseball players let's not build a football stadium. So
14 the objectives are important and like I said some of them
15 are out there.

16 And one of the things that objectives also
17 facilitate is highlighting habitat needs that aren't
18 achievable with water, so that we can achieve them in
19 other ways. So the one thing that would be a terrible
20 outcome of this process given the Board's focus on water
21 is if we developed flow proposals that actually didn't
22 get us what we needed for the fish and used a lot of
23 water in the process. And I think it's going to have to
24 be an interaction between flow and non-flow actions that
25 achieve that wet habitat, you know, that involves veg and

1 soil that gives the fish what they need.

2 So knowing where the flows are not doing the
3 work, so that we can evaluate whether there are physical
4 things we can do on the ground to make up that difference
5 is a really important part of applying objectives to the
6 flow proposals. And as I mentioned before they also
7 serve as a framework to link actions. You know, in some
8 beautiful future your actions, the FERC processes, the
9 Central Valley Flood Protection Plan, CVPIA and the NMFS
10 recovery plans are all working around a common set of
11 objectives to provide the water, the infrastructure, the
12 habitat necessary to recover salmon. And to do those in
13 a way that are balancing those needs with the needs of
14 the working landscape from the headwaters down to the
15 Delta.

16 And, you know, that integrated vision is
17 certainly away off, but the first step towards it I think
18 is in each of the different processes creating a
19 transparent set of objectives that we all can point to
20 and identify the sort of subset that that regulatory
21 process is addressing or working towards. And without
22 that integration fish recovery is doomed, you know, I
23 think. So there's a real need for us to get together and
24 do that, but fortunately as I mentioned before, a lot of
25 objectives have already been developed. There's a list

1 of them here.

2 I especially want to call your attention to the
3 Science Evaluation Panel objectives, which we have a
4 workshop scheduled with you all in February to present to
5 you in detail. The Central Valley Flood Protection Plan
6 has an appendix that does an analysis of habitat needs
7 for salmon across all of the tributaries -- all of the
8 rivers within the Central Valley -- at least so far as
9 they're in the state system of flood control. And
10 provides habitat metrics that could be applicable to your
11 flow measures and you'll hear some about some work that
12 we've done with those presented by my colleague,
13 Jon Rosenfield. The NMFS Recovery Plan has objectives
14 and the EPA and DFW also have temperature objectives that
15 can be applied to evaluate different flow proposals.

16 And objectives should be specifically applied
17 to evaluate the sufficiency of habitat extent and
18 quality. So for example in the new SED there's analysis,
19 which is a great step in the right direction, using
20 wetted acre days. On the upper San Joaquin we did some
21 floodplain habitat analyses and we found that when you
22 actually apply the duration of inundation necessary to
23 make productive habitat, so let's say it's 10 days or 14
24 days, the depth of inundation and the velocity of
25 inundation, you significantly shrink your wetted acre

1 days. Then if you go out and you look on the ground at
2 how many of those acres are actually suitable habitat
3 acres, usually the percentage of suitability range from 7
4 to 33 percent. So that already reduced number then gets
5 cut by at least two-thirds.

6 So just to give you a sense, the wetted acre
7 approach is great, but it's a massive overestimate.
8 There are ways to make it more robust and they're pretty
9 straightforward and based on information that's out there
10 and available.

11 MS. D'ADAMO: What is your criteria compared to
12 staff's on the floodplain additional benefits?

13 DR. HENERY: In terms of what are the --

14 MS. D'ADAMO: Do you use a wetted acreage
15 approach or do you use a different approach?

16 DR. HENERY: It's essentially a wetted acreage
17 approach. The acreage is just further filtered by depth,
18 velocity, cover percent and type, and then an inundation
19 duration.

20 MS. D'ADAMO: And then on some of these don't
21 you just end up needing some physical improvements.
22 Like, I mean look at the Merced, it just seems that --

23 DR. HENERY: Totally.

24 MS. D'ADAMO: Yeah, okay.

25 DR. HENERY: No, absolutely. Yeah, the

1 inundation and habitat is a combination of the shape of
2 the river, I mean you guys heard a lot about that last
3 time, and how much water there is. But I think what you
4 want is an integrative plan that gets you to that
5 objective. And if you are meeting those more specific
6 objectives for habitat quality, then how you meet them
7 becomes -- you know there's a lot of different ways to
8 skin the cat. And you can decide is all the money spent
9 on restoration more valuable or is it more valuable to
10 spend the money on water and see how you can arrive at
11 that goal.

12 We just want to see that the objectives are
13 met.

14 MR. MOORE: I think this is a good discussion,
15 because it reminds of some work I've done in habitat
16 evaluation procedure where you look at an area, so in
17 this case it'd be wetted acre and the time, the days.
18 And simply as an engineer, you apply a coefficient that
19 becomes a weighted area. And that can really help guide
20 decision making that's collaborative with many
21 participants present to see the transparency of where
22 money would be spent in certain floodplain improvements,
23 because of a better chance of having a higher weighted
24 value for value in terms of biological outcome.

25 MS. D'ADAMO: And this is an area that I think

1 that maybe we can spend more time on in one of the
2 technical workshops. I'm not expecting you to go out and
3 do more work, but maybe to pull out what you already have
4 in the SED, because for me just having been on all three
5 rivers and spent some time, it doesn't make sense on the
6 Merced. The Merced, you know you can put a lot of water
7 down there, it does not just instinctively make sense
8 that there's going to be a lot more wetted acreage.

9 And so trying to sort through -- and I think it
10 will be really helpful for the settlement process anyway
11 -- you've got a lot of that work you've already done on
12 the Stan. But the other two rivers not as much so. And
13 so I think it would be helpful to be able to drill down
14 and figure out from more of a qualitative perspective on
15 the wetted acreage analysis.

16 DR. HENERY: Yeah, and Jon will share some new
17 science that we've done on that with existing objectives
18 in just a moment too, to get that discussion off the
19 ground.

20 And so I also mentioned, so I'll just skip over
21 quickly, but you can use the objectives to constrain flow
22 management in the way that Doug was describing. So it
23 makes it really transparent if the way that you're
24 managing flow isn't one that's optimizing the needs for
25 fish, because you understand what those needs are in a

1 really transparent, quantitative way.

2 And then when you move into the adaptive
3 management process they can serve as those adaptive
4 management triggers. And you really need them before the
5 adaptive management process, because they become your
6 hypothesis that you're testing through implementation.
7 So we can't wait for the adaptive management process to
8 develop the objectives. We have to have some going in
9 and then they can be refined, engaged with, in an
10 adaptive management framework testing them as we go
11 through the implementation process.

12 So just really quickly what the process should
13 look like: we establish objectives, flow prescriptions
14 are developed, flow analysis is done against the
15 objectives to see how the prescriptions work, those
16 prescriptions are refined and the non-flow measures are
17 developed that go with them in the case where they're not
18 sufficient on their own. Then we start implementing,
19 monitoring our implantation and adaptively managing to
20 move closer to our objectives.

21 And I feel like this is sort of what we've done
22 so far. Objectives have been developed and you all have
23 worked on flow prescriptions and to some extent tried to
24 frame those around objectives like the example of the
25 wetted acres days. I think this is what should be

1 encompassed in the SED, which is the refinement, the
2 transparency around how they reach the objective and the
3 non-flow measures that compliment those independent of
4 whether or not those things are going to be implemented
5 in the context of the Board's jurisdiction. So you know
6 that the flows you develop are actually able to meet the
7 objectives even if there's other work that has to be
8 done. And then this is what I see as sort of the
9 adaptive management part.

10 And so our specific requests are that you
11 develop flow prescriptions that specifically support
12 CVPIA targets. That you include analysis of flows
13 against existing objectives in the SED, that you refine
14 existing wetted acre analysis to include measures of
15 habitat quality like we were just talking about.
16 Demonstrate that flow prescriptions are capable of
17 achieving objectives and quantify and specify non-flow
18 measures in the case where they're not or they need those
19 to achieve the objectives. And then also identify
20 objective-based flow management constraints in the SED
21 upfront, so that when we move into that adaptive
22 management process there's already some really good
23 sideboards on it.

24 Thank you.

25 CHAIR MARCUS: No, thank you very much. I

1 think this could be an area where just taking a page from
2 an earlier comment, that where more specificity even --
3 it's both in what we actually do, but also in what's in
4 the expectation of the Program of Implementation. As
5 opposed to all the flexibilities we've left in there for
6 settlements could, in some ways also meet one of the
7 concerns that Mr. Merkley raised, about the lack of --
8 some more sideboards might actually be helpful whether we
9 do it or someone else gives us a better way to do it.

10 DR. HENERY: Yeah.

11 CHAIR MARCUS: Okay.

12 MR. MOORE: I want to then hopefully in your
13 written comments that relate to your -- both Mr. Obegi
14 and Dr. Henery's comments -- that you focus on Appendix K
15 language, page 33, where we have the biological goals and
16 a process that tries to achieve what you've -- probably
17 in more detail. You know, I look to staff and don't we
18 have provisions like this narratively already in the
19 draft documents in Appendix K? And is this something in
20 terms of putting sideboards on it, we can talk about
21 specific language, thresholds, decision points and what
22 have you, that can refine what we've already proposed?

23 MR. GROBER: Yeah, there is the general
24 language already in Appendix K. I mean, this comes back
25 to the difficulty the more specific we are then the more

1 locked in we are, so that's the big conflict is the
2 balance. How far do you go without getting locked in and
3 not having options for --

4 MR. MOORE: Right, and that's the dynamic.

5 MR. GROBER: -- settlement and things like
6 that. But I hear the comment and concern of more rigor
7 and specificity.

8 MR. MOORE: Yeah, but I'm not sure. You know,
9 this could be our own worst enemy, I'm warning everyone.
10 You know, too much rigidity ends up leading down paths
11 that we may regret and the salmon doubling goal or law is
12 in this passage that is in front of me right now, page
13 33. What more do we need, you know? And let's be
14 specific about what language creates the certainty, the
15 comfort level from the different perspectives?

16 We're at that point. I went through the
17 previous two days of hearings in 2013. We're getting to
18 the point now where we need to refine the language to
19 create the comfort and not just say this isn't good
20 enough, go back to square one.

21 MS. D'ADAMO: Well, it seems to me that this is
22 an area where I was just at the Delta Science Conference
23 and our Chair did a keynote and I was just on a panel on
24 predation. And my focus was on habitat, it really seems
25 that what we're seeing with the evolving science is the

1 need for habitat and maybe some predation hotspot work,
2 but habitat. And I'm hearing you saying we need habitat
3 as well and I was planning on asking later, but I may as
4 well ask now. You know, we've got this slide that shows
5 even with 40 percent of flow all we're going to see is
6 11,003 additional fish. And so something's missing and
7 this is just crying out that it's the habitat piece
8 that's missing.

9 And it seems to me that that's an area where we
10 can find a lot of agreement on all sides, because we're
11 hearing the water users saying that as well. Going
12 through development of biological objectives and
13 criteria, I know it took years on the Stan and the fish
14 need the water now. And so the reason I'm hopeful, if
15 you could get more information out now, so that it could
16 feed into the settlement process. There just seems to be
17 a lot of good synergy right now in the area of habitat.

18 DR. HENERY: Yeah, two quick responses, one is
19 that we definitely are actively working on the same group
20 on the objectives for the other tributaries. And because
21 the model for the Stan is out there now we anticipate it
22 coming very quickly, like in months.

23 And the other comment is just I completely
24 agree on the habitat front and I feel like the
25 opportunity there is for us to have a dialogue about the

1 best way to achieve those habitat objectives. We'd love
2 to get those habitat objectives into the SED, so that
3 there can be that discourse then that's about okay can we
4 achieve these objectives with this much water and this
5 much work on the ground? Or does it take more water?
6 And until that bar is transparent and everybody can look
7 at it, it's hard to have that discussion.

8 CHAIR MARCUS: Thank you.

9 Mr. Rosenfield?

10 Again, for folks, it's important for us to ask
11 our questions, because we're not in an *ex parte* we can
12 have follow-up conversation. So some of this is
13 absolutely important now, but I'm always looking at the
14 whole sea of people behind. So as you know, I could
15 spend all day talking to you, so thank you, as well as
16 the other people who are going to be coming up.

17 DR. ROSENFELD: Thanks for having us here this
18 morning for this robust conversation. I'm going to sort
19 of get right into it, because I've got a lot of analysis
20 to show you. I'll start with the end, with the main
21 points.

22 Our analysis to date shows there's no evidence
23 that flows less than 50 percent of unimpaired flow will
24 achieve salmon doubling targets or ensure a functioning
25 south Delta ecosystem. Even at higher flows, salmon

1 doubling is possible only if accompanied by very precise
2 manipulation of flow, aka flow shaping, and massive
3 investments in physical restoration of habitat. It's not
4 an either/or. Rearing habitat restoration is necessary.
5 I'll say it again. Rearing habitat restoration is
6 necessary, but at flows less than 50 percent of
7 unimpaired flow restoration acreages that are necessary
8 and the cost for those acreages, skyrocket.

9 High temperatures limit ag incubation and
10 juvenile rearing habitat at flows less than 50 percent of
11 unimpaired flow. And this constrains the tributary
12 carrying capacity and the ability to shape flows without
13 producing negative temperature effects.

14 Our analyses -- there are a variety of analyses
15 that we'll go through quickly here. There are numerous
16 lines of evidence that demonstrate that 40 percent of
17 unimpaired flow is inadequate. These include strong
18 correlations between winter-spring flows and adult
19 escapement, correlations between winter-spring flows and
20 juvenile survival on the tributaries. And then strong
21 functional connections between flow and carrying capacity
22 via its effect on temperature and inundated off-channel
23 habitat.

24 This is a graph you've seen before and you'll
25 see again. The green bars represent escapement of the

1 salmon to the three tributaries and they're on the left
2 vertical axis. The black line represents flow at
3 Vernalis two-and-a-half years earlier when these fish
4 migrated out to the ocean, when they were affected by the
5 flow in the river. And that's measured on the right y
6 axis. This is a strong correlation over many decades.
7 So if the hypothesis is that flow has an effect on
8 escapement, this supports the hypothesis.

9 When we look at other hypotheses that attempt
10 to explain the escapement pattern, we don't see these
11 correlations. Here, instead of flow as a black line,
12 I've plotted the Adult Striped Bass index from the Delta,
13 again two-and-a-half years earlier when these fish
14 migrated to the ocean as juveniles. And we do not see a
15 correlation between predator density in the Delta and
16 subsequent escapement of Chinook salmon.

17 Similar graphs I'll present to you in written
18 comments show no correlation with ocean conditions or
19 hatchery releases from the Merced or Mokelumne
20 hatcheries.

21 Several years ago, when we were presenting to
22 you, we and California Department of Fish and Wildlife
23 indicated that there were several seasonal average flows
24 that correlate with population growth, 5,000 CFS as a
25 seasonal average between March and June. Above that

1 level seems to produce good frequency of population
2 growth; 10,000 CFS seems to be the level that is
3 associated with attainment of AFRP production targets.

4 The point I want to make here is that flow
5 shaping and moving flows around within this February
6 through June period does not affect the average flow in
7 that period. So flow shaping will not have any effect on
8 these seasonal average correlations with the seasonal
9 averages.

10 MS. D'ADAMO: So what are you saying that's
11 needed there, if we could go back?

12 DR. ROSENFELD: Yeah, so our analysis last
13 time, that we can send you again, is that 5,000 CFS seems
14 to be associated with population growth. And the
15 recurrence level that we targeted for population growth,
16 which is not every year, results in a desired recurrence
17 frequency that occurs when you're between 50 to 60
18 percent of unimpaired flow. So I'm not showing you that
19 analysis here. It's from our previous presentation.

20 And then 10,000 CFS if you want to attain the
21 AFRP production targets on average, then you need to
22 attain that at least every other year. That's what the
23 on average would mean. And the recurrence frequency that
24 you need occurs at above 60 percent of unimpaired flow.

25 MS. D'ADAMO: And on the 10,000 though, you're

1 pulling out language from the Flow Criteria Report,
2 that's what you're citing in the green?

3 CHAIR MARCUS: No.

4 DR. ROSENFELD: No. This is our analysis that
5 it sort of -- there's an image on the right that shows
6 you that if I plot a line going through 10,000 CFS here
7 on the vertical axis and drag it across, it's where
8 does it intersect those lines. And you need it to occur
9 at 50 percent of the time, all right? So it's the
10 intersection of those two lines. And that's at above the
11 60 percent unimpaired flow level.

12 Of course that's the configuration of the
13 ecosystem now. That doesn't account for restoration of
14 habitat that you might do, but the evidence that you have
15 now is that you need flows above the 50 percent level to
16 accomplish the legal standard and population growth to
17 get you there.

18 But we can dive now more into the specifics,
19 because these correlations right, I mean there's two-and-
20 a-half years between when you measure the flow and when
21 you subsequently measure the escapement back. And so
22 it's sort of amazing that you see the correlation at all.
23 We can begin to unpack that correlation by looking at the
24 relationship between flow on the tributaries and
25 juveniles coming out of the tributaries.

1 So on this graph we're looking at flows and
2 survival from eggs to the juvenile life stage, from the
3 Stanislaus River, from 1996 through 2012. And obviously
4 there's a relationship between the amount of flow and
5 subsequent survival throughput of juveniles from the
6 number of eggs that you have.

7 I would not draw a straight line through that
8 relationship. It's not a linear relationship. But
9 clearly we can see that below a certain level, flows are
10 persistently miserable. I'm sorry -- survival is
11 persistently miserable at low flows. And these are
12 levels of survival from eggs to juveniles on the
13 tributaries that are associated with severe population
14 decline. That is a recurring phenomenon on the
15 Stanislaus. Above that level of --

16 CHAIR MARCUS: Are they persistently miserable?

17 DR. ROSENFELD: Yep.

18 CHAIR MARCUS: There you go.

19 DR. ROSENFELD: You can quote me on that.

20 CHAIR MARCUS: I will. In all kinds of
21 contexts, not just this one.

22 DR. ROSENFELD: Right. It's a good term.
23 It's a good term for our times.

24 I mean just a point to emphasize there, the
25 population on the Stanislaus, the natural production on

1 the Stanislaus, is a declining function going to zero
2 very quickly. Okay? So that's why marginal improvements
3 don't really do much. They make the population go
4 extinct less quickly.

5 At higher flow levels that are indicated here,
6 to the right of that vertical line, you get survivals
7 that are much better, all right? And sometimes very good
8 levels of survival. The flow indicated by the vertical
9 line is 438,000 acre-feet between February and June.
10 That's about 53 percent of the median flow on the
11 Stanislaus River.

12 In other words, if you were to set a flow
13 standard of 53 percent, in the current context, you would
14 expect to see a population growth greater than about 2.5
15 percent in half the years. And always lower than 2.5
16 percent, about 1.1 percent in half of years, okay? So
17 that's the evidence that we have now from the system.

18 It's not just -- I'll make this point quickly,
19 because I know it'll be covered by Drs. Sturrock and
20 Johnson later. It's not just the volume of flow, it's
21 the flow variance. So the variability in flow seems to
22 be associated with success of juveniles orienting and
23 migrating out of the system. With flow shaping, the more
24 aggressively you do that the less variance you'll get in
25 the flow. Like that's sort of what it means to shape the

1 flow. So you have to be very careful about how much you
2 try and target specific outcomes with flow and moving
3 water around. But you don't eliminate the natural
4 signals these fish capitalize on.

5 Another result that emanates from
6 Dr. Sturrock's work on the Stanislaus is this result that
7 was very powerful for us in the Stanislaus SEP process.
8 In nature, you would expect that the more adults you have
9 at reproduction time, the more juveniles you're going to
10 get. But what these results show, again from the
11 Stanislaus, is that under low-flow years, under drier
12 years, the red line there, that low curve, shows that the
13 number of juveniles that you get migrating out of the
14 system is almost unresponsive to the number of adults you
15 get back. Whereas in wetter years, you get the
16 relationship you expect. More spawners, more juveniles,
17 right. So this is evidence of a very strong flow-
18 mediated carrying capacity limit on the Stanislaus. And
19 frankly I wouldn't be surprised to see this on all of the
20 tributaries.

21 So moving forward, I want to unpack then why
22 you might have that carrying capacity, that flow-mediated
23 carrying capacity limit, getting into the mechanisms of
24 how does flow control Chinook salmon success.

25 The first thing to drop in everybody's ear

1 though is that carrying capacity is a function of habitat
2 suitability, how good is the habitat? Over space how
3 many acres is that habitat good for? Through time, how
4 many months or weeks can I have adequate juvenile rearing
5 and outmigration conditions? How many weeks or months do
6 I have good incubation habitat? So again, you have to
7 keep the space and time in mind while you're looking at
8 habitat suitability.

9 So getting to Board Member D'Adamo's questions
10 about limited inundated off-channel habitat, we were able
11 to use the Department of Water Resources Central Valley
12 Flood Protection Plan Conservation Strategy, estimated
13 the amount of acres needed on each of the tributaries and
14 the Lower San Joaquin River to support a doubled
15 population. How much room do the juveniles, from that
16 size of a population, in order to produce that size of a
17 population, need in order to rear successfully?

18 As Rene pointed out, habitat doesn't equal
19 wetted acre days. Wetted acre days is a metric of
20 something, but really like muddy ground is not where fish
21 live. They need a certain depth, certain temperature, a
22 certain velocity and that implies a certain inundation in
23 time.

24 So the acreage in our analysis that I'm about
25 to show you, the acreage required to support double

1 salmon population must inundate for at least ten
2 consecutive days. This is in the lower gradient rivers,
3 like the main STM San Joaquin lower tributaries. Ten
4 consecutive days is the minimum amount of time before
5 that habitat will begin to generate its own food supply,
6 which is the major part of the benefit that the fish are
7 getting from the floodplain. So this is a minimum
8 threshold.

9 Again, in order to support a double population,
10 you need the habitat to support that doubled population
11 in at least half of years, if you're going to have a
12 doubled population on average. So we analyze here the
13 median inundation year. Half of the years will inundate
14 more habitat, half will inundate less habitat.

15 To Rene's point about habitat suitability, when
16 you go out in the field, you find out most of the habitat
17 available is 7 to 30 percent of the 100 percent habitat
18 suitability. Not every wet acre is perfect habitat. On
19 average it's going to be somewhere between 7 and 30
20 percent. In this analysis, we assumed that the acreage
21 that's out there is at the high end of suitability,
22 meaning you need less acreage than you might if it was at
23 lower suitability. So we're making a best-case scenario
24 here for the effective flows on inundated habitat.

25 A few more points before we get to the

1 analysis. The fish need this habitat, this rearing
2 habitat, all the way throughout their life cycle in fresh
3 water. They need it upstream. They need it downstream.
4 They need it during their migration. And the DWR Plan
5 calculates how much acreage they need upstream and
6 downstream. But it's not as though you can provide one
7 flood event and flood habitat upstream and flood habitat
8 downstream and the fish will just go the right place.
9 They live upstream when they're upstream, inundated
10 habitat downstream doesn't help them. When they're
11 downstream, inundated habitat upstream doesn't help them.

12 And you can use the DWR data, we have used the
13 data, to calculate when the peak habitat need is upstream
14 and downstream. The blue line indicates kind of how much
15 habitat, the flows that are necessary to achieve the
16 habitat upstream. The reddish line is the flows that are
17 needed to achieve the habitat from the Tuolumne's
18 contribution downstream. And the only point I want to
19 make here is that those peaks are separated by about a
20 month and a half, all right? So the flow that you use to
21 produce the upstream habitat is not the same water that
22 you're going to need later to produce the downstream
23 habitat.

24 Okay. So I said we would look at the median
25 year. This is 30, 40, 50, 60 percent of the median year

1 hydrograph, shown in different colored lines on this
2 graph. Through time, this is -- we're now looking at the
3 Lower San Joaquin River and these are hydrographs that
4 are at a 7-day running average, which is what the SED
5 calls for.

