

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

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PUBLIC HEARING
REGARDING WATER RIGHT APPLICATIONS FOR THE
DELTA WETLANDS PROJECT
PROPOSED BY DELTA WETLANDS PROPERTIES
FOR WATER STORAGE ON WEBB TRACT, BACON ISLAND,
BOULDIN ISLAND, AND HOLLAND TRACT
IN CONTRA COSTA AND SAN JOAQUIN COUNTIES

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HELD AT
901 P STREET
SACRAMENTO, CALIFORNIA
THURSDAY, JULY 24, 1997
9:25 A.M.

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TRANSCRIPT NOT SEQUENTIALLY NUMBERED

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Reported by:

MARY GALLAGHER, CSR #10749

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APPEARANCES
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BOARD MEMBERS:

JAMES STUBCHAER, HEARING OFFICER
JOHN CAFFREY
MARC DEL PIERO
MARY JANE FORSTER
JOHN BROWN

STAFF MEMBERS:

JAMES CANADAY
JAMES SUTTON
DAVID CORNELIUS

COUNSEL:

BARBARA LEIDIGH

DELTA WETLANDS PROPERTIES (APPLICANT):

ELLISON & SCHNEIDER
2015 H Street
Sacramento, California 95814
BY: ANNE J. SCHNEIDER, ESQ.
BARBARA BRENNER, ESQ.
and
JOSEPH NELSON, ESQ.

CENTRAL DELTA WATER AGENCY; RECLAMATION DISTRICTS 38,
2027, 2036, 2038, and 2072; M & T, INC.; CCRC Farms,
LLC.; and Palm Tract Farms:

NOMELLINI, GRILLI & MCDANIEL
235 East Weber Avenue
Stockton, California 95201
BY: DANTE JOHN NOMELLINI, ESQ.

NORTH DELTA WATER AGENCY:

DOWNEY BRAND SEYMOUR & ROHWER
555 Capitol Mall, 10th Floor
Sacramento, California 95814
BY: DAVID R. E. ALADJEM, ESQ.

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APPEARANCES
----oOo----

PACIFIC GAS & ELECTRIC:

RICHARD MOSS, ESQ.
P.O. Box 7442
San Francisco, California 94120

CALIFORNIA WATER AGENCIES:

JAMES ROBERTS, ESQ.
357 South Grand Avenue
Los Angeles, California 90071

CONTRA COSTA WATER DISTRICT:

BOLD POLISNER, MADDOW, NELSON & JUDSON
500 Ygnacio Valley Road, Suite 325
Walnut Creek, California 94596
BY: ROBERT B. MADDOW, ESQ.

EAST BAY MUNICIPAL UTILITY DISTRICT:

FRED S. EHTERIDGE, ESQ.
375 Eleventh Street
Oakland, California 94607

DIABLO WATER DISTRICT:

FREDERICK BOLD, ESQ.
1201 California Street
San Francisco, California 94109

CITY OF STOCKTON:

McDONOUGH HOLLAND & ALLEN
555 Capitol Mall, Suite 950
Sacramento, California 95814
BY: VIRGINIA A. CAHILL, ESQ.

BUREAU OF RECLAMATION:

OFFICE OF REGIONAL SOLICITOR
PACIFIC SOUTHWEST REGION
2800 Cottage Way
Sacramento, California 9585
BY: JIM TURNER

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APPEARANCES
----oOo----

DEPARTMENT OF WATER RESOURCES:

CATHY CROTHERS
1416 Ninth Street
Sacramento, California 95814

STATE WATER CONTRACTORS:

KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD
400 Capitol Mall, 27th Floor
Sacramento, California 95814
BY: CLIFFORD W. SCHULZ, ESQ.
and
MARY DIGNAN, ESQ.

DEPARTMENT OF FISH AND GAME:

NANCEE MURRAY, ESQ.
1416 Ninth Street, 12th Floor
Sacramento, California 95814

BAY INSTITUTE OF SAN FRANCISCO:

GARY BOBKER
625 Grand Avenue, Suite 250
San Rafael, California 94901

CALIFORNIA SPORTFISHING PROTECTION ALLIANCE/COMMITTEE TO
SAVE THE MOKELUMNE:

MICHAEL B. JACKSON, ESQ.
446 West Main Street
Quincy, California 95971

PETER M. MARGIOTTA:

PETER M. MARGIOTTA
122 Castle Crest Road
Walnut Creek, California 94595

AMADOR COUNTY:

BARTKIEWICZ, KRONICK & SHANAHAN
1011 Twenty-Second Street, Suite 100
Sacramento, California 95816
BY: ALAN B. LILLY, ESQ.

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APPEARANCES
----oOo----

DEPARTMENT OF TRANSPORTATION:

DEPARTMENT OF TRANSPORTATION
DISTRICT 10
1976 East Charter Way
Stockton, California 95201
BY:: DANA COWELL

KYSER SHIMASAKI:

KYSER SHIMASKAKI
4412 Mala Creek Circle
Stockton, California 95207

NATIONAL HERITAGE INSTITUTE:

DAVID FULLERTON
114 Sansome Street
San Francisco, California 94101

KEVIN WOLF:

KEVIN WOLF
724 N Street
Davis, California 95616

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THURSDAY, JULY 24, 1997, 9:00 A.M.

SACRAMENTO, CALIFORNIA

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HEARING OFFICER STUBCHAER: Good morning. We'll resume the Delta Wetlands Water Rights Hearing. The first item of business today will not be to continue with the cross-examination of DWR, but will be to hear from Delta Wetlands and Amador County regarding a stipulated settlement.

MR. KRONICK: Good morning. My name is Steve Kronick. I represent Amador County.

MS. SCHNEIDER: Anne Schneider for Delta Wetlands.

MR. KRONICK: An agreement and stipulation have been reached between Delta Wetlands Properties and Amador County that resolves Amador County's concerns, and will void its presentation of testimony. And we'd like to introduce the stipulation and agreement as Exhibits 3 and 4 of Amador County.

HEARING OFFICER STUBCHAER: All right. Have copies been made available to the other parties?

MR. KRONICK: I have provided the original and 13 copies to the staff. And there are about three or so extra copies here available.

HEARING OFFICER STUBCHAER: For the benefit of those who do not have copies, would you like to briefly

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1 describe the terms of the stipulation?

2 MR. KRONICK: The stipulation provides that Delta
3 Wetlands and the County of Amador requests that the State
4 Water Resources Control Board include the following
5 permit term as a term, or condition in any and all
6 permits, or licenses issued by the State Board for the
7 Delta Wetlands Project, including but not limited to any
8 permits or licenses issued pursuant to Application
9 Numbers 29061, 29062, 20963, 29066, 30267, 30268, 30269,
10 and 30270.

11 And the term would be: This permit or license
12 shall be junior in priority to any permit or license
13 issued on any applications regardless of application date
14 that authorizes the provision of water for beneficial
15 uses within Amador County.

16 HEARING OFFICER STUBCHAER: All right. Thank you.
17 Are there any questions regarding this agreement? Are
18 there any objections to accepting it into the record?
19 Seeing none we will accept it into the record.

20 Thank you very much.

21 MR. KRONICK: Thank you.

22 MR. SUTTON: Mr. Kronick.

23 MR. KRONICK: Yes.

24 MR. SUTTON: Can we also clarify that you're also
25 entering Amador Exhibits 1 and 2 at this time as well?

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1 MR. KRONICK: They're not being entered.

2 MR. SUTTON: So you do want these to replace those

3 two as --

4 MS. LEIDIGH: No. No. No.

5 MR. SUTTON: Go ahead.

6 MS. LEIDIGH: I think it would be clearer on the

7 record if these are listed as Amador Exhibits 3 and 4 as

8 you stated. And the others simply will not be offered,

9 or admitted.

10 MR. KRONICK: Correct.

11 MR. SUTTON: Okay.

12 HEARING OFFICER STUBCHAER: Thank you.

13 MR. KRONICK: Thank you.

14 MS. LEIDIGH: Thank you.

15 MR. KRONICK: I'll leave the other copies on the

16 chair if any wants one.

17 HEARING OFFICER STUBCHAER: All right. We'll now

18 resume the cross-examination of the Department of Water

19 Resources's panel.

20 Mr. Nomellini, did you want to cross-examine?

21 MR. NOME LLINI: I may want to after Delta Wetlands

22 does, very briefly though.

23 HEARING OFFICER STUBCHAER: All right. Delta

24 Wetlands chose not to cross-examine yesterday.

25 MR. NOME LLINI: Oh, they're not. Well, then I'll

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1 decline.

2 HEARING OFFICER STUBCHAER: Let me have a show of
3 hands again of those agencies who wish to cross-examine.
4 All right.

5 Mr. Moss.

6 ---oOo---

7 CROSS-EXAMINATION OF DEPARTMENT OF WATER RESOURCES

8 BY PACIFIC GAS AND ELECTRIC

9 BY RICHARD MOSS

10 MR. MOSS: Good morning, Mr. Stubchaer, and
11 Members. Good morning, ladies and gentlemen from DWR. I
12 wanted to just say -- initially compliment the staff of
13 the Department of Water Resources. I -- PG&E -- and I'm
14 speaking personally, I found all of your testimony very
15 insightful and I think it contributes a lot to this
16 proceeding.

17 I have several questions for Mr. Torres. Does
18 the Department of Water Resources advocate the use of
19 Bulletin 192-82 for Delta levees that would need to
20 contain a plus six-foot long-term standing reservoir?

21 MR. TORRES: No.

22 MR. MOSS: Does DWR Bulletin 192-82 levee standard
23 represent the best most protective regime presently in
24 use in the Delta, or planned in the Delta?

25 MR. TORRES: For other Delta levee upgrades it may.

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1 MR. MOSS: And can you identify any examples of
2 levees built to this standard in the Delta?

3 MR. TORRES: Not specifically, no. No, I can't.

4 MR. MOSS: Okay. In your testimony you mention a,
5 quote, engineered embankment, end quote. What is that
6 and how is that potentially different from a levee
7 constructed to Bulletin 192-82 standards?

8 MR. TORRES: It was in reference to Clifton Court
9 Forebay then. And there are several major differences
10 between Clifton Court Forebay and Delta levees. The main
11 difference is the engineering criteria set for a dam such
12 as Clifton Court involves a variety of different factors
13 that are -- that are investigated. And the criteria is
14 set usually with levels of safety for a variety of
15 different features such as stability, seepage, seismic
16 loading, et cetera.

17 The SB -- or the Bulletin 192-82 lists only
18 geometry criteria and does not address some of the other
19 criteria that you normally would design a dam for. And
20 its purpose was primarily to set geometry levels for
21 reimbursement under Senate Bill 34.

22 MR. MOSS: If your branch was given the job of
23 designing an impoundment for an in-Delta surface
24 reservoir on the general idea of what has been proposed
25 by Delta Wetlands, would you -- would you turn to

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1 Bulletin 192-82 as the underlying standards to safely
2 contain that impoundment, or would you use another
3 standard?

4 MR. TORRES: We would use another standard.

5 MR. MOSS: And could you explain how you would
6 approach this assignment?

7 MR. TORRES: Well, with all engineering embankments
8 we would look at site-specific conditions. We would
9 investigate and choose the appropriate design criteria
10 based on the site-specific conditions. And then we would
11 proceed. And our general procedure is to write an
12 engineering criteria report prior to the design of the
13 structure, which outlines the criteria that we've chosen
14 for the design of that structure.

15 MR. MOSS: And that -- that report would be a
16 public document for comment?

17 MR. TORRES: Yes.

18 MR. MOSS: Would you view the potential DSOD
19 requirements as an appropriate guide to constructing a
20 safe and stable water impoundment levee?

21 MR. TORRES: To my knowledge, the Division of
22 Safety of Dams does not involve the Delta Wetlands. This
23 is quite a unique project. And I couldn't answer whether
24 they would -- whether it would be a jurisdictional dam or
25 not. So I really couldn't -- couldn't answer what their

1 level of criteria, or involvement would be, or whether it
2 would be similar to what they require for other -- other
3 dams.

4 MR. MOSS: So, again, putting aside the
5 jurisdictional question, I was just basically interested
6 in whether you were familiar with the standards that they
7 would require whether they would be appropriate in and of
8 themselves.

9 MR. TORRES: I'm familiar with the standards they
10 require, but they also consider site-specific
11 requirements. So that you -- you can't just blanket say
12 that they have a set of requirements for all dams. It
13 really is site specific.

14 MR. MOSS: Would you agree with my conclusion that
15 the citation of DWR Bulletin 192-82 by Delta Wetlands is
16 more of a place holder for an as yet unknown methodology
17 for constructing an in-stable reservoir?

18 MR. TORRES: That was a long statement for me.
19 Could you repeat that?

20 MR. MOSS: Basically, given your earlier comments
21 about the appropriateness of the use of Bulletin 192-82 I
22 would suggest that the citation of this by Delta Wetlands
23 as their basic levee standard at this point should be
24 viewed as more of a place holder for some yet as
25 undetermined engineering methodology.

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1 MR. TORRES: Well, Bulletin 192-82 also states that
2 designs for levees shall be -- shall be performed on a
3 site-by-site basis. So when we read Bulletin 192-82 in
4 its entirety, it isn't only the geometry criteria that
5 people refer to all the time, there are -- there are also
6 other statements in Bulletin 192-82 that cite that site
7 conditions should be designed for on a site-by-site
8 basis. And if that's the portion of 192 -- I would agree
9 with that portion of 192-82.

10 The portions that refer only to levee geometry
11 and to state that this geometry should be followed, I
12 would not agree with that. I think that it may or may
13 not provide an adequate level of safety, but I think that
14 it should be considered on a site-by-site basis.

15 MR. MOSS: Your testimony states that the proposed
16 Delta Wetlands seepage control system and island pumping
17 stations pose significant unanswered questions regarding
18 electrical pump supply and operation.

19 If we assume that these significant electrical
20 demands may cause instability or failure of the present
21 in-Delta electrical grid, could this have significant
22 impacts on the ability of several other islands to
23 operate pumps to drain those islands?

24 MR. TORRES: Our electrical engineering staff
25 reviewed that. And their comments to me were that they

1 didn't foresee any electrical demand problems.

2 MR. MOSS: Okay. So that your testimony then is
3 focused simply on the issues of connection and operation
4 of the pumps?

5 MR. TORRES: And the communications.

6 MR. MOSS: Communications, okay. From -- from what
7 we know now of the physical design of the Delta Wetlands
8 Project, would you conclude that there are serious
9 unanswered engineering questions that affect the overall
10 feasibility of the proposed pumping and water containment
11 systems?

12 MR. TORRES: I would say that there are unanswered
13 questions.

14 MR. MOSS: Thank you. I have a few questions for
15 Mr. Gage, or potentially another witness who would be
16 speaking to DWR's Delta responsibilities overall.

17 Should it be necessary at some future time, is
18 DWR prepared to take over Delta Wetlands's
19 responsibilities for levee stability if Delta Wetlands
20 defaults on those responsibilities?

21 MR. GAGE: That's a good question. I don't know
22 the answer to it.

23 MR. MOSS: Does any other witness?

24 MR. HUNTLEY: I guess I would be the other person.
25 I'm not prepare to answer that question today.

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1 MR. MOSS: I guess my follow-up question would
2 probably go -- you may or may not have an answer would
3 be: If, in fact, DWR was called upon in those
4 circumstances to intervene, at whose expense would this
5 work be undertaken? You'll have a means of recovering
6 those costs?

7 MR. HUNTLEY: Are you talking specifically of the
8 levee systems?

9 MR. MOSS: Yes.

10 MR. HUNTLEY: We currently don't have a
11 responsibility, or authority to actually take over levee
12 systems in the Delta. So this would be outside our
13 current purview. And I don't know how that
14 responsibility would be placed upon us. And I'd have to
15 defer to legal staff if I'm off base, but I think
16 that's --

17 MR. MOSS: Okay.

18 MR. HUNTLEY: -- our current position.

19 MR. MOSS: If the --

20 HEARING OFFICER STUBCHAER: Excuse me, Ms. Forster
21 has a question.

22 MR. MOSS: Okay.

23 MEMBER FORSTER: Mr. Huntley, who has that
24 responsibility? And are they all private?

25 MR. HUNTLEY: The majority of the levees in the

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1 interior Delta are private. I think on the -- on the
2 ones that we're talking about they are all private
3 levees. And the reclamation districts have been
4 responsible for those over the years.

5 MR. MOSS: Again, I was posing a hypothetical. If
6 there was an imminent failure, or some other situation
7 that might be -- might be viewed as a larger
8 endangerment.

9 My -- if the operation of the Delta Wetlands
10 reservoir islands caused, or contributed to a domino-like
11 multiple levee failure such as potentially illustrated in
12 the testimony of the Central Delta Water Agency witness
13 Chris Neudeck, could the impact of this occurrence
14 include the loss or curtailment of the State Water
15 Project's ability to exported Delta water?

16 MR. GAGE: Depending on the timing of the
17 occurrence it's possible, yeah. A failure that involved
18 a large volume of water filling an island if it occurred
19 at a time when salinity was higher than -- than most
20 times of the year it would cause an inclusion of
21 salinity.

22 MR. MOSS: In that type of a situation, again,
23 would DWR feel that it has any responsibility relative to
24 the operation of the State Water Project to intervene to
25 correct that on a physical basis?

1 MR. GAGE: I'm sorry, would you repeat that?

2 MR. MOSS: In that type of situation if there was
3 such an impact on the operation of the State Water
4 Project, does the Department feel that it would have the
5 responsibility to -- to intervene to try to physically
6 correct that on the ground?

7 MR. GAGE: I believe the Department would probably
8 be involved just by virtue of its flood-fighting
9 activities and go on and try and assist in repairing
10 levees and pumping them out and so on.

11 MR. MOSS: Okay.

12 MR. GAGE: On the levee failure thing if it could
13 impact us, that would also depend on whether -- if it
14 were the reservoir island and it were full, it would
15 affect the water quality, it would cause a failure in an
16 adjoining island it would.

17 MR. MOSS: Lastly, is the Department interested in
18 acquiring the Delta Wetlands Project, or developing
19 similar in-Delta storage?

20 MR. HUNTLEY: I'll get this one. Ed Huntley,
21 again. And I think that's really premature at this
22 point. We haven't seen what the -- what the -- what the
23 final condition of this particular project would be and
24 it depends upon modifying on what the costs would be and
25 what the operational criteria finally ends up. That is

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1 set by the -- in part by this Board. So I think it's
2 really premature to say at this point. I think that you
3 also have heard from a few of our contractors already
4 during these proceedings, so you can also take their
5 testimony under advisement.

6 MR. MOSS: Thank you.

7 HEARING OFFICER STUBCHAER: Thank you, Mr. Moss.
8 Mr. Maddow.

9 ---oOo---

10 CROSS-EXAMINATION OF DEPARTMENT OF WATER RESOURCES

11 BY CONTRA COSTA WATER DISTRICT

12 BY ROBERT MADDOW

13 MR. MADDOW: Yes. Robert Maddow appearing for the
14 Contra Costa Water District, Mr. Stubchaer, Mr. Brown,
15 and Ms. Foster. And I have a couple of questions for
16 Mr. Gage and then a couple of questions -- pardon me, for
17 Mr. Tom.

18 First, Mr. Gage, pardon me. Yesterday in
19 cross-examination Mr. Schulz asked you a couple of
20 questions about what I think he referred to as the
21 adaptive management activities that you're engaged in in
22 the various things that the Department is concerned with
23 having to do with Delta operational criteria, et cetera.
24 CVPIA, AFRB, those kind of things.

25 And as I recall your testimony yesterday you

1 said that as a result of some of these recent activities
2 there has been some shifting of your export pumping
3 schedules and things like that. Is that correct?

4 MR. GAGE: That's correct.

5 MR. MADDOW: When you compare the operational
6 limitations and criteria that you must cope with now for
7 the Department with those that were applicable, or
8 present in 1995 when the analytical work leading up to
9 the Draft Environmental Impact Report for Delta Wetlands
10 was done, has there -- has there been a change in the
11 criteria that you've been -- that you are faced with?

12 MR. GAGE: Not formally that we're mandated to.
13 The Department is, I believe, obligated by the Accord to
14 try to do what we can operationally to provide fishery
15 benefits in the Delta under the concept of no net loss.
16 So if we're able to assist by reducing pumping in the
17 springtime and then making it up later in the year by
18 utilizing our previously uncommitted capabilities at
19 Banks then we do that.

20 MR. MADDOW: Would you anticipate that those --
21 those types of changes when applied to the analysis of
22 the project like Delta Wetlands could result in a
23 difference in the availability of water for appropriation
24 under their current application?

25 MR. GAGE: I think it would definitely make a

1 difference in the -- in the number of times that they
2 showed water available for diversion in the fall. I
3 believe it would not be nearly that large. However,
4 there are those few really wet years where we stay in
5 excess conditions all year.

6 MR. MADDOW: Yesterday when you were giving the
7 examples of Delta Wetlands release programs that was --
8 those examples were a part of your direct testimony as I
9 recall. Am I correct in understanding that at least one
10 of those examples would have been operations that would
11 not have been within the export import ratio?

12 MR. GAGE: Yes. I was proposing that diversions
13 onto the island should not be counted as exports in the
14 EI ratio.

