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3 From the Federal Energy Regulatory Commission (FERC):
4 George Taylor, Chief, Biological Resources Branch; Office
5 of Energy Projects; Division of Hydropower Administration
6 and Compliance
7 Phil Scordelis, San Francisco Regional Office

8

9 From the Oak Ridge National Laboratory:

10 Mark Bevelhimer

11 Mike Sale

12

13 From/For the Irrigation Districts:

14 Bill Johnston, Consultant with Modesto Irrigation District

15 Walter Ward, Modesto Irrigation District

16 Robert Nees, Turlock Irrigation District

17 Tim Ford, Turlock and Modesto Irrigation Districts

18 Noah Hume, Scientist,

19 Debra Liebersbach, Turlock Irrigation District

20 Arthur F. Godwin, Esq.; Mason, Robbins, Gnass & Browning;
21 representing the Merced Irrigation District

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1 APPEARANCES CONTINUED:

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3 For/From the City and County of San Francisco:

4 Donn Furman, City Attorney's Office

5 Ron Yoshiyama, Wildlife Fisheries Consultant
6 Tim Ramirez, SF Public Utilities Commission
7
8 From the California Department of Fish and Game:
9 Patricia Brantley
10 Bill Loudermilk
11 Dale Mitchell
12 Dean Marston
13 Tim Heyne
14 Nancee Murray
15
16 From the National Marine Fishery Service:
17 Jeff McLain
18 Mike Aceituno
19
20 From the U.S. Fish and Wildlife Service:
21 Carl Mesick
22 Debbie Giglio
23 John Eichenberry
24 Kim Webb
25

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1 APPEARANCES CONTINUED:

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3 Also Present:

4 Allison Boucher, Friends of the Tuolumne

5 Patrick Koepel, Tuolumne River Trust

6 Elizabeth Holtz, Tuolumne River Trust

7 Julie Gantenbein, Esq., Natural Heritage Institute

8 (via telephone)
 9 Laura Silver, OEP
 10 John Shelton, Cal Fed
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P R O C E E D I N G S

(9:13 a.m.)

MR. TAYLOR: Good morning. I'd like to welcome you to this meeting, public meeting that we noticed last month in June, and it's regarding the Ten-Year Fishery Study Report for the Don Pedro Project. That's Project 2299.

My name is George Taylor and I'm with the Federal Energy Regulation Commission. I work in Washington, D.C. I'm in the Office of Energy Projects in the Division of Hydropower Administration and Compliance. I am Chief of the Biological Resources Branch. I'm an Environmental Biologist. I've been working with the Commission since 1977 primarily on hydropower projects, but I got my start working

14 on natural gas hydropower -- natural gas projects.

15 With me today, I'd like to introduce Phil
16 Scordelis to my left. He works with us in the San Francisco
17 Regional Office. He's a Fishery Biologist. He's very
18 familiar with a lot of projects out here in California and
19 he's been doing a great job for us for a long time, doing
20 environmental inspections of the projects. He also works
21 with us in Washington, D.C. and he's kind of like our eyes
22 and ears out here in California, so that's Phil.

23 And to my right is Dr. Mike Sale from the Oak
24 Ridge National Laboratory. Mike and Dr. Mark Bevelhimer
25 from the Oak Ridge National Laboratory --

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1 THE REPORTER: Excuse me. Could you use the mic
2 there in front of you.

3 MR. TAYLOR: This one here?

4 THE REPORTER: Thanks.

5 MR. TAYLOR: Okay. Is this better?

6 (Laughter.)

7 MR. TAYLOR: Again, to my right is Dr. Mike Sale
8 and Dr. Mark Bevelhimer. They're with the Oak Ridge
9 National Laboratory in Tennessee. And they've been
10 assisting us on the Don Pedro Project for many years.
11 They're very familiar with the many aspects of the Project.

12 When we were worked on the Environmental Impact
13 Statement back in the '90s, they provided a consultant
14 service for us. We feel that the Oak Ridge National
15 Laboratory is not just a consultant, just an extension of
16 our environmental staff. And they provide us a lot of

17 expertise on these matters.

18 We don't have a real large group here, but if we
19 could just quickly go around the room and maybe introduce
20 ourselves. We have the namecards here, but if we could just
21 take a few minutes here and maybe introduce ourselves, I
22 think it would be helpful for the meeting that we're going
23 to be conducting here today.

24 Could we start here to my left?

25 MR. LOUDERMILK: I'm Bill Loudermilk with the

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1 Department of Fish and Game, Regional Manager, in the San
2 Joaquin Valley.

3 THE REPORTER: Excuse me. That's the recording
4 mic.

5 MR. LOUDERMILK: Okay. Could you all hear that?

6 MR. JOHNSTON: I'm Bill Johnston, a consultant
7 with Modesto Irrigation District.

8 MR. WARD: Walter Ward with Modesto Irrigation
9 District.

10 MR. NEES: Robert Nees, TID.

11 MR. FORD: Tim Ford, Biologist with Turlock and
12 Modesto Irrigation Districts.

13 DR. HUME: Noah Hume. I'm a Stillwater Scientist
14 with the Districts.

15 MS. LIEBERSBACH: Debbie Liebersbach with the
16 Turlock Irrigation District.

17 MR. GODWIN: Art Godwin representing Merced
18 Irrigation District.

19 MS. BRANTLEY: Pat Brantley, Department of Fish

20 and Game, the Fresno Office.
21 MR. MITCHELL: Dale Mitchell, Department of Fish
22 and Game, Modesto Office.
23 MR. MARSTON: Dean Marston, California Department
24 of Fish and Game, Fresno Office.
25 MR. MCLAIN: Jeff McLain, National Marine Fishery

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1 Service, Sacramento.
2 MR. MESICK: Carl Mesick, U.S. Fish and Wildlife
3 Service in Stockton.
4 MS. BOUCHER: Allison Boucher for Friends of the
5 Tuolumne.
6 MR. FURMAN: Donn Furman, San Francisco City
7 Attorney's Office.
8 MR. YOSHIYAMA: Ron Yoshiyama, Wildlife Fisheries
9 Consultant for San Francisco.
10 MR. TAYLOR: Tim Ramirez, San Francisco Public
11 Utilities Commission.
12 MR. KOEPELE: Patrick Koepel e, Tuolumne River
13 Trust.
14 MS. HOLTZ: Elizabeth Holtz, Tuolumne River Trust.
15 MS. GIGLIO: Debbie Giglio, U.S. Fish and Wildlife
16 Service.
17 MR. HEYNE: Tim Heyne, Fish and Game.
18 MS. MURRAY: Nancee Murray, Fish and Game.
19 MS. WEBB: Kim Webb, U.S. Fish and Wildlife
20 Service, Stockton.
21 DR. SALE: We have one person on the phone.
22 MR. TAYLOR: Yes. We have a person on the phone.

23 MS. GANTENBEIN: Yes. This is --
24 MR. TAYLOR: Could you identify yourself?
25 MS. GANTENBEIN: Yes. This is Julie Gantenbein

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1 with the Natural Heritage Institute. We're outside counsel
2 to Tuolumne River Preservation Trust, Friends of the River,
3 California River Trust and California Trout, Inc.

4 MR. TAYLOR: Okay. Thank you, Julie, and thank
5 you, everybody else.

6 As a result of -- as a result of the filing of the
7 Ten-Year Fishery Studies Report it's going to be the
8 responsibility of FERC staff to analyze what was filed with
9 us, taking into consideration all the comments that were
10 filed. We've been doing that and as a result we're also
11 able today to provide a short presentation on some of our
12 preliminary results of our review of that data.

13 As far as the purpose for holding this meeting,
14 the Notice that we issues on June 23rd describes at least
15 three areas that we'd like to cover in today's discussion.
16 Number one: Information filed with the Commission by the
17 various parties concerning the 10-year summary report for
18 the licensee, chinook salmon studies, monitoring the nonflow
19 mitigation efforts on the Tuolumne River since 1995.

20 I think in this way we believe that our review is
21 necessitated as a result of the Commission's July 31st, 1966
22 order amending license, in which an ordering power, graph G,
23 the Commission stated: Based on the information provided in
24 the licensee study results, the Commission will determine
25 whether to require further monitoring studies.

1 A second purpose for today's meeting is stated
2 again in the June 23rd Notice in which we said that we would
3 like to discuss information on Central Valley steel head to
4 determine what effects, if any, may be occurring.

5 And, again, we'd probably like to go back and
6 refer to a December 22nd, 2003 order issued by the
7 Commission. And that was in response to the NOAA's petition
8 for reopening the license and initiating formal consultation
9 on the Don Pedro Project.

10 In that December 2003 order, and it was entitled
11 "Order Deferring Action on Petition Pending Completion of a
12 Formal Consultation," the Commission said that it believed
13 it was appropriate to defer consideration of the petition
14 pending completion of formal discussions and the development
15 of additional information.

16 They also said that this information should be
17 sufficient to determine what effects may be occurring.

18 In any event, in either the review of the 10-Year
19 Fishery Studies Report or the information that we're trying
20 to gather on determining what effects, if any, are occurring
21 to Central Valley steel head, the Commission in both
22 instances indicated that as a result of that review of the
23 10-Year Study or as a result of the informal consultation,
24 they could lead to possible consideration by the Commission
25 of any changes in project structures and operations to

1 protect fishery resources in the Tuolumne River.

2 So that's a little bit of the background of why
3 we're here today, and there's a lot of history on this.
4 Phil Scordelis will go briefly over that history in a few
5 minutes.

6 One of the things that I want to point out today,
7 this morning we are going to have everything documented with
8 a stenographer. We want to make sure that everything that
9 hasn't been written down and filed with the Commission to
10 date becomes a part of the Commission's record of this
11 proceeding. And I only ask that when you make a
12 presentation that you identify yourself by name so the
13 people here recording this will be able to report your name
14 and your affiliation as well.

15 As we go through these presentations this morning
16 we're going to be using a stenographer. After we do that we
17 really would like to, this afternoon, make it a little bit
18 easier for our discussion, and as a consequence we probably
19 are asking the stenographer to finish her duties for today.

20 I'm not sure whether you got that message or not.
21 Okay.

22 We issued another Notice on July 14th wherein we
23 indicated what today's agenda would be like. And we also
24 indicated that whereas we had said that there would be a
25 stenographer here for the meeting, we would rather this

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1 afternoon, when we get to the discussion point, have the
2 stenographers not here and make our discussion a little bit
3 easier maybe.

4 So with that we have some handouts in the back
5 which are the Notices that we've issued and most recently in
6 regard to setting up this meeting. I guess there's a little
7 bit of housekeeping here. There's a restroom across the way
8 and there's a code for access to the restroom.

9 Somebody handed out some information on where we
10 might be able to go to lunch. Jeff.

11 MR. MCLAIN: Well, I just provided a map. If you
12 need specifics, you know, the mall is right over here.
13 There's a restaurant behind us one block away. Plenty of
14 stuff within walking distance. And the line shouldn't be as
15 bad getting back in after lunch.

16 MR. TAYLOR: Okay. With that, does anybody have
17 any questions at this point?

18 If not, we're going to let Phil give us a little
19 bit of history and background of this proceeding. Then
20 we'll turn it over to Mike Sale and Mark Bevelhimer for a
21 presentation.

22 MR. SCORDELIS: Do you want to dim the lights or
23 is that okay?

24 I'm just going to give presentation on the
25 history, the procedural history of the Project. This thing

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1 is just blazing away on its own.

2 The Project license was issued in 1964, a 50-year
3 license. And it included two license articles that are
4 germane to why we're here today. Article 37 set the minimum
5 flows and Article 39 required 20 years of fishery studies.

6 1967, the study plan for the Article 39 studies

7 was approved. In 1971 the Project was completed. 1987, a
8 fourth unit was added and Article 58 was added to the
9 license. It required additional fishery studies until 1998.

10 In 1992 the licensees and the agencies began
11 discussing revisions to Article 39 flows and making some
12 changes, additions to the fishery studies under Article 58.

13 In 1996 a settlement agreement between the
14 licensees and the resource agencies was filed with the
15 Commission. The settlement agreement was not approved and
16 it was not made a part of the license, but there was one or
17 two appendices to that agreement. They were proposed
18 revisions to Article 37 and Article 58. Those were approved
19 and made part of the license.

20 1998, the National Marine Fishery Service listed
21 the Central Valley steelhead rainbow trout as a threatened
22 species. Then in 2002 NMFS filed a request with the
23 Commission for formal consultation on the Tuolumne River
24 steelhead. As George mentioned, we deferred action on that
25 petition. We asked the licensees if they would act as our

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1 nonfederal representative for purposes of informal
2 consultation under the ESA, and they agreed. That was in
3 late 2003.

4 Then in 2004 the licensees filed suit over the
5 listing that was heard in the Eastern District Court in
6 Fresno. The Court remanded the listing to NOAA and to NMFS
7 for revision. And the Court required that NMFS not
8 prosecute its petition with the Commission for formal
9 consultation until that revision was completed.

10 Then in 2005 the Summary Report was filed. And
11 recently there has been some further action on the court
12 cases. Since they came after the filing of the report in
13 2005 I won't go into that. And I'll turn it over to Mark,
14 who's going to carry forward from the date of the filing of
15 the Summary Report.

16 DR. BEVELHIMER: Here are some copies of the
17 slides that I've got. And you can pass these. There's
18 enough for everybody, I think.

19 As George said, Mike and I have been involved in
20 this for a while. Our people at Oak Ridge, ourselves
21 included, wrote the '96 EIS, but we have not lived it like
22 the rest of you have for the last -- since then. So if
23 things that show up here don't jive quite right, forgive us
24 a little bit, but I got back involved about two years ago at
25 a meeting out here that several of you were at, most of you

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1 probably, and then kind of disappeared off of our screens
2 again until the last few months, six months or so we picked
3 up again. So because of our past history, as George said,
4 FERC came back for our assistance.

5 So the presentation I'm going to make today goes
6 through some of the -- just sort of highlights some of the
7 things that we wanted to bring up at this meeting to try to
8 get some extra information from us to find out what the
9 status of some of these issues are and find out if there is
10 new information out there that people have collected and to
11 get some feedback, I guess, as to what -- if our conclusions
12 make sense.

13 And we're really not -- we won't be presenting
14 conclusions so much but we will try to say here's -- well,
15 let me go ahead and get through the list a little bit first.

16 Again, this is the history that George just went
17 through pretty much -- or that Phil went through. Through
18 that process we received comments from most of you and so
19 today in 45 minutes we're going to try to condense that
20 Summary Report and two or three times that amount of
21 comments that came into ten slides.

22 We tried -- this is what we see, this list of what
23 are the major issues that have arisen.

24 THE REPORTER: Excuse me. Could you hand -- carry
25 the mic with you?

17

1 DR. BEVELHIMER: Okay.

2 THE REPORTER: Thank you.

3 DR. BEVELHIMER: These are the -- what we've sort
4 of identified as some of the major issues and we've split
5 those off even into some on the left-hand side are things
6 that we're going to try to talk, to initiate some discussion
7 about today. The rest of them are certainly open for
8 discussion as well. So as the day goes on, you know, we can
9 get into some of these other things as well.

10 They've got me listed down here for about an hour.
11 You're welcome to interrupt at any time with questions or
12 comments. We'll try to keep marching through the eight or
13 ten slides that I have so that we can move on and try to
14 keep on schedule. But we can always come back to those
15 things later in the day as time allows.

16 So let me go through sort of this right column
17 first with some of these issues that we see things falling
18 out in the comments and in the 10-Year Summary Report:

19 Participation in the VAMP and the relationship
20 between the operations of the districts and TRTAC with the
21 VAMP;

22 Flow fluctuations and stranding;

23 Temperature, water quality concerns in the river;

24 Flood management flows;

25 Predator control; -- I guess I can work off of

18

1 this list --

2 Both biological and physical monitoring.

3 A lot of these things show up -- there's a lot of
4 crossover between these issues, and so there will be things
5 on the right side that are going to show up when we discuss
6 some things on the left side.

7 Chinook population resiliency;

8 Adaptive management; and

9 Sort of make-up and operations of the TAC.

10 And then today down the rest of the slides we've
11 got a little slide for each of these issues. And I've got
12 it listed as main issues. It's not so much that
13 necessarily, but these are the issues, like I said, we were
14 hoping to generate some discussion on and try to understand
15 better any additional information.

16 Habitat restoration and gravel quality and egg
17 survival; fry survival; smolt production; hatchery
18 augmentation; fish flows; and steel head.

19 And so you've got a slide that you can maybe read
20 from back in the room. We've got the handouts that you
21 probably can't read under these dim lights if your eyes are
22 as bad as mine, but we can work through these.

23 So habitat restoration. "Are habitat restoration
24 projects being completed and are benefits being realized?"
25 Most of you know, all of you know more about this than I do,

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1
2 but there are ten projects that were identified early on to
3 be carried out by the Districts. Funding was to be provided
4 in part by the Districts and matched and generated from
5 other sources.

6 At the time the Summary Report was written two of
7 the projects were done. A third project had been -- was
8 completed by, I think, December 2005, when I started sort of
9 reviewing this stuff. It's possible that another one or two
10 or three have been completed since then.

11 I know that since this time there's supposed to be
12 another, I guess, one could have started. So my
13 understanding is that eight of the ten have either been
14 completed or are underway.

15 And so the way I kind of presented this
16 information then is, I've tried to summarize in just a few
17 bullets what the Districts' positions are or what they
18 stated in the 10-Year Summary Report in regard to this
19 issue. The same thing, two or three bullets then, sort of
20 the main things that try to encompass what the major
21 statements made by comments from the agencies and the NGOs.

22 And then just sort of the staff preliminary
23 analysis a little bit. Just to give you some idea of what
24 we're thinking and how we're interpreting the information
25 that we're seeing.

20

1 So the Districts then -- I think this has been,
2 and again I'm sure you all will correct me if I say
3 something wrong and misrepresentative here:

4 The nonflow restoration is progressing as planned
5 and producing positive effects. No reduction in predator
6 species, but a greater spatial segregation between smolts
7 and predators based on habitat models. And of course that's
8 just one of the -- of the intentions of some of the habitat
9 restoration was dealing with the predator species.

10 Comments then from others were that they're
11 "Concerned that funding limitations [might]...cause the last
12 two projects to not be completed...licensee should be
13 required to infuse restoration project proposal [of]
14 significant funding match in order to attract funding from
15 outside sources.

16 "The Districts should contribute financially to
17 repairs to the gravel spawning beds and habitat caused by
18 the '97 flood[s]."

19 Again, that's a pretty short encapsulization of
20 what was all said and all the comments, but as we go through
21 these, if anybody says, well, I think this is another major
22 issue or another major comment or concern that we had,
23 please feel free to shout out.

