

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF CALIFORNIA
HON. OLIVER W. WANGER, JUDGE

IN RE:)
THE DELTA SMELT)
CONSOLIDATED CASES,) No. 09-CV-407-0WW
and)
THE SALMONID)
CONSOLIDATED CASES.) No. 09-CV-1053-0WW
_____)

PRELIMINARY INJUNCTION HEARINGS

DELTA SMELT CASES

DAY 6

Fresno, California

Tuesday, April 6, 2010

REPORTER'S TRANSCRIPT OF PROCEEDINGS

Volume 6, Pages 1278 through 1546, inclusive

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1 Tuesday, April 6, 2010

Fresno, California

2 9:00 a.m.

3 THE COURT: Good morning, ladies and gentlemen.

4 We're going back on the record in the consolidated
5 salmonid and smelt cases.

6 MR. GONZALEZ: Good morning, Your Honor.

7 THE COURT: Good morning.

8 MR. GONZALEZ: Arturo Gonzalez for Morrison and
9 Forrester. And we are ready to call our next witness, Dr.
10 Richard Deriso.

11 **RICHARD BRUCE DERISO,**
12 called as a witness on behalf of the Plaintiff Metropolitan,
13 having been first duly sworn, testified as follows:

14 THE CLERK: Please have a seat and state your full
15 name, spell your last name for the record, please.

16 THE WITNESS: Richard Bruce Deriso, D-E-R-I-S-O.

17 THE COURT: You may proceed.

18 **DIRECT EXAMINATION**

19 BY MR. GONZALEZ:

20 Q. Doctor, you've been retained as an expert witness in this
21 matter by the Metropolitan Water District of Southern
22 California?

23 A. Yes.

24 Q. And you have signed a number of declarations in connection
25 with your work in this case?

1 A. Yes.

2 Q. I'd like to initially start off by asking you to turn to
3 Exhibit 600 in that binder there.

4 Your Honor, it's my understanding that one of the
5 five declarations signed by Dr. Deriso, 602, is already in
6 evidence, having been moved in by the government's counsel.
7 Going to very quickly go over the next four.

8 THE COURT: All right.

9 BY MR. GONZALEZ:

10 Q. Doctor, is Exhibit 600 a declaration that you signed on or
11 about July 30th, 2009 in connection with your work in this
12 case?

13 A. Yes.

14 MR. GONZALEZ: Your Honor, I move 600 into evidence.

15 THE COURT: Yes. And the date of that declaration?

16 MR. GONZALEZ: I'm sorry?

17 THE COURT: The date?

18 MR. GONZALEZ: Date is July 30, 2009.

19 THE COURT: Thank you. Is there any objection? 600
20 is received in evidence.

21 (Metropolitan Exhibit 600 was received.)

22 BY MR. GONZALEZ:

23 Q. And doctor, if you'd turn, please, to 601. Is that a
24 declaration that you signed on or about November 13th, 2000 in
25 connection with your work in this engagement?

1 A. Yes.

2 MR. GONZALEZ: Your Honor, I move 601 is into
3 evidence.

4 THE COURT: Any objection? 601 is received in
5 evidence.

6 (Metropolitan Exhibit 601 was received.)

7 BY MR. GONZALEZ:

8 Q. Doctor, would you turn, please, to Exhibit 603? Is that a
9 declaration that you signed on or about January 26th, 2010 in
10 connection with your work in this case?

11 A. Yes.

12 MR. GONZALEZ: Your Honor, I move 603 into evidence.

13 THE COURT: Any objection? 603 is received in
14 evidence.

15 (Metropolitan Exhibit 603 was received.)

16 BY MR. GONZALEZ:

17 Q. And if you turn to Exhibit 604. Is that the declaration
18 that you signed on or about March 1 of 2010 in connection with
19 your work on this case?

20 A. Yes.

21 MR. GONZALEZ: Your Honor, I move 604 into evidence.

22 THE COURT: Any objection?

23 MS. POOLE: Your Honor, we have no objection. I
24 would just point out that some of these declarations have
25 already been marked and submitted as Government Exhibit

1 numbers. So perhaps we should refer to them by the exhibit
2 numbers that they've already been introduced under.

3 THE COURT: I agree. If we have exhibit numbers,
4 that's what we've been doing throughout the case. If the
5 exhibit is already in evidence, let's use the exhibit
6 designation that has been assigned to the exhibit that's in
7 evidence. And so --

8 MS. POOLE: I believe --

9 THE COURT: If you could help us, Ms. Poole, if you
10 have those.

11 MS. POOLE: I believe the one that Mr. Gonzalez has
12 just been referred to, that has been marked as Government 29.
13 And frankly you went too quickly on the previous ones.

14 THE COURT: All right. 29 is already in evidence.
15 That would be your 604, Mr. Gonzalez.

16 MR. GONZALEZ: Fair enough, Your Honor.

17 THE COURT: That's fine.

18 MR. GONZALEZ: The other three, my understanding are
19 not in evidence and if they are, we'll fix it.

20 THE COURT: All right. Thank you.

21 BY MR. GONZALEZ:

22 Q. Doctor, by whom are you currently employed?

23 A. The Inter-American Tropical Tuna Commission.

24 Q. And how long have you worked there?

25 A. Since 1988.

1 Q. And what is your position?

2 A. I'm chief scientist.

3 Q. The commission that you work for, how long has it been
4 around?

5 A. Since around 1949.

6 Q. Are the commissioners appointed by 16 member countries?

7 A. Yes.

8 Q. In addition to the countries located in the Americas,
9 member countries include Spain, Japan, France and Korea?

10 A. That's correct.

11 Q. How many scientists do you supervise?

12 A. About 50.

13 Q. And can you tell the Court, doctor, just generally, what
14 do you do?

15 A. I develop research proposals to present to our director
16 for work that I think needs to be done. I generally supervise
17 the staff in a lot of things that we do.

18 We are responsible for the tuna and gill fish stock
19 assessments. And we do those for some species every year.
20 Other species periodically.

21 I'm also responsible for the laboratory that we have
22 in Panama that does research on the early life history of
23 tunas.

24 We also have several fill stations located at ports,
25 where the tuna vessels offload and we have sampling programs

1 to sample the tuna catches, and I'm responsible for that as
2 well.

3 As well as the sort of general going ons that happen
4 scientifically within the Tuna Commission.

5 Q. Can you tell the Court, just briefly, what do you mean
6 when you say stock assessments?

7 A. Yes. We evaluate the status of the populations, the
8 changes in the populations growth rate. And based on that
9 analyses, we make estimates of what the sustainable catches
10 can be and corresponding levels of fishing effort that should
11 be applied. Just briefly.

12 Q. Did your job include making conservation recommendations?

13 A. Yes.

14 Q. What is that?

15 A. Yes. We make recommendations based on trying to perform
16 one of the basic duties of the commission, which is to
17 maintain the stocks at levels that can support maximum
18 sustainable yield.

19 Q. And what do you mean by "maximum sustainable yield"?

20 A. This is a level of harvest, which is ecologically
21 sustainable. Forever.

22 Q. How much fish can you catch without hurting a species?

23 A. That's basically it.

24 Q. Briefly, your educational background. You received a
25 bachelors of science from Auburn University?

1 A. Yes.

2 Q. When?

3 A. That was 1972.

4 Q. What was your major?

5 A. Industrial engineering.

6 Q. You have a masters of science from the University of
7 Florida?

8 A. That's correct.

9 Q. When did you graduate?

10 A. 1975.

11 Q. What was your course of emphasis?

12 A. That was a degree in mathematics.

13 Q. And doctor, you have a Ph.D. from the University of
14 Washington?

15 A. That's correct.

16 Q. When did you receive your Ph.D.?

17 A. 1978.

18 Q. And what was your area of study?

19 A. Degrees in biomathematics.

20 Q. Doctor, have you also taught?

21 A. Oh, yes.

22 Q. Have you taught courses in fish population dynamics,
23 quantitative ecology and related areas for over 20 years?

24 A. Yes.

25 Q. Were you an associate adjunct professor at the Scripps

1 Institute of Oceanography at the University of California San
2 Diego?

3 A. Yes.

4 Q. When?

5 A. Starting around 1990, then I resigned in 2006.

6 Q. And have you also served as an affiliate associate
7 professor of fisheries at the University of Washington?

8 A. Yes.

9 Q. When?

10 A. That was starting in 1987 and then resigned in 2006.

11 Q. The courses that you teach, doctor, are they primarily
12 undergraduate courses or are you teaching advanced students?

13 A. This is all graduate courses.

14 Q. And among the graduate courses that you have taught, have
15 you taught a course entitled Theoretical Models of Exploited
16 Animal Populations?

17 A. Yes.

18 Q. And just briefly, what is that case about?

19 A. That was a graduate level course at University of
20 Washington on fisheries population dynamics.

21 Q. Have you taught a course entitled Decision Analysis for
22 Exploited Populations?

23 A. Yes.

24 Q. What was that about?

25 A. That was a course on developing decision rules for the

1 harvest of fishes.

2 Q. Have you taught a course entitled Quantitative Theory of
3 Populations and Communities?

4 A. Yes.

5 Q. What was that about?

6 A. That was also on fish population dynamics. Stock
7 assessment. That kind of thing.

8 Q. And these courses, do you cover the topic of allowable
9 fishing mortalities?

10 A. Yes.

11 Q. Briefly I'd like to cover a few of your professional
12 memberships.

13 Do you serve on the Scientific and Statistical
14 Committee of the Western Pacific Regional Fisheries Management
15 Council?

16 A. Yes.

17 Q. For how long?

18 A. That's been for about 20 years.

19 Q. And just briefly, what is that?

20 A. Yeah, we advise the council on conservation measures for
21 the fishes that are managed under their jurisdiction.

22 Q. Do you presently serve on the Estuary Enhancement Program
23 Advisory Committee in New Jersey?

24 A. Yes.

25 Q. For how long?

1 A. About 15 years.

2 Q. And just briefly, what is that about?

3 A. That deals with evaluating the mitigation measures that
4 have been put into place to offset the losses of fishes that
5 are entrained and impinged through the cooling system of the
6 Salem Nuclear Power Plant.

7 Q. That would be in the Delaware River in New Jersey?

8 A. Yes.

9 Q. From 2003 to 2006, were you a member of the Ocean Studies
10 Board?

11 A. Yes.

12 Q. What is that?

13 A. The Ocean Studies Board is part of the National Academy of
14 Sciences. And we, the board, is responsible for commissioning
15 studies done by the National Research Council. We often take
16 turns serving as chairmen of those committees.

17 Q. In the year 2000, did you serve as co-chairman of one of
18 those committees on fish stock assessment methods?

19 A. Yes.

20 Q. And just briefly, what did you do as chairman of that
21 committee?

22 A. We evaluated several of the methods that are employed by
23 National Marine Fisheries Service for the stock assessment of
24 the various fishes.

25 Q. In 2005, were you a panel member for peer review of the

1 American Lobster Stock Assessment?

2 A. Yes.

3 Q. In 2004, were you on a panel to advise on the
4 modifications of the Chinook salmon coded wire tag program?

5 A. Yes.

6 Q. From 1980 to 1988, were you a population dynamisist for
7 the International Halibut Pacific Commission?

8 A. Yes.

9 Q. Doctor, have you personally conducted research in the area
10 of fish population dynamics?

11 A. Yes.

12 Q. Briefly, what is that?

13 A. That is the application of mathematic models to data
14 collected on the fishes estimating things like what is the
15 allowable harvest, what is the growth rate of individuals,
16 what is the population growth rate as a whole. Estimate what
17 the mortality rates are for the fishes. Those various kinds
18 of parameters and processes.

19 Q. Doctor, have you authored or co-authored more than 50 peer
20 reviewed publications and technical reports?

21 A. Yes.

22 Q. I want to briefly mention just three of them. Were you a
23 co-author of a publication in 2008 entitled "Incorporating
24 covariate into fishing stock assessment models with
25 application of Pacific herring"?

1 A. Yes.

2 Q. In 2007, were you a co-author of a publication entitled
3 "Variance estimation and integrated assessment models and its
4 importance for hypothesis testing"?

5 A. Yes.

6 Q. And in 1999, were you co-author of a book published by
7 Oxford University Press entitled Quantitative Fish Dynamics?

8 A. Yes.

9 Q. And briefly, what is that book about?

10 A. That book is about fish population dynamics. It's the
11 methods, the models, the statistics, the way that you go about
12 doing that kind of work.

13 Q. All right. Doctor, I would now like to briefly cover some
14 of the work that you've done as a consultant in this area.

15 Have you served as a consultant for the Great Lake
16 Fisheries Commission?

17 A. Yes.

18 Q. And briefly, what have you done for them?

19 A. There were three separate occasions. Two of those were to
20 teach short courses on fishery stock assessment. The most
21 recent one, the third one, was to advise the commission on
22 measures for sea lamprey control.

23 Q. Have you served as the consultant for the California
24 Department of Fish & Game?

25 A. Yes.

1 Q. More than once?

2 A. Yes.

3 Q. Briefly, what have you done for them?

4 A. Two separate projects there. On one, I was asked and did
5 build a stock assessment model for Pacific Sardine. The
6 second was I taught a short course to personnel of California
7 Fish & Game and other scientists as well.

8 Q. By the way, I forgot one question.

9 The work that you did for Great Lake Fisheries, that
10 commission has representatives from both the United States and
11 Canada?

12 A. Yes.

13 Q. Have you also been a consultant for the Lobster Fisheries
14 in New England?

15 A. Yes.

16 Q. More than once?

17 A. Yes.

18 Q. Briefly, what have you done for them?

19 A. There were two separate reviews. One of the reviews --
20 well, the emphasis was on evaluating the current stock
21 assessment method they were using and looking at a newer
22 alternative and advising the management body on whether they
23 should continue to use the traditional model they had used or
24 move over to this new model and on what conditions should they
25 do that.

1 Q. Have you also been a consultant for the Marine Stewardship
2 Council in London?

3 A. Yes.

4 Q. Multiple times?

5 A. Yes.

6 Q. Briefly, what have you done for them?

7 A. Yes. Various things. I was -- have been a part of the
8 certification team evaluating both the Pacific halibut and the
9 US Pacific sablefish fisheries, who had applied for
10 certification as ecologically sustainable fisheries.

11 I was part of a panel of three who evaluated the
12 claims that were lodged against the certification that had
13 been made for the New Zealand hoki fisheries. I was in
14 also -- I was invited and attended, at their request, a
15 meeting, several meetings actually that took place in London
16 where we were trying to make recommendations for improvements
17 to the checklist that's used by the certification teams.

18 Q. You were trying to improve the checklist that's used by
19 this organization to determine whether or not certification
20 should be granted as environmentally responsible?

21 A. That's correct.

22 Q. Have you also been a consultant for the Southern Bluefin
23 Tuna Commission?

24 A. Yes.

25 Q. Multiple times?

1 A. Yes.

2 Q. Did this commission comprise representatives from New
3 England, Japan, Australia, Indonesia and Korea?

4 A. Did you say New England?

5 Q. I meant New Zealand. If I said --

6 A. Yes.

7 Q. -- New England, I'm thinking of the Patriots.

8 A. Yes.

9 Q. And doctor, just briefly, what have you done for them?

10 A. This was evaluating their stock assessments for southern
11 bluefin tuna, making recommendations that could lead to
12 improvements of their stock assessment.

13 Q. Have you also served as a consultant for the Australia
14 Fisheries Management Agency?

15 A. Yes.

16 Q. Multiple times?

17 A. Yes.

18 Q. Tell the Court just briefly, please, what you've done for
19 them?

20 A. These were three separate reviews. The earliest was
21 review that Dr. Hilborn and I did of the stock assessment for
22 the orange roughy fishery.

23 The second one was a review of the school shark
24 fishery in southern Australia.

25 And then a more recent one was a review of the stock

1 assessments for the Tiger Prawn Fisheries in northern
2 Australia.

3 Q. Is that in brown and grooved tiger prawn?

4 A. Yeah, both of them.

5 Q. When you say you do an assessment -- or can you break that
6 down for us in plain English, what's that mean?

7 A. Well, they -- as in most of the commercial fisheries,
8 there are stock assessments that are done for the various
9 fisheries. And in these stock assessments, what they do is
10 they estimate population's growth rate trying to determine
11 whether population's increasing or decreasing. They make
12 conservation recommendations as to what would be ecologically
13 sustainable harvest from the populations. And accompanying
14 conservation measures.

15 Q. And they bring you in and ask you to look at their work to
16 make sure they're doing it right?

17 A. Yes.

18 Q. Have you also been retained by the Alaska Department of
19 Fish & Game?

20 A. Yes.

21 Q. Multiple times?

22 A. Yes.

23 Q. Briefly, what have you been asked to do for them?

24 A. Yeah, that was two separate occasions. And in both of
25 those, it was to teach or co-teach fishery stock -- short

1 courses on fishery stock assessment.

2 Q. Have you also done work pertaining to the Indian Point
3 Nuclear Plant on the Hudson River?

4 A. Yes.

5 Q. What have you done there?

6 A. I was reviewing some work done by others in evaluating the
7 long-term impacts of entrainment and impingement of the once
8 through cooling systems on the -- primarily on the Indian
9 Point plants.

10 Q. Have you done work for the Salem Nuclear Power Plant on
11 the Delaware River in New Jersey?

12 A. Yes.

13 Q. And briefly, what have you done pertaining to that
14 project?

15 A. Yes. Aside from the committee that you mentioned earlier,
16 there was a separate piece of work that I did to review,
17 evaluate some work done by others on estimating the long-term
18 impacts of the once through cooling systems of the nuclear
19 power plant on the fish populations of the Delaware.

20 Q. And just one more, doctor. Have you done work as a
21 consultant pertaining to the hydroelectric dam operations on
22 the Columbia and Snake Rivers?

23 A. Yes. That was work on the spring and summer Chinook
24 population and evaluating that and whether -- the basic
25 question was whether or not the dams were responsible for the

1 decline of those populations to levered bubbles of endangered
2 or threatened species.

3 MR. GONZALEZ: Your Honor, at this point I'd like to
4 move the Court to find Dr. Deriso to be an expert qualified to
5 give opinions on fish dynamics, quantitative analysis of fish
6 populations and modeling of fish populations and dynamics.

7 THE COURT: Any objection?

8 MR. EDDY: No objection, Your Honor.

9 THE COURT: The Court finds that Dr. Deriso is
10 qualified by background, experience, education and training to
11 offer opinions on fish dynamics, quantitative analysis of fish
12 populations and the modeling of fish populations. You may
13 proceed.

14 MR. GONZALEZ: Thank you, Your Honor.

15 Q. Doctor, as part of your work on this project, have you
16 received -- have you reviewed the BiOp?

17 A. Yes.

18 Q. And in your review, was the best available science used in
19 coming up with the flow numbers in that BiOp?

20 A. No.

21 Q. In your view, are there clear errors of judgment in the
22 BiOp?

23 A. Yes.

24 MR. GONZALEZ: Your Honor, to expedite this, I'm
25 going to use a PowerPoint instead of asking the witness to

1 refer to various documents and put up excerpts from documents
2 that are either in evidence or that we will move into
3 evidence.

4 Q. The first slide, doctor, is just an excerpt from the BiOp.
5 Which for the record is Exhibit 112 at page 208, 209.

6 The first question is: Did the BiOp do a
7 quantitative analysis?

8 A. Yes.

9 Q. Did they do it right?

10 A. Not all of it.

11 Q. Which parts do you have a concern with?

12 A. The parts where they actually did quantitative analysis
13 regarding relationships between salvage and flows, I think,
14 were -- I believe to be done incorrectly.

15 Q. And why do you think that, just generally?

16 A. They didn't take into consideration the size of the
17 population.

18 Q. Why does that matter?

19 A. Well, you can get a high salvage for a couple of reasons.
20 One, it could be because of the flows. But secondly, it can
21 also be because you have large population.

22 Q. Can you think of any reasonable basis why a scientist, in
23 your area of expertise, would do this type of study and not
24 consider population?

25 A. No.

1 Q. In your view, is it clear error not to consider population
2 when doing the analysis in the BiOp?

3 A. Yes.

4 Q. Doctor, you're aware of the fact that the Court has
5 appointed two individuals to serve as experts to assist the
6 Court in its review of this case?

7 A. Yes.

8 Q. And have you reviewed the documents that have been
9 prepared by those experts, Dr. Punt and Dr. Quinn?

10 A. Yes.

11 Q. I'd like to show you just a couple of sentences from Dr.
12 Punt's response to question one. This is Exhibit 515.

13 He wrote, "Considerable amounts of data are available
14 for Delta smelt compared to most fish populations,
15 and the biology is fairly well understood."

16 First question, do you agree with that?

17 A. Yes.

18 MS. POOLE: Your Honor, I'm going to object to the
19 characterization of the 706 experts' responses up there. I
20 believe the document speaks for itself.

21 THE COURT: Well, the question was whether or not,
22 foundationally, the witness agreed. I will permit the answer
23 to stand. He can be referred to the document without reading
24 it.

25 But if it's not admitted as evidence in the record,

1 then Met has the right to have the statement with which the
2 expert is being asked to agree or disagree or to evaluate
3 before the Court. And so we can do it either way.

4 MR. GONZALEZ: And Your Honor, the reason I'm doing
5 it this way is to save time. And I'm trying very hard not to
6 characterize what the experts said. I'm just reading and
7 asking whether he agrees with the statement.

8 MS. POOLE: To clarify, Your Honor, we don't object
9 to the actual quotations. It's the heading that characterizes
10 what the 706 experts --

11 MR. GONZALEZ: All right. Fair enough. I will
12 stipulate and agree that the heading is not in evidence and
13 we're not offering it into evidence.

14 MS. POOLE: Thank you.

15 MR. GONZALEZ: So I appreciate that.

16 Q. So doctor, going back to Dr. Punt's response, he says,
17 "Considerable amounts of data are available for the Delta
18 smelt."

19 Here's my question to you: In your opinion, was that
20 data available back in December of 2008 at the time that the
21 BiOp was prepared?

22 A. Yes.

23 Q. And when Dr. Punt says that "The biology is fairly well
24 understood." In your opinion, was the biology fairly well
25 understood in December of 2008?

1 A. Yes.

2 Q. And I'd like to now just read one sentence from Dr.
3 Quinn's response to question one. "Given the amount of data
4 collected on smelt and other biotic and abiotic
5 aspects of the system for decades, the analysis in
6 the BiOp was very limited."

7 Do you agree with that?

8 A. Yes.

9 Q. I'd like to ask you now, doctor, about the use of gross
10 salvage to justify pumping restrictions.

11 Do you have an opinion, doctor, as to whether or not
12 it was appropriate to use gross salvage to justify pumping
13 restrictions without taking into consideration the entire
14 population of the species?

15 A. Yes.

16 Q. What is your opinion?

17 A. This is a clear error. You need to take into account the
18 size of the population.

19 Q. Now, doctor, I want to ask you about Figures B-13 and B-14
20 in the BiOp. But before doing so, I want to refresh your
21 recollection and the Court's recollection as to where in the
22 BiOp those figures appear.

23 So if we could please put up page 347 from the BiOp,
24 Exhibit 112. And if you could highlight -- there you go. The
25 heading is "Justification for flow prescriptions in Action 1."

1 And then if you could go to the next page, please.

2 I just want to show you, doctor, that Figure B-13
3 appears under that heading. And if you could turn two pages
4 later to page 350. Figure B-14 also appears under that
5 heading.

6 Now, if we could go back to the PowerPoint.

7 Now, having refreshed your recollection as to where
8 those figures appear in the BiOp under the heading
9 "Justification for flow prescriptions in Action I," I'd like
10 to ask you about those figures.

11 First of all, B-13, do you understand what is
12 depicted here?

13 A. Yes.

14 Q. What is your understanding as to what this depicts?

15 A. This has the raw salvage on one axis and it has some
16 weighted average Old and Middle River flows on the other axis.

17 Q. Now, doctor, you've studied this?

18 A. Yes.

19 Q. You've read the words in the BiOp before and after this
20 figure?

21 A. Yes.

22 Q. Is there anything in this figure, anything at all, that in
23 your opinion justifies the OMR flow rates that are in the
24 BiOp?

25 A. No.

1 Q. Why not?

2 A. They don't take into account population size.

3 MR. EDDY: Your Honor, at this time I'd like to raise
4 the same objection that Ms. Poole did to the last item with
5 regard to the heading. I believe that other parts of the BiOp
6 contradict what's up there in the heading for this graph.

7 BY MR. GONZALEZ:

8 Q. Well, I'm not going to ask you a single question about the
9 heading, the heading is not in evidence. I'm going to ask you
10 about the graph.

11 THE COURT: The heading is not going to be
12 considered.

13 BY MR. GONZALEZ:

14 Q. The line, doctor, that seems to go up. You see this line?

15 A. Yes.

16 Q. Now, for somebody who's not sophisticated in your area of
17 expertise, they might see that line going up and conclude,
18 wow, as the OMR flow becomes more negative, more fish are
19 being salvaged. Do you see that?

20 A. Yes.

21 Q. So why doesn't that then support the flow limits in the
22 BiOp?

23 A. It doesn't take into account the size of the population.

24 Q. Let me see if I can break it down. You see this number
25 10,000.

1 A. Yes.

2 Q. Are you saying that if you salvage 10,000 fish and the
3 total population is 20,000. That will be different than
4 salvaging 10,000 fish if the population is 20 million?

5 A. That's precisely the point.

6 Q. All right. Let me ask you about Figure B-14. Are you
7 familiar with this figure?

8 A. Yes.

9 Q. Have you studied it?

10 A. Yes.

11 Q. Is there anything, anything at all, in Figure B-14, that
12 in your opinion supports the OMR flow rates in the BiOp?

13 A. No.

14 Q. In your opinion, doctor, would any reasonable scientist in
15 your area of expertise look at Figures B-13 and B-14 and
16 conclude that you got to have the OMR flow rates in the BiOp
17 if you want to save this fish?

18 A. No.

19 Q. I want to show you one other page from the BiOp itself
20 because it came up during the examination of a witness
21 yesterday.

22 If we could please turn to page 250 of the BiOp.
23 That is Figure E-4 in Exhibit 112. Can you raise it a little
24 bit so that you get the -- there you go.

25 Doctor, I'm showing you E-4 from the BiOp. Now, are

1 you familiar with Figure E-4?

2 A. Yes.

3 Q. Is there anything in Figure E-4, which, by the way, for
4 the record, is at page 250, 100 pages away from the other
5 graphs.

6 A. Right.

7 Q. But it was shown to a witness yesterday, so I'll ask you
8 about it.

9 Is there anything here in Figure E-4 that would
10 support the OMR flow rates in the BiOp?

11 A. No.

12 Q. In your opinion, would any reasonable scientist look at
13 Figure E-4 and conclude that, based upon this, we need the OMR
14 flow rates in the BiOp in order to save this fish?

15 A. If they were familiar with the way that this was
16 calculated, then the answer is no.

17 Q. All right. Going back to the PowerPoint, please.

18 You're familiar, doctor, with the OMR flows that are
19 in the BiOp?

20 A. Yes.

21 Q. And for the record, I'm displaying page 352 of the BiOp,
22 which states the range of net daily OMR flows will be no more
23 negative than minus 1250 to minus 5,000 cfs. I've shown you
24 three figures this morning so far. Let me broaden my
25 question.

1 Is there anything, anything at all, in the BiOp that,
2 in your view, supports these OMR flow rates?

3 A. No.

4 Q. In your view, is there anything at all in the BiOp that
5 would lead a reasonable scientist, in your area of expertise,
6 to conclude that you need these OMR flow rates in order to
7 save this fish?

8 A. No.

9 Q. Doctor, have you reviewed the independent peer review that
10 was prepared in connection with this BiOp?

11 A. Yes.

12 Q. That review has been marked as Exhibit 608.

13 Your Honor, if it's not in evidence, I'd like to move
14 it into evidence.

15 MR. BIRMINGHAM: I believe, Your Honor, it was moved
16 into evidence yesterday.

17 MR. GONZALEZ: Great.

18 THE COURT: Is 608 in evidence?

19 THE CLERK: No, Your Honor.

20 MR. BIRMINGHAM: I'm sorry.

21 THE COURT: It's not in evidence. When was the
22 independent peer review prepared?

23 MR. GONZALEZ: October of 2008.

24 THE COURT: Any objection? 608 is received in
25 evidence.

1 (Metropolitan Exhibit 608 was received.)

2 BY MR. GONZALEZ:

3 Q. Doctor, I'm going to read to you just one sentence from
4 the independent peer review. This is at page 16. It's page
5 8818 of the administrative record.

6 "The panel suggests that the use of predicted salvage
7 of adult smelt should be normalized for population
8 size."

9 First of all, what do you understand that to mean?

10 A. The salvage should account for population abundance.

11 Q. The same thing that you've been saying this morning?

12 A. Yes.

13 Q. Doctor, is there anything in the BiOp that explains why
14 the government chose not to do what the independent peer
15 review suggested?

16 A. No.

17 Q. I may have asked you this already, but I want to be sure.
18 Is there anything in the BiOp that explains in any way why
19 population was not considered in determining proper OMR flow
20 rates?

21 A. No.

22 Q. Now, did the BiOp consider population for other things?

23 A. Yes.

24 Q. Are you familiar with incidental take statement --

25 MS. POOLE: Your Honor, I'm going to object to these

1 slides with their characterization. It's leading the witness
2 through his conclusions. And this is, of course, their
3 witness.

4 MR. GONZALEZ: Well, Your Honor, he's already said
5 that the BiOp considered population for other things.

6 Q. Did the BiOp consider --

7 THE COURT: Yes. Let me rule on the objection first,
8 Mr. Gonzalez.

9 MR. GONZALEZ: Oh.

10 THE COURT: I think that is a valid observation.
11 Because this witness is an expert, I think the dangers of
12 asking leading questions are much reduced and, therefore, I'm
13 going to simply instruct the witness, Dr. Deriso, please
14 ignore these headings that appear on these exhibits and just
15 give us your opinion without regard to any suggestions that
16 those words provide.

17 THE WITNESS: Yes, Your Honor.

18 THE COURT: Thank you.

19 BY MR. GONZALEZ:

20 Q. Okay. Doctor, before I move on to that slide. Did the
21 BiOp consider population for incidental take statement? Yes
22 or no.

23 A. Yes.

24 Q. And I'd like to now show you Table C-1 from page 386 of
25 the BiOp. Can you explain to the Court how it is that the

1 BiOp considered population for incidental take statement?

2 A. They use it in the construction of the column there that's
3 called cumulative salvage index.

4 Q. That's the first to the end here.

5 A. Yes.

6 Q. And just briefly, for someone who's not an expert in your
7 area, how is it -- because I don't see the word "population"
8 there. How is it that you believe population is considered in
9 that column?

10 A. Yes. They have the second and third column. And the way
11 that that index is calculated is to take the adult salvage
12 from the third column and divide it by the previous fall
13 midwater trawl index in the second column. And the fall
14 midwater trawl index is an index of population abundance.

15 Q. All right. Doctor, have you read the declarations of the
16 experts of the government in this case?

17 A. Yes.

18 Q. I'd like to read to you one line from the declaration of
19 Dr. Newman, which is Government Exhibit 17 in this proceeding.
20 This is from paragraph 11.

21 "Thus to assess the effect of OMR flows on the total
22 population, I concur with Deriso's general notion of
23 scaling salvage by some measure of population
24 abundance."

25 Is that generally what we've been talking about this

1 morning?

2 A. Yes.

3 Q. And I'd like to read to you, doctor, a couple of lines
4 from Dr. Punt's response to questions 2-D and 2-F. This is
5 Exhibit 515. He states at page 7, "Thus I conclude that it
6 was unreasonable given that appropriate data and
7 analysis methods were available to account for
8 population size to have only relied on the
9 information in Figures B-13 and B-14 rather than on
10 an analysis in which salvage is expressed relative to
11 population size."

12 Now, I have a couple of questions for you. Based
13 upon your review of the BiOp, do you agree with Dr. Punt that
14 the government only relied on the information in Figures B-13
15 and B-14 in preparing the OMR flow rates?

16 A. That's all that's in the justification section. So yes.

17 Q. And Dr. Punt also wrote, in response to question 2(f)
18 "Reliance on these figures is not justified given the
19 information which was available in the record at the
20 time the BiOp was written, i.e., that entrainment is
21 related to population size, and that methods that can
22 account for the impact of population size on
23 entrainment were available."

24 Is that the point you've been making this morning?

25 A. Yes.

1 Q. And just one sentence from Dr. Quinn's response to
2 question 2(f). It's Exhibit 515 at 10. He writes, "This need
3 for an adjustment" -- referring to salvage to
4 population size -- "was recognized in the BiOp (page
5 349, third paragraph); it is not clear why such an
6 adjustment was not made for the data examined in this
7 part of the report."

8 My question to you is: Do you agree with Dr. Quinn
9 that it is not clear why such an adjustment was not made?

10 A. Yes.

11 Q. Now, doctor, were you asked, as part of your work on this
12 case, to do an analysis to determine what the government could
13 have learned had it chosen to consider population in this
14 analysis?

15 THE COURT: Mr. Gonzalez, if you will indulge me.
16 Let me interrupt your question because I would like to ask a
17 question.

18 MR. GONZALEZ: Absolutely, Your Honor, please.

19 THE COURT: Before we get to your next question.

20 MR. GONZALEZ: Yes.

21 THE COURT: Dr. Deriso, is there any explanation in
22 the science that governs the study that is being done here as
23 to why the government scientists would have done what they
24 did?

25 THE WITNESS: No, sir.

1 THE COURT: Thank you. You may proceed.

2 MR. GONZALEZ: Thank you, Your Honor.

3 Q. Doctor, I am displaying a document that is part of Exhibit
4 602, it comes from one of your declarations. Are you familiar
5 with this chart?

6 A. Yes.

7 Q. Did you prepare it?

8 A. Yes.

9 Q. Tell the Court, please, what information did you use to
10 prepare this chart?

11 A. Yes. I used the cumulative salvage index for the years
12 that are labeled there. That is the salvage divided by the
13 previous fall midwater trawl index. And that is graphed
14 against the salvage weighted December-March OMR flow. So
15 those are the data points.

16 I then followed the method that's been called the
17 Johnson analysis. This was the method, as I understood it,
18 that was used to construct the what's known as a piece-wise
19 linear curve through the data.

20 And so what you have here is the best fit piece-wise
21 linear regression model to that data.

22 Q. Okay. Couple of questions for people like me who don't
23 understand half of what you just said.

24 Did you consider population in putting this together?

25 A. Yes.

1 Q. By the way, one of the critiques raised by the
2 government's expert yesterday was that you did not consider
3 observation noise. Have you read that testimony?

4 A. Yes.

5 Q. Did you consider observation noise?

6 A. Yes. It's part of the error.

7 Q. Was that part of your analysis?

8 A. The regression analysis explicitly assumes that there's
9 errors.

10 Q. What about confounding factors, did you consider that?

11 A. I used the same years that they used in B-13. And my
12 understanding is that some of those years, some other years
13 were excluded from that. And I excluded the same years.

14 So I took into account that potentially confounding
15 factor in the construction of this. Otherwise, anything else
16 is still part of the error, the deviations from the
17 predictions.

18 Q. Was all of the information that you considered available
19 to the government in December of 2008 or before?

20 A. Yes.

21 Q. And doctor, I'm going to refer to this as a hockey stick
22 because at the end of the line, the line starts to go up. Do
23 you see that?

24 A. Yes.

25 Q. What does that mean?

1 A. Yes. The purpose of this method is to try to identify
2 break points. That is, levels, in this case of the Old Middle
3 River flow where the salvage rate -- if I can define salvage
4 rate as a cumulative salvage index, where the adult salvage
5 rate starts to increase with changes in Old Middle River flow.