6 The horizontal black line indicates the flow
7 that's needed to inundate that maximum habitat need
8 downstream. It's about 15,000 CFS. The width of that
9 line is 10 days. I said it had to be inundated for 10
10 days in order to begin to have a positive effect. So
11 when lines are above -- when the colored lines are above
12 the horizontal black line the habitat is inundating. But
13 it has to be above that black line for 10 days in order
14 to achieve the necessary habitat inundation, using the 7-
15 day running average. In other words, without any
16 shaping.

17 I'm now zoomed in on that zone, right? It's
18 the same graphic above. And you can see that even the
19 blue line doesn't inundate that habitat for 10 days,
20 using a 7-day running average. In the table below, I
21 show that -- well, let me say that any amount that the
22 lines are above that black line is extra water that you
23 have to play with. The habitat is more than inundated.
24 It's more water than you "need" to inundate the habitat.
25 So you could do some shaping.

1 Recognize that the lower two lines don't even
2 ever get to even one day of inundated habitat. Those
3 represent 30 percent and 40 percent of unimpaired flow.
4 So looking at 30 percent of unimpaired flow, the second
5 column says you get zero days of inundation. You don't
6 have any water available for shaping, because it's not
7 ever above that black line. So you're acreage shortfall
8 is 6,787 acres. Meaning if you want to support a doubled
9 salmon population, with habitat needed in the Lower San
10 Joaquin River, we have to find a way to create 6,787
11 acres. If you multiply that by about a half a million
12 dollars per acre, you recognize the costs that are
13 getting involved. The point here is that as flows
14 increase, habitat that is inundated naturally increases.

15 So at 60 percent of unimpaired flow you don't
16 inundate the habitat on a 7-day running average for ten
17 days, you inundate it for eight days, you have extra
18 water that's above that black line, you can shape it.
19 Your acreage shortfall at 60 percent of unimpaired flow
20 is zero. You will inundate all the habitat you need with
21 some modest shaping of flows.

22 At 50 percent of unimpaired flow, you can shape
23 water, you can make things better. You're still going to
24 wind up with an acreage shortfall of 1,766 acres, which
25 is fine. We all know we're going need to restore

1 habitat. But I want to point out that there's a huge
2 cost difference between 1,766 acres of acreage at 50
3 percent of unimpaired flow and 6,800 acres that you would
4 need at 30 percent of unimpaired flow.

5 Taking this analysis upstream then to the
6 tributaries --

7 CHAIR MARCUS: Right. Just you're going to
8 have to go fast. That's all.

9 DR. ROSENFELD: Yes, I'll do my best. To
10 Board Member D'Adamo's point, you're not going to
11 inundate the habitat you need upstream with any of these
12 flow requirements alone. You need to do habitat
13 restoration. The point is that upstream it will be the
14 same story as downstream. The more flow you provide, the
15 more habitat will inundate and the easier it will be to
16 locate potential restoration sites, because they are
17 inundatable at a lower flow.

18 The next set of analyses that I'll try and
19 breeze through quickly are temperature analyses. These
20 come from data in the SED. And --

21 CHAIR MARCUS: And just so you know, I mean
22 this is great and you've done a lot of work, but just
23 we've got to try and stick to the time. Just know that
24 we'll spend a lot more time on it and with you.

25 DR. ROSENFELD: Yeah.

1 CHAIR MARCUS: So just go as quickly as you
2 can, because we've got --

3 DR. ROSENFELD: Okay. I will. You know, I
4 want to just --

5 CHAIR MARCUS: We're not going to assimilate it
6 all just sitting here. That's true of everything. It's
7 more what we should be looking at and where our follow-up
8 is.

9 DR. ROSENFELD: Right, so the point that I
10 want to make here is that not every change in temperature
11 is an equal amount of temperature change. And in the SED
12 the temperature analyses just show where the model says
13 you have a greater than one degree Fahrenheit change in
14 temperature. But if two alternatives are in the optimal
15 zone, than that's not really a difference, as far as the
16 fish are concerned. They're going to experience optimal
17 conditions.

18 Similarly, if the two alternatives are the
19 detrimental lethal zone, the fish aren't going to
20 experience a difference. And in the area in between the
21 suboptimal zone, temperature changes make a real
22 difference. And you can know what that difference will
23 be in terms of the success of the fish.

24 I got these standards from real places. We'll
25 talk about them. I've mapped them out the way that you

1 mapped out the temperature changes in the SED, showing
2 downstream to upstream, through the months that fall-run
3 Chinook salmon are in the river. And when we look at the
4 Tuolumne River for instance, we can see that you gain
5 miles of incubation habitat at 50 percent of unimpaired
6 flow that you will not get at 40 percent of unimpaired
7 flow. You gain both mileage of rearing habitat for
8 juveniles that you won't get under 40 percent of
9 unimpaired flow. And you gain an additional month of
10 that rearing habitat being available that you won't get
11 under 40 percent of unimpaired flow. I summarize the
12 results here. You can read them later.

13 The same thing for the Merced River. You're
14 going to open this river to juvenile rearing and
15 migration for an additional full month by having 50
16 percent unimpaired flow, versus 40 percent unimpaired
17 flow.

18 In summary, this is the last slide then, these
19 analyses need to be integrated. We can't just wave our
20 hands at, "Oh, we'll create some habitat. Oh, we'll
21 shape flow to inundate the habitat." If you're borrowing
22 water from one time of year to create a habitat effect in
23 another time of year, you will also create a temperature
24 effect in both times of year: at the time that you
25 borrowed water from, the time of year that you shift the

1 water to. You have habitat inundation needs upstream and
2 downstream. The less water you use, the greater the
3 habitat acreage you'll have to create. It's very
4 expensive. It takes a long time.

5 So adding water to the system actually is a
6 factor I think that needs to be analyzed. What is the
7 cost of achieving the doubling objective at different
8 levels of flow. The water costs people, consumptive
9 users of water for sure. But using less water costs
10 somebody billions of water to restore the necessary
11 habitat acreage.

12 Thanks for your time and attention.

13 CHAIR MARCUS: Well, thank you very much for
14 all the thought and detail that went into this. It's
15 definitely you must've spent a lot of time on it. Thank
16 you. You packed a lot into your time.

17 All right, I know it's getting late. And
18 hopefully people got their snacks. But I'm going to go
19 through the panel of the Hillmar Future Farmers of
20 America. Again, I'm going to encourage you. You do have
21 three minutes each. Brevity, since there are a lot of
22 you, brevity is valued by the folks who are hungry.
23 What?

24 UNIDENTIFIED SPEAKER: (Indiscernible.)

25 CHAIR MARCUS: Yeah. No, it's just up to you.

1 I mean, I appreciate that you all came. I think it's
2 great and hopefully you'll stay and listen to others.
3 But if each person can just try. Say what you need to
4 say, but certainly feel free to -- because you're a
5 group, but you're also individuals. So we're happy to
6 hear from you and happy to see you.

7 I'll let you organize yourselves, rather than
8 reading all 11 names in the order they came in. So --

9 MS. REID: They'll just introduce themselves as
10 they come up to the mic.

11 CHAIR MARCUS: Right.

12 MS. REID: Is that okay?

13 CHAIR MARCUS: Yeah. I think that's just fine
14 and I'll hand the cards to the court reporter if he needs
15 to double check. Just say your name slowly, so he has a
16 shot at getting them.

17 MS. REID: Well, we very much appreciate this
18 opportunity. My name is Monique Reid. And I'm an Ag
19 Teacher at Hilmar High School. We are here today because
20 of the first line in the FFA Creed. "I believe in the
21 future of agriculture, with a faith born not of words,
22 but of deeds." And so I'm here on behalf of the 400
23 students in my Hilmar High School Ag Department. I teach
24 with three other teachers.

25 We are a small community, a small close-knit

1 community unincorporated, in the north end of Merced
2 County. We have, like I said, a population of just a
3 little over 5,000 people. Our main industry is
4 agriculture and food processing. Many of our local
5 farmers rely on irrigation water provided by TID and the
6 Tuolumne River. Their water supply has already been
7 reduced due to the drought. If water is reduced again,
8 the negative impact on our local economy will be severe.

9 We produce food for a living. Without an
10 adequate amount of water we can't do this. This Plan
11 will result in loss of jobs to an already economically
12 challenged region. Merced County, as you have heard, is
13 economically disadvantaged, with one of the highest rates
14 of unemployment. And we can't easily pivot to another
15 industry, given the skills of our current population.

16 Groundwater has been mentioned. We already
17 have wells that are going dry. When we rely on that
18 water for our domestic use we cannot look to it to save
19 the agricultural industry.

20 Without access to water, we're also concerned
21 about property values. People, if your land does not
22 have water it's not worth anything. They won't have the
23 ability to relocate themselves or retrain themselves.

24 I'm also concerned about the loss of the food
25 production that we produce. In the Merced, Stanislaus,

1 San Joaquin counties, those are three of the top
2 producing counties in the State of California and that
3 produces a large amount of food. And under food safety,
4 environmental and labor regulations that we are not going
5 to get from other countries if we are importing food
6 products.

7 So to sum up, ultimately I have a lot to lose,
8 and my students have a lot to lose, if this Plan goes
9 through as proposed. So as well as the tri-county areas
10 and all the small communities that are up and down the
11 Highway 99. Thank you for your time.

12 CHAIR MARCUS: Well, thank you.

13 MR. JONES: Hello. My name is Ethan Jones. I
14 am 17 years old. I am from Merced County. And I am a
15 member of Hilmar High School FFA. My family are fourth
16 generation farmers in the Central Valley. And I would
17 like to grow up and be a fifth generation farmer.
18 However, I am worried that it will not be possible.

19 The mission statement of the State Water Board
20 is as follows, "To preserve, enhance and restore the
21 quality of California water resources and drinking water
22 for the protection of the environment, public health, and
23 all beneficial uses. And to ensure proper water resource
24 allocation and efficient use for the benefit of the
25 present and future generations."

1 After reading the proposed amendment to the
2 Water Quality Control Plan for the San Francisco Bay-
3 Sacramento/San Joaquin Delta Estuary and Supporting Draft
4 Revised SED, I must beg the question- does this amendment
5 align with the mission statement recorded above? I'm
6 compelled to argue that it does not.

7 Firstly, I believe that addressing the
8 ecological crisis in the Bay-Delta is a permanent,
9 essential and time-sensitive issue that we must resolve.
10 However the solution must be efficient and prosperous for
11 all beneficiaries. The proposed amendment to the SED is
12 not a compromise. It will not have a neutral effect and
13 it is not an efficient use of resources. And it will not
14 be to the benefit of the present or future generations.
15 Instead, it will be an intentional decimation to the
16 prosperity of the Central Valley's economy.

17 How will present and future generations benefit
18 from thousands of lost jobs, billions in economic output
19 loss, and hundreds of millions of lost farm revenue and
20 labor income? Water is not just a resource in the
21 Central Valley, it is our livelihood. In a region that
22 was built on, and still relies on agriculture as its
23 primary revenue source, this amendment will devastate our
24 economy and our way of life.

25 In agriculture, less water directly means less

1 productivity. Can you imagine if your pay was deducted
2 by 14 percent or more every year? This is not maximizing
3 the benefits of this resource. It is not protecting the
4 public trust and it is certainly not serving the public
5 interest.

6 Furthermore, I urge the State Water Board, our
7 elected officials, and our communities to come together
8 to alternatively resolve our environmental concerns,
9 while protecting the interest of all the Bay-Delta
10 beneficiaries. Approving this amendment to this
11 amendment to the SED is not the right action for
12 California. And it is definitely worth my fight. Thank
13 you for your time.

14 CHAIR MARCUS: Thank you.

15 MS. VAN RULER: Hello. My name is Kayla van
16 Ruler. I'm 16 years old and I'm part of the Hilmar High
17 School and Hilmar FFA. I live in Merced County.

18 I am speaking in regard to the economic impact.
19 The State Water Board's Bay-Delta Water Plan will
20 negatively affect me and my family, because my family
21 farms about 500 acres of almonds in the Stanislaus and
22 Merced County. Almonds are a permanent crop, which
23 require water every year. In 2015, we received half of
24 our water allotment from the District and had to make up
25 the difference with wells. If we have another year like

1 2015 and get no District water, we will not be able to
2 survive with pump water alone.

3 In the drought years, with the State's Water
4 Board Plan there will not be enough water to keep our
5 trees alive, let alone be able to produce crops. Our
6 trees that will suffer damage that will affect us for
7 many years. Plus this will also affect our income
8 drastically and the value of our land. Thank you.

9 CHAIR MARCUS: Thank you.

10 MS. XAVIER: Hi. My name is Tabitha Xavier and
11 I am 15 years old. I am part of the Hilmar FFA chapter
12 and attend Hilmar High School. My FFA chapter is a part
13 of the Merced County.

14 The State Water Board's Bay-Delta Water Plan
15 will negatively affect me and my family, because without
16 water we will not be able to grow crops. And if we can't
17 grow, then we can't the feed animals. And if we can't
18 feed the animals then dairies will go out of business.
19 If we didn't have any dairies, my dad could possibly go
20 out of business, because he won't have any equipment or
21 things to repair for his customers. My dad has a farm
22 service company.

23 This would not only affect my father and my
24 family, but it would also affect employees and their
25 families. Thank you.

1 CHAIR MARCUS: Thank you very much. And you're
2 the historian, so you're going to have to write about
3 this as a part of the history.

4 MS. GARCIA: Hello. My name is Jessica Garcia.
5 I am 16 years old and I am part of the Merced County.

6 The State Water Board's Bay-Delta Water Plan
7 will negatively affect me and my family, because my dad
8 is a truck driver who transports the produce, including
9 chickens, from the farm to the grocery stores. Without
10 water you cannot produce the crops to feed the chickens,
11 let alone be able to raise them. This will put my father
12 out of a job, which would affect our income drastically.
13 Thanks for your time.

14 CHAIR MARCUS: Thank you for yours.

15 MS. SILVEIRA: Hi. My name is Kayla Silveira
16 and I'm a 15-year-old sophomore at Hilmar High. I'm the
17 Chapter Reporter for Hilmar FFA, which is a part of the
18 Merced County.

19 The State Water Board's Bay-Delta Water Plan
20 will negatively affect my family and I. Although my
21 mother's career involves medical billing, it will even
22 affect her job. Because if we have to deal with
23 unemployment, then the people of the Central Valley will
24 look elsewhere for jobs, which will cause less need for
25 services, just as the one that my mom provides.

1 Unemployment will affect our entire Valley economy in a
2 negative way. Thank you.

3 CHAIR MARCUS: Thank you.

4 MS. DESALLES: Hi. My name is Abigail DeSalles
5 and I'm a 17-year-old senior at Hilmar High.

6 The State Water Board's Bay-Delta Water Plan
7 will negatively affect me and my family, because my mom
8 could lose her job in the animal industry. Because
9 without water we cannot grow the crops needed to make and
10 prepare the feed mix to sell to dairymen, because they
11 could possibly go out of business. Thank you.

12 CHAIR MARCUS: Thank you.

13 MR. TEIXEIRA: Hello. My name is Lucas
14 Teixeira. I'm 17 years old and I attend Hilmar High
15 School and am part of Hilmar FFA and live in Merced
16 County.

17 The State Water Board Bay-Delta Plan will
18 negatively affect me and my family, because my father who
19 is a dairyman and works for a local California Dairy,
20 will lose his job because the dairy will go out of
21 business without water. And if all the dairies are lost,
22 than Hilmar Cheese, the heart and soul of Hilmar, that
23 drives and keeps us alive, will go out of business.

24 My grandparents also own a dairy here in
25 Hilmar. And if we don't get water to irrigate, then we

1 won't be able to feed our cows and can't buy feed,
2 because feed prices are too high. Also, you took away
3 the other farmers' water. So my grandparents' dairy will
4 go out of business. Big feed companies will go out of
5 business and it's a chain reaction. And all for what, to
6 save around 1,100 fish? In my opinion it's not worth it.

7 Please reconsider and think of all the
8 negativity it will bring to California.

9 CHAIR MARCUS: Thank you.

10 MS. HEREDIA: Hello. My name is Marissa
11 Heredia. And I am 17 years old, from Hilmar High School,
12 and am a member of Hilmar FFA, which is in Merced County.

13 The State Water Board's Bay-Delta Plan will
14 negative affect me and my family, because like most
15 people who live in the country, we rely on our well for
16 our water. If our water is going to be restricted from
17 our reservoirs, many farmers will change to wells, like
18 some already have. Then people who live in the country,
19 like me will eventually run low on water, and that will
20 cause them to drill another well, which we could not
21 afford to do at this point. And we will really be out of
22 groundwater.

23 And a piece of land without any water is not
24 worth a whole lot. Thank you.

25 CHAIR MARCUS: Thank you.

1 MR. MULLER: Hello. I'm Nicholas Muller. I'm
2 17 years old, from Hilmar High School and part of Hilmar
3 FFA, and I live in Merced County.

4 The State Water Board's Bay-Delta Water Plan
5 will negatively affect me and my family economically.
6 And cause my stepdad to maybe lose his job, because he is
7 a manure spreader for local farmers in our area. In my
8 household it's just me, him and my two brothers and my
9 mom. And half the time with all the water going and
10 prices going up slightly, it's hard for us to keep our
11 heads above water. And with this Plan, it might cause
12 her to even -- prices to go up even more and cause even
13 more problems. Thank you for your time.

14 CHAIR MARCUS: Thank you.

15 MR. RIOS: Hello. My name is Derek Rios. I'm
16 17 years old and I'm from Hilmar High School. I am also
17 in the FFA program in Merced County.

18 The State Water Board Bay-Delta Water will
19 negatively affect me and my family, because it will cause
20 a great amount of jobs to be lost including mine.
21 Without water, we won't be able to grow crops for us and
22 our animals. It will increase the cost of feed and
23 people would have to give up their businesses. Our
24 community revolves around farms and dairies. Without
25 them, our community will be nothing.

1 It could also negatively affect my dream of
2 becoming a diesel mechanic in the future. If there are
3 no crops being produced, there will be no need for crop
4 transportation companies, which will lead to not having a
5 demand for diesel technician. Thank you.

6 CHAIR MARCUS: Thank you very much.

7 And for the rest of you, I haven't found your
8 cards. So I'll either look it up, and if -- what?

9 UNIDENTIFIED SPEAKER: (Indiscernible)

10 CHAIR MARCUS: What? You just turn them in
11 later if you haven't. If you have, we'll find them.

12 MR. SILVEIRA: Hello, I'm Mark Silveira. I
13 live in Hilmar, California, in Merced County. I'm part
14 of the Hilmar High School FFA Department.

15 And this Plan will really negatively have an
16 impact on my family, because we own a family business,
17 catering services. And that would really -- the water --
18 this Plan would really raise prices with the crop
19 production at low production. But it's going to
20 negatively impact us because we won't have any produce,
21 any local meat, any local dairy to serve to any
22 customers for pretty much food services.

23 And yeah, that's about it.

24 CHAIR MARCUS: Thank you.

25 MR. RAMOS: Hello. My name is Brett Ramos.

1 I'm 16 years old. I attend Hilmar High School and the
2 Hilmar FFA in Merced County.

3 The Delta Plan is going to affect me and my
4 family in a negative way, because without dairies I can't
5 get a job in my area. The milk and cheese prices and
6 other foods will go up, because without the water they
7 can't farm. My grandpa will lose his job on the dairy
8 and lose his income. I believe that's how it will affect
9 me. Thank you.

10 CHAIR MARCUS: Thank you.

11 MR. PANTOJA: Hi. My name is Jorge Pantoja.
12 I'm 17 years old. I'm from Hilmar High School and I'm
13 the Hilmar FFA Chapter Treasurer. I'm from the Merced
14 County.

15 The State Water Board's Bay-Delta Water Plan
16 will negatively affect my family and I, because coming
17 from a family of immigrants we depend a lot on
18 agriculture-based jobs, many of which require the use of
19 water. Being in a drought that California currently is
20 in, it's already hard enough to use water. Now without
21 the water that would be taken away from us, it will
22 practically dry out all of our ag-related businesses such
23 as farming, orchards and potentially event dairies.
24 That's about 70 percent of businesses that'll go bankrupt
25 without enough water. Thank you.

1 CHAIR MARCUS: Thank you.

2 MR. GACHES: Hello. I'm Wyatt Gaches from
3 Hilmar High School. I'm 17 and I live in Merced County.

4 Now, as I heard you guys mention, it's going to
5 cost money for this water and sending it back out there
6 whenever we have none. Well, where is that money going
7 to come from? If the Government's going to be paying for
8 this, where are they going to take that money from?

9 My father is a police officer and also a bomb
10 tech in Merced County. If they cut his pay, what is he
11 working for? Nothing. I live in a family of eight and
12 it's already hard enough to pay to keep us fed and keep
13 us warm. He could be laid off and then we have no way of
14 getting an income. My father leaves in the morning,
15 really early. From that point he leaves, I don't know if
16 he's going to come back home. I sit on my bed after I
17 get home and wonder if my dad's going to come home
18 tonight. He don't get that much money, but he still goes
19 out there, because he thinks that that's what he needs to
20 do, because of the people he needs to protect. And I
21 really respect you guys think about these fish and
22 everything and you guys want to claim -- no disrespect,
23 but also you've got to think about the people.

24 Last summer during this drought and our well --
25 we got kicked out of our old house, because we couldn't

1 afford it no more. A really nice man give us a house and
2 said we didn't need to pay for it for awhile, so we could
3 raise the money for it. Well, our well went dry. We had
4 no drinking water, no shower water, and it was really
5 expensive to keep buying all these water bottles. So me
6 and my two little step brothers, who were about six and
7 eight at that time, we would have to walk about five
8 miles every day to go fill up those water bottles from a
9 water hose at my grandpa's house, because we had no other
10 way. We didn't take showers all month. We didn't get no
11 hot water. We got some dirty water from the water
12 faucet, because our well went dry. We had no other
13 source of water.

14 So I mean if you want to take that water away,
15 we're -- fish have places to go where there's hundreds of
16 rivers. What about the people who can't go anywhere? If
17 we lost our water, if my dad lost his job, we have
18 nowhere else to go. We have no more money. We have no
19 more house. We have nothing. We're just another person
20 on the street in Merced. We all know we have enough of
21 those people there. Thank you.

22 CHAIR MARCUS: Thank you very much.

23 Thanks all of you for coming and joining us. I
24 hope you'll stay, appreciate it.

25 We'll now take a 30-minute break. Do we need

1 more, do you want me to be kind and give you more?

2 UNIDENTIFIED SPEAKERS: No.

3 CHAIR MARCUS: No? Okay, a half-hour break.

4 We'll come back at 1:35.

5 [Off the record at 1:03 p.m.]

6 [Back on the record at 1:41 p.m.]

7 CHAIR MARCUS: Thank you for rejoining us.

8 Yeah, that's all you have to do, thank you very much for

9 doing that for me.

10 We're now on to our Second Panel presentation,

11 a relatively short panel presentation by University of

12 California Davis and the National Marine Fisheries

13 Service. If you want to come on up?

14 Okay, now I feel centered. Hi, welcome back.

15 Good, hungry but I may eat while I'm sitting here. I

16 didn't get a chance -- oh, so nice that you're showing me

17 salmon. That's just going to make me more hungry.

18 (Laughter.)

19 I don't think it's on. Press the bright light

20 and then pull it close.

21 DR. JOHNSON: Can you hear me now?

22 CHAIR MARCUS: Yeah.

23 DR. JOHNSON: Okay.

24 CHAIR MARCUS: Thank you.

25 DR. JOHNSON: I just wanted to start off by

1 thanking Chair Marcus, Board members and staff for the
2 opportunity for Dr. Sturrock and myself to present on
3 some of our research that has direct bearing on some of
4 the elements of the current SED. My name is Dr. Rachel
5 Johnson and I work for NOAA Fisheries at the Southwest
6 Fisheries Science Center. And I also have a research lab
7 at UC Davis, at the Center for Watershed Sciences.