24 Staff's take on this is that it's still pretty --

25 "...too early to tell if the restoration projects have been

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1 successful." And, like I say, just two or three of them --
2 three of them have been completed to date. And monitoring
3 for those kinds of projects often takes several years to
4 start seeing results. So I don't think it's a surprise that
5 we haven't seen any results.

6 On the other hand, I don't know that the right
7 kinds of studies have been done in some cases to try to
8 determine whether or not the projects that have started to
9 meet what they were intended to do.

10 "However, because habitat restoration projects
11 appear to have a high potential for success, the last seven
12 should be completed as planned." That probably goes without
13 saying.

14 "Additional funding from the Districts should be
15 considered for the last two projects which are currently
16 unfunded." And, again, I don't know what the understanding
17 is within TRTAC as to whether or not those two projects are
18 to be completed. And maybe there's somebody from the
19 Districts who can give us a little bit of insight as to what
20 the status of those two projects are and how that funding
21 is. Maybe you can help answer that question, I don't know.

22 What I'd like to do is kind of stop as we go
23 through these a little bit and open the floor for any
24 responses from anybody. And we'll try to generate some
25 questions. The main question for each one of these is

1 what's the current status. Has there been anything done
2 since the 10-Year Summary Report and then also I guess if
3 there's any additional information that anybody else has
4 collected or if there is any more. Yes.

5 MR. MCLAIN: Jeff McLain for the National Marine
6 Fishery Service. My understanding is that those projects
7 were dependent on a lot of things, particularly landowner
8 agreements and specific funding for specific items. And
9 they are in jeopardy.

10 The most recent one, MJ Ruddy, just lost
11 additional money, I think \$3 million, which puts that
12 project in jeopardy. And unfortunately that kind of is a
13 landslide for other projects because the other landowners
14 are also aware of what happened at MJ Ruddy. And so I
15 wonder if we could talk about how we're going to resurrect
16 those projects.

17 DR. BEVELHIMER: Can somebody from the Districts
18 just fill us in on the status of the eight or ten projects?
19 What's the...

20 MR. FORD: Tim Ford with the Districts. The
21 implementation of a number of these projects has been
22 difficult for a variety of reasons. As Jeff identified,
23 these were major projects that were developed after the '97
24 flood and the development of the Habitat Restoration Plan.
25 And significant money was awarded to implement the projects,

1 but in a number of cases we haven't been able to proceed

2 with implementation beyond scoping and planning phases and
3 environmental documentation.

4 For example, the Ruddy Project, which is just
5 downstream of the 7/11 Project in the mining reach that was
6 one of the completed projects, the federal agencies were
7 never able to obtain an approved appraisal to even offer to
8 the landowner as part of the preliminary actions to proceed
9 with the project.

10 So it's just very difficult to pull off any one of
11 these projects for a variety of reasons. And in another
12 case moneys, say for gravel cleaning, has been shifted
13 through a CalFed amendment to other projects. So things
14 have been changing on a number of these.

15 We've done the three. We still have funding to
16 proceed with a number of large gravel additions, so we hope
17 those can proceed. There's the Gasper Creek Project, which
18 may proceed at any time, but a number of others are in
19 question.

20 And then some of them were put on the list, but
21 there's never been any funding or real planning done. The
22 Reed Project would be in that category.

23 There is a monitoring report, though, that was
24 done, just finished in the last month that will be available
25 soon that's on a number of the projects and an update of the

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1 monitoring work since the last several years. So that would
2 be a new status update on that.

3 MR. NEES: Robert Nees from TID. I think it's
4 important to understand that the obligations of the

5 licensees was to identify ten priority projects for
6 restoration efforts on the stream. Districts in cooperation
7 with TAC have completed this as requested and as required.
8 Two of those were Predatory Reduction Projects.

9 Obviously being able to implement projects on this
10 scale -- these are huge projects, extremely expensive
11 projects. They were not the small projects I think most
12 signatories to the TAC and the settlement agreement believed
13 they were going to be initially. So consequently these are
14 not easy to pull off, as Mr. Ford just indicated.

15 We were successful in obtaining a number of
16 funding commitments from state and federal funding programs.
17 As Mr. McLain has indicated, some of that funding has
18 evaporated now because it can't be put to use quickly enough
19 because of certain roadblocks we face with getting through
20 the federal hoops to be able to utilize those funds.

21 Consequently, the Districts in cooperation with
22 the City and County of San Francisco have spent the
23 allocated number of dollars as prescribed in the settlement
24 agreement and moving forward with the projects. It would
25 still be necessary to find additional funding to be able to

25

1 complete those remaining on the list and there is some
2 question at the TAC level that perhaps that list needs to be
3 revisited to see if there aren't other projects now that
4 should be added in and some dropped off.

5 DR. BEVELHIMER: Yeah. That was one of the
6 comments that that were contributed, saying that that does
7 maybe need to be revisited and revised. So I don't know if

8 anybody has similar feelings to that.

9 MS. BOUCHER: We appreciate -- right upfront I
10 want to say we appreciate how aggressive the Districts were.
11 They didn't pick little tiny projects. They picked really
12 good projects with --

13 MR. TAYLOR: Could just identify yourself?

14 MS. BOUCHER: Oh, Allison Boucher, Friends of the
15 Tuolumne. So we appreciate that the Districts picked good,
16 large projects, but we do disagree a little bit in that it
17 wasn't just the responsibility to identify them and make
18 them turnkey projects. The FERC settlement agreement says
19 in 12(v)(C), the objective is to implement the Priority
20 Projects by 2005, so it isn't quite enough to just say we've
21 identify them and now we're stuck. The objective was to
22 have them implemented.

23 DR. BEVELHIMER: Carl.

24 MR. MESICK: My name's Carl Mesick and I'm with
25 the U.S. Fish and Wildlife Service. I wanted to say that

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1 we're going to give a presentation later on in the meeting
2 to discuss whether or not these restoration projects are
3 beneficial for the Chinook salmon fishery. I think that
4 there's a lot of uncertainty into that and rather than get
5 into that now I'd rather discuss that more in detail later
6 on.

7 We have some ideas and maybe there would be --
8 there's enough uncertainty that we'd like to try other
9 experimental approaches as well.

10 DR. BEVELHIMER: If there's nothing else on that

11 topic I'm going to move on and try to keep things rolling.
12 But that's good. I appreciate that kind of input.

13 Everybody good?

14 And this is a related topic: "Has restoration of
15 spawning areas resulted in a greater amount of quality
16 spawning habitat?"

17 The Districts concluded in the Summary Report that
18 "Based on [the] CDFG redd counts [that] Chinook salmon
19 spawning utilization had increased at [the] modified riffles
20 since restoration."

21 Comments from the others were that those redd
22 counts aren't really sufficient indicators of that
23 restoration, that no direct assessment of the quality of the
24 spawning habitat had been performed. And that's actual
25 amounts of the gravels and the fine sediments within the

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1 gravels.

2 FERC staff take on this: "A study to evaluate
3 salmonid egg survival to emergence at restoration sites is
4 needed. [It] should include [some] evaluation of gravel
5 size, ... type, sedimentation, and flow penetration of
6 spawning beds.

7 "Untested ideas such as placement of spawning
8 barriers should not be used until possible impacts are
9 better understood or the population is more resilient to
10 disturbance." That was an issue that I think I put up on
11 the right side, was the population, the resiliency of the
12 Chinook population at this time and whether or not we think
13 that it's at a point where we can go ahead with experimental

14 projects that may be a little more risky. And most of the
15 comments from Fish and Game and others were that it's a
16 little too early to do that. And I think we're probably
17 tended to agree with that stance.

18 Lastly, "Continue efforts to increase spawning
19 habitat utilization and reduce redd superimposition by
20 [methods such as]...flow management, gravel restoration, and
21 gravel addition in upstream areas." So sort of continues
22 some of the things that have been going on as opposed to
23 trying risky, new innovative things.

24 You know maybe this isn't -- this slide's not
25 nearly as big an issue perhaps as some of the other ones

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1 that we're going to come across, but any comments on that?
2 Any thoughts or any -- Tim, are there any kinds in your
3 monitoring report that's coming out, does it include any
4 more information on the spawning gravels?

5 DR. HUME: This is Noah Hume, Stillwater Science.
6 There were a number -- well, two or three years of gravel
7 quality studies, permeability testing, both sampling. Most
8 of that information was in the Coarse Sediment Report, which
9 has been supplied. I think it's in appendix to one of the
10 Annual Reports.

11 MR. FORD: This year.

12 DR. HUME: This year? Okay.

13 There's also been reanalysis of some preliminary
14 gravel-cleaning experiments that were done in the early
15 '90s, so there was some data that did not come out in the
16 '96 Report or the '92 Report, which sort of indicated the

17 effectiveness of various gravel-cleaning strategies, and
18 that's also in that same Coarse Sediment Appendix.

19 And then there's been a survival-to-emergence
20 study which has not been published. Essentially it was a
21 combination of various artificial mixtures of sand and
22 gravel to better quantify what were the threshold levels of
23 permeability for very survival. And, unfortunately, there
24 were some implementation difficulties in that experiment and
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1 so we lost some of the intermediate values of these gravel
2 mixtures, leaving pretty much a two-point regression,
3 effectively, a cluster of high and low permeability. And
4 high permeability gives you better survival.

5 So there have been a number of efforts to this
6 effect and, yeah, there is indication, plenty of indication
7 of gravel quality and its effect -- you know, current on the
8 river and its effect on survival to emergence.

9 DR. BEVELHIMER: Yeah, go ahead.

10 MR. MESICK: Carl Mesick, Fish and Wildlife
11 Service. But still there hasn't been any egg survival
12 studies done in the gravels placed --

13 DR. HUME: This is correct. The --

14 MR. MESICK: What you're talking about is more of
15 an experimental. The restoration work has not been directly
16 assessed in the river and there have been studies on the
17 Stanislaus River that leave some uncertainty that there --
18 you know, these gravels might not be beneficial to the
19 population. So still there is a question that hasn't been

20 answered yet.

21 DR. BEVELHIMER: You guys have any upcoming
22 studies or anything that -- or any --

23 DR. HUME: There were to be some gravel quality
24 assessments so more of the permeability types of things in
25 river population. Those sorts of things were to be included

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1 in the -- there's a current funding cycle of a monitoring
2 program which has been halted due to negotiations with Fish
3 and Game. So there were some aspects of that, but not a
4 direct survival-to-emergence study due to newly-placed
5 gravels.

6 MS. BOUCHER: Allison Boucher, Friends of the
7 Tuolumne. We would like the studies of the spawning areas
8 to be expanded slightly to include optimal size of the
9 spawning area, spawning bed, proximity to holding water, and
10 test some of the givens on what is the appropriate slope of
11 a salmon spawning bed and how that can be interacting with
12 trout that are trying to spawn.

13 DR. BEVELHIMER: Anything else on this topic?

14 And, again, related -- you'll sort of see that
15 we're sort of progressing here in life stages a little bit.

16 MR. SCORDELIS: Mark, could I interrupt a little
17 bit?

18 DR. BEVELHIMER: Yeah.

19 MR. SCORDELIS: I have a question for Allison.

20 This is Phil Scordelis with FERC.

21 Allison, are you asking if the restored or
22 rehabilitated salmon spawning areas, their structure might

23 be incompatible for trout spawning? Is that the point
24 that's of concern to you?

25 MS. BOUCHER: That's a concern. It's a concern.

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1 MR. SCORDELIS: So --

2 MS. BOUCHER: Because the standard spawning design
3 up until recently didn't include holding water, which the
4 trout want. And there's this discussion of what part of a
5 redd is the salmon using and what part of a redd might a
6 major size trout use. And so we want to just make sure that
7 when they do -- they do their studies, they're of course
8 focused on the salmon but we want them to also take a look
9 at what impact they may have on trout and how the two can be
10 perhaps maximized together. Some question if maybe large
11 spawning beds are not even as effective for salmon as
12 several small spawning beds in a vicinity with holding water
13 between. We just want all those questions addressed.

14 MR. SCORDELIS: Thank you.

15 MR. MARSTON: Can I ask one --

16 DR. BEVELHIMER: Yeah.

17 MR. MARSTON: -- relative to gravel holding. Dean
18 Marston, Department of Fish and Game. There is an
19 assumption that that redd superimposition causes a hundred
20 percent mortality of the eggs. And there is information
21 that suggests that that's a gross assumption, entirely
22 wrong. And additional monitoring should be conducted to
23 confirm just exactly what is the effect of superimposition
24 on egg mortality. A hundred percent, zero complaint, what
25 is it.

1 DR. BEVELHIMER: I'll take a risk of talking off
2 the top of my head here. At some point in time the studies
3 that the Commission might -- I won't even speak for the
4 Commission -- but at some point there's a line between the
5 types of projects that are expected of the licensees, I
6 believe, and the types of projects that get toward being
7 real scientific. And we could request of them to do things
8 to the infinite degree.

9 And certainly the comment you make is a really
10 good one because it tells us how much we need to -- you
11 know, the answer to that question speaks to how much
12 mitigation might be required, how much spawning area is
13 required, things like that. But I guess I kind of question
14 back to you a little bit, you know, is that beyond what FERC
15 should consider of the Districts, to go do those kinds of
16 studies to tease out -- I mean as a scientist I see that as
17 a pretty involved study, to be able to go out and measure
18 how much superimposition disrupts the first redd that's the
19 there. Just a comment.

20 MR. MARSTON: Can I make a comment in return?

21 DR. BEVELHIMER: Yeah. Yeah, sure.

22 MR. MARSTON: I think it's important to
23 prioritize. There's different conceptual models underlying
24 restoration not only in Tuolumne River but rivers elsewhere
25 in California. And it's important to prioritize which of

1 the key elements and the assumptions surrounding those key
2 elements in each of the conceptual models.

3 One conceptual model says that spawning habitat is
4 insufficient and there's high levels of redd density, high
5 levels of redd superimposition, therefore if we create more
6 spawning habitat that'll solve all the problems.

7 There's another conceptual model that says that's
8 not a problem and we need, you know, for instance, more
9 spring outflows. That'll solve the problem.

10 And there's different assumptions and different
11 priorities in here in each conceptual model. And I think
12 key monitoring -- or monitoring key to looking at the higher
13 priority and assumptions being those high priorities is
14 necessary. And something that FERC could require licensees
15 to do.

16 DR. BEVELHIMER: Yeah. I guess my question was,
17 yeah, we need to try to better understand what those
18 priorities are, what that rank is. There's about three
19 hands that went up there and whoever's first, go ahead.

20 MS. BOUCHER: I would like to point out that --

21 MR. TAYLOR: Allison.

22 MS. BOUCHER: -- Allison Boucher, Friends of the
23 Tuolumne -- San Francisco brought up the issue of
24 superimposition in the FERC settlement agreement. The
25 Districts had brought up the issue of superimposition when

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1 they proposed barriers, so they have already brought the
2 issue to the table.

3 DR. BEVELHIMER: Yeah. And I'm not saying that

4 the issue of superimposition isn't a high priority so much
5 as when you start thinking about what study needs to be
6 done, what piece of information reduces the amount of
7 uncertainty that we have in our analysis, obviously is the
8 ones that we want to answer first.

9 Go ahead.

10 DR. HUME: Noah Hume, the Districts. There are
11 plenty of disagreements about the relative effects of
12 superimposition, but as far as stating an assumption that
13 superimposition causes a hundred percent mortality, that's
14 not been stated at any time in the Districts' reports.

15 In the '92 studies there was an emergence trapping
16 experiment, essentially nets placed over natural redds, and
17 analysis of early and late distribution of emergence which
18 shows partial -- partial mortality, but not complete
19 mortality. And that was factored into various models. One
20 is called, I think, Escape 4, which modeled the effect of
21 superimposition in the river, which has been integrated into
22 various salmon populations.

23 MR. SCORDELIS: Phil Scordelis with the FERC.
24 Mark, you touched upon practical information versus
25 theoretical information. And I think if we're -- if

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1 monitoring is occurring on the practical basis to see how
2 many -- what the escapement was, what kind of spawning
3 occurred in a certain area, and there was pre-emergence and
4 emergence monitoring done site-specifically over the basic
5 time, we'll get the theoretical information.

6 For doing practical monitoring on the Tuolumne,

7 over time. If we're doing practical monitoring on the
8 Tuolumne, over time we will have enough information to reach
9 some theoretical conclusion about redd superimposition.

10 I think it's important to find out whether or not
11 there's sufficient spawning habitat to handle certain
12 escapement. I mean it's fairly simplistic in my mind if
13 you've got more fish crowding into a small area, you
14 probably need more habitat. And if that's the case you can
15 monitor the following spring, late winter-early spring to do
16 an emergence sample and determine, based on females spawn
17 versus fry emerging, whether or not the numbers line up or
18 whether or not there's some discrepancy.

19 And so I think if we're going with practical
20 monitoring, we will eventually reach theoretical
21 understanding of redd impression on the Tuolumne.

22 DR. BEVELHIMER: Okay. I'm going to move onto fry
23 survival. "The [settlement agreement]... required
24 assessments of Relative Fry Density [to]... Female Spawners
25 and [also] of Fry Distribution and Survival to assess flow

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1 and habitat mitigation." Those things were spelled out
2 pretty clearly I think in the agreement, so we tried to look
3 back to see certainly in the Districts in the summary --
4 what's in your summary, address these issues.

5 And they "Concluded that regular seining surveys
6 were not able to provide information on
7 survival-to-emergence success in specific reaches or
8 riffles.

9 "[The]... multi-year analysis... indicated a

10 positive correlation between fry density and female
11 spawners. "

12 They "Conducted regular seining surveys" for a 10-year
13 -- nine-, 10-year period -- I'm sorry -- 19-, 20-year
14 period.

15 And then "Screw trapping prior to April" of each
16 year from '98 to 2002 to provide "additional abundance
17 information. "

18 I think the point, the main point there is that
19 the Districts found themselves that the seining survey was
20 limited and as to what kinds of conclusions they could make
21 from that.

22 Some of the comments from that we received said:
23 "Problems with the Districts' seine surveys were: (1)
24 absolute abundance cannot be estimated and, [secondly]... the
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1 study site selection" wasn't "representative" of the entire
2 river. So it's hard to tell, to go from those densities
3 that were seen at those sites to a more overall river
4 abundance.

5 FERC analysis: "The data collection methods do
6 not allow a statistically valid estimate of fry production
7 per female spawner or of fry distribution." So I guess that
8 -- you know, those questions that were initially raised were
9 difficult to answer.

10 And a "Better-focused monitoring of site-specific
11 fry emergence, distribution, and transport is needed."

12 Any comments on that?

13 MR. LOUDERMILK: Bill Loudermilk with Fish and
14 Game. I notice in the FERC staff's second recommendation
15 there or identification of your understanding that you've
16 eliminated the survival component and transposed that into
17 transport.