6 Q. And doctor, how long did it take you to prepare this?

7 A. Oh, it took about 30 minutes to do the analysis and maybe
8 an hour to make the graph pretty like this.

9 Q. And doctor, what conclusion do you draw based upon this
10 analysis?

11 A. Yes. According to this analysis, the break point is
12 estimated at minus 6100 cfs so that at flows more negative
13 than minus 6100, the salvage rate increases.

14 Q. Is there anything in this document that would support the
15 OMR flow rates that the government chose in the BiOp?

16 A. No.

17 Q. By the way, the hockey stick part of this document, is
18 that winter season?

19 A. Yes. This is the December through March average.
20 Weighted average.

21 Q. And this document is analyzing adults?

22 A. Yes. That would be adults.

23 Q. All right. Let me ask you about the next one. This is
24 also from Exhibit 602, which is in evidence, one of your
25 declarations.

1 Are you familiar with this chart?

2 A. Yes.

3 Q. And tell the Court, please, what is this?

4 A. This is an analysis of the Old Middle River flows, but
5 it's on a much finer time scale. We have here the daily OMR
6 flows. And what the comparable daily salvage rate is. And
7 I've broken up the OMR flows into bins of flows at 500 cfs
8 intervals. And then plotted this.

9 And then looking at it, to me, it looks like for
10 flows less negative than minus 5500, the salvage rate shows no
11 trend with flows.

12 Q. So the prior chart looked at seasonal numbers?

13 A. Yes.

14 Q. And this one looks at daily numbers?

15 A. That's right.

16 Q. And why did you do both?

17 A. Well, the BiOp just looks at the seasonal ones. But being
18 a scientist, I'm curious, I wanted to make sure that I wasn't
19 missing something by doing it the way that the BiOp did it and
20 just simply taking seasonal averages.

21 Q. And if you look at the daily numbers, which are being
22 displayed now, is there anything there that would lead a
23 reasonable scientist to say that you need the OMR flow rates
24 in the BiOp?

25 A. No.

1 Q. How long did it take you to do this analysis? The whole
2 thing. The analysis plus preparing the graph?

3 A. Oh, this one -- working with the daily data took a while.
4 This is probably two or three hours worth of effort.

5 Q. All right. Let me show you the next one. This also
6 comes, Your Honor, from Exhibit 602, one of your declarations,
7 doctor.

8 Are you familiar with this chart?

9 A. Yes.

10 Q. And what did you do here?

11 A. I was attempting to do something similar to what I did
12 with the adult salvage rate. So I constructed a -- what I'm
13 calling a juvenile salvage rate by taking the salvage of
14 juveniles in a given year and then dividing them by an index
15 of juvenile abundance as estimated from the 20 millimeter
16 survey index.

17 Q. And doctor, what conclusions, if any, did you draw as a
18 result of this task?

19 A. Yeah. This -- these data points, they start in 1995.
20 That's the first year of the 20 millimeter survey. So we
21 don't have as much data as we had with the adults. But
22 plotting the data that we have here on salvage rates and then
23 looking at it against the spring OMR flows, there was no
24 significant relationship between the two and no identifiable
25 break point in this data.

1 Q. So is there anything in this data that supports the OMR
2 flow rates in the BiOp for juveniles?

3 A. No.

4 Q. And please tell the Court how long did it take you to do
5 this work, the analysis plus the chart?

6 A. The salvage weighted OMR flows was the most time
7 consuming. That's not done in the BiOp. And I had to work
8 with daily data there. So probably a couple of hours just to
9 get the salvage weighted OMR. Once I had that data, then it
10 was a matter of 10, 15 minutes to do the rest of it.

11 Q. So basically you could do all four of these charts I just
12 showed you in one day?

13 A. Oh, yeah.

14 Q. All right, doctor, I'm going to shift gears now. And I'm
15 going to ask you about the failure to use the population
16 growth rate.

17 Now, first of all, how is that different than what
18 we've been talking about? The failure to consider population?

19 A. Yeah, this to me is one of the overarching errors of the
20 BiOp. Is that there is no eval -- quantitative evaluation of
21 the impact of the water diversion projects on the growth rate
22 of the population.

23 By "growth rate," what I'm talking about is the
24 change from one year to the next in abundance. Is the growth
25 rate positive; that is, is the abundance increasing from one

1 year to the next? Is it decreasing? And do these changes in
2 growth rate correspond to changes in the variables that in the
3 BiOp they're using to characterize the water diversion
4 projects.

5 Q. Now, doctor, please tell the Court, what is the
6 significance of population growth rate in this type of
7 analysis?

8 A. Yes. That's how you normally would evaluate the impact of
9 something. This is basically the way we calculate what our
10 recommended fishing mortalities are on populations. All of
11 these have to do with what is ecologically sustaining.

12 In this case, what I'm interested in, is the simple
13 question of whether or not the impact, particularly of the Old
14 Middle River flows, is having a statistically significant
15 impact on the population's growth.

16 Q. And doctor, when you've done your work on the power plants
17 and the hydroelectric plants and all this other stuff you
18 talked about, do you consider population growth rate?

19 A. Oh, yes.

20 Q. In your view, is there any reason why a reasonable
21 scientist would do the work in the BiOp and not consider the
22 population growth rate?

23 A. No.

24 Q. Do you believe it was clear error on the part of the
25 government for not considering population growth rate?

1 A. Yes.

2 Q. Doctor, I'd like to read to you from page 276 of the BiOp.
3 And I'm only going to read the part in quotes. Referring to
4 the projects, the BiOp states the projects, quote, "are likely
5 to jeopardize the continued existence of the Delta smelt."

6 First question: Is there anything in the BiOp from a
7 scientific standpoint that, in your view, justifies that
8 statement?

9 MS. POOLE: Your Honor, I'm going to object. I
10 believe that this quote mischaracterizes what's stated in the
11 BiOp.

12 THE COURT: Let's look at page 276.

13 MS. POOLE: And if I might read the first sentence on
14 page 276, it states, "After reviewing the current status of
15 the Delta smelt, the effects of the proposed action
16 and the cumulative effects, it is the Service's
17 biological opinion that the coordinated operations of
18 the CVP and SWP as proposed are likely to jeopardize
19 the continued existence of the Delta smelt."

20 That's different than what counsel has characterized
21 here.

22 MR. GONZALEZ: I'll accept the friendly amendment.

23 Q. In your view, doctor, is there any evidence in the BiOp to
24 support the last few words that she just said, "likely to
25 jeopardize the continued existence of the Delta smelt"?

1 A. There is no quantitative analysis to support that
2 statement.

3 Q. Are you familiar with the studies that are cited in the
4 BiOp itself?

5 A. Yes.

6 Q. For example, have you read Dr. Kimmerer's study from 2008?

7 A. Yes.

8 Q. And are you familiar with Dr. Bennett's study from 2005
9 that's cited in the BiOp?

10 A. Yes.

11 Q. Dr. Kimmerer, in his study, at page 18878 of the
12 administrative record notes a lack of evidence for population
13 level effects as a result of the water projects.

14 Is that basically what you've been saying this
15 morning?

16 A. That's correct.

17 Q. Dr. Kimmerer also says, at page 18855 of the
18 administrative record, that there is "no effect of export flow
19 on subsequent midwater trawl abundance is evident."

20 Do you understand those words?

21 A. Yes.

22 Q. Do you agree with them?

23 A. Yes.

24 Q. And Dr. Bennett said, at page 17004 of the administrative
25 record, "It is unlikely that losses of young fish to the

1 export facilities consistently reflect a direct
2 impact on recruitment success later in the year."

3 Do you agree with that?

4 A. Yes.

5 Q. By the way, what is "recruitment success"?

6 A. I believe in the context that it was stated there, they're
7 talking about the survival of -- from the -- particularly from
8 the summer juvenile stage to the following fall life stage.

9 Q. Doctor, I want to read just a couple of sentences from Dr.
10 Newman's declaration. First at paragraph 8. This is Exhibit
11 17. It says, "I agree with the utility of life history models
12 for assessing population level effects of SWP/CVP
13 operations."

14 Do you agree with that?

15 A. Yes.

16 Q. Dr. Newman then says, at paragraph 4 of his declaration,
17 Exhibit 17, "I have developed an appreciation for the utility
18 to fish and water managers of a life history model
19 for Delta smelt."

20 What do you understand "life history model" to mean?

21 A. Yes. Life history model is a -- another definition of a
22 life cycle model of a population dynamics model, of a model
23 that you would use to estimate the population's growth rate.

24 Q. Is a life history model something that was available to
25 the government on or before December of 2008?

1 A. The models have been around for a long time.

2 Q. How long?

3 A. Well, the Ricker model that I'm using in a lot of work
4 that I did was published back in 1954, I believe.

5 Q. Is a life history model a tool that was available to the
6 government for their analysis in the BiOp?

7 A. Yes.

8 Q. Did they use that tool?

9 A. No.

10 Q. Is there any explanation anywhere in the BiOp as to why
11 that tool that's been around for 50 years wasn't used?

12 A. No.

13 THE COURT: Where is this information found? The
14 life history model?

15 THE WITNESS: Information on the life history model,
16 information can be obtained out of a book that I co-authored
17 called Quantitative Fish Dynamics with Dr. Quinn. And we deal
18 with a lot of those kinds of population models in the book.

19 THE COURT: Are you saying in your testimony that
20 there is such a life history model for the Delta smelt?

21 THE WITNESS: I -- I'm saying that those life history
22 models exist. Do they exist for Delta smelt? I applied it.
23 So I'm -- I mean, it's straight forward to take the models out
24 of my textbook and apply them to Delta smelt.

25 THE COURT: In your professional opinion, if the Fish

1 & Wildlife Service for smelt were to have developed a life
2 history model, if they started in 2007, what's a reasonable
3 time estimate for the completion of the model?

4 THE WITNESS: The answer to that is one of those it
5 depends. Okay? It depends on how complicated you want to
6 make the model. The relatively straightforward basic model
7 that I was applying typically took me less than an hour to
8 apply this model to a set of data to examine the effects on
9 growth rate.

10 THE COURT: What increases the complexity of the
11 model?

12 THE WITNESS: The amount of detail that you're trying
13 to model. The one that I was working with is a life cycle
14 model that goes from the fall to the following fall. So the
15 next level of complexity would be to go to a life stage
16 structured model where you go from, say, the fall to the
17 spring to the summer to the following fall. You increase the
18 complexity, like Dr. Hilborn was describing yesterday, then
19 you get something which is far more detailed.

20 These are these models that have two-week time steps
21 in them so that you get lots and lots of snapshots. Models of
22 complexity, where you're actually trying to deal with the data
23 that's collected on the sizes of the animal simultaneously.
24 Where you're trying to deal with the movement of the animals
25 and the spatial patterns. All of those kinds of increasing

1 complexities that, frankly, go beyond the scope of the data.
2 But nevertheless, people will build models beyond the scope of
3 the data.

4 THE COURT: For a model, in your opinion, that was
5 sufficient to address the analysis necessary here, what is a
6 reasonable time for the preparation of such a model?

7 THE WITNESS: Oh, you should easily be able to have
8 finish these things, even of reasonable complexity,
9 within -- well, the life stage structured ones, some people
10 can do those in one day. Okay? Building a little more detail
11 than that, not much longer. I -- you know, give a few weeks,
12 should have one.

13 THE COURT: You may continue.

14 MR. GONZALEZ: Thank you, Your Honor.

15 Q. Doctor, just briefly, I want to point your attention to a
16 couple of the statements made by the Court appointed experts
17 in this case pertaining to population level effects.

18 Dr. Punt indicated in response to question one. It's
19 Exhibit 515. "It is surprising that a population dynamics
20 model was not developed for Delta smelt for the BiOp.
21 The model developed by Bennett could have been
22 extended to more fully account for the biology of
23 Delta smelt and fitted to data to assess the
24 population-level effects of impact of the project."
25 Do you agree with Dr. Punt?

1 A. Yes.

2 Q. Dr. Quinn said, in response to question 2(f), Exhibit 515,
3 "On balance, the validity of specific flow regimes is
4 undermined by the incomplete analyses that were done
5 on the available data."

6 Do you agree with Dr. Quinn that there was incomplete
7 analyses?

8 A. Yes.

9 Q. Now, doctor, you mentioned a moment ago, in response to
10 the Court's questions, something about a Ricker model. So let
11 me ask you about that.

12 Did you, doctor, put together some charts or graphs
13 or tables taking into consideration population growth rate?

14 A. Yes.

15 Q. And I am showing on the screen one such table that comes
16 from one of your declarations, Exhibit 601. Can you tell the
17 Court what did you do here?

18 A. These are results from the application of a Ricker life
19 cycle model. Again, this was a model that goes from the fall
20 of one year to the fall of the next year. And what I'm using
21 this life cycle model for is to do some examinations to see
22 whether some of the variables that are presented in the BiOp
23 and that I constructed have a statistically significant impact
24 on the population growth rate as measured in the Ricker life
25 cycle model.

1 In this particular graph, what we have is some
2 results based on using actually the cumulative salvage index
3 that we talked about before with the hockey stick model.
4 Using that as a potential variable to measure mortality of
5 adults. And then addressing the question does that measure of
6 mortality of adults have a significant impact on the
7 population's growth rate.

8 And this is some results from that analysis. And
9 visually, it's -- it is a way of showing that there is -- that
10 it doesn't. If there was a significant impact, okay, if, in
11 fact, the population growth rate that is this axis -- this
12 vertical axis here.

13 If it was being adversely impacted by increases in
14 the cumulative salvage index, then what we'd expect to see is
15 that cluster of data points to decline as you increase the
16 cumulative salvage index.

17 So if you had your pointer, you would probably have a
18 pointer that went kind of a decline thing as the cumulative
19 salvage index increased. And you can see we don't have that.

20 Q. Doctor, the information that you used to put this chart
21 together, was that information available to the government on
22 or before December of 2008?

23 A. Yes.

24 THE COURT: Before the next question is asked, I
25 would like to go back to your discussion of the population

1 indexing.

2 From your study in this case, of the BiOp and the
3 information available that was provided in the Information
4 Action Request. Is there any population data for the Delta
5 smelt species that you consider reliable that would tell us
6 in, for instance, the period 2007 to the present, what the
7 population of the species is as far as its total abundance is
8 concerned?

9 THE WITNESS: As far as an absolute level of
10 abundance. There is a publication by Newman, but I don't
11 believe it goes more recent than around 2005. I think that's
12 the last year, around there, for which he has absolute
13 measures of population abundance.

14 THE COURT: And can the analysis, that you have
15 discussed here as not having been done, be done absent
16 absolute population numbers for the abundance of the species?

17 THE WITNESS: Oh, yes, Your Honor, that, in fact, is
18 typical of fisheries. We hardly ever know how many animals
19 are in a population. We almost always are working with
20 indexes of population abundance, like the fall midwater trawl
21 index. That's basically the way we do our stock assessments.

22 THE COURT: Thank you. You may continue.

23 MR. GONZALEZ: Thank you, Your Honor.

24 Q. Doctor, I want to get some clarity and followup on some of
25 the questions the Court asked earlier about models. Because

1 there's been different testimony in this case about how long
2 it takes to prepare a model.

3 Did you use a Ricker life cycle model in preparing
4 this chart?

5 A. Yes.

6 Q. And is that a common first step for any scientist?

7 A. Yes.

8 Q. How long did it take you to do this?

9 A. The analysis took -- once I had the data, the analysis
10 took less than 30 minutes.

11 Q. 30 minutes?

12 A. Yeah.

13 Q. Now, Dr. Newman criticized your work here as well for not
14 considering observational error. Is observational error
15 considered?

16 A. Yes, it's part of the total error in a Ricker model.
17 Ricker model takes all of the errors, observation error and
18 another thing which is called process error or natural
19 variability, and it's all added together as a single error
20 time. Pretty much the same way that the Feyrer and Newman
21 2008 life cycle model does.

22 Q. Like to ask you a few more questions about modeling and
23 how complex it is.

24 As a professor, is part of your job to come up with
25 examinations to give to your graduate students?

1 A. Yes.

2 Q. And in coming up with examinations for your graduate
3 students, do you ever ask them to put together a model?

4 A. Oh, yes.

5 Q. How much time do you give them to do that?

6 A. Well, to write down the equations for models, that's part
7 of an in-class exam. So they'll have less than an hour to
8 write down what the equations look like, to characterize some
9 of the properties of the model, like what the maximum
10 sustainable yield is, what's the allowable fishing
11 mortal -- those kinds of things can all be done in an in-class
12 exam.

13 More lengthy ones is, oh, you know, where it would
14 give them a set of data on, you know, stock and recruitment.
15 Okay? Like you would use in a Ricker model. And I would give
16 them this set of data. And I say, okay, this data is going to
17 look like it fits either a Beverton-Holt model or a Ricker
18 model. Your assignment is do go home tonight, apply those
19 models to that data and come back tomorrow with the answer of
20 which model it is and why.

21 Q. Would you please spell the first model you mentioned,
22 Beverton or something?

23 A. Sorry. Yes. These are the two sort of classic, you can
24 call them life cycle stock recruitment. They're used for
25 various purposes. Beverton and Holt are two gentlemen that

1 published a very large textbook in the late 1950s. And
2 Beverton is spelling is B-E-V-E-R-T-O-N. And then usually
3 there's a hyphen and then they'll put the other author's name,
4 Holt, H-O-L-T.

5 Q. All right. Doctor, the BiOp. The Delta smelt.

6 A. Right.

7 Q. Is this the sort of thing that you can assign to your
8 graduate students overnight and ask them to prepare a Ricker
9 model analysis?

10 A. Yeah.

11 Q. Is there anything on this chart that, in your view,
12 supports the OMR flow rates in the BiOp?

13 A. No.

14 THE COURT: Do you have an explanation, a scientific
15 explanation, without speculating or guessing, as to why the
16 government figures and analysis are what they are?

17 THE WITNESS: No, Your Honor.

18 THE COURT: You may continue.

19 MR. GONZALEZ: Thank you, Your Honor.

20 Q. Doctor, I'm going to show you now another chart that is
21 part of Exhibit 601 in your declarations. Can you explain to
22 the Court what this is?

23 A. This is similar to the previous analysis. Again, we have
24 a Ricker life cycle model. And again, we're trying to examine
25 one of the variables that is used in the BiOp that, I believe,

1 is related to the adult mortality associated with water
2 diversions, and that is the December through March average OMR
3 flow.

4 And so this shows graphically what I found
5 statistically, and that is that there is no statistically
6 significant impact of the December to March average OMR flows
7 on the population growth rate.

8 Q. Did you also apply the Ricker model in preparing this
9 document?

10 A. Yes.

11 Q. What would you expect this to look like if, in fact, there
12 was a relationship to support the OMR flow rates in the BiOp?

13 A. Yes. What you would expect, if that was correct, is that
14 these data points, rather than looking like a shotgun scatter
15 here, instead it would be sort of an oblique pattern of points
16 declining as the flows became more negative.

17 Q. Please tell the Court how long did it take you to do the
18 analysis and to prepare the chart?

19 A. Oh, the analysis was less than 30 minutes. The
20 figure -- it took me quite a while to put the little year
21 labels up there. So to make it pretty like this, it took
22 about an hour.

23 Q. Let me show you another one that comes from your
24 declaration. Exhibit 601. Is this a chart that you prepared?

25 A. Yes.

1 Q. Does this one deal with juveniles?

2 A. Yes, it does.

3 Q. Please tell the Court why did you prepare this chart?

4 A. Yes. This was one that was prepared because it's thought
5 that the March through June average OMR flows are related to
6 the mortality, the entrainment mortality of larvae in
7 juveniles.

8 And so I took that hypothesis as represented by this
9 data and plugged that in to a Ricker life cycle model. And,
10 again, tested whether or not there was a statistically
11 significant impact of the March through June OMR flows on
12 population growth rate. And again the answer is no.

13 Q. Is there anything in this analysis to support the OMR flow
14 rate for juveniles in the BiOp?

15 A. No.

16 Q. Please tell the Court how long did it take you to do the
17 analysis and to prepare this chart?

18 A. This is about the same amount of time as the previous.
19 Half an hour for the analysis. Maybe an hour to draw the
20 pretty graph.

21 Q. The next chart also comes from one of your declarations.
22 Exhibit 604. Did you prepare this?

23 A. Yes.

24 Q. Tell the Court what you did here.

25 A. Yes. I took the BiOp predicted entrainments. Actually, I

1 used the equation that the BiOp developed to predict
2 entrainment. I then calculated entrainment losses in the
3 fashion described in the BiOp. I then took those annual
4 estimates of entrainment loss and used that within a Ricker
5 life cycle model to test whether or not the BiOp predicted
6 entrainments have a statistically significant impact on the
7 population growth rate. And again found that they did not.

8 Q. How long did it take you, doctor, to prepare this
9 document?

10 A. This one was quicker. I've got the new version of Excel
11 to construct the graphs with the year labels were done a lot
12 quicker. So I probably cut down by 30 minutes. Probably did
13 this, the whole thing within an hour. Maybe a little longer
14 because it took me a while to construct the BiOp's predicted
15 entrainments from the stuff they had.

16 THE COURT: Do you distinguish between the terms
17 "population growth rate" and "survival"?

18 THE WITNESS: No. They're measuring basically the
19 same thing. It's year over year survival, that's what I would
20 say is the growth rate. And I'm measuring it in terms of the
21 survival year over year.

22 THE COURT: And is the fact this is an annual species
23 a distinction with a difference?

24 THE WITNESS: These Ricker life cycle models are
25 applied to species actually that have multiple age classes as

1 well. That it is an annual species makes the application
2 cleaner in terms of when you look at stock and recruitment,
3 which is the classic -- that was when Ricker invented his
4 model in 1954, he was looking at salmon and he was looking at
5 stock and recruitment. And in this case, using the subsequent
6 fall compared to the current fall, I'm looking at parents and
7 their progeny as measured a year later.

8 THE COURT: And they survive that long, the smelt?

9 THE WITNESS: Smelt, there's quite a change
10 in -- differences in the population growth rate. You can have
11 the fall midwater trawl index decline dramatically from one
12 year to the next. Apparently the offspring didn't have a very
13 good survival. In other years, you can have the fall midwater
14 trawl index substantially larger than the previous one, in
15 which case it looks as though their survival was quite high.

16 THE COURT: And that's random?

17 THE WITNESS: It's --

18 THE COURT: Not explainable by scientific analysis?

19 THE WITNESS: Well, you would hope to find the magic
20 here but, Your Honor, natural variability is often, for all
21 practical purposes, unexplainable.

22 THE COURT: Thank you. You may continue.

23 BY MR. GONZALEZ:

24 Q. Doctor, the BiOp sets the most restrictive limits for
25 winter for adults at negative 1250.

1 In your view, based upon your review of the BiOp and
2 the work that you've done, is there any scientific support for
3 that number?

4 A. No.

5 Q. Doctor, if the Court were trying to determine what an
6 appropriate most restrictive limit should be for adults based
7 on science, what should that limit be?

8 MR. EDDY: Objection. Vague.

9 THE COURT: Do you understand the question?

10 THE WITNESS: Yes.

11 THE COURT: Overruled. You may answer.

12 THE WITNESS: Based on the analyses that was shown up
13 there with the hockey stick model, okay, what that does is it
14 shows a break point at minus 6,100 cfs on a seasonal average.

15 BY MR. GONZALEZ:

16 Q. All right. I didn't want to lead you, so I asked you the
17 question first. Now that you've given the answer.

18 When you refer to the hockey stick, you're again
19 referring to this chart here, which is part of your
20 declaration 602?

21 A. That's correct.

22 Q. And the 6100 number comes from the break point?

23 A. That's correct.

24 Q. With respect to juveniles, the BiOp sets the most
25 restrictive limit at negative 1250. In your view, is there

1 anything in the BiOp that supports that number as the most
2 restrictive limit for juveniles?

3 A. No.

4 Q. And if the Court were trying to determine, based on
5 science, what an appropriate most restrictive limit would be
6 for juveniles, what, in your opinion, should that number be?

7 A. Based on the analysis I've done, there doesn't seem to be
8 a trend in the juvenile salvage rate for flows as negative as
9 minus 5600 on the salvage weighted basis. So I would say
10 minus 5600 cfs.

11 Q. All right. Now, doctor, you mentioned earlier in response
12 to the Court's question that models can vary in terms of
13 complexity?

14 A. That's correct.

15 Q. I think you mentioned three different steps. The basic,
16 the middle one and then a super one.

17 A. Yes.

18 Q. Are you familiar with the phrase "life stage structured
19 model"?

20 A. Yes.

21 Q. What is that?

22 A. That's a model -- as I described it earlier, is one which
23 would go from, say, the fall as represented by the fall
24 midwater trawl index to the spring as measured by the 20
25 millimeter survey. To the summer, as measured by the summer

1 townet survey. And then back for the fall midwater trawl so
2 that's broken into sort of three pieces.

3 Q. Is that a more complex model than the Ricker models that
4 you did and that I showed the charts?

5 A. Yes.

6 Q. Have you done a life stage structured model for this
7 species?

8 A. Yes.

9 Q. When did you do that?

10 A. I started in the middle of December and we had the model
11 up and running by the end of the year. So a couple of weeks.
12 Part-time work. This is stuff you do on a weekend.

13 Q. You said December. What year?

14 A. 2009.

15 Q. Did anyone assist you?

16 A. Yes. Most of the work on this one was done by Dr. Mark
17 Maunder. That's spelled M-A-U-N-D-E-R.

18 Q. And who is Dr. Maunder?

19 A. He's a colleague that's also employed by the
20 Inter-American Tropical Tuna Commission.

21 Q. And within two weeks you had a model up and running?

22 A. About two weeks, yeah. But this is, like I said, part
23 time. I mean, if it had been full time, probably would have
24 had it done in a lot less.

25 Q. Understood. Did you test some of the work that you did

1 earlier, some of the Ricker model work, on this more complex
2 model?

3 A. Yes.

4 Q. Please tell the Court what did you test.

5 A. Yes. I looked at the winter -- December through March
6 average of salvage weighted average OMR flows that I looked at
7 in the Ricker model. I looked at the spring average OMR flows
8 that I looked at with the Ricker model. And I also looked at
9 the fall X2, which will -- I guess we'll see later, that I
10 also looked at with the Ricker life cycle model. So I looked
11 at all three of those.

12 Q. And were your conclusions any different?

13 A. No.

14 Q. By the way, observation error, which was noted by one of
15 the government experts yesterday, I believe it was Dr. Newman.
16 In this life stage structured model that you prepared in
17 December of 2009.

18 A. Yes.

19 Q. Did you look at or consider observation error?

20 A. Yes. In this more complex model, we actually partition
21 the error sources so that we have formerly treated observation
22 error on the one hand and then the natural random variability
23 in the population dynamics in the other hand.

24 Q. And did it affect the conclusions at all?

25 A. No.

1 Q. So using a life stage structured model, is there any
2 support for the OMR flow rates in the BiOp?

3 A. No.

4 Q. And had the government chosen to do so, could the
5 government have created a life stage structured model before
6 December of 2008?

7 MS. POOLE: Objection. Calls for speculation.

8 THE COURT: Do you have any knowledge of the
9 resources, the personnel and the other kinds of materials that
10 would be needed to do the studies that you have described --

11 THE WITNESS: Yes.

12 THE COURT: -- for the Fish & Wildlife Service?

13 THE WITNESS: Yes.

14 THE COURT: All right. You may -- do you wish to
15 voir dire?

16 MS. POOLE: Yes, I would, Your Honor.

17 THE COURT: All right. You may.

18 VOIR DIRE EXAMINATION

19 BY MS. POOLE:

20 Q. What is the basis of your knowledge for knowing the
21 resources, personnel and management structure of the Fish &
22 Wildlife Service?

23 A. Yes. I've read the testimony of Dr. Newman, that he was
24 employed prior to 2008, I believe, as far back as 2006. He's
25 quite capable of doing what I just described.

1 Q. So you're assuming, based on that written testimony, that
2 Dr. Newman had the availability, resources and time to prepare
3 this analysis?

4 A. Availability and -- I -- I don't understand the question.

5 Q. Well, you -- what is the basis, upon your reading of Dr.
6 Newman's declaration, that he may have had the ability to
7 prepare this model?

8 A. Dr. Newman is quite capable at quantitative analysis. And
9 he has the expertise required to build a model like that. So
10 when I was asked the question do they have the personnel, yes,
11 they have Dr. Newman as an employee.

12 Q. Thank you, doctor. So you're simply basing your answer on
13 the expertise of Dr. Newman and nothing else?

14 A. That's correct.

15 MS. POOLE: Thank you, Your Honor. I'll renew my
16 objection.

17 MR. EDDY: May I also voir dire the witness on this
18 question, Your Honor?

19 THE COURT: You may.

20 VOIR DIRE EXAMINATION

21 BY MR. EDDY:

22 Q. Dr. Deriso, have you ever worked for the Fish & Wildlife
23 Service?

24 A. With them?

25 Q. For them.

1 A. For them, no.

2 Q. How about the Bureau of Reclamation?

3 A. No.

4 Q. Have you ever worked on a biological opinion under the
5 Endangered Species Act?

6 A. Worked on the biological opinion, you mean like write a
7 biological opinion?

8 Q. Yes.

9 A. No.

10 Q. Is it your understanding that the biological opinion at
11 issue in this litigation, that the Fish & Wildlife Service was
12 asked by the Bureau of Reclamation to analyze whether its
13 proposed operations adversely affected the Delta smelt?

14 A. Not until I read it in the testimony from yesterday.

15 Q. And are you aware that the Fish & Wildlife Service also
16 receives similar requests from other federal agencies to
17 conduct biological --

18 A. Not until I heard it in the testimony yesterday.

19 Q. Do you believe that the Fish & Wildlife Service has any
20 control over the number of requests for consultation that it
21 receives from other federal agencies?

22 A. I don't know.

23 Q. Are you familiar with the structure of the different
24 offices and regions of the Fish & Wildlife Service?

25 A. No.

1 Q. Are you familiar with the budget of the Fish & Wildlife
2 Service?

3 A. No.

4 Q. Are you familiar with the other obligations of the Fish &
5 Wildlife Service besides developing biological opinions?

6 A. No.

7 Q. Do you know how many different federal wildlife protection
8 statutes the Fish & Wildlife Service implements and enforces?

9 A. No.

10 Q. Would it surprise you to know that there are over two
11 dozen federal wildlife protection statutes that the Fish &
12 Wildlife Service implements and enforces?

13 A. No.

14 Q. Dr. Deriso, do you know how long on average it takes to
15 complete a biological opinion?

16 A. No.

17 Q. And do you know how many biological opinions, on average,
18 the Fish & Wildlife Service produces within a year?

19 A. No.

20 MR. EDDY: Thank you. And we join the objection of
21 the defendant intervenors as well.

22 THE COURT: Based on the voir dire questions just
23 asked, is the basis for your answer to counsel's question
24 simply that as a scientist having mathematical competence,
25 that, consistent with your time estimates for what it took you

1 to perform the models, that that is your assumption as to what
2 Mr. Newman would have done?

3 THE WITNESS: Yes. It may have taken him a little
4 longer than two weeks. He doesn't do a lot of fish modeling
5 assessment work. So it may have even taken him twice that
6 amount of time.

7 THE COURT: All right. Proceed.

8 CONTINUED DIRECT EXAMINATION

9 BY MR. GONZALEZ:

10 Q. Doctor, did you see anything in the BiOp, anything at all,
11 suggesting that the reason why the government didn't do this
12 is because they didn't have the resources?

13 A. No.

14 Q. Or because they didn't have anybody who was competent
15 enough to do it?

16 A. No.

17 Q. Or because they had competent people, but they're just too
18 busy?

19 A. No.

20 Q. Has the government ever asked you to help them put
21 together a model for this species?

22 A. No.

23 Q. If they asked you, would you agree to help them?

24 A. Sure.

25 MR. GONZALEZ: Your Honor, I don't know what time the

1 Court typically breaks, I can keep going.

2 THE COURT: This is the time.

3 MR. GONZALEZ: All right.

4 THE COURT: 10:30. We'll stand in recess until ten
5 minutes of 11.

6 (Recess.)

7 THE COURT: We're going back on the record in the
8 consolidated salmonid and delta smelt cases.

9 Mr. Gonzalez, you may continue your examination of
10 Dr. Deriso.

11 MR. GONZALEZ: Thank you, Your Honor.

12 Q. Doctor, I'd like to shift gears. And I want to ask you
13 about the use of a linear additive model for fall X2 analysis.

14 Do you have an opinion, doctor, as to whether or not
15 that was appropriate for this project?

16 A. Yes.

17 Q. And what is your opinion?

18 A. This is clearly a mistake. They're trying to use this
19 linear additive model as a stock recruitment model. It makes
20 no sense.

21 Q. I'm not going to read this into the record because it's
22 got a bunch of numbers. But at page 268 of the BiOp, it has
23 the statement, the regression equation is and what do you
24 understand this to be?

25 A. This is the linear additive model that's presented in the

1 BiOp.

2 Q. Does it make biological sense to use this model in this
3 BiOp?

4 A. No.

5 Q. Why not?

6 A. It's additive. I mean, they're trying to basically
7 predict juvenile abundance as measured by the towntet index
8 that takes place in the summer of each year. And you can see
9 on the right-hand side of the equation, see the last term, it
10 says minus .328 times X_2 . See, X_2 is the fall X_2 that they
11 are looking at.

12 And what the equation says is that if you change X_2 ,
13 say, increase it by ten, multiply ten by .33, that means the
14 summering index the next year they would predict is going to
15 be reduced by three irrespective of the abundance of the fish.
16 Doesn't make any sense.

17 Q. In your view, would any reasonable scientist use the
18 linear additive model in this BiOp?

19 A. No.

20 Q. In your view, was it clear error to do this?

21 A. Yes.

22 Q. Is there anything in the BiOp that explains to you in a
23 reasonable scientific way why the government chose to use this
24 model?

25 A. The explanation, I believe, is because they're referencing

1 it from a publication or maybe two publications by Mr. Feyrer.

2 Q. And why, in your view, is that not proper?

3 A. Well, the model just doesn't make biological sense.

4 Q. All right. Doctor, I want to read a couple of sentences
5 from the independent peer review, Exhibit 608. This is at
6 page 8819 of the administrative record.

7 "The effects analysis points out that the residuals
8 from this analysis are not normally distributed and
9 that some transformation might be required. We
10 suspect that a few of the data points may have high
11 influence on the outcome. These results together
12 suggest that the model may be inappropriate for the
13 data being used."

14 First question: What do you understand this to mean?

15 A. Yes. The first sentence is actually right out of the
16 BiOp. And it's talking about a statistical problem with the
17 way that the model's fitted to data.

18 The second sentence, I don't know the basis of their
19 suspicion. I do recall in the administrative record reading
20 somewhere about if you take out -- I think it was the 1999
21 data point that the significance level of the regression for
22 X2 falls apart.

23 And then I guess the third sentence is taking both
24 the first and the second together. But then I would add to
25 that that I think that the linear additive model makes no

1 biological sense, as yet another reason why it would be
2 inappropriate.

3 Q. So do you agree with the independent peer review that the
4 model may be inappropriate for the BiOp?

5 A. Yes.

6 Q. Is there anything in the BiOp explaining why, despite the
7 statement by the independent peer review, they went ahead and
8 used the linear additive model?