15 MR. MADDOW: Okay. And --

16 MR. GAGE: And, further, that releases should be
17 counted as input.

18 MR. MADDOW: And that was your consideration of
19 what might be done in terms of broad Delta operations; is
20 that correct? What I'm trying to get at, Mr. Gage, is
21 you're not suggesting that that's the condition in which
22 these applications stand before the Board, are you?

23 MR. GAGE: No, I'm not. I recognize that the
24 Biological Opinions and the OCAP state differently from
25 what I've stated. My hope was that the Board would not

1 add terms to -- to the permit, if it's issued, that were
2 in conflict with the -- with the existing definitions of
3 the EI ratio.

4 MR. MADDOW: Okay. Then, finally, Mr. Gage,
5 yesterday Mr. -- excuse me, Mr. Schulz spoke to you about
6 the capacity to convey water discharged by the Delta
7 Wetlands Project -- excuse me, capacity within the
8 existing DWR facilities to convey water discharged by the
9 Delta Wetlands Project.

10 Can you tell me what DWR would charge to a
11 non-State water project contractor which wished to have
12 water wheeled through water facilities from the Delta
13 Wetlands Project?

14 MR. GAGE: That charge is based on several factors.
15 It includes whether or not they provide the energy, or
16 whether we provide that. How far down the system it
17 goes, because we do charge some fee for offsetting the
18 capital costs. And so -- so it varies. I don't
19 recall -- I'd rather not guess. I'd rather not rely on
20 my memory as to what the last charge was.

21 MR. MADDOW: Perhaps, there's other members of the
22 Department's team that might have some of those figures.
23 I'm not asking for precision, just some sort of ballpark
24 figure.

25 MR. HUNTLEY: I don't believe we have anybody from

1 our State Water Resources Board -- you have a rough
2 number, or not?

3 MR. FLORY: No, I don't. It is --

4 HEARING OFFICER STUBCHAER: I'm sorry, this is a
5 formal hearing. So we have to have -- please, come up
6 here to the microphone.

7 Mr. Canaday?

8 MR. CANADAY: He needs to take the oath as well.

9 HEARING OFFICER STUBCHAER: All right.

10 MR. FLORY: I don't know if I'm going to give you a
11 good enough answer to swear to.

12 MR. MADDOW: It's either that, or I ask Mr. Schulz
13 to take the oath.

14 HEARING OFFICER STUBCHAER: Please, raise your
15 right hand. You promise to tell the truth to the best of
16 your ability in this proceeding?

17 MR. FLORY: Yes, I do.

18 MR. MADDOW: Mr. Flory, this will follow you
19 forever.

20 THE COURT REPORTER: Your name, please.

21 MR. FLORY: I'm sorry. My name is Dan Flory with
22 the Department of Water Resources, State Water Project
23 Analysis.

24 Yes, the charge for non -- non contractors is
25 based on several components: capital costs, the energy

1 costs, transportation costs, and it fluctuates from year
2 to year. And we often have to adjust those just
3 depending on the situation. It is just to recover costs.
4 There isn't any profit margin or anything like that.
5 So it's -- it's published in a bulletin we put out,
6 Bulletin 132. So that you can refer to it annually.

7 MR. MADDOW: I'm not going to try and pin you down
8 to a precise number, but I was hoping to get sort of a
9 general indication.

10 And, Mr. Stubchaer, if I may, I don't know if
11 this witness has been present, but we had some testimony
12 during Delta Wetlands's case that it could be
13 approximately 2 to \$300 per acre foot of costs which came
14 into the record. And I was hoping to get something with
15 a similar level of precision in regard to what it might
16 cost to move this water. And what I hope to do is maybe
17 just ask him two hypothetical questions. Would that be
18 acceptable?

19 HEARING OFFICER STUBCHAER: If he has the
20 information, if not we could ask to get Bulletin 132 and
21 bring it back later.

22 MR. MADDOW: We might be able to get it real
23 simply: You may know, or you may not. I don't mean to
24 embarrass you, sir.

25 For example, if you were just to presume that

1 there were to be a purchaser seeking to have the water
2 wheeled to the west side of the San Joaquin, can you give
3 us an estimate of what that -- what that wheeling charge
4 might be?

5 MR. FLORY: One of the reasons I keep hedging on
6 this is it really depends on where you're going. If
7 you're using San Luis, if it's direct delivery. It's a
8 fairly complicated process.

9 The charges can fluctuate from -- you know, if I
10 were just to guess like \$60 right now, you know, today's
11 cost to 250, \$300 in Southern California. So it
12 really -- there's a lot of components that go into it.
13 That's why Bulletin 132 is as thick as it is, because
14 there's a lot of -- intricates going into it.

15 MR. MADDOW: Thank you very much. That kind of
16 range is certainly fine for today's purposes. A couple
17 of questions for Mr. Tom, please.

18 In your -- one of the exhibits you showed, I
19 believe it was 20C, you talked about some investigations
20 that are being done under the Municipal Water Quality
21 Investigations Program, as I understand it, which relate
22 to organic carbon loading. Is that correct?

23 DR. TOM: Yeah.

24 MR. MADDOW: And I take it those were not done just
25 in conjunction with your analysis of the Delta Wetlands

1 Project; is that correct?

2 DR. TOM: Maybe the better person to answer that
3 would be Mr. Breuer, who is the chief of the MWQI Unit.

4 MR. BREUER: I'm Richard Brewer the program manager
5 for the MWQI Program. I work for Mr. Tom. Mr. Maddow,
6 could you repeat your question --

7 MS. LEIDIGH: Mr. Brewer, have you been sworn?

8 MR. BREUER: Yes.

9 MS. LEIDIGH: Thank you.

10 MR. MADDOW: I wondered whether the studies which
11 were referred to in DWR Exhibit 20C were conducted solely
12 in conjunction with the Department's analysis of the
13 proposed Delta Wetlands Project?

14 MR. BREUER: I believe not. I believe that's part
15 of our -- our normal research program. And that research
16 is directed by a technical advisory committee to meet a
17 number of goals of drinking water quality research in the
18 Delta.

19 MR. MADDOW: And as I understood that exhibit, DWR
20 20C and also the water quality portion of DWR Exhibit 19,
21 those studies have not yet been completed; is that
22 correct?

23 DR. TOM: They haven't even really been implemented
24 yet.

25 MR. MADDOW: You mean --

1 DR. TOM: We're still in the designing phase.

2 MR. MADDOW: Early in the DWR presentation one of
3 the witnesses mentioned the fact that the Department has
4 both its role as the operator of the State Project and a
5 planning role.

6 Do you recall that, Mr. Tom?

7 DR. TOM: Can you repeat that question?

8 MR. MADDOW: Yesterday, one of the DWR witnesses
9 described a dual role for the Department: The operator
10 of the State Water Project and a planning role. Is that
11 correct?

12 DR. TOM: I must have fallen asleep.

13 MR. MADDOW: Do you concur that the Department has
14 that dual role?

15 DR. TOM: Yes.

16 MR. MADDOW: Okay. With regard to the planning
17 role that the Department fulfills, are drinking water
18 quality issues a part of that planning role, Mr. Tom?

19 DR. TOM: Yes.

20 MR. MADDOW: From the perspective of that planning
21 role that the Department carries out and directing your
22 attention towards drinking water quality issues, do you
23 think it would be appropriate to await the outcome of
24 those studies before permitting the Delta Wetlands
25 Project to store and then discharge water into the Delta?

1 DR. TOM: Yes. The reason is because there are so
2 many uncertainties with the data that does exist right
3 now with the Draft EIR/EIS that you really -- I don't
4 think anybody can really come up with anything reasonable
5 about mitigation measures.

6 We can take approaches to two different
7 extremes. And it's all based on whether you believe that
8 the project is actually going to improve water quality,
9 or the other extreme where we just don't know. For
10 instance, if going back to organic carbon that if it's
11 going to be so high that it's not going to be able to
12 meet any mitigation measure.

13 MR. MADDOW: Mr. Tom, I asked you to answer that
14 question from the perspective of the Department's
15 planning role. If I can could ask you to shift to the
16 perspective of the Department as the operator of the
17 State Project, would you change your answer?

18 DR. TOM: No.

19 MR. MADDOW: Am I correct in assuming then that
20 from your water quality expert perspective that it would
21 be appropriate to put conditions in any permit that's
22 issued to Delta Wetlands to provide for obtaining the
23 additional scientific information before operations could
24 commence?

25 DR. TOM: Yes, I think that would be wise.

1 the Delta Wetlands reservoir islands will be filled to
2 that level create any levee stability issues?

3 MR. TORRES: I believe there are levee stability
4 issues independent of the elevation, or -- especially
5 anywhere above four feet.

6 MR. ETHERIDGE: So you believe that there are levee
7 stability issues given the fact that there will be water
8 on the Delta Wetlands Project islands?

9 MR. TORRES: Yes.

10 MR. ETHERIDGE: Okay. And what are those levee
11 stability issues so created?

12 MR. TORRES: This is quite a unique application for
13 a Delta levee. And I think I have to ask myself a
14 question of: When does a levee stop being a levee and
15 begin being a reservoir containment structure?

16 So the criteria I would set for these structures
17 are probably different than the criteria I would set for
18 a levee.

19 MR. ETHERIDGE: Do you know if the Delta Wetlands
20 island levees were built to keep water inside of the
21 reservoir behind the levee?

22 MR. TORRES: I don't believe that was the initial
23 intent.

24 MR. ETHERIDGE: If you were designing a levee
25 system in the Delta on an island to serve as a reservoir,

1 would you design those levees differently than those
2 proposed by Delta Wetlands?

3 MR. TORRES: I'm not sure I entirely understand
4 their design criteria. They refer to Bulletin 192-82 and
5 that is quite an involved document that has gone through
6 several changes over the years. It's difficult for me to
7 answer that question.

8 MR. ETHERIDGE: Well, in your opinion would there
9 be a difference in designing a levee on a Delta island to
10 keep water out and off the island as opposed to building
11 a levee to keep water out and off the island and also to
12 keep water in a reservoir?

13 MR. TORRES: Yes.

14 MR. ETHERIDGE: I believe you answered an earlier
15 question on cross-examination that the Clifton Court
16 Forebay interior dam system is built to a different
17 standard, a higher standard than those levees on the
18 Delta islands. Is that correct?

19 MR. TORRES: Yes.

20 MR. ETHERIDGE: Would that remain true even after
21 Delta Wetlands implemented its proposed levee improvement
22 work?

23 MR. TORRES: As I understand it, yes.

24 MR. ETHERIDGE: Is it your opinion that the levees
25 that Delta Wetlands proposes to use to contain the waters

1 on its reservoir islands will be adequate for that
2 purpose?

3 MR. TORRES: I have not been asked to develop
4 design criteria for the Delta Wetland purpose. So I
5 would need -- I would need to study that question
6 considerably before I could give you an answer.

7 MR. ETHERIDGE: That's all the questions I have.
8 Thank you.

9 HEARING OFFICER STUBCHAER: Thank you. Ms. Murray.

10 ----oOo----

11 CROSS-EXAMINATION OF THE DEPARTMENT OF WATER RESOURCES

12 BY CALIFORNIA DEPARTMENT OF FISH AND GAME

13 BY NANCEE MURRAY

14 MS. MURRAY: I have a few questions for Mr. Gage.
15 I just want to make sure I understand something.
16 Yesterday in your testimony you stated that Delta
17 Wetlands's discharges should be considered as inflow and
18 diversions should not be considered as export. Is that
19 correct?

20 MR. GAGE: That's correct.

21 MS. MURRAY: Now -- and it's your understanding
22 that this change is different than what is in the current
23 application?

24 MR. GAGE: That's correct.

25 MS. MURRAY: And it's your understanding that that

1 change is different than what's in the Biological
2 Opinions?

3 MR. GAGE: That's correct.

4 MS. MURRAY: And is it your understanding that that
5 change would be different than the Water Quality Control
6 Plan?

7 MR. GAGE: What is in the Biological Opinions is
8 different from what is in the control plan. And my
9 statement on including releases as inflow would be also
10 different than what's in the Water Quality Control Plan.

11 MS. MURRAY: Okay. If Delta Wetlands discharges
12 are considered inflow, could that be considered a change
13 in the baseline project operations resulting in a
14 reopening of the OCAP Biological Opinions for DWR and the
15 Bureau on Delta smelt and winter-run salmon?

16 MR. GAGE: I'm not positive of that. I -- I
17 wouldn't think so.

18 MS. MURRAY: Mr. Ford, what do you think?

19 MR. FORD: Could you repeat the question?

20 MS. MURRAY: Would this change in the export/inflow
21 ratio be considered -- could it be considered a change in
22 the baseline project operations resulting in a reopening
23 of the OCAP Biological Opinions for DWR and the Bureau on
24 Delta smelt and winter-run salmon?

25 MR. FORD: The change in the -- how Delta Wetlands

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1 deals with the EI/OI ratio --

2 MS. MURRAY: Right. The EI/OI ratio as Mr. Gage
3 testified that if it was changed as he wants, that it's
4 different than what is in the current Biological
5 Opinions.

6 MR. FORD: As applied to Delta Wetlands?

7 MS. MURRAY: Right.

8 MR. FORD: I don't see how what is applied to Delta
9 Wetlands would affect our -- our operations. Our
10 operations are defined by the project descriptions that
11 we submit to the regulatory agencies. And that -- I
12 don't think that would change it.

13 MS. MURRAY: Okay.

14 MR. FORD: If it's applied to Delta Wetlands.

15 MS. MURRAY: Please, explain -- well, one other
16 question. Now, if Delta -- if the Department of Water
17 Resources were to acquire the Delta Wetlands Project,
18 would that cause a change in your Biological Opinion?

19 MR. GAGE: I suspect it would.

20 MS. MURRAY: Thank you. Okay. Mr. Gage, please,
21 explain how allowing Delta Wetlands's diversions to be
22 excluded from the export side of the EI ratio and
23 allowing Delta Wetlands discharges to be counted as
24 inflows would protect the State Water Project from
25 adverse water supply and operational impacts due to the

1 Delta Wetlands Project.

2 MR. GAGE: My comments on the EI ratio are really
3 more regarding where I thought the EI -- the EI
4 definitions and usage should be. I don't believe it
5 would impact the State Project either way.

6 MS. MURRAY: So you don't believe that that change
7 is necessary to protect your senior water right?

8 MR. GAGE: That's correct.

9 MS. MURRAY: If the Board does accept your
10 recommendation regarding the EI ratio, would this
11 increase the average annual diversions and discharges for
12 Delta Wetlands Project?

13 MR. GAGE: I suspect there would be a very slight
14 increase, because there is only a very small part of the
15 time when -- when it's marginal on the EI ratio.

16 MS. MURRAY: But it would be an increase?

17 MR. GAGE: It would not be a decrease.

18 MS. MURRAY: Okay. I have one concern somewhat
19 similar to Mr. Brown's yesterday in just that: If
20 Delta -- and this is regarding the stipulation which --
21 if Delta -- DWR purchases the Delta Wetlands Project, as
22 is possible, would this term in which DWR determines
23 water availability still apply?

24 MR. GAGE: I would think so, yes.

25 MS. MURRAY: Okay.

1 MR. GAGE: It's a joint calculation -- well,
2 declaration of a balanced condition with us and the
3 Bureau of Reclamation and a coordinated calculation of
4 the amount of water, that amount is going to be the same
5 no matter what happens on the -- who owns the project.

6 MS. MURRAY: And did Delta -- Delta Wetlands, or
7 the Department of Water Resources model the effects of
8 this stipulated agreement on Delta Wetlands Project
9 yield?

10 MR. GAGE: Not to my knowledge.

11 MS. MURRAY: Do you have any opinion on how this
12 might affect yield?

13 MR. GAGE: How the stipulation -- how the DWR
14 stipulation with Delta Wetlands would affect --

15 MS. MURRAY: Their project yield.

16 MR. GAGE: -- the Delta Wetlands yields? I really
17 don't know.

18 MS. MURRAY: Okay. And I -- I want to follow-up on
19 one question that Ms. Forster did ask, too, regarding
20 number three in the stipulation.

21 That there be, this permittee shall curtail or
22 cease discharges from Delta Wetlands reservoirs which
23 directly or indirectly require operations of the SWP or
24 CVP to be modified to meet any applicable Federal, State
25 law, or mandate.

1 Does that include the Public Trust Doctrine,
2 State Common Law?

3 MR. GAGE: I assume it's all law.

4 MS. CROTHERS: Well, I don't know if this is -- we
5 had -- I think I need some clarification, Mr. Stubchaer,
6 on how far we are suppose to go into this legal portion
7 of the stipulation, I mean, what it's going to mean
8 legally.

9 HEARING OFFICER STUBCHAER: What we did in the
10 previous legal questions as we said they could be briefed
11 at the end. And, Ms. Leidigh, do you have any comment on
12 that?

13 MS. LEIDIGH: I -- I think I'll just confirm that.
14 Yes, normally we deal with legal questions in briefing
15 that follows the hearing. And people can raise whatever
16 they need to raise at that point. It's not a matter of
17 evidentiary fact.

18 MS. MURRAY: So is it my understanding that DWR
19 will brief what they mean by "applicable Federal, State
20 law, or mandate" in their legal briefing?

21 MS. CROTHERS: I think we'll probably be saying
22 something about it.

23 MS. MURRAY: Thank you.

24 HEARING OFFICER STUBCHAER: Is there anyone else
25 other than staff that wants to cross-examine this panel?

1 Staff? Mr. Sutton.

2 ---oOo---

3 CROSS-EXAMINATION OF DEPARTMENT OF WATER RESOURCES

4 BY STAFF

5 MR. SUTTON: Two quick questions, one for Mr. Gage.
6 You discussed the export inflow ratio and different
7 interpretations of that. State Water Project and CVP
8 operate under Biological Opinions, or OCAP's right now;
9 is that correct?

10 MR. GAGE: That's correct.

11 MR. SUTTON: Is there any term, or condition in
12 those OCAP's which deals with -- or has a provision for
13 movement of water generated by in-Delta storage?

14 MR. GAGE: There's no reference to in -- to
15 in-Delta source of water in those opinions I don't
16 believe.

17 MR. SUTTON: You are covered under cross-Delta
18 transfers -- temporary transfers and that sort of thing,
19 those are considered in that, are they not?

20 MR. GAGE: I believe it's included in the Delta
21 smelt opinion, but I'm not sure about the winter-run.

22 MR. SUTTON: Thank you. Mr. Tom, you discussed the
23 studies being designed to look at organic carbon and deep
24 flooding affects. And you say that they're being
25 designed now.

1 Do you have any indication on what the schedule
2 is going to be for those studies?

3 DR. TOM: I -- well, there are two studies. One
4 will basically look at organic carbon loading from a
5 constructive wetland. We anticipate that the actual
6 limitation of that project should be about next month.
7 It's going to occur on Twitchell Island.

8 MR. SUTTON: And how long will that study run?

9 DR. TOM: Six months -- yeah, six months.

10 MR. SUTTON: And you'll be doing -- it will be
11 running six months and then you'll be doing some creative
12 analysis and data review and report preparation after
13 that; is that correct?

14 DR. TOM: Correct. The other one where we're going
15 to on examine organic carbon loading from, say, more
16 deeper place situations. And, actually, what we're going
17 to do there is try to quantify the various factors that
18 affect the amount of organic carbon coming off of peat
19 soils. So we're going to be looking at soil depth, water
20 depth, and flow. I believe we're planning on starting
21 that around August, also, or sooner.

22 MR. SUTTON: Where --

23 DR. TOM: We have to buy all the equipment and
24 stuff.

25 MR. SUTTON: Where will that test be conducted?

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1 DR. TOM: Why don't I pass you over to Mr. Jung.

2 MR. JUNG: My name is Marvin Jung, it's spelled
3 J-U-N-G. I'm consultant and technical advisor to the
4 MWQI Program since 1982.

5 Mr. Tom is describing what we call the Smarts
6 facility. It's a special multi-purpose technology
7 station. And what we are doing is using large tanks in
8 the thousand-gallon capacity and looking at the three
9 factors there that Dr. Tom described which are: soil
10 depth, water depth, and flow rate.

11 And we are doing what is called a full-factorial
12 experiment. So we will look at high and low conditions
13 of each of those factors. So we'll have eight large
14 tanks located at the Department's Bryte facility. We are
15 in the process of ordering the equipment. And soil will
16 be taken from the Delta and homogenized and placed into
17 these tanks at different soil depths in each tank. And,
18 therefore, there will be different conditions, again, of
19 these three factors. And at the end of the experiment we
20 will determine which of the factors have the greater
21 strength in affecting the amount of DOC in the water.

22 MR. SUTTON: So you would characterize these
23 essentially as mesocosm type experiments?

24 MR. JUNG: I guess in the biological sense they're
25 related similarity, yes.

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1 MR. SUTTON: And are there any plans to do actual
2 in-field equivalent larger scale testing of this?

3 MR. JUNG: Yeah. Well, if the other -- well, the
4 channel flooded island -- I mean wetland that
5 Dr. Tom described is the in-field condition. But
6 conducting it at -- at greater depths than the one or two
7 meters elevation is rather difficult because of seepage
8 problems and, of course, the amount of water that is
9 needed to create such a large experiment.