18 DR. BEVELHIMER: Not on purpose.

19 MR. LOUDERMILK: Okay.

20 DR. BEVELHIMER: We're not -- I guess I wouldn't

21 --

22 MR. LOUDERMILK: One of the things that you will
23 see later on today in the joint presentation from the
24 fisheries agencies is that in addition to the smolt life
25 stage that we still feel strongly need greater protection

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1 levels than the license affords today. Albeit we need
2 better information there. The fry life stage is surfacing
3 as -- particularly as they rear in the Tuolumne River,
4 appears to be perhaps another very important bottleneck in
5 the lifecycle there. But I think that'll be addressed in
6 the conceptual model that is presented a little later.

7 DR. BEVELHIMER: Okay. Yeah, I didn't
8 intentionally leave out survival, and that was the -- yeah.

9 MR. MESICK: I just have a quick comment. Carl
10 Mesick, U.S. Fish and Wildlife Service. I think we can also
11 monitor fry, the fry population using rotary screw traps
12 rather than just focusing on site-specific, because it is so
13 variable from year to year. The fishes move around. It's
14 really handy to have a population level estimate that can be
15 done.

16 DR. BEVELHIMER: Yeah. And I know we're aware of
17 the issues of trying to validate and calibrate the screw
18 trapping results from first time around.

19 MR. MESICK: Well, we've been able to do them on
20 other rivers. We just didn't -- we don't have a long track
21 record of doing it on the Tuolumne. We'll talk about that
22 more later.

23 DR. BEVELHIMER: Anything else?

24 Smolt production. "Has the production of chinook
25 smolt improved as a result of mitigation outlined in the

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1 1995 ['96] settlement agreement?"

2 Districts or my interpretation of the Summary
3 Report was: "Efforts to design a robust survival monitoring
4 program have met with limited success.

5 "Only weak relationships between smolt survival
6 and flow or other factors such as habitat restoration.

7 "Since a number of factors unrelated to Tuolumne
8 River flows can contribute to variability in actual smolt
9 survival, no particularly useful new data would be generated
10 by additional smolt survival experiments." And that refers
11 to the coded wire tag studies that were discontinued.

12 I think the point that was made in the Summary
13 Report several times was that it's difficult to get a handle
14 on smolt production and any relationships with flow due to
15 all the other extenuating circumstances or the other factors
16 that come into play, and I don't need to go through those I
17 don't think with this group, but ocean survival and survival
18 through the Delta. And of course that was not the opinion

19 of everybody

20 The comments from the others were: "... population
21 of fall-run Chinook salmon has not improved since 1996.

22 "[Coded wire tag]... studies should be resumed.

23 The Districts' concerns that the use of hatchery fish for
24 CWT studies would endanger the natural genetic makeup is
25 unfounded.

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1 "More smolt survival versus flow studies should be
2 completed to reduce uncertainty in the flow to smolt
3 survival relationship.

4 "The Districts' monitoring program has been
5 inadequate to determine whether the failure of salmon
6 population to respond to the new flows and habitat
7 restoration was due to factors within the control of the
8 Districts."

9 Our take at this point, that: "Neither the
10 Districts' nor alternative analyses" that have been
11 presented on numbers of escapement or the numbers of smolt
12 production and the relationships to flow "have convincingly
13 detected significant differences in smolt production" since
14 '96.

15 "Staff agrees that more flow survival data points
16 are needed, particularly during high flow years." And I've
17 got that figure, but most of you are probably familiar that
18 when we look at the relationship between smolt production
19 estimates and smolt production and the flow during those
20 springs, there's only one or two points out of periods when
21 -- years when the flows were fairly high, so there are a lot

22 of points at the low flows, one or two up here. And it's
23 really tough to get to understand that relationship when you
24 have that. And so we agree that some more data needs to be
25 collected during periods with higher flows.

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1 And you know part of the question is, well, do we
2 wait for those to happen on their own or do we try to
3 produce those flows, have the Districts produce those flows
4 so that during certain years, to go ahead and fill in the
5 rest of that relationship so we can better understand that.

6 Any comments?

7 DR. HUME: This is Noah Hume with the Districts.
8 Can you clarify whether you're speaking of a seasonwide
9 smolt production or a survival estimate on a particular
10 pulse flow?

11 DR. BEVELHIMER: I was talking seasonwide, --

12 DR. HUME: Okay.

13 DR. BEVELHIMER: -- sort of annual production, I
14 guess.

15 DR. HUME: Okay.

16 DR. BEVELHIMER: Yes.

17 MR. FORD: This is Tim Ford with the Districts.
18 The information in the 10-Year Report identified there had
19 been three years of high-flow studies at 4,000 cfs on --

20 DR. BEVELHIMER: Let me -- I've got that figure, I
21 think. Let me see if I can get to that.

22 MR. FORD: And also there was another study done
23 by Fish and Game last year with flows I think in 4, - to
24 5,000-cfs range. Yeah, that one doesn't include the 1986

25 Study, but there was a high flow of study done that year.

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1 DR. BEVELHIMER: And you have smolt-survival index
2 values for that year as well, is that what -- for '86?

3 MR. FORD: Yeah. Just -- that figure is from page
4 3-118, and there's a figure on 3-114 that shows the '86
5 failure with a different layout.

6 DR. BEVELHIMER: And then you said -- I'm sorry.
7 And then you said this past year or this year?

8 MR. FORD: Well, in 2005 there was another one
9 around 4, - to 5,000. I don't know what the results from
10 that are, but that would be a fourth if it's considered a
11 valid test. And that's the flow range where all the
12 estimates of survival from the various sources were
13 relatively high. And then the information for the years
14 that were at lower flows, it's a lot more variable. And
15 that assessment was only based on Mossdale recaptures, which
16 is why '86 isn't there because Mossdale wasn't a recovery
17 site that year. That all the other sites that are used,
18 like Ocean Harvest and Chips Island and other draws, adult
19 returns, that's in the figure on 3-114.

20 DR. BEVELHIMER: And then this past spring with
21 the high flows?

22 MR. FORD: This year in 2006 there wasn't any
23 smolt-survival study that I'm aware of, but there was in
24 2005.

25 DR. BEVELHIMER: Okay. Anybody else?

1 I can go back to that.

2 MR. JOHNSTON: Bill Johnston for MID. Are you
3 using the terms "production" and "survival" interchangeably?
4 Or it seems to me we're talking about two different things
5 here, because you can produce a lot and if they didn't
6 survive it doesn't make any difference.

7 DR. BEVELHIMER: This is primarily production that
8 I'm talking about. But I understand the difference, yeah.
9 Bill.

10 MR. LOUDERMILK: Bill Loudermilk, Fish and Game.
11 I think Bill Johnston makes a very good point. I believe
12 that the focus of the smolt-survival element of the 10-Year
13 Study or Monitoring Program, while it was intended to gain
14 some insight as to smolt production, you know, the number of
15 smolts that are actually leaving the Tuolumne River, we were
16 using smolt survival as a strategy to understand the
17 mechanism for production. Obviously if they don't survive
18 through the confluence of the San Joaquin, they wouldn't be
19 added and they wouldn't come out to production, if you will.

20 And it's that flow-survival relationship that our
21 department is interested in, having a better understanding
22 of, and refining the relationship in those higher-flow
23 ranges. And I tend to agree with your insight, that if we
24 wait for the hydrology to repeat itself we could be waiting
25 either a short time or a long time. But because this

1 particular monitoring element is so critical in terms of

2 defining a life stage, how to protect a life stage that
3 appears to be extremely valuable in terms of maintaining
4 adult numbers, it's a really high priority for our
5 department at least.

6 So I guess I would be an advocate of finding a way
7 to create the flows sooner rather than later to fill in and
8 refine that relationship, if we can.

9 DR. BEVELHIMER: Yeah, Phil.

10 MR. SCORDELIS: Phil Scordelis, FERC. I need a
11 little clarification. I'm wondering what people in the PAC
12 are considering to be a smolt. Are we talking about
13 150-millimeter, silver bright outmigrant, or are we talking
14 about a fry that's reached 80 or 90 millimeters?

15 MR. MCLAIN: Eighty to 90.

16 MR. SCORDELIS: So we're not talking about fish
17 that have spent more than a few months in the Tuolumne
18 River?

19 MR. MCLAIN: Right.

20 MR. TAYLOR: Jeff.

21 MR. MCLAIN: Jeff McLain, National Marine Fishery
22 Service. Well, I think when we refer to smolt we refer to
23 the physiological stage of smoltification. And size can
24 vary, but generally the hatchery fish are, you know,
25 probably 80 to 90 to 100 millimeters. And they haven't been

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1 reared in the Tuolumne. They've been transported and put in
2 for these experiments.

3 MR. HEYNE: Tim Heyne, with Fish and Game. Just
4 to add to that, though, when you monitor the smolt leaving a

5 river, you would never see 150-millimeter smolt. They're --
6 90 to 100 millimeters is the average size of the smolts
7 leaving the river.

8 And by "leaving the river" I mean the San Joaquin
9 system at Mossdale.

10 MR. SCORDELIS: Leaving -- Phil Scordelis with
11 FERC. You mean leaving...

12 MR. HEYNE: I mean they're leaving the whole
13 system.

14 MR. SCORDELIS: Okay. They're down in the Delta
15 somewhere?

16 MR. MCLAIN: Yes.

17 MR. HEYNE: And in the Delta. That's the size
18 they leave the system in San Joaquin.

19 MR. SCORDELIS: I have a photograph from one of
20 the reports that was emails to me from, I believe, the place
21 of consultant, shows 150 -- I think it's a 150-millimeter
22 Chinook salmon smolt. And when I say "smolt," I'm thinking
23 of one that's ocean ready. It's got the deciduous scales.
24 It's ready to pump salt out of its body, so --

25 MR. HEYNE: And that's what our 90- to 100-millimeter

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1 fish --

2 MR. SCORDELIS: They are in that condition,
3 though?

4 MR. HEYNE: Yeah, they're --

5 MR. SCORDELIS: Have you ever done the -- there's
6 a test where you can assess the ability of a fish to
7 transport salt out of its body? Has that ever been done in

8 the Tuo- --

9 MR. HEYNE: I believe that's the saltwater
10 challenge.

11 MR. LOUDERMILK: Sodium potassium ATPA.

12 MR. SCORDELIS: I think that's --

13 MR. MCLAIN: Didn't Scott Foott do tests on sodium
14 potassium? Part of the Fish Health Center. I believe that
15 was done.

16 MR. HEYNE: They do the saltwater challenge. I
17 don't know if they did the ATPAs.

18 MR. LOUDERMILK: We did -- Bill Loudermilk with
19 Fish and Game. There was an evaluation of a number of
20 physiological parameters performed on smolts leaving the San
21 Joaquin Basin and smolts in each of the tributaries,
22 including the Tuolumne. I don't remember the date of that
23 work. I was involved in that as well as a consultant by the
24 name of Alice Rich, who did prepare a report.

25 The nuts and bolts, Phil, were that as fish begin

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1 to exceed 70 millimeters in the Tuolumne River, certainly by
2 the time they reach 90, they are beginning that smolt
3 transformation, that physiological change that allows them
4 to live and grow and survive in saltwater. They begin that
5 transition, and those indicators like sodium potassium
6 ATPAs, which is an enzyme, that increases as those fish
7 develop and migrate.

8 So what we saw in that study was that as fish are
9 in the Tuolumne approach 70 to 80 millimeters in length,
10 those levels of indicators of smoltification are beginning

11 to elevate. And as we sampled them further and further and
12 further downstream, those levels increased. And ultimately
13 when they get full saltwater, you know, out of the Gate,
14 Golden Gate, they're ready.

15 So there has been some work done indicating that
16 the smoltification -- smolt size ranges from 70 to, what's
17 the high end, Tim, 115 maybe?

18 MR. HEYNE: Well, you will -- I mean I shouldn't
19 have said "never." You will see a few larger ones, but it
20 would be really unusual to see over like 100.

21 MR. LOUDERMILK: You got the last high eight. So,
22 yeah, there's been an indication that -- I guess that
23 defines our definition of smolts, is 70 to
24 over-a-100-millimeter range, and it does vary one year to
25 the next.

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1 But it's actually fish leaving the system.

2 MR. MARSTON: Dean Marston, Fish and -- I just
3 want to clarify the report that Bill and others are
4 referring to. It's a published report 1991 by Alice Rich
5 and Bill Loudermilk entitled, "Preliminary Evaluation of
6 Chinook Salmon and Smolt Quality in the San Joaquin
7 Drainage." It's a combined California Department of Fish
8 and Game and federal agencies working the restoration
9 report, beginning 1991.

10 DR. BEVELHIMER: Ready to move on. Hatchery
11 augmentation has come up several times and I guess the
12 issue: "Is hatchery augmentation a viable option for
13 Tuolumne River Chinook salmon" in restoration/recovery.

14 The Districts don't really approach that issue in
15 the Summary Report. They do have a concern that they state
16 about that endangering the "natural genetic makeup of the
17 Tuolumne River Chinook" population.

18 But others did comment: "CDFG...recommended in
19 the past, from a water efficiency and conservation
20 perspective, construction and operation of a small hatchery
21 on the Tuolumne River, similar to the one on [the] Merced
22 River" that provided augmentation of the salmon, to the
23 salmon population is something that should be considered.

24 And this is a major point of argument in the
25 fisheries community throughout the country, but I guess our

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1 sort of initial take is that a hatchery augmentation under
2 some circumstances can be beneficial. Obviously it's not a
3 cure-all and that, you know, we'll probably -- you know
4 we're interested in sort of pursuing that as a feasibility
5 of hatchery augmentation to supplement Tuolumne River
6 salmonid populations.

7 You know we're sort of fishing, I guess, at this
8 point as to other people's concerns and comments and
9 experiences on the Merced and elsewhere.

10 Yes.

11 MS. BOUCHER: Allison Boucher, Friends of the
12 Tuolumne. Under "Others," the Friends of the Tuolumne have
13 always opposed a hatchery and we will continue to do so.

14 MR. NEES: Robert Nees, TID. I think that the
15 licensees are open to that type of discussion. We have had
16 an arrangement with Fish and Game in the past for the use of

17 an abandoned stretch of MID Canal to raise fish for this
18 purpose. We would have liked to have seen it used more
19 frequently, but for a variety of reasons that's not
20 happening.

21 MR. YOSHIYAMA: Ron Yoshiyama, consulting for San
22 Francisco. I'd like to point out that introducing large
23 numbers of hatchery fish into the Tuolumne system could
24 seriously confuse the efforts to evaluate the efficacy of
25 other measures.

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1 DR. BEVELHIMER: Good point.

2 MR. KOEPELE: This is Patrick Koepel of the
3 Tuolumne River Trust. The Trust is also opposed to a
4 hatchery on the Tuolumne. And we would like to see the
5 current program fully tested before any hatchery
6 supplementation program is brought into play. The use of
7 hatchery fish for studies is a different issue that we're
8 not necessarily opposed to for flow studies.

9 DR. BEVELHIMER: Anybody.

10 MR. MARSTON: Dean Marston, Department of Fish and
11 Game. If in fact hatchery augmentation is not considered,
12 then it places emphasis, strong emphasis on other measures
13 if this measure is taken off the table.

14 DR. BEVELHIMER: For example? Can you...

15 MR. MARSTON: Well, for example, whether it's flow
16 or it's rocks or some other kind of restoration technique,
17 if hatchery augmentation is not considered, then we have to
18 place our restoration effort, dollar, staffing, et cetera,
19 into these other measures, since hatchery augmentation would

20 not be considered.

21 MR. SCORDELIS: Phil Scordelis of FERC. Are we
22 speaking strictly of Chinook or are we speaking of both
23 Chinook and steelhead or rainbow trout or steelhead rainbow
24 trout?

25 DR. BEVELHIMER: Allison.

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1 MS. BOUCHER: Allison Boucher, Friends of the
2 Tuolumne. We are opposed to any hatchery for any fish on
3 the Lower Tuolumne River.

4 MR. MITCHELL: Dale Mitchell with the Department
5 of Fish and Game. I think that Dean Marston's comment that
6 is valid, that if you take hatcheries off the table then it
7 increases the intensity and it increases the level of
8 participation of other things like flow, habitat restoration
9 and all of these things.

10 I think I wouldn't want it to be misunderstood
11 that a hatchery could be operated without the implementation
12 of a hatchery genetics-management plan, similar to what
13 happens on other anadromous fish hatcheries. And so there
14 is a significant opportunity, I guess, for appropriate
15 genetic guidance to be used, which formerly in the past on
16 some hatcheries has not been employed very well and it's
17 caused some of the problems. But since the HMOP Convention
18 has been added and since it has been utilized, I don't know
19 that I could say the impacts that have formerly occurred on
20 hatcheries have been occurring.

21 And it's a matter -- I think it's not a matter of
22 deciding whether or not a hatchery is appropriate, it's a

23 matter of deciding whether or not the hatchery genetics
24 management can be done in a way that articulates well with
25 the river or whether it confuses the other studies going on,

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1 those kinds of things. But rather than debate the issue of
2 hatchery or no hatchery, I think it's a whether to do it-how
3 to do it question more than a by net.

4 MR. MCLAIN: Jeff McLain, National Marine Fishery
5 Service. This is a controversial topic and I'm not going to
6 say that NMFS is against hatcheries, because we're not. We
7 have new regulations now. We're trying to -- we're trying
8 to make them more conservation oriented.

9 And so I guess my comment would be that whatever
10 we do we need to make sure that there is, as Dale mentioned,
11 there is some sort of genetics-management plan.

12 MR. RAMIREZ: Tim Ramirez, SFPUC. I can't help
13 myself. I'm sorry. I wanted to echo Ron's comment because
14 especially with the folks who have not touched this recently
15 or day-to-day since the settlement agreement. One of the
16 reasons I think that the Tuolumne has received so much state
17 and federal funding over the last 10 years has been because
18 of the change in management and to try to evaluate the
19 efficacy of the restoration effort. And as Ron said, I
20 think adding another component would be something that would
21 make it more challenging to evaluate the impact of those
22 changes.

23 And there's a lot of attention on the river for a
24 lot of reasons, all of them good. And I'd like to see it
25 play out if we can, because I think a lot of other systems

1 are watching to see how it works here, if it does, and if it
2 could be replicated in other places in the valley and the
3 west.

4 MR. TAYLOR: Allison.

5 MS. BOUCHER: Allison Boucher, Friends of the
6 Tuolumne. I think Dean Marston said it beautifully. If you
7 put in a hatchery you're going to be sucking resources away
8 from what really should be done.

9 MR. MARSTON: That's not what I said. Dean
10 Marston.

11 (Laughter.)