9 A. No.

10 Q. I'd like to show you another figure from your declaration,
11 Exhibit 601. Is this something that you prepared?

12 A. Yes.

13 Q. What is it that you're doing here?

14 A. Plotting the model that's in the BiOp, that's the dark
15 straight line, this is the linear additive model. And then I
16 fitted a Ricker stock recruitment model to the same data. And
17 the dotted line is the best fit from that.

18 Q. And what conclusions did you draw?

19 A. This figure illustrates one of the reasons why the model
20 is -- doesn't make biological sense in that you see along the
21 horizontal axis, the fall midwater trawl index, that's a
22 measure of the abundance of the adults, of the stock in this
23 case.

24 And what it says, literally, is that if the fall
25 midwater trawl index is zero; that is, you have no adults,

1 then the linear additive model will say that nevertheless
2 you're going to have juveniles the next summer in the townet
3 survey at an index level above four, whereas the Ricker has
4 the -- shows that if you have zero parents, you're going to
5 have zero offspring.

6 Q. Whereas the way the government did it, zero parents, four
7 and a half offspring?

8 A. About that.

9 Q. The information that you used to put this together, was
10 that information available to the government on or before
11 December of 2008?

12 A. Yes.

13 Q. And this, for the record, is a multiplicative model?

14 A. A Ricker model is multiplicative, yes.

15 Q. And how long did it take you to prepare this, both the
16 analysis and the preparation of the actual document?

17 A. Of the analysis, fitting the Ricker model, 30 minutes.
18 Putting this figure together -- oh, good, I didn't have to put
19 any year labels in, probably another 30 minutes.

20 Q. Showing you another one of your charts. This is from
21 Exhibit 601. Is this a chart that you prepared?

22 A. Yes.

23 Q. And what is it that you're doing here?

24 A. Yes. What I have here is an index of survival of the
25 offspring as measured. And the ratio of the juvenile index,

1 the summer towntet, divided by the abundance of their parents,
2 as indexed by the midwater trawl index, and that's along the
3 vertical axis.

4 And then along the horizontal axis, we have the fall
5 X2 listed. And the data points there for the years, the year
6 labels on them correspond to the survival index and the fall
7 X2 for each of those years.

8 And the figure is intended to illustrate the results
9 that I found from analysis, mainly that the fall X2 does not
10 have a statistically significant impact on the survival of the
11 offspring.

12 Q. And doctor, how long did it take you to do this analysis
13 and prepare this document?

14 A. The analysis was done quickly, because I just -- what I
15 found -- you know, back up a bit. When I applied that Ricker
16 model, I found that the density deepened at term in the model.
17 That is, the effect of parental density on survival was not
18 statistically significant.

19 So I then did a second analysis and eliminated that
20 term from the model. And so looked at purely survival or
21 logarithmic of survival actually versus X2 to do this. And so
22 this took maybe 15 minutes because I already had the other
23 analysis done. Join the figure, again, I had to do the year
24 labels on this one. That's the most time consuming part.
25 Probably an hour to do the figure like this.

1 Q. And doctor, was the information that you used in preparing
2 this document available to the government on or before
3 December of 2008?

4 A. Yes.

5 Q. I'd like to show you one more on this topic. Again, from
6 your declaration Exhibit 601. Is this a chart that you
7 prepared?

8 A. Yes.

9 Q. And how is this different from the prior chart?

10 A. In this case, what we're doing is we're going from fall to
11 fall. It's much like the Ricker life cycle model
12 applications, the other four of them that you showed earlier
13 is applying a Ricker as a life cycle model and then, within
14 that model, testing whether or not the fall X2 had a
15 statistically significant effect on the population growth
16 rate.

17 Q. And what conclusions did you draw?

18 A. It was not significant.

19 Q. The information that you used to put this document
20 together, was it available to the government on or before
21 December of 2008?

22 A. Yes.

23 Q. How long did it take you to do the analysis and to put
24 this chart together?

25 A. The analysis, 30 minutes. The chart, probably an hour.

1 Q. Doctor, I want to ask you about just one other area. The
2 use of unrepresentative data in the incidental take statement.
3 Do you have an opinion on that issue?

4 A. Yeah. This looks like another mistake in the BiOp.

5 Q. Why do you say that?

6 A. Well, they -- what they did is they would reject data for
7 one purpose and then they would turn around and use that same
8 data for another purpose.

9 Q. Now, you said "it looks like another mistake." In your
10 view, is this clear error?

11 A. Yes.

12 Q. Let's talk first about Figure B-13, which I showed you
13 earlier.

14 A. Right.

15 Q. In Figure B-13, did the BiOp exclude certain years?

16 A. Yes.

17 Q. What is your understanding as to why the BiOp excluded
18 certain years?

19 A. They excluded years in which there was low water
20 turbidity, principally because those are not representative
21 years for the purposes of looking at salvage rates.

22 Q. And do you have any beef with that?

23 A. No, I think eliminating the years is -- if they're not
24 representative, they should be eliminated.

25 Q. One of those years was 2007?

1 A. Yes.

2 Q. With respect to the ITS, incidental take statement, did
3 the BiOp consider the year 2007?

4 A. Yes.

5 Q. Now, I have a couple of questions. First, the BiOp
6 considered the years 2006 through 2008?

7 A. Yes.

8 Q. The first question is: Is that adequate data points?

9 A. Not in my opinion.

10 Q. And second question: Was it appropriate for the BiOp to
11 consider the year 2007 in the ITS analysis after having
12 excluded it from Figure B-13 analysis?

13 A. No.

14 Q. Is there anything in the BiOp explaining why the year 2007
15 was excluded from Figure B-13 but not from the ITS analysis?

16 A. No.

17 Q. Did you do an analysis to see what impact it would have if
18 you were to exclude the year 2007 from the adult ITS analysis?

19 A. Yes.

20 Q. And what conclusion did you draw?

21 A. The incidental take level would increase by 44 percent if
22 you exclude the year 2007.

23 MR. GONZALEZ: And for the record, Your Honor, that
24 is contained in Exhibit 604, one of Dr. Deriso's prior
25 declarations.

1 Q. Now, shifting gears and asking about juveniles. The BiOp
2 analyzed the years 2005 to 2008 with respect to ITS for
3 juveniles?

4 A. Yes.

5 Q. First question is: Whether or not, in your view, that is
6 enough data points?

7 A. No.

8 Q. Second question is whether those are appropriate data
9 points?

10 A. No.

11 Q. And why do you say that?

12 A. They are including 2006 in that range from 2005 to 2008,
13 but 2006 was a year that had a positive OMR flow. And as the
14 BiOp says, OMR flow operates like a binary switch. If you
15 have positive OMR flow, then you're going to have little to no
16 entrainment, salvage.

17 So to me, if you're putting an incidental take, you
18 really are trying to protect the population in years in which
19 there's going to be salvage. So it would make sense, to me,
20 that you would only use years with negative OMR flow in that
21 protective measure.

22 Q. The BiOp at page 163 states, "Positive OMR is usually
23 associated with no or very low entrainment."

24 Do you agree with that?

25 A. Yes.

1 Q. In your view, was it scientifically reasonable to use the
2 year 2006 in the ITS analysis for juveniles?

3 A. No.

4 Q. Is there any explanation in the BiOp as to why the year
5 2006 was used given that it was a positive OMR year?

6 A. No.

7 Q. Did you do an analysis of the juvenile ITS rate excluding
8 the year 2006?

9 A. Yes.

10 Q. And from Exhibit 601, one of your prior declarations, what
11 conclusion did you draw?

12 A. Excluding that year, 2006, would cause the incidental take
13 level for April to decrease by 14 percent. But there's not
14 much incidental take in April. It occurs later than that.
15 And it would cause the May to July take levels to increase by
16 between 32 to 33 percent.

17 Q. All right. Doctor, my last question, I think, for now.
18 Based upon your review and analysis of the record in this
19 case, including the BiOp, and based upon all of the work that
20 you've done in connection with this case, is there any
21 support, in your view, for the OMR flow rates that are in the
22 BiOp?

23 A. No.

24 MR. GONZALEZ: That's all we have for now, Your
25 Honor.

1 THE COURT: Does any other plaintiff have questions
2 for Dr. Deriso?

3 MR. BIRMINGHAM: Not at this time, Your Honor.

4 THE COURT: Cross-examination.

5 CROSS-EXAMINATION

6 BY MR. EDDY:

7 Q. Good morning, doctor.

8 A. Good morning.

9 Q. My name is Ethan Eddy, I'm with the United States
10 Department of Justice and I represent the defendant federal
11 agencies.

12 Doctor, have you ever published a peer reviewed study
13 in a journal that pertains to the Delta smelt?

14 A. No.

15 Q. So the graphs that you've presented here today have not
16 been peer reviewed by any journal?

17 A. No.

18 Q. Do you intend to submit them as part of an article for
19 publication?

20 A. No.

21 Q. Have you testified as a paid expert witness in court
22 proceedings before?

23 A. Yes.

24 Q. Could you tell us how many times?

25 A. Once.

1 Q. And was that in the -- on behalf of Exxon Mobile in the
2 case brought against it by the United States following the
3 Exxon Valdez oil spill?

4 A. Yes.

5 Q. And do you recall the nature of your testimony in that
6 case?

7 A. Yes.

8 Q. Could you briefly summarize that for us?

9 A. Yes. I was asked to calculate -- or estimate what the
10 salmon and herring harvest would have been but for the oil
11 spill.

12 Q. And doctor, have you read the entire administrative record
13 for the biological opinion?

14 A. No.

15 Q. But you've read parts of it?

16 A. Yes.

17 Q. In addition to the biological opinion.

18 A. Yes.

19 Q. How did you know which parts to look at?

20 A. I looked at some of the references that were listed in the
21 BiOp, also in the administrative record. I was focusing on
22 the effects analysis. So I looked to the administrative
23 record on a peer review of the effects section.

24 And then it would be sometimes attorneys would
25 suggest that I look at some part of it. Or I would just get

1 curious about other stuff. There was some things in there
2 that I just got curious about, I wanted to see, so I tried to
3 dig it out.

4 Q. And I believe you stated earlier that the Delta smelt is
5 an annual species; is that right?

6 A. It's nearly annual. There are a few that survive into the
7 second year.

8 Q. Would you say that an annual species would be less
9 resilient to a catastrophic effect than a species with other
10 year classes?

11 A. It depends on what life stage the catastrophic effect
12 occurs.

13 Q. So it is possible, then, depending on the life stage, that
14 a catastrophic event could have a greater effect on the
15 population of an annual species than of a multi-year species?

16 A. Yes.

17 Q. And I believe you testified as to your familiarity with
18 the fall midwater trawl index figure; is that right?

19 A. That's correct.

20 Q. And are you aware that the 2009 index value is the lowest
21 on record?

22 A. Yes.

23 Q. And are you aware that the year prior to that was also at
24 the time the lowest index value on record?

25 A. Yes.

1 Q. And are you also aware that four of the last six years
2 have also, in fact, been all time record lows?

3 A. Yes.

4 Q. And are you also aware that the other two of those six
5 years were at similarly low levels?

6 A. Yes.

7 Q. Is it your opinion that these -- that this pattern that we
8 see in index values could be caused by random chance?

9 A. Possible.

10 Q. I'm going to ask you now to turn to page 388 of the
11 biological opinion. There should be at least one copy of it
12 up there. It's Government Smelt Exhibit 12 and I believe it's
13 the Plaintiffs' Exhibit 112. And please let me know when
14 you've found it and when you've found page 388.

15 A. Yes.

16 Q. Dr. Deriso, could you take a look at Table C-2 at the top
17 of that page for me, with the heading "Cumulative salvage
18 index in comparison to adult take estimates in Kimmerer
19 (2008)."

20 A. Yes.

21 Q. Could you tell me, based on looking at that chart, what
22 the estimate of the proportion of the population lost in 2003
23 was? And I believe that's in the left column there.

24 A. Is that what the column estimate is?

25 Q. I believe so.

1 A. An estimate is a percentage?

2 Q. Yes.

3 A. The estimate for 2003 listed here is 50.

4 Q. And doctor, is it your opinion that the loss of half of
5 the stock of an annual species currently at these record low
6 abundances that we've just discussed, would that be a cause
7 for concern?

8 A. Can you define what you mean by "cause for concern"?

9 Q. At those -- at that -- given that assumption, is
10 there -- would you be concerned that the species would be at
11 risk of extinction?

12 A. At risk of extinction. If there was truly 50 percent of
13 the population removed in 2003, then it could increase the
14 risk of extinction.

15 Q. Thank you. And would an event of this magnitude, would
16 this be an event, an event of this magnitude, that -- sorry.
17 Let me pull that out.

18 Doctor, would you agree that Delta smelt that are
19 found in the central and south parts of the Delta are more
20 exposed to entrainment than those found in the north and
21 eastern parts of the Delta?

22 A. Seems reasonable.

23 Q. And earlier this morning, you testified as to your work
24 on -- I believe it was a life stage structured model that you
25 began this past December.

1 A. Yes.

2 Q. Is that right? Is this the -- first of all, is -- and you
3 said you're finished; is that correct?

4 A. The model was constructed, yes.

5 Q. Have you submitted that to the Court in this proceeding?

6 A. No.

7 Q. Have you submitted it to the agency defendants in this
8 matter?

9 A. No.

10 Q. Is this the -- is this sort of life stage model that you
11 finished, would it be an adequate, a viable quantitative
12 population dynamics model for the purposes of the biological
13 opinion?

14 A. I -- yes.

15 Q. And you mentioned your involvement with someone named Mark
16 Maunder earlier this morning.

17 A. Right.

18 Q. And I believe you stated that at the Inter-American
19 Tropical Tuna Commission, that he works there with you; is
20 that right?

21 A. That's correct.

22 Q. And that you supervise roughly 50 scientists at the
23 commission?

24 A. Yes.

25 Q. Is Dr. Maunder among those?

1 A. He is.

2 Q. Are you aware, Dr. Deriso, that the National Center for
3 Ecological Analysis & Synthesis has also been working to
4 develop a quantitative population dynamics model for the Delta
5 smelt?

6 A. It seems like I heard something like that. But I -- I
7 haven't heard directly from any authoritative source there.

8 Q. Are you aware that the -- that others have -- who have
9 been working to develop a quantitative population dynamics
10 model have asked Dr. Maunder to assist them in their efforts?

11 A. No, I wasn't aware. I mean, I know that -- was the -- is
12 the model that Hilborn and Maunder started, oh, way back when,
13 kind of spent a few days on, is that -- was that through that
14 center as well? I don't know who -- I know they were working
15 on a model, I just don't know if it was through this center
16 that you're talking about.

17 Q. I believe that's possible. So if we make that assumption,
18 do you know why he stopped working on the model with Dr.
19 Hilborn?

20 A. I don't believe they got any direction to continue working
21 on it. But this is just my guess.

22 Q. And did you direct him to not continue working on that?

23 A. No.

24 Q. And I believe you testified earlier that the government
25 could have done the type of quantitative population dynamics

1 model that you think is viable within the time frame it had to
2 develop the biological opinion; is that correct?

3 A. That's correct.

4 Q. Is there any reason, if so, that the plaintiffs could not
5 have commissioned a similar effort during that same time
6 frame?

7 A. No.

8 Q. Dr. Deriso, are you aware that the plaintiffs submitted
9 comments to the defendant agencies on the draft biological
10 opinion prior to its promulgation?

11 MR. BIRMINGHAM: I'm going to object, Your Honor.

12 THE WITNESS: I read a little bit of something in the
13 administrative record, but I can't recall what it was.

14 THE COURT: Dr. Deriso, please, there's an objection,
15 let me rule on the objection.

16 MR. BIRMINGHAM: Your Honor, I would object to this
17 line of questioning on the grounds of relevance.

18 THE COURT: The objection on the ground of relevance
19 is overruled. Is your question directed toward a scoping
20 period of the BiOp?

21 MR. EDDY: That's correct, Your Honor.

22 THE COURT: All right.

23 MR. EDDY: And I'm just asking the witness as to his
24 knowledge of the plaintiffs' involvement in that.

25 THE COURT: Yes.

1 THE WITNESS: I'm aware that there was some pieces in
2 the administrative record that looked to me like they came
3 from the plaintiffs.

4 BY MR. EDDY:

5 Q. To your knowledge, did the plaintiffs, within. -- within
6 the knowledge that you just testified to, present any of the
7 critiques that you've outlined here during that scoping
8 period?

9 MR. BIRMINGHAM: Excuse me, Your Honor. I'm going to
10 object on the grounds there's no foundation. I'm not aware of
11 any scoping -- this is not like an environmental impact
12 statement where there is a scoping period. This is a
13 biological opinion. And I'm not aware of any scoping period
14 that is provided for in law during the preparation of a
15 biological opinion.

16 MR. EDDY: I would certainly agree with that and we
17 don't have to call it a scoping period. But I believe the
18 witness has testified just now that he's aware that the
19 plaintiffs had submitted something to the agencies prior to
20 the promulgation of the biological opinion.

21 THE COURT: There's no suggestion that there is a
22 mandatory legal requirement. Rather, the inquiry is whether
23 anything was submitted as the BiOp was being prepared. You
24 may continue.

25 MR. EDDY: That's correct. It's purely a factual

1 question. And we can call it whatever we want, we don't have
2 to call it a scoping period. And I believe I also confined my
3 question to the witness' -- the scope of the witness'
4 knowledge of that process.

5 THE COURT: Yes.

6 THE WITNESS: In the administrative record, I am
7 aware of and can recall, are some technical reports. I
8 believe they were authored by Dr. Manly. And my understanding
9 is that Dr. Manly was someone who was being paid by some of
10 the plaintiffs to do this work.

11 And what he does in there is, in essence, in some
12 pieces of it, is a life cycle model. He'll look at going from
13 the fall to the summer, and then he would look at going from
14 the summer to the fall. And then he was looking statistically
15 at some of the same kinds of variables that I was looking at
16 to see whether they have a significant effect in the models.

17 BY MR. EDDY:

18 Q. But with respect to your declaration, the points that
19 you've raised here, the specific points that have been put on
20 the overhead today.

21 A. Right.

22 Q. To your knowledge, were any of those presented to the
23 agencies?

24 A. In those words?

25 Q. That's right.

1 A. In those words, not that I know of.

2 Q. Thank you. Is it your opinion, Dr. Deriso, that the
3 export -- let me back up.

4 I believe earlier you testified as to your opinion
5 that there is no relationship between OMR flows and juvenile
6 salvage; is that correct?

7 A. The salvage rate.

8 Q. Salvage rate.

9 A. Within the years that I was looking at. And then more
10 broadly, the spring average OMR flow was not a significant
11 factor impacting population growth rate.

12 Q. Thank you. And would it be your opinion, then, that the
13 export projects could pump at their physical maximum
14 capacities during the spring period without a high risk of
15 entrainment?

16 A. No. All I looked at was juvenile salvage rate. The most
17 negative annual season average was minus 5600. And I think I
18 could have -- they could probably pump more than that, but I
19 don't know. There's no data that I've looked at outside of
20 that.

21 Q. Okay. So would your answer be that you're just not sure?

22 A. Yeah, I don't know.

23 Q. But you would agree that the risk of entrainment
24 increases, even in your own figures, as you approach and
25 exceed negative 5,000 cfs; is that right?

1 A. There was no evidence in the data that I looked at that
2 the entrainment risk increased as you approached minus 5600.

3 Q. And I'm not talking about population level effects, just
4 strict entrainment. Does that change your answer?

5 A. No. It doesn't make sense to look at strict entrainment
6 independent of population size.

7 Q. So you did not, in your analysis, look at entrainment
8 risk?

9 A. Entrainment risk, to me, risk is something which is
10 relative to the population size. When you talk about "risk,"
11 it has to be couched in terms of population abundance. And
12 I've consistently said that you don't want to look at these
13 things independent of the population size.

14 Q. Doctor, you refer to the spring 20 millimeter surveys
15 several times throughout your declarations in this matter. Is
16 that right?

17 A. Yes.

18 Q. I have a document that I'd like to discuss now, which is
19 one the plaintiffs' exhibits, it's number 292.

20 May I approach the witness, Your Honor?

21 THE COURT: You may.

22 BY MR. EDDY:

23 Q. This is a -- this is the fourth page of State Water
24 Contractors, I believe it's Exhibit 292. If I have that
25 number wrong, I'd appreciate if someone could correct me on

1 that.

2 THE COURT: It's San Luis and Delta-Mendota Water
3 Authority 292. It's a DFG fish distribution map?

4 MR. EDDY: Yes. And I apologize. I misstated the
5 plaintiff there.

6 Q. Exhibit 292 is a series of Department of -- California
7 Department of Fish & Game fish distribution maps. And this is
8 the fourth in the fourth page of that document.

9 Does this appear to you to be the results of a 20
10 millimeter survey, doctor?

11 A. Yes.

12 Q. And does this indicate that the overwhelming majority of
13 the juvenile Delta smelt during this time period were located
14 near the export facilities in the south and central Delta; is
15 that right?

16 A. Well, the catch rates are certainly higher.

17 Q. And so it's your opinion that when juvenile smelt are
18 distributed as you see in this figure, that unlimited pumping
19 would have no effect on the population?

20 A. I never said that.

21 Q. Okay. Well, you did say that OMR flows have no measurable
22 effect on the population with respect to juvenile -- during
23 the juvenile period; is that correct?

24 A. What I said is that if you look at the BiOp predicted
25 entrainment loss percentages as calculated in the BiOp for

1 larvae juvenile, that that is not a statistically significant
2 effect on the population growth rate.

3 Q. So in light of that opinion, would you agree with the
4 following statement: "When juvenile Delta smelt are
5 geographically distributed as you see in the figure
6 here, unlimited pumping would have no effect on the
7 population of Delta smelt."

8 A. No.

9 Q. Dr. Deriso, do you know what the efficiency of the fish
10 salvage facilities is for salvaging entrained Delta smelt?

11 A. I know there are estimates.

12 Q. Are you -- do you remember what the precise estimates are?

13 A. Kimmerer, in his 2008 paper, estimates non-salvage,
14 salvage loss at something like 97 percent.

15 Q. And while we're talking about the Kimmerer 2008 paper, I
16 have it here and I'd like to discuss it. This is Government
17 Smelt Exhibit -- bear with me just one moment, please. This
18 is Government Smelt Exhibit 38. And I know it's also labeled
19 as Metropolitan's Exhibit 106. I don't recall whether it's
20 been introduced yet. But I do have copies here that are
21 marked with the government's number 38. May I approach the
22 witness, Your Honor?

23 THE COURT: Yes, you may. Is it in evidence?

24 THE CLERK: 38 is not.

25 THE COURT: Not in evidence.

1 BY MR. EDDY:

2 Q. Okay. Once everyone's got it, I'd like to refer you to
3 page 13, please. If I can point you to the first full
4 paragraph there, where it says, under the very scary looking
5 equation, "The efficiency E_2 for the federal facility is about
6 13 percent."

7 Have I read that correctly?

8 A. Are you asking me?

9 Q. Yes.

10 A. Yeah, that's what you read. You left out the personal
11 commun --

12 Q. Oh, I'm sorry. And then paren, (M. Bowen, US Bureau of
13 Reclamation, personal communication."

14 Have I read that correctly?

15 A. Yes.

16 Q. Okay. Is it your understanding that Delta smelt smaller
17 than 20 millimeters are not counted at the salvage facilities
18 at all?

19 A. Yes.

20 Q. And that's because they're too small to be caught by the
21 screens there; is that right?

22 A. Yes.

23 Q. And since Delta smelt of that size are not counted at all
24 in the salvage counts, and the louver efficiencies, as we've
25 seen in Dr. Kimmerer's article here are in the 13 percent

1 range, even for mature fish, it would make sense then, would
2 it not, for you to conclude that there is no relationship
3 between OMR flow and raw juvenile salvage?

4 A. I would -- I never have liked raw juvenile salvage.
5 That's one of my criticisms throughout is it should be made
6 relative to population abundance.

7 Q. I understand that. But let's -- I'm going to read that
8 question one more time.

9 Since small Delta smelt, below 20 millimeters, are
10 not counted in salvage, and the louver efficiencies are poor
11 even for mature fish, it makes sense then, does it not, that
12 you would find in your analyses that there's no relationship
13 between OMR flow and juvenile salvage?

14 A. I haven't looked for a relationship between juvenile
15 salvage and OMR flow. I think it's not appropriate.

16 Q. Okay. So would you agree with that statement or not?

17 A. Could you read it back? I'm getting confused.

18 (Record read as requested.)

19 THE WITNESS: No. You said it makes sense that it
20 wouldn't or it would? See, I can't tell when you're doing
21 that double negative on me or not.

22 BY MR. EDDY:

23 Q. I'm certainly not trying to fool you, we can repeat the
24 question as many times as is necessary.

25 A. I'm just trying -- that's the reason I looked at juvenile

1 salvage rate versus OMR because I think it's perfectly
2 reasonable to use juvenile salvage rate as an index of the
3 entrainment of juveniles. Okay? So within the context of
4 juvenile entrainment, I think it's perfectly reasonable to use
5 the juvenile salvage rate --

6 Q. We're very clear on that. I'm asking if you agree with
7 the statement that I've made. And if you'd like, we can read
8 it to you one more time.

9 A. Well, read it again, because I just get lost in the --

10 Q. Sure, that's not my intention. So we can take it slow.
11 Would you like the court reporter to do that or shall I?

12 A. You can do it.

13 Q. "Since small Delta smelt (below 20 millimeters) are not
14 counted at the salvage facilities and the lower
15 efficiencies at the salvage facilities are poor even
16 for mature fish, it makes sense that you would
17 conclude that there is no relationship before OMR
18 flow and juvenile salvage."

19 Do you agree with that statement?

20 A. No.

21 Q. Thank you. Dr. Deriso, are you aware of a place in the
22 biological opinion where the US Fish & Wildlife Service
23 assumed that there was a relationship between juvenile salvage
24 and OMR flows?

25 A. Not that I recall.

1 Q. And I believe earlier this morning you opined that Figure
2 B-13 should have used some sort of a scale or a weighted
3 measure of salvage on the Y axis rather than the raw salvage
4 measure; is that correct?

5 A. That's correct.

6 Q. And I believe you also testified that some other parts of
7 the biological opinion also made use of a scaled or weighted
8 salvage measure; is that right?

9 A. That's correct.

10 Q. And I believe you also testified that it's your
11 understanding that the computation of the incidental take
12 limit uses a scaled salvage measure; is that correct?

13 A. That's correct.

14 Q. And when we see the term "cumulative expanded salvage," is
15 that a scaled or a weighted salvage measure?

16 A. I don't know. I can't recall the definition.

17 Q. How about "cumulative salvage index"?

18 A. Yeah, that's -- that is the salvage divided by fall
19 midwater trawl.

20 Q. Is it your understanding that the OMR flow restrictions
21 contained in the RPAs are there to guide the Bureau of
22 Reclamation to stay under the incidental take limit?

23 A. I don't know what the intention that -- I don't know that
24 that's stated. I can't -- I don't recall hearing that.

25 Q. Okay.

1 A. Reading that.

2 Q. Toward the end of your direct testimony and in some of
3 your declarations, I believe you testified that linear models
4 are not the best available science in fisheries population
5 dynamics; is that right?

6 A. No.

7 Q. Could you -- could you briefly explain for us your views
8 on the use of linear models in fisheries population dynamics?

9 A. Linear models are -- can be used and are used in fisheries
10 all the time. Just not as an additive linear model, as a
11 stock recruitment model. It was that specific application
12 that I objected to. Or that I think is a mistake actually.
13 Not object, it's a mistake.

14 Q. Earlier you testified that there was nothing in the
15 biological opinion to support a jeopardy finding; is that
16 correct?

17 A. I said there was no quantitative analysis presented in the
18 BiOp to support that.

19 Q. Okay. And when you gave that opinion, what did you mean
20 by "jeopardy"?

21 A. Jeopardy would be a significant impact in population
22 growth rate.

23 Q. Dr. Deriso, do any of your criticisms of the RPA flow
24 limit ranges in components one and two address the issue of
25 critical habitat?

1 A. I don't think -- I don't believe that's discussed in the
2 context of RPA I and II.

3 Q. Dr. Deriso, are you familiar with the precautionary
4 principle?

5 A. Yes.

6 Q. Could you give us your definition of that?

7 A. Precautionary -- I always get confused with the words in
8 these things. It's basically that in the precautionary -- the
9 way that I would normally use it is that I would tend to take
10 a number -- a conservative estimate of something to reduce the
11 risk to the population.

12 Q. And by "conservative," could you explain what you mean for
13 us there?

14 A. Yes. For example, conservative to me would be, in looking
15 as I did at the juvenile salvage rate. The data that I have
16 only goes to minus 5600 cfs. Which is why I didn't make any
17 recommendation for unlimited pumping in the spring. But
18 rather, being conservative, putting a limit at minus 5600.

19 Q. So this limit that you're advocating is -- would be the
20 maximum amount of pumping that the projects could do during
21 the stated time period?

22 A. Yes.

23 Q. It's not a minimum?

24 A. No. It's not a minimum.

25 Q. Are you aware that the National Academy of Sciences was

1 asked to review the biological opinion at issue in this case?

2 A. Yeah, that was a National Research Council Committee.

3 Q. And is that part of the National Academy of Sciences?

4 A. Yes. It's -- as I said earlier, the Ocean Studies Board,
5 which I was a member of, commissions these kinds of
6 committees. And that was one of the committees they
7 commissioned.

8 Q. And did you present testimony to that panel during its
9 proceedings?

10 A. Yes.

11 Q. And did you also submit to that panel a declaration that
12 was filed, one of your declarations, in this case?

13 A. Yes.

14 Q. And my last question, Dr. Deriso, is a simple yes or no
15 question. Do qualified scientists ever disagree?

16 A. Yes.

17 MR. EDDY: Thank you. I have no further questions on
18 cross-examination.

19 THE COURT: Ms. Poole, cross-examination.

20 MS. POOLE: Thank you, Your Honor.

21 CROSS-EXAMINATION

22 BY MS. POOLE:

23 Q. Good morning, Dr. Deriso.

24 A. Good morning.

25 Q. My name is Kate Poole, I'm an attorney with the defendant

1 intervenors in this case.

2 Now, Dr. Deriso, can you tell me what is the current
3 population of Delta smelt?

4 A. No.

5 Q. And what is a viable population of Delta smelt?

6 A. I don't know.

7 Q. And how many individual fish can be killed without
8 jeopardizing the continued existence of Delta smelt?

9 A. I don't know.

10 Q. And do I understand your testimony correctly that due to
11 the lack of population data, you recommend using the proxy for
12 total population size?

13 A. Yes.

14 Q. And the proxy that you use for the adults is the fall
15 midwater trawl; is that correct?

16 A. That's correct.

17 Q. And you used a different proxy for juveniles?

18 A. Yes.

19 Q. And would that be the 20 millimeter survey?

20 A. That's the early juveniles. And then the older juveniles
21 would be the summer townet survey.

22 Q. So you used both of those indices?

23 A. Yes.

24 Q. I'd like to refer you to your declaration which has been
25 marked Exhibit 600. Do you have that?

1 A. Did you say 600?

2 Q. Yes.

3 A. Yes, I have it.

4 Q. And could you turn to what's marked as page 10 at the top
5 of that document.

6 A. 10 of 17?

7 Q. Correct.

8 A. Yes, I have it.

9 Q. And you see the graph on that page.

10 A. Yes.

11 Q. And looking at this graph, what does it indicate is the
12 cumulative salvage index for adults in 2003?

13 A. The cumulative salvage index for 2003 is a little above
14 100.

15 Q. And does that number indicate that the number of adult
16 Delta smelt counted in salvage at the pumps in 2003 was more
17 than 100 times the amount of Delta smelt detected in the
18 entire Delta in the fall midwater trawl the previous year?

19 A. No. Oh, it's -- it's the cumulative salvage over the fall
20 midwater trawl index. So it's 100 times the fall midwater
21 trawl index.

22 Q. And what's the numerator?

23 A. Cumulative salvage.

24 Q. So if that fraction is greater than 100, doesn't that
25 indicate that more fish were -- more than 100 times fish were

1 salvaged in 2003 than were detected in the fall midwater trawl
2 in 2002?

3 A. No, because the fall midwater trawl is an index. It's a
4 catch per unit volume. It's a density measurement. So total
5 number is different than a density.

6 Q. So what you're using as your denominator in this equation
7 is not the fall midwater trawl index for 2002?

8 A. Yes. I'm using that.

9 Q. And is it your testimony that that number is different
10 than what is reported as the fall midwater trawl by the
11 Department of Fish & Game?

12 A. No, it's the same.

13 Q. Thank you. And what's the -- looking at this graph again,
14 what's the cumulative salvage index for the year 2000?

15 A. The cumulative salvage index or the cumulative salvage?

16 Q. The cumulative salvage index is what is depicted on this
17 graph; is that correct?

18 A. That's right. So that -- I thought you asked cumulative
19 salvage. For 2000?

20 Q. For 2000.

21 A. Year 2000. Year 2000, where are you year 2000? Oh, there
22 you are. That looks like, I don't know, roughly 15.

23 Q. And what does it look like the OMR flow rate is that's
24 indicated there?

25 A. Oh, it looks about minus -- a little more negative than

1 minus 5,000. Somewhere between 5,000 and negative 6,000.

2 Q. And again, what is the cumulative salvage index indicated
3 on this graph for 1995?

4 A. 1995, let's see, that one looks higher. The cumulative
5 salvage index looks to be maybe 25.

6 Q. And what do you estimate the flow rate is for that year?

7 A. Just eyeballing this figure, around minus, oh, 7,000.

8 Q. A little less than that?

9 A. Maybe a little less than that, yeah.

10 Q. Now, do you have any scientific certainty that there are
11 more Delta smelt alive today than the number detected in the
12 last fall midwater trawl?

13 A. Alive today?

14 Q. Yes.

15 A. Today the adult smelt, a lot of them are dead. So there
16 should be less than detected in the fall midwater trawl index.

17 Q. And I believe your answer went to adult Delta smelt.

18 A. That's what you asked.

19 Q. How about the total population of Delta smelt?

20 A. We're sitting here in April. There are some offspring. I
21 don't know what the abundance of the offspring is as of April
22 whatever the date is here. So it would be adults that are
23 still alive plus the offspring. And I don't know what that
24 number would be.

25 Q. So let me ask my question again: Do you have any

1 scientific certainty that there are more Delta smelt alive
2 today than the number detected in the most recent fall
3 midwater trawl?

4 A. No.

5 Q. But despite that lack of certainty, would your recommended
6 flow measures here allow the projects to -- the project pumps
7 to salvage up to 15 times and perhaps more than 25 times that
8 amount of Delta smelt on a regular basis?

9 MR. BIRMINGHAM: Objection, Your Honor, ambiguous.

10 THE COURT: Do you understand the question?

11 THE WITNESS: No.

12 BY MS. POOLE:

13 Q. Well, you just testified, Dr. Deriso, that the salvage
14 rates in 2000 and 1995 were approximately 15 times and 25
15 times the amount detected in the previous fall midwater trawl;
16 is that right?

17 A. No, that's incorrect.

18 Q. Why is that incorrect?

19 A. Because the fall midwater trawl index is an index, it's
20 not the number of smelt that are alive in the fall. It's a
21 measure of the relative abundance. So if the index goes to 20
22 compared to 10, then you would be estimating the population
23 size would be doubled. But I'm not saying that that's -- that
24 there's only 20 Delta smelt in the fall.

25 Q. When you use the term "fall midwater trawl index," is it

1 the number reported by the Department of Fish & Game?

2 A. Yes.

3 Q. And is that the number of Delta smelt that they have
4 detected using their trawl methods in the entire Delta?

5 A. No.

6 Q. What is that number?

7 A. It's a density measure. It's a catch per unit per volume
8 of water filtered averaged across regions and weighted by
9 region volumes.