10 MR. SUTTON: And do you expect this, also, to take
11 about six months?

12 MR. JUNG: Well, you know the State contracting
13 process in purchasing, I can't promise you that, but
14 something will occur within the six months.

15 MR. SUTTON: Do you expect to have a RFP within six
16 months?

17 MR. JUNG: I can't answer that.

18 MR. SUTTON: Okay. So we're looking at essentially
19 if things go well early next year you should have some
20 results on these experiments; is that correct?

21 MR. JUNG: Yeah. Our proposed timetable is to
22 hopefully have the construction of the facility completed
23 prior to October 1. And the immediate start of the first
24 experimental run. And it -- it -- these experiments are
25 really interim steps. For example, if after the first

1 set of experiments we determine that there are only two
2 factors that are significant in affecting the amount of
3 DOC yield in the water column, we'll run another
4 factorial experiment and run three conditions, high, low,
5 and medium for those two factors. And that will have
6 nine tanks running. So this is a process as we narrow
7 down what are the ideal design parameters to possibly
8 make such a project work.

9 MR. SUTTON: There's been a lot of discussion in
10 this hearing about the affects of temperature seasonality
11 on storage. Is the fact that you're going to be storing
12 basically from a late summer into a winter condition a
13 concern of yours in that regard in terms of how it would
14 reflect on a Delta Wetlands operations which essentially
15 would be a winter to fall storage?

16 MR. JUNG: Well, certainly, temperature would be
17 considered a covariant because of these experiments being
18 so large. If we were to replicate that we would be
19 replicating them under a different season. And so, yes,
20 that would be a factor.

21 But we -- and my hypothesis is we would be
22 looking at the primary major factors that affect the DOC
23 availability. And in terms of somewhat controlling the
24 temperature in these large tanks we are looking at things
25 such as these misters to somewhat keep the temperature

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1 down in the summer.

2 MR. SUTTON: Thank you.

3 HEARING OFFICER STUBCHAER: Mr. Canaday.

4 MR. CANADAY: Some of what I was interested in the
5 exorbitant answer, but it's my understanding that you
6 are -- presently the Department has a shallow flooded
7 wetland?

8 DR. TOM: No. I believe next month is when we're
9 basically going to flood a portion of Twitchell Island.

10 MR. CANADAY: Do you have a seepage monitoring
11 program in place on the islands cross channels from
12 Twitchell?

13 DR. TOM: I don't think so. Now, this -- this plot
14 area is not that large. The reason I keep referring to
15 these guys is these guys are inherently involved in this.
16 So --

17 MR. BREUER: Richard Breuer, MQWI Program. The
18 flooded wetland that is being developed on Twitchell
19 Island is for a subsidence research being done by the
20 SB 34 levees's group of DWR.

21 We are working in partnership with them and
22 the U.S.G.S. to study the water quality impacts of a
23 shallow, flooded wetland on Twitchell Island. This
24 wetland depth will be approximately one meter in depth
25 towards the center of the island, which is not that much

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1 different than normal -- some normal ag operations or
2 winter flooding. Therefore, there wouldn't be any
3 significant impact to adjacent islands. The total area
4 flooded is approximately 20 to 40 acres.

5 MR. CANADAY: Will there be an attempt to control,
6 or produce aquatic vegetation in this wetland?

7 MR. BREUER: The goal of the subsidence ponds is
8 to -- actually, it's a multi-year study to study how
9 these subsidence ponds might actually increase the
10 organic soil deposition by vegetation. So they're going
11 to be encouraging vegetative growth. And we're going to
12 be actually looking at the water quality impacts from
13 that.

14 MR. CANADAY: These experiments whether they're in
15 the microcosms, or the mesocosms in these field studies,
16 have you discussed the protocols with some of the water
17 users who have testified here, who are concerned about
18 protocols and making sure that these analyses represent
19 what might be really field conditions? Have you
20 discussed that with those parties, their technical
21 experts?

22 MR. BREUER: As I stated earlier, our research is
23 overseen by a technical advisory committee made up of
24 State Water Contractors, members of CUWA, of DHS, and the
25 EPA. So what we do is we gather input from all the

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1 experts that are in our field of research, have them
2 guide our studies, review our study plans, and the
3 results of that study plan provided with all that input.

4 MR. CANADAY: Okay. Thank you.

5 HEARING OFFICER STUBCHAER: Any other questions by
6 staff?

7 MS. LEIDIGH: No questions.

8 HEARING OFFICER STUBCHAER: Board members?

9 Mr. Brown.

10 ----oOo----

11 CROSS-EXAMINATION OF DEPARTMENT OF WATER RESOURCES

12 BY THE BOARD

13 MEMBER BROWN: This is in reference to the levee
14 stability analysis. Have any of you or your staff had
15 the opportunity to review the proposal from the
16 engineering stability analysis?

17 MR. TORRES: Only what's been -- what's in the EIR.

18 MEMBER BROWN: Has the Department done any
19 embankment, or levee stability analysis over the years?

20 MR. TORRES: Yes, quite a bit.

21 MEMBER BROWN: You're familiar with the triaxial
22 shear test?

23 MR. TORRES: Yes.

24 MEMBER BROWN: Do these dikes, the embankments, do
25 they have much settlement on an annual basis?

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1 MR. TORRES: The settlement of the Delta levees in
2 general is usually dependent on the layer -- the
3 thickness of the organic layer underneath the levees.
4 And that ranges from 0 up to about 50 feet. Those areas
5 that have the thickest peat deposits have the most
6 settlement. And they're continuing -- they are
7 continuing to settle.

8 MEMBER BROWN: This is an indicator of consolidated
9 soils that the levees are setting on?

10 MR. TORRES: That's right. The consolidation
11 process is continuing. And it has been continuing for
12 over a hundred years in some cases.

13 MEMBER BROWN: The slopes of these levees are to be
14 improved to help improve stability from static loading,
15 what about dynamic loading?

16 MR. TORRES: I haven't seen anything in the EIR
17 that refers to the dynamic loading. The levee geometry
18 referred to in SB -- in the 192-82 criteria would --
19 would help in the up -- on the land side, what we
20 normally consider the land side slope stability.
21 However, there's other factors such as loss of strength
22 of organic soils due to earthquake loading, liquefaction
23 of loose sand materials in the levee that could
24 contribute to excess of declination.

25 MEMBER BROWN: When you saturate both sides of the

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1 embankment you improve the possibility of failure to
2 liquefaction in dynamic loading?

3 MR. TORRES: No. No. The flooding of the island
4 side would increase saturation if the levees are composed
5 of the materials that are susceptible to liquefaction,
6 then I would think that that condition will worsen.

7 MEMBER BROWN: You will check that out?

8 MR. TORRES: If I'm asked to check that out as part
9 of this process, yes, I would.

10 MEMBER BROWN: Will you do it?

11 MR. TORRES: (Witness shakes head.)

12 MEMBER BROWN: Thank you.

13 HEARING OFFICER STUBCHAER: Anything else,
14 Mr. Brown?

15 MEMBER BROWN: No, sir.

16 HEARING OFFICER STUBCHAER: I just had a question
17 on the tanks. You said you were looking at factors of
18 organic carbon in the water. Are you going to try and
19 analyze the affects of wind? I know the tanks don't have
20 the fetch -- I missed the diameter of these tanks. How
21 big are they?

22 MR. JUNG: They are -- the diameter is five feet --
23 the diameter of the each tank will be five feet. My name
24 is Marvin Jung.

25 And the height of the tanks will be as high as

1 ten feet. And in terms of looking at wind effects, we
2 will not be able to in those tanks, but in our field
3 flood experiments U.S.G.S. will be setting up a weather
4 station and from that we will calculate evaporation
5 rates.

6 HEARING OFFICER STUBCHAER: Okay. Thank you. Any
7 other questions? That completes cross-examination.

8 Do you have any redirect, Ms. Crothers?

9 MS. CROTHERS: No.

10 HEARING OFFICER STUBCHAER: No Redirect. Do you
11 want to do the exhibits?

12 MS. CROTHERS: Yes. I'd like to now move that DWR
13 exhibits be introduced into evidence. And I would like
14 DWR Exhibits 1 through 16, which are the statement of
15 qualifications of the witnesses; and DWR 18, which is the
16 written testimony; and D -- no.

17 DWR 18, excuse me, is the comments on our -- on
18 the Delta Wetlands Draft EIR/EIS. DWR 19 and 20 are the
19 written testimony and the exhibits. DWR 21 is the expert
20 from the Coordinated Operations agreement. DWR 22 is
21 Mr. Marvin Jung's statement of qualifications. And
22 DWR 23 is the stipulation between Delta Wetlands and DWR.

23 And I'd like to make a comment that when we
24 submitted our written -- written testimony in June, we
25 had an exhibit numbered DWR 17. We are not introducing

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1 that into evidence. That was just a written statement of
2 my opening statement, which we are -- we are not entering
3 as evidence.

4 HEARING OFFICER STUBCHAER: Is it going in as a
5 policy statement?

6 MS. LEIDIGH: No.

7 MS. CROTHERS: No, it's just an opening statement.

8 HEARING OFFICER STUBCHAER: Okay. All right.

9 MS. CROTHERS: It was just --

10 HEARING OFFICER STUBCHAER: Okay. That's fine.
11 Are there any objections to receiving this evidence into
12 the record? Seeing none, it's accepted.

13 MS. CROTHERS: I have one additional -- we've had a
14 lot of discussion about Bulletin -- DWR Bulletin 192-82.
15 And I was thinking maybe we could offer that by
16 reference, or we can actually bring a copy in -- here is
17 a copy. We could submit that.

18 HEARING OFFICER STUBCHAER: Is it already in?

19 MS. LEIDIGH: Do you have that?

20 MR. SUTTON: It's not in our list.

21 MS. LEIDIGH: It's not in our list. I would
22 suggest that it be -- you give us a copy so we have a
23 copy. And you can offer it by reference if nobody has an
24 objection to doing that. That way by offering it by
25 reference that means you don't have to make copies for

1 everybody since it's a Government document and it's
2 readily available.

3 HEARING OFFICER STUBCHAER: Mr. Maddow.

4 MR. MADDOW: Excuse me, Mr. Stubchaer, I also
5 request of the Department that they offer by reference
6 Bulletin -- I believe, it's 132, the one which is
7 described as setting forth the details of the wheeling
8 charge components.

9 HEARING OFFICER STUBCHAER: And you need to specify
10 a year, because it comes out every year.

11 MR. MADDOW: The most recent.

12 MS. CROTHERS: All right. I guess we offer
13 Bulletin 132. We probably have 1995.

14 MR. MADDOW: And by reference is fine.

15 MS. CROTHERS: By reference.

16 MR. MADDOW: Thank you.

17 HEARING OFFICER STUBCHAER: All right. Any
18 objections?

19 MS. LEIDIGH: We need exhibit numbers.

20 HEARING OFFICER STUBCHAER: Excuse me?

21 MS. LEIDIGH: 192-82 would be Exhibit 24, and
22 Bulletin 132 would be Exhibit 25.

23 MS. CROTHERS: Yes, that's correct.

24 MS. LEIDIGH: Okay.

25 HEARING OFFICER STUBCHAER: Okay. Seeing no

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1 objections then --

2 MR. SUTTON: Could we get a hardcopy of '95 as
3 well?

4 MS. CROTHERS: Yes.

5 HEARING OFFICER STUBCHAER: They're accepted into
6 the record by reference. Thank you very much for your
7 participation.

8 Next -- we'll give a couple minutes for people
9 to rearrange themselves. Next will be the direct
10 testimony of the State Waters Contractors.

11 All right, Mr. Schulz.

12 ---oOo---

13 DIRECT TESTIMONY OF STATE WATER CONTRACTORS

14 BY CLIFF SCHULZ

15 MR. SCHULZ: Thank you. Mr. Stubchaer,
16 Ms. Forster, my name is Cliff Schulz. I'm here today
17 representing the State Waters Contractors. The State
18 Waters Contractors will be presenting two witnesses on
19 direct and may present some rebuttal testimony later in
20 these proceedings, because the longer and longer they go,
21 the less I think we're going to.

22 Our direct testimony will be given by
23 Steve Macauley, general manager of the State Water
24 Contractors and Chuck Hanson the fishery consultant for
25 the State Water Contractors and an expert that's appeared

1 before you many, many, many times on Bay-Delta matters.

2 The State Water Contractors participated, for
3 your information, with the Department of Water Resources
4 in the negotiation of the stipulation with Delta Wetlands
5 that was presented yesterday. While not a signatory, the
6 contractors are in agreement with its terms. We would
7 like to emphasis a couple of points that were made
8 yesterday by Cathy Crothers of DWR.

9 First, the third paragraph of the stipulation
10 does not and is not intended to deal with the issue of
11 drinking water quality. The parties are free to take
12 different positions with respect to that issue
13 notwithstanding the stipulation. Let me point out -- let
14 me clarify what I mean.

15 Paragraph three only deals with impacts of
16 discharges that require DWR to modify its project
17 operations. The drinking water quality degradation
18 problem may very likely not require a modification of
19 operations, but could significantly impact the
20 contractors' treatment costs. So that concept of damage
21 to the contractors was intentionally left out of the
22 stipulation order to allow the Municipal and SWP
23 contractors to continue to urge the terms and conditions
24 related to drinking water quality that were the focus of
25 the CUWA testimony.

1 So, Ms. Forster, you were indicating some
2 questions in that regard yesterday with respect to the
3 stipulation. And I wanted to make it clear that that
4 stipulation has nothing to do and does not modify the
5 position of the State contractors, municipal contractors
6 or CUWA with respect to the drinking water issues.

7 Second, I would direct your attention to the
8 last phrase of the first paragraph of the stipulation
9 which says: Requests the Board to include these terms in
10 any water rights permits should the -- the should the
11 Board issue water rights permits for the Delta Wetlands
12 Project.

13 That stipulation does not waive either the
14 Department's, or the State Water Contractors's rights to
15 question whether it would be premature to issue water
16 rights permits for the Delta Wetlands Project. The
17 stipulation contains terms which should be included if
18 water rights permits are issued, but the State Water
19 Contractors do still question whether the project has
20 been developed to a stage where the State Board can find
21 that it would be in the public interest to issue permits
22 at this time.

23 Thus, the State Water Contractors find
24 themselves in somewhat of an unusual position with
25 respect to the Delta Wetlands water rights applications.

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1 The applications filed for the project delineate the
2 State Water Project and the Central Valley Project
3 service areas as the places of use for the water
4 developed by the project. Yet, there are no contracts in
5 place that would market that water to either the SWP, or
6 the CVP.

7 On cross-examination Delta Wetlands witnesses
8 stated that they were assuming that the consumptive use
9 water would be delivered through the State and Federal
10 water systems, but that buyers would not necessarily be
11 those projects. The buyers could be third parties with
12 the water wheeled through project facilities under Water
13 Code Section 1812, Casper (phonetic), for example.

14 In addition, Delta Wetlands testified that the
15 water could cost between 2 and \$300 per acre foot in the
16 Delta. And that the project as analyzed can deliver no
17 water in the critical water years of 1929, 1931, 1933,
18 1977, 1990, 1991, and other dry years such as 1947 and
19 1948.

20 With all of these points in mind and given the
21 restrictions contained in the final operating criteria,
22 the State Water Contractors, quite frankly, aren't
23 sure -- and as a matter of fact maybe even find it
24 unlikely that DWR would be the purchaser of the water
25 developed from the project. Therefore, we find ourselves

1 forced to appear at this hearing on the assumption that
2 the water from the project will not, I repeat, will not
3 be sold to the State Water Project, but instead will be
4 sold to third parties and Delta Wetlands will try to
5 obtain some sort of right to wheel the water through
6 State Water Project facilities.

7 We believe that the lack of contracts for the
8 use of water and major impacts in constructing such a
9 major water facility in the Delta and the lack of these
10 operating agreements, which truly will indicate how the
11 project will operate in realtime, it would be difficult
12 for this Board to balance the public interest and issue
13 water rights permits at this time.

14 But in case it does, we have worked on a
15 stipulation which was presented by DWR yesterday and
16 present the testimony of Mr. Macauley and Mr. --
17 Dr. Hanson. That concludes my opening statement.
18 There's a couple of housekeeping matters. I guess I'd
19 like to get marked for identification the exhibits that
20 we're going to introduce today.

21 MS. LEIDIGH: Yes.

22 MR. SCHULZ: We have -- on our exhibit
23 identification index we have six exhibits which we sent
24 to you, one of which we're not going to use at least not
25 at this time. And that is SWC Exhibit 3, the

1 qualifications of Dave Schuster, because we've decided he
2 would not present direct testimony at this time.

3 So we would ask that State Water Contractors
4 Exhibit 1, the qualifications of Steve Macauley; 2 the
5 qualifications of Charles Hanson; 4 the direct testimony
6 of Steve Macauley; 5 the map indicating public agencies
7 contracting for SWP water supplies; and 6 the direct
8 testimony of Charles H. Hanson, Ph.D., be marked for
9 identification.

10 HEARING OFFICER STUBCHAER: They are so marked.

11 MR. SCHULZ: And, perhaps, before we start with the
12 testimony I've been told by Dr. Hanson he has not been
13 sworn.

14 HEARING OFFICER STUBCHAER: Please raise your right
15 hand. You promise to tell the truth in these
16 proceedings?

17 DR. HANSON: I do.

18 HEARING OFFICER STUBCHAER: Okay. Thank you.
19 Please, be seated.

20 MR. SCHULZ: Okay. We're going to start with
21 Mr. Macauley. Mr. Macauley, would you state your name
22 for the record and your current position.

23 MR. MACAULEY: Yes. My name is Steve Macauley.
24 I'm the general manager of the State Water Contractors.

25 MR. SCHULZ: And would you briefly describe the

1 State Water Contractors.

2 MR. MACAULEY: The State Water Contractors is a
3 nonprofit organization representing 27 public agencies
4 which contract for water supply from the California State
5 Water Project. The State Water Project provides all, or
6 a portion of water supplies to some 20 million people and
7 almost one million acres of irrigated farmland. State
8 Water Contractors' Exhibit 5 is a map indicating the
9 public agencies which contract for State Water Project
10 water supplies.

11 MR. SCHULZ: Is State Water Contractors' Exhibit 1
12 a correct statement of your qualifications?

13 MR. MACAULEY: Yes.

14 MR. SCHULZ: Is State Water Contractors' Exhibit 4
15 your written testimony in these proceedings?

16 MR. MACAULEY: Yes.

17 MR. SCHULZ: Have you reviewed the testimony
18 presented in these hearings by the Department of Water
19 Resources and by the California Urban Water Agencies?

20 MR. MACAULEY: Yes, I have.

21 MR. SCHULZ: Does the -- do the State Water
22 Contractors -- I always have trouble with this. It
23 should be probably "does," because you're an
24 organization.

25 Does the State Water Contractors support this

1 testimony?

2 MR. MACAULEY: Yes, we do.

3 MR. SCHULZ: Got it full blaze. Are you familiar
4 with the stipulation between Delta Wetlands and the
5 Department of Water Resources that was introduced by DWR
6 yesterday I believe as Exhibit 23. Is that correct?

7 MS. LEIDIGH: Yes.

8 MR. MACAULEY: Yes, I am.

9 MR. SCHULZ: Did you have an opportunity to
10 participate in its negotiation?

11 MR. MACAULEY: Yes.

12 MR. SCHULZ: Is the -- are the State Water
13 Contractors satisfied with -- do they concur with that
14 stipulation?

15 MR. MACAULEY: Yes, we do.

16 MR. SCHULZ: Mr. Macauley, you just heard in my
17 opening statement me explaining some future stipulations
18 and some issues that were encompassed within the
19 stipulation such as drinking water quality. Do you agree
20 with the description which I gave and is it consistent
21 with your understanding of the interpretation and extent
22 of the stipulation?

23 MR. MACAULEY: Yes.

24 MR. SCHULZ: As a result of the stipulation has any
25 of your written testimony changed with respect to the

1 affects of the Delta Wetlands Project on the senior water
2 rights of the State Water Project?

3 MR. MACAULEY: Yes, it has.

4 MR. SCHULZ: Would you summarize those changes and
5 then go on and summarize your written testimony, please.

6 MR. MACAULEY: My written testimony focuses to some
7 degree on the potential of the Delta Wetlands Project to
8 impact the water rights and operations of the State Water
9 Project. Through the stipulating some of those concerns
10 have been removed, but not all.

11 As we have noted, the stipulation does not
12 address our concerns related to protection of drinking
13 water quality. However, the fact that we've developed
14 some degree of comfort that the State Water Project
15 operations will be protected from Delta Wetlands's
16 operations, if the project is ever built, does not fully
17 address our concern that the State Board may not have
18 enough information on the beneficial uses to be made of
19 appropriated water to determine if it's in the public
20 interest to grant water permits at this time.

21 In other words, State Water Contractors neither
22 oppose or support the Delta Wetlands Project, because we
23 simply do not have enough information on which to make a
24 valid judgment on the worth of the project. Of
25 particular concern is the proposed project's present

1 state of development. Delta Wetlands would dramatically
2 change Delta conditions even though it has not identified
3 a single specific beneficial user of the waters it
4 proposes to develop.