8 And I've been conducting research on salmon in
9 the San Joaquin River for over a decade now. And I just
10 wanted to compliment the staff for including some of our
11 more recent research in the new and released SED that
12 wasn't present in the 2012 version. And so I'd just like
13 to acknowledge kind of the due diligence on that effort.

14 I'm here today largely, because while some of
15 our work has been published I wanted you to be made aware
16 of some of our work that has not been published yet. And
17 yet represents an eight-year time series of different
18 hydrologic variation on the Stanislaus River and how the
19 fish respond to this flow. How it really influences the
20 abundance of juveniles that leave these rivers and how
21 the flow norms in the system really influence not only
22 the abundance, but also the resilience of the salmon
23 population in the system.

24 And I wanted to take the opportunity to share
25 this research with you. A lot of the scientific

1 community kind of has heard it in different conference
2 venues. It will likely be out in print before you
3 finalize your document, so I wanted you to be aware of
4 the stuff that we're aware of in the system while you
5 kind of deliberate on the issues and the tasks you have
6 at hand.

7 I wanted to start off by saying as I was
8 driving here this morning I was reminded of Chair
9 Marcus's plenary talk at the Bay-Delta Science
10 Conference, and the way that she described the role of
11 the Water Board. And she uses really iconic imagery of
12 blind justice holding this balance and scale. And I
13 think that that's a really useful context to be thinking
14 about. How I'm bringing my science to you today, but I
15 want you to know that I recognize that it is one simple
16 weight out of several weights that are on your balancing
17 scale. And I recognize that you have what I would
18 consider the unenviable task of trying to meet those
19 balances.

20 CHAIR MARCUS: Thank you for not talking about
21 the other images I used in my panel. (Laughter.)

22 DR. JOHNSON: But I also wanted to share that
23 one of the other things that you made a really good point
24 about, that we as scientists often do, is that you made
25 the astute observation that we often bring our science

1 with a whole bunch of uncertainty and kind of hand it
2 over. And so my hope is that in my opening remarks in
3 the first few slides, I want to share with you that I
4 think we actually know quite a bit about salmon in the
5 San Joaquin as it relates to water management issues.

6 And so I wanted to make sure that we kind of
7 started off with that foundational piece before I kind of
8 hand the baton over to Dr. Sturrock, who's going to be
9 providing some of the more recent information that I
10 think is really relevant that hasn't been in print yet.
11 But again hopefully will represent the best available
12 science in the near future for you to consider.

13 So what do we know? We actually know quite a
14 bit. We know that our Central Valley salmon are
15 incredibly diverse. We have life stages of salmon, both
16 adults and juveniles year around in the Central Valley.
17 And if you've been following Mike Dettinger's work,
18 looking at climate change and variability, you also are
19 very aware that the Central Valley has one of the most
20 highly variable natural precipitation regimes in the
21 country. And so we're not shy of mega-droughts, mega-
22 floods and these fish have evolved to deal with that
23 environmental uncertainty.

24 And one of the ways that they've dealt with
25 this changing environmental landscape is through these

1 juvenile outmigration strategies. And so the way that
2 they have -- salmon have evolved mitigating this risk of
3 this changing landscape is they send juveniles out at
4 different times and at different sizes for a given
5 population that spawned at a given time. So what I'm
6 showing you here is the different size gradient of what
7 salmon do.

8 So salmon will spawn in a river. Some of the
9 babies will leave as these tiny little fry, all the way
10 to spending a full year in a river before they leave.
11 And it's a way that salmon kind of reduce the risk that
12 happens in space and time.

13 And I wanted to share with you that our
14 research has shown that all of these strategies are
15 viable in the San Joaquin. I think there's this
16 perception, based on a lot of the work that has been done
17 on these larger size smolt and acoustic-tag studies, that
18 these little fry -- which are the dominant fish that
19 leave the system -- are kind of wasted. That Striped
20 Bass eat them. They're unimportant. And our research
21 has really highlighted that they can play a fundamentally
22 incredibly important role in the overall abundance of
23 fish that return to the rivers, as well as the overall
24 resiliency in the stock abundance.

25 So what I'm showing you here is a graph looking

1 at the proportion of fry in the survivors. So in the
2 adults that returned, you can see that in 2000 and 2003,
3 which is the published work that's been cited in the SED,
4 that up to 25 percent of adults that returned to the
5 Stanislaus River left the river at less than 55
6 millimeters, just the smallest little guys that I show
7 you. And they spent a lot of time rearing in the Lower
8 San Joaquin and in the Delta.

9 And so they can play a fundamentally important
10 role in the returning salmon that we've seen in the San
11 Joaquin. And Dr. Sturrock will go into how we kind of
12 evaluate and are able to review all these patterns. And
13 one of the important take-home messages about this story
14 is that the norms that we have in this system actually
15 influence the success, the expression of what fish do and
16 their success of those different strategies into
17 adulthood.

18 So what I'm showing you here is really two very
19 generalizable regrettably, graphs of flows. On this
20 Stanislaus River where on the left you have really wet
21 years, so you have flow and turbidity in red in 1999.
22 And you can see there in the shaded gray area that in
23 1999 we had really wet flow. It was a wet year, and so
24 the dams were releasing water just for flood control
25 purposes, right? We don't want to flood Stockton. And

1 in years like that we have these winter pulses. And then
2 we have these managed spring pulses afterwards.

3 And in these dry years we don't have that
4 winter flood release. It's just not put down the river
5 and we only have this managed spring pulse. So what
6 might that mean? Well, it turns out that when you
7 actually have these winter flows it cues a ton of these
8 small fish, these fry, to leave this system. So the
9 overall production that you have, you have nearly one-
10 and-a-half million fish being produced in this wet year.
11 And you have orders of magnitude less in these dry years.

12 And why that's important is because what we've
13 found in our research is that large numbers game that's
14 being played by salmon, just the sheer number of fish
15 produced from these rivers and just the survivorship of a
16 few of them, can be really important biologically to the
17 population.

18 And the role of kind of the flows and that
19 variance and that early winter pulses is also echoed in
20 work that Steve Zeug and colleagues have produced showing
21 that when you have cumulative discharge on the Stanislaus
22 River, you have increased survival within that river.
23 And that variance piece again, that kind of spiky
24 hydrograph in variation in flow, is really important in
25 overall survival.

1 MS. D'ADAMO: What timeframe are you looking at
2 here when you say early winter?

3 DR. JOHNSON: Oh, fair enough. Yeah, January
4 to March.

5 MS. D'ADAMO: Okay.

6 DR. JOHNSON: And Dr. Sturrock will show
7 specifically kind of that calendar base movement patterns
8 in the juveniles.

9 And so you've seen this graph. This is from
10 Dr. Sturrock's earlier work of adult returns. And one of
11 the points I wanted to add that hasn't been made to date,
12 is that it's not uncommon to have this sequacity in
13 salmon returns. This is a very, very common pattern we
14 see for salmon across an entire species range up into
15 Japan, Alaska, the West Coast of North America.

16 What is very different in the San Joaquin, most
17 studies will correlate the sequacity to ocean conditions,
18 can explain 99 percent of sequacity in salmon population
19 dynamics. What's incredibly unique for the San Joaquin
20 is this relationship is strongly explained by the spring
21 flows by those juveniles when they left the river and
22 successfully returned as adults. And you don't see the
23 same pattern on the Sacramento side. This is a very
24 specific piece to the San Joaquin that it looks -- it
25 appears that if you add a little bit of water to the San

1 Joaquin, because it's so water-starved, that the fish
2 really respond to that increase in flow.

3 I'm want to show here that this is in the
4 example that was also articulated that this is a year
5 where we know the ocean conditions for that adult return
6 were incredibly poor, which closed the fishery. So we
7 see this kind of exception to the flow rule, because it
8 really is explained by ocean conditions in that
9 particular year.

10 So before I pass the baton over to Dr. Sturrock
11 I just really wanted to mention, kind of in terms of the
12 last things that we know, is that these -- the flow knob
13 that we have control over really influences when fish
14 leave the system, how many leave the system and their
15 ultimate fate. And so I know that we're talking about
16 blocks of water, which are incredibly important. But I
17 want to just echo that this kind of early winter piece
18 and that variance in flow is incredibly important.

19 And Dr. Sturrock will talk a little bit more
20 about the science support for the salmons.

21 DR. STURROCK: Hi. My name is Anna Sturrock,
22 I'm a researcher at UC Davis. Thank you for having me.
23 I'm going to give a bit of information about the data and
24 the methods that we used. So today we're going to focus
25 on the Stanislaus River, but I believe that a lot of the

1 things we're finding there are probably also found in the
2 Tuolumne and the Merced.

3 So the first set of data I'm going to be
4 showing you is rotary screw trap data taken at Caswell
5 State Park, so sampling juveniles as they're leaving the
6 Stanislaus River. And from these rotary screw traps, we
7 get an idea of the number of fish that are successfully
8 leaving the river, the time in which they're leaving, and
9 size at which they left.

10 So Rachel's already sort of shown the same
11 plot, but now I'm just going to give a little bit more
12 information about it. So this is a wet year, 1999.
13 Where you've got this shaded polygon area is the flow in
14 the river in both plots. And the white bars are the
15 total passage, the total number of juveniles leaving.
16 And the red line is turbidity. And then in the bottom
17 plot you'll see the kind of mean size at exit. And
18 really all I'm trying to show here is that first pulse
19 really was the fry outmigrants that Rachel brought up.

20 And then when we compare it to also here we go.
21 Here's the fry kind of like peak migration period, the
22 parr and then the smolts. And so when we compare this to
23 our dry year, 2009, you see that basically there was no
24 migration until approximately kind of March time when the
25 fish are already parr and smolt sized fish. So we kind

1 of like lost that strategy.

2 And we see this in many of the wet and dry
3 years. And even in occasional kind of wet years the
4 timing of the flows are very important. So for example,
5 2011, we had not many fry outmigrants because the flows
6 came late. So timing of flows is definitely important
7 and definitely seems to cue outmigration of juveniles.

8 So the big take-home message here is that a) we
9 often see in dry years no fry are leaving the river early
10 in the season, because there's just no flow during that
11 time and no flow variability. And we tend to see fewer
12 fish leaving in these dry years.

13 And this is just a pattern across time, so it's
14 looking at the proportion of fry, parr and smolts in the
15 outmigrants over the years. And really the take home is
16 here is we do see this variance among years. But when we
17 imagine the spring upwelling in the ocean it is hugely
18 variable within a year. It's not necessarily the best
19 thing that we have this switching between a fry-dominated
20 year and a smolt-dominated year. It would be much better
21 if it was more kind of -- we had a representation of all
22 of these different kind of strategies.

23 But the take home message here is that we do
24 have this kind of switching among years and we see kind
25 of the fry versus smolts. And it tends to be that wetter

1 years with early winter flows that you'll get the fry
2 being produced.

3 So I sort of did a very course analysis, just
4 use mean flows during January to June to separate these
5 years into wetter and drier years. I used 990 CFS as the
6 cutoff base on the NMFS 2009 biological opinion above
7 normal, below normal sort of minimum fish schedules
8 flows.

9 And this is just to tell you that this is the
10 same plot that John Rosenfield showed you earlier. But I
11 think it's very, very striking that we really do see more
12 outmigrants per spawners in wetter years, which is the
13 blue line up there. And in dry years there seems to be
14 this strong carrying capacity within the Stanislaus River
15 that results in just fewer numbers of fish being
16 produced, independently of the number of spawners.

17 So I was kind of worried that this plot was
18 just being driven by just tons of fry in the three very
19 wet years: 1998, 1999 and 2000. So I did this same plot
20 for fry, parr, smolt outmigrants. And if it was simply
21 that the fry were remaining in the river to grow bigger
22 and then leave later, you'd see no difference between dry
23 and wet years for smolts and parr. In fact, you actually
24 should see more fish leaving in these larger categories.
25 But in fact we always see fewer outmigrants for spawners,

1 strongly implying that there's a significant mortality in
2 these kinds of low flow years.

3 So I will come back to the implications of that
4 later on, but I just wanted to also draw attention to the
5 work that we do using otoliths to reconstruct all of
6 these outmigrants, who are surviving, because we know we
7 can't put an acoustic tag in a tiny fry. But so we use
8 otoliths to reconstruct this information. And CDFW do
9 annual carcass surveys and give us scales, so we can
10 reconstruct the age of these adults. And we can work out
11 well what might a juvenile, the conditions that they
12 experienced. They do mark-recapture to work out the
13 number of adults and then give us otoliths to do our
14 work.

15 And we're very lucky. So these otoliths are
16 really amazing structures. They're calcium carbonate ear
17 stones in the inner ear of all fish and they use them for
18 hearing and for balance. They grow incrementally, so you
19 get an idea of the age of the fish from them and the
20 growth rates of the fish. And they also use minerals
21 from the water around them to grow.

22 So we're very luck in the Central Valley that
23 we've got this latitudinal grade in strontium isotope
24 ratios, which basically means that we've got a chemical
25 fingerprint, if you like, of each kind of river

1 signature. And, you know, we've all seen rivers, but
2 most of the main salmon producing rivers have their own
3 unique signature. So we can identify where the fish was
4 actually from, take away the strays, and then we can do
5 these really cool analyses to look at well, where did
6 they go in that juvenile period? It's almost like a
7 flight box recorder.

8 So I'm just going to -- oh yeah, I have to just
9 show you the instrument that we use. It's a laser
10 ablation multi collector inductively coupled plasma mass
11 spectrometer. I've practiced that a lot of times. And
12 this is how it looks in practice. So the image is a
13 sectioned otolith and you can see the daily rings on the
14 otolith. This is an otolith from an adult that spawned
15 successfully on the Stanislaus River. And we're looking
16 at a juvenile portion of the otolith.

17 And you can see the chemical output and the
18 graph above and the map shows you our interpretation of
19 the data.

20 So the first part of the plot is basically the
21 yolk-sac fry is using up the yolk. And because of the
22 fall-run fish, the yolk was made in the ocean. So it
23 starts high, basically. But now when the fry comes out
24 of the gravel, the value is a bang-on the Stanislaus
25 River, kind of mean signature. So we know that fish was

1 actually from the Stanislaus River. It wasn't a stray
2 from another hatchery.

3 And this individual did not stay in the
4 Stanislaus River for very long. Each spot is
5 approximately 10 to 14 days worth of growth, so it
6 actually left at about 14 days, post emergence. And then
7 reared in the South Delta San Joaquin River for about two
8 months, before moving very quickly out to the ocean. And
9 that's what we do with all of the otolith that we can get
10 from the carcass surveys.

11 And you get these outputs, like I just showed
12 you, and we're very lucky that the otolith size
13 correlates with the fish size. So we can identify in the
14 otolith where the fish left the river and then
15 reconstruct the size at which it left, so we can compare
16 these data with rotary screw trap data. And we can see
17 this individual left about 35 millimeters fork length and
18 the smolt outmigrant left at about 18 millimeters fork
19 length.

20 So how does this all help us work out what's
21 going on? Well, when we look back at the rotary screw
22 trap data, as I mentioned before we have these kinds of
23 usually the fry-dominated years or smolt-dominated years.
24 This plot shows the fork length at outmigration of
25 juveniles captured in the rotary screw trap. And yeah it

1 tends to be that the blue, the wetter years, have the
2 fry-dominated years, and dry years tend to be larger
3 fish. And but you can basically see it's very bi-modal.
4 You get kind of both small fish or very big fish.

5 But when we look at who survives, we actually
6 see while there is some evidence that there is kind of --
7 we see smaller fish surviving to adulthood from these
8 wetter years and the same for the dry years, we actually
9 see these kind of massive values around the middle
10 portion of the graph. And so actually in near every
11 year, or actually in every year, we have the high
12 survival rates with these intermediate size parr.

13 Now, if there was no sort of selection going on
14 these two plots would look identical and they clearly
15 don't. So we know something's going on downstream of
16 their natal river. And a hypothesis is that well the fry
17 being selected against -- well partly because they're
18 small, but also because there's now very little rearing
19 habitat for them down in the Delta and the San Joaquin
20 River.

21 While the smolts should be doing well because
22 they're large, they are leaving late and temperatures are
23 already high by the time they're leaving. And predation
24 rates are likely higher and water quality lower. So that
25 we think it's a time selection against the larger

1 outmigrants. But I'd just like to point out here there
2 was a danger that we'd sort of think oh it's all about
3 the parr. Let's just only manage for parr. But we
4 definitely see fry and smolts surviving in all years.
5 And we know that spring outwelling is a variable in every
6 year. So we don't know -- you shouldn't put all your
7 eggs in one basket, basically. And if we can try and
8 kind of improve survival of these tail ends it can only
9 be a positive thing in terms of risk spreading.

10 And also just pointing out that even though
11 yearlings are thought to be very rare in this system, we
12 do occasionally see them surviving into adulthood. So
13 there is diversity there. I just think we need to try
14 and help manage to promote it.

15 So bringing it back to the flow implications,
16 here I'm showing 1-day maximum flow in the Stanislaus
17 River before and after New Melones went in. And my only
18 point here is I mean these huge flows events that we've
19 lost is a positive thing in many ways, because they
20 obviously had detrimental flooding impacts and that's not
21 a good thing.

22 But they did also -- there were geomorphic
23 flows and so they also reshaped the river. So we're
24 talking so much about flow today, but I do think it's
25 really important that we also think about habitat

1 restoration, because they're not ever going to occur
2 again, these geomorphic flows. And so we kind of need to
3 think about flow and restoration as one thing. But we
4 definitely do see a reduced flow magnitude and variance.

5 And focusing on the study period that I've been
6 discussing, 1996 to 2014, we see consistently that the
7 plot on the right shows you the mean flows in the
8 Stanislaus River for January to June, looking at the
9 observed flows versus the unimpaired flows. And they're
10 consistently below that one-to-one line.

11 And the 7-day range, which is the kind of like
12 orange circles in that same plot just show you we're also
13 losing a lot of our variance that is important as a flow
14 cue for fish.

15 And then the plot on the left is basically
16 showing you that within an individual year you're really
17 losing that spikiness in terms of what the fish
18 experience, that kind of red lumpy bit at the bottom.
19 That was an extreme year, 2005, but it really just goes
20 to show that we're losing a lot of magnitude and variance
21 within years.

22 So our kind of hypothesis for how all this
23 comes together and affects fish is that when you have
24 reduced flow magnitude and reduced flow variance, you
25 lose habitat and instream carrying capacity. And there

1 are so many factors about flow that affect carrying
2 capacity. But together they do obviously impact on the
3 fish and we end up with fewer fish successfully leaving
4 the river. And this seems to be a real bottleneck.

5 We also, having reduced flow magnitude and
6 variance, also impacts these kind of flow cues. And so
7 the redistribution of juveniles is, I think, a really
8 important thing to reduce risk in terms of just having
9 them all rearing in a single location. Spreading them
10 through the system, because even though we know the Delta
11 may not be the perfect place for fry to rear, we do see
12 fry surviving. And we see a lot of them surviving from
13 the Sacramento Basin. So if we can improve conditions in
14 the south Delta, that could have a big impact on this
15 stage.

16 And also when you think about this life history
17 diversity in terms of resiliency, because a broader
18 window outmigration is also going to hopefully produce a
19 larger or more resilient population in terms of meeting
20 optimal ocean conditions.

21 And I won't go into this, it's basically the
22 opposite if we increase flow magnitude and variance. But
23 I do want to point out that this should always be done
24 with the help of habitat restoration, because a more
25 complex habitat does produce more fish as well, so

1 providing floodplains is also important.

2 So to conclude our three key messages are that
3 while contributions do vary among years, these different
4 strategies do always survive to a certain extent. So
5 they are all viable. We shouldn't focus on one
6 particular strategy or time of year. These early
7 dispersers leave in such high numbers, they could have a
8 real benefit to the populations. But they do require
9 some cueing of flow cues in this January to March window,
10 which currently are usually missing in dry years. And
11 hopefully with improved habitat and flows downstream,
12 they can really improve their survival rate.

13 And then the big take-home message is within
14 rivers that increase flow magnitude and variability, they
15 do improve juvenile survival resulting in more fish
16 leaving and more returns to the river. And they also
17 provide these important flow cues to redistribute
18 juveniles, make a broader window outmigration period, and
19 also provide different rearing opportunities for them to
20 encounter further downstream.

21 So I think those are my three big messages.
22 Yeah, and that's that. Thank you very much for
23 listening.

24 CHAIR MARCUS: No, thank you, very interesting.

25 Just a quick question, I know we're going to have to

1 spend -- there's a lot you packed in there, so we're
2 going to have to spend some time on it, but thank you for
3 also trying to make it intelligible and accessible for
4 us. But I know we're going to have to go back over it
5 and probably have more questions.

6 In some ways there's the question of magnitude,
7 obviously that's what most of the dialogue's been about.
8 But part of this morning we have been talking about at a
9 finer grade in the first two panels about all the myriad
10 things that fish may need. And what I'm hearing in this,
11 in addition to the -- setting aside the issue of total
12 magnitude also fits into the points the earlier panel was
13 making about how to be a little more specific in our
14 guidance towards shaping flows. O in what we would
15 accept in shaping flows and that it's not as simple as
16 putting all your bang for the buck in one pulse flow for
17 one life cycle.

18 DR. STURROCK: I agree. Yeah.

19 CHAIR MARCUS: Okay. I got diversity message.

20 It's interesting that so many fry survive,
21 maybe because they're so small they don't look like a
22 tasty smolt when they go by or something. I mean do you
23 have a theory or is it just numbers?

24 DR. JOHNSON: I think it's both numbers and
25 it's also they're leaving earlier, where the water

1 quality in the Delta is potentially better. It's not as
2 warm, so the predators also tend to -- their metabolic
3 rates increase with temperature, so if they leave earlier
4 maybe the kind of the predation impact might be lower on
5 them.

6 But it's also that you don't have occupied
7 territory. So that life history strategy -- you send
8 some downstream, salmon aren't in any of those
9 territories yet, so they can possibly occupy some of the
10 habitat that other -- that is not currently occupied. So
11 that's kind of the concept that's behind it.

12 DR. STURROCK: And I should jump in there.
13 The actual percent survival rates are very low for fry.
14 They're consistently the lowest, but when they do leave
15 the river they leave in such high numbers that they can
16 make meaningful impacts to the adult populations.

17 MS. SPIVY-WEBER: Are you incorporating climate
18 change into your theories, your hypotheses, and if so
19 how?

20 DR. STURROCK: Well, one of the things that
21 seems to be consistently predicted is less snow pack and
22 earlier, warmer rain events, which would in theory be
23 more important for this fry strategy.

24 So I don't know if you want to jump in there,
25 but yeah --

1 DR. JOHNSON: Yeah, I would add to that, we're
2 just kind of -- with climate change we know from climate
3 projections that the most southern range for this species
4 distribution is the San Joaquin population, right? So
5 they're at that edge of that physiological limit. And I
6 think as it gets warmer earlier we might see an advantage
7 of leaving earlier. And so if we wanted to put some
8 restoration into kind of diversifying and thinking about
9 those tails that might be a useful way of thinking about
10 it.

11 MS. D'ADAMO: Which is consistent with what
12 you're looking at right now in January through March,
13 yeah. I have a question about otolith, am I saying that
14 right?

15 DR. JOHNSON: Yes, that's right.

16 MS. D'ADAMO: Okay. What can that tell us as
17 far as so the example that you gave, you could tell that
18 that fish came from the Stanislaus?

19 DR. STURROCK: Yes.

20 MS. D'ADAMO: So it's a natural fish?

21 DR. STURROCK: Yeah.

22 MS. D'ADAMO: Right. And then do the numbers
23 that you have incorporate natural only, or do they
24 include --

25 DR. STURROCK: Yes.

1 MS. D'ADAMO: Okay.

2 DR. STURROCK: Yeah. So we do find a lot
3 untagged hatchery fish in the samples that we have to
4 remove. But the number we showed today were all natural
5 origin fish.