12 MR. TAYLOR: Bill.

13 MR. LOUDERMILK: Yeah. Bill Loudermilk with Fish
14 and Game. I'm sensitive to Ron and Tim's concern about
15 complication of study results. You know we have a fair
16 amount of variability in just about every one of the
17 monitoring program study results. But I think with -- and I
18 appreciate FERC's second recommendation there about
19 feasibility.

20 And I think that's really a good thought because
21 both the genetics-management plan and the issues related to
22 complication of exhibits monitoring or future monitoring
23 components I think can be addressed. You know the fact that
24 you have hatchery fish in a confined environment gives you
25 the ability to tag mark, otherwise discern them from fish

1 that might have been produced naturally as you employ your
2 study programs over time.

3 So admittedly it's a challenging issue, a
4 sensitive issue, an emotional issue. But the reality is we
5 once had runs of approximately 40,000 fish in the past and
6 we're way below that now. And those of us in this room and
7 others are going to have to figure out how we do this over
8 time. And hatcheries, admittedly, as Dale says, in the past
9 there had been some errors made, but we've learned a lot and
10 we'll continue to learn. And I think I've we do it right we
11 can do it well. So I appreciate your recommendation.

12 DR. BEVELHIMER: Anything else?

13 Good comments. I appreciate everybody willing to
14 participate today.

15 Fish flows. And this refers to the flow schedule
16 that was included in the '95 settlement agreement, the '96
17 article. Have those flows produced the intended benefits.
18 "Do existing fish flow requirements need modification."

19 If the answer's no to that first question, I guess
20 -- the Districts from the Summary Report you know we can
21 conclude that they have provided the instream flows that
22 were agreed to in the settlement agreement. And I -- I
23 think they'd probably say, you know, it's probably too early
24 to tell whether or not those flows are having their intended
25 benefits.

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1 Comments from others, and this is one topic where
2 I had to go to slides because -- and probably could have
3 gone more. "There is a clear nexus between spring flow and

4 salmon prediction in the Tuolumne River. "

5 Other comments: "The monitoring program
6 implemented by the Districts has been inadequate to
7 determine whether the failure of the salmon population to
8 respond to the new" -- and most of these are direct quotes,
9 so I'm not inserting extra words here -- "to respond to the
10 new FSA flow schedule and habitat restoration projects was
11 due to factors within the control of the Districts.

12 "With the importance of spring flow magnitude to
13 Tuolumne River salmon production firmly established, the
14 question now becomes one of timing, duration, and frequency
15 of pulse flow."

16 Obviously a lot of the comments that came in were
17 related to the spring pulse flow and not just to the other
18 minimum flows that were included.

19 And so the staff's preliminary analysis, yes, "The
20 Districts have met minimum flow requirements..." Secondly,
21 "Unable to conclude effects of new flows on salmon
22 production with the data collected in the past 10 years.

23 "There is little hard evidence that either smolt
24 survival or spawner escapement has increased in response to
25 the... [new] increased flow requirements.

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1 "Alternative analyses presented by others were
2 also unable to convincingly" -- at least convincing in our
3 minds -- "detect a significant change in production or
4 recruitment with the new flows."

5 It's "Not a surprise that no differences are
6 detectable yet given the amount of natural variability in

7 the system and the short time that has passed since flows
8 were increased.

9 "More flow survival data points are needed,
10 particularly during high flow years."

11 And, lastly, we think that the TAC probably
12 "Should explore possibilit[ies] of timing spring pulse flows
13 based on water year classification[s] to be more effective."
14 So, you know, try to -- I mean one thing to pursue is
15 adjusting flows that are already being provided so that they
16 can be more effective.

17 Any comments on those thoughts? Allison

18 MS. BOUCHER: Allison Boucher, Friends of the
19 Tuolumne. One of the problems that we have is that the FERC
20 flows for the wettest years are frequently exceeded because
21 when it's the wettest year they have flood releases. So we
22 really shouldn't be comparing the health of the salmon to
23 the FERC flows, but we should be comparing to the health of
24 the fishery to what the flows really were. In many cases
25 they have to do flood releases and those flood releases may

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1 turn out to be one of the most important key elements in the
2 survival. We don't know that.

3 So I just want to make sure we don't tie ourselves
4 to studying only the FERC flows for the health of the
5 fishery. It's really, it appears to us, and we are in a
6 flow, it appears to us that when we have significant flood
7 releases in the spring we have a healthy fishery. We
8 certainly see the connection between healthy trout fishery
9 and extra water.

10 MR. MITCHELL: Dale Mitchell from the Department
11 of Fish and Game. In general, looking at your analysis, I
12 don't find fault with very much there. Possibly the
13 exception would be that it's fairly salmon-centric and that
14 there are other fish in the river besides just Chinook
15 salmon. And I guess -- I think it's appropriate to analyze
16 instream flows for some of those other species as a part of
17 the process, particularly O. mykiss rainbow trout.

18 And I don't know very many FERC projects that are
19 excused from taking care of rainbow trout populations
20 downstream as a condition. But it seems like when we get
21 involved with anadromous salmon, that the rainbow trout tend
22 to take a less subordinate role when in fact it should be a
23 co-equal role.

24 DR. BEVELHIMER: Yeah.

25 MR. YOSHIYAMA: Ron Yoshiyama for San Francisco.

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1 I do acknowledge that the obvious comparison is to compare
2 the pre-settlement agreement flows or parameters, that the
3 fish population would pose some parameters. But also I
4 think another comparison that should be made is between the
5 responses of the fish population post-settlement agreement
6 with the expected responses that would have occurred had the
7 settlement agreement flows not been instituted. I think
8 that's what Districts had done for one of their analyses.
9 But there are other factors that come into play that should
10 be accounted for, basically.

11 DR. BEVELHIMER: We appreciate the efforts and the
12 science that was used and a couple of different analyses

13 that were presented by different people. That one that you
14 spoke of included. But I guess it was -- and I think with
15 50 or 100 years of data we could start seeing real stuff,
16 and that's the problem with all these things, is that it's
17 really hard to detect in these short terms with so many
18 other factors involved.

19 That doesn't mean we can't find changes, but it's
20 still pretty early, so that's -- I guess that's sort of my
21 response to you. But I mean I think the approaches that
22 people have taken have been good ones, but unfortunately
23 there's just so much uncertainty sometimes it's hard to, in
24 our minds anyway, to see improvements in some of those. And
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1 maybe there's other ways that we can detect improves or
2 responses of the system to the changes in flows that are --
3 I mean there's lots of different things we can look at and
4 it's a matter of trying to find those that are most key and
5 are the best indicators of response of the system.

6 Anybody else on flows? Spring pulse flows, any
7 comments on timing of the spring pulse flows? Yeah.

8 MR. MCLAIN: We're kind of seguing into the
9 steel head. It seems to me there's quite a bit of overlap
10 between spring pulse flows and the needs of anadromous O.
11 myki ss. In other words, higher spring pulse flows could
12 also benefit anadromous O. myki ss. Something we could
13 entertain.

14 DR. BEVELHIMER: Well, I'll move onto steel head.

15 MS. BOUCHER: There isn't really a slide here for

16 riparian, so I'll just put my comment in here briefly, that
17 when we talk about flood releases we would like -- and I'll
18 talk in my presentation a little bit more to some evaluation
19 of what the rapid ramping down is doing to the riparian
20 forest.

21 DR. BEVELHIMER: Okay. And the last slide then is
22 the presence of steelhead. And the issue is: Well, "Does
23 existing evidence support the conclusion that there are
24 Central Valley steelhead in the project area...", not just
25 that, I guess, if they're there but, you know, at what level

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1 if they're there "and if so, what measures should be
2 considered to protect steelhead in the Tuolumne River."

3 The Districts in the Summary Report that
4 concluded, I think, that the "Nature and origin of the...0.
5 mykiss [in the Tuolumne] are largely unknown.

6 "Higher summer flows than" -- than what was
7 pre-settlement agreement "have extended [the] available
8 habitat," though, for 0. mykiss, but that's a positive.

9 Comments from others: "Summer minimum flows" were
10 suggested by several of the commenters. Some of them -- I
11 believe there was one that was 300 cfs throughout the summer
12 and I believe another comment was maybe a thousand cfs.

13 "Says to document [the] presence, abundance,
14 timing, and habitat utilization" are needed.

15 "Include as a goal in the amended license articles
16 the protection and improvement of the abundance and habitats
17 of Central Valley steelhead since the settlement flows
18 were derived to address only Chinook salmon and not

19 steel head. "

20 FERC's preliminary take on this is that "Data need
21 to be gathered to better understand the steel head status. "

22 We're interested in "the results (or [the] status)
23 of [any] recent studies. . .

24 "New studies should be developed and carried out
25 to" try to address some of that uncertainty. "

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1 And "Pending those results [then, sort of] what
2 protective measures might be considered? . . . summer
3 flows? . . . temperature controls? . . . habi tat
4 improvements? . . . [possible] passage" . . .

5 I'll throw this one out. See what new chomps.
6 (Laughter.)

7 DR. BEVELHIMER: Go ahead.

8 MR. MCLAIN: Just on the additional information or
9 new information, I'm not sure everybody's aware of the
10 Technical Recovery Team products that have been recently
11 published. They published paper on the historical and
12 present distribution of Central Valley steel head in the San
13 Francisco Estuary Watershed Science. I believe it's an
14 online journal. You can Google it.

15 And those were -- those products are how we make
16 our decisions from a regulatory side of things from the
17 National Marine Fishery Service. They've documented the
18 presence of O. mykiss, anadromous O. mykiss throughout the
19 whole Central Valley in fairly low abundances in the San
20 Joaquin Basin.

21 And so maybe what I'll do when I speak later is

22 I'll get ahold of their map that talks about historic
23 distribution and kind of what they think is going on.

24 DR. BEVELHIMER: Phil.

25 MR. SCORDELIS: Phil Scordelis with FERC. Jeff

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1 just mentioned a key phrase and that was "historic
2 information." This slide asks are there steelhead in the
3 project area. And I'm curious about how much their presence
4 comes into play. If this historic range or historic
5 habitat, what's the Advisory Committee's feeling on, say, if
6 they're either in very low numbers or no longer in the
7 system, where does the Committee see itself going as far as
8 steelhead in the Tuolumne?

9 MR. MCLAIN: I won't speak for the committee. I
10 could speak for NMFS. They're in very low abundance. We
11 have not documented the presence of anadromous O. mykiss
12 there. We have documented the presence in the Merced River
13 through genetics and we've documented the presence in the
14 Stanislaus River.

15 We capture juveniles at Mossdale which is
16 downstream of all three tributaries. Every year the
17 Department of Fish and Game captures smolts. So it's very
18 likely that they are there. And we know they were
19 historically there.

20 DR. BEVELHIMER: Allison.

21 MS. BOUCHER: Allison Boucher, Friends of the
22 Tuolumne. A couple of points here is I don't want us to
23 think of steelhead as the only important trout. We have a
24 very nice trout fishery now for 12 miles because we have had

25 three good summers. It shows. There is empirical evidence.

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1 The owners on the river are telling me, "What happened to my
2 bass fishery? It's a trout fishery now."

3 And we need to realize that the rainbow trout is a
4 native fishery and it needs to be protected as well.
5 Whether or not we can determine that they're anadromous is
6 really not the question for us.

7 MR. MCLAIN: I just wanted to clarify that I think
8 you're aware that there anadromous and residence and that
9 the National Marine Fishery Service recent DPS listing
10 listed the anadromous portion of O. mykiss. So I refer to
11 O. mykiss as both rainbow and steelhead. But if I say
12 "Central Valley steelhead," I'm just referring to the
13 anadromous portion of O. mykiss.

14 And there is an exchange between those two life
15 history strategies. However, the National Marine Fisheries
16 Service does not have jurisdiction over the resident
17 population.

18 DR. BEVELHIMER: Phil.

19 MR. SCORDELIS: Phil Scordelis from FERC. A
20 question for Allison.

21 This trout fishery that you're referring to. Is
22 it a Fish and Game put and take --

23 MS. BOUCHER: No.

24 MR. SCORDELIS: This is a native --

25 (Laughter.)

1 MR. SCORDELIS: So --

2 MS. BOUCHER: Allison Boucher. No. It is a
3 natural fishery. Our older fisherman used to talk before
4 Don Pedro about the trout that disappeared. And they
5 wouldn't understand why the trout would disappear. And then
6 they would come back.

7 Well, before Don Pedro there was enough water
8 rarely back and forth that the fish would come and go.
9 Where they go, no one knows. They may only go to the Delta.
10 We don't know. But now we've had good summer flows, you can
11 catch fish out there on a regular basis. They're trout.
12 Whether they're steelhead, we don't know.

13 And we don't see the distinction between
14 protecting the native fishery, whether or not it's
15 anadromous. Maybe we should talk about some other native
16 fishery. There must be some others in there that we care
17 about. Lampreys, hardheads, whatever. But there's a native
18 fishery that needs summer flows. The big question is how
19 much summer flow does it need. It looks like it's really
20 healthy when you have over 300 cubic feet per second. We
21 aren't asking that for every year. That would not be
22 reasonable.

23 DR. BEVELHIMER: The Summer Report makes reference
24 to some CDFG studies that have sort have been underway and
25 have those all been finalized or published?

1 MR. MCLAIN: I haven't seen a final report. Has

2 anybody seen a final report?

3 MS. BOUCHER: For?

4 MR. MCLAIN: For the Department of Fish and Game
5 studies?

6 MR. HEYNE: Tim Heyne, with Fish and Game. The
7 Genetic Study affects part of the discussion. The Trout
8 Genetic Study was completed, but the O. List Study
9 (phonetic), as far as I know, is still ongoing.

10 DR. BEVELHIMER: Any idea when those -- so the
11 Genetic Study, is that in a report then you know?

12 MR. HEYNE: All I've seen is the final report at
13 Cal Fed. Cal Fed funded that study. I don't know if Jenni fer
14 Nielson (phonetic), Ron somebody else, I don't know if
15 Jenni fer Nielson did a separate report study, write-up on
16 it, publication.

17 MR. YOSHIYAMA: Ron Yoshiyama, San Francisco.
18 I've seen the report from Fish and Game. And I saw another
19 report by Katie Perry maybe?

20 MR. HEYNE: Right.

21 MR. YOSHIYAMA: -- that came out in the -- that
22 newsletter that comes out. I forget the exact name of it.

23 MR. HEYNE: IEP.

24 MR. YOSHIYAMA: IEP. So that came out about a
25 year ago, I think.

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1 MR. HEYNE: Right. But as far as Jenni fer
2 Nielson's publishing her own, I think just the report from
3 Fish and Game is all that's out.

4 MR. YOSHIYAMA: That's all I'm aware of, yes.

5 MR. HEYNE: the 0. List Study, I'm not aware of
6 when that's going to be completed.

7 DR. BEVELHIMER: Do you know who's doing that?

8 MR. HEYNE: Katie Perry's group.

9 MR. MITCHELL: Dale Mitchell from the Department
10 of Fish and Game. First of all, the paper by Katie Perry
11 that was referred to is available on our website. The -- my
12 understanding is the holdup on the 0. List Work is
13 essentially there is a rather extensive backlog of 0. Lists
14 due right from other loggers and are waiting in line. And
15 when our turn comes, then we'll have it. That's at the NOAA
16 lab.

17 MR. MESICK: Alaska?

18 MR. HEYNE: Yeah.

19 MR. MITCHELL: Alaska.

20 MR. HEYNE: It's in Alaska. I'm pretty sure it's
21 NOAA, though.

22 MR. MITCHELL: Local capability to read over this
23 doesn't exist. That's one of the things that we're
24 strategically trying to move on.

25 DR. BEVELHIMER: Phil.

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1 MR. SCORDELIS: Phil Scordelis with FERC. In one
2 of the monitoring-status reports that I believe your
3 licensee's consultant emails at various people there was a
4 photograph of a 0. mykiss that had been captured in a rotary
5 screw trap. And the report said that the fish was dead. It
6 had been killed by debris in the trap. And the report said
7 that the fish was going to be sent to Fish and Game for

8 analysis.

9 And I'm wondering the fish that come in piecemeal
10 like this, does Fish and Game include them in all of --
11 whatever sampling they're doing for O. List analysis for,
12 you know, --

13 MR. HEYNE: Tim Heyne, Fish and Game. All the
14 rainbow trout that we received from whatever source were
15 routed to be used in either a genetic study or the overlist
16 study or both in some cases.

17 DR. BEVELHIMER: If there is nothing else on
18 steelhead, that's -- like I say, were some of the issues
19 that we were interested in generating some discussion. That
20 doesn't mean the other ones weren't important, but I knew we
21 sort of had limited time and I've gone past that. So I'll
22 let George decide how to --

23 MR. TAYLOR: At this point in the agenda that we
24 handed out suggested that we take a break. It's 15 minutes.
25 Why don't we make it back in 15 minutes, if we can. And

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1 we'll get going after that. It looks like the agencies will
2 go on next. They have a little bit, an hour and five
3 minutes maybe of time, and then the only other speaker
4 that's been identified at this point is Allison. And
5 hopefully maybe we can get all those presentations before we
6 take a break for lunch. That way the stenographer can pack
7 up and leave, then we can come back after lunch for our
8 discussion.

9 MR. MCLAIN: I think I talked to Phil about the
10 agencies potentially having some time for summary comments

11 after our presentation, so maybe an hour for me and then
12 maybe like ten minutes for each agency after?

13 MR. TAYLOR: Afterwards?

14 MR. MCLAIN: Yeah, if that would be possible.

15 MR. TAYLOR: Would you like to be on the record
16 for that?

17 MR. MCLAIN: Yes, please.

18 MR. TAYLOR: Okay. We'll had until it that way.

19 MR. MCLAIN: Okay.

20 MR. TAYLOR: Okay. If anybody came in late and
21 they haven't signed in, please sign in the back. There's a
22 sign-in sheet. Thank you very much. And we'll be back in
23 15 minutes. Thank you.

24 (Recess taken from 10:48 a.m. to 11:09 a.m.)

25 MR. TAYLOR: At this point we are going to have

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1 presentations by the agencies. The first presentation will
2 be from Carl.

3 MR. MESICK: I'm Carl Mesick with the U.S. Fish
4 and Wildlife Service. I'm going to start off our
5 presentation. I'll talk about some of the issues on how we
6 think the population's been responding and particularly into
7 flow and the habitat restoration. And then Dean Marston
8 with Fish and Game is going to talk about some experimental
9 flow schedules that we'd like to see tested.

10 And Jeff McLain's going to then follow up with
11 some issues about steel head, Central Valley steel head. And
12 then Bill Loudermilk will provide a summary.

13 Now some of the issues that we'd like to talk

14 about today are that we think that the Chinook salmon
15 population is actually declining in the Tuolumne River in
16 recent years.