5 The Applicant has only been able to conceptually
6 identify beneficial uses for the water. And states that
7 it anticipates selling all, or a portion of the project,
8 or the water supplies developed by the project to the
9 Department of Water Resources, the U.S. Bureau of
10 Reclamation, State Water Contractors, or other entities
11 within the State Water Project, or CVP service areas.
12 However, neither the Department of Water Resources, nor
13 the State Water Contractors, nor any other entity to our
14 knowledge has yet to confirm a meaningful interest in
15 acquiring the project, or contracting for the water
16 supply.

17 With so little information on how the water will
18 be beneficially used, it is very hard for us to believe
19 that such a large project in the heart of the Delta is
20 ready for permitting and that the Board can be in a
21 position where it can apply its balancing judgment. Also
22 in the minds of all parties to this hearing is how this
23 project might fit in with the Bay-Delta facilities and
24 regulatory components now being developed through the
25 CAL/FED Bay-Delta Program.

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1 However, until we have enough information so
2 that it is possible to ascertain likely realtime
3 operational impacts on the Delta and on the State Water
4 Project, the Central Valley Project, and other senior
5 water rights who divert water from the Delta, it's not
6 possible to determine whether the proposed project can be
7 a feasible and beneficial element of the CAL/FED Program,
8 or any other program that may be implemented to resolve
9 Bay-Delta issues, or be incompatible with such programs.

10 In short, at this time the Applicant simply has
11 not made the requisite showings, in our view, of
12 substantiations for a water rights permit. Another
13 concern over Delta Wetlands stage of development is that
14 the Delta Wetlands's operations must be very closely
15 coordinated with the State Water Project and Central
16 Valley Project with respect to:

17 First, water quality of Delta Channels. Second,
18 compliance with Bay-Delta Water Quality Control Plan
19 standards. And, third, operation of the State Water
20 Project and Central Valley Project with respect to
21 upstream reservoir releases, Delta cross-channel
22 operations, exports, and other operational factors.

23 Adding Delta Wetlands to the current regulatory
24 mix will be an extremely complex matter as acknowledged
25 by several of the Applicant's witnesses. It's critical

1 that an agreement relating to the actual operation of the
2 Delta Wetlands in realtime be developed so that Delta
3 Wetlands does not in any way result in the imposition of
4 requirements for any changes in the SWP and CVP
5 operations that would not be imposed in its absences.
6 Until those agreements are negotiated, we do not see how
7 the State Board can conclude that constructing the
8 project will be in the public interest.

9 Finally, the State Water Project is used for the
10 general public environmental and economic benefit in
11 several ways. And I'd like to point those out. For
12 example, voluntary use of the State Project operational
13 flexibility has allowed fishery agencies to develop
14 critically important reliable information about fish
15 passage and protection while still pulling State Water
16 Project water supply purposes.

17 Second, State Water Project operational
18 flexibility has been heavily relied on to implement the
19 1994 Bay-Delta Accord and this Board's 1995 Water Quality
20 Control Plan. Third, State Water Project operational
21 flexibility was a critical component in the success of
22 the Governor's three drought water banks during the
23 recent severe drought.

24 Finally, the State Water Project operational
25 flexibility makes many water transfers possible that

1 otherwise could not physically be implemented. Water
2 transfers are here to stay. They're a major component of
3 Governor Wilson's Water Policy as well as an expected
4 significant component of the CAL/FED Bay-Delta Program's
5 solution package. Billions of dollars of public
6 infrastructure investment make this operational
7 flexibility possible.

8 Our bottom line is that the Delta Wetlands
9 Project must not in any way interfere with, or otherwise
10 adversely impact the operation of the State Water
11 Project. The existence of available State Water Project
12 wheeling capacity and planning studies does not guarantee
13 that such capacity will be available to Delta Wetlands
14 beneficiaries.

15 You may recall that Mr. Gage yesterday outlined
16 those factors which reduce the availability of unused
17 capacity in the California Aqueduct. In addition to
18 these factors it is also the case that such unused
19 capacity will diminish over time as our contractor
20 demands increase. This is part of the overall State
21 Water Project Plan and has been since the 1960s.

22 Our point is we want to be sure that there are
23 no unrealistic expectations as to realtime availability
24 of the wheeling capacity in the State Water Project
25 facilities. Again, since we have had so little

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1 information on how and where Delta Wetlands water will be
2 beneficially used, even with the stipulation, we simply
3 do not have enough information to allow us to believe
4 that the Delta Wetlands Project is ready for permitting.

5 MR. SCHULZ: Does that conclude your summary?

6 MR. MACAULEY: Yes, it does.

7 MR. SCHULZ: Dr. Hanson.

8 HEARING OFFICER STUBCHAER: Excuse me, Ms. Forster
9 has a question.

10 MR. SCHULZ: Oh, okay.

11 MEMBER FORSTER: I have two questions. The first
12 question is: In the CAL/FED group of alternatives they
13 had something called a series of lakes. And
14 unfortunately --

15 MR. SCHULZ: A chain of lakes.

16 MEMBER FORSTER: A chain of lakes. Unfortunately,
17 I have not had the opportunity to analysis that, or study
18 that, or get into any in-depth knowledge of that,
19 but was that compared to what the Delta Wetlands is
20 proposing? Were those chain of lakes to use islands and
21 fill them up, or was it on the peripheral chain of lakes?

22 MR. MACAULEY: My recollection was that the chain
23 of lakes proposal was a series of Delta islands through
24 the center of the Delta. And I can't recall if it
25 included some of the islands that are being proposed by

1 the -- or owned by the Applicant or not, but it would be
2 a series of lakes and siphons to connect them so that
3 water would be transported through the heart of the Delta
4 through a series of internal reservoirs similar to what
5 the Applicant is proposing, but they would go from island
6 to island by siphons and not re-enter Delta channels.

7 MEMBER FORSTER: And to your knowledge -- I know
8 this might be a little bit off, but did they do a lot of
9 analysis on the issues that the -- that the participants
10 in this hearing have been questioning? Did they look at
11 the TOC and all of that, or was it just a general idea?

12 MR. MACAULEY: I don't recall whether TOC was
13 addressed or not.

14 MEMBER FORSTER: And, then, I don't want to focus
15 too much longer on this drinking water issue, but it is a
16 curious issue when it comes to the State Water
17 Contractors.

18 I'm not familiar with all the terms and
19 conditions within your Monterey agreement, but are there
20 drinking water components of that along with fishing --
21 fishery and our Water Quality Control Plan?

22 MR. MACAULEY: In fact, there are drinking water
23 requirements, or drinking water contractual features in
24 the basic water supply contracts when they were signed in
25 the early 1960's. And those still exist, yes.

1 MEMBER FORSTER: And do they address any issues
2 brought up in this hearing besides salinity and TDS?

3 MR. MACAULEY: They don't address total organic
4 carbon. I think as Mr. Schulz indicated, our concern is
5 not with respect to the diminishment of the water
6 supplies as much as a diversion of water, a certain
7 quality might incur cost downstream of the treatment
8 facilities.

9 MEMBER FORSTER: All right.

10 MR. MACAULEY: So there is a cost associated with
11 the diminished quality in the area of organic carbon.

12 MEMBER FORSTER: Okay. Thank you.

13 HEARING OFFICER STUBCHAER: Okay. Mr. Schulz.

14 MR. SCHULZ: Dr. Hanson, would you state your name
15 and current occupation for the record.

16 DR. HANSON: My name is Charles H. Hanson,
17 H-A-N-S-O-N. I'm senior fishery biologist and principle
18 of Hanson Environmental. I am serving as a consultant to
19 the State Water Contractors.

20 MR. SCHULZ: Is Exhibit 2 a correct statement of
21 your qualifications?

22 DR. HANSON: Yes, it is.

23 MR. SCHULZ: Have you ever heard of the
24 Sacramento/San Joaquin Delta?

25 DR. HANSON: I've heard of that. I've even visited

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1 that.

2 MR. SCHULZ: Sorry, I couldn't resist it.

3 Is Exhibit 6 a correct -- is that your
4 testimony -- your written testimony in these proceedings?

5 DR. HANSON: That is my written testimony.

6 MR. SCHULZ: Dr. Hanson, in summarizing your
7 written testimony today I'd like to do it by relating to
8 four recommendations which I know you had in your written
9 testimony. And I think possibly it would be most useful
10 to the Board if we summarize your testimony by talking
11 about those four recommendations and why you made them
12 and what the background is. And, also, as we go through
13 them if there's any changes that have occurred since the
14 written testimony was prepared, if you will point those
15 out.

16 DR. HANSON: I will.

17 MR. SCHULZ: Okay. You recommended in your written
18 testimony discharge of water released from the reservoir
19 islands must not result in a level of dissolve oxygen
20 falling below six milligrams per liter.

21 Would you summarize that testimony and
22 recommendation, please.

23 DR. HANSON: Yes. My current understanding of the
24 operations, or proposed operations of the discharge
25 component of the project involves two components as it

1 results to dissolved oxygen. One, is a dissolved oxygen
2 criteria of six milligrams per liter in the discharge;
3 and five milligrams per liter in the receiving waters.
4 So discharge would not result in depression of receiving
5 water discharge dissolved oxygen below five milligrams
6 per liter.

7 In looking at that particular set of criteria, I
8 felt comfortable with the six milligram per liter
9 requirement for the discharge. In looking at the
10 receiving waters, however, I considered whether the five
11 milligram per liter stipulation would, in fact, be
12 protective of those fisheries' populations inhabiting
13 that central portion of the Delta and thought about the
14 variation of that five milligram per liter.

15 It is consistent with the basin plan. And the
16 basin plan and five milligram per liter criteria has
17 been in place for a long -- a large number of years. It
18 was originally developed using largely information on the
19 mortality of fish and other aquatic resources resulting
20 from dissolved oxygen concentrations.

21 Since that original derivation, however, there
22 have been advances in the scientific approaches and the
23 information that has been developed. We've become more
24 sophisticated in terms of looking not only at mortality
25 but also at sublethal and chronic stresses associated

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1 with various water quality constituents.

2 And in the information that has subsequently
3 been developed -- and this is cited in the National
4 Marine Fishery Service's Biological Opinion, there are
5 stresses that have been identified when dissolved oxygen
6 concentrations are as low as six -- or below six
7 milligrams per liter.

8 Taking that new information into account,
9 considering the location of the Delta Wetlands Project
10 within the Delta habitat, the sensitivity of various fish
11 species that inhabit that area of the Delta, both
12 seasonally and year-round, it was my recommendation that
13 the criteria developed in the operational plan for the
14 project be modified to include provisions for both the
15 six milligram per liter criteria in the discharge and
16 also an increase in the level of protection by requiring
17 that the discharge not depress receiving water dissolved
18 oxygen concentrations below six milligrams per liter.

19 MR. SCHULZ: Okay. In the area of what I would
20 call adaptive management slash monitoring, you
21 recommended that Delta Wetlands be required to identify
22 specific time schedules for completing the evaluation of
23 unavoidable losses of fish and establishing in advance
24 specific criteria for determining appropriate mitigation
25 through operational modifications, or non-operational

1 measures.

2 Would you describe the basis for that and what
3 you specifically want to see happen?

4 DR. HANSON: Yes. The Delta Wetlands Project has
5 relied to a certain extent on the principles of adaptive
6 management for taking into account environmental
7 conditions and biological conditions to modify their
8 operations in such a way as to reduce or minimize adverse
9 impacts to fisheries. And I am solidly in support of
10 that principle and that process for fine tuning project
11 operations to take into greater account the flexibility
12 in terms of their operations as well as to take into
13 account the specific environmental conditions that are
14 occurring seasonally and between years that may not be
15 anticipated through more rigid regulations. So I'm
16 supportive of the basic principle.

17 I've been involved in the development of a
18 number of adaptive management program as well as realtime
19 monitoring programs specifically aimed at using
20 biological data as input to making operational decisions.
21 And I would summarize my concern as basically the devil
22 is in the details.

23 These are very difficult programs to establish.
24 There needs to be very detailed consideration of the
25 sampling design and the experimental protocols in the

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1 design for such an Adaptive Management Program. In order
2 to effectively evaluate its potential success as a tool
3 in this process, there needs to be detailed information
4 on such things as where samples would be collected; the
5 frequency that sampling would occur; the kinds of
6 information that would be developed from those sampling
7 programs; the logistics for how that sampling information
8 would be turned around rapidly enough to make it
9 available for use in a decision-making process under,
10 quote, realtime management scenarios.

11 A variety of those kinds of issues need to be
12 worked out. And I have not seen that kind of detailed
13 description of how the Adaptive Management Program for
14 this project would actually be applied. My
15 recommendation in that regard is that Delta Wetlands
16 prepare an experimental design and sampling program that
17 identifies, in detail, how this particular aspect of the
18 program would be performed; how the data would be
19 developed; and the specific criteria as to how that data
20 would be applied to making management decisions, specific
21 criteria for: If this occurs, then we do that.

22 What I would like to see is that that plan be
23 put together and circulated by Delta Wetlands to the
24 IBP Salmon Project work team, the IBP Delta Native Fish
25 work team, the other State and Federal agencies involved

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1 in Delta issues, as well as the broader involvement by
2 what we refer to as stakeholders, being both the water
3 users as well as the environmental community.

4 Allow for a period of peer review of that
5 sampling protocol in those plans; and a process for
6 introducing modifications to the plan that may be
7 technically desirable; followed by an acceptance of that
8 final adaptive management plan as it relates to fisheries
9 by the Executive Officer of the State Board prior to
10 implementing construction of the proposed project.

11 MR. SCHULZ: Similarly, you recommended that Delta
12 Wetlands should be required to develop an increment fund
13 do appropriate larval fish monitoring studies. Would you
14 describe the background and basis for that
15 recommendation?

16 DR. HANSON: Yes. There are extensive fisheries
17 monitoring programs that are currently underway within
18 the Delta system. There are programs that are aimed at
19 chinook salmon, at Delta smelt, at a variety of other
20 fisheries populations. The majority of those sampling
21 activities are all under the general guidance and
22 direction of the interagency Ecological Program. And
23 there is a wealth of information from those programs that
24 I think would be applicable and beneficial to the Delta
25 Wetlands Project.

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1 That information can be used as a broader
2 context for looking at their project operations through
3 this Adaptive Management Program and would, I think, in
4 overall through coordination between their monitoring
5 efforts and the broader IBP Program provide a broader
6 foundation for actually making reasonable and prudent
7 management decisions.

8 My concern, however, is that there is a
9 distinction between the objectives of Delta Wetlands and
10 the longer term objectives of the IBP Monitoring Program.
11 There may be changes that occur in the program direction,
12 the priorities, the sampling locations, a variety of
13 other aspects to the IBP Program that Delta Wetlands
14 would have no control over. And so the broad base of
15 information that would be developed through the IBP
16 Program may or may not serve the necessary purposes of
17 the Delta Wetlands Adaptive Management Program.

18 To the extent that those two sampling efforts
19 could be coordinated, I'm solidly in support of that.
20 And Delta Wetlands should take maximum advantage of the
21 information that's available through these other
22 processes. However, I think it's their specific
23 responsibility and their financial obligation to have a
24 monitoring program in place that would provide the
25 information they need in order to make their adaptive

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1 management decisions in the event that the information is
2 not available either because of sampling, or timeliness
3 from the IBP Program. And I think that obligation should
4 continue throughout the life of the project as it
5 pertains to the Adaptive Management Program.

6 MR. SCHULZ: Okay. Finally, you made a
7 recommendation that no diversions be allowed when X2 was
8 not below Chipps Islands. I believe your written
9 testimony focused on the late winter and early spring.
10 Have you subsequent to that written testimony had an
11 opportunity to meet with Delta Wetlands biologists and
12 hydrologists, and would you comment on that
13 recommendation?

14 DR. HANSON: I will comment on that. My original
15 concern pertained to a number of fisheries impacts that
16 have been identified by Jones and Stokes in the original
17 environmental documentation for the project, and
18 subsequently have been amplified through comments by the
19 National Fishery Service, the U.S. Fish and Wildlife
20 Service, the California Department of Fish and Game and
21 others.

22 Those potential impacts relate to changes in
23 Delta hydrology, changes in susceptibility of individual
24 organisms to entrainment at the Delta Wetlands diversion
25 as well in other nonspring diversions and a variety of

1 other issues that are well documented in the record.

2 I was also concerned about the interaction
3 between potential Delta Wetlands operations and
4 operations of the State and Federal Water Project exports
5 in a cumulative sense as well as the cumulative impacts
6 that may occur through the operation of these projects in
7 combination with other sources of mortality within the
8 Delta, other unscreened diversions, for example.

9 I was concerned about the level of uncertainty
10 that currently exists with respect to the effectiveness
11 of the Adaptive Management Program in reducing adverse
12 impacts and the level of protection that would be
13 provided by the Delta Wetlands Project in that context.

14 I was also concerned about the efforts that are
15 currently underway through the Delta Accord, through the
16 Water Quality Control Plan, the long-term CAL/FED effort
17 to improve habitat conditions and provide additional
18 protections for fisheries within the Delta and the
19 potential affects that Delta Wetlands may have either
20 individually or as a cumulative contribution to those
21 efforts.

22 Finally, I was concerned that a large part of
23 the focus of the analyses that have been performed have
24 looked at whether or not Delta Wetlands would create a
25 significant adverse impact to fisheries. And they have

1 done a variety of analyses to help address that specific
2 issue. The concern that I have though is somewhat
3 different. And that concern pertains not to whether the
4 Delta Wetlands Project individually or cumulatively would
5 adversely impact fisheries, but whether or not that
6 individual or cumulative impact would create a delay, or
7 would in any way hamper our efforts to recover various
8 populations within the Delta.

9 And so I was looking more at the recovery side
10 of the equation and the effectiveness of these other
11 actions for improving fisheries's conditions as it
12 pertains to the recovery of species like Delta smelt,
13 winter-run salmon, spring-run salmon, and steelhead.
14 Those were my primary concerns.

15 That led me to a recommendation that basically
16 said that one way to address these concerns would be to
17 limit the period when Delta Wetlands could be diverting
18 onto the islands to only those occasions when the X2 is
19 located downstream of Chipps Island. The theory being
20 that the further west, or downstream of Chipps Island
21 that X2 is located, the lesser the variability of various
22 fish species to have adverse affects. And that would
23 provide a measure of protection that I thought would be
24 beneficial primarily during that late winter and spring
25 period that you mentioned.

1 My primary concern during that period is the
2 spawning and larval distribution of a variety of fish
3 species in the Delta, many of which reside in the Central
4 Delta at certain periods of the year. And also many of
5 which respond geographically in terms of changes in their
6 distribution to X2 or outflow.

7 And that was the basis for my concern and the
8 basis for my recommendation. I have since had an
9 opportunity to meet with Delta Wetlands to express and
10 discuss these concerns. I've looked at some of the
11 analyses and the operational results of some of their
12 modeling. And what that has indicated to me is that the
13 frequency with which Delta Wetlands could, or would be
14 diverting onto the Delta islands during periods when X2
15 is upstream of Chipps Islands, but downstream of
16 Collinsville during the February through June period is
17 very, very low.

18 So the frequency of occurrence is small. And to
19 a large extent that would help alleviate my original
20 concerns that there may be adverse affects associated
21 with that aspect of their project operations.

22 MR. SCHULZ: Thank you. Mr. Stubchaer, what that
23 means quite frankly is that it is not the recommendation
24 that we are making now that for fishery purposes that
25 we're asking that diversions only occur when X2 is below

1 Chipps.

2 In the stipulation that we've entered into with
3 Delta Wetlands there are -- there is language that says
4 that an adverse affect on SWP will be deemed to have
5 occurred -- this is B of paragraph 1, at any other time
6 that diversion would directly or indirectly require the
7 CVP and SWP to modify their operations.

8 Given the adaptive management studies which
9 Dr. Hanson has recommended, and given that language and
10 also probably given an assumption that the State Board is
11 likely, and permits are issued, is going to are retain
12 jurisdiction over the final terms and conditions and with
13 the infrequency at which he just described, we're
14 comfortable with the stipulation and the way the
15 hydrology really works in the real world, and adaptive
16 management studies as covering that concern. And with
17 that, that concludes our direct examination?

18 MR. MACAULEY: It does.

19 HEARING OFFICER STUBCHAER: All right. Before we
20 start the cross-examination, we'll take our morning
21 break.

22 (Recess taken from 10:40 a.m. to 10:53 a.m.)

23 HEARING OFFICER STUBCHAER: Okay. We'll reconvene
24 the hearing and cross-examination of the State Water
25 Contractors. Delta Wetlands, Mr. Nelson.

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CROSS-EXAMINATION OF STATE WATER CONTRACTORS

BY DELTA WETLANDS PROPERTIES

BY JOSEPH NELSON

MR. NELSON: I just have a couple questions for Mr. Hanson.

MR. SCHULZ: Dr. Hanson.

MR. NELSON: For your direct testimony you reviewed -- did you review the whole Delta Wetlands operations?

DR. HANSON: I reviewed the draft environmental impact statement. I reviewed the National Marine Fishery Service and U.S. Fish and Wildlife Biological Opinions, which I believe had as an attachment the Delta Wetlands operational plan.

MR. NELSON: Okay. And in that review, did you review the temperature related issues that were raised in the Biological Opinions and the monitoring program that was in the final operations criteria?