6 MS. D'ADAMO: Do you have information on the
7 comparison between natural and hatchery?

8 DR. STURROCK: Yes. What do you mean, a
9 comparison in terms of what they did as juveniles?

10 MS. D'ADAMO: Yes.

11 DR. STURROCK: Yeah. The hatchery fish tend to
12 just bump straight out of the system, because they're
13 usually large and ready to go basically.

14 DR. JOHNSON: And we should just also make
15 mention that the proportion of hatchery fish that spawn
16 on the Stanislaus is incredibly high. Upwards of 60 to
17 80 percent based on the constant fractional marking and
18 they're not all marked. So this technique is allowing us
19 to kind of figure out what the wild fish really are doing
20 and kind of decoupling it from just a bunch of hatchery
21 fish that do tend to return to the Stanislaus.

22 MS. D'ADAMO: And are you seeing that that's
23 just the first river that they hit, maybe, on return?

24 DR. JOHNSON: In terms of the strays?

25 MS. D'ADAMO: Uh-huh.

1 DR. JOHNSON: That's a more complicated answer.
2 There's a whole variety of fish from a whole variety of
3 hatcheries that show up on the Stanislaus. And there's
4 Brett Kormos and CDF&W have some really good constant
5 fractional marking reports that really summarize kind the
6 magnitude of hatchery string in the system, which is
7 pretty significant for a fall run.

8 MS. D'ADAMO: Okay. And a question for staff.
9 The number that we have on the expected benefits, the
10 chart that shows 1,103 fish for 40 percent, I think it's
11 19-2. Is that natural only or natural and hatchery?

12 MR. GROBER: Are you referring to the to the
13 SalSim results?

14 MS. D'ADAMO: Uh-huh.

15 MR. GROBER: But I mean, just it's important to
16 disclose that we present that then we ran the model.
17 There we identified a number of flawed efficiencies in
18 the model, that it's not capturing some of the expected
19 benefits changed temperatures and floodplain. That being
20 said, I believe it's for all fish.

21 MS. D'ADAMO: Hatchery and natural. Okay.
22 Thanks.

23 CHAIR MARCUS: Yeah. We'll spend more time on
24 that for sure. Other questions?

25 Thank you very much. That was really

1 interesting. I appreciate it.

2 The next set of speakers, I'm going to mention
3 all of you and then -- oh, what? This really is a good
4 email. And just get ready. Has Mr. MacLeod come back,
5 Mark MacLeod?

6 UNIDENTIFIED SPEAKER: No, he left.

7 CHAIR MARCUS: He did leave. Okay.

8 All right, Anja Raudabaugh. Oh, we've already
9 had Ms. Gail Delihant. All right. Gary Player, Heinrich
10 Albert, Keith Bennett, William Morris, Richard Denton,
11 Vicki E. or Vicki I., Barbara Barrigan-Parrilla and John
12 McManus.

13 So Anja Raudabaugh? Not here. Gary Player?
14 Oh, great. Gary Player followed by Heinrich Albert,
15 followed by Keith Bennett.

16 Hi, Mr. Player.

17 MR. PLAYER: Hi. I'm a geologist. I worked
18 Alaska for years. I love salmon, so don't misinterpret
19 any of my comments. The one thing I've noticed in here.
20 I live in Utah now, but I notice a terrible division in
21 the population in California between the fishery
22 specialists and the farmers, okay? And I've got an
23 opportunity to solve that for you. And I'd like you to
24 pay attention close.

25 There's going to be a lot more droughts in the

1 future and there's also going to be reductions in river
2 flows caused by agencies for good decisions that they've
3 made. So, we've got to figure out a way to replace that
4 water, all right?

5 So there's two shortages in California. Number
6 one is the water and number two is energy. I don't know
7 if you knew this, but 90 percent of all the natural gas
8 in the homes in this state is imported from Alaska,
9 California and the -- excuse me Alaska and Canada and
10 also Rocky Mountain states, so you've only got 10 percent
11 of your natural gas is local that you're using.

12 I've got a new process that's going to help
13 both of these shortages. It's called the dissolved gas
14 production. You get down below about 5,000 feet in the
15 San Joaquin Valley and the water is all saline. It's not
16 usable. It's not owned by anybody. It's just new water
17 if we could get it. But in that water, there is
18 approximately 1 to 2 percent of all the volume is made up
19 of dissolved methane. And that's only methane. There's
20 no heavier gasses. There's no oil. So it's pretty clean
21 stuff to burn.

22 So what we can do is produce a lot of this
23 saline water from these deep bedrock aquifers and then we
24 can desalinate it economically, using the gas that's
25 already there. It's not like we've got to bring the big

1 power line to desalinate it. We can use the natural gas
2 that's in this water. And one of the interesting things
3 about it is you get very many of these wells and they'll
4 make 1,000 gallons of minute. A lot of farmers know
5 that. But these wells are so deep that they will not
6 consolidate. They're in hard rock. So you withdraw some
7 of the water and you're not going to have subsidence,
8 which is a problem in much of the San Joaquin Valley.

9 Now a recent publication from a guy at Stanford
10 named Rob Jackson said that use of the saline aquifers
11 could quadruple the amount of water available in the San
12 Joaquin Valley. I love that he published it about the
13 same time I was coming to my conclusions. I'm going to
14 try to meet him later this week.

15 For example around Paris, each township's got
16 about 17 million acre-feet of saline water in that
17 interval from about 4,000 to 8,000 feet below ground.
18 I'm not making that up. I looked at hundreds of old oil
19 and gas wells that were drilled out there, so we know
20 that that water is sitting there.

21 Okay, so what are you going to do? You're
22 going to pump this water to the surface and you're going
23 to separate the gas out. In fact, the gas will just
24 virtually jump out. It's very simple. And the recharge
25 from the Diablo Range to the west is going to replace all

1 that water. There's about 320,000 acre-feet of recharge
2 in the Diablo Range every year. And that's about how
3 much we could produce in the western San Joaquin Valley,
4 just to take care of this water shortage. And there'd be
5 nothing better than to use that water to allow the
6 farmers to keep working and to allow the fish to keep
7 swimming. That's it.

8 CHAIR MARCUS: Interesting. Thank you.

9 MR. PLAYER: How about that? I beat it by six
10 seconds.

11 CHAIR MARCUS: That's impressive. That's your
12 technical acumen. That's your technical acumen.

13 MR. PLAYER: Would you like me to recite my
14 background?

15 CHAIR MARCUS: That's impressive. Thank you
16 very much, interesting.

17 Mr. Albert, great, followed by Mr. Bennett,
18 followed by Mr. Morris.

19 MR. ALBERT: I want to start by thanking the
20 Board and the staff for all the hard work that you folks
21 have done in moving this process forward.

22 I think that the panels we've heard today made
23 what was, at least to me, a very convincing case that for
24 environmental restoration of the rivers and the Bay-Delta
25 that we really need significant higher flows and probably

1 60 percent is the number that you folks have found
2 before. On the other hand, we heard from a lot of folks
3 in the ag sector who say that they need more water and
4 they want to divert more and not less water. And those
5 certainly are important needs too.

6 And I understand that your charge is to balance
7 these things as two co-equal goals. Balance the needs of
8 the environment against the human needs for water
9 diversions. And one might think, okay well it should be
10 50-50, 50 percent of the river should stay in the river.
11 But I would like to argue that there are human needs,
12 which are best satisfied by water staying in the river.

13 And I would give as examples -- and we've had
14 some other speakers on this today -- recreation and
15 tourism, which are very important. A lot of people in
16 California make their living off of those industries.
17 And people come to California not to see the dry San
18 Joaquin Riverbed down below Friant Dam, they come to see
19 the beautiful rivers and the environments that they
20 support.

21 Then there are people like me who live in the
22 San Francisco Bay Area where the health of that beautiful
23 Bay that we live on is very much dependent on fresh water
24 flows coming into that. And that's of value.

25 So I want to argue that in balancing human

1 needs and environmental needs, it really should be a
2 little bit more than 50 percent that stays in the river.
3 Thank you.

4 CHAIR MARCUS: Thank you.

5 Mr. Bennett followed by Mr. Morris followed by
6 Mr. Denton.

7 MR. BENNETT: Hello. My name is Keith Bennett.
8 I'm here as an individual. As a scientist, I found the
9 staff presentation to be informative and persuasive.
10 Preparation obviously required a tremendous amount of
11 work. The inputs of other organizations and individuals
12 add meaningful and relevant depth and detail. I would
13 like to state that my personal opinion is that I strongly
14 support the objectives of improving fish populations and
15 reducing salinity in the Delta.

16 I am a consumer of water. And as a consumer, I
17 have personally made efforts and investments to reduce my
18 personal consumption for both domestic use and property
19 irrigation. These efforts have reduced my consumption by
20 water of about 50 percent over a period of several years.

21 As a consumer of water I am concerned about
22 salinity. Santa Clara County, where I live, obtains
23 about 55,000 acre-feet of water, which is half of its
24 total supply from the southern Delta to support a
25 population of 2.9 million people as well as agricultural

1 production.

2 I'm also an indirect consumer. I eat
3 California-grown produce. It is my hope that food
4 producers and growers will make efforts to use water
5 efficiently and effectively and not see the choice as
6 either produce or fish. I eat fish, including salmon,
7 which is a natural sustainable food source, with
8 significant economic value. But to have salmon, we need
9 to protect the ecosystem in which it thrives.

10 In summary, I strongly support a science-based
11 approach to increasing salmon and other fisheries and
12 reducing salinity. Thank you.

13 CHAIR MARCUS: Thank you very much.

14 Mr. Morris followed by Mr. Denton followed by
15 Vicki.

16 MR. MORRIS: Madam Chair, Board members. My
17 name is William Morris. I am a farmer. I am here
18 primarily to be one of the heads that can be counted out
19 in the audience showing interest. But I listened to the
20 presentation here and I had a number of things that I
21 felt that just were not adequately addressed by the staff
22 members.

23 I had three things in particular. There was an
24 uncertainty by the staff regarding the effectiveness of
25 this Plan to make sure that the fishes actually do

1 double. My irrigation district says that they have a
2 better management plan. That's the Turlock Irrigation
3 District. They say from their experience and so forth,
4 that there should be timed releases and that they know
5 the way that it should be released.

6 Now, as far as these fishes are concerned, I
7 thought that the first panel did a rather good job of
8 addressing a number of issues. So I'm going to jump now
9 to the use of water at the farm level, which I didn't
10 hear anybody really talking about. For one thing, the
11 use of wells is a non-starter, because that's going to
12 deplete a limited amount of water that we have in the
13 ground and compresses the aquifers and they can't be used
14 any longer.

15 Percolation back to the groundwater -- that
16 just doesn't happen, because nowadays the farmers are
17 being told use less water. And so we have methods of
18 using less water, which do not include enough water to
19 percolate back into the groundwater.

20 Surface runoff, that isn't happening either.
21 We're already being told water will not leave our farms.
22 So I guess what you're talking about is the water that
23 runs on by in the canal. But that water is going to be
24 reduced as the farmers get very experienced at figuring
25 out just how much water they're going to have to grab in

1 order to manage their water resources.

2 The one that I thought was most significant,
3 though was that I don't think there was an understanding
4 of the farm business. And that when we grow crops, we
5 need a specific quantity of water. We need those three
6 acre-feet to grow our crops. And we're already not
7 getting three acre-feet all the time and so we have to
8 make do with less, which means we have to fallow fields.
9 And I'm already scrambling around to figure out how to
10 grow crops on my farm and finding out that if your guys
11 are going to take more water, flush it down the stream,
12 that's going to affect me. I'm not going to have as much
13 water.

14 And so the diversion of water is kind of like
15 teaching somebody to shoot a pistol. The thing is that
16 when you are shooting the pistol you're taught to first
17 bring in the slack and then start squeezing. Well, we've
18 been bringing in the slack. Farmers are learning how to
19 manage on less water. But then when we finally come down
20 to the place where you cross that place where the gun
21 goes bang, that's going to be a big bang. The farmers
22 are just not going to do anything. There's not going to
23 be any fallowing of fields any longer, because they can't
24 make money fallowing those fields. You can't make money
25 on 10 acres when you've got 100 that you've got to pay

1 your taxes on.

2 So you're not going to be paying your taxes.
3 You're not going to be making money. You're not going to
4 be paying the banks. You're not going to be doing the
5 obligations in the community. And so those people who
6 rely upon you, they're going to go out of business. So
7 the big impact, really, is the economic impact to the
8 farmers, which have not been adequately addressed by the
9 Plan. Thank you.

10 CHAIR MARCUS: Thank you. And I know we'll be
11 hearing a lot more about that through the course of the
12 hearings. Thanks.

13 Mr. Denton followed by Vicki, and you'll have
14 to explain to me if that's a last name or extension, and
15 followed by Barbara Barrigan-Parrilla.

16 Hello, Mr. Denton.

17 MR. DENTON: Good afternoon. Chair Marcus,
18 members of the Board. My name is Richard Denton. And
19 I'm here today representing Contra Costa County.

20 The County supports the State Board's proposal
21 to restore river flows in the San Joaquin Valley to
22 protect fish and wildlife and the idea of setting minimum
23 flow requirements based on a percentage of unimpaired
24 flow. We appreciate all the hard work that you have all
25 put in to get us to this point. However, we do oppose

1 the Board's proposal to degrade rather than improve water
2 quality in the south Delta by relaxing the April through
3 August Irrigation Water Quality Standard.

4 One other concern we have, or another concern
5 we have is that you're only proposing to increase the
6 flows on three of the four tributaries. Unfortunately
7 the most heavily impacted stream in the San Joaquin River
8 is the upper San Joaquin, below Friant. And it was a
9 salmon-bearing river before Friant Dam. It contributes
10 about 30 percent on average, of the total unimpaired flow
11 for the San Joaquin River.

12 So if you end up, for instance, setting a 40
13 percent of unimpaired flow requirement on the three
14 tributaries, that's only a 70 percent contribution from
15 the whole watershed. So 70 percent of 40 percent means
16 that at Vernalis you're only going to get 28 percent of
17 total unimpaired flow for San Joaquin, which is way less
18 than what you had proposed in 2010, which was 60 percent.
19 So you are missing out a key component of that.

20 The Ninth Circuit Court of Appeals did confirm
21 that the Fish and Game Code Section 5937 does apply to
22 the San Joaquin, below Friant. That led to a settlement
23 agreement, which you appear to be relying on to provide
24 some flows for the system. However, up until now we have
25 had basically no real flow improvements as a result of

1 that restoration. And unfortunately with a new federal
2 administration it could be stopped altogether. So that's
3 something that you're going to be missing when you do
4 this restoration.

5 Another part of this is that the past State
6 Board's -- previous Board's failure to require compliance
7 with the Fish and Game Code when Friant was built is
8 another problem, because in the future you're likely be
9 required to make a decision on Temperance Flat Reservoir,
10 which is upstream of there. So failure to set flow
11 objectives at this point could result in the State Board
12 doubling down on the mistakes of the past.

13 With respect to degradation of the south Delta
14 water quality standard, just because you're increasing
15 flows February through June doesn't mean that you will
16 end up with improved water quality in July or August, for
17 example, or September. And if you really do believe that
18 those increased flows are going to improve water quality
19 then there is really no need to relax that standard.

20 We have a number of other comments. We have
21 made them previously in the past and we will make them
22 again.

23 CHAIR MARCUS: I appreciate that and I'm sorry,
24 I know you wanted more time, but it was too late to give
25 it to you. But thank you, we'll look forward to those

1 comments.

2 Hi, Vicki followed by Barbara Barrigan-Parrilla
3 followed by John McManus.

4 MS. VICKI: Hi. How are you guys. Okay. I've
5 been sitting here listening to all this, taking it all
6 in. And I'm hearing about millions of dollars being
7 spent to flush at least 50 --

8 UNIDENTIFIED SPEAKER: What's your name?

9 MS. VICKI: Oh, I'm Vicki, (indiscernible)
10 thank you -- at least 50 percent of our water into the
11 ocean for fish. And I don't think it's all about fish.
12 I don't think anybody in this room are for dirty water or
13 dirty air, fish suffering, animals suffering. But I
14 recently learned that the allotment of water that's been
15 granted for this next year, 2017, has been increased to
16 20 percent, which is half again as much as it was
17 projected to be, which was about 10 percent from what I
18 heard.

19 And I just think wow, you know, when that 25
20 percent plus the farmers were losing and ripping up crops
21 and fallowing land and tearing out trees and these
22 brittle trees in piles, it's because they didn't have
23 enough water to keep them alive. And so they're losing
24 their land. The ranchers are losing their property.
25 Animals are suffering. People are suffering. Jobs are

1 suffering. And dairies are going under.

2 And this may be the intended consequences of
3 all of this in keeping with Agenda 21 and upcoming Agenda
4 2030. And I'm sure you all are lovely people, have
5 families who love you, and people who care about you.
6 And I'm sure not everyone in this body of bureaucrats is
7 this way, but it's difficult for me to view people who
8 craft this scheme as soulless individuals. I think of it
9 that way. And to sit here and look into the faces of
10 these people, that are being detrimentally affected by
11 this and decry the intended and unfortunately
12 consequences and the animal and human suffering by the
13 actions that are being taken, and I see it as criminal.

14 With all the respect that I can muster, who
15 does everybody think they are to have the right to tell
16 those with water rights how much of their water they can
17 have. You've all, I'm sure remember that you work for
18 us. We pay you. Your salaries, your pensions, your
19 perks that we don't even have ourselves. Some people are
20 struggling to have what they do have.

21 And our water is not the state's water. We
22 have the water rights, not the state. And certainly not
23 the EPA or a small body of unelected bureaucrats. This
24 is the way the Control Board with the emphasis on control
25 is humorous to me. This is why the state wants

1 agreements from people. And water districts shouldn't
2 have accepted the premise in the beginning that they
3 should come up with agreements and settlements. And I
4 think they should stop bargaining and start getting down
5 to business and fighting this. And use their consumers'
6 resources to take back our water and not give one more
7 drop. Thank you.

8 CHAIR MARCUS: Thank you.

9 Hello. Ms. Barrigan-Parrilla followed by
10 Mr. McManus.

11 MS. BARRIGAN-PARRILLA: Good afternoon Chair
12 Marcus and Board members. Barbara Barrigan-Parrilla,
13 with Restore the Delta. If you will remember at the
14 beginning of this year we sent to you a petition with
15 about 5,000 signatures, asking for these hearings in the
16 beginning of the Water Quality Plan Update. And so our
17 first words today are thank you. We are thrilled that
18 the process has finally started.

19 You'll also remember that early in the year we
20 sent dozens of people here who represented tens of
21 thousands of people throughout the Delta. And those
22 environmental justice representatives from the Delta
23 talked to you about sustenance fishing, fishing for
24 recreation, farm jobs, drinking water, water for salmon
25 and delta smelt. All of that is tied to quality and

1 quantity of flow in the Delta. And it's on behalf of
2 those hundreds of thousands of environmental justice
3 residents in the Delta that we offer a few brief comments
4 today.

5 First, in phase one of the recirculated draft,
6 SED, we found that there is no consideration given to the
7 environmental justice communities of the Delta in
8 Chapters 5 and 9. That's the hydrology chapter and the
9 water quality and groundwater chapter. In fact, we found
10 no real analysis in terms of impacts from the proposals
11 on drinking water and domestic use of water for the
12 environmental justice communities of the Delta.

13 Second, we have to ask the hard question. Why
14 export water, explicitly recognized and implicitly
15 benefited? Or to put it another way, is not being
16 discouraged as being made available for export, from
17 adding San Joaquin River flows. The San Joaquin River
18 must reach Chipps Island, in order to restore, protect
19 and preserve the entire estuary. So we ask what's the
20 true efficacy of this update to San Joaquin flow
21 standards, if unsustainable water exports from the Delta
22 aren't going to be dealt with?

23 Third, we do not want to see a weakening of
24 salinity standards in the south Delta. Water quality
25 standards have to be protected for agriculture and

1 drinking water supplies. We found the anti-degradation
2 analysis in Chapter 23 -- that Table 23.2 appears to be a
3 little bit misleading -- it produces an average annual EC
4 change of Vernalis instead of measuring the monthly
5 changes that we need to see. The analysis claims that
6 the increases in EC merely represent a shift in salinity
7 concentrations. We think that we need to see all that
8 data. We don't just want to see just the analysis. We
9 think the public has a right to see the data to know and
10 understand what has happening and to be able to evaluate
11 it for ourselves.

12 Last, we believe that water flows on the
13 San Joaquin River have to be adequate to restore and
14 protect fisheries and to protect the public trust values
15 of the Bay-Delta Estuary. Restoring 40 percent of
16 unimpaired flows will not accomplish this end.

17 We have more points to discuss, which we will
18 at future meetings and in written comments. Thank you.

19 CHAIR MARCUS: Thank you very much.

20 Mr. McManus?

21 MR. MCMANUS: Greetings members of the Board.
22 One thing I want to point out is -- well, I should start
23 out be identifying myself. I'm the Executive Director of
24 the Golden Gate Salmon Association. I come here today
25 representing our 3,500 members who are both sport and

1 commercial salmon fishermen, salmon fisherwomen and
2 related business.

3 CHAIR MARCUS: May I interrupt. I have an
4 apology to make to you, but I'm not sure entirely why.
5 But there was a hearing we had, not on this but on
6 something related and you and someone else had to leave
7 at 1:00. And I didn't call on you until about 12:30 and
8 you had gone. I just want you to know that I actually
9 was watching the clock.

10 MR. MCMANUS: Thanks. I think that was three
11 years ago.

12 CHAIR MARCUS: If you remember when that was,
13 but it a while ago. I still feel bad.

14 MR. MCMANUS: Thank you, Chairwoman Marcus. Do
15 I get 30 seconds back on the clock?

16 CHAIR MARCUS: You do. My interruptions do not
17 cost you, none of our interruptions cost you.

18 MR. MCMANUS: Okay. I wanted to applaud the
19 work of the staff. Great work. Everybody's moved the
20 ball far forward. One thing that might be missing is an
21 analysis of the economic benefits of restoring these
22 flows. I can tell you, we expect to see more salmon in
23 the ocean. And it will absolutely be economic benefits
24 accrued to the salmon fishery and to the communities both
25 on the Coast and in inland waterways who benefit from

1 that.

2 In general, the Golden Gate Salmon Association
3 supports the proposal, I would say with the caveats that
4 were presented by the NRDC TBI Panel. It can be
5 strengthened, but I think you're moving in a really good
6 direction.

7 The state recognized the groundwater was way
8 over-drafted when it passed the Sustainable Groundwater
9 Management Act. And I think what you're doing here today
10 is a recognition that we have over-allocated our surface
11 waters. And I actually don't envy the mess that you
12 Board members have inherited. It's something of a
13 thankless task, but I want to tell you that if we get
14 some more water and some more salmon, coastal communities
15 and inland salmon communities will be very thankful to
16 you.

17 We've had two bad salmon seasons in the last
18 couple of years. We're living on hatchery fish right
19 now. The wild fish basically are not reproducing in the
20 drought conditions. We need more water, obviously.
21 There's not much you can do about drought, but we're in a
22 period of sustained, chronic, man-made drought, as far as
23 salmon are concerned, because over-diversions of the
24 waters, which they need.

25 There's been a lot of talk about flow. I just

1 want to translate that into simple language. And that is
2 baby salmon, when they're three inches long, they need
3 fast murky water to safely get downstream to the Delta
4 and out to the Bay. They need to move fast. And the
5 murkiness, the turbidity, hides them from predators.

6 You'll hear a lot of our friends and neighbors
7 from upstream talk about it's really a predation problem.
8 It really isn't. There've always been predators up
9 there. And when you take away the natural tools salmon
10 have evolved with to avoid predators, it may appear that
11 we have a predation problem. But it's really a flow
12 problem.

13 I also want to echo a comment that was made
14 earlier about Fish and Game Code 5937, which requires
15 that fish downstream of dams be maintained in good
16 condition. I don't know anybody who's been in this
17 meeting all day today, who would argue that our fish have
18 been maintained in good condition downstream of the dams
19 in this state. This goes not only for the San Joaquin
20 Valley, but also for the Sacramento.