10 Q. So it represents more actual fish, more fish than the
11 trawl measure has actually caught?

12 A. It's an index. That is intended to represent the entire
13 abundance in the fall. It's not scaled to any absolute
14 number. You can't look at the fall midwater trawl index and
15 say, "Oh, there's 20 fish out there" because the index is 20.
16 You can't look at the index and see it's 20 and say, "Oh, they
17 only caught 20 fish last fall." That's not -- that's an
18 inappropriate use of the index and interpretation of it.

19 Q. Okay. But let's step back to my question.

20 Would the court reporter mind reading that back?

21 THE COURT: Yes, you may.

22 MR. GONZALEZ: I'm not sure which question you're
23 asking her to read.

24 MS. POOLE: My last question.

25 (Record read as requested.)

1 THE WITNESS: No.

2 BY MS. POOLE:

3 Q. Does it represent less fish than the trawl measure has
4 actually caught?

5 A. I -- like I keep telling you, I don't know what -- how the
6 index is scaled. I think it's a catch per unit of effort. In
7 which case it's -- the index is much smaller, potentially much
8 smaller than the actual number of fish which were caught.

9 Q. So you don't -- you don't know precisely how that index
10 is --

11 A. I don't know how they're scaling it. I don't know what
12 scale they're using. I know that it is certainly far smaller
13 than abundance estimates that have been made in the fall. At
14 least abundance estimates in Newman's paper are, you know,
15 hundreds of thousands if not millions of fish and when the
16 index was in the hundreds.

17 Q. I'm just asking you to focus on the fall midwater trawl
18 index that you used. Not on population abundance estimates
19 based on that.

20 A. Right. And it's an index. It's an index. It's an index
21 of the relative abundance of the fish. It's not -- it's not
22 an absolute measure. It's a relative measure.

23 Q. And your testimony is that you don't -- you're not sure
24 how that index is derived based on the actual number of fish
25 caught during that trawl effort?

1 A. I've read how it's done. It's the standard sort of way
2 that you deal with surveys. You take the density measurements
3 from those trawl samples and then you weigh them by relative
4 volume of water in the different regions and you add that up
5 and that gives you a total index. But it's an index of
6 density of fish. Catch per unit of volume of water trawl.
7 Not a total number of fish that you actually counted.

8 Q. I understand that, Dr. Deriso. Thank you. Is that index
9 likely to be a larger number than the actual number of fish
10 caught in the trawl? Or a smaller number?

11 A. Smaller.

12 Q. Thank you. Now, you've made some recommendations here for
13 certain flow measures to be in place during the adult period
14 from December to March as well as a certain take limit; is
15 that right?

16 A. Yes.

17 Q. And if your flow measures were implemented and the take
18 limit was reached, what would be your recommendation?

19 A. Well, the law prescribes what needs to be done if the take
20 limit is reached.

21 Q. And what is that?

22 A. My understanding of it is that that would trigger another
23 consultation.

24 Q. And so you wouldn't recommend that pumping be reduced?

25 A. If the incidental take -- the incidental take limit is

1 there, my understanding of it, is in place to try to prevent
2 the take from getting that large.

3 Q. And what if the incidental take limit is reached under
4 your recommended flow levels?

5 A. If -- well, presumably, okay, is that they would
6 reduce -- they would do what they would need to do in order to
7 keep the take below the incidental take level.

8 Q. And when you say they would do what they need to do, are
9 you suggesting that they would lower OMR flows to make them
10 less negative before reaching that limit?

11 A. They may -- I don't know what action they would take. I
12 mean, that's up to the agency to decide what they want to do
13 if they're getting near the incidental take.

14 Q. And do you believe that the agencies could effectively
15 avoid reaching your recommended incidental take limit under
16 your prescribed OMR flow measures?

17 A. Yeah, I think that if they follow the ones that I've
18 estimated, that the take limits wouldn't be reached.

19 Q. Thank you. I'd like to distribute Exhibit 1055.

20 And if I may, Your Honor, I'd like to request
21 standing permission for my colleague, Mr. Torgun, to approach
22 the witness and distribute exhibits.

23 THE COURT: Yes. Permission is granted.

24 BY MS. POOLE:

25 Q. Do you have what's been marked as Exhibit DI 1055 in front

1 of you now, Dr. Deriso?

2 A. Yes.

3 Q. Would you please find paragraph 15 of this document.

4 A. Yes.

5 Q. Would you please read that paragraph aloud.

6 A. From lines 9 through 18?

7 Q. Please.

8 A. "As Exhibit A shows, between June 17th and July 16th, the
9 SWP was taking significantly more smelt than the CVP.
10 During this 30 day period, the SWP took smelt in 27
11 of the 30 days. However, during the same period, the
12 CVP only took smelt in two out of the 30 days. It is
13 unlikely that such a significant disparity in smelt
14 take between the two projects during this time can be
15 fully explained by less efficient salvage at the CVP
16 facilities. The low CVP salvage of smelt during this
17 period, combined with a zero catch of smelt by the 20
18 millimeter survey at the south Delta stations,
19 suggests that during this period, there were few
20 smelt in Old River to be diverted into CCF. Given
21 that the CVP and SWP both divert water from Old
22 River, it is therefore likely that a major portion of
23 the smelt salvaged by the SWP during June and July
24 had been diverted into the CCF in May and had resided
25 in the CCF until they were salvaged in June and

1 July."

2 MR. GONZALEZ: Your Honor, I'm sorry, I didn't want
3 to interrupt the witness. But I'm going to ask -- we object
4 to this, Your Honor.

5 First of all, I don't believe this is part of the
6 administrative record. I'd like clarification from counsel as
7 to whether or not it's in the record. If it's not, Your
8 Honor, it's hearsay.

9 MS. POOLE: It's --

10 MR. GONZALEZ: Again, I didn't want to interrupt the
11 witness. But we would object on the basis that it's hearsay.
12 To the extent it's being offered for the truth, which I assume
13 it is, otherwise it's not relevant. And also, it's not part
14 of the record.

15 MS. POOLE: Your Honor, it's not part of the record
16 to my knowledge. However, I don't believe it's hearsay. It's
17 a statement by a party opponent under Rule 801. This is
18 testimony from an employee of DWR in the prior Delta smelt
19 proceeding in 2007 before Your Honor. And even if it were
20 hearsay, it falls under the former testimony exception.

21 MR. GONZALEZ: Your Honor, it's not --

22 THE COURT: There is a further -- did you want to
23 finish, Mr. Gonzalez?

24 MR. GONZALEZ: I just wanted to add it's an out of
25 court statement by a witness who's not here to be

1 cross-examined. A witness who is aligned with counsel who's
2 offering it. It's hearsay and it doesn't fall under the
3 hearsay admission exception.

4 MS. POOLE: To clarify. This is offered by an
5 employee of DWR, who is, in fact, aligned with plaintiffs in
6 this case.

7 MR. GONZALEZ: Fair enough.

8 THE COURT: That is true. There is a further purpose
9 for which the Court believes it is admissible, in the same way
10 that such documents have been used with the defendants'
11 experts to test credibility and competence. The witness can
12 be referred to the subject matter of his opinions in an
13 earlier proceeding and asked about his evaluation or analysis.

14 MR. GONZALEZ: If that would be the purposes, Your
15 Honor, we understand.

16 THE COURT: Thank you.

17 MR. GONZALEZ: Thank you.

18 THE COURT: The objection is overruled. You may
19 answer this question and then we're going to take the noon
20 recess.

21 THE WITNESS: Could you repeat the question?

22 MS. POOLE: I don't think I've asked a question yet.

23 THE WITNESS: Okay.

24 BY MS. POOLE:

25 Q. Given the last line in particular of that paragraph that

1 you just read, which indicates that a major portion of the
2 smelt salvaged by the SWP have been diverted into the
3 CCF -- and I'll represent to you that that represents the
4 Clifton Court Forebay to the State Water Project pumps -- in
5 May and have resided in the CCF until they were salvaged in
6 June and July.

7 Does that change your conclusion that the agencies
8 may be able to avoid reaching your take limit under your
9 proposed OMR flow recommendations?

10 A. No.

11 MS. POOLE: Thank you.

12 THE COURT: All right. We are in recess until 1:30
13 p.m.

14 (Lunch recess.)

15 THE COURT: We're going back on the record in the
16 consolidated salmonid and smelt cases. Ms. Poole, you may
17 resume your cross-examination of Mr. Deriso.

18 MS. POOLE: Thank you, Your Honor.

19 Q. Welcome back, Dr. Deriso.

20 A. Thank you.

21 Q. Now, I'm just going to paraphrase something from your
22 declaration. Tell me if I have this correct. Do you
23 basically assert that raw salvage numbers are not proportional
24 to the total population and thus do not reflect population
25 level effects?

1 A. No.

2 Q. Okay. Well, then let's turn to what's been marked
3 Government 18, that's your December 7th, 2009 declaration.

4 A. Which number is this?

5 Q. Government 18, Exhibit 18. In the Met exhibits, I believe
6 it's --

7 MR. GONZALEZ: 602 in that binder, doctor.

8 THE WITNESS: 602. Thank you. Okay.

9 BY MS. POOLE:

10 Q. And could you find paragraph 16, please.

11 A. Yes. 16.

12 Q. Now, paragraph 16, I'm going to read to you from.
13 Beginning at line 24. Tell me if I read this correctly,
14 please. "As I explained in my previous declaration, raw
15 salvage numbers are not proportional to the total
16 population and thus they do not reflect population
17 level effects."

18 Did I read that correctly?

19 A. Yes, you did.

20 Q. Do you agree with that statement?

21 A. Yes, that's what's written here.

22 Q. And this is your declaration. Correct?

23 A. That's correct.

24 Q. Now, I'd like you to suppose, Dr. Deriso, that some
25 process had the effect of removing the constant 4,000 animals

1 from a population every year. And that population varied
2 between 5,000 and 50,000 individuals.

3 Now, that annual culling of 8 to 80 percent of the
4 total population would not be proportional to the total
5 population; would it?

6 A. In your example, no.

7 Q. Would such a process create a population level effect, as
8 you've defined it?

9 A. I don't know.

10 Q. What if the population dropped to 4,000 animals? Would
11 removing 4,000 animals from a population of 4,000 have an
12 effect on the population?

13 A. Yes.

14 Q. Okay. Thank you.

15 Now, let's move on to larval and juvenile smelt. Am
16 I correct that you found no statistically significant
17 relationship between OMR flows and the population growth rate
18 of Delta smelt?

19 A. Yes.

20 Q. So your analysis would not support any restriction on post
21 March OMR flows; correct?

22 A. Within a range of historical data, no.

23 Q. And what was the upper limit of that range?

24 A. I don't know.

25 Q. Is it possible that very large numbers of Delta

1 smelt -- by that, I mean in the range of tens of thousands,
2 could be salvaged at the pumps when OMR flows are within the
3 range of historical flows?

4 A. Yes.

5 Q. Do you know whether that's occurred in the past?

6 A. I've seen some large numbers, yes.

7 Q. And do you recall what the flows were when those large
8 numbers occurred?

9 A. No, not specifically.

10 Q. I'd like to pass around what's been marked Exhibit 1056.
11 While my colleague is passing this out, I'll tell you that
12 this is a filing made in this case by the federal defendants
13 in response to some questions from the Court's 706 experts and
14 some excerpts of the very voluminous exhibits that were filed
15 with that.

16 Now, Dr. Deriso, could you turn to what's marked a
17 document 594-6 at the top of the page?

18 A. I don't know what you mean by 594-6.

19 THE COURT: It's at the top of the page. In the
20 middle. It's the electronic legend that shows the electronic
21 filing.

22 MS. POOLE: May I approach, Your Honor?

23 THE COURT: Yes.

24 THE WITNESS: Oh, I see that. Okay. Thank you.

25 BY MS. POOLE:

1 Q. Now, would you -- let's look at the column on this table
2 for 1999. Can you tell me what the cumulative juvenile
3 salvage at the SWP and CVP were in May of 1999?

4 A. 58,929.

5 Q. And how about for June of 1999?

6 A. 73,368.

7 Q. Thank you. And now let's flip back a few pages to what's
8 marked in tiny little letters in the left-hand bottom corner
9 as Exhibit E to federal defendants' response to 706 experts.
10 Do you see that?

11 A. Is this in the document that's got page 1-7 and so on?

12 Q. Yes. Just --

13 A. Which page are you on?

14 MS. POOLE: May I approach again, Your Honor?

15 THE COURT: Yes, you may.

16 THE WITNESS: Oh, you mean go the other direction.

17 BY MS. POOLE:

18 Q. Now, do you see the column on the right-hand side of this
19 page marked year, month and average OMR flow?

20 A. Yes.

21 Q. Okay. Now, in this same Exhibit E, let's turn to page 8.

22 A. Got it.

23 Q. And can you find the average OMR flow in May of 1999?

24 A. My document seems to be missing page eight unless it's
25 someplace else. Oh, wait a minute. Here it is. It's on the

1 back side. Back side of page 8 has 1999.

2 Q. And can you find May of 1999?

3 A. Yes. There's May.

4 Q. And what -- do you see the average OMR flow for that
5 month?

6 A. Minus 1,062.

7 Q. How about for June of 1999?

8 A. Minus 3,814.

9 Q. And are those historic OMR flows within the range of flows
10 that you analyzed?

11 A. Yes.

12 Q. And do you have a sense of whether the current Delta smelt
13 population could survive the salvage of 73,000 individuals?

14 A. I don't know the answer to that.

15 Q. Do you have a sense of whether such an event could have a
16 significant effect on the population?

17 A. I don't have a sense for that, no.

18 Q. Do you know whether such an event could jeopardize the
19 continued existence of the Delta smelt?

20 A. No.

21 Q. Thank you. Now, I'm going to ask my colleague again to
22 distribute what's been marked Defendant Intervenors' 1057.

23 Would you please turn to page 1090 of Exhibit DI
24 1057, please.

25 A. 1090. Got it.

1 Q. And beginning at line 13, could you read that question and
2 answer, please?

3 A. "Question: And that underestimated 1300, 1400 Delta
4 smelt is somewhat in excess of hundreds of Delta
5 smelt that you said would represent a higher
6 level of salvage; correct?"

7 The answer: "That would be, you know, certainly in
8 the realm of being in the higher range. Not so much
9 for 1996, but certainly under the current population
10 levels, that would be, in my estimation, a very high
11 level of salvage."

12 Q. Thank you. And if you turn back a page to page 834, you
13 can see the index for this document. And does that indicate
14 to you that that was the testimony of Charles Howard Hanson?

15 A. Yes.

16 Q. Thank you. And do you know whether the abundance indices
17 for Delta smelt have gone up or down since 2007?

18 A. The fall midwater trawl index has declined.

19 Q. Thank you. I'd also like to distribute what's been marked
20 as Exhibit 1058. And if you could turn to page 1187, please,
21 Dr. Deriso, and please read around the discussion beginning on
22 line 9 of that page through the witness' answer, which runs on
23 to the following page.

24 A. Lines 9 through 15?

25 Q. Beginning at line 9 and then through the witness' answer

1 on to the following page, please.

2 A. Okay. Line 9.

3 "The Court. Thank you. And you said that you had
4 discussed -- you didn't say at length, but you had
5 discussed with Mr. Miller his statistical studies
6 where he concluded that there was no statistical
7 significance in the relationship between Delta smelt
8 abundance and salvage and export operations in the
9 pumps. What is your opinion on that subject?

10 "The Witness: My opinion on that subject is two
11 fold, Your Honor. One is that I have no reason to
12 believe that the statistical analyses that Dr. Miller
13 has prepared are not true and valid and reflect the
14 low significance of that salvage mortality to the
15 population.

16 "On the other side, Your Honor, the fact that we are
17 salvaging Delta smelt represents a source of
18 mortality to this population. And one of the
19 approaches that's being made, given the low
20 population abundance, is to identify those sources of
21 mortality that we know of and to try and reduce
22 those.

23 "My feeling is that we have such a complex estuary
24 with so many interacting variables that change from
25 year to year and within years, that it's difficult to

1 rely solely on statistical analyses. I think we're
2 at a point where we need to say do we have a
3 substantial source of mortality and is there
4 something we can do to help reduce that."

5 Q. Thank you. And again, let's look at the indices on page
6 1109, and remind you that we were reading from page 1187.
7 Does this index indicate that that was questions for the
8 witness Charles Hanson?

9 A. Yes.

10 MR. BIRMINGHAM: Your Honor, I'm going to object to
11 the last line of questions. I don't know if Ms. Poole has a
12 question regarding this document or whether she just intends
13 to read from it into the record. And if it's the latter, I
14 would object.

15 THE COURT: Well --

16 BY MS. POOLE:

17 Q. Do you agree with this statement of Dr. Hanson's that you
18 just read, Dr. Deriso?

19 A. I haven't studied the material that he's referring to.

20 Q. Thank you.

21 THE COURT: All right. I will overrule the
22 objection. And this is for the limited purpose of testing
23 expertise and knowledge of the subject matter about which the
24 testimony is being given.

25 MS. POOLE: Thank you, Your Honor.

1 Q. Dr. Deriso, where did the salvage numbers that you relied
2 on come from?

3 A. Those were provided either in tables in the BiOp for some
4 years and otherwise they were provided by the Freedom of
5 Information Act request that Metro Water made to Fish &
6 Wildlife Service.

7 Q. And do you know whether reported salvage identifies all
8 pumping related mortality suffered by Delta smelt?

9 A. The salvage estimates themselves are not -- do not contain
10 non-salvage related mortalities.

11 Q. And what do you consider to fall under the rubric of
12 non-salvage related mortalities?

13 A. Granted that would include mortality of the fish in
14 Clifton Court Forebay, that it would include fish that were
15 passed through the water diversion but were not salvaged.

16 Q. And are you familiar with the estimates of the rates of
17 pre-screen mortality of Delta smelt presented in the
18 administrative record according to the biological opinion?

19 A. Dr. Kimmerer's 2008 paper, I believe, is in the
20 administrative record and he has estimates in his document.

21 Q. And are you aware of any other estimates of pre-screen
22 mortality located in the administrative record?

23 A. No.

24 Q. Does reported salvage identify pumping related changes to
25 Delta smelt habitat?

1 A. No.

2 Q. Are all Delta smelt killed at the pumps of equal value to
3 future generations?

4 A. I don't know.

5 Q. If the pumps killed many fecund females on their way to
6 spawn, would the effect on the population be the same as
7 killing an equal number of juveniles?

8 A. I don't know.

9 Q. Now, in your professional capacity, are you familiar with
10 the work of Dr. Bill Bennett or Dr. Peter Moyle?

11 A. Yes.

12 Q. Both of them?

13 A. Dr. Bennett, I've read his 2005. I've never read a
14 publication by Dr. Moyle.

15 Q. But you've heard of him?

16 A. I've heard his name.

17 Q. And would you consider them respected scientists in the
18 area of fish biology?

19 A. I don't know.

20 Q. You have no opinion about their ability as scientists?

21 A. The one piece of work that I read by Dr. Bennett seemed to
22 be prepared quite competently. And I don't know about Dr.
23 Moyle.

24 Q. I'd like to introduce Exhibit 1059.

25 THE COURT: Any objection?

1 MR. GONZALEZ: I don't think I've seen it, Your
2 Honor.

3 MS. POOLE: It's coming around. I won't ask
4 questions until you've seen it.

5 I'll explain that this is a paper co-authored by
6 Doctors Bennett, Moyle, Jay Lund and William Fleenor entitled
7 "On Developing Prescriptions for Freshwater Flows to Sustain
8 Desirable Fishes in the Sacramento-San Joaquin Delta."

9 MR. GONZALEZ: Your Honor, this appears to be a
10 document that, A, is not in the administrative record and
11 that, B, is dated February of 2010. I'm trying to understand
12 the Court's practice in this case. I think the Court's
13 practice has not been to admit such documents into the record.

14 MS. POOLE: Well, if I may, Your Honor.

15 THE COURT: Yes.

16 MS. POOLE: Dr. Deriso's analysis is wholly post
17 decisional and he's made several assertions about how a
18 reasonable scientist would approach the --

19 THE COURT: Yes. And I have, to the general rule,
20 recognized the exception that where the material that is being
21 referenced to the expert bears on the expertise that is being
22 offered relative to scientific concepts, peer recognition and
23 the like, it goes to the efficacy of the opinion. And for
24 that limited purpose, I will permit it. It's not coming into
25 evidence.

1 MR. GONZALEZ: Thank you, Your Honor.

2 MS. POOLE: Thank you, Your Honor.

3 Q. Now, on the first page of Exhibit 1059, Dr. Deriso, would
4 you please read the first sentence of the abstract?

5 A. Several methods for developing flow prescriptions to
6 support desirable fish species in the Delta are compared.

7 Q. And now, let's turn to page 15. One of the methods, I'll
8 represent to you, analyzed -- one of several analyzed in this
9 paper is environmental flows based on statistical
10 relationships. And that's what's described beginning here on
11 page 15. Would you please read the first paragraph here.

12 A. "Statistical relationships between flows, salinity and
13 fisheries harvests are commonly used for establishing
14 fresh water inflows worldwide (Drinkwater and Frank
15 1994, Montagna et al. 2002, Powell et al. 2002, Olsen
16 et al. 2006). The previous major effort to establish
17 a scientific basis for Delta flow prescriptions
18 employed statistical relationships between
19 populations of aquatic organism and characteristics
20 of salinity gradient location in Suisun" -- is
21 that -- I don't know how to pronounce it -- "Suisun
22 Bay and the Delta (the so-called X2 relationships,
23 Jassby et al. 1995, Kimmerer 2002). These
24 correlations formed the basis for many Delta flow
25 standards and were successful for a time. However,

1 these correlations seem to be losing some of their
2 former predictive value in recent years for some
3 desirable species (Kimmerer et al. 2009). This in
4 part may be due to the scale at which X2 is averaged
5 and the extremely low abundance of desirable fishes,
6 which may not be tracked as effectively by the
7 traditional monitoring programs."

8 Q. And Dr. Deriso, does that paragraph that you just read
9 indicate to you that the authors of this paper believe that
10 statistical analyses of relationships in the Delta are
11 becoming less reliable as a method for determining flows?

12 A. I can't tell from the paragraph.

13 Q. Okay. And could you look at the bottom of that page 15
14 and read the paragraph beginning "The present paper."

15 MR. GONZALEZ: Your Honor, I'm sorry. I'm trying not
16 to object. But I really do have a problem with an expert
17 being told to just read and read and read into the record
18 stuff that's not in evidence. I mean, how much of this are we
19 going to have him read?

20 MS. POOLE: Your Honor, this witness has made several
21 assertions about what a reasonable scientist would do and what
22 methods are necessary to support the analysis in the B0.
23 These additional views of other scientists are necessary to
24 test those assertions.

25 THE COURT: The use of a document to apply the

1 technical rules of evidence is permitted when an expert is
2 being asked to refer to it if the expert has foundational
3 knowledge of the document or has read its contents if he's
4 going to be asked to comment on its efficacy or applicability.

5 If it's represented for the purposes of a
6 hypothetical and he's being asked to assume these principles,
7 then you can state the assumption in the form of a
8 hypothetical question to test his expertise and without
9 reference to the document, he can answer that question. So
10 one of the two needs to be shown.

11 So I'll sustain the objection without prejudice to
12 asking the question in proper form, either by having him
13 recognize the document or by taking the contents of what
14 you're focused on and asking him that in the form of a
15 hypothetical.

16 MS. POOLE: Thank you, Your Honor.

17 THE COURT: You can ask him if it would make a
18 difference to him if he recognizes these individuals who are
19 the authors as being competent in the field. And whether the
20 fact that they reached scientific opinions or conclusions
21 makes any difference to him.

22 BY MS. POOLE:

23 Q. Why don't we start there. Turning back to page one of
24 Exhibit 1059. Are you familiar with the four authors of this
25 study that are identified there?

1 A. No.

2 Q. You're not familiar with any of them?

3 A. I'm familiar with one publication by William Bennett.
4 That's all.

5 Q. And you have no opinion on the competence in the field of
6 these individuals?

7 A. No.

8 MS. POOLE: Just one moment, Your Honor.

9 Q. Let me ask you, Dr. Deriso, do you believe that there is a
10 reasonable basis for the assertion that flow prescriptions
11 should be supported preferably by causally or process based
12 science rather than correlative empirical relationships or
13 other statistical relationships without supporting ecological
14 basis?

15 A. I can give a qualified answer to that.

16 Q. Please do.

17 A. Causal relationships can be useful if you have sufficient
18 data on all of those things that are causing it. And you have
19 tested the cause. To assume a cause is not testing the cause.
20 If I'm not going to have the cause that's been tested,
21 scientific method, then to assume it is a very poor way to do
22 things. In that case, certainly I would prefer a statistical
23 method as opposed to making assumptions.

24 Q. And would you agree with the assertion, Dr. Deriso, that
25 in a complex changing estuary, statistical relationships over

1 time may not reflect current conditions accurately?

2 A. It depends on what statistical relationship you're
3 referring to.

4 Q. Well, let's take the ones that you have presented, for
5 example.

6 A. In which part of my declarations?

7 Q. Well, let's take your analysis of the OMR flow
8 relationship and the adult Delta smelt population.

9 A. You're referring to the cumulative salvage index, the
10 so-called hockey stick model that it's been called. Is that
11 what you're asking about?

12 Q. Sure.

13 A. And you're asking me does -- what are you asking me about
14 that model?

15 Q. Would you -- would you find the efficacy of that model to
16 be diminished if, in the middle of the historical period you
17 analyzed, conditions have drastically changed in the estuary
18 which you're examining?

19 A. There's no evidence of that in the data.

20 Q. There's no evidence of what?

21 A. Of changes -- cumulative salvage index, which is this
22 hockey stick model, to me seems to be reasonably well
23 predicted by that simple piece-wise linear model. At least in
24 terms of identifying the break point.

25 Q. And so are you saying that there -- in response to my

1 question, that there's no evidence of drastic changes in the
2 estuary during historical period you analyzed?

3 A. I used the same years that are used in the BiOp. If
4 you're telling me that the BiOp is wrong in using those years,
5 I just didn't -- I just used the years I did.

6 Q. Okay. But that didn't answer my question, Dr. Deriso.
7 Would you please read that back, Ms. Lopez.

8 THE COURT: Yes, you may.

9 THE WITNESS: Is there evidence of drastic change?
10 Yes. There is.

11 BY MS. POOLE:

12 Q. And what is that evidence?

13 A. There's discussion in the BiOp as well about the -- what's
14 been called the POD, pelagic organism decline. And that
15 occurred during a time period spanned by the years in the
16 BiOp's Figure B-13, which is the basis for the years in my
17 analysis.

18 Q. And do you know when the POD occurred?

19 A. Not a precise date, no.

20 Q. And assuming the POD occurred around the middle of the
21 historical analysis that you presented, would you expect that
22 to affect the efficacy of your analysis for the later years?

23 A. No.

24 Q. Dr. Deriso, did you present your analysis to the Fish &
25 Wildlife Service before it issued the 2008 BiOp?

1 A. No.

2 Q. Why not?

3 A. I wasn't even involved with Delta smelt until starting
4 last summer.

5 Q. So you haven't conducted any studies of Delta smelt prior
6 to being retained for the current analysis that you're
7 presenting?

8 A. Well, I did -- I was part of a science panel last March
9 and so I spent a few days looking at some background material.
10 But other than that, the declarations and everything were
11 written beginning -- the earliest one was in July last year.

12 Q. And I believe you testified this morning that you did not
13 intend to seek peer review publication of the analysis you
14 presented to the Court; is that correct?

15 A. That's correct.

16 Q. Why is that?

17 A. Well, I consider the analysis I have done to be so
18 straightforward and obvious, it's like publishing a student
19 homework paper. It's that simple. And to me, that's not
20 sophisticated enough to be worthy of a journal publication.

21 Q. And have you conducted any field studies of Delta smelt?

22 A. No.

23 Q. And were you part of the Pelagic Organism Decline studies
24 that many scientists have participated in over the years?

25 A. No.

1 Q. Would you call yourself a Delta smelt biologist?

2 A. No.

3 Q. And why is peer review considered important when
4 validating scientific analyses?

5 A. It's not.

6 Q. You wouldn't give any more weight to a peer reviewed study
7 than you would to a non-peer reviewed study?

8 A. No.

9 Q. I'd like to direct your attention to what's been marked
10 Exhibit 53. Can you find that up there, please?

11 A. Where do I look? Is it in this stack of papers here?

12 Q. It should be. I believe it was referred to this morning.
13 It's entitled at the top Independent Expert Panel Review of
14 the Family Farm Alliance's Information Quality Act Corrections
15 Requests.

16 MS. DAVIS: Your Honor, I'm going to ask that this
17 document only being allowed to test the expert's knowledge and
18 competency.

19 THE COURT: Yes, that is correct.

20 THE WITNESS: I found it.

21 BY MS. POOLE:

22 Q. Could you please turn to page 7 of 20. That's paginated
23 at the bottom.

24 A. Page number again, please?

25 Q. Page 7 of 20 in the bottom pagination.

1 A. This -- oh, 7 of 20 in the bottom. I got you.

2 Q. It's confusing, there's so many page numbers.

3 A. I found it now. Uh-huh.

4 Q. And you see the paragraph beginning "second."

5 A. Yes.

6 Q. Now, would you please read from the third sentence in that
7 paragraph to the end, beginning with "The panel believes,
8 however."

9 MR. GONZALEZ: Your Honor, I'm going to make the same
10 objection I made previously. It's not been established that
11 the witness saw this document or relied upon it. It's not in
12 the administrative record.

13 THE COURT: All right. Lay the foundation.

14 MS. POOLE: Well, Your Honor, I would point out that
15 the other parties have made extensive use of this document and
16 Rule 106 does allow a party to refer to other parts of the
17 same document.

18 MR. BIRMINGHAM: Your Honor, I believe that the only
19 parties have who have attempted to make use of this document
20 are the government and the intervenor defendants. The Court
21 did allow some questions based on this yesterday to try to
22 impeach the testimony of Dr. Hilborn. And then I used the
23 same document to try and rehabilitate him. But we've made no
24 efforts to use this document in any way other than to try to
25 rehabilitate Dr. Hilborn's testimony.

1 THE COURT: As I have previously ruled, I will permit
2 the witness to identify if he's familiar with it or with its
3 authors or subject matter can be referred to in a hypothetical
4 and he can be asked to assume that individuals competent in
5 the field in a peer review study reached that conclusion. You
6 may proceed.

7 BY MS. POOLE:

8 Q. Let's turn back to the front page of this document, Dr.
9 Deriso. Have you seen this document before?

10 A. I've seen -- I've seen the document, yes.

11 Q. Have you read it?

12 A. I read some pieces of the document.

13 Q. And is it your understanding that portions of this
14 document disagree with your analysis?

15 A. Specifically what?

16 Q. Well, let's turn back to page 7 of 20. Tell me if you
17 believe this statement is in -- contradicts your analysis.
18 And I'm going to read from that section I asked you to read
19 from.

20 "The panel believes, however, that these estimates of
21 'proportional entrainment,' based on Newman (2008)
22 and Kimmerer (2008), which have been peer reviewed,
23 constitute the best scientific and commercial data
24 available to the USFWS at the time of B0 preparation.
25 Together they suggest that entrainment-related

1 mortality may account for a substantial proportion of
2 the population in some years, thus supporting a
3 contention that pumping may have an important
4 'sporadic' effect on Delta smelt abundance,
5 particularly during the past decade."

6 MR. GONZALEZ: I'm sorry, Your Honor. Again. I want
7 to clarify. I get concerned when people read something into
8 the record that's not in evidence. I want to clarify that the
9 statement that counsel just read is not in evidence. It's
10 only being asked for purposes of whatever she's about to do.
11 But that it's not in evidence.

12 THE COURT: Yes. That is correct.

13 MR. GONZALEZ: Thank you.

14 THE COURT: I indicated that unless the witness
15 recognizes this and adopts it, it would be presented to him in
16 the form of a hypothetical.

17 MS. POOLE: The witness did just testify that he has
18 seen this document and is familiar with it.

19 THE WITNESS: Parts of it.

20 MS. POOLE: Parts of it.

21 THE WITNESS: Yes.

22 BY MS. POOLE:

23 Q. Have you seen that part that I just read to you before?

24 A. Yes.

25 Q. And do you believe that that statement of these peer

1 reviewers is in -- contradicts your analysis?

2 A. No.

3 Q. Do you think it supports your analysis?

4 A. I think it's neutral to my analysis.

5 Q. Do you think it supports the analysis in the biological
6 opinion?

7 MR. GONZALEZ: Your Honor, I'm sorry, I'm going to
8 object to that question on the basis that it's vague and
9 overbroad.

10 THE COURT: Do you understand the question?

11 THE WITNESS: Vaguely. I think I understand the
12 question.

13 THE COURT: All right. Well, you may answer if you
14 understand the question.

15 THE WITNESS: Yeah, my understanding of the question
16 is that the Table 2 they have here shows that Kimmerer's
17 estimates of cumulative adult loss percentage vary from year
18 to year, sometimes it's small, sometimes it's large. And that
19 that's what they're referring to when they say that it's
20 sporadic.

21 BY MS. POOLE:

22 Q. And do you agree with that result in Kimmerer?

23 A. No.

24 Q. Do you agree that entrainment related mortality may
25 account for a substantial proportion of the population in some

1 years?

2 A. I don't know.

3 Q. I'm sorry?

4 A. I don't know if it does or not.

5 Q. You have no opinion on that statement?

6 A. Well, yes, I mean, we're referring here to the adult loss.
7 Okay? Kimmerer's paper, the referred to portion, the scary
8 equations on that one page that we looked at, they're actually
9 fairly straightforward.

10 And what Kimmerer essentially is doing is he's taking
11 something analogous to the cumulative salvage index. That is,
12 analogous to the data that I used to construct that so-called
13 hockey stick model.

14 He's taking that data and then developing a
15 proportionality coefficient that is then used to scale those
16 cumulative salvage index, if you will, to scale those rates to
17 obtain estimates of entrainment loss.

18 The scaler that he uses in there is dependent on the
19 assumption that the entrainment related losses of adult smelt
20 are proportional to Old Middle River flow. I find that to be
21 a very weak assumption. And it's listed just as that, as an
22 assumption.

23 So given that assumption, we then come up with these
24 estimates of percentage loss. So that the accuracy of these
25 as percentage losses is directly related to whether or not the

1 assumption of entrainment in proportion to Old Middle River
2 flow is accurate.

3 I, in fact, tested that assumption in the population
4 growth rate analyses that was discussed this morning in
5 several ways. One was I used the cumulative salvage index
6 itself and tested to see whether that had a significant impact
7 on population growth rate and it did not. I tested the winter
8 average Old Middle River flows. And so it also did not have a
9 significant impact on the population growth rate.

10 So from what I could tell, even if Kimmerer is right
11 in his assumption, these levels of mortalities did not have a
12 significant impact on the population growth rate.

13 And you can, in fact, if you wish to assume
14 Kimmerer's correct, that is, that the cumulative salvage index
15 is indeed proportional to the adult mortality, then you can
16 see that the data in that hockey stick graph, if you will,
17 there were a few years of very high cumulative salvage index.

18 And so if I interpret that to mean that, oh, look,
19 sporadically you have these very high cumulative salvage
20 indexes, then by plugging that data into the Ricker model, I
21 have, in fact, tested the hypothesis that these sporadic
22 events have a significant impact on the abundance and they do
23 not.