DR. HANSON: I did, but quite frankly, I didn't review them in real detail. And part of the reason for that is when I looked at the National Marine Fishery Service's Biological Opinion I saw that the issue of temperature was addressed as well as in the operational plan. And I have been involved over a number of years in

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1 a variety of thermal affects assessment studies conducted
2 in San Francisco Bay as well as the Delta.

3 And I've recognized the difficulty of making
4 conclusionary types of statements from the literature as
5 it pertains to dealing with those issues of thermal
6 affects. And to elaborate a little bit more, there are a
7 variety of factors that need to be taken into account
8 when looking at those temperatures and potential for
9 adverse affects on fisheries.

10 To begin with the affects of temperature on
11 fisheries follows a dose response. It's a function of
12 both the time of exposure as well as the magnitude of
13 exposure. And for projects in the Delta such as this one
14 it's very difficult to assess what duration of exposure
15 might be, because fish are moving in and out of the area.
16 There's other dynamic processes involved.

17 Secondly, it's difficult given the ambient
18 conditions that occur in the Delta in terms of the
19 acclimation of the fish to various water temperature
20 conditions seasonally and through other processes that do
21 have a direct bearing on their response to exposure to
22 elevated temperatures. The Delta T, that temperature
23 incremental increase above the ambient background is also
24 a factor that needs to be brought into bear when
25 evaluating potential impacts.

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1 And one of the most significant things that
2 we've seen through our earlier studies is that the
3 need -- in order to have an impact not only on those
4 conditions associated with the discharge, but you also
5 need to have the fish in the area at the time when the
6 discharge is occurring. And that pertains to two
7 aspects.

8 One is the seasonal occurrence of various fish
9 species in the Delta in that area needs to be brought
10 into consideration. And the other is on a micro scale.
11 What you find is warm water discharged into the Delta
12 floats. If it has a temperature greater than the ambient
13 background it floats to the surface and tends to spread
14 out horizontally across channels. And that process
15 limits the exposure of a variety of fish to those
16 elevated temperature. The temperature may be elevated
17 near the surface and the fish may actually be occurring
18 spaciously down lower in the water column where they're
19 not exposed to that.

20 After having considered those and other factors
21 and not knowing in detail exactly how the Delta Wetlands
22 Project would be discharging, the seasonal temperatures
23 that would be occurring at that time, the Delta T's and
24 the absolute temperatures that would be occurring in the
25 discharge, I simply did not have enough information to

1 make a scientific judgment as to the potential impacts in
2 a real confident, or reasonable way.

3 MR. NELSON: Did you look at the temperature
4 criteria themselves?

5 DR. HANSON: I did look at the temperature
6 criteria, but as I say it's difficult to really do a
7 detailed biological assessment of those temperature
8 criteria without taking into account these other factors,
9 but I did look at those.

10 MR. NELSON: And those other factors, again, are
11 the acute temperature differential, the spatial
12 occurrence of the fish in the stream, the presence around
13 Delta Wetlands islands when the fish would be occurring,
14 and also the timing of the discharge. Is that correct?

15 DR. HANSON: The acclimation temperature, the
16 responses of the fish could be avoidance as opposed to,
17 you know, other factors. The duration of exposure makes
18 a large difference in terms of the interpretation of
19 those. And I simply didn't focus on that as a key
20 element of my direct testimony, or evaluation.

21 MR. NELSON: Would you agree that looking at those
22 issues, those are the factors you have to look at when
23 establishing a temperature criteria that would be
24 protective of fish?

25 DR. HANSON: In our studies that we have performed

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1 MR. ETHERIDGE: Would you have recommended a study
2 and monitoring program of the project's potential impacts
3 on Mokelumne River salmon and fry?

4 DR. HANSON: I would. And the reason for that is
5 the location of the Delta Wetlands Project with respect
6 to the out-migration corridor for Mokelumne River fish.
7 And it pertains not only to fry and smolt life stages
8 that you've alluded to, but it also pertains to the
9 yearling salmon that are produced in the Mokelumne River.

10 And right now we simply don't have through coded
11 wire tags survival studies and other mechanisms a
12 sufficient body of information upon which to do a
13 detailed evaluation of the potential impacts of a project
14 such as the Delta Wetlands on the survival of fish coming
15 out of the Mokelumne River. There are a number of
16 concerns I think that should be addressed.

17 MR. ETHERIDGE: And what are those concerns?

18 DR. HANSON: Changes in hydrologic conditions that
19 occur within the Delta not only as a function of the
20 Delta Wetlands Project operations, but also the
21 interaction between, for example, a discharge from Delta
22 Wetlands and the subsequent diversions that may occur at
23 the State and Federal Water Projects. We've talked a
24 little bit about the issue of water temperatures
25 depending on the seasonal period of when that were to

1 occur. Those types of both direct and indirect affects.

2 MR. ETHERIDGE: So there's a series of factors you
3 believe may be important, but they simply haven't been
4 analyzed here?

5 DR. HANSON: Well, I think some of the factors have
6 been analyzed. For example, the Delta Wetlands Project
7 has included positive barrier fish screens that would
8 have a screen mesh and approach velocity that I think
9 would largely be protective of those salmon fry and
10 smolts and yearlings coming out of the Mokelumne River.

11 So the direct entrainment aspect as it relates
12 to the Delta Wetlands Project operation I think has been
13 addressed in what I would consider to be an acceptable
14 way. It's more the indirect affects of project
15 operations that I think have not yet fully been
16 evaluated.

17 MR. ETHERIDGE: Now, is one of those of indirect
18 affects predation? You mention on page 4.4 of your
19 written testimony "predation impacts."

20 DR. HANSON: The Delta Wetlands Project includes a
21 variety of structural elements, boat docks and piers as
22 well as the diversions and the siphons and the screens
23 themselves. What we find in the Delta is that many of
24 the predatory fish utilize those kinds of structural
25 elements as hiding places. Many of them are lay-and-wait

1 predators including large-mouth bass, striped bass, and
2 others.

3 And as a large-mouth bass fisherman in the Delta
4 I can tell you quite frankly one of the places that I
5 preferentially fish is around docks and piers. And
6 there's a reason for that. And the Delta Wetlands
7 Project incorporates a large number of those kinds of
8 structures. They're located in an area where juvenile
9 salmon would be migrating past the project.

10 Those fish would be vulnerable to increased
11 susceptibility to predation. And I don't think that was
12 really adequately evaluated in the project documentation.

13 MR. ETHERIDGE: Okay. On page 5.9 of your written
14 testimony you discuss the Mokelumne River yearlings. Is
15 that correct?

16 DR. HANSON: That is correct.

17 MR. ETHERIDGE: You state there that yearling
18 fall-run chinook salmon are released into the lower
19 Mokelumne River during the period of fall -- during fall:
20 October, November, December. And the yearling salmon
21 subsequently migrate downstream through the Delta. Is
22 that correct?

23 DR. HANSON: That is correct.

24 MR. ETHERIDGE: Is true that the seasonal timing of
25 that yearling migration from the Mokelumne River would

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1 coincide directly with the period of diversion proposed
2 for the Delta Wetlands Project?

3 DR. HANSON: It would. And those yearlings have --
4 well, let me back up. In terms of development of a
5 fishery management plan specifically designed to improve
6 and restore the salmon populations within the lower
7 Mokelumne River, there have been a number of actions that
8 have been taken.

9 Some of those actions pertain to improving
10 habitat conditions within the lower river downstream of
11 Comanche Dam, but as a cornerstone of that management
12 plan there has also been the contribution of Mokelumne
13 River origin salmon that are produced and raised in the
14 Mokelumne River fish hatchery.

15 And in evaluating various alternative strategies
16 for supporting and enhancing the Mokelumne River salmon
17 population consideration was given to how that hatchery
18 should be operated. And through that evaluation a
19 decision was made that a large part of the restoration
20 efforts should focus on yearling salmon production.
21 Those yearlings are spawned in the fall. They're held in
22 the hatchery throughout the subsequent spring and summer.
23 And they're released as yearlings the following fall in
24 October and November.

25 They're released into the lower Mokelumne River

1 to improve the imprinting in the numbers of those adults
2 returning to the Mokelumne River. And that whole
3 strategy was evolved to take advantage of greater
4 survival rates for larger fish released into the system.
5 They are also released at a time where water temperatures
6 are more conducive to their survival through the Delta.

7 They were -- part of the decision was that
8 during that late fall and winter period is a time when
9 diversions from the Delta for agricultural irrigation,
10 for example, are typically at a seasonal minimum. And so
11 we felt given all those various factors relying on
12 yearling salmon production would be an important
13 component for restoring the Mokelumne River fishery.

14 The Delta Wetlands Project because of its
15 geographic location with respect to that out-migration
16 corridor and their operations to fill during that period
17 of high flow would be diverting onto the islands
18 potentially in a large number of those years when
19 Mokelumne River yearlings are passing through the area.
20 As I pointed out earlier, the fish streams that are
21 included as part of the Delta Wetlands Project would
22 largely eliminate direct entrainment loss of those
23 yearlings. The low approach velocity I think would
24 largely eliminate concerns with respect to impingement on
25 the screens.

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1 So my concern would relate more to the indirect
2 affects associated with changes in hydraulic conditions
3 during that time period. And those are very difficult to
4 evaluate. Although there are some efforts that have been
5 undertaken by East Bay MUD to use radio tagging
6 technology to better evaluate how these yearlings are
7 migrating through the Delta. And that would be an
8 applicable technique for looking at this particular
9 issue.

10 MR. ETHERIDGE: So is it your opinion then that
11 these potential impacts on the yearling salmon are
12 greater than those characterized in the environmental
13 documentation?

14 DR. HANSON: I'm not aware -- or at least in my
15 reading of the environmental documentation I didn't see
16 any discussion of the impacts of the project operation on
17 yearling salmon during that October, November, December
18 time period.

19 MR. ETHERIDGE: Okay. Thank you very much,
20 Dr. Hanson.

21 DR. HANSON: Thank you.

22 HEARING OFFICER STUBCHAER: Thank you,
23 Mr. Etheridge.

24 Ms. Murray, before we get to you I'd like to
25 discuss our procedures for just a little bit. We want to

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1 announce, again, that we'll be terminating the session
2 today at around 3:30 p.m. And I'd like to know how many
3 parties intend to present rebuttal testimony?

4 All right. How many, if you know now, intend to
5 have extensive cross-examination of Fish and Game after
6 their direct? All right.

7 What I'm trying to determine is whether or not
8 Caltrans needs to get up here this afternoon. And even
9 though they've been advised it would probably be
10 Tuesday -- it doesn't look like that to me. I think we
11 are all right.

12 Okay. Ms. Murray.

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14 CROSS-EXAMINATION OF STATE WATER CONTRACTORS

15 BY CALIFORNIA DEPARTMENT OF FISH AND GAME

16 BY NANCEE MURRAY

17 MS. MURRAY: Hello, Dr. Hanson. I just have a few
18 questions. You stated in your written testimony that the
19 Delta Wetlands Project may cause significant increased
20 cumulative fishery impacts and/or reduce the potential
21 and environmental benefits resulting from the Delta
22 Accord.

23 Do you recall that?

24 DR. HANSON: I do.

25 MS. MURRAY: How do you think the Delta Wetlands

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1 Project could reduce the environmental benefits of the
2 Delta Accord?

3 DR. HANSON: Part of the Delta Accord, for example,
4 had to do with the hydrologic conditions that are
5 occurring within the Delta, the export-inflow ratio was
6 part of that consideration. There were considerations
7 given to flows seasonally from the Sacramento River as
8 well as from the San Joaquin River.

9 There were considerations given to the X2
10 location, Delta Cross Channel gate closures, closures at
11 the head of Old River. A variety of factors were all
12 brought into bear in terms of underpinnings for the
13 development of the Delta Accord as it pertains to
14 fisheries improvements. And operation of the Delta
15 Wetlands Project has the potential during certain periods
16 of the year when they're diverting onto the islands to
17 change some of those Delta hydrologic conditions.

18 Concerns about cumulative affects has to do with
19 more those indirect impacts of their project operations
20 as it would result in increase susceptibility of various
21 fish species to entrainment and other unscreened
22 diversions that don't have the fish protection facilities
23 that the Delta Wetlands Project has included.

24 It would also pertain to changes in the
25 hydrologic condition resulting from the discharge from

1 the Delta Wetlands Project that would subsequently be
2 exported by the State and Federal Water Projects.

3 It would have the potential for the increased
4 direct entrainment loss at the State and Federal Water
5 Project associated with that incremental increase in
6 diversions associated with the deliveries from the Delta
7 Wetlands Project. Those types of cumulative and
8 interactive affects were the sorts of things that I was
9 concerned with.

10 And I was also concerned with sort of the
11 overall philosophy that many of us are using now in terms
12 of improving conditions in the Delta as it was reflected
13 not only in the Delta Accord, but in many of our
14 subsequent discussions and also are part of the
15 underpinnings of CAL/FED.

16 MS. MURRAY: You also stated earlier that you have
17 the concern about recovery potential for fish species.
18 What are your concerns about how Delta Wetlands Project
19 operations could affect the recovery potential, for
20 example, of Delta smelt, winter-run salmon, splittail
21 steelhead, and other specimen?

22 DR. HANSON: My concern largely focuses on the
23 potential for Delta Wetlands to increase the mortality of
24 these various fish species, or to reduce the quality, or
25 availability of habitat. And the concern focuses largely

1 on the fact that we have declining fisheries populations.
2 You've cited Delta smelt and winter-run salmon, which are
3 both listed species, as well as spring-run which is now a
4 candidate and probably soon to be listed.

5 Those are species that inhabit the Central
6 portion of the Delta. During their seasonal
7 out-migration, or in many cases such as Delta smelt
8 throughout the year they utilize that area -- at least
9 for Delta smelt and for splittail as juvenile rearing
10 areas, as spawning areas. Salmon fry utilize that area
11 as a rearing area during a portion of year as well as the
12 smolts and yearlings utilizing it as an out-migration
13 corridor.

14 To the extent that the activities that we have
15 underway right now provide additional constraints on the
16 State and Federal Water Projects to try to improve those
17 conditions, the implementation of the Delta Accord and
18 other actions designed specifically to improve those
19 conditions, many of those actions were aimed at recovery.

20 And the purpose of that recovery is to allow for
21 greater resiliency of these populations, to allow for
22 increases in their abundance, and reductions in their
23 mortality rates. And to the extent that Delta Wetlands
24 adversely affects either those habitat conditions, or
25 through cumulative affects, or through these indirect

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1 mechanisms we have increased mortality.

2 Two things potentially could occur. One, is
3 that project could then delay the rate of recovery for
4 some of these species, which would be viewed as -- in my
5 opinion, as an adverse affect. Or the worse case
6 condition is that it could actually be creating
7 additional impacts beyond those that we currently have
8 acknowledged and identified that could result in further
9 declines of some of these populations.

10 MS. MURRAY: Okay.

11 DR. HANSON: Neither of those are good conditions.
12 And speaking frankly as a consultant to the State Water
13 Contractors one of my concerns is that we're striving to
14 recover many of these populations so that some of the
15 other restrictions that are currently being imposed on
16 the projects through incidental take and other
17 constraints would be relaxed.

18 To the extent that any project adversely impacts
19 the ability to accomplish that goal, it's likely to be
20 translated into greater constraints on State and Federal
21 Water Project operations. And that would be adverse not
22 only from the fisheries perspective, but also from my
23 client's operational perspective.

24 MS. MURRAY: In your written testimony you also
25 stated that the peak occurrence of long-fin smelt larvae

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1 is during February and March. Do you recall that?

2 DR. HANSON: I do.

3 MS. MURRAY: What impacts to larval long-fin smelt
4 could occur as a result of Delta Wetlands diversions?

5 DR. HANSON: The concern with respect to the
6 long-fin spawning is that during that late winter/early
7 spring period when long-fin smelt are spawning in the
8 system that co-occur with the period when Delta Wetlands
9 would potentially be diverting onto the islands those
10 high flow wet time periods.

11 What we've seen is that under high flow years
12 the long-fin smelt tend to be moved further toward the
13 west and away from the Delta. However, under lower flow
14 conditions they tend to move further east and into that
15 interior portion of the Delta, unlike salmon and
16 steelhead and many of the other species that we talked
17 about that occur in the system as juveniles and would be
18 effectively excluded by the screens that are proposed for
19 the Delta Wetlands Project, larval fish would not
20 similarly be excluded. They have a size small enough
21 that they would be entrained through most conventional
22 intake screens. And thereby experience additional
23 entrainment mortality should they be in the areas
24 affected by the Delta Wetlands Project.

25 So this is a direct entrainment loss for

1 long-fin smelt that we have not talked about for the
2 other species. In addition, there are the other concerns
3 that I've talked about that would also be applicable to
4 long-fin smelt in terms of indirect mortality sources.

5 MS. MURRAY: In your opinion would diversion
6 restrictions in April and May prevent significant adverse
7 impacts to larval long-fin smelt?

8 DR. HANSON: Not necessarily. Since species spawn
9 at different times in that late winter/early spring time
10 period and there are species such as long-fin smelt that
11 typically spawn earlier than that April/May time period.

12 MS. MURRAY: In your opinion does the Delta
13 Wetlands Project description currently have sufficient
14 safeguards for larval long-fin smelt to avoid significant
15 adverse impacts?

16 DR. HANSON: I didn't look at that specifically.
17 My recollection is that the Adaptive Management Program
18 and their dealing with entrainment primarily focused on
19 Delta smelt rather than long-fin smelt. But a similar
20 kind of monitoring program, you know, to actually
21 determine whether larval long-fin smelt were being
22 entrained is a potential option. The difficulty would be
23 actually in collecting the sample, processing it, doing
24 the taxonomic identification of species that are very
25 difficult to separate, and in making the information

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1 available on a timeliness basis that would allow you to
2 make reasonable decisions about changes in operations
3 that would be effective in protecting, whether they be
4 long-fin or Delta smelt.

5 MS. MURRAY: And wouldn't it be quite difficult in
6 February and March to get that kind of monitoring, do the
7 analysis, turn it around to prevent significant adverse
8 impacts to those larval?

9 DR. HANSON: It would be if you relied on sampling
10 in the receiving waters as the primary source of
11 information during that wintertime period. It's
12 frequently difficult to do that kind of sampling and turn
13 those samples around quick enough to make it available.

14 If you were to sample such as I understand that
15 Delta Wetlands is also proposing from the direct siphons
16 onto the island, then sampling logistics associated with
17 the wintertime periods become less of a factor. But the
18 issue of the sample processing, part of the problem in
19 the Delta, particularly during that wintertime period, is
20 that your samples not only have a few long-fin adult
21 Delta smelt in it, but they also have a lot of peat, a
22 lot of other material that's very difficult to sort. And
23 it simply takes a lot of time and effort to effectively
24 sort those samples once you have the sample collected to
25 make the information available. And those are the kinds

1 of concerns that I expressed earlier regarding the
2 Adaptive Management Program and how it would actually be
3 implemented.

4 MS. MURRAY: Along those lines, then, given your
5 experience in samplings of juvenile chinook salmon within
6 the Delta, how difficult -- or how difficult would it be
7 to monitor for rare species such as winter-run? And how
8 would you envision a monitoring and adaptive management
9 program be conducted for such rare species as winter-run?

10 DR. HANSON: Most of our sampling is relatively
11 crude in the sense that it is -- is a pretty good
12 indicator of species that occur in relatively high
13 abundance. As we start moving towards species that occur
14 less and less frequently in the population, or in the
15 area of the sampling programs it becomes less and less
16 sensitive in terms of their ability to detect whether a
17 fish is actually there.

18 And you run into the problem where if you have a
19 lot of fish in the population you can be pretty confident
20 that you can go out and sample and at least say that
21 they're there. With a relatively rare species the fact
22 that you didn't catch any doesn't really provide you the
23 same level of confidence that they're not in the area
24 and would not be susceptible to a project.

25 Part of the experience we've had with the

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1 realtime monitoring program, for example, shows that the
2 ability to detect relatively rare species, winter-run and
3 Delta smelt, through conventional fishery sampling is not
4 a very good predictor of the number of species that are
5 subsequently collected and reported from the State and
6 Federal Water Project salvage. They are a much bigger
7 sampler than we are. And so they have an ability to
8 detect species at a lower level than most of the
9 conventional sampling. It's a very difficult issue.

10 MS. MURRAY: Right. And could a single observation
11 be necessary to trigger, or modify operations like it has
12 been for the closure of the Delta Crossing Channel for
13 winter-run?

14 DR. HANSON: We -- I was a party to the data
15 assessment team that meets on a frequent basis by a
16 conference call and through other mechanisms to look at
17 biological monitoring. During that wintertime period for
18 the closure of the Cross Channel, primarily for
19 protection of spring-run, but also winter-run they occur
20 in low numbers.

21 And we have made decisions based not only on the
22 collection of an individual fish, but we have also made
23 management decisions based simply on the environmental
24 conditions that we thought would lead to the possible
25 presence of those fish even though we haven't collected

1 them.

2 MS. MURRAY: In your written testimony you mention
3 some concern with the X2 location in February and March
4 and how that had been a significant issue with the Delta
5 Accord. Now as I understand your oral testimony today,
6 because of a low number of occurrences you are not very
7 concerned with X2. Is that correct?