17 We also want to talk about considering Central
18 Valley steelhead and rainbow trout for management. And
19 we've been developing a draft research program that includes
20 a conceptual model and some hypotheses and recommended
21 research elements and how to proceed and working out all the
22 uncertainties and what's going on with the management of the
23 Tuolumne River.

24 And we're hoping that we could work with the
25 Irrigation Districts to help refine this research program.

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1 We've approached them about it and we'd like to proceed with
2 working with them.

3 And we're hoping that we can get FERC to require
4 the Irrigation Districts to implement this research.
5 There's a lot of uncertainties going on and right now there
6 is no requirement for further studies.

7 And we're also hoping that we can talk about some
8 salmonid population goals that should be set so we have a
9 target to work against.

10 Now in terms of the Tuolumne River population,
11 this graphic shows the adult recruitment, which is on the y
12 axis. And adult recruitment is the -- our estimate of the
13 number of fish that return in escapement and also the number
14 of fish that are harvested in the ocean. We've revised
15 these estimates over the last couple months a little bit.
16 They now include shaker mortality, which are the fish that

17 were hooked but not landed but died. So there's been some
18 minor changes.

19 And along the x axis are the spring flows in the
20 San Joaquin Basin. This is actually in the San Joaquin
21 River at Vernalis between February 1st and June 15th.
22 That's the flows that are most strongly correlated with
23 adult recruitment. Now both of these relationships are --
24 there's a blue line for the older estimates from 1980 to
25 about 1990. And then the red line shows the estimates from

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1 1996 to 2003.

2 Both of these relationships by themselves are
3 highly significant. The adjusted R²s are about .95. And
4 they are significantly different. When I do a two-tailed F
5 test, the probability that these slopes -- the elevations
6 are different -- actually it's the slopes that are
7 different. The probability is .03. The variances of these
8 regressions are not significantly different, which is a
9 requirement of the F test.

10 We don't know exactly when the shift in the
11 population has occurred. During our drought from 1987 to
12 1993 we had very few fish, and so they were all down near
13 that zero point. But some time during the drought or up to
14 1995, that's when the population seemed to decline
15 substantially.

16 We haven't -- the same pattern does not come up in
17 the Merced River, and so what we think this decline is due
18 to the habitat in the Tuolumne River. The same is true of
19 the Stanislaus, and I'll show that slide in a second.

20 So here's the relationship in the Merced. Now
21 there was a short statistically-significant decline, but it
22 only lasted from 1995 to 1998, which are those red symbols.
23 And what's interesting is the population seemed to really
24 rebound starting in 1999 and right up through 2003. And
25 those are those green symbols over -- they're lower flows,

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1 but they're relatively high.

2 In the last few years we've been having three,
3 four, five times the number of fish come back to the Merced
4 than we've been seeing in the Stanislaus -- I mean in the
5 Tuolumne. And we're not sure exactly what's causing these
6 shifts, but clearly it's not something that's affecting all
7 the populations throughout the Basin. It's -- again, it
8 seems to be tied into what's happening in the Tuolumne
9 specifically.

10 And here again in the Stanislaus River we really
11 didn't see a consistent decline in the population. And
12 again the population seemed to improve a little bit starting
13 in 2000. So that continuous longterm decline is specific to
14 the Tuolumne River.

15 Now we've come up with a conceptual model to
16 explain what's going on. And I think everybody agrees, the
17 Irrigation Districts have a similar -- they have their own
18 conceptual model. And we all think that smolts are viable.
19 You know we see high flows in the spring, it's key for
20 getting the smolts out to the system, through the Delta, to
21 the ocean. And that's key to determining how many adults we
22 get back.

23 We don't know exactly what the mechanism is. We
24 know the smolts are moving through the Delta primarily from
25 probably late March or early April through mid-June. That's

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1 when we're catching them in the screw traps and the trawls.
2 But we don't know exactly what that mechanism is that
3 affects their mortality, whether it's predation or
4 temperature or disease or contaminants or entrainment down
5 in the Delta. But we'd like to see some studies done to try
6 to find that a little bit better.

7 Another issue that we think is almost equally
8 important, though, is inriver fry survival. How many fish
9 survive in the Tuolumne River up to a smolt size. And this
10 is slightly different in that these flows are primarily
11 between February and May. And it's also part of the high
12 flows.

13 Those high flows, when we look at them
14 historically, when we have, you know, wet years, it's high
15 flows from February even January all the way through June.
16 And that's when we get many, many fish. And we think that
17 the high flows in the early part of the system are crucial
18 to how many fry survive to smolt size.

19 And, again, we're not really sure what the
20 mechanisms are. It could be -- you know, as we're
21 inundating the flood plains or feeding the fish better or
22 we're reducing predation, we're improving temperatures,
23 maybe we're reducing disease, and also contaminants and
24 entrainment might be improved.

25 A third aspect is we also know that in many years

1 there are substantial number of juveniles that go into the
2 Delta that are smaller than 70 millimeters. They're fry and
3 parr sized. We don't know what the fate of those fish are.
4 Most of them -- the highest number of those fish go down in
5 wet years, but we'll see some even in normal years and a
6 couple in dry years.

7 And the thing is we don't really know what happens
8 to them. There is not much study on them. We don't think
9 that there -- survival is very high, but it's intriguing to
10 look at the numbers that go down there. And if we can do
11 something to help improve their survival, we might bring
12 back some -- you know, produce more adults.

13 And then a little less important we think is the
14 survival of the eggs to the fry. The spawning habitat and
15 the egg-incubation habitat is not quite as important. We
16 think where it comes into play is in terms of we have a wide
17 variety of the migratory behaviors in the fish.

18 And we think that the early-arriving adult fish
19 will have the eggs that hatch first, they're young, develop
20 first, and they're probably the first ones to migrate out to
21 the Delta probably in early April and late March. And those
22 are the times when the temperatures are lower, the predators
23 aren't feeding, the entrainment -- you know, the pumping and
24 export rates are lower. And we think that those would have
25 fairly high survivals. So we want to make sure that the

1 conditions for those early-arriving fish are suitable, to
2 make sure that we're saving that portion of the population.

3 And, finally, you know, we've looked at ocean
4 productivity effects, particularly in terms of upwelling and
5 current patterns. And we're not really seeing much of an
6 effect on our San Joaquin Basin fish. The San Joaquin Basin
7 fish seem to be primarily driven by what's going on in the
8 river habitats and also in the Delta to some degree.

9 Now I want to show this. This is the same graph
10 we saw before, only it identifies the different year types
11 here. The point that I wanted to make with this is that the
12 relationship with -- between flow in the Delta is slightly
13 stronger. It's just R2 of .96. Whereas if I were to show
14 this relationship to La Grange flows, it would be about .87.
15 There would be a little more scatter in those middle points
16 there. But the point is, is that both flows are important.
17 It's just not the river conditions. It's also the Delta
18 conditions.

19 And we've tried to tease out these factors a
20 little bit by looking at the rotary screw trap data that
21 we've collected so far. We have data from 1998 to about
22 2003 that we've been looking at. And we find that the
23 relationship between flow and the numbers of smolt-size
24 fish, which I estimated here to be greater than 70
25 millimeters in fork length, I didn't pay attention to

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1 whether or not they had that silvery condition or not, but
2 that the numbers of smolts that leave the river is highly
3 correlated with flows, which shows exactly the same pattern

4 as what we're seeing with the adults.

5 And the adjusted R2 here is .93 which is fairly
6 high. There's not a lot of data points here, but they are
7 fairly well spread across and it sort of suggests that,
8 again, smolt prediction is fairly important.

9 Now, and again here's another relationship where
10 we're showing the relationship between the number of smolt
11 outmigrants that left the river and the number of adult
12 recruits that we've produced. And it's -- it's a strong
13 relationship, that just R2's .89, but again most -- in this
14 case most of the data points are towards the lower end. And
15 we could use a few more data points where we had more smolt
16 -- a larger number of smolts leaving the system. But that's
17 going to take a longer study period to get those data. But
18 yet it still seems to show that the number of smolt
19 outmigrants is highly important.

20 In contrast, you know we've looked at all juvenile
21 outmigrants. And we find that looking at the relationships
22 on the Tuolumne, it's slightly less important, the numbers
23 of fry, parr, and smolts that leave the Tuolumne are not as
24 well correlated with correlated with adult recruits as just
25 the smolt-size fish alone. But when we look at the

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1 Stanislaus River we have a lot more data there. It goes
2 from 1996 through 2003, a lot more conditions. And we find
3 that there is almost no relationship between the numbers of
4 fry and parr that are leaving the river and how many adults
5 were getting back, whereas there is a moderately strong
6 relationship, you know, adjusted R2 of .59 between the

7 numbers of smolts leaving the river and how many adults that
8 we're getting back.

9 So, again, these -- both of these results are
10 indicating that the conditions in the rivers themselves are
11 highly important as to how many adults we're getting back to
12 the system.

13 and, in contrast, some of the existing conceptual
14 model that we have now focuses on spawning habitat. We
15 don't think that's quite as important as the rearing
16 habitat. And when we look at the stock-recruitment
17 relationships, I use the linear regression models to look at
18 both recruits and flow, so I took those models and I held
19 flow constant. So I plotted the relationship between the
20 number of spawners and the number of adult recruits.

21 And the regression models that I developed did not
22 include the abundance of low -- abundances of spawners, like
23 anything over -- or less than 500 spawners we are excluded.
24 So what I was looking for at here was whether or not there
25 were density-dependent relationships, if we had high numbers

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1 of spawners would it negatively affect the numbers of adult
2 recruits we were getting. And I didn't see that for any of
3 the three rivers. So there's -- I've not seen any evidence
4 of redd superimposition being a problem. And there really
5 wasn't any evidence that the -- you know, that the habitat
6 particularly for spawning was limiting to the population.

7 And, again, here it would be best if we could use
8 rotary screw trap data for the Tuolumne, but we have only a
9 few years in terms of juveniles produced. So I'm going to

10 have to rely on some of the analyses that we have the for
11 the Stanislaus River as an example of what we'd like to see
12 done for the Tuolumne.

13 And what this shows are the numbers of juveniles
14 produced in an upstream trap. It's at Oakdale, which is
15 about river mile 40. So it's right below all the spawning
16 habitat, and that's on the x axis. And the y axis shows the
17 number of smolt outmigrants that are leaving the mouth of
18 the river. And you can really see that there's not a lot of
19 a relationship between how many juveniles we're producing
20 and how many smolts that were -- are leaving the river.

21 In fact, we got to do an experiment where actually
22 in 1999 I did a restoration project where I created 18
23 spawning riffles. And we were lucky enough that we had this
24 data immediately before and after. And the red arrow there
25 is pointing at the data point that was immediately before

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1 the restoration project went in. And the restoration
2 project was really well used by spawners. I mean there were
3 redds covering every riffle from top to bottom. It was
4 spawning Chinook salmon, you know, immediately after a
5 construction.

6 And then immediately, that following spring, after
7 the fish had spawned in the new sites, the green arrow is
8 showing that the number of juveniles actually increased by
9 about 40 percent. But what was surprising is that we got
10 absolutely no increase in the number of smolt outmigrants
11 leaving the river.

12 So what it's suggesting is that, well, the

13 spawning habitat was degraded and the extra gravel was
14 useful for producing more juveniles, more fry, more parr.
15 But we're already producing over a million fry in the river.
16 And this is after they've already migrated down to the
17 bottom end of the spawning region. And yet at best we're
18 getting 200,000 smolts out of the system and I'm most cases
19 it's 50,000 or less. So we're saturating that river with,
20 you know, far more fry than are needed.

21 And we were able -- we ran rotary screw traps on
22 the Tuolumne at the 7/11 site. And a couple -- in three
23 years and I think in 1999 and 2000 we were able to start
24 them early enough in the season to get a fry estimate. And
25 one of those years we got seven and a half million juveniles

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1 produced and the other year we got three million produced.
2 So we're actually producing more juveniles per spawner on
3 the Tuolumne than we are in the stand. And yet we're
4 looking at about the same number of smolt outmigrants on
5 both rivers.

6 So we're producing millions, you know, seven --
7 three to seven million juveniles on the Tuolumne, but yet
8 only 10, - to 100,000 or so are surviving to migrate out
9 there. So we think it's rearing habitat that's limiting.

10 Then looking at the ocean productivity, we've
11 looked at the two different indices of productivity. The
12 PDO, the Pacific Interdecadal Oscillation Index, and then
13 the PFEL Upwelling Index. And we found that neither one of
14 these are correlated with the numbers of adult recruits in
15 the Tuolumne River.

16 And then when we added them to the flow models,
17 you know the flow alone were explaining 96 percent of the
18 variation in the number of adult recruits. And neither the
19 upwelling index -- it went in significantly, but it raised
20 R2 by a percentage and a half, which really wasn't much.
21 And then the PDO did -- it didn't add anything to the model.
22 So we don't really see ocean effects have a strong effect on
23 the trends that we're seeing in the river.

24 And we've come up with a conceptual model of --
25 which is pretty much a set of hypotheses that should be

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1 tested. And the first one that's key is that spring flows
2 from early April through mid-June are very important for
3 smolt survival, but also for adult recruitment, how many
4 adults we're going to get back.

5 And what we'd like to focus on are the mechanisms
6 behind that in terms of water quality, you know, how the
7 smoltification process is affected by flow, how flow affects
8 predation, and also entrainment in the Delta and the river.

9 But the second one is also that the early February
10 through late May flows are very important and determine the
11 number of juveniles to survive to smolt size. We think
12 that's important. Unfortunately I don't have the graphs to
13 show this, but when you look at the daily passage of
14 juvenile fish at the rotary screw traps relative to flow,
15 and we have some pretty good datasets on the Stanislaus in
16 particular, what we find, that when we have the early
17 February and March high flows that are inundating the flood
18 plain, you know, 3, -, 4,000 cfs coming down the rivers, we

19 get many more smolt outmigrants leaving in April and May.

20 And there seems to be evidence that if you look at
21 the number of smolts leaving at the upstream trap compared
22 to the downstream trap, we have more smolts leaving the
23 downstream trap in wet years than we do leaving the upstream
24 trap, which means that the juveniles are successfully
25 rearing in the lower half of the river. And it seems to be

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1 related to the February and the March flows.

2 And we think that what's happening is -- you know,
3 there's many different things, but obviously we're
4 inundating flood plains and you're creating more habitat
5 where the fish can get out of the river channel, get up into
6 the vegetation and perhaps there's more protection from
7 predators. But there's also probably a lot more food that's
8 contributed to the river that can feed these fish.

9 So we like to look at those different mechanisms
10 as well as the water quality and predation and entrainment
11 to see what's really going on, what's the mechanism behind
12 these high flows.

13 And then we have some secondary hypotheses that we
14 think the fall flow conditions might be important in that
15 again if we protect those early females that have the early
16 eggs, that they'll produce early migrating smolts, and then
17 we'll get more adults back.

18 So there are several different issues here. If we
19 look at the egg viability at the Merced River Hatchery, we
20 find that back during the drought period when there were low
21 flows, you know, the drought period of 1987 to 1992, when

22 there were low flows in the river and through the Delta when
23 the adults were migrating upstream, the egg viability at the
24 hatchery was very low for the first few egg lots. It would
25 drop to 30, 40 percent of the eggs were viable.

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1 However, once we improved the fall flows and once
2 the drought broke in like '93 or '94, and we started
3 releasing fall pulse flows to get the adults through the
4 Delta faster, we saw that the egg viability increased quite
5 a bit. So we think that that's an important management tool
6 to use.

7 The other thing that we wonder about is whether or
8 not fall base flows affect the egg viability and the redd
9 superimposition. The redd superimposition doesn't really
10 affect the total numbers of fry produce, however obviously
11 it's the early-arriving females, their eggs that are being
12 dug up by the superimposing late-arriving fish.

13 And when we have low flows in the fall we tend to
14 see that all the fish -- or all the early-arriving fish
15 congregate up in the upstream areas. And all the other fish
16 will come in and spawn on top of them, whereas when we have
17 better temperatures and particularly as you can see the
18 spawning season progresses and the water temperatures
19 decline, the fish spread out and presumably redd
20 superimposition declines as well. So we're just trying to
21 protect those early-arriving females and their eggs.

22 Now in looking at the analyses that we've got, we
23 really can't detect the effects on whether or not fall flows
24 affect adult recruitment. Because usually when we have low

25 fall flows we also have low spring flows that are just sort

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1 of tied together. But it's -- we think it's a secondary
2 effect, but it could be important. We just need to do more
3 studies.

4 And we're also concerned that if we can increase
5 the spring flows and more aggressively manage the reservoir,
6 you know we want to make sure that we still have -- we have
7 the right balance between how much water's released in the
8 fall versus the spring. We don't want to rob from Peter to
9 pay Paul here.

10 And in terms of restoration, we talked about
11 whether the existing restoration program was beneficial. We
12 think that it might be important to switch gears a little
13 bit towards restoring rearing habitat rather than just
14 focusing on spawning habitat. Clearly the spring flows and
15 the success of those juveniles rearing are very important.

16 Now one of the things that we do when we restore
17 the channel under the existing program that we have is in
18 order to mobilize gravels and restore alluvial geomorphic
19 processes, what is done is we design the channel in a
20 two-stage design, where we try to confine the river so that
21 under the existing flows it's more likely to mobilize those
22 gravels. And then -- but at a very high flow, allow the
23 flood flows to spread out over a very wide flood plain.

24 Now the problem with that is under most flows
25 we're not going to get flood plain inundation. And we think

1 that that's key for juvenile rearing. So we would -- rather
2 than focusing on mobilizing those sediment transports, we
3 want to do experiments where we would also compare what
4 happens if we have a greater frequency of flood plain
5 inundation.

6 And a second thing is, is that we can -- it
7 requires a lot of water to inundate flood plains for a long
8 period. And we would like to do experiments where we have
9 an intermittent inundation. When you look at a lot of the
10 ecological studies, most of the food and organic matter
11 that's contributed to the river occurs in the first few
12 hours of the rising limb of a hydrograph.

13 So if we can take advantage of those benefits and
14 just pulse that water up onto the flood plains and then
15 bring it back down relatively quickly, we think that there
16 can be benefits for the rearing fish. And we would at least
17 like a chance to do some experimentation in that regard.

18 And, again, I mean we don't want to just
19 completely stop what we've been doing. We don't have
20 complete evidence as to what is the effect of predation, you
21 know, in those large predator -- those captured mine pits
22 that are on the river. We don't think that there's an
23 evidence showing that it's a major problem, but we also
24 don't want to ignore it.

25 So we want to compare the benefits of the flood

1 plain restoration with the gravel addition and the

2 predator-control project and watch the production of
3 juveniles using
4 rotary screw traps, but also looking at the return of the
5 adults as well.