24 Q. So let me make sure I understand that answer. You
25 disagree that Newman 2008 and Kimmerer 2008 suggest that

1 entrainment related mortality may account for a substantial
2 proportion of the population in some years, thus supporting a
3 contention that pumping may have an important sporadic effect
4 on Delta smelt abundance, particularly during the past decade.

5 A. No.

6 Q. You agree with that statement?

7 A. No.

8 Q. Do you believe your analysis supports a suggestion that
9 pumping has sporadic effects on Delta smelt abundance?

10 A. By "sporadic effect," okay, I'm going to take that to mean
11 that it has a significant effect. You're asking me does it
12 have a significant effect on the population's growth rate.
13 And I would say no. I tested it.

14 Q. Well, let's turn to the next page of this document, page 8
15 of 20, and look at the views of these peer reviewers and see
16 whether you agree.

17 Now, do you see the paragraph on that page that
18 says -- that begins, "The impact of 'sporadic' losses on a
19 population generally depend on the size of the
20 population at the time of such loss."

21 Would you agree with that?

22 A. Yes.

23 Q. And then the last sentence of that paragraph states,
24 "Anything that contributes to lengthening the
25 recovery period, increases the risk of setting

1 recovery back even further because, in a sporadic
2 impact scenario, it increases the probability that
3 another major impact will introduce a setback to
4 recovery."

5 Do you agree with that?

6 A. Yeah. I didn't find that the sporadic -- as represented
7 by the Kimmerer salvage index, that the sporadic nature of
8 these had a significant effect on the population growth rate.
9 So there's no evidence empirically that it's going to impede,
10 that having this sporadically occurring high cumulative
11 salvage index historically is going to introduce a setback to
12 recovery.

13 Q. Let's assume that there is evidence showing that there's a
14 sporadic impact on population. And I'm going to read you the
15 sentence again. And with that assumption in mind, tell me if
16 you agree with that.

17 "Anything that contributes to lengthening the
18 recovery period, increases the risk of setting
19 recovery back even further because, in a sporadic
20 impact scenario, it increases the probability that
21 another major impact will introduce a setback to
22 recovery."

23 A. And?

24 Q. Do you agree with that?

25 A. If I assume that it has a significant impact on population

1 growth, then I would agree.

2 Q. And is the significance of the impact related to the rate
3 of recovery of the population?

4 A. If it has a significant impact on population growth rate,
5 yes, would -- it would affect the population recovery. That's
6 the reason I did the analysis in the first place.

7 Q. And do you agree with this assertion, Dr. Deriso?

8 "The episodic frequency of catastrophic impacts on
9 survival can make the difference between survival and
10 extirpation when the population is small."

11 A. In abstract, yes, I agree with you. Again, this is an
12 assumption.

13 Q. Well, let's not -- let's put all assumptions aside and let
14 me just read you this statement from this peer review and you
15 tell me whether you agree with it.

16 "The episodic frequency of catastrophic impacts on
17 survival can make the difference between survival and
18 extirpation when the population is small."

19 A. Yes. I agree.

20 Q. How large is the population of Delta smelt?

21 A. I don't know.

22 Q. And turning to page 14 of 20 of Exhibit 53, there's a
23 statement from these peer reviewers that "Overall, the panel
24 supports the USFWS's use of the X2 index. USFWS's
25 use of the X2 index uses the best available

1 scientific and commercial data and is highly
2 defensible."

3 Do you agree with that statement?

4 A. No.

5 MS. DAVIS: Your Honor, may I address the Court
6 briefly.

7 THE COURT: Yes, you may.

8 MS. DAVIS: Brenda Davis with Family Farm Alliance.
9 I would just like to point out that we intend to address this
10 document as needed on the merits.

11 It was our understanding from the Court's ruling on
12 March 16th that to the extent that issue was raised by the
13 Family Farm Alliance with respect to the Fish & Wildlife
14 Service's response to our request for correction, you wanted
15 to hear that on a dispositive motion and we did not intend to
16 address it in the preliminary injunction hearing.

17 But Ms. Poole is putting so much of this document
18 into evidence. We have a number of things to say about this
19 document.

20 THE COURT: Understood. The document isn't going
21 into evidence. Questions are being asked of the witness that
22 relate to his opinions that have been expressed in his direct
23 examination this morning. And so that -- the ruling is the
24 same. We're not going to try this document, nor are we
25 essentially going to resolve any of its merits or whether its

1 complied with the Information Quality Act or not. That's for
2 another day.

3 But to the extent that there are scientific
4 observations that are familiar to the witness to test his
5 expertise, he may be asked about such principles.

6 MS. DAVIS: Thank you, Your Honor.

7 BY MS. POOLE:

8 Q. Dr. Deriso, could you find what's been marked as Exhibit
9 380 up there. It's the NRC panel review.

10 MR. BIRMINGHAM: Your Honor, I have an extra copy of
11 380 here if it would help the proceedings move along.

12 THE WITNESS: Is this the one that is titled
13 Assessment -- Scientific Assessment of Alternatives? That's
14 the one?

15 THE COURT: That's it.

16 THE WITNESS: I just found it.

17 MS. POOLE: A lot of paper up there.

18 Q. Now, Dr. Deriso, you testified this morning that you
19 presented to the NRC panel that prepared this report; is that
20 right?

21 A. That's correct.

22 Q. And let's turn to what's marked as Roman numeral v, little
23 Roman v on this page. And you'll see the NRC panel committee
24 participants listed there. Do you see that?

25 A. Yeah, I see the panel, yeah.

1 Q. And are you familiar with the scientists who participated
2 in this review?

3 A. Some of them. Not all of them.

4 Q. And do you have a view on the competency of those you're
5 familiar with?

6 A. Well, I've done work with Ken Rose and Jim Anderson. Both
7 of those two. And Ken Rose is a competent -- certainly in
8 ecosystem modeling is what his specialty is. Jim Anderson is
9 certainly competent in fish movement models, if you will.
10 That's his competency.

11 Q. And have you reviewed this document?

12 A. I've looked at it.

13 Q. And is it your understanding that the panel, as a whole,
14 issued its consensus view rather than individual panel
15 members?

16 A. I don't know if it was a complete consensus or not.

17 Q. Well, but this document presents one panel view; is that
18 right?

19 A. That's correct.

20 Q. Could you turn to page 47, please.

21 A. Got it.

22 Q. I'm going to read you the first two sentences under "Other
23 Possible RPAs."

24 "The committee's charge included the task that the
25 committee should identify, if possible, additional

1 potential RPAs that would provide the potential to
2 provide equal or greater protection to the fishes
3 than the current RPAs while costing less in terms of
4 water availability for other uses. The committee
5 considered RPAs that had been considered and rejected
6 by the agencies or that were recommended to the
7 committee for its consideration."

8 Now, you've stated that you presented the analysis
9 that you presented here to the NRC panel; is that right?

10 A. I presented a lot of it. Presented a lot of it.

11 Q. All right. Well, let's distribute what's been marked as
12 Defendant Intervenors' 1060, which I believe is a copy of the
13 PowerPoint presentation that you presented --

14 A. Oh, good.

15 Q. -- to the panel.

16 Does this look like a copy of the PowerPoint
17 presentation that you made to the NRC panel?

18 A. Yes.

19 Q. And turn to the first slide, please, entitled "Salvage of
20 the Delta OMR flow."

21 A. Yes.

22 Q. And does that state that use of the cumulative salvage
23 index shows that there is no statistically significant
24 relationship between OMR flows and adult salvage for flows
25 less negative than around negative 6,000 cubic feet per

1 second?

2 A. Yes.

3 Q. Now, if your cumulative salvage index approach were
4 adopted, and OMR flows were not restricted when they were less
5 negative than negative 6,000 cfs, would that approach result
6 in equal or greater protection in Delta smelt, in your view,
7 than the current RPAs while costing less in terms of water
8 availability for other uses?

9 A. Yes.

10 Q. And can you turn to page three, please, of Exhibit 380.

11 A. Got it.

12 Q. And under the heading, "The FWS Biological Opinion and
13 RPA," can you please read the bolded language that begins with
14 "Although"?

15 A. "Although there are scientifically based arguments that
16 raise legitimate questions about this action, the
17 committee concludes that until better monitoring data
18 and comprehensive life-cycle models are available, it
19 is scientifically reasonable to conclude that high
20 negative OMR flows in winter probably adversely
21 affect smelt populations. Thus, the concept of
22 reducing OMR negative flows to reduce mortality of
23 smelt at the SWP and CVP facilities is scientifically
24 justified."

25 Q. Now, is it your understanding from that excerpt that you

1 just read, that the committee concluded that there were not
2 comprehensive life cycle models available for the Delta smelt?

3 A. That's what it says.

4 Q. Thank you. Now, I'm going to just ask you to assume that
5 I'm telling you correctly that the Metropolitan Water District
6 stated in one of its briefs that your work, quote, "shows that
7 you may get the exact same salvage rate at negative 1250 cfs
8 as you would at negative 5,000 cfs."

9 Do you agree with that statement?

10 A. Yes.

11 Q. Does that statement mean that Delta smelt will suffer the
12 exact same impacts at an OMR flow rate of negative 1250 cfs
13 and at negative 5,000 cfs?

14 A. Yes.

15 Q. Now, all other factors being equal in terms of inflow,
16 outflow, tidal influence, would OMR flows of negative 5,000
17 cfs have a different hydrodynamic impact on Delta smelt
18 habitat than OMR flows of negative 1250 cfs?

19 A. I don't know.

20 Q. Now, I'm going to just read you an excerpt from the B0 and
21 again ask you to assume I'm reading it correctly. This is
22 from page 189. It says "Past CVP and SWP operations have
23 played an indirect role in the decline of Delta smelt
24 by creating an altered environment in the Delta that
25 has fostered both the establishment of nonindigenous

1 species and habitat conditions that exacerbate their
2 adverse influence on Delta smelt population
3 dynamics."

4 Now, would you expect that some of those habitat
5 related impacts might have a delayed effect on the smelt
6 population?

7 A. You're going to assume that they're having an impact?

8 Q. No, no. I'm asking you if you would expect that some of
9 those habitat related impacts, which I just recited from the
10 biological opinion, might have a delayed effect on the smelt
11 population?

12 A. You're asking me to assume that the biological opinion is
13 correct that it's having an adverse impact?

14 Q. No. Let me step back here and try this one more time.

15 A. The --

16 Q. Assuming that the passage from the biological opinion --

17 A. I know that, but --

18 Q. -- I just read to you --

19 A. -- there's no quantitative analysis in the biological
20 opinion to support that statement.

21 THE COURT: Dr. Deriso, if you would, please, let Ms.
22 Poole finish her question before you answer because the court
23 reporter can't take down two voices.

24 THE WITNESS: Excuse me, Your Honor.

25 THE COURT: Thank you. All right. You may complete

1 your question.

2 BY MS. POOLE:

3 Q. Assuming I just read that passage from the biological
4 opinion to you correctly, would you expect that some of the
5 habitat related impacts that were identified there would have
6 a delayed effect on the smelt population?

7 A. As I said, there is no quantitative analysis to support
8 the statement that you just read to me out of the BiOp. And
9 therefore, I don't know whether there's a delayed impact
10 because I haven't seen the quantitative analysis to support
11 the statement you just read.

12 Q. All right. Let's assume that the statement is accurate.
13 If that were the case, would you then expect that those
14 impacts might have a delayed effect on the smelt population?

15 A. Could you define "delayed effect"?

16 Q. An impact that might not reflect immediately on the next
17 generation's population.

18 A. If I assumed the BiOp is correct that the habitat has been
19 compromised and I assume, also, that this impact would have
20 been a gradual thing, that it didn't happen sort of overnight,
21 so that the -- if this was having an impact, I would expect
22 the impact to be larger as the habitat impact is -- it becomes
23 more and more. Does that help you?

24 Q. I'm not sure that answered my question.

25 A. Well, by delayed, see, I can't see -- if the

1 habitat -- let me form it as a hypothetical. Okay? If I can.
2 Maybe this will help you.

3 Let's, for hypothetical reasons, let's first of all
4 assume that the BiOp is correct that that habitat, as it
5 exists today, is going to negatively impact or is negatively
6 impacting the Delta smelt population growth rate.

7 If that is the case, then I would expect that that
8 impact would occur this year, this next year, the year after
9 and so on. Because it's a permanently -- it's a permanent
10 impact.

11 Q. Does that assume that the habitat conditions remain
12 constant over time?

13 A. For the purpose of that hypothetical, that was the
14 assumption that I was using, yes.

15 Q. Thank you. And do you know whether there would be
16 different impacts on the Delta smelt food supply at OMR flow
17 rates of negative 1250 cfs versus negative 5,000 cfs?

18 A. No, I don't know.

19 Q. Now, let's turn to page 152 of the biological opinion,
20 please.

21 A. Okay.

22 Q. The second full paragraph under habitat. Do you see, I
23 believe it's the third sentence beginning with "Wang (1991)"?

24 A. Oh, that's the bottom paragraph. On the bottom of the
25 page?

1 Q. Yes. The second full paragraph under "Habitat."

2 A. Yes, I see "Wang (1991)."

3 Q. Now, I'm just going to read this aloud.

4 "Wang (1991) noted in the 1989 and 1990 study of
5 Delta smelt larval distribution that, in general, the
6 San Joaquin River was used more intensively for
7 spawning than the Sacramento River. Though not
8 restricting spawning per se, based on particle
9 tracking modeling, export of water by the CVP and SWP
10 would usually restrict reproductive success of
11 spawners in the San Joaquin River by entraining most
12 larvae during downstream transport from spawning
13 sites to rearing areas (Kimmerer and Nobriga 2008)."

14 And then I'm going to just jump to the next page, the
15 top of 153.

16 "Persistent confinement of the spawning population of
17 Delta smelt to the Sacramento River increases the
18 likelihood that a substantial portion of the spawners
19 will be affected by a catastrophic event or localized
20 chronic threat."

21 Do you see that?

22 A. Yes.

23 Q. Now, does your analysis take into consideration this
24 increased risk cited in the BiOp to Delta smelt from spatial
25 confinement to the Sacramento River due to pumping impacts?

1 A. No.

2 Q. And are you familiar with the work of Jim Hobbs that's
3 included in the administrative record?

4 A. No.

5 Q. I'm going to ask you to assume that the Hobbs study
6 included in the record on page 8552 states that "Fresh water
7 exports affect the population structure for Delta
8 smelt by selecting against juvenile rearing in San
9 Joaquin waters near the pumps, 'which coincidentally
10 had the highest growth rates.'"

11 Does your analysis take into consideration the effect
12 of exports on juvenile rearing in the San Joaquin waters near
13 the pumps?

14 A. In the sense that -- yes, I used covariates that were in
15 the spring, Old and Middle River flow was used. I also used
16 the percent entrainment losses as predicted by the biological
17 opinion. And neither of those had statistically significant
18 impact on population growth rate.

19 Q. And you're looking at the population growth rate as a
20 whole, not distinguishing between some populations in the San
21 Joaquin basin versus the Sacramento basin?

22 A. That's correct.

23 Q. Thank you. Now, in your March 10th -- March '10
24 declaration, which is Government 29. You stated that certain
25 factors including spatial distribution were not in any way

1 incorporated into the RPAs that set the numeric flow
2 limitations. Does that sound right?

3 A. That sounds -- that sounds right.

4 Q. Now, do you have an understanding of how a specific flow
5 target within the range of negative 1250 to negative 5,000 cfs
6 is identified by the Smelt Working Group in the Fish &
7 Wildlife Service?

8 A. No.

9 Q. We've been talking a lot about Figure B-13 in the B0. I'm
10 not sure anybody needs to look at it. But do you agree that
11 there's a relationship between negative OMR flows and the
12 amount of Delta smelt salvage?

13 A. No.

14 Q. In your view, is it possible that the relationship between
15 OMR flows and population abundance could change depending on
16 the size of the population?

17 A. Is it possible?

18 Q. Yes.

19 A. Yeah, it's possible.

20 Q. Let's turn to page 158 of the BiOp, please. Are you
21 there?

22 A. No. I'm there.

23 Q. Near the top of the page, there's a discussion about allee
24 effects, do you see that? A-L-L-E-E.

25 A. Yes.

1 Q. And it states the following. "Allee effects occur when
2 reproductive output per fish declines at low
3 population levels (Allee 1931, Berec et al. 2006).
4 Below a certain threshold the individuals in a
5 population can no longer reproduce rapidly enough to
6 replace themselves and the population spirals to
7 extinction. For Delta smelt, possible mechanisms for
8 Allee effects include mechanisms directly related to
9 reproduction and genetic fitness such as difficulty
10 finding enough males to maximize egg fertilization
11 during spawning, (e.g. Purchase et al. 2007).
12 Genetic problems arising from small population sizes
13 like inbreeding and genetic drift can also contribute
14 to Allee effects, but genetic bottlenecks occur after
15 demographic problems like the example of finding
16 enough mates, (Lande 1988)."

17 Did I read that correctly?

18 A. Yes.

19 Q. And do you agree that Allee effects could change the
20 relationship that you've identified between population
21 abundance and OMR flows?

22 A. No.

23 Q. At whatever population size of the Delta smelt.

24 A. No. I don't think it would affect it.

25 Q. And can you tell me, Dr. Deriso, how much you're being

1 compensated for your testimony in this proceeding?

2 A. I'm working for my normal hourly rate.

3 Q. And what is that?

4 A. That's \$200 an hour.

5 Q. And what's your total compensation to date?

6 A. I don't know. It's more than \$60,000, though. That's
7 what I put on my tax return here just recently.

8 Q. I'd like to distribute what's been marked as Exhibit 1061,
9 please.

10 Are you familiar with this document, Dr. Deriso?

11 A. No.

12 Q. You've been retained by the Metropolitan Water District
13 for your participation in this case; have you not?

14 A. For participation in this, among other things.

15 Q. And could you please turn to the second page of Exhibit
16 1061?

17 A. Yes.

18 Q. And would you please read the sentence after the
19 underlined heading at the top of that page?

20 A. "Authorize increase in maximum amount payable under
21 contract with Richard B. Deriso for expert consultant
22 services and litigation support by 200,000 to a
23 maximum of 300,000; and report on pending litigation
24 in *Metropolitan Water District versus US Fish &*
25 *Wildlife Service, et al.*, USDC number 09-631-0WW-DLB

1 (E.D. Cal.) and other litigation relating to
2 restrictions imposed on California's Central Valley
3 and State Water Project operations relating to
4 endangered species (L&C)."

5 Do you want me to read the rest?

6 Q. No, thank you. That's sufficient. And does that indicate
7 that you're being paid between 200 and \$300,000 --

8 MR. BIRMINGHAM: Objection.

9 BY MS. POOLE:

10 Q. -- for your participation in this case?

11 MR. BIRMINGHAM: I apologize for interrupting
12 counsel. But I believe, Your Honor, this document lacks
13 foundation. The witness said he's not reviewed it.

14 MS. POOLE: Well, Your Honor, this is a judicially
15 noticeable document as the record of a public agency that's
16 kept pursuant to requisite open meeting laws.

17 THE COURT: All right. You can ask him again. If he
18 doesn't recognize the document, you can't use the document.
19 But you can ask him if he has the knowledge that is referred
20 to in the document.

21 BY MS. POOLE:

22 Q. Are you aware that the Metropolitan Water District has
23 authorized compensation for you in this case of between
24 \$200,000 and \$300,000?

25 A. That is the maximum. Yes. And it is not between. They

1 increased -- the cap was at 100,000. And they increased the
2 cap by another 200,000 up to 300,000.

3 Q. And that indicates you're putting in a lot of work on this
4 matter; aren't you?

5 A. Yes.

6 Q. Thank you. Now, again, I'm just going to read you a
7 sentence from your declaration. And you can check it if you'd
8 like.

9 But on page 3, paragraph 4 of your March 1st
10 declaration, you criticized the BiOp because you state that
11 FWS, quote, "assumed that the proposed CVP/SWP operations
12 affect Delta smelt throughout the year," unquote. And you go
13 on to state that, quote, "It is not common scientific practice
14 to pose a question (i.e., what effects do the pumps have on
15 the smelt?), but then assume the results (the pumps affect the
16 smelt throughout the year)." Unquote.

17 Does that sound right?

18 A. Yes.

19 Q. What is your understanding of the proposed CVP/SWP
20 operations that the BiOp evaluated?

21 A. That they evaluated? They evaluated in the -- are you
22 referring to what did they do in the effects section of the
23 BiOp? Is that what you mean?

24 Q. I'm referring back to your statement, Dr. Deriso. And if
25 it would help you to get the declaration in front of you.

1 A. It would.

2 Q. We can take the time to do that.

3 A. Thank you.

4 Q. It's Government 29.

5 MR. GONZALEZ: 604 in the binder, doctor.

6 THE WITNESS: Thank you.

7 BY MS. POOLE:

8 Q. Now, if you could find page three, paragraph four, I
9 believe that's what we're referring to.

10 A. Oh, I -- the page numbers at the bottom or the top? At
11 the bottom?

12 Q. I wish I could tell you. I can't find my copy of this.

13 MR. GONZALEZ: Counsel, why don't you just refer to
14 the paragraph number.

15 MS. POOLE: That's an excellent idea.

16 Q. It's paragraph four.

17 A. I got it.

18 Q. Now, you're making an assertion there about what proposed
19 CVP/SWP operations the Fish & Wildlife Service made
20 assumptions about. When you made that statement, what was
21 your understanding of the proposed CVP/SWP operations?

22 A. The proposed that I was referring to are the RPAs.

23 Q. So it's your understanding that the biological opinion
24 evaluated the RPAs?

25 A. It's my understanding that they proposed the RPAs. The

1 evaluations -- like I said, this -- that was one of my
2 problems with this BiOp is it didn't do enough quantitative
3 analysis. Didn't do enough evaluations. So --

4 Q. I believe you testified that you've reviewed the effects
5 section of the BiOp; is that right?

6 A. Yes, I did review that.

7 Q. And that section is entitled, as you characterized it
8 here, "effects of the proposed actions."

9 A. Yes.

10 Q. What's your understanding of the proposed action that
11 they're evaluating?

12 A. They're evaluating the operations of the water diversion
13 facilities, including the RPAs. But my focus was
14 on -- looking at the RPAs and justification for them.

15 Q. And so your understanding of the proposed operations that
16 the BiOp is focused on are the project export operations
17 solely as modified by the RPA?

18 A. That's what I -- what I focused on was the RPAs.

19 Q. Okay. But that he --

20 A. And the evaluations. Yes, they were doing evaluations of
21 the operations of the large diversion facilities going to the
22 future.

23 Q. And those operations, as you understand it, consist solely
24 of the proposed operations of the pumps in the south Delta?

25 A. No, they have -- I think they have other things that they

1 do aside from just at the pumps. But I can't recall them
2 sitting here.

3 Q. So you don't know whether proposed operations might
4 include other non-pumping operations that might affect Delta
5 smelt throughout the year?

6 A. Yeah, I mean, you know, they have this -- there are
7 various other things that are not related directly to the
8 export. But may impact it. There are things that they're
9 doing because of salmon that could have an effect on Delta
10 smelt.

11 Q. So you're agreeing that the proposed CVP/SWP operations
12 consist of other non-pumping operations that might affect
13 Delta smelt throughout the year?

14 A. That could affect them, yes.

15 Q. Now, Dr. Deriso, let's turn to the BiOp at page 214. Do
16 you have that --

17 A. Yes, I do.

18 Q. -- series of tables?

19 Do you see Table 3-5a at the top?

20 A. Yes, I do.

21 Q. And do you have an understanding of what the numbers
22 across the top row 7, 7.1, 8, 9, et cetera, signify?

23 A. Not in any detail.

24 Q. Let me represent to you that Study 8, for example,
25 indicates the proposed CVP/SWP operations that are being

1 reviewed under the BiOp and their future impacts as modeled by
2 CALSIM.

3 Do you see the OMR flows under that 8?

4 MR. GONZALEZ: Excuse me, Your Honor. Again, not
5 understanding exactly the ground rules. Counsel is going
6 beyond the scope of the examination of this witness. He
7 hasn't testified at all about CALSIM.

8 MS. POOLE: But, Your Honor, this witness has
9 testified extensively about appropriate OMR flow rates and the
10 impacts on the smelt of unrestricted operations.

11 THE COURT: He can be asked if he has familiarity
12 with these as they relate to his opinions. By "these," I'm
13 referring to CALSIM models.

14 BY MS. POOLE:

15 Q. Do you have any familiarity with the CALSIM model?

16 A. No.

17 Q. And do you have any familiarity with the estimates of the
18 impacts of future operations on OMR flows as predicted by
19 those models?

20 A. They have some things in the BiOp.

21 Q. So you do have some familiarity with them?

22 A. Yes.

23 Q. And do the negative OMR flows indicated in Table 3-5a
24 under the heading "8," are those generally in excess of the
25 OMR flows that you have recommended that the Fish & Wildlife

1 Service adopt for December through March?

2 A. Yeah. It looks like three of the numbers there are less
3 negative than 6100.

4 Q. And how about for under the column 7.1?

5 A. Yes. Again, the middle three numbers are more negative
6 than 6100.

7 Q. Okay. Now, assuming that these estimates of the OMR flows
8 under the study 8 action are accurate, do you agree with the
9 following statement in the biological opinion that, quote,
10 "Adult entrainment is likely to be higher than it has been in
11 the past under most operating scenarios resulting in
12 lower potential production of early life history
13 stages in the spring in some years"?

14 A. That's what these models would indicate.

15 Q. Thank you.

16 THE COURT: Let's take the afternoon recess. We'll
17 stand in recess --

18 MR. BIRMINGHAM: Excuse me, Your Honor.

19 THE COURT: -- until --

20 MR. BIRMINGHAM: Your Honor, before we take the
21 recess. I'd like to take the opportunity to introduce the
22 gentleman joining me here in the courtroom today. Craig
23 Manson.

24 Mr. Manson, as Your Honor may be aware, is formerly a
25 counsel for the Department of Fish & Game, was a judge in the

1 Superior Court of Sacramento, Assistant Secretary for Fish &
2 Wildlife in the Department of Interior. And most recently has
3 been a professor at University of Pacific.

4 And I'm grateful to announce that effective May 1, he
5 will become general counsel for the district. And so he's
6 joined us here in the courtroom to observe the proceedings.

7 THE COURT: Thank you. Welcome.

8 MR. MANSON: Thank you, Your Honor.

9 MR. BIRMINGHAM: He's probably wondering why.

10 THE COURT: All right. We are in recess until 15
11 minutes after three.

12 (Recess.)

13 THE COURT: We're back on the record in the
14 consolidated salmonid and smelt cases.

15 Ms. Poole, you may resume Dr. Deriso's testimony.

16 MS. POOLE: Thank you, Your Honor. I'm near the end
17 here.

18 Q. Dr. Deriso, could you find your November 13th declaration,
19 which is marked Government 16.

20 MR. GONZALEZ: 601.

21 THE WITNESS: Thank you.

22 BY MS. POOLE:

23 Q. And could you please find page 25?

24 A. Excuse me. Is this the page numbers at the bottom or at
25 the top?

1 Q. It's at the bottom.

2 A. Yes, I have that.

3 Q. And you see the graph depicted there, which I believe was
4 the subject of some discussion earlier.

5 A. Yes.

6 Q. And now, is it -- is my understanding correct that this
7 graph compares OMR to a population growth rate adjusted for
8 density dependence?

9 A. That's correct.

10 Q. And does it plot a positive population growth rate every
11 year except for 2004 and 2005?

12 A. With the adjustment for density dependence, that is
13 correct.

14 Q. And the population actually declined in most of these
15 years; isn't that right?

16 A. I don't know.

17 Q. Have you reviewed Bill Bennett's 2004 paper?

18 A. I read it.

19 Q. Do you recall that he found that density dependence for
20 Delta smelt existed only at a much higher abundance level than
21 at present?

22 A. I don't recall that that's the way he did it. He used all
23 of the data and fit it with a -- I believe he was using a
24 Beverton-Holt stock recruit curve.

25 Q. And let's turn to the previous page of that declaration,

1 please.

2 A. Yes.

3 Q. Again, you see the graph on this page which we discussed
4 earlier -- or you discussed with counsel earlier. Now, does
5 this graph show negative growth rate in several years?

6 A. Yes. It does. And as you can see from the heading,
7 there's been no adjustment for density dependence in this
8 graph.

9 Q. And does it indicate that there have been more years with
10 negative growth rates after 2000 than prior to 2000?

11 A. That looks accurate.

12 MS. POOLE: All right. That's all I have, Dr.

13 Deriso. Thank you very much.

14 THE WITNESS: Thank you.

15 THE COURT: Mr. Gonzalez, redirect.

16 REDIRECT EXAMINATION

17 BY MR. GONZALEZ:

18 Q. Doctor, I have just a few questions. Can we please put up
19 page 339 from the BiOp, Exhibit 112. And if you could please
20 expand the top part.

21 Doctor, you were asked some questions by Ms. Poole
22 about the fact that the salvage number in 2003 was higher than
23 in other years. Do you see that up there?

24 A. Yes.

25 Q. And we're referring here to Table B-2. What does this

1 table tell you about what impact, if any, the salvage in 2003
2 had on the population of the species?

3 A. Yes. As you can see, in the third column, it's labeled
4 "Prior year fall midwater trawl." Okay? So that the salvage
5 in 2003 there was a fall midwater trawl index that occurred
6 prior to that. And that was a level 139. And we could see
7 that after that salvage, the very next index of adult
8 abundance, which would be the one corresponding to 2004, but
9 it's actually the 2003 fall midwater trawl, that value is 210.

10 So that the -- as indexed by this adult population as
11 this index of abundance shows that the population, it didn't
12 quite double in abundance going from one generation to the
13 next. But it's a very substantial increase in the growth of
14 the population.

15 Q. So did the salvage number in 2003 negatively impact the
16 population of the species?

17 A. Well, it certainly didn't prevent the population from
18 nearly doubling in size.

19 Q. Doctor, you said something in your testimony, I believe it
20 was in response to Ms. Poole's questioning about peer review.
21 And I don't have the exact quote in front of me. But it was
22 something to the effect that just because an article is peer
23 reviewed doesn't make you think it's somehow better than an
24 article that's not.

25 A. That's correct.

1 Q. Can you tell the Court why are you of that view?

2 A. I'm of that view because it really depends on who the
3 reviewers are and also which journal you're referring to.
4 There are many examples of just absolute junk that gets
5 published. Just gets rubber stamped, I don't know if it's
6 their buddies that are doing the review or what. But that's
7 the reality these days.

8 Q. And doctor, you were asked by Mr. Eddy whether qualified
9 scientists ever disagree. I think it might have been his last
10 question. Do you recall that?

11 A. Yes.

12 Q. In your view, do qualified scientists ever disagree on
13 whether or not you should analyze population when doing a
14 study like the BiOp?

15 A. No.

16 Q. And in your view, do qualified scientists ever disagree
17 that you should consider population growth rate or life
18 history model when you do an analysis such as what is
19 contained in the BiOp?

20 A. No.

21 MR. GONZALEZ: Thank you, doctor. That's all I have,
22 Your Honor.

23 THE COURT: Mr. Birmingham?

24 MR. BIRMINGHAM: Thank you, Your Honor. May I have a
25 moment to confer with counsel?

1 THE COURT: Yes.

2 CROSS EXAMINATION

3 BY MR. BIRMINGHAM:

4 Q. Dr. Deriso, I'm Tom Birmingham, I'm one of the lawyers for
5 Westlands Water District. And I have just a few questions for
6 you.

7 During examination by counsel for the intervenors,
8 you were asked a question about the potential impact of the
9 salvage at 78,000 individual smelt. Do you recall being asked
10 questions on that matter?

11 A. Yes.

12 Q. Ms. Poole asked a question related to the salvage of the
13 78,000 individuals. And then the question was could such an
14 event jeopardize the continued existence of the species. And
15 your response was "I don't know."

16 Would it be possible to do an analysis to determine
17 whether the salvage of 78,000 individuals might jeopardize the
18 continued existence of the species?

19 A. Yes.

20 Q. How would you go about that?

21 A. Well, I would -- first of all, I would normalize the
22 salvage. I would cast it as relative to the population
23 abundance. And if I had had that kind of information for
24 several years, then I would put them into a life cycle model,
25 such as a Ricker model, and then I would conduct a

1 quantitative test as to whether or not that mortality has
2 significant impact on the population's growth rate.

3 Q. So if I understand your -- the question -- excuse me. If
4 I understand your answer to my question.

5 If you were trying to analyze whether or not the
6 salvage of 78,000 individuals could jeopardize the continued
7 existence of the species, you'd do an analysis much like the
8 analysis that you described to the Court today?

9 A. Yes.

10 Q. Were you able to find any analysis of that type in the
11 biological opinion?

12 A. No.

13 Q. Now, you were asked another question by counsel for
14 the -- counsel for the intervenors, and it was related to the
15 testimony of Charles Hanson. And Ms. Poole asked you to read
16 a long answer to a question asked by the Court. The
17 conclusion of which I -- and I'll read it again. And Your
18 Honor, I'm referring to the transcript of proceedings dated
19 August 30, 2007 and I'm reading from page 1188 lines 5 through
20 7.

21 And as part of Dr. Hanson's response, he said, "I
22 think we are at a point where we need to say we have
23 a substantial source of mortality and there is
24 something that we can do to help reduce that."

25 MR. EDDY: I'm sorry, I think there's a slight

1 misstatement there.

2 MR. BIRMINGHAM: Let me read it again. Excuse me.

3 "I think we are at a point where we need to say we
4 have a potential source of mortality and is there
5 something we can do to help reduce that."

6 Q. Now, if we have a source of mortality for a number of
7 salvaged fish, is there a method that you would use to
8 determine whether or not that source of mortality is going to
9 affect the viability of the species?

10 A. Yes. Basically the way that I did the analyses in my
11 declarations.

12 Q. You were asked a question by counsel for the intervenors,
13 "Assuming the POD occurred around the middle of the
14 historical analysis that you presented, would you
15 expect that to affect the efficacy of your analysis
16 for later years?"

17 And your response was "No."

18 Do you recall that testimony?

19 A. I do.

20 Q. Could you explain to -- why your answer was "no"?

21 A. Well, I asked -- this was in the context of what
22 is -- calling this a hockey stick model, we're relating Old
23 and Middle River flows to the cumulative salvage index. And
24 so what we're interested in looking at this is -- to answer
25 the question is there a break point. That is, is there an Old

1 and Middle River flow value for which the salvage rate shows a
2 dramatic increase. So that question can be answered using
3 data pre and post POD equally valid.

4 MR. BIRMINGHAM: One moment, Your Honor.

5 Q. Do you have Government Exhibit 53 in front of you? This
6 is, once again, the Independent Panel Review of the Family
7 Farm Alliance Informational Quality Act Corrections Request.

8 A. Yes, I have that.

9 Q. Ms. Poole asked you a number of questions about the
10 sporadic impact on population. Do you recall that?

11 A. Yes, I do.

12 Q. And she had you read from pages -- from page 8 of the
13 Government Exhibit 53 in the first full paragraph, page 8.
14 I'd like to focus on the last paragraph on page 8 before the
15 PRQ 3 question. So this is page 8 of 20 in Government Exhibit
16 53.

17 May I approach, Your Honor?

18 THE COURT: You may.

19 THE WITNESS: Starts with "These are extreme
20 examples"? Yes.

21 BY MR. BIRMINGHAM:

22 Q. There is a paragraph that states, "These are extreme
23 examples, which are not data-based, but are meant
24 only to illustrate a point about the potential impact
25 of sporadic or occasionally large contributions to

1 mortality in an annual species."