8 DR. HANSON: My original concern was founded more
9 on the underpinnings of the Delta Accord and my perceived
10 notion that the Delta Wetlands Project could adversely
11 affect those fisheries populations during that November
12 through -- or February through June time period. And so
13 we had an opportunity to sit down and the Delta Wetlands
14 folks and they showed us month-by-month results of their
15 analyses that demonstrated through those modeling efforts
16 that diversions during that February through June time
17 period coincident with periods when X2 was above Chipps
18 Islands occur very, very infrequently. And that gave me
19 some comfort.

20 MS. MURRAY: If -- isn't it true if it does occur
21 very infrequently, if there is a condition that restricts
22 it through February and March, which is a key time for
23 larval long-fin smelt, that the cost would be small
24 relative to the benefit to larval fish, could be?

25 DR. HANSON: I can only speak to the biological

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1 side of that. I haven't really looked at their
2 operations to look at costs for the amount of water that
3 could be taken on during those infrequent occasions.

4 MS. MURRAY: Okay.

5 DR. HANSON: But it would provide additional
6 protection for any of those species that occur earlier
7 than the April/May/June time period.

8 MS. MURRAY: In your professional opinion do the
9 Biological Opinions from the National Marine Fishery
10 Service and the U.S. Fish and Wildlife Service mitigate
11 potential significant fishery impacts due to the Delta
12 Wetlands Project?

13 DR. HANSON: That's a difficult question from a
14 number of perspectives. When I originally read the NMFS
15 and Fish and Wildlife opinions, quite frankly, I was
16 somewhat surprised that they found no jeopardy after
17 having read the first part of their discussion. It's a
18 Biological Opinion. And it was their professional
19 judgment as agencies that the conditions that they
20 imposed through those Biological Opinions in combination
21 with the operational plan for Delta Wetlands would lead
22 to a no-jeopardy opinion.

23 In my professional judgment I'm not sure I would
24 quite concur with that. And -- and some of my concerns
25 I've outlined that would have lead to that sort of -- at

1 least further discussion.

2 MS. MURRAY: Thank you. No further questions.

3 HEARING OFFICER STUBCHAER: Okay. Staff have any
4 questions for this panel?

5 MR. SUTTON: Two.

6 HEARING OFFICER STUBCHAER: Mr. Sutton.

7 ----oOo----

8 CROSS-EXAMINATION OF STATE WATER CONTRACTORS

9 BY STAFF

10 MR. SUTTON: Mr. Macauley --

11 MR. MACAULEY: Yes.

12 MR. SUTTON: -- you suggest in your oral testimony
13 that the Board consider not granting a permit to Delta
14 Wetlands until the coordinated operations agreements have
15 been worked out. Is that correct?

16 MR. MACAULEY: Yes.

17 MR. SUTTON: My question is: Is it possible to
18 work out the details of coordinated operations agreement
19 in the absence of knowing what specific permit terms and
20 conditions the Board is going to put on the project?
21 Sort of a chicken and egg thing, isn't it?

22 MR. MACAULEY: I guess I ask the same question
23 back. Isn't it? One has to start somewhere recognizing
24 the Board in any case will -- will -- will retain
25 continuing jurisdiction. But something has to start

1 someplace. I think our concern frankly was that as Chuck
2 said, as Chuck Hanson said, the devil is in the details.
3 And the actual operational framework and restrictions
4 are, perhaps, even more important than what we can say
5 now given planning studies and an uncertain buyer.

6 MR. SUTTON: But it does have to start somewhere?

7 MR. MACAULEY: Yes.

8 MR. SUTTON: Thank you.

9 Dr. Hanson, we've got to stop meeting like this,
10 Chuck.

11 DR. HANSON: We meet like this frequently, Jim.

12 MR. SUTTON: You brought up the issue of dissolved
13 oxygen in receiving waters.

14 DR. HANSON: Yes.

15 MR. SUTTON: And you're concerns about the releases
16 causing a potential DO sag. The example I'm using here
17 that I want to discuss with you is relative to dissolved
18 oxygen, but it addresses a larger question. Whenever we
19 put permit terms and conditions on a project particularly
20 relatively to monitoring and the requirements that go
21 with that.

22 Given the fact that the Delta is an open system
23 and adjacent to a release from Delta Wetlands reservoir
24 island, do you have other islands that may also be
25 releasing organic material, or other materials, how do

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1 you through a monitoring program unequivocally relate an
2 observed measured result to a specific cause? In this
3 case, a sag in DO to unequivocally to a Delta Wetlands
4 release, can you?

5 DR. HANSON: I guess I provided enough testimony to
6 you, Jim, in my career that there is nothing in the Delta
7 that is unequivocal. There is no real ability to
8 separate the various contributing factors that might lead
9 to such a DO condition within the Delta.

10 As you point out there are a variety of other
11 sources of organic materials and other factors that can
12 contribute to that as well as just the problem of tidal
13 movement, turbulence, a whole lot of physical processes
14 that also make that difficult.

15 I guess in my particular consideration what I
16 was looking at, though, is to the extent that those
17 factors are contributing to ambient dissolved oxygen
18 concentrations that are in the area of five milligrams
19 per liter is not attributable to Delta Wetlands, but
20 simply just because of ambient conditions occurring in
21 that area, and I have no idea how frequently or whether
22 that even occurs, would we want to add another discharge
23 that could further contribute to that situation?

24 And it seems to me that if you simply have a six
25 milligram per liter condition in the discharge and you

1 say, we'll discharge when the ambient conditions are six
2 milligrams per liter or greater you're pretty well
3 protected. The other question that came to my mind in
4 that regard is: If you have a six milligram per liter DO
5 in the discharge, what are the kinds of conditions that
6 would result in that discharge then depressing DO's in
7 the receiving waters below the level in the discharge
8 itself?

9 And I wasn't able to really identify what those
10 might be, but it seemed to me that by providing both a
11 discharge and a receiving water body monitor, or
12 criteria, that we protected not only the discharge but
13 more importantly we at least had a standard in place that
14 recognized the importance of DO in the receiving waters
15 and would allow us, should future monitoring show there's
16 a DO sag to at least have something in place that would
17 help us address that.

18 MR. SUTTON: In that same regard, do you discuss --
19 you discussed indirect impacts of Delta Wetlands, or,
20 indeed, any type of a project in terms of the delaying
21 recovery of species and that sort of thing.

22 DR. HANSON: Yes.

23 MR. SUTTON: Other than direct measurement of
24 specific losses of species, for example, entrainment
25 monitoring and that sort of thing, is it -- is it

1 possible to really determine what the delayed impacts --
2 if -- if, first of all, if you can measure it and,
3 secondly, to attribute that to any particular activity in
4 the Delta, or indeed above it?

5 DR. HANSON: It's very difficult to attribute a
6 change in survival rates or mortality to a specific cause
7 when you're dealing with indirect impacts. We've not
8 been able to do that up to this point. And we've had
9 some pretty big changes that have occurred. And it's
10 very difficult to ascribe a particular change to the
11 Delta Wetlands Project operations independent of
12 everything else going on in the Delta.

13 We are, however, becoming more sophisticated in
14 our ability to conduct coded wire tags survival
15 studies. On the San Joaquin River, for example, we have
16 demonstrated through our sampling in 1997 that we may
17 have an ability to collect larger numbers of those fish
18 in the area of Jersey Point to improve our ability to
19 make more refined survival estimates. Those studies will
20 be continuing. Within that context there may be
21 experimental opportunities to better identify the factors
22 that contribute to these delayed mortalities.

23 Those studies aren't completed. They're a
24 decade from actually being at a point where we'll be able
25 to refine our understanding of those indirect affects,

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1 but I think we're moving towards that. And I think
2 that's kind of the general theme of much of what's
3 happening in the system.

4 Originally we started our focus on mortality.
5 How many fish show up in the salvage bucket? How many
6 fish are killed by this source? And we've gone through
7 that phase and now I think we're looking more at the
8 sublethal indirect secondary affects and how they
9 influence survival and habitat conditions.

10 And I simply want to make it very clear that the
11 Delta Wetlands Project has a potential to contribute to
12 that. Whether we would ever be able to evaluate it and
13 say here is the incremental impact of that project, I
14 frankly doubt that we would ever be able to do that.

15 MR. SUTTON: You said "delayed mortality." You
16 meant delayed recovery, didn't you?

17 DR. HANSON: I meant delayed recovery, yes.

18 MR. SUTTON: Finally, for the record, Mr. Schulz,
19 you used the expression "the stipulation that we entered
20 into." You meant the DWR stipulation; is that correct?

21 MR. SCHULZ: Yes, DWR, yes.

22 MR. SUTTON: Thank you. That's all I have.

23 HEARING OFFICER STUBCHAER: Anyone else on staff?
24 Board members? Mr. Brown.

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CROSS-EXAMINATION OF STATE WATER CONTRACTORS

BY THE BOARD

MEMBER BROWN: Mr. Hanson, you're very knowledgeable in the Delta issues, a lot of experience. Are you familiar in sharing similar knowledge with the imbalance of supply versus demand within the State?

DR. HANSON: Through my discussions and involvement with the State Water Contractors I've been exposed too many of those discussions although that's not my area of expertise.

MEMBER BROWN: I just wonder: Are you aware of any project that are on the drawing board that -- whether it's Cottonwood Creek, or Kellogg, or Los Banos Grandes, or any of those that might be more favorably received than the Delta Wetlands?

DR. HANSON: I really don't think I'm qualified to answer that.

MEMBER BROWN: Do you -- do you recognize that the State's imbalance is continuing to grow?

DR. HANSON: Yes, I do.

MEMBER BROWN: How do you think from an environmental perspective we should evaluate what's to be done? Should it be always on a site-specific basis, or should it be maybe on a larger picture basis?

1 DR. HANSON: I -- go ahead.

2 MEMBER BROWN: For instance, as opposed to doing
3 something as opposed to doing nothing, have you made
4 those kind of evaluations?

5 DR. HANSON: I have been involved in those
6 processes over the past 20 years. And we started out,
7 from my perspective, really looking at project specific
8 issues. I think we're now moving more towards looking at
9 those issues from a broader perspective. CAL/FED is an
10 example of that broader effort to more equitably
11 integrate environmental water supply, water quality
12 considerations into the long-term planning process.

13 In terms of the cost of not doing anything, I
14 think is very high. I think it's very high not only from
15 a water supply perspective, but I think it's also very
16 high from an environmental perspective. And what we're
17 seeing right now in the short-term is that the actions
18 that are being imposed to provide additional
19 environmental protection are being translated directly
20 into increased restrictions on the flexibility of water
21 project operations. And I think they are shifting even
22 further that balance between supply and demand, because
23 of the constrictions of being able to actually meet the
24 supply side.

25 My sense is that those kinds of long-term

1 changes are going to continue until we resolve some of
2 these within the Delta issues, whether other projects
3 that relate more to storage outside the Delta, either
4 upstream or downstream, can help alleviate some of that.
5 As I said I think it's an important aspect in the overall
6 planning process.

7 That's simply not my area of expertise of how it
8 gets packaged. But to the extent that we can find ways
9 that better enable us to balance the Delta Fisheries
10 concerns with project operations, with seasonal
11 occurrence, of opportunities for meeting that supply with
12 the minimal environmental impacts I think we ought to
13 pursue that. What I'm seeing right now, though, is that
14 there are remarkably fewer and fewer windows of
15 opportunity that are occurring each year for
16 accomplishing that objective.

17 As we say we want to reduce fisheries impacts in
18 May and we'll make it up some other time, there are other
19 environmental concerns that occur that preclude that
20 operation at a future period. So we can't trade off a
21 May export reduction and increase exports in November if
22 we have spring-run considerations. So we're in the
23 process of trying to sort through some of that.

24 And it seems to me right now there's a high
25 degree of instability on how we're doing that. And

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1 through some of these longer term more comprehensive
2 planning efforts I think hopefully we'll gain more
3 stability in framework for the operators to better
4 understand how they can utilize this system and for the
5 biologists to better understand how we can actually
6 modify operations to accomplish some of our objectives.

7 MEMBER BROWN: With those thoughts in mind, do you
8 have a feel where this project fits in?

9 DR. HANSON: I have mixed emotions in that regard.
10 And I'm not familiar enough with exactly what this
11 project would be able to provide in terms of water
12 supplies and the costs and some of those things. But
13 from just a broader perspective, it seems to me that the
14 more tools we have available that allow us operational
15 flexibility, that allow us to store water at certain
16 times of the year and use it for other purposes at other
17 times of the year, if we can do that in a way that
18 balances environmental conditions it seems to me that's a
19 benefit to the overall operation of the Delta system.

20 In that context, it seems to me that this
21 project does have potential benefits in terms of
22 flexibility and future operations. That's purely from a
23 fisheries perspective. The other considerations of water
24 quality and operation and reliability also need to be
25 brought into bear, but the more tools we have available I

1 think the better off we are.

2 MEMBER BROWN: Thank you.

3 HEARING OFFICER STUBCHAER: Ms. Forster?

4 MEMBER FORSTER: None.

5 HEARING OFFICER STUBCHAER: Okay. I have no
6 questions. Do you have any redirect?

7 MR. SCHULZ: No, I have no redirect. So I guess
8 I'd like to offer into evidence State Water Contractors'
9 Exhibit 1, 2, 4, 5, and 6.

10 HEARING OFFICER STUBCHAER: Any objections?
11 Hearing none, they're accepted.

12 MR. SCHULZ: Thank you.

13 HEARING OFFICER STUBCHAER: And Mr. Margiotta --

14 MR. MARGIOTTA: Yes.

15 HEARING OFFICER STUBCHAER: Did I pronounce that
16 correctly?

17 MR. MARGIOTTA: Yes.

18 HEARING OFFICER STUBCHAER: How much time do you
19 think your presentation would take?

20 MR. MARGIOTTA: I think I estimated not more than
21 ten minutes.

22 HEARING OFFICER STUBCHAER: That's fine. Let's do
23 that before lunch.

24 MR. MARGIOTTA: I'd like to do it after Fish and
25 Game is completed.

1 HEARING OFFICER STUBCHAER: You want to wait until
2 after?

3 MR. MARGIOTTA: Yes, I do.

4 HEARING OFFICER STUBCHAER: You may have to come
5 back on Tuesday. Is that all right?

6 MR. MARGIOTTA: No, but I'll do it.

7 HEARING OFFICER STUBCHAER: Well, okay. Regarding
8 Fish and Game I have a request from Fish and Game to
9 allow two hours on direct. As we all know in the hearing
10 notice it said witnesses shall be allowed up to 20
11 minutes each to summarize their written testimony. On
12 direct testimony examination each party will be allowed
13 up to one hour total to present its direct.

14 I would be willing to stipulate to two hours for
15 Fish and Game, which is twice what the hearing notice
16 says if you will stipulate that that will be all that you
17 will request.

18 MS. MURRAY: Yes, we will stipulate.

19 HEARING OFFICER STUBCHAER: All right. Thank you.
20 And --

21 MS. MURRAY: But it will take us a few minutes to
22 set up the overhead --

23 HEARING OFFICER STUBCHAER: The question is should
24 we take the lunch break now and then have a unified
25 presentation?

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MS. MURRAY: Yes.

HEARING OFFICER STUBCHAER: All right. We'll do
that. We'll reconvene at 12:45.

(Luncheon recess.)

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THURSDAY, JULY 24, 1997, 12:47 P.M.

SACRAMENTO, CALIFORNIA

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HEARING OFFICER STUBCHAER: Good afternoon. We'll reconvene the Delta Wetlands water rights hearing. And I'll proceed with the direct presentation of the California Department of Fish and Game, Ms. Murray.

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OPENING STATEMENT

CALIFORNIA DEPARTMENT OF FISH AND GAME

BY NANCEE MURRAY

MS. MURRAY: Thank you. I just have a brief opening statement before we begin our direct testimony.

The Department of Fish and Game is not opposed to the Delta Wetlands Project. DFG believes that the Delta Wetlands Project could with certain conditions and operations criteria provide an overall benefit to California. DFG commends Delta Wetlands for its efforts over the last ten years with this project and acknowledges how far Delta Wetlands has come from its original project description regarding improving the project to reduce impacts on public trust resources.

All of the resource agencies Fish and Wildlife Service, National Marine Fishery Service, Department of Fish and Game agree that this project will impact the

1 public trust resources such as Delta smelt, steelhead
2 trout, and winter-run salmon. This is not a point of
3 debate. The real question is to what degree these and
4 other public trust resources could be impacted by the
5 Delta Wetlands Project and what mitigation is required
6 for those impacts. Delta Wetlands contends that its
7 project impacts have been mitigated to less than
8 significant. The Department of Fish and Game disagrees.

9 It is important to keep in mind that there are
10 three levels of impact analysis being done here. One
11 level is jeopardy standard which simply determines
12 whether the project will jeopardize the continued
13 existence of a species. Another level is a take standard
14 which determines whether take of an endangered species
15 may occur and what mitigation may be required to minimize
16 that take. The third level is the CEQA standard, which
17 requires that a project's impacts be reduced to less than
18 significant levels, absent a statement by the lead agency
19 of overriding considerations.

20 We believe that the NMFS and Fish and Wildlife
21 opinions only addressed the first two levels of analysis
22 and did not address the third level of analysis, the CEQA
23 standard of mitigation of impacts to less than
24 significant.

25 DFG will demonstrate that the Delta Wetlands

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1 Project could result in significant impacts to public
2 trust resources. It is our position that this Board
3 should condition Delta Wetlands's permit beyond the level
4 provided in the Federal opinions.

5 DFG has worked diligently with Delta Wetlands,
6 this Board's staff, and the consultants to develop a plan
7 to mitigate the terrestrial impacts of this project. The
8 resulting plan, the Habitat Management Plan, mitigates
9 project impacts on the greater sandhill crane and
10 Swainson's hawk. Impacts on non-listed species, such as
11 the wintering waterfowl, were also addressed.

12 DFG's efforts on aquatic resources have been the
13 primary focus of the last two years of meetings. Those
14 efforts culminated in the issuance of DFG's Biological
15 Opinion last month. The Biological Opinion included
16 reasonable and prudent measures that are necessary to
17 reduce the effects of incidental take on listed species.
18 The Biological Opinion also includes measures that we
19 believe are necessary to comply with CEQA and reduce the
20 adverse impacts on the project to less than significant
21 levels.

22 Including the RPM's and additional conservation
23 measures in DFG's Biological Opinion as conditions of the
24 Delta Wetlands's permit will fulfill this Board's
25 responsibility under the CESA and CEQA Acts including the

1 RPM's and additional conservation measures in DFG's
2 Biological Opinion as conditions of Delta Wetlands's it
3 is necessary to preserve the protection gained by the
4 Bay-Delta Accord and sustain the existing environmental
5 baseline in the Delta.

6 Including the RPM's and additional conservation
7 measures as conditions of Delta Wetlands's permits should
8 be done to maintain the environmental baseline in the
9 Delta while the CAL/FED Bay-Delta program proceeds with
10 the long-term plan to fix what is generally accepted as a
11 Broken Delta. CAL/FED isn't just looking at water supply
12 projects, it is looking at a restoration of a broken
13 ecosystem in the Delta and plans for recovery of certain
14 species. The Delta Wetlands Project could conflict with
15 some of CAL/FED's restoration efforts.

16 In their opening statement, Delta Wetlands
17 argued that this Board should not include specific
18 fishery conditions in its order and resulting water right
19 permit. Delta Wetlands requested a condition similar to
20 the condition in CCWD's water right permit for Los
21 Vaqueros Reservoir, which is a more general condition
22 requiring CCWD to comply with all applicable Federal and
23 State laws.

24 For example, Department of Fish and Game has a
25 Fish and Game Code Section 2081 agreement with CCWD with

1 specific conditions regarding its operations at Los
2 Vaqueros. Thus, DFG has direct enforcement authority
3 over CCWD's operation at Los Vaqueros.

4 DFG does not have a similar 2081 agreement with
5 Delta Wetlands. Delta Wetlands believed it was more
6 appropriate to only go through the Fish and Game Code
7 2090 process providing a Biological Opinion to this
8 Board. Therefore, it is upon this Board to include
9 specific conditions for the protection of public trust
10 resources in order to provide sufficient enforcement
11 mechanism for those conditions necessary to protect
12 listed and non-listed species. DFG urges this Board to
13 incorporate the RPM's and additional conservation
14 measures detailed in its Biological Opinion.

15 Delta Wetlands, in its opening statement and
16 CCWD in its testimony referred to changing Biological
17 Opinions. Department of Fish and Game does not believe
18 that Delta smelt, or winter-run salmon will be de-listed
19 in the foreseeable future. And we do not otherwise
20 intend to change the RPM's for this project. Further,
21 the improbable future change of RPM's is not a reason to
22 not put in specific protective conditions for public
23 trust resources in the Delta Wetlands's permit.

24 DFG has four witnesses giving testimony today.
25 Mr. Frank Wernette will first present testimony regarding

1 the terrestrial impacts on the Delta Wetlands Project and
2 extent to which those impacts have been mitigated by the
3 habitat management plan.

4 Mr. Wernette will then present testimony
5 regarding the impacts of the Delta Wetlands Project on
6 non-listed aquatic species; Department of Fish and Game's
7 Biological Opinion; and mitigation measures which should
8 be included as conditions of DW's water right permit in
9 order to reduce impacts of the project on non-listed
10 species to less than significant levels.