6 And I guess Dean's up.

7 MR. MARSTON: Hello. My name is Dean Marston with
8 the California Department of Fish and Game, and I will be
9 presenting the second leg of the agencies' draft conceptual
10 model for the Tuolumne River. And my presentation is on
11 flow schedules.

12 A couple of introductory slides before I actually
13 get into the merits of a flow schedule could be tested over
14 time.

15 Look at this. Timely, to consider a change, given
16 the population trend of the fall-run Tuolumne Chinook
17 salmon, considering last year that they were below those I
18 think something like in the neighborhood of 700 escaping
19 adults. That causes us great consideration because we
20 haven't had any critical dry years yet since the FSA was
21 implemented.

22 Populations are continuing to decline. We believe
23 that the science strongly supports a spring of q- -- or
24 flow-time focus. And we believe that flow schedules
25 represent the primary restoration action. In fact, it's

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1 been the primary restoration action for the last four years
2 since the implementation of the license. It's why studies
3 have been conducted. We're continually trying to refine the
4 flow needed in the Tuolumne River to protect the fall-run

5 Chi nook salmon.

6 They were meant to be dynamic rather than static,
7 that is, to change over time. I don't think the river can
8 to be locked in from -- probably from a water purveyor's
9 perspective. We would like it be static for Tuolumne River
10 operations. And that, from our perspective, the intent of
11 the FSA was to conduct studies and to refine a proposed
12 schedule. The question is it wasn't. That's not the point.

13 So why now? We believe that the science supports
14 a change now from the information that Carl has presented to
15 you. We believe that the existing flow schedule is
16 inadequate. The challenge then becomes to incorporate the
17 underlying science, to provide some experimentation to
18 clarify or remove that uncertainty where it exists, and we
19 acknowledge that it does exist and also allow for regulatory
20 consistency.

21 It would be nice in one respect if the Tuolumne
22 River operations were only dependent on the Tuolumne River,
23 but actions in the Delta depend on flows that come from the
24 Tuolumne. So what we do here influences the world
25 elsewhere.

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1 What I'll be showing you here in a few moments is
2 one schedule. It's only a preliminary proposed schedule.
3 The agencies would like the licensees to assist them in
4 development. A proposed schedule could be adjusted over
5 time, so this is just our first cut. And we'd like for you
6 to see that.

7 And also we'd like to have an operations model be

8 used to identify what beneficial use impacts might occur if
9 the flow schedule is changed. We will show you one example
10 of a simple Excel spreadsheet operational model for New Don
11 Pedro from 1980 to 2005 and show that this new flow schedule
12 impact has at Don Pedro per this simplified spreadsheet.

13 A little history here, a flow schedule comparison
14 in the original schedule. First -- actually I think it's 25
15 years to license -- I think I had 30 up here, but it's --
16 the license was issued in '64, '65 timeframe but really the
17 project didn't go online till 1977. FSA came along about
18 1996, as I recall, so about 25 years.

19 As I recall, it had two schedules, a lower and an
20 upper, if you will, that ranged from 64 to 123,000 acre
21 feet. It was determined by mid-gate or inflow (phonetic).
22 And some of the features were -- there really wasn't a
23 spring pulse flow and it had greatly reduced summer flows.

24 Fastforwarding to the FERC settlement agreement.
25 Ten years, 10-year, basically you had -- 10-year schedule

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1 types, if you will, ranging from 1990 -- excuse me --
2 94,000, 301,000 acre feet. Spring flows were now a
3 highlight of the new pulse flow schedule and our summer Qs
4 were arranged from three -- I want to say up to -- is it
5 150, Tim Ford, or is it -- is that the highest?

6 MR. FORD: Two fifty.

7 MR. MARSTON: Two fifty. Okay. In the wettest of
8 years.

9 Thank you.

10 And here is just a graphic example of the red

11 being the pre-FSA flow schedule. And you can see that there
12 wasn't much of a spring pulse flow, greatly reduced summer
13 flows. The black line represents the minimum and the
14 maximum of the flow scheduled water year types.

15 And in the west of here, you can see a large
16 increase, relatively speaking, a large increase. This is
17 average annual -- excuse me -- daily average flow over a
18 31-day period. Actually I think it's 60 days. March 15th
19 to
20 about May 15th.

21 The upper flow -- some features of the agencies'
22 proposed flow schedule include having three tiers. We would
23 test -- this would be for spring flow, otherwise referred to
24 as mobile outmigration flows. And it would be 700 cfs or
25 2,000 cfs or 4,000 cfs level in the wettest of years.

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1 It would have variable fry for winter flow time
2 period durations and also a spring or smolt outmigration
3 flow time period. And with respect to the winter flows, the
4 winter flows would either be constant or intermittent.

5 There's some more detailed features of the new
6 schedule -- I'm sorry I don't have a pointer here. The left
7 column just describes the water year type in the San Joaquin
8 River. There are five hydrologic water year types, ranging
9 from wet, at the wettest, down to critical -- dry is the
10 lowest. For purposes here we have divided the wet section
11 of the San Joaquin River hydrologic index into two
12 categories: Very wet -- extremely wet, if you will -- and
13 moderately wet.

14 And the second column, very few. In terms of
15 cubic feet per second would be 2,000. We're trying to keep
16 that constant to a limited variability in the study results.
17 We would have duration. In the very wet we would have 60
18 days with, I believe, March 1 --

19 Is that correct, Carl, as the essentially date we
20 would move 60 days, 30 days; would go out to February 1?
21 Not the fry. For fry it would be, I think, March 1.

22 In the wet years we would only have roughly -- and
23 you'll see some schedules. I'll show this to you here in a
24 moment. I won't go into great detail here, but you can see
25 that in the wet year, for example, we would -- rather than

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1 having 60 days of continuous 2,000 cfs flow, we would have
2 -- we'd have some kind of base flow, say 200. And then on
3 four dates between February 1 and, say, March 31 we would
4 spike up to 2,000 cfs for a day and come back down.

5 And then going in the small flow time period in
6 the wettest of years we would have 60 days of 4,000 cfs.
7 And over on the right columns, that gives you an idea, a
8 comparative idea of the relevant volumes between the various
9 water year types.

10 The volume, 1,000 acre feet, refers to this
11 schedule. And the post-FSA, the farthest right column talks
12 about the flow volumes that have occurred on the Tuolumne
13 River since the FSA. As you see there, we haven't had any
14 critical dry years since implementation of the FSA in '96.

15 Here are some schedules here: Very wet, the black
16 line -- I'll just say the bottom up there, the X axis just

17 refers to the month of the year. The Y axis refers to flow
18 level in cfs.

19 The black line refers -- we picked out a water
20 year type -- this is very wet. The black line shows what
21 historically occurred. I can't -- I don't recall off the
22 top of my head what specific year this is. I could get that
23 to you.

24 The blue line shows the proposed flow schedule,
25 and the red line shows what's currently identified or called

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1 for in the existing FSA flow schedule.

2 So the idea here -- I'm just going to start with
3 the October-November timeframe. And all the large schedule
4 -- water-type flow schedules are referring to -- we're
5 trying to keep the fall period constant so we have an
6 attraction flow to try to do several things. We want to
7 attract fish from the Delta into the San Joaquin River and
8 also want to try to cool temperatures in the Tuolumne and
9 the lower San Joaquin River during that adult immigration
10 time period during the month of October. So that will be
11 kept constant during each of the water year types.

12 And then on the very level year we're trying to
13 have a constant fry or winter flow time period. And on
14 about April 1 the flows would go from 2,000 to 4,000 and
15 then continue out in time to about the middle of May --
16 excuse me -- and then ramp down to summer base flow levels
17 beginning July 1.

18 And then in a wet year, you can see that the fall
19 flows and the pulse flows are the same. Now we're having

20 just intermittent pulse flows. One day the pulse is up to
21 2,000 and back down over about a 60-day period. And then on
22 April 1 we shoot up to 4,000 and then come back down to base
23 flows on June 1st.

24 Moving down to water year type flow, a category,
25 here we have above normal. And now we're looking at a 2,000

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1 cfs water flow and a 2,000 cfs springtime or small flow. At
2 45 days duration to what were 60 days duration, now we're
3 moving it down in time to 45 days duration, recognizing that
4 we don't have unlimited amounts of water.

5 And then below normal, again, we have just 2,000,
6 2,000 with the exception that the intermittent flows are
7 added here at below normal schedule, whereas above normal
8 they were constant during the water flow time period.

9 And then the dry, you'll notice that we're still
10 at 2,000 and -- but the small flow is now down, I believe,
11 at 750. And now we're testing -- before in the normal year
12 types we had a 50-50 ratio, if you will, between winter flow
13 and spring flow. In the wet years we had, I'll say, a
14 one-to-two ratio between winter flow and spring flow.

15 And in the dry years we'd have a two-to-one ratio
16 between winter flow and -- a little more than two-to-one
17 between winter flow and spring flow. Again, we're trying to
18 tease out whether it's smolt flow time period that's
19 important to juvenile production, recruitment several years,
20 or is it the fry flow.

21 And then here again in the critically dry years is
22 where we have a constant winter flow time period, where you

23 have intermittent flows.

24 This shows -- this graph here shows -- again, it's
25 a simplified Excel spreadsheet that looks at the Don Pedro

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1 operations, and the red line -- I'll start with the x axis.
2 This shows from year 1-1 of 1980 out to 1-1 of 2005. And
3 then the y axis is acre feet.

4 The red line at the top kind, and it goes up and
5 down, that shows the flood control criteria for Don Pedro.
6 It goes up in terms of the amount of storage in the summer
7 and it goes down or constrains, if you will, in the middle
8 of winter.

9 The black line shows our model's historic
10 simulation of New Don Pedro's operation. And the blue line
11 shows what New Don Pedro storage would have incurred if the
12 inflow schedule were implemented.

13 Now we don't know what the power impacts of this
14 are. We don't what reductions, if any, in flood release,
15 magnitude and duration of frequency might be with innovation
16 of the schedule. But you know, we didn't bring the
17 reservoir, I mean at least based upon this simple flow
18 model.

19 We would like to, again, work with the Districts
20 and the licensees to see what their models might show. The
21 impact of their operations would be a schedule like this.
22 We're not familiar on the Tuolumne River.

23 With respect to the proposed studies, one of the
24 keystones of the Department's and Fish and Wildlife Service,
25

1 and the NMFS' joint conceptual model hinges on continuing
2 monitoring studies to further clarify or reduce the
3 uncertainty and which factors are most limiting to the
4 production of fall-run Chinook salmon in the Tuolumne River.

5 And with respect to testing the influence of
6 experimental spring flows on production, we would like to
7 continue the escapement margin. So you'd normally get an
8 abundance, a trend, an estimate, but also to collect age
9 information, either it be O. List for scales. And we'd also
10 like to continue the redd counts to get an idea of density
11 and location of spawning beds.

12 We'd also like to see juvenile inriver production
13 and survival monitoring continue with respect to the
14 operation of rotary screw traps, in two places at the
15 downstream end. Approximately Waterford for the spawning
16 habitat and then another trap so it could be operated down
17 at -- I don't want to say Grayson, but near the confluence
18 of the Tuolumne and the San Joaquin.

19 We'd also to see some multiplication of
20 physiological work done to see how flow and flow timing and
21 things associated with spring flow timing, or lunar phases,
22 temperature, sedimentation rates, that sort of thing,
23 influence the smoltification and influence upon juvenile
24 survival and production.

25 We'd also like to assess the importance of

1 contribution of fry leaving the Tuolumne and wintering in
2 the Delta to adult escapement.

3 We would also like to see feeding, growth, health
4 and disease monitoring studies being conducted on fry and
5 juveniles in the Tuolumne River. Of recent concern is a PK
6 issue (phonetic) which has been around at the Merced River
7 Hatchery for several years. It has expressed itself as an
8 area of concern in the VAMP studies. It is heretofore yet
9 to be detected on the Tuolumne, but we haven't looked for in
10 a large degree as it is. We'll have to see if that's an
11 issue on the Tuolumne.

12 Then we would also like to see how the floodplain
13 reacts with respect to these changes in experimental spring
14 flows, like how does the contribution of flood change over
15 time with respect to managing the duration of flows.

16 We'd also like to continue collecting water
17 temperature data and see if we can connect that to juvenile
18 production productivity in abundance.

19 We'd like to also see how flows change the
20 predation, the abundance of predators, and also with current
21 law, and also spawning habitat suitability.

22 Oh, I'm sorry, Jeff. I guess that's you.

23 MR. MCLAIN: Thanks, Dean.

24 MR. MARSTON: Um-hum.

25 MR. MCLAIN: I'm Jeff McLain from the National

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1 Marine Fishery Service. And I've been participating in the
2 conceptual model development with Dean and Carl and others.

3 And I wanted to provide a little bit of

4 information on the background of O. mykiss from my
5 perspective. I've worked for the Fish and Wildlife Service
6 for a number of years. And now I work for NMFS, so I have
7 this perspective, at least operationally, how the TRTAC's
8 been operating. I also -- I only have three slides left.

9 And the next one after this is going to be our
10 conceptual model for O. mykiss and then maybe some
11 recommendations that we'd like to discuss about some future
12 needs, study needs, for O. mykiss.

13 So I know, Phil, you already went into the
14 background quite a bit. And so I'm going to kind of go
15 through this quickly. As you know, Central Valley steel head
16 were listed after the settlement agreement was signed and/or
17 implemented in '95 or '96, whichever date you want to use.

18 In 2002 the National Marine Fisheries Service
19 requested that FERC initiate consultation on Central Valley
20 steel head. And then in 2003 the Commission basically
21 deferred the action and wanted us to informally consult on
22 Central Valley steel head. We provided study needs and
23 interim flow recommendations in 2004. That is, the National
24 Marine Fisheries Service did.

25 And we also commented on the 10-year Report in

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1 July of 2005. However, we had a -- we had to request a stay
2 on Central Valley steel head due to litigation. One thing I
3 also want to mention, too, is that during the flow
4 adjustments and operationally on the TRTAC it was a bit of a
5 technical issue with the Fish and Wildlife Service and the
6 National Marine Fisheries Service because the National

7 Marine Fisheries Service is not a voting member of the
8 TRTAC.

9 And so when there were flow adjustments needed and
10 official voting with other members of the TRTAC, the Fish
11 and Wildlife Service was in the uncomfortable position of
12 voting on something, yet due to the Fish and Wildlife
13 Coordination Act they needed to talk to the National Marine
14 Fisheries Service.

15 And so there really isn't a structure for how that
16 would work. And so that's just something I want to point
17 out.

18 Recently we sent another letter -- it's dated June
19 20th -- basically requesting that the Commission initiate
20 consultation for Central Valley steel head. We also
21 indicated that the stay has been removed now, and we
22 included that information with our letter.

23 The June 20 letter was not on the website, so I
24 put it on the -- I efiled it yesterday afternoon. I have a
25 couple copies here. I can give that to you.

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1 So a little bit about our conceptual model. This
2 is actually an anadromous O. mykiss conceptual model, very
3 similar to the Chinook salmon model in the sense that what
4 we tried to do was show the importance of the different
5 periods like darkening the ovals. And the first thing
6 you'll notice is that there are a lot of darkened ovals.
7 They are in it because O. mykiss tend to spend a lot of time
8 in the river, in the freshwater environment.

9 So the first one I'd like to talk about is the

10 adult migration and egg viability period which is on the
11 upper right, which is the December to May flow. We feel
12 that flows can affect Delta water temperatures, export rates
13 in the Delta, straining rates into other basins, into other
14 rivers of the San Joaquin basin.

15 So we feel that that's potentially an important
16 component of the Central Valley steelhead population.

17 The spawning and egg survival period between
18 January and June -- it isn't highlighted. However, it
19 overlaps quite a bit with others. But we also feel that
20 that affects the water temperatures and the fine sediments
21 and habitat that Central Valley steelhead need for survival.

22 Now getting to the bottom of the chart, we have
23 young of the year of survival, which is basically from March
24 to November. And that is really where we feel that it's a
25 very important component for Central Valley steelhead

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1 because flows during that time can affect summer water
2 temperatures, food, the amounts of food, predation rates on
3 those juveniles, the young in years and, of course, the
4 habitat and habitat availability.

5 Again, between February and November there's this
6 yearling survival that's needed. And similar to Chinook
7 salmon, we feel this is a very important time where summer
8 water temperatures are important and food availability is
9 important. Predation and habitat are also other factors
10 that are controlled by this February-to-November flow.

11 You have a migration survival period, when the
12 fish are leaving, if they are leaving as an anadromous fish,

13 again flow during that time is going to affect the food, the
14 predation rates, temperatures, and also diseases, potential
15 diseases, and contaminants, as well as export rates in the
16 Delta and in the Lower Tuolumne River.

17 The last component here is the ocean survival.
18 And we haven't highlighted that, particularly. It's not
19 very dark because we just don't feel that the driving
20 factors for the anadromous portion of the O. mykiss are in
21 the ocean. They're in the freshwater environment.

22 So what do we need? We need more information. We
23 need more information on the trends and adult abundance,
24 both in the migration timing relative to the flow in the
25 Tuolumne River.

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1 We need to determine percent of anadromous fish
2 versus the resident fish in the Tuolumne River. Does it
3 change from year to year? Does it change -- is it a fast
4 response? When you increase flows, do you get an increase
5 in anadromous fish.

6 What is the juvenile and adult distribution of O.
7 mykiss relative to flow operations? What about water
8 quality? How does that impact them? How much habitat do we
9 have available during those low flow years ten miles below
10 the dam, three miles below the dam. We need to determine
11 what's available. Before we start really moving water
12 around we need to figure out what habitat is available and
13 how that changes with different flows.

14 We also need to determine the relative impact of
15 other limiting factors, such as poaching and illegal

16 fishing. We don't know in the grand scheme of things what
17 impact those have compared to other, other limiting effects.

18 So I think that's the entire presentation.

19 Do you want to resume for lunch, or...?

20 MR. TAYLOR: Yeah. The presentations that you
21 provided here this morning, could we get a copy of that
22 somehow? Mike said you could download it to your --

23 MR. MCLAIN: Some drive, or something?

24 Is that okay, Carl and Dean? You okay with that?
25 I'm okay with that.

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1 DR. SALE: Is there anyplace else this is all
2 documented?

3 MR. MCLAIN: I would --

4 MR. MARSTON: Do you want me to answer it or,
5 Jeff, you want to go first?

6 MR. MCLAIN: Well, go ahead. Let me first
7 mention, too, that -- I had mentioned earlier that there are
8 some recent products, scientific products, that -- and I was
9 going to show you a map. And we're going to do a little
10 summary later. And I was going to show you a map.