21 How we got into this situation, how all these
22 water diversions were permitted, in violation of 5937?
23 Maybe history will sort that one out. It's landed on
24 your desk and we hope that you're able to move forward
25 and address it.

1 Just finally I would say it appears that some
2 people will be hurt in this balancing. And since state
3 agencies got us into this mess, we need to have an open
4 mind for those who could get hurt in this process. Thank
5 you.

6 CHAIR MARCUS: Thank you for acknowledging
7 that.

8 All right, I want to invite the third panel up.
9 Thank you very much. Thank you all for your patience.
10 Come on up. I appreciate you allowing the public to
11 speak as well, in between.

12 MR. STOMPE: I thank you very much for the
13 opportunity to comment and the research that you folks
14 have done.

15 CHAIR MARCUS: Oh, you guys can sit if you
16 want. Do you want to come sit?

17 MR. STOMPE: My name is Brian Stompe -- I'm
18 sorry. I thought you said SIR, and I was with SIR and --

19 CHAIR MARCUS: Oh. I'm sorry. Why don't you
20 go ahead? Why don't you do your three minutes while
21 they're showing up since you're already there. I don't
22 want to invite everybody else to do that, but you can,
23 please go ahead. They can get their --

24 MR. STOMPE: Well, excuse me and thank you.

25 CHAIR MARCUS: Please, go ahead.

1 MR. STOMPE: Thank you. I appreciate the
2 opportunity. My name is Brian Stompe. I represent
3 Chapter 134, Sons In Retirement in Novato. We have two
4 fishing groups there. And we're of course interested in
5 the fish stocks. And we thank you for the work that
6 you've done. It's wonderful to see all the work that
7 other people have done. And having a process like this
8 where you can rationally work things out and try and
9 balance, which is extremely difficult, the needs that
10 everybody has.

11 The fact that we're building a tunnel for
12 billions of dollars is not going to bring one more drop
13 of rain or one flake of snow. And what we're trying to
14 do here today is talk about how we divide what water
15 there is and what runoff there is. And there just isn't
16 going to be any more and possibly less. So dividing it
17 and figuring out how you can conserve and divide it best
18 is important. But what we need, of course, is more
19 water.

20 I used to fly down to L.A. all the time from
21 San Francisco. And in the winter, I'd fly over arroyos
22 that were dry in the summer. They were as wide as this
23 room and sometimes wider and they were gushing with water
24 that was running out to the ocean. It was seasonal
25 rains. And I think we need to conserve those waters that

1 are now gushing out to the ocean.

2 We can spend billions on a tunnel; it isn't
3 going to create any more water. If we spend a few of
4 those billions catching this runoff -- and I'm not
5 talking about blocking running streams, I'm talking about
6 catching wasted runoff that goes into the ocean -- that
7 runoff, which is in the southern part of the state and
8 central part of the state isn't going to help people up
9 in the San Joaquin Valley perhaps. But it would reduce
10 the amount of water that they need in the southern part
11 of the state and the central part of the state, which
12 would mean of course mean that there was more for up here
13 and more for the fish. So we hope that you'll consider
14 catching water and conserving water and making more
15 water, not just dividing up the water that we've got.

16 In the newspapers every day, it's appalling
17 what people do in other parts of the world to resolve
18 questions. And it's so nice to see a situation like this
19 where in our democracy we have groups of people that are
20 using rational approaches to figure out what we should do
21 and everybody gets a chance to have their say. I'm very
22 happy to have spent three years in preserving that. And
23 it was well spent. Thank you.

24 CHAIR MARCUS: Thank you very much, sir. We
25 are actually doing a lot on storm water capture. And so

1 we can give you a link to our page there, but also talk
2 to you about it. And I agree with you on that.

3 Hi.

4 MR. SLOANE: Hi.

5 CHAIR MARCUS: Tim, you're the organizer of the
6 panel, so I will turn it over to you.

7 MR. SLOANE: Thank you, Chair Marcus and thank
8 you Board, for giving us the opportunity to speak today.
9 My name is Tim Sloane. And I'm the Executive Director of
10 the Pacific Coast Federation of Fishermen's Associations.

11 We're really pleased to present this panel
12 today. And the intent of thinking here is that we're
13 going to try and dispel the myth that this is farmers
14 versus fish, because there are really people on the other
15 end of the decision that you guys are really burdened
16 with making. And we appreciate all the work that you and
17 your staff are doing. We want to make sure that there is
18 actually a face to what's going on, on the coastal side
19 of this equation.

20 You've got a panel of experts from different
21 phases of the salmon fishery-dependent industry here.
22 We've got commercial fisherman, charter boat captain,
23 tackle manufacturer, wholesaler, direct consumer sales.
24 And I'll actually apologize. Kenny Belov was going to be
25 here today. He sends his apologies. His wife is ill, so

1 he's on kid duty right now.

2 I'm going to turn it over to Mike real quick,
3 but before I leave you guys I want to leave one little
4 stat, which is that since the last time the Board looked
5 at San Joaquin flows, in 1995, we've lost about 62
6 percent of salmon fishing vessels in this state. That's
7 a huge infrastructure loss. That's a food security loss.
8 These are sustainable fishery harvesters that we don't
9 have in the state anymore. These guys can illustrate
10 better than I can how that impacts them and how that
11 impacts their families. But I hope that you really take
12 the opportunity to let science guide you and do what's
13 right to restore these fish.

14 MR. HUDSON: Hello. Thanks for having me here
15 today. My name is Mike Hudson. I'm a commercial salmon
16 trawler. My wife and I together own and operate a 40-
17 foot commercial salmon boat. And we also operate a fish
18 cutting facility that's Health Department approved, where
19 we take our fish that we catch and prepare it for our
20 farmers' markets, where we then take the prepared fish
21 and sell it to essentially our neighbors. And our entire
22 neighborhood, who thinks that we're doing a fantastic
23 service for them.

24 And so I want to thank you for having me here
25 today. And I'm not only representing myself and my own

1 business, but I'm representing all these customers that
2 buy our fish. And I think I'm probably addressing the
3 Board here as much as the farmers in the room who are
4 very concerned about losing some of their water when any
5 kind of water restrictions come about. And I want to put
6 a couple of things into perspective.

7 I started fishing in the '90s and our fishing
8 season went from the 1st of May until October 15th, which
9 is five-and-a-half months. Then the old timers told me
10 in the 80s we used to start fishing in April. So before
11 I even started fishing our fleet lost about 20 percent of
12 their annual income. Then over the years we started
13 having closures in two weeks in June, two weeks in July,
14 which then takes another 20 percent of our time off the
15 water.

16 On top of that, we have areas where we're then
17 allowed to fish on the ocean and areas that are closed.
18 And essentially what it -- if I would put it in farming
19 terms, I'm not allowed to plow my best fields. And I've
20 got to go over in the rocky patch somewhere there's not
21 so much fish to be caught. Also, the closures happen
22 during the times when traditionally most of our fish are
23 being caught during the season.

24 So since the '80s, our fishing fleet, our
25 salmon fleet in California lost about 80 percent of

1 boats. From 5,000 boats we're down to a little over
2 1,000 boats, which is very, very drastic. If you're
3 trying to make a business out of this fishery, it gets a
4 little bit harder every year.

5 And when we started fishing, May, June, July,
6 we would have a lot of days where we would go out there
7 and catch 100 salmon in a day. And we were able to take
8 those fish to a farmers' market and sell them to our
9 customers for \$10 to \$15 a pound for fillets. And we
10 would have a line. We would have 40 people standing in
11 line all day long to buy some of this beautiful salmon
12 that we caught.

13 Over the last few years -- this last year,
14 which was pretty much the worst salmon season I've ever
15 actually participated in, my highest fishing day was 21
16 salmon. So now I'm burning more fuel. I'm spending more
17 days at sea to catch less fish and we're having to sell
18 that fish to our customers for a lot more money. We're
19 selling it upward of \$30 a pound. And that takes a food
20 that's supposed to be everybody's food, because that fish
21 is a public trust resource. It belongs to everybody,
22 right. And it takes that food and it turns it into a
23 food for just the rich and famous, essentially. And
24 that's a bad thing.

25 You know, our industry in its prime is \$1.4

1 million -- a billion dollars annually a year -- which
2 kind of pales in comparison when you compare it to
3 agriculture, which is over \$50 billion a year I believe,
4 right? But you can really compare our fishery to rice,
5 to tomatoes, in the economic value to our state.

6 So all these restrictions that we've been
7 seeing over the years that are getting worse and worse on
8 our fleet not all of them, but a good amount of them is
9 to protect spring-run salmon. The San Joaquin,
10 traditionally was a very strong spring-run salmon
11 producer. So when we get more spring-run salmon into the
12 ocean, we have more access to our fall-run salmon, first
13 of all. Also, it doesn't hurt if we produce another
14 100,000 fall-run salmon to actually be able to go out and
15 catch a fish again, lower our price for all these good
16 people that we're selling the fish to.

17 So thanks for having me. Thanks for your time
18 listening to what I have to say. And I'm going to pass
19 it on. Roger?

20 MR. THOMAS: Thank you. My name's Roger
21 Thomas. I represent Golden Gate Fisherman's Association,
22 who has the majority of the commercial passing fishing
23 vessels in Northern and Central California, primarily
24 fishing salmon. I'm also owner-operator of my own
25 commercial passenger fishing vessel, The Salty Lady. And

1 I'm Chairman of the Board of the Golden Gate Salmon
2 Association Directors.

3 I'm going to kind of go off subject here for
4 just a minute, 70 years ago I got acquainted with the San
5 Joaquin River salmon. That is when they turned the water
6 off on the Friant Dam. And my uncle took me over to see
7 it. And they let people, Fish and Game Department
8 removed the regulations for catching, and they let people
9 spear the salmon to take them home. And they were some
10 of the most wonderful-sized salmon I ever saw. They were
11 all like that. And the spring-run was a great run of
12 fish.

13 Talking to old time commercial people when I
14 finally started salmon fishing in Monterey Bay, they just
15 were really sad about what was going on with the spring-
16 run salmon. Unfortunately, many of our salmon runs now
17 are getting to the stage -- it isn't that the water's
18 turned off, but they're not getting enough water. And
19 I'm going to go to my little statement now.

20 I've represented the Golden Gate Fisherman's
21 Association as Director and President since 1968. In
22 that period of time I've been involved many of the
23 regulatory issues, habitat issues and other issues that
24 have caused many adverse conditions throughout the years.
25 Now we have some of the worst issues that fish have ever

1 encountered.

2 Salmon are the heart of the recreational
3 fishing business as well as the commercial fleet. Our
4 clientele loves the salmon fishery and everybody knows
5 the valuable healthy product it is for personal
6 consumption and health. Our business is directly
7 affected by seasons, catches and our fleet in many
8 instances totally depends on the salmon fishery resource
9 to provide for a successful season and business.

10 In regards to my vessel, Salty Lady, and my
11 business and the statement I just made on behalf of GGFA
12 certainly applies to the participation of customers
13 regarding salmon abundance, salmon catches and their
14 decision on going fishing. I believe it applies to all
15 of our membership. In most cases they are family
16 businesses and dependence on their salmon fishery
17 produces most of their livelihood. I urge an adequate
18 flow of water for the needs of salmon in the San Joaquin
19 system as recommended by salmon scientists.

20 And I have given you folks a list of our
21 membership. Also a list of past industry losses, which
22 in '08 and '09 amounted to 46 related business and
23 there's many businesses that are on the brink of not
24 continuing very much longer if the salmon resource
25 doesn't come back.

1 Also, I have one chart that I'll talk about
2 very briefly in regards to the commercial and sport
3 catch. And what I used was the year 2000 through '07 and
4 then we had two years closed and then 2010 to 2015. The
5 average harvest for a commercial fleet in the first
6 period of years was 318,998 fish. The average harvest
7 from '10 through '15 was 147,169 salmon. And the harvest
8 for sport was 130,848. And in the next series of six
9 years it was 51,087 fish.

10 In talking to Cal Fish and Wildlife yesterday,
11 they just have estimated numbers now and they haven't got
12 the final numbers, because they still have tags coming in
13 and logs from the sport boats. This year's catch for the
14 commercial fleet was 55,300 and for the sport fleet
15 36,500. So this chart illustrates the serious situation
16 that we have now.

17 And we urge the Board to go ahead and provide
18 some more water for our valuable resource and food.
19 Thank you.

20 MR. POOL: Am I on?

21 CHAIR MARCUS: You are, Mr. Pool.

22 MR. POOL: There's my slides, thank you. Good
23 afternoon. My name is Dick Pool. And I am a member of
24 the salmon industry. My business is Pro-Troll Fishing
25 Products located in Concord, California. We manufacture

1 recreational and commercial salmon gear and we sell it
2 worldwide. Our sales currently, are roughly \$1 million a
3 year. They used to be good in California. They're
4 almost nil in California now

5 I have prepared six PowerPoint slides to share
6 with you. I also submitted written comments that I hope
7 you have in front of you. The slides I'm going to have
8 to go through very quickly, but I back them up with a lot
9 of data in my written testimony that I refer to you.

10 The purpose of this hearing is to receive
11 comments on increased flows on the San Joaquin. I will
12 refer to flows on both the San Joaquin and the Sacramento
13 rivers. In some cases, the Sacramento is a better
14 example. For the record, we strongly support the Board's
15 increased flows. They can turn a lot of very bad
16 circumstances around.

17 First slide please. This is a macro slide
18 showing the overall export pumping between years 2000 and
19 2009. It also shows the number of salmon returns in that
20 same period. Between 2004 and 2008, you see a very steep
21 decline. During that period, there were no federal
22 restrictions on the pumping. As the pumping went up, the
23 flows for the salmon went down and you can see the
24 overall results. There are a number of reasons, other
25 reasons behind these, but this is just the overall

1 picture.

2 Next slide. This is a slide of my business.

3 The slide shows the percent of sales that my company made
4 in California between 2003 and 2015. In 2003, 23 percent
5 of our sales were in California. In 2015, there were
6 only 2.8 percent. The message on this slide is the bump
7 you see in 2012 and 2013.

8 In the spring of 2011, both the upper
9 Sacramento and the San Joaquin Rivers were running at or
10 near flood stage in the months of March and April. In
11 those same months, those are the same months that the
12 juvenile salmon started their migration down the river in
13 March and April. What happened is that millions of the
14 juveniles got pushed down the river, through the Delta
15 and into the ocean.

16 Three years later, when those salmon matured,
17 the harvest set a modern record. The fish were there.
18 The fisherman went after them. And my California sales
19 bounced back to 12 percent. This is a good example of
20 the relationship between increased flows and a healthy
21 salmon population and the businesses that support it.

22 Next slide. This slide shows the bump that
23 created the record harvest. It shows the average Keswick
24 flows during March and April, from 2007 to 2018. Each
25 year is on there and it's just two months, March and

1 April. You can see that in 2011, the flows increased
2 four times to an average of over 16,000 cubic feet per
3 second. The juveniles in that period got a onetime free
4 ride to the ocean and this is the example behind that big
5 bump in my business.

6 Next slide. This slide is a plot of the
7 abundance of the fall-run salmon in the ocean from 2000
8 to 2018. Abundance is a very important number. And it
9 is the sum of adding the number of harvested fish to the
10 number that return to spawn. In 2002, the ocean
11 abundance was 1.4 million fish. You see the big slide
12 down. And by 2009, it was only 44,000 fish. And that's
13 one of the years when we were shut down.

14 You can readily see the 2013 bump. The
15 commercial industry needs an abundance of at least
16 400,000 fish to operate successfully, which is the yellow
17 line on the chart. They would catch about 50 percent of
18 those fish or 200,000, and another 200,000 would return
19 to spawn. You can see that many of the recent years are
20 below the minimums. And that's in the red area. And
21 according the water for fish model, the blue section at
22 the very end shows that the returns remain grim.

23 The commercial salmon fishery is in very deep
24 trouble and desperately needs an early turnaround. You
25 can help. We're looking at a sustained period below the

1 time when the commercial season can operate.

2 Next slide. This slide is more bad news. It
3 was talked about earlier about the wild spawning fall-run
4 fish. This slide shows the natural spawning fall-run
5 fish that have returned each year. When this number goes
6 below 100,000 fish, there's a risk of extinction. In
7 2013, there were only 73,000 fish that returned as far as
8 that return to the Sacramento system and the near future
9 looks even worse. Bad ocean conditions, disease or more
10 drought could wipe out this run entirely. This is a huge
11 risk and probably the number reason why we would hope
12 that you would look very hard at some increased flows.

13 Next slide. Keys to San Joaquin success,
14 obviously number one is increased flows and we support
15 that. Number two, we're getting into habitat
16 considerations. And I put two other important habitat
17 factors in there, reduce entrainment and predation at the
18 pumps. Now you've seen all the studies and regardless of
19 what comes out of the San Joaquin, the survival through
20 the pumps is somewhere between 2 and 5 percent, certainly
21 an unsustainable fishery.

22 The last thing I put on there is eliminate
23 straying at the cross channel gates. I don't know if
24 you've heard the figures there, but the total air tag
25 give us the data between 50 and 75 percent of the adults

1 that return to the San Joaquin, are now straying through
2 the cross channel gates into the Sacramento River.
3 That's another problem we need to solve in we're going to
4 have the benefit of increased flows.

5 Let me just -- how are we doing on time, I
6 think we're okay -- talk a little bit about habitat. It
7 has come up a number of times. And I myself and a number
8 of us, certainly agree and thank you all that in your
9 reports suggesting that we need habitat items.

10 The salmon fishing industry itself has
11 identified, we started with 110 habitat projects, boiled
12 it down to 27 that we think are very, very key. And we
13 have identified 53 predation locations where hot spots,
14 where things can be changed and reduce predation.

15 A number of us are also starting to work, as
16 some of you have suggested, with the water contractors
17 and other trying to find cooperative things that we can
18 do. And the contractors have said if we can find the
19 right things, they are willing to try to help us fund
20 them. So we encourage you continue to talk about
21 habitat. A lot of the things we propose are still
22 sitting with -- a number of them have gone ahead and are
23 good. A lot of them are sitting unfunded, unsupported
24 and we know and understand you can't -- this isn't within
25 your purview, but please bully pulpit and help us get

1 some of these things going.

2 I thank you. I have put if anyone wants some
3 copies of my presentation, I put some copies on back of
4 the room. Thank you.

5 MS. D'ADAMO: I have a question for you. Can
6 you provide us with a list of the 110 projects and 27 key
7 projects and the predation?

8 MR. POOL: Certainly. The 110, that was
9 several years ago. We started to develop a salmon plan.
10 And we had the fish agencies, it wasn't their plan, but
11 they all helped advise, and we had the scientists' list
12 110 items. And then we boiled those down to the 26, 27
13 that could be done within a reasonable period of time
14 that would give us the biggest bang for the buck.

15 I could furnish the whole 110. I'd rather
16 furnish -- We're working on a list of all the good
17 habitat and other projects that are taking place that are
18 candidates for taking place now. But I can give you all
19 of those. It'll be another month or so. We've been
20 requested to list everything that's going on that can
21 help salmon. And we're working on that list. It'll be
22 probably 200 or 300 items. But I can furnish all that if
23 you'd like.

24 MS. D'ADAMO: Sure. And then how about on the
25 San Joaquin? I know a lot of your work has been on the

1 Sacramento.

2 MR. POOL: Well, the San Joaquin has a number,
3 as was mentioned earlier a number of good habitat
4 proposals. So they'll be on the list.

5 MS. D'ADAMO: Great, terrific. Thank you.

6 MR. POOL: Thank you.

7 MR. MOORE: Yeah. I was curious, Mr. Pool, if
8 you could expound a little bit from a business person's
9 standpoint, why is the San Joaquin so important given
10 your statement that Sacramento is where you're focused?
11 What would you tell folks, why?

12 MR. POOL: Well, I just used Sacramento,
13 because there's a little more data there that we can
14 analyze. But you put the San Joaquin together with the
15 Sacramento and when you talk abundance they're both
16 there. The wild fish are there, not in very big numbers
17 now. The hatchery fish are there. So I more or less
18 grouped them together.

19 But my thought is if we talk about flows in the
20 Sacramento, like there's a big bump. You know, we don't
21 need 16,000 CFS. Maybe we need some pulse flows and
22 strategic times on both rivers. That's been discussed.
23 But I just grouped them together. And I think the San
24 Joaquin is equally important for all the reasons that
25 some of the scientists outlined earlier.

1 MR. MOORE: Thank you. That's great to hear
2 that from you. You know, in our discussions about
3 habitat -- and obviously we've been very plugged into
4 those discussions and see the value of them -- but one
5 thing I've observed through the days and days of hearings
6 is the timing of habitat degradation going back 100 years
7 relative to the timing of flow alteration.

8 Have you thought about -- from your perspective
9 again -- has the habitat degradation been a recent
10 perturbation to the salmon fishery or is this something
11 that's been in place for many years. And somehow the
12 salmon fishery kept at a higher level through the '80s
13 and '90s and yet there's habitat degradation that had
14 already occurred?

15 MR. POOL: Well, let me describe where I think
16 the habitat degradation started. It was the slow
17 development of the water system, starting with the dams
18 and Shasta Dam on the Sacramento. Then the degradation
19 took place -- the Corps reclamation or the Army Corps
20 rip-rapping the sides of the river where -- taking away
21 the rearing and habitat areas for the fish along the
22 river.

23 The change in flows that took place, Shasta Dam
24 allowed the flows. Now they can be uniform. And we
25 talked about historically when the spring rains would

1 come and the snow started melting there'd be huge flows.
2 And the fish were automatically pushed down the river
3 when they were spawned.

4 So I attribute the start of the habitat
5 degradation was when the dams and the whole Central
6 Valley water delivery system was developed, a lot of
7 things -- and for many, many years salmon had no
8 consideration in that development. Not until 1992 when
9 Congress passed the Central Valley Project Improvement
10 Act. Does that answer your question?

11 MR. MOORE: Yeah. I just -- a lot of that
12 degradation had occurred and yet there was a very vibrant
13 salmon fishery industry for several decades. If you look
14 at the salmon doubling numbers that were presented
15 earlier and the testimony that there were 5,000 boats and
16 there was an industry. And yet was there habitat
17 degradation that led to that 5,000 to 1,000 decline, or
18 had it already occurred?

19 MR. POOL: In the 1980s, it was the heyday of
20 salmon fishing. And then I was on a panel that was very
21 involved in the winter-run being listed. And in the mid-
22 to-late '80s we saw a lot of degradation. The pumping
23 was increasing, diversions were increasing, unscreened
24 diversions were another big, big factor that contributed
25 to the degradation. But then we tried to avoid a listing

1 of the winter-run, but it finally got down to 191 fish,
2 we had no choice.

3 But all of that took place and when the winter
4 run was listed I was on a committee. We developed the
5 screening projects for GCID, the temperature curtain, we
6 scoped all of those projects just like we're scoping
7 projects now. We couldn't get any of them funded until
8 the winter run got listed. Then the federal government
9 stuck a \$1 billion in, fixed the temperature curtain,
10 fixed Iron Mountain Line, screened GCID, and did a bunch
11 of other things and the curve went like that. Then after
12 2002, it took the decline again.

13 MR. MOORE: Thank you.

14 CHAIR MARCUS: Mr. Johnson?

15 MR. JOHNSON: Thank you for having me. My
16 name's Paul Johnson. I have been a fish wholesaler in
17 the Bay Area for 40 years now. And I've seen --

18 CHAIR MARCUS: You're a fish celebrity.
19 Sorry, I live in the Bay Area. I live in the East Bay,
20 I'm sorry.

21 MR. JOHNSON: Good. I've seen profound changes
22 take place in the salmon industry since I've been
23 involved. And the most dramatic has been what's happened
24 to our local king salmon. I've watched the salmon go
25 from a pillar of the coastal community, an economic

1 pillar to complete commercial collapse in 2008-2009.
2 It's not that difficult to figure out why this has
3 happened, to quote the Chairperson we've simply diverted
4 too much water from our rivers for the fish to survive.