11 Dale Sweetnam will present testimony regarding
12 the life history of the Delta smelt; potential impacts on
13 the Delta Wetlands Project on Delta smelt; mitigation
14 measures which should be included as conditions of Delta
15 Wetlands's water rights permit in order to reduce impacts
16 of the project on Delta smelt to less than significant
17 levels.

18 Debra McKee will present testimony regarding the
19 life history of winter-run salmon; potential impacts of
20 the Delta Wetlands's Project on winter-run salmon; and
21 mitigation measures which should be included as
22 conditions of Delta Wetlands's water right permit in
23 order to reduce impacts of the Project on winter-run
24 salmon to less than significant levels.

25 Dr. Alice Rich will present testimony regarding

1 an analysis of the temperature and DO criteria in
2 Department of Fish and Game's Biological Opinion; an
3 analysis of the temperature and DO criteria in Delta
4 Wetlands's final operations criteria; and the potential
5 impacts of Delta Wetland water temperature and dissolved
6 oxygen criteria on chinook salmon and steelhead trout.

7 DFG acknowledges that scientists often
8 disagree. As you listen to the Department's testimony
9 and later when you make your decision, I ask you to keep
10 three things in mind:

11 First, there is no dispute among scientists that
12 the Delta Wetlands Project will impact current conditions
13 in the Delta. Second, it is common knowledge that in
14 recent years there have been declining populations of
15 winter-run salmon, spring-run salmon, Delta smelt,
16 steelhead trout, and other species as a result of current
17 conditions in the Delta. Staff of this -- and, third,
18 staff of this Board and many other government, as well as
19 nonprofit and private parties, are currently working
20 diligently through the CAL/FED process to develop a
21 long-term solution for the Delta.

22 This Board should not grant a permit with
23 conditions that could either negatively impact the
24 baseline conditions set out in the 1994 Bay-Delta Accord,
25 or foreclose future options now being considered in the

1 CAL/FED process.

2 Thank you for your patience and consideration in
3 these proceedings. We'll go on now to Frank Wernette.

4 ---oOo---

5 DIRECT TESTIMONY OF DEPARTMENT OF FISH AND GAME

6 BY NANCEE MURRAY

7 MS. MURRAY: Mr. Wernette, could you please state
8 and spell your name for the record.

9 MR. WERNETTE: My name is Frank Wernette. Last
10 name spelled W-E-R-N-E-T-T-E.

11 MS. MURRAY: Is DFG Exhibit 2 a true and correct
12 copy of your qualifications?

13 MR. WERNETTE: Yes, it is.

14 MS. MURRAY: Could you, please, summarize your
15 qualifications.

16 MR. WERNETTE: I'm currently a senior biologist
17 with the Department of Fish and Game. I received my
18 degree from Humbolt University in 1973. And later that
19 same year began with the Department of Fish and Game.
20 Since 1975, or for the last 22 years, I've been involved
21 with work in the Delta first as unit biologist and later
22 on as the supervisor of the Water Project Planning Unit
23 in our Bay-Delta Division in Stockton.

24 This water project planning unit is primarily
25 responsible for assisting DWR with its water project

1 planning activity statewide, but with a special emphasis
2 in the Delta. More recently our staff has been involved
3 and our unit has been involved in assisting the CAL/FED
4 Bay-Delta in its efforts.

5 Since 1990 I have served as lead with the
6 Department in regard to Delta Project and also in that
7 role was a principle authority of the Department's
8 Biological Opinion.

9 MS. MURRAY: Our exhibits -- is DFG Exhibits 1, 4,
10 and as amended DFG 13 a true and correct copy of your
11 testimony?

12 MR. WERNETTE: Yes.

13 MS. MURRAY: Could you, please, summarize that
14 testimony.

15 MR. WERNETTE: I'd be happy to do so. I'm really
16 very excited to be here today, because I've been along
17 for the journey pretty much since the very beginning so
18 I'm really looking forward to today and completion of
19 these hearings.

20 I'd like to first start by summarizing the
21 Department's conclusions and after I've done that, I'd
22 like to go back and spend a few minutes describing how we
23 evaluated the project from the Department's point of
24 view, the impacts that we identified, in addition bring
25 up a few issues we had with regards to the final

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1 operations criteria as they are currently in the Federal
2 Biological Opinion.

3 First, I'd like to start off with the
4 conclusions that the Department reached with regards to
5 terrestrial resources. From an Endangered Species Act
6 standpoint, Nancy already described that our Department's
7 conclusion with regard to the two listed -- State listed
8 species the Swainson's hawk and the greater sandhill
9 crane. The Department has concluded that there is no
10 jeopardy to either of these species. And that the
11 habitat management plan deals with the adverse effects of
12 take associated with these two species.

13 Some of the beneficial effects that maybe
14 haven't yet come out about that plan in addition to the
15 fact that it deals with the endangered species issues is
16 that it also offsets from the CEQA standpoint affects on
17 non-listed wildlife. And our -- my written testimony is
18 pretty extensive discussion of that from species specific
19 standpoint.

20 Couple of other benefits not related to species
21 necessarily is recognition that the plan allows at this
22 point for a continuation of substantial amount of
23 agricultural on the two habitat islands, about a third.
24 And in our view that, actually, is a benefit not only
25 from the fact that it reduces the effects on the local

1 agricultural economy, but provides an opportunity to
2 display how an island, or an area could be managed with
3 habitat, wildlife friendly techniques so you can operate
4 an agricultural program and benefit wildlife at the same
5 time. We think that will be very illustrative to the
6 CAL/FED process as they move forward as well.

7 The -- another feature of the habitat management
8 plan is that it's a very solid and detailed specific plan
9 which in our view provides a good foundation for the
10 development of habitat management plan. And that basis,
11 in our view, is very necessary to have an adaptive
12 management program to be successful.

13 One thing I'd like to do personally is to state
14 to the Board, and to the Board's staff, particularly
15 Mr. Jim Canaday, the tremendous appreciation I have
16 personally for the nature and the scope of the habitat
17 management plan and process he's skillfully guided us
18 through. Through his direction and strong leadership I
19 think we moved forward with an excellent plan and that
20 planning wasn't really possible either without the
21 technical support of the Board's consultants.

22 And specifically Mr. Pete Rawlings and
23 Ms. Virginia Getz and Mr. Steve Chainey were the team
24 from the Jones and Stokes Associates that guided us
25 technically through that process. So with those folks

1 and people directly involved from the actual project,
2 from Delta Wetlands Project their consultants and even
3 interested waterfowl enthusiasts like Pete Margiotta were
4 instrumental to developing that plan. And it was a great
5 pleasure to participate in the development of that
6 habitat management plan.

7 We look forward -- well, we have in our
8 Biological Opinion incorporated that habitat management
9 plan in our Biological Opinion and recommend to the Board
10 that it include in it -- in the water rights permit for
11 Delta Wetlands that its permit condition, very strong
12 permit condition to -- for the continued development and
13 implementation of that plan.

14 From the standpoint of the aquatic resources
15 side of it, the Department concluded also for winter-run
16 and Delta smelt that there was not going to be jeopardy
17 to either of those species. However, we believe that
18 there were impacts associated with take that were not
19 dealt with in the Federal opinions. And, therefore, we
20 are not able to adopt the Federal opinions for that
21 reason and several others.

22 So when our -- from our Department's point of
23 view we actually recommended some -- several specific
24 measures to deal with that take. And minimizing the
25 adverse of take, we called those reasonable and prudent

1 measures and we identified those. And I'll go over real
2 quickly what those are.

3 Those RPM's left us with one quick point, it
4 left us with some additional impacts that were not
5 reduced to less than significant levels. So from the
6 CESA standpoint we believe that their reasonable and
7 prudent measures dealt with the incidental take issue,
8 but the Department also believed there were additional
9 conservation recommendations that we needed to make in
10 order to reduce other remaining impacts to less than
11 significant levels.

12 I picked a couple of the more important ones
13 that I believe from the aquatic standpoint are worth
14 talking about and just briefly walk through those. The
15 first measure which is no diversions through March
16 period -- or through May period -- March through May
17 period, excuse me, were in addition to what is already in
18 the final operating criteria.

19 So the April/May closures were actually
20 including March in that closure, for that three-month
21 period. The reasons for doing that -- there's been
22 tremendous amount of testimony here to the Board, and I
23 would agree with the conclusions reached by people from
24 East Bay MUD and with Dr. Hanson. And it really revolves
25 around a pretty critical month from the standpoint of

1 winter-run and Delta smelt.

2 For winter-run it is an important time for
3 rearing fry; and beginning of the smolt migration through
4 the Delta from the Delta smelt standpoint very important,
5 the beginning of spawning from the adult Delta smelt
6 standpoint. And also from the standpoint that there are
7 larval fish present in the Delta at that time in fairly
8 high abundance. So we're packaging those three months
9 together as a fairly critical time for those two listed
10 species.

11 The second RPM is an environmental water RPM.
12 that, in our view, is one that is representation of a
13 dedication of a percent of water being diverted onto the
14 island that is dedicated to the environment. I'll just
15 walk through this very quickly to describe what it is and
16 then give you -- and then describe the rationale for it.

17 HEARING OFFICER STUBCHAER: Can you identify this?

18 MR. WERNETTE: I'll be happy to do that. It was
19 pretty clear -- I'll back up. The first overhead was
20 really a talking point overhead.

21 HEARING OFFICER STUBCHAER: Right.

22 MR. WERNETTE: This is -- the source of this is
23 Exhibit 11, which is the Department's Biological Opinion.
24 And it's a table that we've transformed into an overhead
25 that's, you know, fairly concise in terms of what that

1 particular measure does. So --

2 MS. LEIDIGH: Is this -- is this table anywhere in
3 your materials, or is this --

4 MR. WERNETTE: It is.

5 MS. LEIDIGH: -- a new piece of paper?

6 MR. WERNETTE: It is. It's included in a table in
7 the Biological Opinion as RPM-2. And I'll be happy to
8 provide the page number for that --

9 MS. MURRAY: Page 42.

10 MS. LEIDIGH: Okay.

11 MS. MURRAY: It's been changed to fit on the slide.
12 So instead of being horizontal -- I mean vertical, it's
13 horizontal.

14 MR. WERNETTE: I want to point out, we didn't
15 identify this as a specific table number in the
16 Biological Opinion, because it's just incorporating it
17 within the text of the reasonable prudent measure.

18 What this measure does is essentially capture a
19 portion of the diversions that Delta Wetland takes on
20 between October and February, dedicates that to
21 environmental uses at the request of the State and
22 Federal Fish and Wildlife agencies. The purpose of this
23 measure is to take the water that's captured in this way,
24 use it later on in the months -- for instance, March,
25 April, and May to reduce the affects of take on listed

1 species like winter-run and Delta smelt during those
2 times. And that those reductions in take are used to
3 offset some of the unavoidably impacts that occur in the
4 routine operations of the project.

5 Those -- unless the project is denied and does
6 not move forward, there will be unavoidable impacts and
7 this mechanism offsets a portion of those. And we
8 believed it was an important part of the package.

9 One thing I wanted to point out about this is
10 the significance of the sliding scale, in other words,
11 the rationale behind the percentages. We took a look at
12 this from the standpoint of the significance of
13 diversions in various months. As October proceeds
14 through March -- or through February, there's a decrease
15 in sensitivity to aquatic resources in the Delta. That
16 doesn't mean that the diversion aren't unimportant in the
17 month of October, but as you move from October to
18 February the significance is greater. So, hence, we
19 decided that what we would do is basically apply a
20 decreasing level of percentages as we move through those
21 months.

22 I spoke about the additional conservation
23 recommendations that we were making from the standpoint
24 of reducing impacts to less than significant levels. And
25 I wanted to make clear that these are not mandatory under

1 the Endangered Species Act, but in our view are necessary
2 to deal with the CEQA issues with respect to significant
3 impacts.

4 Do you want to put those up there?

5 MR. STARR: Sure.

6 MR. WERNETTE: Thank you. To quickly walk through
7 these very briefly more toward description in our written
8 testimony. There are five conservation measures that we
9 made that are worth bringing up right now. One, is to
10 extend the no diversion period through the months of June
11 and July. The reason for that have to do with the fact
12 that in June and July -- maybe we can put that next
13 overhead up, Jim, and then go back to this one, that
14 there's a very important period --

15 MS. MURRAY: Could you identify this?

16 MR. WERNETTE: I'm sorry. Thanks, Nancee. This is
17 an exhibit that is derived from the State Board's Exhibit
18 2, which is the Draft EIR/EIS. And it's Figure 3 F-3.

19 And what it is is actually a display of the
20 monthly distribution of entrainment at the State and
21 Federal Water Projects, which is actually a very good
22 sampling device in the Delta that gives us an
23 illustration of what's going on with aquatic resources.

24 I'll point out some of the effects of State
25 Project, at least, or Federal Project in the months of

1 June and July that when you look at these months, June
2 and July for striped bass, for instance, the American
3 shad in the month of July. The Delta smelt in the months
4 of June and July. And the splittail in the months of
5 June and July. These are the bar graphs that illustrate
6 some of the peak months during the year where an
7 entrainment occurs. We believe that illustrates a
8 measure of risk associated with diversion during that
9 time. And so that's the reason why we've chosen that
10 June and July no diversion to reduce impact.

11 HEARING OFFICER STUBCHAER: Question.

12 MR. WERNETTE: Yes, sir.

13 HEARING OFFICER STUBCHAER: You said that this was
14 derived from the EIR. Are there changes to it, or is
15 this actually from the EIR?

16 MR. WERNETTE: It's just a copy.

17 HEARING OFFICER STUBCHAER: Okay.

18 MR. WERNETTE: Thank you for pointing that out.
19 Jim, if we can go back to the other one. The second
20 measure is in the final operations criteria. There are
21 limits based upon a percent of Delta outflow in San
22 Joaquin River inflow. And the changes we would like to
23 recommend, or that we've recommended in our testimony is
24 that as we move to the month of February, which is still
25 a very sensitive month, that maybe we couldn't justify no

1 diversion period during that -- or no diversions
2 occurring in that period that we believe that there is a
3 need to identify more strict controls on when diversions
4 occur. So we want it to occur when there's high
5 Sacramento River inflow and a high San Joaquin flow. We
6 used the more restrictive percentage during that time.

7 And the second change is that instead of this
8 percentage applying only in a limited time, for instance,
9 15 days during 120 days during -- that's called for in
10 the operation criteria, we actually would like that to
11 apply to at any time during that period of time. So both
12 of those are -- are significant changes from what's being
13 recommended the in the final operation criteria in our
14 view in order are needed to reduce significant impacts to
15 aquatic species.

16 We have two discharges measures directly
17 related. One of them is the no habitat island credit.
18 This is related to the operating criteria that dedicates
19 a percentage of diversion -- discharges that are now
20 currently in the final operations criteria. Those
21 criteria describe a percentage of the discharges that
22 occur for export being dedicated to the environment. And
23 it also allows for discharges, or drainage from the
24 habitat islands to be credited against that account, that
25 balance of water that's collected during the discharges.

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1 And I won't go into a lot of detail, other than
2 to de -- to use an analogy in terms of how that works.
3 So this beginning in December a percentage of discharges
4 are saved up to be use by the Fish and Wildlife agencies
5 to improve conditions later in the spring to benefit
6 aquatic resources. So as that bank account starts to
7 build up during the December through June period, habitat
8 island releases can be credited against that, or debited
9 against that account. Our observation from looking at
10 the data is that there's quite a bit of discharge during
11 this time from the habitat islands not very much in terms
12 of discharges for export.

13 What ends up happening is -- or what will end up
14 happening in most years when the Fish and Wildlife
15 agencies go to the bank, per se, to find out how much
16 they have on deposit to use for aquatic resources they'll
17 find they've overdrawn the account. And there will be no
18 available water in most years to do anything in terms of
19 improving aquatic resources.

20 Secondly, there's just kind of cryptic note
21 concerning the Middle and Old River condition in the San
22 Joaquin are positive. In other words, there's -- they're
23 flowing the direction they're intended to flow. And that
24 operations are such that there's a net positive flow
25 outward, westward. We're advocating that during those

1 few times when that beneficial condition occurs that the
2 Delta Wetlands Project not disrupt that.

3 Lastly, we have a water quality plan, or water
4 quality criteria that I won't get into any detail,
5 because Dr. Alice Rich, our expert here, will go into
6 substantially more detail about what is in that plan.
7 I want to spend just a few minutes talking about the
8 assessment method we used to give a sense from where --
9 how our Department evaluated the project and why we came
10 to the conclusions we did.

11 I think it's important to note that the
12 Department was part of an interagency team of consisting
13 of many, NMFS, Fish and Wildlife Service, and EPA that
14 had discussions to come up with a set of measures and to
15 evaluate the project, you know, in a uniform way and come
16 up with measures to offset impacts and bring those ideas
17 back to the discussions with Delta Wetlands and the Board
18 and Corp.

19 Nancee mentioned fundamentally we agreed on the
20 fact that there were going to be impacts on the aquatic
21 resources. And we fundamentally agreed that it was
22 important to maintain the integrity of the Accord. We
23 worked until 1996 approximately as a team, and shortly
24 thereafter the discussions really started to center
25 mostly on direct discussions between Fish and Wildlife

1 Service and NMFS. They began to work out from the
2 Federal agency standpoint issues under the Federal
3 Endangered Species Act. Our Department and that team
4 used a combination of qualitative and quantitative
5 mechanisms, or methods of analyzing the project.

6 We took a look at data provided by Jones and
7 Stokes, the consultant to the Board who accomplished that
8 analysis, to use those quantitative data to assist us in
9 qualitative assessment of how Delta outflow was affected,
10 or how X2 may be changed and flow patterns how they may
11 be changed with operations.

12 We believe that those indices that they produced
13 and other data they produced was very informative on
14 analyzing the process. We didn't necessary agree with
15 all the tools that Jones and Stokes used for the Board.
16 For instance, the salmon mortality model and data that
17 were derived clearly with Jones and Stokes and Warren
18 Shaul did a great job of describing how he arrived at
19 those assumptions.

20 Our Department never could really agree that
21 that was the right way to assess mortality for
22 winter-run. Yet, we believed that it was still the
23 tool -- a tool that could be used and the data that went
24 into that tool, which was related to their Delta Move
25 Model were effective tools to assess how the project

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1 effectuated aquatic resources.

2 One of the reasons we couldn't accept it was
3 that there were other ways and other mechanisms that
4 winter-run and other Sacramento salmon could be affected
5 by this project. For instance, flows back through Three
6 Mile Slough, or the lower San Joaquin that were not
7 assessed in that model. Debra McKee is going to spend
8 much more detail talking about from the standpoint of
9 impact with regards to winter-run and spring-run and Dale
10 as well as for Delta smelt.

11 We used these data combined with the life
12 history data that we thought was very important in
13 developing our reasonable and prudent measures and
14 recommendations. Things like taking a look at how
15 fall-run move out of the San Joaquin beginning as early
16 as March. And, therefore, the need to develop
17 protections from the non-listed species' standpoint for
18 that March, April, May period for San Joaquin salmon.

19 Same thing for juvenile late run -- late
20 fall-run salmon that was present in the Delta in November
21 through March, that March protection is important. And
22 things we -- Chuck Hanson would say, I would agree with
23 regarding long-fin smelt and the importance of that late
24 winter period, for instance, the month of March and even
25 February. In our view the best -- we used the best

1 biological information that was available in developing
2 our Biological Opinion. Much of that data was provided
3 by the capable consultants under Jim Sutton's direction.

4 And I -- one personal note is while we never did
5 come to conclusion and consensus on all aspects of it, it
6 was the format that Jim provided us and the consultants
7 provided us with Warren Shaul and Dr. Russ Brown where
8 the data was laid right out there. And there was no
9 confusion about the presentations of data information.
10 So it was very easy to find where we differed in our
11 opinion. And I think it will help the Board, too, in
12 making its decision, too, because, you know, of the
13 quality job that they did in that analysis.

14 I'm just going to briefly summarize the impacts
15 because I think many of them were covered by Dr. Hanson.
16 The things that we're very concerned with are affects on
17 reverse flows, or flows moving either from the north to
18 the Central Delta and from Central to South Delta, and
19 from the lower San Joaquin backwards. These are things
20 that are not necessarily conducive to supporting a
21 healthy estuary in our opinion.

22 Reduced Delta outflow is another affect that's
23 been a concern of our Department and it's been testified
24 to in our direct testimony. Resulting eastward shifts in
25 X2 as it relates to the amount of shallow shoal that's

1 available in Suisun Bay we believe is a good measure of
2 how rearing habitat and suitable conditions are in that
3 particular part of the estuary.

4 There is -- we believe there's increased
5 predation possibilities that are clearly identified from
6 the increase in water structures that are being proposed
7 by the project. And a pretty significant possibility --
8 potential that you would end up with, both from a direct
9 and indirect standpoint, an increase of entrainment of
10 eggs, larvae, and juveniles. Some of them are
11 unscreenable. Some of them are going to be affected by
12 just the hydrodynamic affects of the project and movement
13 to areas where there are unscreened diversions and
14 increase in predator concentrations that will reduce the
15 survival of these species.