2 Do you see that statement?

3 A. Yes, I do.

4 Q. What is your understanding of that statement if you have
5 one?

6 A. My understanding is that the previous paragraph that I was
7 reading for Ms. Poole was a hypothetical. That hypothetically
8 let's make these sets of assumptions. And if this was going
9 on, this would be a consequence. So that's what it was.

10 MR. BIRMINGHAM: Thank you. I have no further
11 questions, Your Honor.

12 THE COURT: Any other plaintiff have questions for
13 Dr. Deriso?

14 Cross-examination? Recross?

15 MR. EDDY: I have nothing further.

16 THE COURT: Ms. Poole? Recross?

17 MS. POOLE: Very briefly, Your Honor.

18 RE-CROSS-EXAMINATION

19 BY MS. POOLE:

20 Q. Dr. Deriso, you were just asked a few questions about that
21 very large entrainment event in 2003. Do you know what the
22 fall midwater trawl index for 2003 might have been without the
23 effect of that entrainment event?

24 A. No.

25 Q. Would you expect it would have been larger?

1 A. No.

2 Q. And did you prepare a separate analysis of the effects of
3 OMR flows on the Delta smelt population for the post-POD years
4 as compared to the pre-POD years?

5 A. No.

6 MS. POOLE: Thank you, that's all.

7 THE COURT: Anything further?

8 MR. GONZALEZ: No, Your Honor.

9 THE COURT: May this witness be excused?

10 MR. EDDY: Yes, Your Honor.

11 THE COURT: Thank you, Dr. Deriso. You may step
12 down. You are excused.

13 MR. GONZALEZ: Your Honor, and with the Court's
14 permission, I have a trial in San Francisco that I need to get
15 back for, may I be excused?

16 THE COURT: You may be excused. Unless someone has
17 an objection.

18 MR. GONZALEZ: It's been a pleasure, Your Honor.
19 Thank you.

20 THE COURT: All right.

21 MR. GONZALEZ: My partners want me to stay, but I
22 can't.

23 MS. DIEPENBROCK: Your Honor, I understand that
24 Metropolitan Water District has a few housekeeping matters
25 that they want to take care of and then we'll talk about the

1 next witness.

2 THE COURT: All right. Mr. Carr.

3 MR. CARR: Thank you, Your Honor. Mindful of the
4 Court's admonition that the Court desired the parties to seek
5 to move into evidence exhibits as they were being used, I
6 apologize for doing this to the Court now.

7 But in some of the cross-examination yesterday, there
8 was some exhibits that we used and marked, but did not move
9 into evidence. And I'd like to do that now. There are four
10 in total. The first of these is MWD 607, which is the Bennett
11 2005 article.

12 THE COURT: Any objection?

13 MR. EDDY: No objection.

14 THE COURT: 607 is received in evidence.

15 (MWD Exhibit 607 was received.)

16 MR. CARR: The second, Your Honor, is MWD 615, which
17 is Newman 2008.

18 THE COURT: Any objection?

19 MR. EDDY: No objection.

20 MR. CARR: Third, Your Honor --

21 THE COURT: 615 is received in evidence.

22 (MWD Exhibit 615 was received.)

23 MR. CARR: Third, Your Honor, is MWD 617, which is
24 Kimmerer and Nobriga 2008.

25 THE COURT: Any objection?

1 MR. EDDY: No objection.

2 MR. CARR: And the fourth, Your Honor --

3 THE COURT: 617 is received in evidence.

4 (MWD Exhibit 617 was received.)

5 MR. CARR: And the fourth, Your Honor, is MWD 633,
6 which is the August 26th, 2008 Smelt Evaluation Team Committee
7 meeting notes.

8 THE COURT: Any objection?

9 MR. EDDY: One moment, please, Your Honor. No
10 objection.

11 THE COURT: Exhibit 633 MWD is received in evidence.

12 (MWD Exhibit 633 was received.)

13 MR. CARR: Thank you, Your Honor.

14 THE COURT: You're welcome.

15 MR. BIRMINGHAM: Your Honor, we had anticipated
16 calling Dr. Bryan Manly. However, in the interest of time,
17 and based upon the testimony that we've had from Dr. Hilborn
18 and Dr. Deriso, it's our conclusion, and having conferred with
19 counsel for the other plaintiffs, that Dr. Manly's testimony
20 at this time would be purely cumulative.

21 And for that reason, and as I said for the interest
22 of time, we have concluded that we will not call Dr. Manly.
23 And so I understand that the next order of witnesses would be
24 State Contractors would call a witness, Terry Erlewine. If I
25 understand correctly.

1 MR. ANDERSON: Yes, that's correct, Your Honor. We
2 call Mr. Erlewine.

3 MR. EDDY: If I may, Your Honor, before that happens.
4 Since Dr. Manly will not be providing testimony and we will
5 not have the opportunity to cross-examine Dr. Manly, I'd like
6 to ask that the declarations he filed in this matter not be
7 considered as part of this preliminary injunction motion. And
8 also that all references to his declaration be stricken from
9 the plaintiffs' preliminary injunction briefs.

10 MS. DIEPENBROCK: The one caveat is that the federal
11 defendants put in his declarations and moved them into
12 evidence themselves through another witness.

13 MR. EDDY: I don't believe those were moved into
14 evidence. I know we had --

15 THE COURT: What are the exhibit numbers?

16 MS. DIEPENBROCK: My understanding was GS 21.

17 THE COURT: Is that in evidence?

18 THE CLERK: Marked but not admitted.

19 THE COURT: It has not been admitted.

20 MR. EDDY: I'd also like to add the time that we
21 introduced those documents, we had the understanding that he
22 would be presenting testimony here.

23 THE COURT: All right. On the representation that
24 his testimony is entirely cumulative, there would not seem to
25 be a reason to put the written testimony in if the oral is

1 going to be cumulative and it's the same.

2 MR. BIRMINGHAM: Your Honor is absolutely correct.
3 And what's being proposed by the government is not something
4 to which we would object to.

5 THE COURT: All right. Well, the exhibits are not in
6 evidence and so I don't think there's any action for the Court
7 to take.

8 MR. EDDY: Thank you, Your Honor.

9 MS. DIEPENBROCK: Thank you, Your Honor.

10 THE COURT: And the only thing I would say is that if
11 any party has misrelied on the non-calling of a witness, we
12 would offer you the opportunity to call the witness. But I
13 don't expect you're going to do that. It's up to you.

14 MR. EDDY: No, Your Honor.

15 MR. ORR: No, Your Honor.

16 THE COURT: All right. Then the State Water
17 Contractors are going to call Mr. Erlewine.

18 MR. ANDERSON: That's correct, Your Honor.

19 THE COURT: You may proceed.

20 **TERRY ERLEWINE,**
21 called as a witness on behalf of the State Water Contractors,
22 having been first duly sworn, testified as follows:

23 THE CLERK: Please have a seat. State your full name
24 and spell your last name for the record, please.

25 THE WITNESS: Terry Erlewine. My last name is

1 E-R-L-E-W-I-N-E.

2 THE COURT: You may proceed.

3 MR. ANDERSON: Thank you, Your Honor.

4 DIRECT EXAMINATION

5 BY MR. ANDERSON:

6 Q. Mr. Erlewine, could you introduce yourself to the Court by
7 explaining your place of employment.

8 A. Yes. I work for the State Water Contractors in
9 Sacramento.

10 Q. Would you please provide an overview of your educational
11 background?

12 A. I graduated with a civil engineering degree from UC Davis
13 with a bachelors degree. And then I went on to get a masters
14 degree in civil engineering also from UC Davis.

15 Q. And how long have you worked for the State Water
16 Contractors?

17 A. I've been with the State Water Contractors for more than
18 15 years.

19 Q. And what exactly is the State Water Contractors
20 organization?

21 A. State Water Contractors represents 27 out of the 29 water
22 agencies that have contracts with the State Water Project to
23 provide for all or a portion of their water supply.

24 Q. And what geographic area are covered by these state
25 contractor member agencies?

1 A. Our members run from the City of Yuba City, north of
2 Sacramento, through the north bay area, Solano County, Napa
3 County, through the south bay area, Santa Clara Valley on
4 through the San Joaquin Valley. Further down on the coast.
5 San Luis Obispo and Santa Barbara, and then farther south,
6 Metropolitan Water District and several other urban
7 contractors in southern California.

8 Q. And what are your primary functions as general manager of
9 the state contractors?

10 A. Well, I manage the staff of the State Water Contractors
11 and we work with the department on basically all aspects of
12 the State Water Projects, including water supply, operations,
13 look at their finances, also look at their energies and just
14 operational efficiency.

15 Q. Prior to taking your position as general manager, did you
16 have prior employment with the State Water Contractors?

17 A. Yes. I was -- started out with the State Water
18 Contractors as an engineer and then I was assistant general
19 manager for a few years and then I was promoted to general
20 manager.

21 Q. And what did you do, what was your employment prior to
22 joining the State Water Contractors?

23 A. Prior to joining the State Water Contractors, I started
24 out with the Department of Water Resources in my professional
25 career, worked with the Department of Water Resources for 13

1 years, did a lot of work on water supply studies, groundwater
2 studies, also spent a few years working on operation studies
3 in Sacramento.

4 I left the Department of Water Resources and was in
5 consulting engineering for three years in Sacramento, working
6 on a lot of different water supply and water resources
7 projects.

8 Q. As general manager of the State Water Contractors, do you
9 have any experience working with Endangered Species Act issues
10 in the Bay Delta Estuary?

11 A. Yes. That's been a big part of our job for quite a while
12 now.

13 Q. What --

14 A. With the effects that are occurring on the State Water
15 Project and most recently we did work with the Bureau of
16 Reclamation and the Department of Water Resources. We were
17 one of the non-federal cooperating agencies working on the
18 development of the biological assessment. We met with the
19 Department and the Bureau periodically to understand what they
20 were doing with the biological assessment.

21 Q. As part of your job duties, do you undertake any efforts
22 to analyze the effect of regulatory restrictions on water
23 deliveries to the State Water Project member agencies?

24 A. I have been doing that for the last couple of years, both
25 myself and then directing staff in our office.

1 Q. And how do you gather that information and analyze it?

2 A. What I've done is compare the actual operations, which
3 include -- incorporate the effects of the OCAP RPAs and then I
4 compare that to the baseline of what would have been allowable
5 under decision -- Water Rights Decision 1641. So take
6 information from the Bureau of Reclamation's website on actual
7 operations, also the Department's website, and analyze that.

8 Q. Do you also have any familiarity with the way the Central
9 Valley Project is operated?

10 A. Less familiarity than the state project with the
11 Coordinated Operations Agreement, I have some understanding.
12 But I'm much more familiar with the State Water Project.

13 MR. ANDERSON: Your Honor, we would like to move that
14 Mr. Erlewine be accepted as an expert witness on State Water
15 Project and Central Valley Project water supply impact and
16 management issues.

17 THE COURT: Any objection?

18 MR. SHAPIRO: Just a brief voir dire, Your Honor.

19 THE COURT: You may proceed.

20 VOIR DIRE EXAMINATION

21 BY MR. SHAPIRO:

22 Q. Mr. Erlewine, my name is Bill Shapiro. I'm an attorney
23 with the United States Department of Justice. Good afternoon.

24 Have you ever been qualified as an expert witness
25 before, Your Honor? Mr. Erlewine?

1 A. I've never been in a court case. I've testified before
2 the State Water Resources Control Board.

3 Q. Have you qualified as an expert witness?

4 A. I don't believe so.

5 Q. Have you ever published in this field?

6 A. No.

7 Q. Have you ever taught classes in this field?

8 A. No.

9 Q. Mr. Erlewine, what I understood the subject matter of this
10 expertise to be involved comparing actual operations with
11 baseline operations under D-1641. Is that accurate?

12 A. Yes.

13 Q. Does that -- what else I heard was that that involves
14 taking information from web pages and making a comparison; is
15 that correct?

16 A. Yes.

17 Q. It's just taking information that other people have
18 generated or other organizations have generated and then
19 comparing those two numbers?

20 A. No. There's computation required.

21 Q. What is that computation?

22 A. Looking at the D-16 -- Water Rights Decision 1641 and
23 analyze how that would have been -- how that would have
24 affected operations in the absence of the biological opinions.

25 Q. Is that something that you have personally done for

1 purposes of your declarations that have been submitted in this
2 case?

3 A. Yes.

4 Q. Is that a computer program that you're using?

5 A. It's done using a spreadsheet.

6 Q. Is that just an Excel spreadsheet?

7 A. Yes.

8 Q. Are you making certain assumptions about what might be
9 required under D-1641?

10 A. I'm looking at the parameters of D-1641, like the E:I
11 ratio and like the X2 outflow requirements and looking at when
12 they would be triggered. And then estimating what the water
13 supply restrictions of those would have been and the outflow
14 requirements and then computing what the allowable export
15 operations would have been.

16 MR. SHAPIRO: No objection, Your Honor.

17 MS. POOLE: Your Honor.

18 THE COURT: Yes.

19 MS. POOLE: We do object to this witness' expertise
20 in CVP operations. I believe he testified that he was very
21 familiar with the State Water Project, but only had passing
22 familiarity with the CVP.

23 MR. ANDERSON: Your Honor, may I address that?

24 THE COURT: Yes.

25 MR. ANDERSON: I think for purposes of our

1 examination, we're not going to delve too deeply into CVP
2 operational issues. It's mostly just a function of explaining
3 the water supply impacts to both projects because they're so
4 closely coordinated they go hand in hand. And in order to do
5 the computation of the State Water Project impact, you
6 necessarily have to know how much is attributable to the CVP.

7 THE COURT: Do you have any objection, Ms. Poole, to
8 limiting his testimony to water supply impacts? He did say
9 that he had expertise on management issues, but we would limit
10 that to the State Water Project.

11 MS. POOLE: That sounds like a reasonable approach,
12 Your Honor.

13 MR. SHAPIRO: Your Honor, if I could clarify. My
14 understanding of what he is being offered for as an expert is
15 solely for the purpose of comparing what the allocation may
16 have been under D-1641 compared to the actual allocation.

17 MR. ANDERSON: That's not entirely accurate, Your
18 Honor.

19 THE COURT: The tender was water supply impacts,
20 which are definitely subsumed in what you have just stated,
21 and management issues. And so I don't know what management
22 issues may entail.

23 It seems to me he is qualified with 13 years
24 experience with the DWR to talk about management issues of the
25 State Water Project. He said he's not familiar with the

1 operations of the CVP, but he does have to calculate -- and
2 I'm assuming you, like every other contractor, obtain the
3 releases the Bureau makes about water supply availability and
4 other announcements.

5 Do you do anything more than that? And then perform
6 your calculations.

7 THE WITNESS: In doing calculations, you have to know
8 what the Central Valley Project is doing. I was thinking more
9 in terms of understanding or being familiar with what they do
10 when they're making releases upstream for exports and more of
11 the intricacies of their operation. That is something that
12 I'm not so familiar with. But the actual flows, outflows and
13 the exports that they have, I'm familiar with that.

14 THE COURT: Yes. That's what we'll limit his
15 testimony to.

16 MR. ANDERSON: Could I make one potential amendment,
17 Your Honor, when we filed our designation of expert witness
18 for Mr. Erlewine on March 1st, we listed a series of what I
19 believe are encompassed within this water supply impact
20 analysis. But just to be certain, could I read from here and
21 ask, if necessary, the Court make a ruling on all these
22 subject areas that we have in the designation.

23 THE COURT: Yes.

24 MR. ANDERSON: Thank you. So in his designation, we
25 asked -- we stated that we expected him to testify and offer

1 expert opinion as to the actual and anticipated water supply
2 impacts associated with implementations of the BiOps.

3 Number two, current reservoir storage, precipitation
4 and other issues related to water supply and operation of the
5 state water supply impact.

6 The impacts of water supply losses to state water
7 contractor member agencies. Changes in fall hydro -- excuse
8 me, and changes in fall hydrology and factors that have
9 contributed to reductions in fall Delta outflows.

10 Those are the subject areas that we intend to cover
11 in his direct examination today.

12 THE COURT: Any objection to these areas?

13 MR. SHAPIRO: Well, Your Honor, I heard several
14 different things listed there, including precipitation,
15 changes in fall hydrology. I don't believe that this witness
16 has been qualified as an expert in those fields.

17 THE COURT: Well, as the term is used, fall
18 hydrology, I don't have a clear understanding how this
19 witness' operational experience and/or his present role would
20 relate to fall hydrology, except that it bears on the delivery
21 of water, which the Court's understanding is and its
22 experience in these cases is that there's not much going on in
23 the fall relative to deliveries from the water projects, if
24 that's defined as September through November.

25 MR. ANDERSON: Your Honor, if I may, in testimony

1 earlier this week, Mr. Feyrer explained that -- and we're
2 going to get to this later in the testimony if the Court
3 allows it -- that he predicted or it was his understanding
4 that there have not been substantial changes in Delta inflows
5 relative to Delta outflows during the 40 year period that was
6 examined in the biological opinion.

7 And I believe that Mr. Erlewine has done some
8 analysis about that particular assertion by Mr. Feyrer and
9 will have some opinion testimony to provide in that context.

10 THE COURT: All right. Any objection?

11 MR. SHAPIRO: Your Honor, I'm not -- we've not even
12 seen this analysis before. I don't believe that's part of Mr.
13 Erlewine's declarations that he submitted.

14 THE COURT: Well, it sounds like it would be
15 responsive to the opinion that was offered by Mr. Feyrer. And
16 if there's anything more than just referring to statistics
17 that are a matter -- that are publicly issued, recorded and
18 available, then we'll take it one question at a time. And if
19 there's something that you think you're being unfairly
20 surprised by or that you believe prejudices your ability to
21 respond to, then I'll hear the objection.

22 MR. SHAPIRO: Thank you.

23 MS. POOLE: And, Your Honor, may I just clarify that
24 that also pertains to the statement read by counsel in the
25 witness designation that the scope would include the impacts

1 of water supply losses to State Water Contractor member
2 agencies. That's a very broad subject area.

3 As long as it's restricted to this comparison of
4 water supply deliveries that we're talking about, we don't
5 object to that. But we do reserve the right to object if it
6 goes beyond.

7 THE COURT: Understood.

8 MR. ANDERSON: Well, as I will explain to the Court
9 in advance, if we can set this all out on the table, that Mr.
10 Erlewine is familiar with the impacts of these reduced water
11 supply deliveries in the State Water Project Service areas.
12 And at the time that we get to that testimony, he'll explain
13 how he's become aware of these impacts including --

14 THE COURT: All right. We'll see what the foundation
15 is and then see what the proffered testimony is when we get
16 there.

17 MR. ANDERSON: Thank you, Your Honor.

18 THE COURT: You may proceed.

19 CONTINUED DIRECT EXAMINATION

20 BY MR. ANDERSON:

21 Q. Mr. Erlewine, have you reviewed the two biological
22 opinions?

23 A. Yes, I have.

24 Q. Have you also reviewed the reasonable and prudential
25 alternatives of those biological opinions?

1 A. Yes, I have.

2 Q. Have you reviewed any of the declarations filed by the
3 other parties in this case?

4 A. I've reviewed some of them. I reviewed Ron Milligan's in
5 particular.

6 Q. In conjunction with your work on this case, have you
7 analyzed the water supply impacts to the State Water Project
8 and the Central Valley Project in 2010 so far this year
9 associated with implementation of the two reasonable and
10 prudential alternatives?

11 A. Yes, I have.

12 Q. And how did you undertake that analysis?

13 A. I started to describe that earlier. What I did was I
14 looked at the actual operations that have occurred and
15 compared those to the baseline of what would have been
16 allowable under Water Rights Decision 1641.

17 Q. And where did you obtain information to conduct that
18 analysis?

19 A. Much of the information was taken from the Bureau of
20 Reclamation's website. They have a website with Delta outflow
21 computation, which shows Delta outflow, Delta inflow, various
22 inflows from the Delta to San Joaquin River.

23 And then I also referenced the Department of Water
24 Resources operations website showing daily pumping amounts for
25 the State Water Project and the CVP.

1 Q. Did you prepare any demonstrative exhibits to help explain
2 what conclusions you've reached?

3 A. Yes, I did.

4 MR. ANDERSON: Your Honor, may I approach the
5 witness?

6 THE COURT: Yes, you may.

7 MR. ANDERSON: What we'd like to provide Your Honor
8 is a clipped bunch of material. These are some of the
9 pre-marked exhibits that we provided to the parties and to the
10 Court. It's not every one of the Exhibits. It's only those
11 exhibits that have been pre-marked that we intend to utilize
12 today during the direct examination.

13 THE COURT: Yes, you may.

14 MR. ANDERSON: Your Honor, we can provide the Court
15 with an extra copy of just those of the pre-marked exhibits
16 we're going to be referring to today if it's convenient.

17 THE COURT: I have the binder, which doesn't seem to
18 be that voluminous. I'll use the binder.

19 MR. ANDERSON: Thank you, Your Honor.

20 Q. Mr. Erlewine, do you recognize the packet of materials
21 that I just handed to you?

22 A. Yes, I do.

23 Q. Within the exhibits that are attached and numbered, did
24 you prepare those exhibits that are demonstrative?

25 A. Yes, I did.

1 Q. And the other exhibits that we might call evidentiary
2 exhibits, did you either gather those or were they gathered
3 under your direction and control?

4 A. Yes, they were.

5 Q. Could you please turn to Exhibit 903. This is the one
6 that reads at the top "Delta operations and export
7 reductions."

8 A. Yes.

9 Q. Could you explain what's shown on this exhibit?

10 A. This is the summary of the computation that I did for
11 estimating -- or computing water supply losses. The left side
12 of the chart shows actual operation, shows San Joaquin River
13 at Vernalis inflows, which are one of the factors that affects
14 State Water Project pumping capacity for a portion of the year
15 from December 15th through March 15th.

16 Also shows Delta inflow, Delta outflow, exports at
17 the State Water Project at Banks Pumping Plant, exports at
18 Tracy Pumping Plant from the Central Valley Project and then
19 total exports.

20 The middle column is the summary of the export inflow
21 ratio, which is just the computation of what the actual export
22 inflow ratio was under the RPA, under the OCAP RPAs.

23 And then the middle column labeled total allowable
24 exports under D-1641, that's a computation of what would have
25 been allowable for the two projects collectively under --

1 Q. Can I stop you there for one second. Can you explain how
2 you came up with the numbers or calculated the numbers that
3 appear in that column for D-1641?

4 A. The -- it refers to the Water Rights Decision 1641, refers
5 to what the operations of the two projects would have been
6 like in the absence of the OCAP RPA restrictions. The primary
7 factors that affect the capacity shown there are the export
8 inflow ratio, also the X2 requirement, outflow requirement.
9 Another factor involved in there is just the general wetness.
10 So the availability of inflows. All those factors enter into
11 it.

12 Q. Could you look at the row marked -- I think it's January
13 20th.

14 A. Yes.

15 Q. And maybe go across the sheet and explain what you're
16 calculating in each of those columns.

17 A. Well, the -- for January 20th, that was the first day, as
18 Ron Milligan testified, that was the day that the
19 department's -- the Bureau and the department declared that
20 there was surplus flows. So the left half of this table shows
21 just actual flows and exports that occurred.

22 As I said, that key computation is the middle column,
23 total allowable exports under D-1641. That's showing about
24 11,552 acre feet would have been potentially exportable in the
25 absence of the RPAs.

1 And so then the difference between that number,
2 11,552, and the actual exports to the left, 5,909, that is the
3 next column, the reduced exports, the total of 5643 cfs.

4 After that, then there's the computation of how
5 that's divvied up between the two projects.

6 And then the last two columns, take those reduced
7 exports, which are a rate of reduced exports in terms of cubic
8 feet per second.

9 The last three columns, take that and convert that
10 into acre feet and accumulate that.

11 Q. And if we turn forward to page three of this analysis,
12 could you explain how much water export loss has been incurred
13 by the projects through March 24th of this year? Under your
14 calculation.

15 A. Yes. This shows through March 24th that the total
16 exports -- reductions for the two exports, two projects, was
17 522,000 of which about 433,000 was State Water Project and
18 89,000 was Central Valley Project. This is as of March 24th.

19 At that time, March 24th, the flow conditions, inflow
20 conditions dried up. There was a -- there were not any more
21 reductions in exports for a period after March 23rd. So
22 on -- it's showing zero reduced exports on March 24th and then
23 that continued through the end of March.

24 Q. Okay. If I'm understanding this correctly, the impacts to
25 the State Water Project were about 433,000 acre feet and only

1 89,000 acre feet to the CVP. Why is it those two numbers are
2 so drastically different?

3 A. Well, it reflects the different sizes of the two projects'
4 pumping plant capacities. The State Water Project Banks
5 Pumping Plant has the capacity of 6680 cfs. The Tracy Pumping
6 Plant has the capacity of 4600 cfs, of which not all of it can
7 be used. So normally maybe only 4200 cfs can be pumped in the
8 winter.

9 The State Water Project capacity actually is
10 allowable -- it's allowable to go up above 6680 depending on
11 San Joaquin River Vernalis flows. So that can actually get up
12 above 7,000 cfs.

13 The projects share the amount of pumping that is
14 actually allowable, so for an example, if there was 8,000 cfs
15 of pumping that was allowable in any one day, 4,000 cfs would
16 go to the CVP, 4,000 would go to the State Water Project.
17 That would mean that the CVP would be reducing from 4200 cfs
18 down to 4,000 cfs. A couple hundred cfs reduction. State
19 Water Project might be reducing from 7,000 cfs down to 4,000
20 cfs, so that's about a 3,000 cfs reduction. Much larger.

21 Q. Do you have an idea of how many urban dwellers in the
22 State Water Project Service area one acre foot of water
23 serves?

24 A. As -- generally it's about five to seven people per acre
25 foot.

1 Q. Is that for a year?

2 A. For a year, yes.

3 Q. And based upon your analysis, where you show that there's
4 been about 433,000 acre feet of State Water Project export
5 lost through March 24, can you tell us how many people in the
6 SWP Service area that quantity of water would have served?

7 A. If that was all going to urban users, then that would have
8 supplied about 2.6 million people.

9 Q. Is that for a year?

10 A. For a year, yes.

11 Q. And what percentage -- what's the ratio between how much
12 State Water Project water is served to agricultural districts
13 as opposed to M&I or municipal and industrial districts?

14 A. The State Water Project is about 75 to 80 percent urban
15 users. M&I users. And then the remaining 20 to 25 percent is
16 agricultural.

17 Q. Do you know what the water duty is for one acre of almonds
18 for a year? And maybe you can explain what "water duty" is as
19 part of that answer.

20 A. Water duty is the amount of water that a crop needs per
21 acre. Using some Department of Water Resources information,
22 they show for the State Water Project Service area, they have
23 some reports that indicated that it was about three acre feet
24 per acre. So that means that an acre would use three acre
25 feet of water for almonds.

1 And so carrying that forward, if the 433,000 acre
2 feet per year were just affecting almonds, that would be about
3 140,000 acre foot -- 140,000 acre reduction in almonds.

4 Q. So that's a sufficient quantity of water to serve 140,000
5 acres of almond trees during the growing season; is that your
6 testimony?

7 A. Yes.

8 Q. Have there been any export losses incurred by either
9 project since April 1st?

10 A. Yes, there have. The reductions on April 1st, as a result
11 of the NMFS San Joaquin I:E ratio action, there have -- they
12 have resulted in reduced pumping and there has been a
13 recurrence of water losses for the two projects.

14 Q. Can you provide us with an approximation of how much water
15 has been lost by both projects during the last -- well, since
16 April 1st?

17 A. Through yesterday, it's right in the neighborhood of
18 50,000 acre feet. About 25,000 state project, 25,000 CVP.

19 Q. And is that export loss to two projects continuing today?

20 A. I don't have the actual information in front of me, but
21 based on what inflows there were yesterday, what the pumping
22 rates are, I expect that it would be continuing today.

23 Q. Does the Department of Water Resources routinely publish
24 each water year announcements of how much water the State
25 Water Project expects to deliver to its water contractors?

1 A. Yes, they do.

2 MR. ANDERSON: Your Honor, I'd like -- may I approach
3 the witness?

4 THE COURT: You may.

5 MR. ANDERSON: And we have a new exhibit. Very recent
6 water supply update from DWR that I'd like to share. This is
7 State Water Contractor 938.

8 (SWC Exhibit 938 was marked for identification.)

9 BY MR. ANDERSON:

10 Q. Do you recognize this document, Mr. Erlewine?

11 A. Yes, I do.

12 Q. And what is it?

13 A. It's the Department of Water Resources notice to
14 contractors that the allocation was increased to 20 percent as
15 of March 30th.

16 Q. And what does that mean, that a 20 percent allocation has
17 been issued by the DWR to the State Water Contractor member
18 agencies?

19 A. It means that the State Water Project contractors are
20 going to get 20 percent of their Table A amounts that they've
21 contracted for.

22 Q. And how does that contract compare with the final Table A
23 allocation for last year?

24 A. The final allocation last year was 40 percent. So it's
25 half of that.

1 Q. Does DWR produce documentation to support these allocation
2 notices?

3 A. Yes, they do.

4 Q. Can I ask you to turn to Exhibit 907 in the packet of
5 materials that were provided to you earlier.

6 A. Okay.

7 Q. Do you recognize the document there?

8 A. Yes.

9 Q. And what is it?

10 A. It's the water supply allocation studies that are provided
11 by the department -- water supply studies that are provided by
12 the department to contractors periodically to inform us on the
13 status of operational issues.

14 Q. Did you personally receive a copy of this document?

15 A. Yes.

16 Q. How did you receive it?

17 A. By email.

18 Q. And do you know approximately what date you received it?

19 A. It's March 22nd.

20 Q. Does this appear to be an accurate copy of the document
21 you received by email?

22 A. Yes.

23 Q. Can I ask you to turn to page 907-7.

24 A. Okay.

25 Q. This is the page that's titled at the top "Allocation

1 Analysis for 2010 TAF."

2 Could you explain what this document is?

3 A. This document is the -- is -- summarizes some of the water
4 supply studies the department conducts. It's similar to what
5 Ron Milligan discussed a couple of days ago, where he talked
6 about the 50 percent exceedence and the 90 percent exceedence.

7 What the department does here is they show the 50
8 percent exceedence hydrology studies that are the average
9 conditions that are probably the most likely to occur.

10 They also show a 90 percent exceedence, which is a
11 one in ten chance that things are going to be as dry as that
12 or dryer. And that's the -- the 90 percent exceedence studies
13 are the studies the department uses as basis for making their
14 allocations.

15 MR. ANDERSON: Your Honor, can I move this document
16 into evidence?

17 THE COURT: Any objection?

18 MR. SHAPIRO: No objection.

19 THE COURT: Exhibit 907 is received in evidence.

20 (SWC Exhibit 907 was received.)

21 MR. ANDERSON: Can I also move into evidence, Your
22 Honor, the two prior documents that Mr. Erlewine testified
23 about, which are 938 and 903.

24 THE COURT: Any objection?

25 MR. SHAPIRO: No objection to 938. 903 is -- we

1 would object to, Your Honor, as it is not estimating the water
2 cost from here forward, which is the focus of this preliminary
3 injunction.

4 MR. ANDERSON: Your Honor, in one respect, this
5 document that Mr. Erlewine has produced is demonstrative. But
6 what it does do is it elucidates the testimony that Mr.
7 Milligan gave last week, which was about -- he provided a
8 table, and I think it was Salmon Exhibit 55, if my memory
9 serves, that shows which biological opinion was controlling on
10 which day this year.

11 And so in that sense, I believe this document is
12 relevant. And in addition, and I think Mr. Erlewine will
13 testify to this, that even though these water supply impacts
14 already occurred, the effects of the loss of this water supply
15 have effects going forward.

16 So the lack of delivery of this water over the months
17 of January, February, March have impacts, for example, on how
18 much groundwater is going to be pumped this summer in Kern
19 County within the State Water Project Service area.

20 So in that vein, I think it's all relevant, Your
21 Honor.

22 THE COURT: Is the matter submitted?

23 MR. ANDERSON: Yes, Your Honor.

24 THE COURT: The objection is overruled. Exhibit 903
25 is in evidence for the purpose of showing the water year's

1 operation through the date of the hearing on the applications
2 for preliminary injunction.

3 (SWC Exhibit 903 was received.)

4 MR. ANDERSON: Thank you, Your Honor.

5 Q. Mr. Erlewine, turning back to the allocation analysis for
6 2010, which I believe is Exhibit number 907. Could you start
7 from the beginning again and explain what this is?

8 A. Well, I'll describe the 50 percent exceedence. That is
9 one of the studies the department does. It's the hydrology
10 that's on average going to occur. So it's the most likely
11 situation that will happen.

12 Q. And which row are you looking at precisely?

13 A. I'm looking at the 50 percent exceedence, 90 percent fall
14 D-1641 row.

15 Q. Is that in the top left corner?

16 A. Yes, it is.

17 Q. And I notice -- well, why don't we go over that. You just
18 explained 50 percent exceedence is the most likely scenario;
19 is that right?

20 A. Yes.

21 Q. And what --

22 A. The D-1641 is the department's estimate of how D-1641
23 would restrict their operations, what they could have done
24 with D-1641 in the absence of the RPAs.

25 Q. So this is a document that's prepared by the Department of

1 Water Resources?

2 A. Yes, it is.

3 Q. And if you move over to the right, there's some months
4 listed there and some yellow highlighting on some of those
5 months. Would you explain what that is?

6 A. Yes. There's months of April, May and June are
7 highlighted. If you skip down one row to the next -- or a
8 couple of rows to the next highlighted line there, there's a
9 line there called a -- a row called "SWP Banks Pumping Plant
10 exports." And if you go over to April, that shows that
11 there's 49,000 acre feet of pumping in April projected under
12 the D-1641.

13 Q. So does that mean that's the amount of water that DWR
14 projected as of March 22nd and they anticipated could have
15 been exported by the State Water Project in the month of
16 April?

17 A. Yes, it is.

18 Q. And what about the line below that, the line below --

19 A. The next line below it, couple line below it that's also
20 highlighted yellow shows 50 percent exceedence, and then this
21 shows the first of three different assumptions for how the
22 RPAs would have been implemented under the OCAP.

23 This one shows the most restrictive OMR, so this one
24 shows you'd be up at the minus 1250 range of cfs range of the
25 OMR. It shows for April that there would be about 42,000 acre

1 feet of exports allowable. A couple rows below that, you see
2 50 percent exceedence, moderate OMR and then again there's
3 State Water Project Banks Pumping Plant exports. That also
4 shows 42,000 acre feet.

5 And the next scenario, to least restrictive OMR shows
6 the same amount. In this case, for April and May, we're
7 restricted by the salmon I:E ratio for the San Joaquin River.
8 So that's -- the numbers are the same for all three of those
9 scenarios.

10 Q. And can you remind the Court what the restriction is under
11 the I:E ratio for the months of April and May under the salmon
12 BiOp?

13 A. It's 1500 cfs for combined pumping for the two projects.

14 Q. So if you were to look at the month of April and you were
15 using DWR's analysis to project what the water supply impact
16 at State Water Project would be during the month of April, at
17 least as predicted on March 22nd, what number did -- can be
18 calculated?

19 A. Well, I would look at the difference between 49,000 acre
20 feet in the base case, the D-1641 case and the 41 or 42,000
21 acre feet in all of the OCAP B0 cases.

22 Q. So if I'm understanding correctly --

23 A. So it would be the -- the difference would be 7,000 acre
24 feet, which would be the impact.

25 Q. Do I recall correctly that a few minutes ago you testified

1 that a much greater quantity of export loss has already been
2 incurred this month, only through the first few days, than DWR
3 projected?