5 It's been economic disaster for the fishing
6 industry. We've gone from 10,000 active salmon permits
7 to less than 2,000 today. We've lost tens of thousands
8 of jobs, hundreds of millions if not billions in revenue,
9 local and state taxes, services. Thousands of businesses
10 have been impacted. At one time small businesses such as
11 my own were dependent upon as much as 35 percent of the
12 year's profit on a good salmon season.

13 And that's what put me in business was salmon.
14 But that's gone now, because salmon has turned into a
15 boutique fishery. There's not enough fish. The fish is
16 too expensive. It wasn't that long ago, one could walk
17 down to the docks and see hundreds of small boat
18 fisherman working local waters to feed their families.
19 There was a good bustling support industry, there was
20 people selling gas and beer and boots and just about
21 everything else. Plenty of jobs.

22 Now, I feel as if we're walking with ghosts.
23 There's nothing left of that. Boats lie idle. Support
24 businesses are gone. Just the small pier that I'm on in
25 San Francisco, which is about a quarter of a mile from

1 Fisherman's Warf there were six of us. Three of those
2 people have gone out of business since the 2009-'10
3 closure. They were mostly salmon dependent, but that's
4 what it did to -- and they took local jobs with them.
5 That's jobs, that's businesses, that's revenue.

6 But it's not only about jobs and money.
7 There's something about salmon, which is part of our
8 heritage, part of our culture, part of the definition of
9 who we are in California, in the Bay Area. It's as if we
10 lose salmon, we lose something as sacrosanct as the bald
11 eagle.

12 I think that it's something that for the future
13 we have to also be aware that we're in danger of actually
14 losing the most important estuary on the West Coast of
15 the Americas. If the salmon go what's to stop the rest
16 of the Delta from going? I feel strongly that we're in
17 danger. We're that close to losing the Delta itself.

18 I feel right now we have a once-in-a-lifetime
19 opportunity. I think what you're doing is really great.
20 I think that decisions that are made here and now will
21 impact decisions, which are made in the future. This is
22 not just an isolated case. Many decisions are going to
23 have to be made and those decisions are going to impact
24 the entire Sacramento-San Joaquin Watershed from the
25 mountains to the Farallons. It's going to impact the

1 whole State of California, the people of California,
2 everyone in California who values good clean water and
3 salmon.

4 I think that if we could bring back salmon, it
5 would inject thousands of jobs and millions of dollars
6 into the economy. It would allow small businesses such
7 as my own to create sustainable jobs from a renewable
8 resource. A resource that nature has laid at our feet
9 and said, "Here you go. It's free. Just don't mess it
10 up, that's all you've got to do."

11 So I'm here today to ask the Board to strike a
12 balance amongst beneficial uses of our water. A balance
13 that salmon fishermen, salmon, even many Delta farmers,
14 all of the Californians who value good clean healthy
15 water whether it be for recreation, work, drinking, would
16 all love to see a return of that balance that's been
17 missing for decades. For decades we've abused our
18 rivers, our streams, our fresh water. And I think that
19 it's just a compromise that allows only 40 percent of the
20 water to come down the San Joaquin is not going to do it.
21 It's just not enough water to return the salmon.

22 I'm asking the Board to abide by your own
23 research and allow 50 to 60 percent of the water to come
24 down the streams, the tributaries, through the San
25 Joaquin to the Delta to restore salmon and fresh green

1 water for all Californians. And we'll thank you for
2 that. Thank you very much.

3 CHAIR MARCUS: Thank you.

4 Miss Finn?

5 MS. FINN: How's that? All right, my name is
6 Maria Finn. I spent my youth working on an all-female
7 salmon fishing boat, up in Alaska. I've been an author
8 and a journalist and I'm currently the Director of
9 Marketing for Real Good Fish. We're a community-
10 supported fishery based in Moss Landing, so that's right
11 on the Monterey Bay. We have about 1,200 members that
12 get weekly subscriptions to seafood. Fresh seafood that
13 we deliver, drop sites - they may be by gyms, community
14 centers, libraries, private homes. People go and get
15 their fish from a cooler once a week. They get a
16 newsletter the day before. It tells them what kind of
17 fish, who caught it, how they caught it, with the recipes
18 and handling tips.

19 And so we buy from about between 20 and 50
20 fisherman up and down the coast. We buy from Fort Bragg,
21 all the way down to Santa Barbara. And part of our value
22 proposition we really want people to learn about the
23 ocean and about the water ways by how they eat. That's
24 the most visceral connection really.

25 So we try to educate them on what's happening

1 on things like domoic acid in crab or the sardine fishery
2 being closed. They learn about that. Even storms, the
3 boats can't go out. A lot of people don't think about
4 that with seafood, how that might happen. And then of
5 course the drought with salmon. Salmon is by far our
6 most popular fish. It's our biggest spike in revenue
7 over the year.

8 We use every part of it. We make ikura eggs.
9 People buy that. We make salmon burger out of the spoon
10 meat. We smoke the bellies. We smoke the collars. It's
11 one of those fish that -- I'm sure you guys know this --
12 but 136 creatures depend on this besides us, it's
13 Eucharistic in nature. It's an incredible creature.

14 And then we give the heads to local organic
15 farmers and they use it in their fields. And so some of
16 the farmers, we partner with. They have CSAs. So they
17 are doing drop box of organic produce throughout
18 California as well, so we share drop sites. Sometimes
19 they buy our salmon. Sometimes we buy their produce or
20 their meat and so we work together. So I don't really
21 consider this an us versus them, fishermen versus
22 farmers. We're all part of the watershed.

23 And so another program we have at Real Good
24 Fish is called Bay to Tray. So we get a fish that
25 doesn't have a market, that's under-utilized. One of

1 them is Grenadier. It's very ugly. It is the by-catch
2 of the Black Cod industry. So we purchase that. We have
3 it filleted at our local processor in Watsonville and we
4 provide it to public schools. They use it in school
5 lunches. And it is part of the initiative called
6 California Thursdays to bring local food into California
7 public schools.

8 So we've been told we can't scale this, because
9 only in California will schoolchildren choose fish tacos
10 over pizza. But we think it might be possible, so we've
11 gone into a -- we've been in Oakland Unified School
12 District, Monterey Peninsula, Santa Clara, Pescadero, La
13 Honda. We are trying to expand statewide to reduce food
14 waste. And so that our children actually learn about the
15 ocean through their seafood as well.

16 And so we've received numerous grants where we
17 send fisherman into the classrooms to talk about their
18 jobs. And of course all the questions are usually "Have
19 you even seen a shark?" No, we don't fact check our
20 fishermen. So but the children, they get very excited.
21 They take lingcod and squid in with them. The kids get
22 to touch it. It's really a great program. In fact our
23 founder, Alan Lovewell, just received an award at the
24 Whitehouse, a Champions of Change Award for sustainable
25 seafood.

1 And one thing we're trying to is we're trying
2 to brand and story our sea foods for our amazingly iconic
3 beautiful places in California. So we have sand dabs and
4 other under-loved species. We call ours Big Sir sand
5 dabs. We all our Black Cod, Carmel Canyon Black cod.
6 Our salmon, we have to call it just California King
7 Salmon, because you get to the rivers people start
8 saying, "Well, it didn't really go up that river or that
9 river."

10 But what we want. What we're really proud of
11 is that California has some of the strictest rules on
12 sustainability. So we are actually competing with
13 imported seafood, 90 percent of the seafood consumed in
14 the United States comes from other countries. The vast
15 majority of that is from Asia. The vast majority is
16 farmed. As you guys have seen in the news recently,
17 there is a lot of slavery going on in Thailand on the
18 fishing boats. There's a lot of pirate fishing. There's
19 a lot of untraced seafood. A lot of children peeling
20 shrimp in southeast Asia.

21 So everything we're doing is we're trying to
22 shift the way the United States eats seafood,
23 particularly in our communities. But we find is what
24 happens if we lose a species, sometimes that can happen
25 due to say overfishing, with Rockfish we saw that

1 collapse. They were limited. It got red listed with the
2 Seafood Watch. It's incredibly difficult, from a
3 marketing perspective, to bring back a species.

4 So if we lose salmon, what will happen is cheap
5 imported farm salmon that is devastating to the
6 environment will replace it. So we will lose the jobs.
7 And then we will have this cheap replacement for it.
8 It'll be very difficult to bring the market for that
9 back. But even more difficult will be the infrastructure
10 that we lose.

11 So a lot of our coastal communities are now
12 trying to form kind of cooperatives, so they can bring
13 back ice machines. Morrow Bay just spent a million
14 dollars on an ice machine, so this is no small thing.
15 Also, to have a hoist. The Santa Cruise Harbor does not
16 have a hoist. They've said if you guys will come and
17 haul the fish up, we'll sell it to you, right?

18 So we have also trucking and shipping and all
19 of these things and these are all not just jobs, these
20 are infrastructures. So if we lose a species, then we
21 lose these infrastructures.

22 So this is something that, like I said, I
23 actually come from the Midwest and I come from a farming
24 background. And my heart goes out to people who are
25 suffering and really I know it's hard. It's very, very

1 difficult to make a living on a farm. But I don't think
2 this comes down to fishing versus farming. I really
3 think this comes down more to sustainable food systems
4 and unsustainable food systems. And the way that the
5 planet is moving right now, with climate change, with our
6 realization of cause and effect, we really have to move
7 toward sustainable food systems. And we really have to
8 stop food waste in our food systems as well.

9 And so this is something that, when we talk
10 about salmon, that they not only enrich everybody in this
11 industry, they not only keep these industries alive, but
12 they actually help so many other species. They help keep
13 our water ways and our farms healthy. So thank you very
14 much for your time, for your consideration in this
15 matter.

16 CHAIR MARCUS: Thank you very much.

17 Mr. Sloane, is that --

18 MR. SLOANE: I have to speak again?

19 CHAIR MARCUS: No. I thought maybe you were
20 being the emcee and letting everybody else go first. And
21 you beat your time, which the people behind you will be
22 very pleased about. Thank you --

23 MR. SLOANE: Well --

24 CHAIR MARCUS: Go ahead.

25 MS. SLOANE: Thanks a lot Chair Marcus, we

1 really appreciate the opportunity. And I will say that
2 we beat our time because two people dropped off the panel
3 yesterday.

4 CHAIR MARCUS: I'm just trying to give you
5 credit, you know? You can take it or not.

6 MR. SLOANE: Thank you.

7 CHAIR MARCUS: No, thank you very much for
8 putting a face on it, appreciate that.

9 We're now going to take a 10 minute break.
10 Let's say we'll be back at 3:35 on the red clock, not on
11 the back clock.

12 [Off the record at 3:24 p.m.]

13 [Back on the record at 3:40 p.m.]

14 CHAIR MARCUS: I'm just going to go ahead and
15 you can listen on the order. Again, I've done these all
16 on the order they've come in, other than the move of some
17 of the Hilmar Future Farmers up. So this is the order we
18 will be in.

19 Anja Raudabaugh, I understand that she is back.
20 So she will be on, followed by Don Franklin,
21 Patti Regehr, Dave Warner, Tim Goodson, Dan Bacher,
22 Steve Starcher or Starker, Hicham ElTal -- I know I
23 should have that right. I'm so sorry, I should know by
24 now -- Peter Kampa, Regina Chichizola, Robert Gallian,
25 (sic) Katie Haldeman, Robert Dylina, Mike Carpenter, Ken

1 Elwin, Michael Warburton and Michael Boccadoro. And I
2 will keep doing them in the threes. I just wanted to
3 give you a sense.

4 I saw you walk in earlier. Thank you. Come on
5 up. Hi, Ms. Raudabaugh. Thank you for coming back and
6 thank you for giving me the phonetics pronunciation of
7 your name --

8 MS. RADABAUGH: That's helpful, no problem.

9 CHAIR MARCUS: -- lest anybody be impressed
10 that I got that right. It's because she gave me the
11 phonetics spelling, which is very kind.

12 MS. RADABAUGH: Well, I appreciate the
13 opportunity to speak today. My name is Anja Raudabaugh.
14 I am the CEO of Western United Dairymen, which is the
15 largest dairy trade organization in the world actually,
16 California specifically though. We represent over 800
17 dairies of the few 1,400 that are remaining. So I'd
18 again like to take the opportunity to point out that the
19 Board has graciously allowed me a longer presentation in
20 the Modesto hearing, so I don't know if this is going to
21 conflict with that. Am I allowed to --

22 CHAIR MARCUS: Well, since you are the only
23 person who asked and you were here and we're having a
24 pretty balanced set of players, which won't happen
25 everywhere, I thought I would let you --

1 MS. RADABAUGH: I don't want to double there.

2 CHAIR MARCUS: -- in the bigger, in the ones
3 that are going to go until late at night I wouldn't have
4 done it.

5 MS. RADABAUGH: Okay. And respectfully, I do
6 hope that I see all five of you at the Valley
7 presentation. We really look forward to seeing you on
8 our home turf. But specifically today, the presentation
9 -- I don't want to be redundant in the comments -- the
10 dairy industry is shrinking. And I think that
11 economically, we could take every single discussion point
12 that we've heard today as it applies to several other
13 industries, and apply it to the dairy industry.
14 Since 2005, we have lost over 50 percent of the dairies
15 in California. We were at over 2,500. As of this year,
16 we are under 1,400. Between January and July of this
17 year we've lost 53 dairies, according to CDFA data.

18 But specifically, I wanted to point out some of
19 the general nature of our commodities and the dual
20 purposes that a lot of biomass serves to the dairy
21 industry. So we use approximately 3.5 billion pounds of
22 almond hulls. That is a byproduct that otherwise would
23 not have any home except to be burned as biomass. So the
24 dairy industry has moved its green footprint, or green
25 hoofprint, as people like to say, in a direction that we

1 are very proud of.

2 Another thing that as it relates to this
3 proposal, we do receive tens of millions of dollars in
4 grants towards better and sustainable water efficiency
5 technology. And again, we have been progressively moving
6 in that direction. So we are very cognizant of what
7 reduced flows would do, specifically to the Central
8 Valley. And the possibility that our forages, which are
9 a major feed stock for our cows, would be impacted is a
10 very real threat to us. And I am prepared to give you
11 quite a few more economics backing that up.

12 But we use a tremendous amount of forage
13 commodities to balance our cow's diets, depending on the
14 end product, whether its cheese or yoghurt or ice creams
15 they are fed differently. And so we tend to rely very
16 much on what I believe staff has indicated is a lower
17 value commodity. The grains, the corns, the silages, the
18 alfalfas. Those are a huge staple for our cows.

19 And respectfully, my membership is very alarmed
20 by the proposal. We have been following it for many
21 years. This is a rural cry for social justice, from most
22 of my dairy communities that feel that they have been
23 under-prioritized on a variety of different levels. So
24 we are looking forward to offering solutions as part of
25 our economic proposal that will hopefully help the Board

1 arrive at a more definitive conclusion that's better for
2 one of what we call the keystone commodities in the
3 Valley. Thank you.

4 CHAIR MARCUS: All right. Thank you very much.

5 MS. D'ADAMO: I just think that this is a
6 really important issue. And not to take up time now, but
7 just to get whether its staff and then also your industry
8 to give us a sense of what a dairy will do with their
9 forage crops if there's an assumption that they will sell
10 the water to the highest bidder, when they're going to
11 end up with a loss of feed for their dairy. So some way
12 to make that real in terms of what's the acreage out
13 there that is owned or under control by these dairies as
14 opposed to purchasing it from other growers that are in
15 the area. And I have no sense of what that would be --

16 MS. RADABAUGH: Sure.

17 MS. D'ADAMO: -- but if you could help to shed
18 some light on it I think it would be helpful.

19 MS. RADABAUGH: At this time or later?

20 MS. D'ADAMO: Oh, later. In Merced or Modesto
21 or wherever you plan on doing your presentation.

22 MS. RADABAUGH: I am so happy to do that. I
23 certainly can tell you right now that we cannot afford to
24 buy it. That's what makes dairy a kind of a boutique
25 community and a boutique industry is that we are very

1 self-sustaining. And so if we don't have access to the
2 water to our forage crops, the cows will just be sold.

3 MS. D'ADAMO: Interesting, thanks.

4 CHAIR MARCUS: Hi, Mr. Franklin followed by
5 Ms. Regehr followed by Mr. Warner. Hi.

6 MR. FRANKLIN: Hi, good afternoon.

7 CHAIR MARCUS: I want to know what fish is on
8 your sweatshirt, because I can't see that far anymore.
9 Is it a salmon?

10 MR. FRANKLIN: It's one of those like wild
11 salmon, not the Trader Joe's variety that you see.

12 CHAIR MARCUS: Yeah. You don't see them with
13 the fins all the time when you're --

14 MR. FRANKLIN: That's true.

15 CHAIR MARCUS: I'm a city girl.

16 MR. FRANKLIN: I understand. I'm from the Hood
17 myself.

18 Okay. My name's Don Franklin. I own the
19 charter boat "Soul Man," out of a little harbor called
20 Fisherman's Warf in San Francisco. And I'm in support of
21 the Plan. In short, I've heard the pain. I've seen the
22 pain. I've seen the pain of the fishermen. For much of
23 the testimony of what could come to farmers, that has
24 been the reality of the commercial fishermen on the
25 Coast. This year with shortened crab season, no crab

1 seasons, no salmon seasons, bad salmon seasons we've had
2 people literally sell their boats, lose their houses and
3 there's been food lines to help the fishermen in places
4 like Bodega Bay.

5 Growing up in San Francisco we had probably a
6 little over 30 charter boats. Now, right now we have
7 seven of the big boats and we have six of the smaller
8 six-pack boats like I own. In my own lifetime, I've seen
9 what the change is of salinity in the Bay. We used to
10 fish a place called California City, along the Tiburon
11 Coastline. And it was to change of fresh water to salt
12 water where we could catch spawning salmon. And guys
13 that had the smaller boats could go out and actually get
14 a chance of catching a very large fish. It doesn't
15 happen there anymore. That change now is up in Benicia.
16 That's how far up it's gone. I have friends that have
17 told me they've caught Leopard sharks as us as Benicia.
18 It's not where they're supposed to be.

19 The guys that would fish shrimp, for the Bay
20 shrimp for us, and get the grass shrimp we're down to
21 about two boats now, from down to seven and eight. And
22 it's harder and harder them. I've seen the pain of how
23 much people are no longer getting because of salmon. And
24 we need the river flows in order to keep things going.

25 I can't tell you when I get up in the morning

1 my one-little person operation, it supports the toll
2 taker, the Starbucks guy, the people from the hotels that
3 affect us. I'd imagine this whole process is supporting
4 a ton of litigation and lawyers. So there's a lot of
5 jobs around these salmon.

6 MR. MOORE: And a lot of Starbucks.

7 MR. FRANKLIN: I have to tell you again, every
8 time when I hear about people's crops and harvesting,
9 that what we do. Our crops are salmon. Our field is the
10 Bay, it's the ocean. And when it hasn't been maintained,
11 this is what we have. And you guys will have the
12 decisions to ensure that we can keep going.

13 In short, I'm going to finish one thing and I
14 hope you can see this picture. This young 16-year-old
15 girl, can you see it? Her name is Victoria, otherwise
16 known as the deck princess on my boat. She is my deck
17 hand. And this summer this is how salmon impacted her.
18 She got accepted, at 16, to go to UC Riverside with a
19 full ride. She had to make money to get her room and
20 board. She did that on the back of the boat cutting
21 fish, working with the customers. And hopefully right
22 now she better be in her dorm room as far as I know.

23 But this is how salmon fishing affects people.
24 And she comes back for her first weekend home and the
25 first thing she texted me is, "I miss you. When are we

1 going fishing? I got to make some money." So this is
2 how it affects people right here. Thank you.

3 CHAIR MARCUS: Thank you very much.

4 Ms. Regehr followed by Mr. Warner followed by
5 Mr. Goodson

6 MS. REGEHR: Hi, I'm Patti Regehr. And I guess
7 I'm here today, because it's giving Tuesday. And my
8 family -- on both sides of my family and my father's side
9 of the family are farmers -- and they came from Missouri
10 to California during the Dust Bowl. And so I've seen and
11 experienced the pain. My mom's side of the family, my
12 great grandmother was 100 percent Cherokee. And so I've
13 seen a lot of pain on many sides.

14 But I think right now, I'm sorry but I think
15 sustainability is what we're looking for here. And I
16 think I love almonds, I love dairy, I love salmon, but I
17 also love the rivers and what it brings to everyone. And
18 I think that to me is why I'm here today is because I
19 want to give back. And I think that and rivers are very
20 important to save. And I think that agriculture is very
21 important, fishing is very important, but I think that
22 once we lose the salmon everything else will start
23 falling down.

24 And I've been watching you guys. I really
25 appreciate all the hard work you guys have been doing.

1 And I'm grateful that I could come today at the public
2 hearing, because I think if we use science more than as a
3 basis more than economic or emotional -- even though I'm
4 crying -- emotional pulls, I think that it will win out
5 all of us tremendously. Because I think that since World
6 War II, our rivers and salmon have been -- because of
7 fast electricity, lower cheap electricity, economic
8 development -- I mean our salmon have been losing out for
9 some time.

10 And I think that -- and the rivers -- and I
11 think that this is an opportunity. And I know it doesn't
12 seem like an opportunity, but if we increase it to 50-60
13 percent we're going to really see something big, with the
14 salmon. But if we do 30-40, you know 40-50, everybody
15 must be like kind of upset, because the farmers aren't
16 going to get what they're wanting. The salmon aren't
17 going to really be growing. So I think that this is a
18 time that we just go for it and give -- and say, "Let's
19 just try it."

20 And let's just work with the farmers. Let's
21 have everybody work together and try to figure out
22 innovative ways to bring water and help farmers grow, but
23 -- and I think that's the opportunity now, because if we
24 just do 40 I don't think it's going to please anybody
25 that much. So I just want to say thank you very much and

1 I appreciate everything you guys have been listening and
2 doing.

3 CHAIR MARCUS: Thank you very much for coming.

4 MR. WARNER: Hi. My name's Dave Warner. I
5 grew up in Orange County. My brother, his wife and
6 family still lives there. My mom still lives there. As
7 part of that we are big supporters of the state water
8 project. Remarkably they are drinkers of recycled water,
9 which I find hard to imagine, but they do it, which is
10 wonderful.

11 I went to college at UC Davis. I have a degree
12 in agricultural economics and so I have huge respect for
13 California's agriculture and am very proud of what
14 California does in agriculture. And then in the last 30
15 years I've lived in the Bay Area and I've been in the
16 technology industry and I think one of the most amazing
17 things I've learned is that experience is the innovation
18 and just how we are amazing at innovating. And I think
19 even today we just heard this gentleman here, I cannot
20 imagine methane and saline water, what a curious idea.

21 So anyway to my comments, first I'd like to say
22 it's really an honor to be speaking to you guys. The
23 process you've laid out here is wonderful. I thought the
24 2010 report that you did was just a great foundation and
25 I really appreciate the science orientation. I've had

1 several people say to me that the proposal you have out
2 in front of us today has a bunch of innovative ideas,
3 which is just outstanding. So thank you for all of that.

4 I will say in my opinion in reading the 2010
5 report and reading the Executive Summary and trying to
6 make sense of it all, it does seem like we'll have a hard
7 time achieving our fish population growth with the
8 alternative three that you guys are recommending. So I
9 would sort of ask you to look at that.

10 My main points however, are the first one is it
11 seems to me that California people as a whole -- and
12 we've certainly heard exceptions -- have said, "We want
13 to protect our fish." And it's hugely important to
14 protect our fish. And I think we've seen that through
15 voting. We've seen that through legislation. And we've
16 seen that from remarkable investments. And we've seen
17 that through -- oh they've left -- just incredible
18 scientific analyses. So I think that's something where I
19 think you guys have a responsibility to help us protect
20 our fish. And so please make decisions that meet that
21 will of the people. That's my first main point.