11 And I can -- maybe what I can do over lunch, I can
12 provide the link to get that information for you for the
13 recent TRT products from the National Marine Fisheries
14 Service.

15 Dean?

16 MR. MARSTON: A quick comment before I go into the
17 written deposition. Phil was also going to provide a little
18 summary or comment.

19 Phil, before lunch?

20 MR. SCORDELIS: Whenever you want.

21 MR. MARSTON: Do it right now?

22 MR. TAYLOR: Do it now.

23 MR. MARSTON: We have a preliminary document here.

24 And we would like to put it out for peer review prior to

25 putting it into the record but we would like to find out

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1 from FERC staff if today is the only day that they'll

2 receive information to put in the record.

3 MR. TAYLOR: No. No, it won't be. You know, as a
4 result of having this meeting today, we've heard different
5 things, new things, things we've heard before. But
6 certainly there's an opportunity -- I'd like to provide
7 everybody the opportunity to comment on what they've heard
8 today.

9 So, you know, I would like, if you have any
10 additional comments based on what you've heard today,
11 something different from what you've filed comments on
12 previously, we'll give you until August 25th to do that,
13 give you a month.

14 So we're allowing that type of documentation to be
15 put on our Commission's file for another 30 days.

16 MR. MARSTON: Do you anticipate that after that
17 time then Oak Ridge staff would do their analysis and come
18 back to you with their recommendations and then you would do
19 whatever it is you're going to do at that time?

20 MR. TAYLOR: We'll start doing our homework then,
21 yeah.

22 MR. MARSTON: Okay. So if we want to include this
23 as part of the record then, August 25th is a definite date
24 we're shooting for?

25 MR. TAYLOR: That's what we'd like to shoot for.

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1 And so these presentations and the presentation
2 that Mark gave this morning, we'll put that on the record as
3 well. So your own presentations that you provided here,
4 we'd like to put that on the record, too, so that's
5 available for everybody.

6 MR. MARSTON: Yeah. You've got that one disposed?

7 MR. MCLAIN: We'll put it on the thumb drive.

8 MR. TAYLOR: Yeah, okay. We'll get it into the
9 record then.

10 MR. SCORDELIS: How about -- Phil Scordelis -- for
11 another quick question for Carl.

12 We're getting some rotary screw traps put in. Is
13 that in the Stanislaus River or in the Tuolumne?

14 MR. MESICK: Both.

15 MR. SCORDELIS: And the Tuolumne data were they
16 the same that the districts are putting into kind of the
17 summary report, or is this -- was this information you were
18 collecting on your own of your own equipment?

19 MR. MESICK: It is the catch data that's reported
20 by the districts. It's the same screw trout, same catches.
21 I've developed my own calibration models. I simply took all
22 of the efficiency tests. You know, sometimes the screw tops
23 were moved and so you had -- for a given location I pooled
24 all the efficiency test data and everything. I plotted them

1 all out. They all looked like just different pieces of the
2 same puzzle. And it seemed to make more sense to pool them
3 all.

4 And then I used those models to then extrapolate
5 the catch, the population, as it was. But it's the data
6 that they have.

7 MR. SCORDELIS: Did you share your analysis
8 methodology with the districts? I mean have they had a
9 chance to look at this and comment upon it?

10 MR. MESICK: They have not. It's brand new. We
11 were burning the midnight oil over the weekend. But we
12 intend to.

13 MR. NEES: Robert Nees, TID.

14 Just to -- I want to make sure I understand
15 clearly, Mr. Taylor, how you are going to proceed here.
16 Obviously from the licensing standpoint we would like to
17 have copies of the slide presentations today so that we can
18 formulate our comments to meet your 25th of August deadline.
19 That would be both the slide presentations by Oak Ridge as
20 well as the Agency's.

21 Are those going to be readily available to us
22 tomorrow?

23 MR. TAYLOR: We had our handouts today, our
24 presentation.

25 MR. NEES: Correct.

1 MR. TAYLOR: And so that's available. Okay. And
2 we'll get that into the record as soon as.
3 MR. NEES: And the Agency's presentations?
4 MR. MCLAIN: Would you like a digital copy of a
5 memory stick? Do you want me --
6 MR. NEES: Whatever's --
7 MR. MCLAIN: -- to make a few copies?
8 MR. NEES: Whatever's convenient at the time.
9 MR. MCLAIN: I can make a few copies.
10 MR. NEES: Whatever's convenient.
11 MR. MCLAIN: Yeah.
12 MR. ACEITUNO: (Out of microphone range.)
13 MR. MCLAIN: Yeah. We'll get you a copy by the
14 end of the day.
15 MR. TAYLOR: Okay. Phil has some questions.
16 MR. SCORDELIS: Phil Scordelis. One more quick
17 question.
18 You mentioned the letter, the June 20th letter.
19 MR. MCLAIN: Yes.
20 MR. SCORDELIS: Was that mailed to FERC back in
21 June --
22 MR. MCLAIN: It was mailed, yeah.
23 MR. SCORDELIS: Regular postal mail?
24 MR. MCLAIN: Yes.
25 MR. SCORDELIS: It might still be at the radiation

1 facility in the Midwest somewhere.

2 MR. MCLAIN: Yeah, right. Right. That's why I
3 did it, --

4 MR. SCORDELIS: Oh, of course.

5 MR. MCLAIN: I apologize for being late. I efiled
6 it yesterday so I have a copy of it.

7 MR. SCORDELIS: I saw it. Yeah, I saw it.

8 MR. MCLAIN: Okay. It provides a lot of
9 background.

10 MR. SCORDELIS: Overnight those kind of filings.

11 MR. MCLAIN: Okay.

12 MR. LOUDERMILK: Bill Loudermilk with Fish and
13 Game. I'm going to be really short. I do not have a slide
14 presentation.

15 And let me start by saying that the recap that Oak
16 Ridge staff and Phil provided at the onset of the meeting
17 this morning was, I think, really helpful. The
18 presentations that the agencies just made identify what we
19 collectively -- what the fishery agencies collectively feel
20 are, perhaps, the key focal points of attention that we all
21 ought to turn our eyes and our dollars and our staff
22 towards, particularly between now and the 2016 relicensing
23 activity.

24 And obviously backing up when 2016 licensees and
25 others will be sort of stepping up their activities. But

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1 here we are in 2006. We've got, you know, a few years here
2 to refine, adapt if you will, capitalize on the adaptive
3 nature of what we've agreed to do in the past under the
4 settlement agreement. Accept the fact that we've learned a

5 few things about what life stages are mostly likely
6 important.

7 And with all due respect to the districts' comment
8 there, it is important that they be given the opportunity to
9 think about, absorb, consider the analyses that they may
10 have done either independently or previously in the context
11 of what the agencies have presented today.

12 And then also, in addition to identifying those
13 priority studies that perhaps we all ought to focus our
14 attention on and capitalizing on the adaptive nature of the
15 agreement, I was encouraged to see that the Oak Ridge
16 recommendations in your handout this morning identified
17 that, perhaps, in certain study elements in an effort to try
18 and get that information sooner rather than later that there
19 may be an important decision to be made about actually
20 scheduling some flows beyond that which are currently
21 defined in the current 10-year program or the settlement
22 agreement.

23 I submit that there are certain life-stage issues.
24 Carl and Dean both -- Carl, more succinctly -- identified
25 that the smolt life stage for fall Chinook are really

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1 critical, still critical, in our view, in terms of adult
2 numbers in sustaining the population over time.

3 Similarly, Carl identified the importance of that
4 spring rearing period after the fry emerge but they're still
5 residing in the river and, in some cases, residing in the
6 Delta. What's going on with that life stage, because that
7 ultimately determines how many smolts hit the Delta and

8 ultimately into the ocean, but also how many adults return
9 to the Tuolumne in the future.

10 So in the 10-year monitoring program, there were
11 several study elements that, in our minds, the Fish and
12 Game's minds, have really not yet been completed. The smolt
13 survival component, as you heard this morning, several of us
14 believe that there's some additional work needed there,
15 particularly in the higher flow range.

16 The fry survival element that was identified in
17 the 10-year monitoring program was never done, too, at least
18 in our estimation, never done acceptably.

19 And there's one or two others. Rotary screw
20 trapping is another area that is really critical.

21 You heard Dean Marston talk about not only the
22 need for structuring flows to perform some of these analyses
23 and get a better understanding of the mechanisms of what's
24 controlling the survival at each life stage. There's an
25 awful lot of dialogue to occur with the licensees and the

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1 other parties that are involved here in order for such a
2 flow regime to ever be put in play.

3 I don't know how we address that between now and
4 the 25th, but there's an awful lot of work to be done
5 between now and hopefully 2016. And I guess my struggle
6 here is beyond the 25th of August when we've all submitted
7 our respective input I'm wondering beyond that point whether
8 there is an ongoing -- and this is really a process question
9 kind of like what Robert was asking -- beyond that point is
10 there an opportunity for iteration with those that are

11 living this day-to-day, the licensees, the agencies
12 involved, and the NGOs that are involved. Is there an
13 opportunity for us to capitalize on the knowledge base that
14 we've all developed here and the adaptive nature and the
15 fact that we've had a TRTAC underway for a while and a
16 management committee, the fact that it sounds like at least
17 some of us want to adapt.

18 Is there an opportunity to work with either the
19 Oak Ridge staff or FERC staff to refine the outcome of your
20 decision, or are we in a situation where, beyond the 25th,
21 we just wait for the decision on the 10-year Report?

22 MR. TAYLOR: No, I like what you just suggested.
23 You know, I think there is an opportunity. And I didn't
24 want to seem like I'm pressing you all on August 25th. It
25 seemed like 30 days is what the Commission always do things

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1 -- does things. It's 30 days for this and 30 days for that,
2 60 days.

3 Give me an idea, you know, if you feel more
4 comfortable with having a little bit more time to do that.
5 And also during that time, I mean, we would be available to
6 assist in helping you in your discussions. And we'd rather
7 not get into the situation that you're all waiting for us to
8 make some kind of decision. I think, if we can work with
9 you we'd rather do that. And you're going to let us know
10 whether that's what you want to do. And we would be willing
11 -- Oak Ridge would be available and we would be available to
12 do that.

13 MR. LOUDERMILK: Maybe that was your thought about

14 the afternoon session, but I just want to plant that seed.

15 And I overlooked Jeff's point about steelhead. As
16 you saw in his overheads there's a lot less known about
17 steelhead. And obviously there is a backdrop, the
18 litigation that's going on, and that's going to, you know,
19 drive certain decisions and, you know, create certain
20 challenges.

21 But even with respect to that backdrop some of the
22 study programs that Carl and Dean talked about with just
23 little -- with some subtle modifications, we can be learning
24 more about the rainbow trout fishery there along with
25 getting a better understanding of the Chinook situation.

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1 So not in every -- that's not the case in every
2 life stage, I don't think, but in some life stages it's a
3 subtle addition. And I guess I'd like to suggest that
4 perhaps that dialogue would come along even with the
5 litigation backdrop, if for no other reason Dale Mitchell
6 and I think Allison pointed out that a rainbow trout is a
7 rainbow trout is a rainbow trout. And there are darn few
8 FERC licenses that don't address rainbow trout below the
9 reservoirs.

10 So at least from Fish and Game's perspective we'd
11 like to be sure that we have that integrated in any
12 follow-up adaptive studies that might be pursued.

13 And that's basically the wrap-up for this morning.

14 MR. TAYLOR: Let me just understand. The agencies
15 wanted to come back and have additional presentations?

16 MR. MCLAIN: I have about a 10-minute presentation

17 I'd like to give.

18 MR. TAYLOR: Okay. Anybody else?

19 MS. BOUCHER: (Nods head up and down.)

20 MR. TAYLOR: Okay. So 10 minutes, and 10 minutes,
21 and then 10?

22 MR. MCLAIN: Okay.

23 MR. TAYLOR: So that would be all the
24 presentations we would need to put on the record in another
25 half-hour? Can we hold here for another half-hour and get

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1 that done, so then we can break for lunch and then come back
2 after that. And the recorders here can break down their
3 equipment, and they'll be done for the day.

4 MR. MCLAIN: Okay. Is there a particular order
5 that you...?

6 MR. TAYLOR: Not really.

7 And then the licensee have no presentations they
8 want to provide today?

9 MR. NEES: No presentations, but just before you
10 referenced the fact that the 25th of August might be a short
11 timeline. I just got a sharp elbow from my consulting
12 biologist to agree with you simply because of travel plans,
13 vacations, and so forth, that are coming up, our viewpoint
14 is we probably ought to have a date that's more workable
15 than the 25th of August.

16 MR. TAYLOR: Okay. We're all here. Give me a
17 date.

18 MR. FORD: Ninety days.

19 MR. TAYLOR: Huh?

20 MR. FORD: I suggested 90.
21 MR. TAYLOR: Ninety days.
22 DR. SALE: Is this going to require two
23 iterations, though? Are we going to have to go into
24 something where there's comment by comments?
25 MR. TAYLOR: Yeah. I mean, you know, we noticed

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1 the -- starting this all positive we provide an opportunity
2 to comment on the comments. And do we think that that's
3 going to be necessary here.
4 MR. NEES: Knowing this group, yeah.
5 MR. TAYLOR: So how about 60 days?
6 MR. NEES: That'd be fine.
7 MR. TAYLOR: Sixty days? Make that --
8 MR. LOUDERMILK: A question before you land on
9 that.
10 MR. TAYLOR: Uh-huh.
11 MR. LOUDERMILK: Again, it kind of goes back to
12 the process beyond that deal.
13 MR. TAYLOR: Right.
14 MR. FORD: You know, Robert's comment about it's
15 likely that there's an interest in folks providing comments
16 on comments. And that could be a never-ending story. But
17 in terms of process, if you're thinking about some
18 structured process beyond that deadline, that might well
19 move us away from the comment on comment on comment on
20 comment strategy and more towards resolution of outstanding
21 issues or the flipside to that is if your intent is to just
22 slice the baby and make the decision on some of the

23 outstanding issues, then that's a different process.

24 MR. TAYLOR: I mean we'd like to take the
25 opportunity -- we've been working together, for the most

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1 part, you know, for 10 years, and we don't want to see that
2 stop. I mean we envision that the group that's been working
3 together for 10 years ought to continue working for the next
4 X number of years. You've all invested a lot of time and
5 energy in this, and I don't think we need to look to the
6 FERC to figure this out for all of you.

7 And part of the settlement agreement was to
8 implement and adapt a management approach. And I think, as
9 I said two years ago, it would be far better for you to
10 figure out what is good for you rather than sitting back and
11 waiting for the Commission to decide what we think is best.

12 I mean you all have been working together. And we
13 would encourage that to be continued. And with that in mind
14 I mean this -- I don't think you have to think that 60 days
15 you're going to have to, you know, play your hand and give
16 it to the Commission and we're going to have to decide.

17 I mean, I would hope that you would -- when is
18 your next TRTAC meeting, September? What's the date on
19 that?

20 MR. FORD: September.

21 MR. NEES: 14th.

22 MR. FORD: 14.

23 MR. TAYLOR: Now with what's been presented here
24 today is a chance for you all to meet sooner than the 14th
25 of September, or...?

1 MR. NEES: Robert Nees, TID. From my point what
2 we need -- we're getting a lot of new information, things
3 that maybe have been referred to in the past but not laid
4 out nearly in detail. We need go back; we need to analyze
5 this and determine what it means to us. We can't engage in
6 the next level of conversation until we understand what's at
7 stake here, and what's being requested, and what's being
8 suggested. We will do that, and we will have that to you
9 within the 60-day period.

10 MR. TAYLOR: Right.

11 MR. NEES: At that point then we can determine,
12 you know, based upon our comments and there must be some
13 return comments, I presume, not an endless back and forth.
14 But from that I think we ought to be in a position then to
15 discuss what's real and what's possible from that point
16 forward.

17 MR. TAYLOR: Okay. So 60 days you'll give
18 comments, and those become part of the record before the
19 Commission. And let us know whether you think you'd like to
20 have some more -- if you think it's going to be a good
21 opportunity to continue the discussion, or if you come to
22 the point where you're, you know, not going to be able to
23 agree.

24 MR. NEES: Well, let me also add in there that --
25 I'll come up with this delicately.

1 Frankly, the kind of discussion we're hearing here
2 this morning, I would have expected to have it attacked, and
3 I don't know why that hasn't happened. I think it's
4 commendable that the three agencies have gone off and done
5 some -- spent some time in developing approaches and boxed,
6 but I'm not sure why that didn't come to TAC, because I
7 think that's the purpose and role of TAC. I think that
8 there's been some dissatisfaction once in a while with TAC,
9 but nevertheless that's the form that has largely worked
10 through the past 10 years.

11 No one's been excluded from that process. No one
12 has to have a membership card to get in the door. All views
13 have been received and considered. I think that's where
14 this level of discussion needs to go next, once we file our
15 comments, because we've got this formal today, or informal
16 proceeding, however you wish to characterize that. So we
17 need to go through that process.

18 But I think the work of moving forward, if there's
19 a way of moving forward, needs to go back to the TAC.

20 MR. TAYLOR: Okay.

21 MS. BOUCHER: Just a quick response in that in
22 that many of these ideas did come up. And in my simple
23 analysis we couldn't move forward because there was no
24 budget. So until there's a set amount of money the TAC
25 can't talk about what studies they prefer or don't prefer.

1 Studies have been proposed. They have been thrown
2 out. We've got -- we had one subcommittee where we went
3 through a careful analysis, and I would like to point out

4 that the minutes for that meeting were less than adequate.

5 Nothing can move forward because the districts
6 don't want to spend any money. I understand that. I used
7 to be a ratepayer. But we have to have a set amount of
8 money for our committee to start making decisions.

9 And they've never come forward and said they would
10 do anything but one or two things, snorkeling and water
11 temperature and... small stuff.

12 We need to have some parameters so that we can
13 start prioritizing. And at no point did the districts come
14 forward and say: Oh, okay. We spent a million dollars in
15 10 years. Inflation. I'll give you a 1.8 million in TAC.
16 Go for it.

17 They would give us no guidelines on how much we
18 could spend on studies. We were always shut down.

19 MR. NEES: Robert Nees again. I don't think I
20 necessarily agree with those comments. There may be funding
21 sources from a variety of different places, including the
22 Agency themselves are proposing this, or there may be some
23 partnering that can go forward, let alone grant funds
24 through the State of California, and so forth, that
25 periodically become available.

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1 I don't think that's a limiting factor. I think
2 we need to sit down and work through these issues. We have
3 to have a clear view as to what they would cost. That is
4 appropriate. It's only prudent to be able to know what the
5 costs may be and what they may mean to everyone involved.
6 But I don't think that's limited in scope.