4 A. Yes. Especially at this time of the year, in April and
5 May. All of these projections are highly subject to changes
6 in weather conditions. And so it's just not at all uncommon
7 for things to change. The department made these projections a
8 few weeks ago based on what the hydrology looked like at that
9 point, what the average projections for average conditions
10 looked like. You know, the average conditions really never
11 occur. I mean, exactly.

12 So what this shows is that you had some projections
13 at that time. In reality, there's been some storms, there's
14 been some additional outflow and as a result there's been some
15 additional export losses.

16 Q. So does this indicate that water supply projections can be
17 underestimated even by DWR?

18 A. Yes.

19 Q. If we look at the month of May, what's the projected water
20 supply loss under this allocation analysis for that month?

21 A. This shows for May that there's the difference between
22 80,000 acre feet in the D-1641 case and 41,000 acre feet, so
23 there's about 39,000 acre feet potentially.

24 Q. And what about for the month of June?

25 A. For the month of June, these studies actually show more

1 pumping under the OCAP case. And in the month of June, you'd
2 be in a situation -- these studies would be probably showing
3 that there's a restriction in availability if there is no
4 surplus flows likely available in June. And so what these
5 would be showing is that the projects are managing their
6 pumping in June and so you really don't see any impacts there.

7 Q. Based upon your experience as general manager of the
8 contractors, is it possible there could still be water supply
9 impacts in the month of June associated with implementation of
10 the BiOps? Notwithstanding this analysis.

11 A. Yes. It's very possible. This is looking at a 50 percent
12 exceedence forecast. If you had the time, you could look at a
13 25 percent exceedence forecast. That would be a forecast that
14 would have one chance in four of occurring. You might be able
15 to look at a 225 percent exceedence.

16 So there's an infinite number of potential
17 exceedences you could look at. There is a potential that the
18 actual precipitation will be different than what's even
19 forecasted here. So it's not at all unlikely that that could
20 happen.

21 Last year, as an example, at this time in March, we
22 were actually -- we actually had a lower salmon -- Sacramento
23 Valley index. The Sacramento Valley index shown here, SVI at
24 the top of each of these different boxes, is the -- is 6.3
25 this year. Last year at this time it was 5.9. And then as it

1 turned out last year, we ended up getting a fair amount of
2 runoff in late May, early June, that resulted in water supply
3 losses.

4 So even in a situation that was dryer than we are
5 right now last year, we ended up with water supply losses.
6 So, yes, it is possible that there could be water supply
7 losses on out in the future.

8 Q. Were those water supply losses last year at all affected
9 by any decisions by the Fish & Wildlife Service under the
10 biological opinion RPA?

11 A. Yes. There was water supply losses last year that were
12 the result of the -- or that resulted from the restrictions
13 from the RPAs.

14 Q. Thank you.

15 MR. ANDERSON: May I approach the witness, Your
16 Honor?

17 THE COURT: Yes, you may.

18 MR. ANDERSON: I'm marking State Water Contractor
19 Exhibit 939.

20 (SWC Exhibit 939 was marked for identification.)

21 BY MR. ANDERSON:

22 Q. Mr. Erlewine, did you -- do you recognize the document I
23 just handed to you?

24 A. Yes, I do.

25 Q. And what does it show?

1 A. It shows projections in what the water supply impacts
2 could be through the end of the year. Or through the end of
3 June.

4 Q. Was this document prepared under your direction and
5 control?

6 A. Yes, it was.

7 MR. ANDERSON: Your Honor, I'd like to move Exhibit
8 939 into evidence.

9 THE COURT: Any objection?

10 MR. SHAPIRO: No objection.

11 THE COURT: 939 is received in evidence.

12 (SWC Exhibit 939 was received.)

13 BY MR. ANDERSON:

14 Q. Could you explain what this document shows?

15 A. This document shows an estimate of what the ongoing export
16 loss would be for the State Water Project. I didn't attempt
17 to estimate the ongoing loss of the Central Valley Project.
18 But I think I mentioned earlier that up to date there's been
19 approximately 25,000 acre feet of losses for the Central
20 Valley Project in addition to 25,000 acre feet of losses for
21 the State Water Project.

22 Q. And how long ago did you prepare this document?

23 A. Couple days ago.

24 Q. Well, based upon this water loss that you've just talked
25 about that's already been incurred in the first few days of

1 April, would you change the potential export loss impacts
2 that's indicated in the column marked "46,000"?

3 A. Oh, I think that's likely to be a low estimate.

4 Q. So it's likely to be higher than that?

5 A. Right.

6 Q. And from the period from June 1st to June 30th, you have a
7 range of impacts, I believe, in there. Can you explain why
8 you have that range?

9 A. What I did was, based on the studies that the department's
10 showing at the 50 percent exceedence, which is, you know,
11 average conditions. They're showing really no impacts in
12 June. But what I did was I referred to where we were last
13 year and, you know, last year we ended up -- were at a
14 situation right now that's dryer than where we're at now and
15 we ended up with 40,000 acre foot of impacts last year.

16 So I anticipated that that was a reasonable range for
17 how high the impacts could be. It's probably somewhat
18 conservative.

19 Q. In your opinion, is it reasonable to rely upon the water
20 supply impact which occurred in June 2009 to predict what the
21 water supply impacts might be in June 2010?

22 A. I think that gives an indication of what the impacts could
23 be.

24 Q. Would you expect the export water losses to be greater if
25 it's wetter than the 50 percent exceedence scenario?

1 A. Well, this would assume that it is wetter than the 50
2 percent exceedence scenario. So this would be something lower
3 than 50 percent exceedence scenario already.

4 Q. Okay. Can I ask you to turn back to your Exhibit 903. Or
5 maybe you can just remember what the water supply impact
6 number that you calculated through March 24th was. Do you
7 recall that figure?

8 A. For the State Water Project, it was 433,000 acre feet.

9 Q. Is it possible to calculate what the DWR allocation for
10 March 30th, 2010 would have been if that 433 acre feet of loss
11 had not occurred?

12 A. Well, the department considers a number of factors in
13 their water supply allocation that I was just walking you
14 through. They consider the need for maintaining storage in
15 San Luis. They consider the need for providing water and
16 carryover for contractor requests for next year.

17 So there's a number of factors there that could
18 affect the exports. But all things being equal, generally the
19 amount of the export reduction does correspond to the amount
20 of the allocation.

21 So in this case, 433,000 acre feet is more than 10
22 percent of the allocation potentially for the State Water
23 Project.

24 So likely what the department would have been able to
25 do is to increase the allocation from, say, 20 percent up to

1 30 percent if it hadn't -- if they'd been able to have this
2 water in storage.

3 Q. In your experience, are these DWR water allocation notices
4 important to State Water Contractor member agency?

5 A. Yes, they're very important.

6 Q. Why is that?

7 A. The water agencies and the State Water Contractors, they
8 do all of their planning around those notices. They have to
9 manage the water supply from the State Water Project together
10 with water supply from other sources. Farmers in agricultural
11 districts have to go to banks to get loans. They have to make
12 their planning decisions.

13 And so where the -- the contractors, contractor
14 members are always anxious to get the allocations as soon as
15 possible so they can do their planning and so they can
16 have -- be able to deliver water to their customers.

17 Q. Are the impacts any more significant in the agricultural
18 area than, say, in the urban areas?

19 A. I think in some cases they may be. It kind of depends by
20 contractor. But I think a lot of urban contractors have other
21 resources available to them, so they have maybe storage
22 programs, surface storage or groundwater storage programs.

23 Agricultural users don't necessarily have that. Or
24 they may have groundwater storage programs available to them,
25 but have limitations on the amount of capacity they have

1 there. So in general, I think probably the ag districts are a
2 little bit more on the edge.

3 Q. Thank you. Could you please turn to Exhibit 909.

4 And Your Honor, what -- I'm going to anticipate an
5 objection here. This is the exhibit that Mr. Erlewine
6 prepared related to the impacts of potential fall X2 action.
7 And I understand from the Court that the remedy that the
8 plaintiffs are seeking might not extend that far. We think
9 it's still relevant for the purpose of showing the extent of
10 impacts that the Fish & Wildlife Service did not consider when
11 they imposed the fall X2 RPA action. And in that vein, we
12 believe it's relevant.

13 THE COURT: The exhibit that I am looking at, which
14 is -- well excuse me. All right. I have it. All right. Is
15 there an objection to this exhibit?

16 MR. SHAPIRO: We would object, Your Honor, as this
17 action is not called for.

18 MS. POOLE: And Your Honor, just for clarification,
19 we join in that objection and it's not the timing of this
20 action which makes it irrelevant, it's the fact that the
21 plaintiffs have not sought to enjoin this action.

22 MR. ANDERSON: Your Honor, we still think it's
23 relevant on the basis -- on the likelihood of prevailing on
24 the merits, and the water supply impacts that were not
25 considered by the Service.

1 THE COURT: Here is the concern the Court has. The
2 water year ends as of September 30th. And therefore, the
3 reductions in October and November will not be experienced in
4 this water year. We are going to hear motions for summary
5 judgment. This isn't summary judgment.

6 And so in terms of the injury, the irreparable injury
7 that the plaintiffs are seeking to prove, the Court is
8 uncertain. You can explain it.

9 How there is a definable or a recognizable impact
10 that would be within the purview of an injunction. Because
11 even at its longest extension, the relief sought was an
12 injunction that would take effect throughout this water year.
13 It would not go beyond September 30th. And so these months
14 that are exemplary from prior years would not be applicable
15 and we shouldn't have that for the coming year, 2011 water
16 year.

17 MR. ANDERSON: Well, with respect to the impact, Your
18 Honor, I think it might be important to note -- and Mr.
19 Erlewine can elaborate -- that the amount of water that could
20 be potentially stored and carried over -- carried over and,
21 for example, in Oroville Reservoir, is impacted.

22 So those storage levels this year are impacted by
23 what would have to be released under the fall X2 requirement.
24 So there are impacts looking forward potentially of releasing
25 water in the fall in terms of how much water is stored in this

1 summer for use in later years.

2 MS. POOLE: Your Honor, that calls for some voir dire
3 of the witness.

4 THE COURT: Yes. I'll let you do that. But let me
5 again return to my observation. I don't understand how that
6 changes. Your present request, unless you are modifying it,
7 is for an injunction through the end of the water year, which
8 is September 30th.

9 And so the next year impacts, the Court will not
10 address unless you're going to expand the requested remedy to
11 go beyond this water year.

12 In other words, I'm only responding to what is before
13 the Court in terms of the application for preliminary
14 injunction.

15 MR. ANDERSON: Thank you, Your Honor. I don't think
16 that we're expanding the request for preliminary injunction.
17 I just wanted to explain that there could be impacts about
18 storage.

19 But again, that there -- this might be relevant, at
20 least in our minds it is, to the likelihood of success on the
21 merits and in terms of whether Fish & Wildlife thought about
22 the amount of water supply impact associated with this RPA
23 action and what substantial impact it could have and
24 particularly how it relates to fall habitat.

25 THE COURT: All right. Ms. Poole, you said you

1 wished to voir dire.

2 MS. POOLE: Yes.

3 VOIR DIRE EXAMINATION

4 BY MS. POOLE:

5 Q. Hello, Mr. Erlewine, my name is Kate Poole. Do you have a
6 sense of how likely it is that the fall X2 action included in
7 the Fish & Wildlife Service biological opinion would be
8 triggered this year?

9 A. I don't think it's very likely. I was referring to the
10 Sacramento Valley index and comparing it to 2005. We're a
11 little bit dryer than we were in 2005. We were at about 6.9
12 in 2005 at this time, we're at 6.3 for the Sac Valley index.
13 That's the index of projected runoff in the Sacramento Valley.
14 In that year, we had a lot of rain in April and May, and it
15 actually did trigger the -- it turned it into an above normal
16 year and there actually was an impact. Those years don't
17 happen very often. It did happen in 2005. But yes, I -- it's
18 not real likely.

19 Q. Do you think it's highly unusual that it --

20 A. Yes, it's possible, you can't say I think -- I think you
21 could not say it's impossible, but you'd also not say -- you'd
22 definitely not say it's likely.

23 MS. POOLE: Thank you. And, Your Honor, I would just
24 add that to the extent this goes to the merits, that should be
25 record base materials. The Fish & Wildlife Service couldn't

1 consider anything that wasn't before it at the time it made
2 its decision.

3 THE COURT: Anything further on this issue?

4 MR. ANDERSON: No, Your Honor.

5 THE COURT: All right. I'm going to, at this time,
6 sustain the objection to going beyond this water year and the
7 call of your injunction. I will, for a limited purpose,
8 success on the merits.

9 Although in light of Ms. Poole's argument, that does
10 raise a question. When we get there, you can explain it.
11 That would be the sole purpose for which you can offer such
12 information to show Fish & Wildlife Service didn't consider
13 fall X2 water impacts. If you can lay a foundation for it.

14 MR. ANDERSON: Could I ask first, Your Honor, the
15 witness to explain what's on this document? Foundational.

16 THE COURT: Yes.

17 CONTINUED DIRECT EXAMINATION

18 BY MR. ANDERSON:

19 Q. Mr. Erlewine, could you explain what you've put forth on
20 this document?

21 A. Yes. What this has in it, it has for two different years,
22 I picked above normal and wet, I picked the most recent of
23 those two years just as an example that was fresh in our minds
24 as observers of the state project operations. 2005 was an
25 above normal year.

1 What I did was I looked at Dayflow information,
2 looked at the actual X2 location, used the Kimmerer Monismith
3 equation to estimate how much more outflow would have been
4 required to bring the X2 out to the 81 -- or at least to the
5 81.0 kilometer location. And then did that monthly -- did
6 that -- actually computer did it daily, and then tabulated it
7 for the months of September, October, November. So in 2005,
8 it came out to 270,000 acre feet.

9 In November, there's a provision in the RPA that says
10 that additional outflow is not going to be anymore than what
11 the inflow at the reservoirs is, compared to inflows. So I
12 compared that and it actually was quite a bit less, so that
13 didn't come into play.

14 So that's what I did for 2005 for an above normal
15 year. Same computation for 2006, which was a wet year. And
16 in that case, you're bringing in the fall X2 out to kilometer
17 74. So there's some increased water supply cost for that
18 totaling 1.4 million acre feet.

19 Q. Are you reviewed the biological opinion?

20 A. Yes, I've reviewed it.

21 Q. To your understanding, do you recall the Fish & Wildlife
22 Service taking the water supply impact numbers associated with
23 the fall X2 into account in preparing their RPA action?

24 A. I don't recall that.

25 MR. ANDERSON: Your Honor, with that, we submit that

1 this is relevant on the substantial likelihood of success on
2 the merits of the fall X2 questions that have been raised in
3 this proceeding.

4 MS. POOLE: Your Honor, I renew our objection. Your
5 Honor has already ruled that the Fish & Wildlife Service did
6 not have to take these water cost considerations into account
7 on the face of the biological opinion, which is all the
8 witness has said he's reviewed.

9 MR. SHAPIRO: We would renew our objection as well.

10 THE COURT: All right. Again, my ruling is now that
11 the objection is sustained to calculations that go beyond
12 September.

13 MR. ANDERSON: Thank you, Your Honor.

14 Q. Mr. Erlewine, could I have you turn to Exhibit 911 in the
15 group of documents I handed out earlier.

16 A. Okay. Yes.

17 Q. Do you have that in front of you?

18 A. Yes, I do.

19 Q. And what does that document show?

20 A. It shows current reservoir conditions state wide.

21 Q. And did you gather this information?

22 A. I retrieved it from the department's website.

23 MR. ANDERSON: Your Honor, we'd like to introduce
24 Exhibit 911.

25 THE COURT: Any objection?

1 MR. SHAPIRO: No objection.

2 THE COURT: 911 is received in evidence.

3 (SWC Exhibit 911 was received.)

4 BY MR. ANDERSON:

5 Q. What does Exhibit 911 show in respect to storage levels in
6 Lake Oroville as of March 26th?

7 A. Well, it shows that they are very low. It shows that
8 they're 45 percent of capacity. They're just over
9 1.7 -- well, they were just slightly less than 1.7 million
10 acre feet at that time. And they're also quite a bit lower
11 than average.

12 So on average, they'd be up at about 2.7 million acre
13 feet. They're actually about 58 percent of that level. So
14 substantially below their historical average for this date.

15 Q. Do you have a current opinion as to whether the current
16 Lake Oroville Reservoir shown on this graph will affect State
17 Water Project water allocations beyond this water year?

18 A. Well, at this level, they're going to be limiting water
19 supply for this current year and they're going to be putting
20 the department in a hole going into next water year.

21 Q. Is it possible to project perhaps what the initial
22 allocation the State Water Project Member Agency might be for
23 the next water year?

24 A. It's -- with the storage that we're going to have going
25 into next year, I think we can look at what happened this last

1 December, when the department made the allocation for this
2 current year.

3 And at that time, in December of 2009, they had low
4 conditions at Oroville, low conditions at San Luis. That's
5 similar to how things are going to be going into 2011.

6 And so in December, they had the initial allocation
7 of five percent. So that's likely to be pretty similar to
8 what we're going to expect for next year.

9 Q. Given the amount of precipitation we've had this year in
10 the upper Sacramento Valley, and based upon your experience as
11 general manager and looking at your understanding of what's
12 gone on historically, is this the type of water year that you
13 would have expected so much water to not be available for
14 storage?

15 A. I'm not sure I understand.

16 Q. Let me rephrase that then.

17 Given the -- what kind of a water year has it been so
18 far, did you explain that already?

19 A. It's been kind of an odd water year. We've had good
20 rainfall conditions in much of the Sacramento Valley. Great
21 rainfall conditions in some parts of the watershed. So
22 Shasta, for instance, has gotten a lot of runoff.

23 The water supply index for the Sacramento Valley is
24 actually not that bad. The runoff is actually pretty -- I
25 mean, the precipitation is pretty good. However, the runoff

1 into Lake Oroville is very low. I don't remember the number
2 for sure, but I'm thinking it's 60 percent of normal. Even
3 though the rainfall has been close to normal for the entire
4 watershed and the snow pack is not bad.

5 Q. Can I ask you to turn to Exhibit 912.

6 A. Okay.

7 Q. Do you recognize this document?

8 A. Yes. This is a document showing water supply conditions,
9 water supply storage conditions for Metropolitan Water
10 District, which is the largest State Water Project contractor
11 in southern California.

12 Q. Where did you obtain this document?

13 A. This is from their website.

14 Q. Does this look like an accurate copy of the document you
15 got off their website?

16 A. Yes it does.

17 MR. ANDERSON: I'd like to move this into evidence,
18 Your Honor.

19 THE COURT: Any objection?

20 MR. SHAPIRO: No objection.

21 THE COURT: 912 is received in evidence.

22 (SWC Exhibit 912 was received.)

23 BY MR. ANDERSON:

24 Q. Mr. Erlewine, could you please focus on the lower right
25 corner, which has a reference to Diamond Valley Lake.

1 A. Okay.

2 Q. Can you explain to us what Diamond Valley Lake is?

3 A. Diamond Valley Lake is the largest surface storage
4 facility that Metropolitan has and it's actually the largest
5 of any State Water Project contractor. It was built several
6 years ago. It's got a capacity of 800,000 acre feet.

7 It was built to provide a combination of emergency
8 storage in case you had an earthquake emergency, or it also
9 provides for some part of water supply for drought conditions.
10 And it's below 50 percent full right now.

11 And my understanding is that they're going to be
12 drawing it down maybe another couple hundred thousand acre
13 feet this year.

14 BY MR. ANDERSON:

15 Q. Given the type of precipitation we've had this year, is
16 this the type of water year that you would have expected pre
17 BiOp to have resulted in the withdrawal of 200,000 acre feet
18 from Diamond Valley?

19 MS. POOLE: Objection. Vague. Is he talking about
20 hydrological conditions that the witness described for
21 Oroville?

22 MR. ANDERSON: Yes.

23 THE COURT: All right. The question has been
24 amended. You may answer.

25 THE WITNESS: Well, going back to what I said

1 earlier, if -- with the loss of 400,000 acre feet of water,
2 that would have increased State Water Project contractors'
3 supplies to 30 percent. About 200,000 acre feet of that water
4 would have gone to Metropolitan Water District.

5 So that would have been one of the things they would
6 have looked at to -- as an alternative to taking water out of
7 storage for Metropolitan.

8 BY MR. ANDERSON:

9 Q. But they can't do that this year because of the loss of
10 export water?

11 A. Right. They just don't -- they aren't getting the water,
12 so they don't have a choice.

13 Q. Do you know approximately what --

14 THE COURT: We're going to take our last recess. We
15 will stand in recess until five minutes before five.

16 (Recess.)

17 THE COURT: We're going back on the record in the
18 consolidated salmonid and smelt cases. You may continue.

19 MR. ANDERSON: Thank you, Your Honor.

20 Q. When we left, Mr. Erlewine, I think we were talking about
21 Diamond Valley Lake, Metropolitan's reservoir in southern
22 California. You testified about the level of storage this
23 year. Do you have any knowledge of the level of storage in
24 Diamond Valley Lake in November of 2007, about two years ago,
25 over two years ago?

1 A. It was near capacity.

2 Q. Closer to capacity. And now, again, what's the level now?

3 A. It's less than half full.

4 Q. In your opinion, could the projected level of storage in
5 Diamond Valley Lake potentially impact southern California
6 water supplies going forward?

7 A. Oh, definitely. That's one of their water supply reserves
8 that they use in addition to their state project supply and
9 their Colorado River Aqueduct Supply.

10 Q. Thank you.

11 MR. ANDERSON: Your Honor, did I already move into
12 evidence 912? Which is the Metropolitan Diamond Valley
13 Lake --

14 MR. WILKINSON: It's in evidence.

15 MR. ANDERSON: Is it in evidence?

16 THE COURT: Yes.

17 MR. ANDERSON: Thank you.

18 Your Honor, pursuant to a stipulation we entered into
19 verbally with the defendants and the defendant intervenors,
20 we'd like to introduce what is marked as Exhibits 913 through
21 9 -- let me make sure I've got this right, 919 in your
22 notebook.

23 The first three of those exhibits are the salvage
24 data regarding Delta smelt that are printed out from the
25 Bureau website for the months of January, February, and March.

1 They go through, it looks to be, March 28th.

2 And then Exhibits 916 through 919 are -- for the
3 first three of those exhibits are the Spring Kodiak Trawl
4 survey results as shown on the Department of Fish & Game
5 website. These are the bubble charts we've become familiar
6 with in the prior hearing, Your Honor. And those are for the
7 months of -- well, for period of late January.

8 A second Spring Kodiak Trawl survey in early
9 February. A third Kodiak trawl survey in early March. And
10 then the first of the larval Delta smelt 20 millimeter surveys
11 from mid March. And we'd ask that those be introduced into
12 evidence.

13 THE COURT: Any objection?

14 Exhibits 913 through 919 inclusive are received in
15 evidence.

16 (SWC Exhibits 913 through 919 were received.)

17 MR. ANDERSON: Thank you, Your Honor.

18 Q. Mr. Erlewine, in your capacity as general manager of the
19 state contractors, are you aware of any impacts in the State
20 Water Project Service area resulting from reduced State Water
21 Project deliveries this year?

22 A. Yes. There's a fair number of impacts on -- starting with
23 our agricultural members. Kern County Water Agency, which has
24 got an allocation or Table A amount of close to 20 percent of
25 the total. They have experienced severe water supply

1 shortages. There's been an increase in groundwater pumpage in
2 a portion of -- in most of the groundwater basin there.
3 There's been a reduction in acreage in the county, in part due
4 to commodity prices, in part due to water supply shortage
5 issues. So there's been impacts there.

6 More specifically, there's a large portion of the
7 State project supply that goes to the west side of Kern
8 County. To Bellridge Water Storage District, Lost Hills,
9 Berenda Mesa, then also up in Kings County, outside of Kern
10 County, to another contractor, Dudley Ridge Water District.

11 Those water agencies have a large amount of permanent
12 crops. There's about 160,000 acres of permanent almonds and
13 pistachios and other crops there. They don't have groundwater
14 underneath their lands that they irrigate.

15 They rely for groundwater, in years of low allocation
16 like this year, through pumping from Kern Water Bank. And
17 what they've seen is that their groundwater reserves that were
18 at two million acre feet back in the beginning of 2007 now are
19 less than 900,000 acre feet.

20 And with the shortages this year and the shortages
21 that are expected next year, they could very well be looking
22 at not having any reserves in groundwater by 2012, which would
23 probably result in loss of half of the permanent crops in
24 western Kern County. So that's one impact.

25 In the Metropolitan Water District, overall, their

1 storage levels are at 1.3 million acre feet. They've got the
2 400,000 acre feet in Diamond Valley, they've got other supply
3 sources. That 1.3 million acre feet of storage in
4 Metropolitan is about half of what their normal storage is.
5 So that's a big concern to them. They've implemented water
6 conservation measures.

7 They've got a -- are looking to their agencies to
8 provide ten percent reduction in water use. They've cut off
9 their temporary ag water use, which has resulted in water
10 supply shortages to avocados in San Diego County. They've cut
11 that 20 percent and they're going to phase that out by 2012.
12 They're not providing water supply for replenishment of
13 groundwater reserves, so there's a lot of impacts there.

14 In addition to Metropolitan and Kern County Water
15 Agency, which are the two biggest contractors, there's a lot
16 of smaller urban contractors that -- from the State Water
17 Project, Central Coast Water Authority in particular.
18 Services Santa Barbara County and one of their customers,
19 Santa Maria, the City of Santa Maria, gets about 45 percent of
20 Central Coast water supply from the State Water Project.

21 And they are under -- they are required by the
22 regional board, to provide wastewater of certain salinity that
23 can be allowed to be recharged for their groundwater basin.
24 Without the state project supply, then they would have to pump
25 groundwater, that would result in groundwater in treated

1 wastewater, which would not meet their regional board's
2 requirements. So there's just a wide variety of impacts among
3 a lot of contractors.

4 Q. Are you aware of any specific levels of fallowing in the
5 State Water Project Service area?

6 A. Like I said earlier, I -- there's something like 200,000
7 acres of fallowing in Kern County. But that's not particular
8 to the water supply cutbacks. That's, as I understand it, a
9 combination of just commodity conditions. Commodity price
10 conditions and water supply.

11 There's also some reductions in Tulare Lake Basin
12 Water Storage District. They've got a reduction of 70,000
13 acres of their total 170,000 acreage due to a combination of
14 water supply shortages and other factors.

15 Q. Could we go back just for a few questions to your
16 discussions about the Kern Water Bank. Can you give a little
17 background on what that is and what the purpose of it is?

18 A. The Kern Water Bank is a groundwater banking program on
19 the Kern River fan southwest of Bakersfield. It's a large
20 amount of land that was purchased in the past by the
21 Department of Water Resources. Has been -- it was exchanged
22 to the West Side Mutual Water Company. And they now operate
23 that as a supplemental supply, reserve supply for
24 their -- provide groundwater for them in water short years.

25 Q. So is it fair to say when there's extra water in the

1 system, DWR delivers some of that water to the Kern Water Bank
2 and they percolate it for use in future years?

3 A. Yes. They percolate water from whatever sources they can
4 get, so they'll use Kern River water and Friant Kern water and
5 State Project water. And they were able to recharge millions
6 of acre -- well, millions of acre feet in the late '90s from
7 Kern River and other sources.

8 Actually, it's primarily local sources. But they do
9 rely on a combination of state project water storage and Kern
10 River storage. And they do depend on the ability to recharge
11 in wet years in order to get them through the dry years.

12 Q. And did I understand you to testify earlier that the
13 amount of water in storage there has been reduced?

14 A. Yes. The amount, as of a couple of years ago, back in the
15 beginning of 2007, was about two million acre feet that was
16 available to the west side water districts. That is now less
17 than 900,000 acre feet.

18 Q. Thank you. Are you aware of any subsidence issues in the
19 State Water Project Service area associated with reduced
20 deliveries of SWP water?

21 A. There haven't been any subsidence areas within the state
22 project service area. However, we are affected by subsidence
23 that is occurring in the west side of the Fresno County
24 actually. Fresno and Merced County.

25 There's been a big increase in pumping in Westlands

1 Water District as a result of the supply, the supply shortages
2 they're incurring. That pumping is exceeding the safe yield.
3 Water level has fallen dramatically.

4 The water level for subsidence, once the confined
5 water level falls below the historic low level, then that
6 triggers subsidence. That has occurred on the west side.

7 And the Department of Water Resources went out and
8 did a precise survey along the line of the aqueduct in January
9 2009. What they found was that they had two spots on the
10 aqueduct where there was six inches of subsidence, which
11 probably was occurring just before the survey happened because
12 there wasn't that much pumping, you know, the survey was from
13 the -- the previous survey was beginning at 2006. 2006 was a
14 fairly good water year. 2007, not so bad. 2008 was pretty
15 bad. And so they had initiated subsidence there.

16 And with the high amounts of pumping in 2009 and high
17 amounts of pumping there this year, we're likely to have a lot
18 more subsidence. We've worked with the department to get the
19 department to have the US Geological Survey go out and analyze
20 the subsidence. They're going to be doing some satellite
21 surveys of that because it's -- we're likely to be having a
22 lot of subsidence now and we need to have some means for
23 getting current information on that.

24 Q. And if there were subsidence in the -- in the aqueduct or
25 the lining of the aqueduct, would that have any potential

1 public health and safety impacts during an earthquake or --
2 A. Well, the subsidence on the aqueduct, that does affect
3 capacity. Unless you do some remediation. So six inches is
4 not crippling, but there's been several -- you know, there's
5 been up to 30 feet of subsidence in Westlands in the past.

6 And we -- if we get back in a situation where we're
7 looking at feet of subsidence, then that's going to start
8 affecting the water levels in the aqueduct, that will affect
9 the flow rates in the aqueduct. That could require some
10 construction, some remediation. The more subsidence there is,
11 the more the cost of remediation. You have to do a canal line
12 and you have to do bridge raising potentially. A lot of other
13 factors. So we hope not to have to cross that bridge, but we
14 may be there before long.

15 Q. Okay. Mr. Erlewine, let me turn your attention to Mr.
16 Feyrer's testimony. Did you review the transcript of Mr.
17 Feyrer's testimony from yesterday?

18 A. Yes, I did.

19 Q. I'd like to read you a question from the transcript. And
20 this is at page 24, line 22.

21 The question is: "If rice farmers along the
22 Sacramento River, Mr. Feyrer, change their practices
23 and began to divert water and hold it for rice straw
24 decomposition purposes with the result that less
25 water flowed down the Sacramento River in the fall

1 months, wouldn't that have an impact on the location
2 of X2 historically?"

3 And the answer is a few lines down from there
4 starting on page 25, line 11.

5 The response is: "I can speak to my knowledge of
6 Delta inflow versus Delta outflow and the patterns
7 that you see in the data are that Delta inflow over
8 this time period has changed relatively little
9 relative to Delta outflow."

10 Let me stop there first and ask you: Do you agree
11 with Mr. Feyrer's statement that the patterns that you see in
12 the data are the Delta inflow over this time period has
13 changed relatively little relative to Delta outflow?

14 A. No, I don't agree with that.

15 Q. Okay. Let me come back to that, the basis of that opinion
16 in a second, if I could.

17 The next part of the answer is starting again on page
18 25, line 14, is "So although I" -- this is Mr. Feyrer
19 speaking -- "would agree that removals of water for
20 the rice farmers would affect Delta inflow, it
21 appears that that would be relatively minor."

22 Do you agree with Mr. Feyrer's statement that
23 removals of water for the rice farmers -- and I assume he's
24 talking about the last 40 years, which is the period of time
25 that the biological opinion examined in terms of examining

1 this X2 issue.

2 Do you agree with Mr. Feyrer that removals of water
3 for rice farmers and -- would affect Delta inflow, but that
4 that impact would be relatively minor?

5 MR. EDDY: Object to the middle part of that
6 question. I'm not sure that fairly characterizes Mr. Feyrer's
7 testimony.

8 MR. ANDERSON: I'm happy to rephrase it.

9 THE COURT: The objection is sustained.

10 BY MR. ANDERSON:

11 Q. Do you agree with Mr. Feyrer's answer, Mr. Erlewine, that
12 quote "Removals of water for the rice farmers would affect

13 Delta inflow, it appears that that would be
14 relatively minor," end quote.

15 Do you agree with that statement?

16 A. I don't agree that it would be relatively minor. I do
17 agree that it would affect inflows.

18 Q. And why is that? What's the basis of your opinion?

19 A. Well, in looking at the State Water Project records in
20 particular, there's increase of a few hundred thousand acre
21 feet of diversions to rice growers in the Feather River
22 Service area. There's been some increase for other
23 contractors throughout the Sacramento Valley.

24 Starting in the mid '90s, the rice growers were
25 subject to elimination of their rice burning practices. And

1 so they had to -- they switched over to flooding in the fall
2 to provide for decomposition of their rice.

3 So, yes, I've seen on the state project, that there's
4 been -- in the Feather River Service area in particular, been
5 a couple hundred thousand acre foot increase in water use in
6 the fall for that purpose.

7 Q. Have there been any other activities upstream of the Delta
8 that have impacted the amount of inflow into the Delta when
9 you compare the period -- the 20 year period before 1985 as
10 opposed to the 20 year period after 1985?

11 A. Well, there's a number of factors that are occurring.
12 There's a number -- there's increased development, increased
13 water use in the Sacramento Valley. That affects the inflow
14 into the Delta.

15 There's new reservoirs coming online. There's
16 several new reservoirs coming online prior to the mid '80s.
17 Most recent was New Melones. But there were several other
18 reservoirs. New Don Pedro, New Bullards Bar, New Exchequer
19 Reservoir that all affected flows in the valley.

20 And in addition to that, there was some practices
21 like at Lake Oroville in 1983, there was an agreement with the
22 Department of Fish & Game to provide a set amount of flows for
23 releases from the Feather River. That affected upstream
24 operations. We've got the Trinity River Restoration Program.
25 That reduced diversions from the Trinity River into Shasta.

1 So there's just a whole host of factors that are at play.

2 Q. Can I ask you to take a look at Exhibit 922.

3 A. Yes.

4 Q. Can you explain what's shown on that exhibit?

5 A. Well, it enumerates the -- or it lists many of the factors
6 that I talked about just now that have affected water
7 management in the Sacramento Valley in particular. As well as
8 water use generally. So I've really gone through a lot of
9 those. Population increases, new reservoirs like Los Vaqueros
10 coming online --

11 Q. Would it be helpful -- I'm sorry to interrupt -- if I put
12 up a map and you can point out where these reservoirs are?

13 A. Um.

14 Q. I have one here.

15 A. That's all right.

16 Q. Okay.

17 A. Okay. Yeah.

18 Q. Okay. May I approach the witness, Your Honor?

19 THE COURT: Yes, you may.

20 MR. ANDERSON: I have a document marked Exhibit 940.
21 I'd like to put this up on the Elmo, Your Honor. I'm not sure
22 if it's on. Oh, yes, it is.

23 THE CLERK: Counsel, are you trying to zoom in?

24 MR. ANDERSON: Yeah, just press on the plus. Thank
25 you, that's good.

1 Q. Can you explain what this map shows, Mr. Erlewine?

2 A. This map shows the Sacramento Valley and basically pretty
3 much most of northern California.

4 Q. And on this Exhibit 922, you have a lot of what appears to
5 be new reservoirs that have come online. Can you point out on
6 the map and I think, if I'm remembering, you can put your
7 finger on the screen there and point out where some of these
8 reservoirs are. Some of the bigger ones in particular. Other
9 than we know where Oroville is, but --

10 A. Okay. Well, one of the other ones that's big is New
11 Bullards Bar, which is right there. And then the other ones
12 down here don't show up as well. New Exchequer is down here.
13 New Don Pedro is down here. New Melones is down here. They
14 don't have Los Vaqueros on here, but it's down here right by
15 Contra Costa's pumping plant.