22 My second main point is if we're going to
23 improve the flow for fishes let's make sure we get it
24 right. You know and right now my brother, and actually
25 most all my family, they have rain barrels to collect

1 water, they take Navy showers, they have a bucket to
2 catch the water before it gets hot in the shower. You
3 know, we're all doing these things. If we set an
4 objective that we think might do it, but turns out not to
5 be, then several years from now, we'll be sitting or
6 standing right here having the same discussion about
7 further improving our water flow, so that we get the
8 salmon to survive.

9 So let's get it right now. And let everyone
10 figure out now what we have to do and what the
11 innovations are that we need now. So really my second
12 and last point is let's get this right this time. And
13 let's take this as a key foundational piece that we can
14 build so many things other things on.

15 And I've used up my time. So thank you very
16 much.

17 CHAIR MARCUS: Thank you very much. Thank you
18 for all the effort.

19 Mr. Goodson followed by Mr. Bacher followed by
20 Mr. Starker or Starcher.

21 MR. GOODSON: Hello, my name is Tim Goodson and
22 I'm the owner of Calaveras Trout Farm. We're located on
23 the Merced River near Snelling and have been in operation
24 since 1968. Calaveras Trout Farm is the second largest
25 private-owned trout farm in California, supplying

1 approximately 425,000 pounds of trout to over 100
2 customers annually to stocking lakes, rivers, streams and
3 ponds throughout California. Some of the places we stock
4 in the Central and Southern California include Lake
5 Pardee, Lake Yosemite, Shaver Lake, Bass Lake, Lake
6 Kaweah, Lake Isabella, Cachuma, Lake Santa Margarita,
7 Lopez Lake, Los Vaqueros, Irvine Lake, Cahuilla and the
8 Indio, Lake Skinner, Temecula, Lake Gregory, Big Bear
9 Lake, Green Valley Lake, all in the San Bernardino
10 mountains just to mention a few.

11 Some of the counties are Sacramento, Calaveras,
12 Orange, L.A., San Bernardino and Riverside Counties.

13 At its normal capacity, Calaveras is the second
14 largest privately-owned trout farm in California. We
15 employ seven full time employees, with a gross income of
16 1.3 million. Our water comes from the same source as the
17 pool in Merced Irrigation District Water Division.

18 I am here today to share my concerns about the
19 devastation the Delta SED Plan will have on recreational
20 trout fishing throughout California. During the 48 years
21 the Calaveras Trout Farm has been in operation we have
22 had to shut down only once as a result of the severe
23 drought prolonged. We had to temporally close down our
24 operation from April 15th to October 2016 for a total of
25 18 months. The cause of this closure was the warm water

1 that flowed from Lake McClure when it fell to a historic
2 low of 6 percent. This in turn caused the Merced River,
3 near Snelling to experience high-water temperatures.
4 Trout, which are members of the Salmonidae family, is a
5 coldwater fish and can't survive at high water
6 temperatures.

7 I can tell you from experience that MID's water
8 operation on the Merced River is advantageous of
9 androgynous fish and water temperatures. My December
10 Water Division provides adequate cold water for
11 androgynous fish to survive and thrive like trout that
12 the Calaveras Trout Farm has for 47 out of 48 years. I'm
13 concerned that if the state even takes 30 percent of the
14 water from Lake McClure, that is going to create drought
15 conditions annually.

16 If this is the case, it will put Calaveras
17 Trout Farm out of business permanently. During our
18 recent closure many of our customers had to either shut
19 down or pay extremely high prices for fish purchased out
20 of the state. They were paying seven dollars a pound and
21 could only purchase trout if they bought 7,000 pounds.
22 Many of our customers were priced out and simply couldn't
23 afford it. Again, thank you.

24 CHAIR MARCUS: Thank you, I'll look at that.
25 Thank you very much.

1 I don't see Mr. Bacher.

2 UNIDENTIFIED SPEAKER: (Indiscernible.)

3 CHAIR MARCUS: Okay. Yeah, I would have let
4 you go earlier if his patience was running out. I should
5 have done that, but I didn't know.

6 MS. CHICHIZOLA: Do you want to say anything?

7 CHAIR MARCUS: Yeah, do you want to say
8 anything?

9 MS. CHICHIZOLA: What do you think of the fish?

10 MR. M. CHICHIZOLA: Sharks eat fish and sharks
11 need fish.

12 MS. CHICHIZOLA: He said sharks eat fish and
13 sharks need fish.

14 CHAIR MARCUS: Yeah. And we're sharks.

15 MS. CHICHIZOLA: He's an ocean guy, not a river
16 guy.

17 Okay. Well, I'm here today with the Institute
18 for Fisheries Resources.

19 CHAIR MARCUS: And your name?

20 MS. CHICHIZOLA: Regina Chichizola.

21 CHAIR MARCUS: Oh, you're Regina, right.

22 MS. CHICHIZOLA: Yeah, and nice to see you guys
23 again. I haven't seen you since I was pregnant with
24 Malcolm.

25 CHAIR MARCUS: That's kind of amazing.

1 MS. CHICHIZOLA: Yeah.

2 CHAIR MARCUS: There you go. So we've met
3 before.

4 MS. CHICHIZOLA: Yep. So as a lot of you know,
5 I live up on the Klamath River near Eureka, California is
6 the closest town to us. Eureka, California is an area as
7 a lot of you know is many of the northern coastal towns
8 are very much suffering for lack of fish, lack of fishing
9 industry. And what's come out of that is widespread
10 poverty, drug use, food deserts. There's a lot of issues
11 for us, for lack of fish.

12 Sorry about the climbing. (to Malcolm) Please
13 don't climb.

14 So that said I want to applaud you for this
15 effort. The Institute for Fisheries Resources support
16 the 60 percent scientifically proven or not proven, but
17 scientifically-based proposal. We do not support the
18 lowering of the salt standards. A lot of -- as you guys
19 know millions of people depend on the fish from the -- I
20 mean the water from the San Joaquin River for clean
21 drinking water. And I think we need to do whatever we
22 can to protect that water. And that includes keeping
23 salinity standards and making sure that there is clean
24 water for people to drink.

25 I also wanted to say that I really feel for the

1 people in the Central Valley, because they're going
2 through a lot of the same things my community has gone
3 through. However I don't feel like it's a problem that
4 we have -- we haven't created the issues or the problems
5 at hand. And I think that Central Valley farmers need to
6 be part of finding the solutions, especially in the age
7 of climate change, because everyone coastal that relies
8 on the fishing industry is very much suffering too. But
9 we haven't done anything to bring that suffering upon
10 ourselves.

11 So that said I also wanted to say I encourage
12 you to work as much as possible with local communities,
13 state agencies and federal agencies to use TMDLs, the
14 State ESA and the Federal ESA to create habitat while you
15 are also putting water in the rivers.

16 I also wanted to say that when you are working
17 on your final documents to please include in your
18 economic analysis, the fact the fishing industry was
19 really strong before any of the State Water Project went
20 in. And the economic analysis right now like looks of
21 the '80s and areas before -- after the project went in.
22 And I think a restored fishery that's actually restored
23 to the high levels as possible could bring a lot of
24 industry to the state and could really help us rebound
25 our economy.

1 So other than that I had a lot to say about
2 water quality standards. Oh, another thing is with the
3 salinity, that's not just salt that we're talking about.
4 There's selenium, there's pesticides, and there's all
5 kinds of different chemicals. And we want to make sure
6 that the 60 percent water in the river is actually clean
7 water, not salt waste, not agricultural tail returns, but
8 actually clean cold water for the fish to use.

9 And looking at the future is a guy like this.
10 I grew up in big cities moving around all the time, Army
11 brat. I never saw salmon in my life until I was an adult
12 and my boy has a chance now to grow up with salmon. So
13 please think of the interests of everyone including the
14 rural people north of here. Thank you.

15 CHAIR MARCUS: Thank you very much.

16 MS. CHICHIZOLA: Sorry.

17 CHAIR MARCUS: No, thank you for bringing him.

18 MR. M. CHICHIZOLA: (Indiscernible.)

19 CHAIR MARCUS: Bye.

20 Hi, Mr. Starcher?

21 MS. STARCHER: Yes. That's a tough act to
22 follow.

23 CHAIR MARCUS: I know, really. You got the not
24 the prime spot there.

25 Mr. ElTal and then Mr. Kampa.

1 MR. STARCHER: Well thank you for having this
2 meeting today. I'm Steve Starcher. I'm a Program
3 Manager with the East Merced Resource Conservation
4 District. And I'm here on behalf of Jean Okuye, who
5 couldn't be here today, she is our Board President. She
6 is attending a nature conservancy meeting on a climate
7 change.

8 Well, the East Merced Resource Conservation
9 District, we assist land owners in protecting, managing,
10 enhancing and restoring natural resources in Eastern
11 Merced County. We provide information, education,
12 technical assistance, funding and project implementation
13 programs. Our service area includes all of Merced
14 County, east of the San Joaquin River, which is
15 approximately 191,000 acres.

16 We are an on-the-ground organization. And we
17 take a holistic approach to promote the sustainable use
18 of our natural resources in Merced County. We understand
19 that our natural resource management efforts must balance
20 the needs of the environment, agriculture and
21 communities. To be successful, we've discovered that
22 these efforts must have a demonstrated benefit to the
23 citizens in our district and be fully integrated with
24 social and economic goals.

25 Our district is dependent upon water from the

1 Merced River. This water irrigates the crops of our
2 large agricultural economy, recharges our groundwater
3 aquifer and provides water for our communities. It is
4 our only source of water. We are not connected with the
5 Central Valley Project. We are not connected with the
6 State Water Project. Once diverted, our water cannot be
7 replenished and will result in a shrinking of our
8 agricultural economy, a loss of jobs, declining revenue
9 for schools and social services, and an unsustainable
10 groundwater overdraft.

11 Taking a holistic approach to natural resource
12 management requires assessing the social and economic
13 impact of water diversions from the Merced River on the
14 nearby communities.

15 Our district is in the process of obtaining a
16 programmatic permit for ecosystem restoration along the
17 entire 55-mile reach of the lower Merced River. This
18 permit will allow us to remove invasive plants, create
19 riparian buffer zones to reduce nutrient loads and
20 pollution, and also perform river cleanup projects.

21 These actions will greatly improve habitat for
22 salmon and ecosystem health. Although important, water
23 flows are only one element to consider in creating an
24 ecosystem suitable for salmon. A holistic approach
25 requires that ecosystem complexities be understood and

1 efforts be made to address each factor that contributes
2 to a healthy ecosystem.

3 Finally, our district supports the Merced
4 Irrigation District Safe River Plan. This plan will
5 create and maintain a balance between local human needs
6 and a healthy salmon fishery. This plan is holistic and
7 balances the water resources needs of agriculture,
8 communities and the environment and will create a
9 sustainable salmon fishery. We recommend that the Board
10 revise its SED issued in September and adopt a more
11 holistic plan similar to that proposed by the Merced
12 Irrigation District. Thank you.

13 CHAIR MARCUS: Thank you very much.

14 Hi, Mr. ElTal, followed by Mr. Kampa, followed
15 by Mr. Gallia.

16 MR. ELTAL: Good afternoon.

17 CHAIR MARCUS: Hi, good to see you.

18 MR. ELTAL: Hicham Eltal, DGM, Merced
19 Irrigation Water Rights.

20 So obviously my comments will be brief, given
21 the five minutes, but we have about 400 pages so far of
22 comments that will be -- we're working on, plus we'll be
23 seeing you in Merced, I hope.

24 To start with, the District has concerns in
25 regards to the SED factually, procedurally, legally and

1 technically, not to mention feasibility and
2 acceptability. So when the benefit is no more than 1,000
3 to 1,100 fish even with the 50 percent unimpaired flows,
4 according to Table 1932 in trade and in exchange for over
5 300,000 acre-feet and 1,000 jobs out of Merced County
6 alone.

7 MID is Eastern Merced County's major surface
8 water provider and groundwater recharger. Reducing our
9 surface water reliability will cripple water supply and
10 drinking groundwater quality for tens of thousands of
11 people in the cities and the urban areas. Your economic
12 impact analysis limitation to Merced ID boundaries
13 underscores by 300 to 500 percent for the true regional
14 economic impacts.

15 Our analysis shows that if the SED is
16 implemented as is, the Merced River will actually lose
17 overall salmon habitat. Salmon abundance in the San
18 Joaquin River system is overwhelmingly influenced by one
19 major factor, the successful operation of the Merced
20 River Salmon Hatchery. The revisions made by the State
21 Board staff over the last couple of years are
22 unfortunately confusing. And make it difficult for us to
23 even decipher what the project is and what the adaptive
24 management means.

25 The SED does not provide enough information to

1 consider how we could manage what remaining water supply
2 you contemplate leaving us with. Too many unknowns and
3 gaps in the SED. The unimpaired flow concept, while
4 maybe simple at the surface, it is actually not and will
5 lead to waste of water. The 2016 SED already started
6 shifting water and move-in compliance points leading to
7 potentially over 100 percent of unimpaired flows releases
8 in certain months, especially in February and June. And
9 the list goes on.

10 We implore the Board to move away from the
11 unimpaired flows concept and work with the districts on a
12 comprehensive approach with meaningful measures that are
13 defined and will succeed. The current SED backs Merced
14 ID into a corner, leaving us no recourse but to seek
15 legal remedies. Meanwhile we are losing time and
16 meaningful benefits to the Merced River and salmon.

17 On one final note, the escapement returns of
18 fall Schnook salmon this year, at the Merced River Salmon
19 Hatchery have exceeded all records. So basically we have
20 surpassed all the records of returned salmon to the
21 hatchery since its construction, so do we really have a
22 salmon problem on the Merced River? Or as we suggest,
23 from science and history, salmon populations are cyclic.
24 This recent development alone gives us all reason to
25 pause and reevaluate the SED approach. Thank you.

1 CHAIR MARCUS: Thank you.

2 Mr. Kampa followed by Mr. Gallia followed by
3 Ms. Haldeman.

4 MR. KAMPA: Good afternoon, Madam Chair,
5 members of the Board, Peter Kampa, General Manager with
6 the Lake -- I don't even remember which district I'm with
7 anymore -- Lake Don Pedro Community Services District.

8 CHAIR MARCUS: It's been a long day. Thank you
9 for sticking around.

10 MR. KAMPA: Oh, it has been. And I'll tell
11 you. I started off with 300 pages today that I was going
12 to go over, but in all reality I did start off with a
13 written document that was significantly affected by the
14 testimony today. You've got a really, really tough job.
15 I've been in the community services district, water
16 district, special district field my entire career. And
17 this is probably the most difficult decision that I've
18 seen this state have to undertake. I mean we've studied
19 this, we've looked at, it's really tough. So I
20 appreciate your effort in going out to the communities
21 and getting the broad impact from the various
22 stakeholders.

23 Our district was formed when the dam was built
24 at New Exchequer with the thought that the area was going
25 to grow and the foothills were going to blossom and there

1 was going to be adequate water supply now to serve these
2 communities into the future. Unfortunately, the Sierra
3 Nevada has been the source of supply for everybody else's
4 needs, including their own. And is now something that is
5 in focus in this document and will be for decades come.
6 The District does provide water supply to a population of
7 approximately 3,500 in the Lake Don Pedro area. If you
8 ever look on Google Earth we are between Lake Don Pedro
9 and Lake McClure. And we are separated by a couple
10 hundred feet from those big bodies of water and we almost
11 ran out of water this last year.

12 And I know that I've heard it come out of the
13 mouths of the State Board members after the driest
14 January on record last year, on February 1st we
15 calculated 52 days of water supply left. And we planned
16 intensely to try to get water supply to the community.
17 And that involves trucking in, bringing tanks. Doing
18 that for 3,200 people, 3,500 people is really a difficult
19 thing at \$1.2 million a month and an annual budget of
20 \$1.2 million.

21 The main thing that I want to urge the Board
22 today is to be very aware that the fact that it's not
23 just as simple as going out and drilling a new well to
24 serve your community's needs, or deepening an existing
25 well. We can drill 1,000 feet deep and we're going to

1 still be in rock. Or we can drill 15 pilot holes, a
2 needle in a haystack, and still be in rock without any
3 water supply.

4 We were lucky enough to get state grants to
5 help us develop a certain amount of groundwater supply in
6 that 52 days. And we had a February 9th storm that
7 helped us out and got us through the year. And that's
8 something that's very important for this document to
9 consider is the fact that the groundwater supply in the
10 rural communities, in the Sierra Nevada foothills, is not
11 going to sustain a replacement of the surface water
12 supply.

13 And with the increased flows, we're going to be
14 out of water a significant portion of the time.

15 CHAIR MARCUS: Thank you. That's helpful.

16 Mr. Gallian? Yes, did I say it wrong?

17 MR. GALLIA: (Indiscernible)

18 CHAIR MARCUS: Oh. Gallian, really? Gallia,
19 oh I'm sorry.

20 MR. GALLIA: That's all right, it was probably
21 my handwriting.

22 CHAIR MARCUS: I can see the A now.

23 MR. GALLIA: Okay. Thank you, Commissioners.

24 CHAIR MARCUS: Thank you.

25 MR. GALLIA: I would like to start by thanking

1 you for your hard efforts and patience in listening to
2 all of the pain and suffering that has been shared in
3 this room tonight, this afternoon. And for giving me the
4 opportunity to speak in support of increased water flows
5 to the Bay and Delta.

6 I'm currently the owner and operator of a
7 passenger-carrying fishing vessel named "The El Dorado,"
8 which operates out of the Berkeley Marina. And as an
9 owner of this 53-foot Coast Guard-inspected charter boat,
10 I have been providing salmon fishing trips from the
11 Berkeley Marina since 1987.

12 I started salmon fishing in the early '70s with
13 my father. Before I graduated from high school, during
14 the years that followed as a crew member, I learned the
15 true value of hard work and then cherished the rewards of
16 long days. The simple but valuable lessons prepared me
17 and my family for some 30 years of salmon fishing as a
18 licensed captain. I spent the majority of my life
19 introducing individuals to what I believe was the
20 greatest fishery on the West Coast.

21 I am concerned about my recent observations in
22 the East Bay with the charter boat fleet and the landings
23 that support these charter boats. In recent years the
24 effects of the drought and proper water flows to the Bay
25 and Delta are critical to recovery of our way of life.

1 The reasons for my concern are during two
2 salmon seasons, 2015 and 2016, these East Bay landings
3 have lost four Coast Guard-inspected vessels, four out of
4 ten that existed in the East Bay. These are real
5 numbers. I'm not fabricating any of it.

6 The East Bay salmon fishing fleet has been
7 reduced from ten to six. In real numbers, that's a 40
8 percent reduction in carrying capacity of passenger-
9 carrying vessels. During the course of the 2016 salmon
10 season, one of the East Bay landings stopped booking
11 salmon trips altogether, because of lack of interest.
12 That's almost criminal.

13 And it's very important that a decision by this
14 Board redirect the course of the salmon fishing future.
15 And I thank you for your time.

16 CHAIR MARCUS: Thank you.

17 Haldeman?

18 MS. HALDEMAN: Yes.

19 CHAIR MARCUS: Great. Sorry, just trying to
20 get that down.

21 MS. HALDEMAN: Hi. Thank you for your time.

22 My name is Katie Haldeman. I'm with Sustainable
23 Conservation. We're a nonprofit organization that brings
24 together a variety of interests in California to help
25 steward the resources that we all depend on in ways that

1 make both economic and environmental sense. I have three
2 comments and recommendations from our team at Sustainable
3 Conservation that I wanted to pass on to you folks.

4 First, we really support the non-flow action
5 alternatives, because we believe that the multi benefits
6 that those projects can bring is really a great path
7 forward. From the state's perspective or the Water
8 Board's perspective, you can help meet your potential
9 groundwater enhancement goals through related to SGMA.
10 You get improved water quality benefits. You also get
11 habitat protection and restoration, meet those types or
12 goals.

13 From a land owner and local community
14 perspective, they can get low-cost stream bank
15 protection, flood protection and flood control, which is
16 more important now than ever, due to climate change and
17 more intense storms, and also erosion control. Not to
18 mention restoration projects bring in a lot of money and
19 good jobs to the local economy and a lot of that's going
20 to be coming down the pipe.

21 As far as my second point, programmatic
22 permitting. We really support the use of programmatic or
23 simplified permitting to try to get those non-flow
24 projects approved in a way that's efficient and effective
25 without compromising any environmental protections.

1 Specifically, if you can use -- the Water Board has a
2 Small Habitat Restoration 401 General Order for voluntary
3 restoration projects. If that can be adapted to be used
4 for some of these non-flow action projects, that will
5 help get projects through quicker.

6 In addition, consider looking at creating a 401
7 certification for larger habitat restoration projects.
8 Because with Prop 1 and other new sources of funding,
9 you're going to have a bigger permitting burden. In
10 addition, we want to encourage you to have other agencies
11 look to programmatic to get these projects approved.

12 And then, finally my last point is to get
13 projects done there's a lot of technical expertise and
14 know-how needed. A lot of landowners and farmers may not
15 have that available. So as much as the Water Board can
16 do, to help support the implementation of these
17 restoration projects either through identifying funding
18 sources or creating new funding, and identifying sort of
19 a shepherd to get these projects through the permitting
20 and planning process will help get the projects done.

21 Thank you very much.

22 CHAIR MARCUS: Thank you.

23 Mr. Dylina, followed by Mr. Carpenter, followed
24 by Mr. Elwin.

25 Hi. Thanks for staying with us.

1 MR. DYLIBA: Hello. Thank you for having us.

2 My name is Robert Dylina. I am the Chairman of
3 the Board for the Greater Merced Chamber of Commerce, a
4 member of the Board of the Theater Foundation of Merced,
5 a member of the Merced Boosters, which is a local
6 collection of small business owners, as well as the
7 Interim Chair for the Merced City Planning Commission.

8 CHAIR MARCUS: That's busy. Thank you for
9 being here.

10 MR. DYLIBA: In my business -- yeah, I've got a
11 busy schedule these days, a lot of hats.

12 CHAIR MARCUS: Yeah.

13 MR. DYLIBA: In addition I have my own small
14 business in town. I do home loans, so I work in the real
15 estate field. I'm here mostly on behalf of myself and
16 the Chamber as well. We are a collection of about 450-
17 some small businesses. We do have some large ones as
18 well in the area.

19 Merced was particularly hit hard in the
20 recession in 2008-2009. You may remember we made
21 national headlines many times for being one of the top
22 foreclosure areas. That has lasted really until very,
23 very recently. We are just now starting to economically
24 come out of the recession. Many of the coastal regions
25 were very early and quick to come out whereas the inland

1 areas, specifically Merced, lagged behind for a very,
2 very long time.

3 We're the happy recipient of UC Merced and
4 that's been a tremendous boom. But for us the loss of
5 these water resources could be the next recession,
6 essentially for us. We're already a very economically
7 disadvantaged area. There's been several people that
8 have talked about that. You've heard testimony to that
9 effect. And that's what we're fearing is that not so
10 much that something's spurred on by bad home loans, but
11 something that's regulatorily created here locally at the
12 state level. And we don't want to see that happen.

13 A balanced approach I think is important.
14 We've heard a lot of testimony today. Today's been very
15 informative. Even the NRDC stated how important it is
16 that habitat be part of the Plan. And as your staff said
17 at the Merced presentation unfortunately non-flow
18 improvements are not necessarily under the state water
19 resources toolkit. You can't mandate certain changes.
20 You mainly have flow at your control.

21 The Merced River Safe Plan that has been put
22 together by MID has a lot of habitat addressed in it and
23 a lot of other very balanced approaches to how to meet
24 our goal.

25 And I guess I'll say in conclusion that being a

1 business owner and being in business everything we do is
2 some kind of cost/benefit analysis. Unfortunately, I
3 mean generating hopefully another 1,100 fish at a
4 tremendous economic loss to our area, the cost/benefit
5 there doesn't really seem to make sense to me. Thank you
6 for your time.