7 MR. TAYLOR: Um-hum.

8 MR. MITCHELL: I'm Dale Mitchell of Fish and Game.

9 I guess I'm a little bit unclear on what FERC is
10 envisioning the influence of the 10-year Report being. I
11 can see it being a milestone that sets off a process. I
12 could see it becoming a milestone that concludes a process.

13 And I think what I'm hearing is there's new
14 information; there's a need for different parties to see
15 that information, digest it, discuss it, and to move
16 forward. And, to some extent, putting a deadline on that
17 process constrains that, knowing that within four or five
18 years they're going to have to start that process again.

19 And when we start moving toward relicensing I'm
20 wondering if there's a way that the collaborative discussion
21 can start dealing with these issues that have been outlined
22 by Oak Ridge and somehow be coached or be refereed as that
23 process goes forward, try to reach a resolution on as many
24 of those issues, at least on the science supporting as many
25 of those issues as possible before you get to that 2010

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1 deadline out there in earnest. It starts to cost the
2 licensees money and it starts to cost the agencies a great
3 deal of time.

4 And it seems like this could spawn off a very
5 productive process. And I'm hearing the voices here in the
6 room that seem like they're interested in stepping forward
7 on that. I guess I don't understand how important it is to
8 make a finite decision of some kind about the 10-year
9 Report.

10 MR. TAYLOR: Right now we have a formal process
11 that began by noticing the 10-year study. We developed
12 that. We have intervenors that have been filed. I mean
13 there's a procedure right now before the commission.

14 MR. MITCHELL: Um-hum.

15 MR. TAYLOR: And, you know, certainly if there was
16 an idea that we could solve some of these problems without
17 us having to tell you what should be done, that would be
18 great. I mean the Commission would like that. It supported
19 the settlement agreement we filed 10 years ago. And I think
20 at this point in time we would like to see additional
21 cooperation to take place and then seeing where we go from
22 here.

23 So, you know, all I can say is that I presented
24 the idea that if you can't come up with some solutions, then
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1 you're going to look towards us. And I think you'd all
2 rather not have to do that if you could avoid it, because,
3 you know, when you do that then you don't know what you're
4 going to get.

5 So if you have some control over the process, I
6 think you're all going to be happier. But I think we can
7 possible discuss that a little bit more this afternoon as
8 one of the items.

9 MR. MARSTON: Can I make a quick comment?

10 MR. TAYLOR: Excuse me?

11 MR. MARSTON: Can I make a quick comment?

12 MR. TAYLOR: Yes.

13 MR. MARSTON: Dean Marston of Fish and Game.
14 There's this preconceived notion that TRTAC can solve all
15 the problems. And they can't. We can go science. And we
16 can discuss what we think ought to be done, maybe where
17 they're done, when they're done. But on the day the
18 managers make decisions on what staffing and what funds they
19 want to spend on the Tuolumne River. And the managers need
20 to meet to provide guidance to the Technical Advisory
21 Committee; they can rely on information from the Technical
22 Advisory Committee. But they've got to meet. And they've
23 got set priorities, and they've got to decide how far they
24 are to go.

25 And until they meet, relying on the Technical

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1 Advisory Committee, which is comprised of scientists,
2 managers, attorneys, et cetera, is highly inefficient. The
3 managers need to meet.

4 MR. TAYLOR: Okay.

5 MR. MARSTON: It's part of this process.

6 MR. TAYLOR: Okay. We can discuss that this
7 afternoon.

8 MR. FORD: I have one comment I could make about
9 the status of the monitoring, a follow-up to Allison's
10 comments.

11 We did submit for funding about a \$2 million grant
12 for CalFed. When the 10-year Report was submitted, the
13 determination hadn't been made, but we were awarded that.
14 And the problem we face now is we're trying to resolve some
15 of the issues with Fish and Game, who's the contract

16 manager, trying to get that monitoring implemented. That
17 was a number of elements for three years.

18 In the meantime we've expended considerable funds
19 on monitoring the expansion of some elements that had been
20 done intermittently before, like expanding screw trapping
21 this year. A number of the comments from NOAA Fisheries or
22 others about certain steelhead related investigations we've
23 been involved with along with other agencies and included
24 those in the 10-year Report.

25 So I know Allison's comment is, yeah, things have

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1 been discussed and maybe certain things haven't been done or
2 there's no specific amount of money to do things, but we
3 have been preceding in good faith in the interim. And also
4 we're hoping to soon be able to proceed with an expanded
5 program under the CalFed grant.

6 MR. TAYLOR: Okay. I still would like to try to
7 get in our presentations before we break for lunch. And
8 then we can have an hour and 15 for lunch. Then we'll come
9 back and have some further discussion.

10 Allison, would you like to provide your
11 presentation?

12 MS. BOUCHER: Can everybody hear me? Okay.

13 Friends of the Tuolumne have four key issues we'd
14 like to address. First of all, we want to thank the
15 agencies for the science. What we'd like to do is step in
16 and add to that. We were just talking about the budget, so
17 let me bring that subject up first.

18 In November of 2004 the subcommittee put together

19 -- this is all we have from the official minutes is a
20 photograph of the white board. But we did go through an
21 analysis of what studies would answer what questions. That
22 was November 2004. And, yes, the districts did put together
23 a CalFed that's only for three years. I have not seen the
24 districts step forward with any significant funding. And we
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1 find that very difficult to work with.

2 We also don't feel comfortable with the level of
3 the documentation from some of these important subcommittee
4 meetings. When you get a photograph of a white board and
5 that's the extent of the minutes, that's not adequate. The
6 Friends of the Tuolumne wrote up the minutes. They weren't
7 even in the 2005 report. They came out this year. So our
8 FERC reports didn't even include the minutes for the
9 meetings.

10 That brings me to our request for an independent
11 facilitator and riverkeeper. The Friends are looked on to
12 do tasks that were not prepared to do. We should not be
13 called on to deal with landowner complaints. We should not
14 have to drive down to Fresno to try to nudge a game warden
15 to enforce the law. We should not be making phone calls to
16 report on violators. We need a riverkeeper who will
17 represent the interests of the river, who will be
18 accountable to no one agency and can step forward with
19 public education and also facilitate the meetings in an
20 independent and unbiased manner.

21 We have asked for a webpage. Yes, there's a

22 webpage up. When I checked it yesterday it didn't tell me
23 when the next meeting was and it didn't have minutes from
24 the March meeting yet. So we need an independent
25 facilitator who can do timely reporting and help coordinate

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1 all of us.

2 Steelhead trout has been brought up several times,
3 and we just wanted to make sure that everyone realizes that
4 the rainbow trout are a native fishery. The licensees
5 should be protecting the native fishery, and that is trout.
6 We don't really think the anadromous status of it should be
7 the determining factor.

8 The trout have returned to the river. We've had
9 three good summers. The fish are out there. If anybody
10 wants to come and catch fish, I'll take you there. I'll
11 show you right where they are.

12 There have been comments that the health of the
13 trout fishery has improved and the FERC flows have been
14 implemented. And I would like to question that
15 relationship, because I don't believe the FERC flows, the
16 FERC flows are not responsible. The FERC flows are not
17 responsible for the increased health of the trout fishery.
18 It is the excess over the FERC levels. The FERC levels are
19 not enough. But the dam has had extra water. There have
20 been excess releases. And that excess was what was
21 necessary to bring the trout fishery back. We need to have
22 that analyzed.

23 And the last thing that the Friends have always
24 brought up is riparian health, the health of the riparian

25 forest. Since Don Pedro Dam was put in place the flood

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1 flows have been pretty controlled. And if you look along
2 the river you'll see we're being inundated by sandbar
3 willow. That can spread by roots. It's very thick along
4 the river in a lot of areas. It's not dependent on flood
5 inundation on the floodplains.

6 If you get off onto the floodplains you'll find
7 the forest is dying. Cottonwoods are a short-lived tree.
8 They're coming at the end of their life. They're 30, 35
9 years old. We have very, very little natural vegetation
10 recruitment.

11 And I passed around a graph showing the gauges.
12 Did most people get one?

13 I'd like you to note that the river gauge, the
14 level went down six and a half feet in seven days. No
15 seedling can grow roots that fast. Even the cockleburs are
16 wilting.

17 So we need to have the gauges -- somehow we need
18 to have ramping investigated so that we can have a more
19 natural floodplain. It's been brought up that the organic
20 matter on the floodplain is important for the fishery.
21 Well, then, we need to have a viable, healthy forest. And
22 that includes white alder, box alder, cottonwood, five kinds
23 of willow, not just sandbar along the edge.

24 The way the river is being ramped down we're
25 actually causing encroachment on the river instead of a

1 healthy floodplain. And I think that it can be done when we
2 have excess flows to ramp it down slow enough so that some
3 of the seedlings in the very wettest years have some
4 potential to survive.

5 Any questions?

6 (No audible response.)

7 MR. TAYLOR: Okay. Thank you.

8 MR. KOEPELE: I'm Patrick Koepel e. I'm the
9 Central Valley Program Director for the Tuolumne River
10 Trust. And I wanted to thank FERC for convening this
11 meeting. I think we've heard some really useful and
12 instructive information so far.

13 I have a few comments that I want to go over. I
14 don't have a PowerPoint presentation.

15 My first comment is that we're concerned, as
16 others here are, that the goals of the 1995 settlement
17 agreement having actually been met. Salmon populations have
18 been increasing [sic] and it's questionable how much salmon
19 habitat has been created.

20 While various methods have been utilized to
21 demonstrate success, it is clear that the salmon population
22 continues decline from fry -- over 40,000 fish to merely
23 600 fish last year. So that's our primary concern.

24 Instream flow appears to be inadequate to protect
25 the Tuolumne fishery. It was noted by Carl Mesick the smolt

1 and fry survival is much improved during high-flow years.

2 This connection is evident in looking at historical
3 population graphs.

4 Years of large numbers of fish follow wet years
5 and years of few fish follow dry years. While undoubtedly
6 there are many factors affecting fish populations, keep in
7 mind that on average 62 percent of unimpaired runoff is
8 diverted from the Tuolumne.

9 And in 1989 in the midst of a multi-year drought
10 spell, the annual water yield below LaGrange was a mere four
11 and a half percent of the unimpaired runoff. So flows are
12 undoubtedly a key factor in affecting fish populations.

13 Habitat restoration projects need to be completed.
14 As noted earlier, three projects have been completed and two
15 are funded and ready for implementation. The remainder are
16 either in jeopardy or unfunded. And we recognize the
17 complexity of completing these projects. And we don't want
18 them to fall through the cracks simply because they're
19 complex and difficult. So projects still need to be
20 completed.

21 And also keep in mind that 62 miles of historic
22 habitat above the dam is inaccessible to anadromous fish.
23 And that's mainstream habitat only. And that doesn't say
24 anything about the quality. It's probably -- that probably
25 was higher-quality habitat. So habitat restoration projects

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1 do need to be completed.

2 The monitoring program should be carefully
3 reviewed and revised as needed, but it is vital that it be
4 continued.

5 Results from monitoring to date have not shown
6 clear connections between flow, restoration, fish
7 populations, and so forth. And so we want to make sure that
8 monitoring is carefully evaluated and that all the parties
9 agree what the monitoring strategies will be employed.

10 And we do feel that there's significant
11 responsibility on the part of the districts to come up with
12 funding, be it through district funds or applications, which
13 they've been doing, and we recognize that. And we wish to
14 encourage that to continue.

15 We don't support at this time the implementation
16 of additional measures proposed by the districts. The
17 projects have not been -- the 10 projects have not all yet
18 been completed. And so we feel that those should be
19 completed before any additional controversial measures are
20 implemented.

21 Steelhead and resident trout habitat and flow
22 requirements need to be considered in future river
23 management strategies.

24 In fact, we feel that all the native fish should
25 really be considered. The 1964 license requires maintenance

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1 of fishery resources in general, not just salmon. In the
2 short term we'll take salmon and trout, but in the long run
3 we'd like to see all the fish considered.

4 The TAC should continue providing oversight of the
5 restoration and monitoring, but TAC processes and procedures
6 should be reviewed. I don't really have faith that the TAC
7 will come up with consensus decisions on all the issues that

8 have been discussed here. And, as such, FERC -- it might be
9 useful for FERC to provide protocols or assistance in
10 developing processes and procedures for making decisions.
11 The management committee could be convened to establish
12 these, but something should be done.

13 And, finally, this ties into the process for the
14 remaining review of the 10-year review. I think it might be
15 helpful for FERC to establish a process and schedule for
16 making decisions related to the settlement agreement. As I
17 said earlier, I'm not totally convinced that the TAC is able
18 to make decisions on all of these different issues that have
19 been discussed so far.

20 That's it. If anybody has any questions?

21 (No audible response.)

22 MR. KOEPELE: Thanks a lot.

23 MR. TAYLOR: Okay. Thank you, Patrick.

24 Jeff.

25 MR. MCLAIN: Yeah. Jeff McLain, National Marine

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1 Fisheries Service.

2 Does this work? If you can hear me anyway? I'll
3 speak up a little bit.

4 First, I wanted to show you a map. I have
5 referenced this earlier. There are some recent technical
6 recovery team products that are available. And I'll get a
7 copy of this on the -- we'll have some CDs made for you and
8 we'll put this on. You'll be able to see a better view of
9 this on paper. And also if you check online at the San
10 Francisco Estuary Watershed Science website and look at it

11 -- it'll be in color, too, so...

12 But, anyway, what this shows is the historic
13 population of Central Valley steelhead in the Central
14 Valley. And -- is there a pointer somewhere? I'm trying to
15 figure out how I can show you where the Tuolumne is.

16 I believe here is the Tuolumne here?

17 VOICES IN UNISON: That's the San Joaquin.

18 MR. MCLAIN: That's the San Joaquin. So this one
19 would be --

20 (Laughter.)

21 DR. SALE: What's the shading of this map, what
22 does this map shows?

23 MR. MCLAIN: The darkened shading is a certain
24 presence of Central Valley steelhead. The lighter colors
25 are presumed presence based on historical data. And the

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1 Science Center used a variety of bits of information to
2 determine what constituted habitat for them. And you'll
3 notice that most of this is above the dams; it's above the
4 rim dams.

5 And so that's -- really the point I wanted to make
6 is that the Science Center has made the determination that
7 there are -- there was historic populations in the Central
8 Valley. And they also indicate that there are remnant
9 populations below the rim dams in many of these tributaries.
10 So I'll get you a copy of that.

11 MR. JOHNSTON: Jeff?

12 MR. MCLAIN: Yeah.

13 MR. JOHNSTON: They've come to the same conclusion

14 about rivers that flow into Tulare Lake. Now how do you
15 justify that?

16 MR. MCLAIN: Well, the Central Valley DPS is all,
17 all rivers that have access to the ocean. And so I...

18 Anyway, I wanted to first just say, number one,
19 that we really want things to work. The Tuolumne's an
20 incredible river and I know my, myself, have worked on it
21 for a number of years. And I think it's definitely worth
22 the intention.

23 The Endangered Species Act, as you know, is a
24 particular process. And what I hoped to talk about -- and
25 maybe we can get into this a little bit more later -- is

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1 some of the tools in the toolbox that we can use to achieve
2 compliance as far as Central Valley steelhead.

3 But first I wanted to mention that -- I know, Tim,
4 that you had mentioned that numerous efforts have been
5 started on collecting data on Central Valley steelhead. And
6 that's true. I participated in that process. We have
7 gotten some things started to collect information on Central
8 Valley steelhead. And I just want to say that we do need to
9 improve that. I think we need to improve upon, number one,
10 on the information we collect, how we collect it, and how we
11 analyze it. And so I hope that we can continue working on
12 that.

13 We didn't get a chance to comment on the 10-year
14 Report, as you know, because we had to request a stay
15 because of the litigation. I wasn't going to go over
16 detailed comments at this point. What I propose to do is

17 just talk able about some of the options that we have
18 available.

19 As you know, we submitted a letter that indicates
20 that we think that the Commission should initiate
21 consultation with National Marine Fisheries Service on
22 downstream impacts to Central Valley steelhead. And there
23 are really two ways that this could be done. There is a
24 Section 7 consultation process where you go into formal
25 consultation.

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1 There's another process called a Habitat
2 Conservation Plan and Process. A Section 10 permit would be
3 issued. And this process has been pursued in numerous other
4 areas. And one thing I would think we could talk about
5 would be some of the options we have as far as developing
6 some sort of habitat conservation plan or a conservation
7 plan whether it's just for the Tuolumne River, whether it's
8 for the San Joaquin Basin. As you know, there are other
9 habitat conservation planning development processes in the
10 Central Valley. There's one on the Sacramento River.
11 There's one on the Delta.

12 That would be another way to achieve some sort of
13 coverage, whether it's the Department of Fish and Game that
14 leads an effort, say, to develop some sort of conservation
15 plan or Central Valley steelhead, or whether it's the
16 districts that want to lead an effort to develop a
17 conservation plan on 0. mykiss as well as fall-run Chinook
18 salmon. NMFS would then evaluate that. And there are --
19 the 4(D) rule specifies that as long as the National Marine

20 Fisheries Service is okay with a particular conservation
21 plan they have achieved their compliance with the ESA.

22 So this is another thing that I think we should
23 consider talking about later.

24 It could also be that we decide that the
25 settlement agreement is the conservation plan for the

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1 Tuolumne River. We submit that, and then we, National
2 Marine Fisheries Service, would assess that and issue a
3 permit on that. There are many different options I think we
4 should discuss and then we'll have a lot to talk about.

5 MR. TAYLOR: Okay. Do you have any questions?

6 Okay. While we're on the record, just make sure
7 that everybody hears us, that we'll allow actually 62 days
8 to September 24th to provide any comments on anything that
9 you've heard today that you haven't commented on before,
10 that you hadn't heard about. You know, try to avoid
11 repeating things that you've said and submitted to the
12 Commission previously.

13 So we'd like to have those comments in by
14 September 24th. And with that, we'd like to take a break
15 now. When we come back, we won't be on the record. And
16 we'll have some discussions here in this room. And it's
17 quarter to 1:00 right now. Could we get back here at two
18 o'clock?

19 Okay. Thank you.

20 (The recorded portion of the meeting concluded at 12:44
21 o'clock p.m.)

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This is to certify that the attached proceedings before
the FEDERAL ENERGY REGULATORY COMMISSION in the Matter of:

Name of Proceeding: MODESTO IRRIGATION DISTRICT,
TURLOCK IRRIGATION DISTRICT 10-YEAR
FISHERIES SUMMARY REPORT for the
DON PEDRO PROJECT

Docket No. : P-2299 - 057

Place: SACRAMENTO, CALIFORNIA

Date: TUESDAY, JULY 25, 2006

Time: 9:00 o'clock a.m.

were held as herein appears, and that this is the original
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Official Reporter

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22 Nancy Palmer, CERT 00122
23 Official Reporter

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