16 And so that would give you a feel for where some of
17 these facilities are.

18 Q. And are these the facilities where you put a red dot, are
19 those facilities of the Central Valley Project or the State
20 Water Project?

21 A. New Melones was a Central Valley Project facility. The
22 other reservoirs, the other facilities are not State Project
23 or CVP.

24 Q. Did the construction and initial operation and continued
25 operation of these reservoirs have any impact on the amount of

1 inflow reaching the Delta?

2 A. It can reduce the amount of inflow reaching the Delta.

3 Q. Thank you.

4 MR. ANDERSON: Your Honor, I'd like to introduce
5 Exhibit 922 into evidence.

6 THE COURT: Any objection?

7 MS. POOLE: Objection, Your Honor. It's highly
8 misleading. The title of this is "Project and non-project
9 activities upstream of the Delta impacting Delta inflow."

10 There's population numbers, I assume those aren't
11 project or non-project activities upstream of the Delta. This
12 indicates that New Melones Reservoir is non-project. It just
13 appears to be misleading and incorrect.

14 BY MR. ANDERSON:

15 Q. Did you prepare this document, Mr. Erlewine?

16 A. Yes, I did. And the New Melones is, in fact, incorrect,
17 that should be a project reservoir.

18 Q. Oh, okay. Other than that, does this exhibit serve a
19 demonstrative purpose? Does it help explain your testimony?

20 A. Yes, yes.

21 THE COURT: All right. It will remain marked for
22 identification as an illustrative exhibit.

23 MR. ANDERSON: Thank you, Your Honor.

24 Q. Mr. Erlewine, I'd like to now turn back to the other part
25 of the question and answer from Mr. Feyrer's testimony that I

1 read to you earlier. And if I could just repeat the answer
2 that he gave regarding the Delta inflow issue. He stated --
3 again, this is on page 25 at line 11.

4 "I can speak to my knowledge of the Delta inflow
5 versus Delta outflow. And the patterns that you see
6 in the data are that Delta inflow over this time
7 period has changed relatively little relative to
8 Delta outflow."

9 Now, I'd like you to assume for purposes of my
10 question that the period or pattern that Mr. Feyrer is
11 speaking to is this comparison between the pre-1985 period,
12 the 20 years prior. So from 1967 or so to 1985, versus the
13 1986 to 2005 or '6 period that's the basis of the RPA action
14 three in the biological opinion.

15 With that assumption in mind, do you agree with Mr.
16 Feyrer's statement?

17 A. No. I don't. I looked at it and there's about a 1.7
18 million acre feet of difference in outflow from the 20 years
19 prior to 1985 compared to the 20 years post 1985.

20 About 1 .1 million acre feet of that was due to
21 differences in Delta inflow. There was a portion of the
22 difference due to exports, but the biggest portion of the
23 change in outflow was a result of decreased Delta inflows.

24 Q. So just so I understand, are you stating that in the
25 pre-1985, in that 20-year period, there was more Delta inflow

1 during that 20 years than there were in the subsequent 20
2 years?

3 A. Yes, there was.

4 Q. How did you determine that?

5 A. Well, what I did was I started by looking at Dayflow data,
6 summarized that for the fall, September through November,
7 accumulated that, compared that to exports, compared outflow,
8 looked at the various sources of inflow in Dayflow, and then
9 to actually complement that, actually even looked upstream
10 of -- on the Sacramento River since there's -- that's the
11 primary water supply for Delta inflow. And I was particularly
12 interested in that.

13 So I looked at the releases from Shasta, releases
14 from Oroville, releases from the Nimbus Dam. And then also
15 flow on the Eel River at Marysville.

16 Q. When you say you looked at the Dayflow data, is that the
17 same Dayflow data that is used and referenced in the
18 biological opinion?

19 A. It's the standard Dayflow data, Dayflow data from the
20 database that the Department of Water Resources maintains
21 that's used for all kinds of normal water allocation or water
22 supply analysis.

23 Q. And if I understood you correctly, what you stated was
24 that during this earlier 20 year period, as compared with the
25 later 20 year period, there was a reduction of, did I

1 understand, 1.7 million acre feet of Delta outflow heading out
2 to the Golden Gate?

3 A. Right.

4 Q. Difference?

5 A. Right.

6 Q. So did that mean it was wetter in the earlier period or in
7 the later period?

8 A. It was wetter in the earlier period. So in the earlier
9 period, there was much more outflow occurring.

10 And part of that, as I said, was due to there's an
11 increase in exports in the later period. That accounted for
12 about 32 percent of the difference. The remaining portion of
13 the difference was a reduction in Delta inflows.

14 Q. And does this -- just so I understand correctly. The 1.1
15 million acre feet out of that 1.7, you're saying, is a change
16 in Delta inflow during that period; is that right?

17 A. Yes.

18 Q. And does the amount of Delta inflow have any kind of
19 impact on the location of X2 in fall?

20 A. Well, the outflow is the factor that affects the X2
21 location. And so if there's more Delta inflow and the same
22 amount of exports, then that would affect the X2 location, it
23 would increase the outflow. Not to say that all of that
24 inflow would have continued as outflow, but likely a
25 substantial amount of it would.

1 Q. And do I understand correctly that what you said was that
2 of this 1.7 million acre feet of reduction in Delta outflow
3 during the later 20 year period, as opposed to the pre-1985
4 period, of that 1.1 million acre feet was, by your analysis,
5 and by the Dayflow data or under the Dayflow data,

6 attributable to reductions in Delta inflow from upstream?

7 A. Right. It was -- and in taking that further, looking at
8 where that occurred, a significant part of it occurred from
9 the upstream reservoirs, a significant part of it occurred
10 within the Sacramento Valley, which reflects things like the
11 rice straw decomposition, the diversions for that.

12 Also reflects that there was significantly higher
13 unimpaired flows during that earlier period. So there was
14 this -- there was an anomalously high period of unimpaired
15 flows in the fall for the period 1966 to 1985, for about 20
16 years.

17 Q. Is it --

18 A. Those compared to later periods.

19 Q. I'm sorry. Is it possible to calculate, in terms of
20 kilometer effect on the location of fall X2, this 1.1 million
21 acre feet? Is there a way to do some calculation and figure
22 out what the impact of that reduced inflow would be?

23 A. Well, it's a hypothetical. If you had 1.1 million acre
24 feet additional outflow and you were starting with the X2
25 location at 87, then that would move the X2 location out about

1 11 kilometers. So it would take you from 87 down to 76.

2 Q. And did I understand you correctly to testify that this
3 Delta inflow in, I think you called it, Sacramento Valley
4 runoff or accretion or --

5 A. Yeah.

6 Q. Are those activities that are largely uncontrolled by the
7 projects?

8 A. The Sacramento Valley accretions in particular are outside
9 of the control of the projects for the most part. They
10 reflect local runoff from streams like Deer Creek and Mill
11 Creek and unregulated streams. They also reflect the changes
12 in land use practices.

13 Q. Thank you. So based upon this analysis of the Dayflow
14 data you just described, have you drawn any conclusions about
15 the effects of project operations on the change of the
16 location of X2 in the fall months from the post 1985 period as
17 compared with the pre-1985 period?

18 A. Well, what I've concluded is that the -- it looks like the
19 single biggest factor was the reduction in Delta inflow,
20 which, as it turns out, is very, very correlated with the
21 unimpaired flow for those months.

22 So for the months of September through November, it
23 turns out that the -- that 20 year period, 1966 through 1985,
24 there's about a 1.1 million acre foot higher unimpaired flow,
25 which is the natural flow that would have occurred in the

1 absence of dams and reservoirs and so on.

2 So there was about a 1.1 million acre feet reduction
3 in the flows coming into the system for that 20 year period
4 compared to the period subsequent. That seems to be probably
5 the biggest driver of the changes in Delta inflow.

6 And then another factor that you have is if you had
7 an increase in pumping post 1985, that accounted for about 32
8 percent of the reduction. So about 500,000 acre feet of the
9 change was from increased pumping. 1.1, 1.2 million acre feet
10 from changes in Delta inflow and changes of use within the
11 Delta.

12 Q. So is it your testimony that this change in fall X2
13 location when comparing these two 20-year periods, that the
14 primary driver of that change is these Delta inflows that are
15 not controlled by the projects?

16 A. A big driver was the Delta inflows that weren't controlled
17 by the projects.

18 MR. ANDERSON: Thank you, Your Honor. I have no
19 further questions.

20 THE COURT: Does any other plaintiff have questions
21 for Mr. Erlewine?

22 MR. WEILAND: No questions, Your Honor.

23 THE COURT: Cross-examination.

24 I may be missing something here. But if
25 approximately 1.1 million acre feet of this change in Delta

1 inflow are unattributable to the project's operations, is
2 there a reason that the plaintiffs presented that?

3 MR. ANDERSON: Yes, Your Honor. The underlying
4 proposition for the RPA action is to offset the impacts that
5 are purportedly attributable to the projects. So that's why
6 the fall X2 location is under the above normal and wet years
7 in the fall to be pushed downstream.

8 And the underlying purpose of Mr. Erlewine's
9 testimony is that the change in fall X2 location between this
10 earlier 20 year period and the later is two-thirds driven by
11 non-project related activities. And so I think he also
12 testified that the exports only control about less than a
13 third of that change. So having --

14 THE COURT: What I'm missing is assuming that to be
15 the case, and if the reduction in inflows is not equated or
16 balanced with outflows and X2 needs to be moved downstream,
17 even though there are other causes, it still needs to be done.
18 And what are the alternative means to do it?

19 MR. WILKINSON: Your Honor, you may remember from
20 some of the questions earlier in the week and late last week,
21 that X2 was -- the change in X2, one of those graphs that had
22 the lines up at the top and then a dark line that trailed
23 toward the bottom, was purported to show the change in
24 location of X2 due to the operations of the Central Valley
25 Project and State Water Project. And it was estimated to be

1 roughly a ten kilometer change in location comparing CALSIM
2 data to historic data.

3 The problem with that comparison is that the use of
4 historic data has the effect of attributing to the projects
5 and their operations all of these factors that have occurred
6 upstream, including changes in precipitation, changes in the
7 location or the construction of upstream reservoirs, changes
8 in cultural practices for farming. Many of which are
9 completely unrelated to the projects and their operations.

10 But under the provisions of the BiOp, the projects
11 are saddled with all of that impact. And X2 is imposed on the
12 projects for the purpose of attempting to recover, if you
13 will, this historic change in location of X2 ten kilometers
14 more upstream.

15 Our point is that the BiOp makes a very serious error
16 in doing so because it attributes to the projects things that
17 have happened that are non-project related. And there's no
18 distinction being made.

19 That's the basic problem, or one of the basic
20 problems with the use of historic data and comparing historic
21 data to CALSIM, which assumes a constant level of development.
22 When you use historic data, the level of development changes
23 year to year to year.

24 And then by concluding, through this comparison of
25 CALSIM data to historic data drawn from the Dayflow record,

1 the effect of that comparison is to shove on to the projects
2 the entire burden of the change in X2 so that they are then
3 held responsible for it even though, as Mr. Erlewine has just
4 testified, about two-thirds of that change is due to
5 non-project occurrences.

6 THE COURT: All right. And what -- are you prepared
7 to show what alternative resources there are to address the
8 change?

9 MR. WILKINSON: Well, we have shown that, we think,
10 to begin with, that X2 is unrelated to the welfare of the
11 smelt given the low abundance that exists with regard to the
12 smelt. It's a habitat measure and its purpose is designed to
13 provide sufficient suitable habitat for the smelt.

14 The difficulty is -- and I believe what we learned
15 from questions that were asked of Mr. Feyrer, is that there's
16 no indication in the biological opinion or the administrative
17 record that the locations for X2 that are provided for as part
18 of the reasonable and prudent alternative are related to the
19 prevention of jeopardy to the continued existence of the
20 species.

21 So our proposal is that X2 be eliminated. And, in
22 fact, the biological opinion, you may recall, treated X2 as a
23 hypothesis, a test, if you will, that was to be reviewed at
24 the end of ten years by the Fish & Wildlife Service. Their
25 review would be subject to a further peer review.

1 And based on that, the whole X2 concept might be
2 terminated. That's provided for in the biological opinion.
3 So at bottom, what we're dealing with here, we believe, is a
4 hypothesis for which there is no best available scientific
5 data to support it.

6 We are dealing with a hypothesis that is unconnected
7 to the jeopardy condition or the prevention of jeopardy to the
8 Delta smelt, and ultimately a hypothesis that is grounded upon
9 an invalid comparison of model data, CALSIM data to historic
10 data, the effect of which is to attribute to the projects a
11 variety of things that have no relationship to the projects.

12 So at bottom, I guess, the bottom line for us, is
13 that there's no basis for X2. It costs an enormous amount of
14 water. It has no guarantee at all that it will do anything
15 for the smelt. And, in fact, given the low levels of
16 abundance that currently exist, it isn't needed.

17 THE COURT: All right. Thank you.

18 MR. SHAPIRO: Your Honor, I would just note for the
19 record that as we previously objected to, X2 is not before the
20 Court as part of this preliminary injunction. Plaintiffs have
21 moved with respect to Components I and II, which end in June.
22 That does not include the X2 action.

23 THE COURT: Yes. Well, let me ask that last question
24 of Mr. Wilkinson then.

25 Because you are not offering or requesting that there

1 be a modification or an elimination of this requirement,
2 because it is neither IV.2.1 or IV.2.3, I recognize that you
3 do suggest that this RPA for X2 is not based on the best
4 available science and/or maybe arbitrary and capricious.

5 But if it's unrelated to the remedies you seek in the
6 injunctive proceedings, why are we addressing it?

7 MR. WILKINSON: I think what we are addressing, Your
8 Honor, is the likelihood of prevailing on the merits of this
9 case. We have a very substantial portion of this biological
10 opinion that is wrapped up in this issue of X2. And one of
11 the requirements, at least as I understand it, is that we have
12 an obligation to establish the likelihood of prevailing on the
13 merits.

14 I believe the X2 issue is an extremely clear example
15 of the defects in this biological opinion and is one of the
16 clearest examples, I think, of why we will ultimately prevail
17 on the merits of this case.

18 THE COURT: Thank you very much. You may proceed,
19 Mr. Shapiro.

20 MR. SHAPIRO: Thank you, Your Honor.

21 CROSS-EXAMINATION

22 BY MR. SHAPIRO:

23 Q. Mr. Erlewine, allocation decisions for the Central Valley
24 Project and the State Water Project are not -- are based on
25 more than just the implementation of these two biological

1 opinions; correct?

2 A. Yes.

3 Q. In fact, even without the implementation of biological
4 opinions, water deliveries in the State Water Project and
5 Central Valley Project would have been severely decreased?

6 A. Yes. The state project allocation is 20 percent. That
7 probably would have been 30 percent, which still is not
8 something to -- you know, it's still not a great allocation.

9 Q. And at least one of those reasons is that 2009 was the
10 third consecutive dry year.

11 A. Yeah. That -- it was a dry year. However, we -- State
12 Project had several hundred thousand acre feet of impacts in
13 2009 as well. So we're getting ten percent impacts last year
14 as well as this year. That adds up.

15 Q. And another reason that's impacting the allocation
16 decisions for this year is that 2007, 2008 was the twelfth
17 driest year on record in the central and northern Sierras?

18 A. Yes.

19 Q. That hydrology, independent of the biological opinions,
20 decreased water supplies in California.

21 A. Yeah, that's why we would have just been at 30 percent.

22 Q. In addition, regulations that the State Water Resources
23 Control Board imposed on the State Water Project to ensure the
24 beneficial uses in the Delta also severely decreased water
25 supplies in California.

1 MR. ANDERSON: Objection. Vague as to which State
2 Board decisions he's talking about.

3 BY MR. SHAPIRO:

4 Q. Are you aware of State Board decisions which --

5 THE COURT: The objection is sustained.

6 MR. SHAPIRO: Thank you.

7 Q. Are you aware of State Board decisions that impacted --

8 A. Yes, I am. Water Rights Decision 1641 is the primary one.

9 Q. And that has decreased water supplies in California with
10 respect to the State Water Contractors; correct?

11 A. Yeah, it affects our water supply, yes.

12 Q. Mr. Erlewine, you've mentioned during your direct
13 examination that the farmers, in particular, rely on the early
14 allocations that are made by the Department of Water
15 Resources.

16 A. Yes.

17 Q. I'd like to show you what has previously been marked as
18 State Water Contractor Exhibit 923.

19 MR. ANDERSON: Counsel, are you certain about the
20 exhibit number? I thought it was 90 -- I don't believe it's
21 923.

22 MR. SHAPIRO: I believe 923 was Mr. Erlewine's
23 declaration, the 12-7-09 declaration. What I'm showing is the
24 Exhibit B to that declaration.

25 MR. ANDERSON: Oh, okay. Thank you.

1 BY MR. SHAPIRO:

2 Q. Mr. Erlewine, do you recognize this document?

3 A. Yes, I do.

4 Q. And what is this document?

5 A. This is the initial water supply allocation announcement
6 for 2010 from DWR.

7 Q. And it's dated November 30th, 2009. Was this the first or
8 the initial water allocation that DWR made?

9 A. Yes. It was.

10 Q. And what was the initial allocation made on November 30th?

11 A. The initial allocation was five percent.

12 Q. If you could turn to the second page of this document,
13 B-2. You mentioned Table A request made by the State Water
14 Contractors.

15 A. Yes.

16 Q. Is that reflected in the second column, the 4,171,996?

17 A. Yes, it is.

18 Q. That's -- and the request that was made by the State Water
19 Contractors was for the full amount set forth in Table A?

20 A. For most contractors, if not all.

21 Q. Okay. If you could turn back to the first page.

22 The allocation decision that was made in November
23 30th, 2009 is explained in the -- the rationales for this
24 decision are explained on the first page; is that correct?

25 A. Yes, they are.

1 Q. And I'd like to draw your attention to the third
2 paragraph. What it states there is that "Hydrologic
3 conditions this year resulted in a dry water year in
4 both the Sacramento and San Joaquin regions. This is
5 the third consecutive year when hydrologic conditions
6 in both the Sacramento and San Joaquin regions were
7 dry or critically dry. Consequently, project storage
8 conditions going into the 2010 water year are far
9 below average."

10 Do you agree with that statement?

11 A. Yes.

12 Q. I'd like to turn your attention now to another document.
13 This is Exhibit C to State Water Contractor Exhibit 923.

14 Mr. Erlewine, am I correct that this is an allocation
15 analysis similar to the March allocation analysis that you
16 discussed?

17 A. Yes, it is.

18 Q. And this is showing, am I correct, a 50 percent exceedence
19 and a 90 percent exceedence?

20 A. Yes, it is. Yes, it does.

21 Q. I want to draw your attention to the 90 percent
22 exceedence. And on the far right side, the last column there
23 is labeled "Possible Table A percentage."

24 A. Yes.

25 Q. That, if I'm correct, is showing what the allocation

1 percentage would have been for State Water Contractors under
2 these various assumed criteria.

3 A. It shows the raw analysis of what the numbers come out to
4 be. The department uses some discretion on this. So
5 sometimes they round up or down. Typically they go in
6 increments of five percent.

7 Q. So looking at the fourth criteria down from the top, it's
8 90 percent exceedence, 90 percent fall D-1641.

9 A. Yes.

10 Q. Do you see that?

11 A. Yes.

12 Q. And if you go all the way over to the right, it says
13 "Possible Table A percentage, 17 percent."

14 A. Right.

15 Q. Am I correct that had D-1641 been in place and the
16 biological opinions had not been in place, that, at least
17 according to this, the State Water Contractors would have been
18 looking at approximately 17 percent initial allocation?

19 A. Likely it would have been 15 percent or 20 percent. One
20 or the other. And in any case, it would have been 10 percent
21 to 15 percent more than the initial allocation that we got, so
22 it would have been, you know, more than double what the
23 initial allocation was.

24 Q. But at least at the initial allocation, it might have been
25 as low as 15 percent?

1 A. Likely, yeah.

2 Q. Okay.

3 A. Which would have been three times what the initial
4 allocation actually was.

5 Q. Right. But it's -- just so I'm clear, it's still 15
6 percent.

7 A. Right.

8 Q. All right. Now, the Department of Water Resources then
9 modified this allocation announcement at a later date;
10 correct?

11 A. Yes.

12 Q. And that's the usual practice; is it not?

13 A. Yes. They look at the 90 percent allocation and then they
14 make revisions to the allocations whenever there is an
15 assurance that the water supply is going to be there.

16 Q. Is that typically done every month after the initial
17 allocation?

18 A. They usually look at water supply conditions after the
19 first of the month when they get new snow survey information.
20 Sometimes they make more -- more current revisions if there's
21 some big snow event or big rain event.

22 Q. It's not at all unusual, is it, for the initial allocation
23 to be low and then subsequent allocations to get larger?

24 A. It's the expectation that allocations will increase over
25 time.

1 Q. Is it typically the case that the initial allocation will
2 be the lowest?

3 A. Usually that's the case. Because they make a very
4 conservative allocation initially. You know, you
5 got -- you're 90 percent likely that things are going to be
6 better than what their initial allocation is, so there's a
7 really good chance that things are going to get better.

8 MR. SHAPIRO: Your Honor, I move the admission of
9 these two documents. These are Exhibits -- the one we're
10 looking at now is Exhibit C to --

11 THE COURT: Any objection?

12 MR. ANDERSON: No objection to these two exhibits,
13 but not -- we would not concur with the introduction of the
14 entire declaration. I don't think you're doing that.

15 MR. SHAPIRO: I'm not.

16 THE COURT: No. He's moved Exhibit 923 and it's
17 Exhibit B-2 and Exhibit C. And so these are -- they may be
18 seen by some human eyes, but not by mine. These Bates numbers
19 will reflect the exhibit pages.

20 MR. SHAPIRO: Thank you, Your Honor.

21 Q. Mr. Erlewine, I want to show you what has been previously
22 marked as State Water Contractor Exhibit 904.

23 Mr. Erlewine, do you recognize this document?

24 A. Yes, I do.

25 Q. And what is this?

1 A. This is the February State Project water supply
2 announcement.

3 Q. Was this the next allocation announcement that DWR made
4 after the November 30th, 2009 announcement?

5 A. I'm pretty sure it was.

6 Q. All right. And can we just look at the first page. Does
7 the text on this first page explain the basis for DWR's
8 updated allocation?

9 A. Yes, it refers to the biological opinions for Delta smelt,
10 salmon and other factors.

11 Q. Right. Some of those other factors, for example, are the
12 existing storage in SWP conservation reservoirs?

13 A. Yes.

14 Q. Is that because the storage had improved by this time? As
15 compared to the November time.

16 A. There was some improvement in storage, but not a huge
17 amount.

18 Q. And looking at the second page of this document, what was
19 the November -- the February 23rd, 2010 allocation?

20 A. It was 15 percent.

21 Q. I want to turn your attention now to what has been -- oh,
22 Your Honor, I move for the admission of Exhibit 904.

23 THE COURT: Any objection?

24 MR. ANDERSON: No objection.

25 THE COURT: 904 is received in evidence.

1 (SWC Exhibit 904 was received.)

2 BY MR. SHAPIRO:

3 Q. Mr. Erlewine, this next document is State Water Contractor
4 Exhibit 905.

5 Mr. Erlewine, do you recognize this document?

6 A. Yes, I do.

7 Q. This appears to be a February 22nd, 2010 document prepared
8 in the Water Operations Committee meeting?

9 A. Right. It was prepared by the Department For the Water
10 Operations meeting.

11 Q. Is this similar to the March 2010 document that we looked
12 at during your direct examination?

13 A. It's a similar format. It's just one month prior to that,
14 so it has drive hydrologic information.

15 Q. I'd ask you to turn seven pages in, if you could.

16 A. Okay.

17 Q. To the allocation analysis for 2010, which should be a
18 table that looks similar to the other tables we've seen.

19 A. Right.

20 Q. Do you see that?

21 A. Yes, I do.

22 Q. The table here follows the same format of the other tables
23 that we've seen before; correct?

24 A. Yes, it does.

25 Q. And I want to draw your attention to the last four

1 categories here. The one fourth from the bottom is the 90
2 percent exceedence for D-1641.

3 A. Right.

4 Q. And the possible Table A percentage, assuming D-1641 was
5 in place, am I correct that that would have been 20 percent?

6 A. Right. It would have been 20 percent as opposed to the 15
7 percent that was actually allocated.

8 Q. All right. Was the February 23rd, 2010 allocation
9 decision based on the 90 percent exceedence forecast?

10 A. Yes. They all are. Primarily.

11 Q. So if I understood your testimony correctly, rather than a
12 15 percent allocation, it would have been a 20 percent
13 allocation had D-1641 been in place?

14 A. Right.

15 Q. And just so I'm clear, that is if D-1641 were in place
16 from the beginning of the calendar year; correct?

17 A. Yes, for -- D-1641 in place for the whole time they did
18 the study, so they have analysis going back to December. We
19 would have looked at actuals.

20 Q. What I mean is has DWR -- in considering the 1641
21 analysis, does DWR, on February 1st, 2010, when they're
22 putting this table together, just look at a snapshot in time
23 as of that moment, and then assume that D-1641 applies from
24 that point forward? Or is DWR assuming that 1641 would have
25 applied in the beginning of the calendar year and then

1 evaluate what the allocation would have been?

2 A. No, I believe it's the -- they just take it going forward.

3 Q. I want you to look at the SWP Banks PP exports on the
4 1641, 90 percent exceedence. It's very small type.

5 A. Yeah. No, I was wrong on that. Looks like they go back
6 and do it retrospectively also.

7 Q. And so could you clarify what you mean by that?

8 A. Let's see. So they have the actual Banks Pumping Plant,
9 the Banks Pumping Plant capacity is larger in January and
10 February than it is -- for the D-1641 than it is for the
11 other -- with the OCAP restrictions in place.

12 Q. And the fact that it is -- the exports are larger under
13 the D-1641 criteria is larger than under the biological
14 opinion criteria, what does that tell you about the
15 assumptions that go into this?

16 A. I'm not sure I understand what you mean.

17 Q. Well, the fact that the SWP Banks exports are larger in
18 January --

19 A. Right.

20 Q. -- under the 1641 assumption. What does that tell you
21 about the assumptions being made for purposes of this 1641
22 allocation estimate?

23 A. They go back and compute a base case here of what the
24 allocations would have been so that it looks like it's
25 operating to -- for the entire period what D-1641 would have

1 allowed you to operate.

2 Q. Okay. And that's different than what you testified to
3 earlier; correct?

4 A. Yeah. I had that wrong earlier. I never looked at that
5 exact kind of question.

6 Q. Are you just finding that out for the first time right
7 now?

8 A. I have never looked at that part of it before.

9 Q. Okay.

10 A. I mean, we look at these every month when they come out.
11 We talk about them with the department.

12 Q. Okay. Just so the record is going to be clear. The 1641
13 analysis that's set forth in this document is assuming that
14 1641 controls from the beginning of the calendar year until
15 the end of the calendar year; is that correct?

16 MR. ANDERSON: Objection. Asked and answered.

17 THE COURT: Sustained.

18 MR. SHAPIRO: Thank you. Your Honor, I'd move the
19 admission of State Water Contractor Exhibit 905.

20 THE COURT: Any objection?

21 MR. ANDERSON: No objection.

22 THE COURT: 905 is received in evidence.

23 (SWC Exhibit 905 was received.)

24 MR. SHAPIRO: I want to show you how what has been
25 previously marked in evidence as 906.

1 Q. Mr. Erlewine, do you recognize this document?

2 A. Yes, I do.

3 Q. And what is this?

4 A. It's a press release from the department saying that
5 they're keeping allocation at 15 percent.

6 Q. All right. At this time, are you aware of whether the
7 Central Valley Project had increased its allocation at some
8 time in March?

9 A. Yes. The Central Valley Project did increase its
10 allocation.

11 Q. And do you understand this press release to be an
12 explanation of why the State Water Project and DWR were not
13 increasing the State Water Project allocations?

14 A. Yes. That's basically the case.

15 Q. All right. In the first sentence of this document, it
16 states, "Although the Central Valley Project today increased
17 its water delivery allocation, the Department of
18 Water Resources is unable at this time to increase
19 allocations."

20 A. Yes.

21 Q. In the third paragraph down, it states that "Poor
22 hydrologic conditions in the Feather River watershed
23 which feeds into Lake Oroville is preventing DWR from
24 raising the current 15 percent allocation for 2010
25 SWP deliveries at this time."

1 Did you understand that to be the DWR's explanation
2 for why it was not increasing allocations?

3 A. That was a partial explanation. They did have the water
4 supply losses that had occurred to date, so that would also be
5 a factor that I would consider.

6 Q. You discussed Lake Oroville in your direct examination.
7 And testified that Lake Oroville is a low storage currently;
8 is that correct?

9 A. Yes, it is.

10 Q. And Lake Oroville remains low today; correct?

11 A. It's come up to 1.7 million acre feet.

12 Q. The low reservoir level at Lake Oroville is not due to
13 State Water Contract -- or DWR allocation announcements; is
14 that correct?

15 A. No, it isn't.

16 Q. That's something that has nothing to do with the
17 biological opinion?

18 A. Right. The storage upstream is independent. The effect
19 of the biological opinion is the effect on reduced Delta
20 exports of about ten percent.

21 Q. Continuing on with State Water Contractor Exhibit 906.
22 The next sentence begins that "The CVP has substantially more
23 water in storage than the SWP, largely due to this
24 winter's precipitation patterns."

25 Do you agree with that?

1 A. Yes, I do.

2 Q. And that would explain, for example, why Lake Oroville was
3 at such a low storage?

4 A. Yeah. Yes, that does.

5 MR. SHAPIRO: Your Honor, I move for the admission of
6 State Water Contractor Exhibit 906.

7 THE COURT: Any objection?

8 MR. ANDERSON: No objection.

9 THE COURT: 906 is received in evidence.

10 (SWC Exhibit 906 was received.)

11 BY MR. SHAPIRO:

12 Q. Mr. Erlewine, I want to turn now to State Water Contractor
13 Exhibit 907, which should already be in front of you.

14 A. Okay.

15 Q. On direct, you -- you talked about page 7 of this
16 document. And I just want to draw your attention to that
17 again. This is the allocation analysis for March 1st, 2010.

18 A. Yes.

19 Q. Is that correct?

20 A. Yes, it is.

21 Q. The allocation that was determined for March, the 15
22 percent, that again was based on the 90 percent exceedence
23 forecast?

24 A. Right.

25 Q. And at least according to this document, the allocation if

1 D-1641 had been in place would have been 26 percent?

2 A. This shows the computation comes out to 26 percent. As I
3 said earlier, the department uses discretion on this and they
4 often times reflect what water supply conditions have changed.
5 And so that's not necessarily the absolute final number.

6 Q. Right. It may have been lower than 26 percent?

7 A. It may have been 25 percent, it may have been 30 percent.

8 Q. And again --

9 THE COURT: All right. We have reached the end of
10 the day. Let me now ask the parties what the status of this
11 application of the plaintiffs to present three witnesses?

12 And as I understand it, and I do have a question, as
13 to the two witnesses, except for Mayor Silva, who have
14 previously submitted declarations, is there going to be
15 non-cumulative non-repetitive testimony?

16 MS. DIEPENBROCK: That would be the intent, Your
17 Honor.

18 THE COURT: What's the status of the commander for
19 the Naval Air Station?

20 MS. DIEPENBROCK: Given the information that we have
21 received from the Navy, it doesn't look like we would be
22 calling him.

23 THE COURT: All right. What's your time estimate for
24 the direct of those two witnesses?

25 MS. DIEPENBROCK: Under 30 minutes total for -- so 15

1 minutes.

2 THE COURT: 15 minutes per witness.

3 MS. DIEPENBROCK: Yes, Your Honor.

4 THE COURT: All right.

5 MR. ORR: Your Honor, if I may.

6 THE COURT: Yes.

7 MR. ORR: In the papers that we received at 12:30
8 last night, there were only two witnesses identified. Robert
9 Silva and Captain James Knapp.

10 THE COURT: Knapp has been withdrawn, as I understand
11 it, because the Navy has made him unavailable.

12 MR. ORR: I thought someone had said "three
13 witnesses."

14 THE COURT: Well, the second witness was the Mayor
15 Sablan, but she's not available.

16 MS. DIEPENBROCK: That's my understanding, that she's
17 not available.

18 THE COURT: Who is the second witness?

19 MS. DIEPENBROCK: It's Silva, Your Honor.

20 THE COURT: There's only one witness.

21 MS. DIEPENBROCK: There's only one at this point.

22 MR. ORR: That clarifies my question.

23 THE COURT: There's one witness, it's Mayor Silva.

24 MR. ORR: Your Honor, if I could just give a status
25 report. It's my understanding that the federal defendants,

1 who obviously are better at doing things quickly than we, have
2 something on file in opposition. We hope to have something on
3 file within an hour or so of close of business. Maybe two
4 hours. So there will be papers.

5 I mean, we continue to oppose this as something --
6 having not heard about Mr. Silva or even heard his name in
7 this respect until yesterday. But that's where our -- we
8 should have an opposition brief on file very shortly.

9 THE COURT: Well then we'll resolve it first thing in
10 the morning.

11 MR. GOVINDAN: That's fine, Your Honor. Just to set
12 the record straight, I want to make clear. I don't believe
13 the Navy has made the witness unavailable. I believe they
14 sent a letter describing the parameters as to the scope of his
15 testimony. So the plaintiffs choose not to call him.

16 And we certainly voiced our objections to him being
17 called in our papers that we were able to file. We don't
18 believe it would be appropriate for the reasons set forth
19 therein.

20 THE COURT: All right. Well, I haven't seen it.

21 MR. GOVINDAN: Understand.

22 MS. DIEPENBROCK: Your Honor, I just want the record
23 to be clear. The Navy has so substantially limited the
24 testimony, that is why he would not be called. He's
25 physically available, but he is -- his testimony is so

1 substantially limited that it -- we don't consider it to be a
2 useful -- a good use of the Court's time to call him at this
3 point.

4 MR. GOVINDAN: And that's their choice, Your Honor.
5 It's simply that he would not be permitted to provide expert
6 testimony, et cetera.

7 THE COURT: All right. Well then we will now ask one
8 last question about logistics. We have three more witnesses?

9 MR. WILKINSON: My understanding, Your Honor, is that
10 the remaining witnesses are federal witnesses, are they not?

11 MR. GOVINDAN: That's correct.

12 MR. WILKINSON: There are two, I believe.

13 MR. GOVINDAN: There are three on calendar, Your
14 Honor. It's Dr. Lenny Grimaldo, Derek Hilts and Cay Goude.
15 We reserve our right not to call Derek Hilts. We are making
16 that determination this evening.

17 THE COURT: All right. Go ahead.

18 MR. GOVINDAN: I'm sorry, Your Honor. And I believe
19 the parties are going to talk amongst themselves or correspond
20 by email this evening to discuss time allocations for closing
21 arguments.

22 THE COURT: All right. Well then let's stand in
23 recess and we'll resume at 8:30 a.m.

24 (The proceedings were concluded at 6:04 p.m.)

25

1 I, KAREN L. LOPEZ, Official Reporter, do hereby
2 certify that the foregoing transcript as true and correct.

3
4 DATED: 05/28/2010

/s/ Karen L. Lopez
KAREN L. LOPEZ, RMR-CRR

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