7 CHAIR MARCUS: Thank you.

8 Now is not the time, but I need a little bit on
9 the 1,100 fish. We talked about it in terms of --
10 because I know you've said some caveats, but I want to
11 get through the speakers. But just put a pin in it that
12 that's a conversation we need to have. I know I should
13 know that already, but --

14 MR. GROBER: Well, no. Would you like me to
15 say a few words now about that?

16 CHAIR MARCUS: If it's a few words, because I
17 know people are eager to go.

18 MR. GROBER: Sure.

19 CHAIR MARCUS: Those people at the end of the
20 line, they know they came in later, but they probably
21 didn't realize how much later it was going be.

22 MR. GROBER: Yeah, throughout this document
23 we've shown our work, which I think is good, which is why
24 we have this good discussion over things. The 1,100
25 fish, that was the result when we run the SalSim Model,

1 which has been under development by the California
2 Department of Fish and Wildlife for I think about a
3 decade with improvements. And it's a model that's based
4 on observation of empirical data and seeing how fish
5 respond. And it has a number of different things that
6 would affect populations.

7 In running the model we were surprised to see
8 that it didn't produce a lot of fish, so that was an
9 initially surprising result. And in particular, we saw
10 that it didn't produce fish at times when we were greatly
11 improving temperature, greatly improving habitat,
12 different things where we would expect to see some signal
13 at all. And we didn't see any signal, so we've had a
14 discussion, in fact we have an ongoing discussion, I
15 think it might be something that we'll be hearing more
16 from the Department of Fish and Wildlife.

17 It identified issues in the model that it's
18 simply not capturing things, because conditions haven't
19 been such for them to have the empirical data to drive
20 when you would see improvements, if that makes sense. So
21 they haven't really had the information to show why you
22 might see a positive effect, which would happen with the
23 increased flows.

24 So the bottom line from all of this is that the
25 model doesn't do a good job, which is what we describe,

1 of capturing what would be expected benefits and CDFW
2 concurs. And they've been trying to make adjustments to
3 the model to have it respond to improvements in
4 temperature. And also to not respond too negatively to
5 when there are not -- under baseline conditions when
6 conditions aren't good. It's not capturing that as well.
7 And perhaps I don't know if Dan wants to say a few more
8 words?

9 CHAIR MARCUS: Because you're not just relying
10 on that model for your --

11 MR. GROBER: Yeah, well but I --

12 CHAIR MARCUS: -- but it's sitting in there and
13 an obvious thing that people are concerned about, which
14 makes sense.

15 MR. GROBER: Well, I guess that's the main
16 thing to say is that we're not relying on that to say
17 this is the benefit. We're relying on the things that we
18 showed that we have temperature improvements, we have
19 floodplain habitat improvements, and these are things
20 that have been shown to lead to increases in populations
21 and resiliency and all sorts of measures elsewhere in
22 other systems. So that's what we're relying upon to show
23 the benefit.

24 But it's not a simple numbers game and you
25 can't rely upon a model that wasn't designed to show

1 results for the things that we're improving.

2 CHAIR MARCUS: All right. Well, this is a
3 longer conversation to have. And it's the end of the day
4 and I want people to speak, but how to articulate that
5 maybe is a good conversation.

6 MR. GROBER: Sure. So that'll be a good
7 subject for the technical workshops and then also perhaps
8 at the subsequent hearing days.

9 CHAIR MARCUS: Yeah. Okay. Thank you, sorry.
10 Mr. Carpenter?

11 MR. CARPENTER: Yes. Good afternoon.

12 CHAIR MARCUS: Great. Followed by Mr. Elwin
13 followed by Mr. Warburton and then Mr. Boccadoro.

14 MR. CARPENTER: Thank you for the opportunity
15 to speak today. It's been very educational --

16 CHAIR MARCUS: Thank you for coming.

17 MR. CARPENTER: -- as a layman not familiar
18 with a lot of technical aspects of these topics. I've
19 learned a great deal, the least of which is that these
20 hearings are an endurance test, so you're all to be
21 commended.

22 CHAIR MARCUS: Yeah, this is going to be the
23 shortest one, probably.

24 MR. CARPENTER: Yeah. My name is
25 Mike Carpenter. I'm the President of Leap/Carpenter/

1 Kemp's Insurance Agency in Merced.

2 As you're taking public comments on the Bay-
3 Delta SED I wanted to be here to ensure when you see
4 numbers about economic losses or potential economic
5 losses associated with the Plan, you understand what's
6 truly at stake. I offer these comments about my own
7 business, not because the effects on our business are any
8 more significant than those on others. But because I
9 know them firsthand.

10 I want you to understand that we're not just
11 talking about jobs, we are talking about families and
12 their incomes. Every potential job lost associated with
13 the Plan represents a family's housing payment, their
14 ability to put food on the table, a child's college
15 tuition. Our business employs 38 people. Those 38
16 people own 70 percent of our business through an employee
17 stock ownership program, so their employment and their
18 tie to our business is critical. Our staff is involved
19 in civic organizations, service clubs, numerous
20 charitable causes. Each of these employees and their
21 spouses and children are potentially on the losing end of
22 a bad plan, no matter which plan is chosen.

23 Approximately 50 percent of our revenue is
24 derived from ag and ag-related businesses. Please note
25 it's not just simply the loss of an ag production job, or

1 fallowed acreage that can have impact on our business.
2 The clients that we engage with and the loss of jobs
3 there will have a direct impact on our business as well
4 and our employment.

5 I read over the weekend that the Governor has
6 encouraged this Board to give priority to voluntary
7 agreements and I hope that's the case. I'll accept that
8 as the truth. And an example of that, among maybe
9 others, is the Merced River Safe Plan that the MID in our
10 local jurisdiction has put forward. I think, from what
11 I've been able gather it balances a lot of needs. It's
12 science based. It represents a great deal of good
13 research and it takes into account all the stakeholders'
14 interests. I think the MID and other organizations like
15 them have proven to be good stewards of these natural
16 resources and it's within their best interest to keep
17 that going.

18 And so I challenge you or encourage you, ask
19 you on behalf of the public to find a plan that balances
20 all those needs. I don't think a plan that takes from
21 one group and gives to another is the right approach.
22 I'd like to see innovation put at the forefront to a
23 solution.

24 And if I could just add my own suggestion that
25 I make somewhat seriously. The group that you had in

1 here earlier today, the FFA students, I think at some
2 level you should engage that generation and those
3 thousands of FFA students statewide in finding a solution
4 that can be sustained. And thank you for your time.

5 CHAIR MARCUS: Thank you. Thank you for
6 joining us.

7 Mr. Elwin?

8 MR. ELWIN: Good afternoon, Chairman Marcus and
9 the rest of the Board or good evening, sorry. My name is
10 Ken Elwin. I'm the Public Works Director for the City of
11 Merced. Merced is a community of roughly around 100,000
12 people or close there. And we are home to the UC Merced
13 campus. We are one of three cities in the SED most
14 impacted areas along with six other communities, along
15 with six other smaller communities within the footprint
16 of the MID Irrigation District. And we share a portion
17 of the state groundwater basin. These urban communities
18 like ours, rely solely upon groundwater, 100 percent of
19 groundwater.

20 The City of Merced opposes the SED for a number
21 of reasons.

22 First, the City along with 13 other water
23 purveyors, which include both Merced Irrigation District,
24 the County of Merced, have been coordinating to best
25 understand the groundwater resource since 1997. The City

1 as mentioned, is within the Merced Irrigation Boundary.
2 And as such, we are joining forces with SGMA, with Merced
3 County, and the Merced Irrigation District to form a
4 single sustainable agency and follow a single groundwater
5 sustainability plan by 2020.

6 The City has been following with great interest
7 and concern, the development of the Bay-Delta Plan SED in
8 2012 and the current version, as it will cause the
9 largest impact on the City and its inhabitants since the
10 construction of Lake Yosemite, in 1887, the first
11 drinking water source for the City of Merced. With the
12 only difference being the SED carries an equivalent but
13 negative impact.

14 Until the SED is implemented, Merced ID
15 irrigation has been sustainable from a groundwater
16 perspective. However, the basin groundwater levels
17 continue to drop due to high groundwater extractions
18 outside the Merced Irrigation boundary and adjacent
19 basins. The Merced Groundwater Basin is a high priority
20 basin as we know, as is critically over-drafting.

21 Due to a small area of subsidence in the
22 southwest corner of the basin, the basin continually
23 loses groundwater to adjacent basins. This current un-
24 volunteered migration of water under the active role of
25 the devestro winds (phonetic) may continue even at lower

1 rates until 2040, if not beyond. The SED is expected to
2 be implemented by 2022. However with this combination of
3 events, the only sustainable area in the basin will be
4 immediately deprived of water when outlying ground
5 pumping areas are offered 20 years to adjust.

6 Just to wrap up, the Technical Board met a few
7 weeks ago in Modesto and we asked what are the impacts to
8 the regions like ours? And they said it was very
9 problematic and speculative. I just want to add that in
10 Merced, those impacts will not only be problematic and
11 speculative, they will be real impacts to communities
12 like ours, which are disadvantaged communities. And so
13 we implore you to relook at the SED. Thank you.

14 CHAIR MARCUS: Thank you very much.

15 MR. MOORE: That's good news about the
16 Groundwater Sustainability Agencies developments.

17 CHAIR MARCUS: Yeah, that's cool.

18 MR. MOORE: We really encourage that
19 cooperative work.

20 CHAIR MARCUS: Mr. Warburton?

21 MR. WARBURTON: I'm Michael Warburton,
22 Executive Director of the Public Trust Alliance. I
23 haven't been here in awhile, mostly because the Delta
24 problem is so complex and so divisive it seemed almost
25 undoable. I want to thank this Board tremendously for

1 moving on this water reallocation scheme. I think you've
2 got to remember that this Board has recognized more
3 claims to water than there is water in the whole system.
4 And that is one of the problems that we're dealing with.

5 And it's not just on the multiple of twice as
6 much water rights as there is water. It's five to eight
7 times, those are hard. I mean who has real rights?
8 That's the incredible political problem. But I was
9 really glad in being here, especially with that last
10 panel, because it reminded me of the first Thanksgiving
11 feast where, you know, the Indians showed the Pilgrims
12 about the corn. But they also showed the Pilgrims about
13 the fish and the corn, too, for productivity.

14 And we've got a tremendous problem as our
15 planet changes, to move towards sustainability. And
16 there's a lot of adaptations that we're all going to have
17 to make. And what we saw today, it really isn't a matter
18 of farmers against fish, or even a broader conception of
19 people balanced against the environment. We've got to
20 change the way we do stuff and how we share the fruits of
21 our work.

22 And then there's law. And the Public Trust
23 Alliance really depends on the idea that the public trust
24 is there, even though there seems to have been a treaty
25 amongst advocates and Board members not to even mention

1 the words "public trust." That is there and it was not
2 totally ushered out of the picture by adopting a picture
3 of co-equal goals. That doesn't do it.

4 And I'm really, really enthusiastic in feeling
5 much better about things, because of the care that the
6 Board staff put into showing their work as to how they
7 were moving towards management compromises on public
8 water.

9 CHAIR MARCUS: Thank you, Mr. Warburton.

10 Mr. Boccadoro, you are batting cleanup, West
11 Coast Advisors.

12 MR. BOCCADORO: Thank you. I'm trying to find
13 out, which one of you stuck my card on the bottom.

14 CHAIR MARCUS: It just came in, in that order.
15 I did not do that.

16 MR. BOCCADORO: No, I'm just kidding. It was
17 all me.

18 CHAIR MARCUS: I thought you did that on
19 purpose, so that you could bat cleanup.

20 MR. BOCCADORO: I always do it on purpose. I
21 like to come up at the end --

22 CHAIR MARCUS: To wrap up, yeah.

23 MR. BOCCADORO: -- and extend my evening in
24 Sacramento, but thank you very much.

25 Michael Boccadoro. I'm with West Coast

1 Advisors. And it's rare that I get an opportunity to
2 speak on behalf of a number of different clients. And
3 this issue cuts across my poultry clients, my dairy
4 clients, my water agencies in the Valley, my farmers who
5 depend on the Delta for their water supplies in the
6 southern part of the Valley as well. So I want to take
7 your advice though and give you just a couple of things
8 to think about as we proceed in these discussions, not
9 just on the San Joaquin, but on the Sacramento.

10 And the first one is we need to start thinking
11 differently. We hear it a lot and we're even guilty of
12 saying it in the past. The Delta is not declining, it's
13 evolving. And we really need to recognize that going
14 forward. We've got some fish species that are clearly
15 declining. But the Delta is evolving and we're not going
16 to solve it unless we recognize that.

17 Two numbers always jump out for me when we have
18 these discussions. And the first one is that 95 percent
19 of the native habitat in the Delta has been lost. And
20 the second one is that 95 percent of the biomass in the
21 Delta is not native. There's plenty of fish and fauna.
22 It's just no longer native. And we need to really
23 recognize those two things as we move forward.

24 And it points us, I think to my second point,
25 which is a big point which is water alone is not going to

1 solve this. And I know you know that. And we really
2 need to focus on some of these other actions to address
3 some of these other stressors. They're all human caused,
4 whether its diversions or exports, toxic pollutants,
5 climate change, storm water discharges, and invasive
6 species. They're all the result of human behavior that's
7 causing this evolution.

8 We're going to have to begin to address some of
9 those other stressors. And the two that jump out for us
10 are habitat restoration. You've heard a lot of
11 discussion about that. There seems to be a lot of
12 support from everybody about habitat restoration. You
13 can't lose 95 percent and not address the issue without
14 restoring some of that.

15 And the second one is the broken record that
16 you've heard me talk about before and I've probably made
17 the over under. I've gone two whole minutes without
18 talking about predation. But we need to begin to address
19 predation. It's not a new issue. It's been at least
20 five years since Fish and Wildlife said we're not going
21 to recover salmon unless we address predation. And I'm
22 not harping on you, but I will harp a little bit on your
23 counterparts over at Fish and Wildlife and Fish and Game.
24 They've got to quit dragging their feet on predation.
25 They are doing a few things finally, but they for the

1 most part have drug their feet on this issue.

2 It's a simple issue. It's not a complicated
3 one. It's made more complicated by the fact that the
4 Delta is complicated. But we've got a lot of predators
5 that are eating a lot of the fish we're trying to save.
6 And the Plan gives very little time to the issue of
7 predation. We're going to need to give it more time and
8 discussion. I think it becomes part of those voluntary
9 solutions.

10 So I'll leave it at that and stay below my
11 time. Thank you.

12 CHAIR MARCUS: Thank you very much,
13 Mr. Boccadoro. I appreciate it.

14 Another thing I appreciate is the range of
15 voices we've heard. I think it's going to be -- we will
16 have more on the fish side at this one. And then again
17 in Sacramento we will have more on the impact on the
18 Inland communities at the Inland meetings. But I do hope
19 we have a balance at all of them and that folks have a
20 chance to listen to each other, because I think the more
21 creative solutions will come from people putting
22 themselves in our chairs. And helping us figure out how
23 to navigate some difficult decisions, but not difficult
24 if people come together and come up with good ideas. And
25 the only way we'll really move forward is if they do as

1 opposed to us having to decree from on high. So we'll
2 keep hope open on that.

3 Thank you all for your participation today.

4 And we will be reconvening --

5 MR. GODWIN: I have housekeeping items.

6 MS. D'ADAMO: Yeah, and I have some questions
7 too.

8 CHAIR MARCUS: What, wait?

9 MR. GODWIN: I have some housekeeping items
10 before we adjourn.

11 CHAIR MARCUS: Okay.

12 MR. GODWIN: One is --

13 UNIDENTIFIED SPEAKER: Art, you need to come
14 microphone.

15 MR. GODWIN: Yes, I'm on my way.

16 Art Godwin. Are the presentations that were
17 given today, are those going to be available on the Web?

18 CHAIR MARCUS: Should be, do we know when and
19 how?

20 MR. GROBER: Yes, we'll be posting them. Yes.

21 CHAIR MARCUS: We'll be posting them as soon as
22 you can?

23 MR. GROBER: Yep.

24 CHAIR MARCUS: Okay. Good.

25 MR. GODWIN: And then secondly there was some

1 discussion earlier with you and Les about the SalSim
2 Model? That's not listed on the technical workshop, so I
3 was wondering if that's going to be an item of
4 discussion?

5 CHAIR MARCUS: I'm assuming that would fall
6 under the eco system one.

7 MR. GODWIN: Well, it says ecological benefits.

8 CHAIR MARCUS: Yeah.

9 MR. GODWIN: But that's not necessarily SalSim.

10 MR. GROBER: Well, I've been given the interest
11 here it's certainly something that we would be
12 discussing, at least more fully describing how we've used
13 it. And expanding on my response to what, how it could
14 be useful, but how it wasn't useful.

15 CHAIR MARCUS: And then what you did use?

16 MR. GROBER: I'm sorry?

17 MR. GODWIN: Okay. That's all, thank you.

18 CHAIR MARCUS: Okay. Thank you. See you.

19 MS. D'ADAMO: And I had just a couple of
20 things. I know we're trying to wrap up here.

21 CHAIR MARCUS: It's just a hard stop at 5:00.

22 MS. D'ADAMO: Yep. I'll talk fast.

23 CHAIR MARCUS: Okay.

24 MS. D'ADAMO: So it's just exciting to be able
25 to talk to everybody instead of just --

1 CHAIR MARCUS: I know. It is great.

2 MS. D'ADAMO: -- the buddy that we have, which
3 is fantastic, but to have the full Board here.

4 So first of all I think today's discussion was
5 really helpful. And I kind of wandered the crowd a
6 couple of times. And got some really good feedback from
7 people saying that they thought it was very constructive
8 as well, kind of surprised by that, so I'm excited about
9 that.

10 I wanted to follow up on just another component
11 on the SalSim Model, and that has to do with June. And I
12 had asked Dr. Sturrock to come back up, but we're running
13 out of time. So I'm going to just paraphrase my
14 conversation with her and with Dick Pool and that is not
15 so sure about June. And so we'd really like to drill
16 down a little bit more on the SalSim Model and what it is
17 showing on the benefits of returning fish in June.

18 Dr. Sturrock had some information in her
19 PowerPoint that took it to May 30th and the numbers
20 seemed to drop, but it didn't have anything there on
21 June. So maybe you'll be following up with some
22 supplemental information, but I would like to definitely
23 get some information from staff on that.

24 And then another area is sequential dry years.
25 We talked about the impact in a critically dry year being

1 like as much as 38 percent, I can't remember, that might
2 be on the Merced. But I think it's really important for
3 us to just overlay the last four years on this SED and
4 see what it looks like. Is it going to be 38 percent all
5 four years? Did something happen to the system? What
6 happened to the reservoirs? Who knows with what's going
7 on with carryover, so need to get some more information
8 on that.

9 I know under D-1641 we have sequential dry year
10 relief. That's something that, you know, just wanting to
11 share that that's something that concerns me that I'd
12 like for us to be looking at. So just getting the
13 information on the impacts would be a good way to kind of
14 queue up the discussion.

15 CHAIR MARCUS: Right. To be able to talk about
16 what we would do, rather than it going the TUCP route. I
17 would rather have it spelled out more than ignore it, so
18 I think it's a good point.

19 MS. D'ADAMO: Yeah. Right. And then the last
20 item, and I think that just because we didn't have a lot
21 of time to talk about this, and that's groundwater. I
22 suspect we're all sort of troubled by that. It's such a
23 big important issue for this Administration, for our
24 Board, same thing with drinking water. And there are
25 very real impacts out there.

1 And I appreciate that staff chose to do it
2 differently this time. Last time, they said it was one
3 or the other. Now, it's kind of somewhere in the middle.
4 We need to know what happens after SGMA kicks in.

5 We've got communities that are within the
6 irrigation districts. They're really trying to do what
7 they can to have a conjunctive use system. On the
8 outside of the irrigation districts there's some
9 challenges with overdraft. And what will this do if you
10 take away one of the tools -- if we take away one of the
11 tools that the irrigation districts are using right now?
12 So I appreciate sort of a gauge of what it might look
13 like in the immediate future.

14 But I call it a SGMA cliff. Once we hit, and
15 we can't wait for 20 years and neither can they, once
16 they get close to, "Gee, the clock is ticking, we've got
17 to do something on sustainability here," that 105, on
18 average, is probably not going to be 105 on average for
19 groundwater pumping. They're probably going to have to
20 pull back, I would think. I would assume that's what
21 we're expecting anyway.

22 So some way to have a dialogue about SGMA,
23 because that's one of our top priorities anyway. And I
24 think it starts with an analysis of some kind.

25 DR. STURROCK: If I could just have one second

1 about that June conversation?

2 MS. D'ADAMO: I didn't want to put words in
3 your mouth, so please.

4 DR. STURROCK: All it was is my graph actually
5 did end at 6/30. They just, the numbers stopped at 5/30,
6 but there was another month in there.

7 And one of the things I was talking to people
8 outside about was that June question, because I
9 understand it's quite an expensive time to use water for
10 fish for example. And one of the ways maybe around this
11 might be for example, when you know there's going to be
12 temperatures downstream, if the rivers are going to be
13 lethal, then -- if there are going to be lethal
14 temperatures in say mid-May then maybe releasing water
15 throughout that month might be wasted.

16 So I think it's going to be a kind of balancing
17 act. There's not going to be one size fits all for all
18 years. And I kind of hasten to -- I just don't want to
19 make sure that you don't -- I think we can't exclude the
20 idea of June flows just because sometimes ocean upwelling
21 will be late. And if you just exclude that strategy of
22 late outmigrants, then they might be the only ones that
23 are going to survive if that happens in the ocean.

24 So I just want to sort of say that still I'm
25 not sure, I think we need to look at that. But yeah, I

1 (indiscernible) dialogue.

2 MS. D'ADAMO: I appreciate that you -- thank
3 you for getting up to clarify that. Absolutely.

4 MR. MOORE: Well while you're up there my
5 questions are on the other end, because with climate
6 change December is the new January. We're going to get
7 much more flashy peaky hydrology in December going
8 forward and the 21st Century hydrology already shows
9 that.

10 So are these cues for the fry outmigration
11 actually going to be earlier in the season? And does
12 staff proposal allow enough flexibility for the working
13 group to shape flows accordingly and will that be
14 important with climate change?

15 DR. STURROCK: That's a very big question. I
16 think we should look at that, is my quick answer. But I
17 think someone was mentioning how kind of attraction flows
18 are also getting later. So it might not be that they're
19 ready to come out in December, so I think that that needs
20 to be thought about with full flows as well. But we
21 should talk about that.

22 MS. D'ADAMO: Thank you.

23 CHAIR MARCUS: Okay. Is that it for now? I'm
24 sorry, I know we need to talk. We may need to schedule
25 time when we can talk together, but that was very

1 helpful. I'm sure we'll all have plenty of feedback for
2 you. I have a ton of bubbles for follow up.

3 But with that I just want to thank everybody
4 again for coming. And I need to say that the hearing
5 will reconvene at 9:00 a.m., on December 16th in
6 Stockton, in the main hall of the Stockton Memorial Civic
7 Auditorium. Additional information including the times
8 and locations of additional hearing dates is available in
9 the Second Revised Notice.

10 Again, thank you all for coming and the spirit
11 of conversation that you brought in making your points,
12 but also acknowledging the challenge in front of us.
13 That was incredibly interesting and very helpful. So
14 thank you.

15 (Whereupon, at 4:54 p.m., the hearing was adjourned, to
16 be continued on Friday, December 16, 2016, at 9:00 a.m.)

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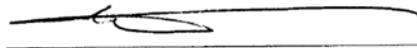
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I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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IN WITNESS WHEREOF, I have hereunto set my hand this 29th day of November, 2016.



PETER PETTY
CER**D-493
Notary Public

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IN WITNESS WHEREOF, I have hereunto set my hand this 13th day of January, 2017.



Myra Severtson
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