16 I think I'll spend just a couple of minutes
17 talking about our evaluation of the Federal opinion and
18 the operating criteria that are in those Federal
19 opinions. We have concerns with five areas. One of them
20 is the suitability of using the fall midwater trawl index
21 for triggering increased protections for aquatic
22 resources. Dale will talk about that fairly extensively.

23 The limits on San Joaquin diversions measures,
24 as I mentioned earlier under many conditions or most
25 years are only going to be invoked for 15 days out of a

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1 total of 120 days. So our ability as Fish and Wildlife
2 agencies to pick the right 15 days to ensure that we are
3 not causing tremendous changes in reverse flows and
4 reductions and in the net outflow from the Central Delta
5 are fairly limited, because we're expected to pick a
6 small target within a 120-day window.

7 I mentioned that the environment water and the
8 discharge credit allowed for the habitat islands renders
9 really without a useful tool in most years to improve --
10 improve conditions for listed species, and other species
11 for that matter. The increased diversions that are
12 allowed and impacts in March that are allowed for in the
13 final operations criteria, as we mentioned, is a
14 significant problem from our point of view, in that we
15 view that March period just as important as April and
16 May.

17 The Federal -- the operating criteria in the
18 Federal opinions also have deficient temperature and
19 dissolved oxygen criteria. And Dr. Rich will cover that
20 in much more detail. I have one additional
21 recommendation that the Department is making. This is
22 not a conservation recommendation, or a reasonable and
23 prudent measure, but it's related to topping off.

24 This is as that other table a -- the source of
25 this is the Department's Biological Opinion. And we've

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1 taken a vertical table in that opinion that is not
2 numbered, but is within the text of the opinion and put
3 it in a horizontal format just so people could see it
4 easier.

5 MS. LEIDIGH: What page is that on?

6 MR. WERNETTE: Let me take about 30 seconds to find
7 that page number.

8 MR. STARR: Try 70.

9 MR. WERNETTE: Page 70.

10 HEARING OFFICER STUBCHAER: It looks just like
11 that.

12 MR. WERNETTE: I'll make this really brief. From
13 our Department's point of view you know we -- we've been
14 awake and paying attention since the Accord -- in that we
15 recognize that the Accord is not simply a way to begin to
16 restoring the estuary from the aquatic resources
17 standpoint, but also a way that when water supplies are
18 developed, opportunities for increased water supply for
19 California that those opportunities move forward along
20 with environmental protections and improved conditions
21 for aquatic resources. That is the message we took home
22 from the Accord and our interpretation of that.

23 So we had a recommendation that's a little
24 different than what's being offered in the final
25 operating criteria with regard to topping off in the June

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1 through October period. This is how we did it. What we
2 took a look at the existing intensive agricultural water
3 diversions that are occurring right now to manage the
4 crops that are going on -- on the islands, Bacon Island
5 and Webb Track. And these are data that we essentially
6 captured from the EIR, in the appendix from the EIR. And
7 used those to set -- identify what's happening right now.

8 From our Department's point of view, the aquatic
9 impacts of that is something that we're dealing with
10 today. If Delta Wetlands takes water through their
11 diversions and those diversions are screened and the
12 velocities are low, in this case it's a tenth of a foot
13 per second, we believe that those diversions could
14 continue to occur at a baseline level and not have --
15 have a very minimal affect on aquatic resources. So
16 that's the philosophy we took.

17 We took what is going to be used to manage the
18 habitat islands and subtracted that from that amount
19 during the months of June through August. So these
20 represent net balances. So the 160 csf and 250 are the
21 two measures of what's occurring now. But through screen
22 diversions under the project condition, these diversions
23 would be -- this would be part of their new water rights
24 in this proposal. It would not be subject to
25 export-inflow criteria and, therefore, would be allowed

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1 to occur during years where they store water.

2 So essentially what we're saying is that in the
3 spirit of the Accord we identified measures that clearly
4 reduced yield from the project. And we looked at that
5 from the point of view of aquatic resources strictly and
6 went to what we needed, or what we felt we needed to
7 reduce those impacts. At the same time we recognize that
8 with the Accord and the environment that we have now that
9 doesn't mean that we're against people storing water and
10 having additional water supplies for California. So this
11 is a measure that's in that spirit.

12 We think that's consistent with where CAL/FED is
13 going. And we think it's consistent with what the Accord
14 set up, the new paragraph for how we're operating in
15 developing new water supplies for California. These can
16 be used to deal with evaporation losses and other
17 reductions that occur maybe even from an our own
18 reasonable and prudent measures.

19 MS. MURRAY: One clarifying question: Is it your
20 understanding that the current application would allow
21 for this, or would that have to be an amendment to the
22 application?

23 MR. WERNETTE: It would be an amendment. I think
24 the request from the project proponents in their
25 testimony talked about using prior water rights, 1922 or

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1 riparian in order to accomplish this. I'm not a water
2 rights attorney. I don't know how that will pan out. So
3 this is really from a very simplistic point of view that
4 this would be incorporated in the new water rights under
5 this proposal.

6 There's some benefits that we see from this in
7 addition to the fairness issue with regards to the
8 Accord, opportunities may be during this time period to
9 actually reduce concentrations of salts on the islands
10 that would not otherwise be possible if no replacement
11 water was allowed if the operation occurs during the
12 summer.

13 Secondly, these are, I think, linked or can be
14 linked to, in our view, the environmental benefits that
15 occur from some of the environmental water that we're
16 asking and requesting in our reasonable and prudent
17 measures. And as I mentioned the third is the
18 consistency in our view from the standpoint of the
19 Accord.

20 I'd like to conclude by saying that in our view
21 the reasonable and prudent measures should form the
22 foundation, or basis for some of the water rights
23 conditions that this Board will include with the water
24 rights permits for Delta Wetlands. We recommend that the
25 additional measures, the conservational measures also

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1 become water rights terms in order to reduce levels to
2 less than significant for those species that we talked
3 about.

4 Lastly, if this project were transferred, or
5 sold to another party we would request those conditions
6 go along with that sale. And that if there was any time
7 in the future, for instance, when the habitat islands may
8 be split off from the reservoir islands and managed by
9 two different entities that whoever is managing the
10 reservoir islands be -- that there be conditions that
11 would require the continued management of the habitat
12 islands as described in the habitat management plan. And
13 that concludes my summary.

14 MS. MURRAY: Mr. Sweetnam, would you, please, state
15 and spell your name for the record.

16 MR. SWEETNAM: My name is Dale A. Sweetnam,
17 S-W-E-E-T-N-A-M. I have a cold, so I'm sort of horse,
18 sorry.

19 MS. MURRAY: Is DFG Exhibit 10 a correct copy of
20 your qualifications?

21 MR. SWEETNAM: Yes, it is.

22 MS. MURRAY: Could you, please, summarize those
23 qualifications.

24 MR. SWEETNAM: I'm an associate marine biologist
25 with the California Department of Fish and Game. I

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1 currently am the project leader of the Department's Delta
2 Smelt Investigation Project. And this is located at the
3 Bay-Delta and Special Water Projects Division in
4 Stockton. I have been the project leader for the Delta
5 Smelt Program since its inception in 1991.

6 I have a bachelor's degree in aquatic biology
7 from UC Santa Barbara. And a masters degree of biology.
8 I have represented the Department in biological --
9 biological consultations regarding Delta smelt and have
10 presented testimony before this Board regarding Delta
11 smelt during the Bay-Delta hearings.

12 I was appointed to the Delta Native Fishes
13 Recovery Team by the Fish and Wildlife Service in 1993,
14 which was charged with determining recovery criteria for
15 seven native fish species in the estuary. I'm currently
16 on the Data Acquisition Team, or DAT Team as it is called
17 of the CAL/FED OPS group which oversees the use of
18 realtime monitoring and all available information in
19 order to adjust operations at the SWP and CVP in order to
20 reduce the take of Delta smelt and salmon at these
21 facilities.

22 MS. MURRAY: And is DFG Exhibit 9 a correct copy of
23 your testimony?

24 MR. SWEETNAM: Yes, it is.

25 MS. MURRAY: Do you have any corrections at this

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1 time that you want to make to that testimony?

2 MR. SWEETNAM: Yes. I want to make one correction.
3 On page 7, the first sentence should read "in 1997" not
4 1996, "the majority of spawning occurred in the Central
5 Delta."

6 MS. MURRAY: Could you, please, summarize that
7 testimony.

8 MR. SWEETNAM: Okay. First I will describe the
9 main conclusions to my testimony. And then briefly
10 describe Delta smelt life history, and then go into some
11 more detail on why I believe that the final operations
12 criteria will not adequately protect Delta smelt.

13 My first conclusion is that the use of the
14 previous year's fall midwater index as a trigger for more
15 protective measures designed to protect the following
16 years Delta smelt is inappropriate. The second is that
17 the discharge temperatures allowed in the final operating
18 criteria may be lethal to Delta smelt.

19 Delta smelt spend their entire life, which is
20 only one year, in this estuary. They do not leave and
21 return like salmon. And, therefore, Delta smelt are
22 subject to environmental changes, or changes in the Delta
23 throughout their entire life.

24 A typical life in the year of a Delta smelt
25 starts in the fresh water areas of the Delta where Delta

1 smelt spawn in areas under tidal influence. This
2 spawning can take place over a very long period of time
3 from January through July. This is Figure 1 of Exhibit
4 9, which basically is a cumulative percent of the Delta
5 smelt collected from 1991 to 1994 in a survey called the
6 "Egg and Larval Survey" showing the distribution
7 throughout -- through time of the collection of Delta
8 smelt larvae.

9 Delta smelt eggs are sticky and attach to
10 shallow water vegetation and substrates. Then in about
11 two weeks hatch and float with the water current.
12 Wherever the water goes these planktonic larvae go, as
13 you've heard in previous testimony.

14 During this period they're extremely vulnerable
15 to entrainment such as at the State and Federal Water
16 Project diversions, the 1800 ag diversions in the Delta,
17 as well as other sites in the estuary. They are also
18 vulnerable to increased predation, and indirect affects
19 such as longer migration routes and decreased westward
20 ques during this time period. This year the majority of
21 the spawning occurred in the Central Delta as shown in
22 Figure 2 of Exhibit 9, page 25. These are the first
23 three surveys of the 20 millimeter survey which was done
24 this April and May and continued on.

25 We had basically a unique condition where the

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1 majority -- thank you, of Delta smelt were occurring in
2 the Central Delta showing up as -- as these circles right
3 here. And later on we started getting spawning occurring
4 in the Cache Slough area.

5 This pattern of spawning is disturbing because
6 it puts larval Delta smelt at greater risk to South Delta
7 diversions and potential Delta Wetlands's operations.
8 This is also important because the entrainment modeling
9 done by Jones and Stokes used to estimate the effects of
10 Delta Wetlands on Delta smelt assumed only a smaller
11 proportion of Delta smelt larvae in the Delta.

12 As juvenile Delta smelt are starting to be able
13 to move on their own and begin to move downstream to
14 brackish water. At this time they're feeding on
15 zooplankton and Delta smelt usually spend most of their
16 time from the late summer to late winter near the
17 brackish water interface, near the infamous X2 isohaline.
18 We have all heard testimony about X2 in the past days.

19 By late winter they begin to move -- migrate up
20 stream, these are the adults, into the fresh water to
21 spawn and die. And there a few Delta smelt that live
22 past spawning, although we're not sure how long they live
23 past that first spawning. Delta smelt were once one of
24 the most common fishes in the Sacramento-San Joaquin
25 estuary.

1 Historically, Delta smelt abundance fluctuated
2 dramatically from year to year, but in the 1980s the
3 numbers were consistently low. This information is the
4 Delta smelt fall midwater trawl abundance index which
5 we're going to talk about a little bit. This information
6 along with six other data sets was used basically as the
7 information basically to list the Delta smelt as a
8 threatened species by both the U.S. Fish and Wildlife
9 Service and the Fish and Game in 1993.

10 MS. LEIDIGH: Could somebody, please, identify the
11 overhead?

12 MR. SWEETNAM: This is Figure 3 of Fish and Game
13 Exhibit 9. It's on page 26.

14 MS. LEIDIGH: Thank you.

15 MR. SWEETNAM: I'm sorry. Delta smelt catch data
16 from this survey, not the abundance index itself, has
17 been used to establish recovery criteria for the Delta
18 smelt by the Delta Native Fishes Recovery Team. Those
19 recovery criteria are afforded in Appendix 3 of my
20 testimony in Exhibit 9.

21 Delta smelt do not exhibit a significant spawn
22 and recruit relationship, as would be expected of a fish
23 that lives only one year. This is Figure 4 of DFG
24 Exhibit 9. This is a plot of spawning stock as
25 represented by the previous year's fall midwater trawl

1 index, right here, represents the recruit stock as
2 represented by the next year's fall midwater trawl index.
3 This is one year's formula fall trawl index plotted
4 against the following year's fall midwater index.

5 As you can see there's basically no
6 relationship. This is a nonsignificant relationship. It
7 accounts for less than ten percent of the variability in
8 the next year's fall midwater trawl index. As you can
9 see we can get both a -- from a low spawning stock you
10 can get a very high return in recruits, or high abundance
11 in the index the next year. We can also get the opposite
12 where we have a very high number of spawners and end up
13 with a very low number of recruits the following year.

14 Because this relationship is so weak, there's no
15 way to predict how big the next year's population is
16 going to be based on the previous year's index. But this
17 is what is being relied on in the final operating
18 criteria. The protective measures that are enacted are
19 based on whether the previous year's index is greater
20 than or less than 239. This is Delta Wetlands Exhibit 9
21 B, Figure 9. Jimmy, you need to it to move it down a
22 little bit. This is basically the final operations
23 criteria. It's present in a whole series of Delta
24 Wetlands -- Delta Wetlands's Exhibits and in the
25 Biological Opinion.

1 All -- all of these conditions here are based on
2 when the fall midwater trawl index is above 239 for
3 diversions. These conditions here are based when the
4 diversions for storage are less than 239. The same with
5 the discharged requirements here above 239, excuse me,
6 and less than 239 here.

7 These criteria are in place from the time the
8 Delta smelt index is set in December until the next fall
9 midwater trawl index is set the following December, or if
10 the current year's index is higher than the previous
11 year's. So basically after the Delta smelt index is set
12 in December those conditions apply for the next following
13 year.

14 The Department believes that the use of an index
15 of abundance of pre-spawning adult stock in the fall is
16 inappropriate for the use of applying different levels of
17 protections for the offspring for the falling year
18 because the stock recruitment relationship is
19 statistically nonsignificant. Obviously, the Fish and
20 Wildlife Service intended to provide a much higher level
21 of protection for the Delta smelt when the Delta smelt
22 population was at low abundance levels. However, there
23 is very little chance that these higher levels of
24 protection will be invoked when Delta smelt need the
25 most.

1 In addition, the limits associated with the
2 higher Delta smelt industry is greater than 239, we do
3 not believe are adequately protective of Delta smelt.
4 The protective measures that would be in place when the
5 previous year's fall midwater trawl index is less than
6 239 would have been invoked in 7 out of the 27 years.
7 And if you include 1996 or 1997 it would have been
8 invoked in 8 years basically.

9 HEARING OFFICER STUBCHAER: Now, we need to
10 identify these exhibits.

11 MR. SWEETNAM: Excuse me. We're back to DFG
12 Exhibit 9, page 26. This is Figure 3 out of the exhibit.
13 Sorry.

14 Basically, those more protective measures would
15 be in place in one out of four years. But the actual
16 protection takes place in the following year, not the
17 year that the abundance index is taken. The average
18 index value for the years -- the protected years of the
19 seven years that are protected in this index, or in this
20 survey is 474, which is nearly double the 239 protection
21 level.

22 The most poignant examples are in the 1990s when
23 the protections would have been in place in 1993 and 1995
24 based on the following year's fall midwater index. So
25 the only years that would have been -- protections would

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1 have been placed for Delta smelt would have been 1993 and
2 1995. They have an average index of 1989. So these two
3 values up here. The other years of 1992, 1994, and 1996
4 would not have been protected based on the previous
5 conditions in the fall -- in the final operating
6 criteria.

7 In addition, the most restrictive operational
8 criteria when the fall midwater index gets less than 84,
9 basically, at that level the Fish and Wildlife Service is
10 going to reconsult with Delta Wetlands, has never
11 occurred in the historical data. And it wouldn't have
12 been in place when the Delta smelt was listed in the
13 first place. So Fish and Wildlife -- Fish and Wildlife
14 Service would not have reconsulted with Delta Wetlands
15 even though they were in the process of listing Delta
16 smelt.

17 Going onto the next slide, this is Figure 5A of
18 DFG Exhibit 9, page 28. The actual values of 239 and 84
19 do not have any biological significance, or relevance to
20 the annual abundance index. These numbers were actually
21 derived from the recovery plan and are basically used for
22 as catch data for the September and October months only.

23 So the red bars indicate what the recovery plan
24 calls for, which is the Delta smelt catch. And the blue
25 bars are actually the fall midwater trawl abundance index

1 data. If you use the 239 value in this case it would
2 have been invoked in basically three out of every four
3 years. So a much higher level of protection would have
4 been in place. And these were originally in the Draft
5 Jeopardy Opinion that the Fish and Wildlife Service
6 issued in March 26, 1996.

7 What should be used instead of the fall midwater
8 trawl index to protect the Delta smelt when abundance is
9 low? Jones and Stokes in the biological assessment of
10 the Delta Wetlands Project concluded that Delta smelt
11 abundance is dependent upon the environmental conditions
12 experienced by eggs and young fish, basically, the
13 springtime period.

14 They also spent a large portion of the Draft
15 EIR/EIS discussing the estuarine habitat model which was
16 used to predict Delta smelt abundance in the fall based
17 upon the amount of appropriate salinity habitat in the
18 previous spring. The Water Accord and the 1995 Water
19 Quality Control Plan also used habitat conditions in the
20 spring to apply protective measures in the estuary,
21 basically the X2 standard.

22 However, these two models only have weak
23 relationships for Delta smelt. And if we include the
24 last several years of data, these may become much weaker
25 relationships and even nonsignificant. The Department

1 believes the more protective measures should be in place
2 in all years. And Mr. Wernette has outlined those
3 measures in his discussion of the Biological Opinion.

4 Delta smelt are very delicate and extremely
5 sensitive to stress. The Department has collected the
6 Delta smelt used in all the environmental tolerance
7 tests, the flume tests, and the treadmill experiments.
8 Large numbers of Delta smelt die within 48 hours even if
9 they've been treated extremely delicately.

10 In these environmental tolerance tests acute
11 temperature of five degrees centigrade, or about nine
12 degrees of Fahrenheit, can be lethal to Delta smelt.
13 Therefore, operational criteria set for -- set forth in
14 the Service's opinion that Delta Wetlands shall not
15 discharge reservoir water for export if the temperature
16 differential between the discharge and the adjacent
17 channel temperature is greater than or equal to 7 degrees
18 Centigrade, or around 12 degrees Fahrenheit, is
19 inadequate to protect Delta smelt.

20 Temperature differentials between discharge and
21 adjacent channels should be less than five degrees
22 Centigrade, or about nine degrees Fahrenheit. The
23 Department has recommended a conservation measure of
24 acute temperature difference of no more than five degrees
25 Fahrenheit in part to eliminate the potential lethal

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1 effects to Delta smelt and to protect salmon.

2 In summary, Delta Wetlands will directly and
3 indirectly reduce Delta smelt -- reduce the survival of
4 adult, larval, and juvenile Delta smelt in the Delta;
5 decreases in Delta outflow, higher net southerly flows
6 for the Old and Middle Rivers; and decreases in QWEST
7 adversely affect Delta smelt primarily through increased
8 entrainment into the Central and South Delta waterways
9 where they are subject to longer migration routes,
10 increased predation, unscreened diversions, poor water
11 quality, decreased westerly flow cues, and losses at the
12 State Water Project and the Central Valley Project.

13 Delta smelt do not respond to other fish in the
14 estuary. They are actually really quite unique. We do
15 not have all the answers to what really affects their
16 population. Mr. Hanson a minute ago talked about working
17 on secondary affects on fish. We still do not have a
18 rugged answer on the primary affect on Delta smelt. If
19 we did we probably wouldn't be here, or I wouldn't be
20 here.

21 And, therefore, we must be very conservative in
22 our protective measures for smelt. A good example of
23 this is the unique pattern of spawning this spring.
24 Basically it was well-outside of what we had modeled in
25 the model runs based on the assumptions that we knew of

1 for Delta smelt. And, therefore, these assumptions may
2 not be adequately described for Delta smelt.

3 The Department recommends that the reasonable
4 and prudent measures and conservation measures as
5 contained in the Fish and Game Biological Opinion should
6 be -- should be made in terms of the water rights permit
7 issued to Delta Wetlands by the Board. The specific
8 operational criteria during March that applies in every
9 year, I believe, is necessary and appropriate to minimize
10 the adverse impacts to Delta smelt.

11 In my written -- written testimony I further
12 recommended that all the final operational criteria, when
13 the fall midwater index is less than 239, be enforced by
14 the Water Board in all years to protect Delta smelt. I
15 believe that these more protective measures would
16 maintain the environmental quality conditions that must
17 be in place February through June in all years to provide
18 adequate protection for Delta smelt. Otherwise, there
19 would be a reduction in the beneficial habitat affects of
20 actions implemented under the Bay-Delta Accord and the
21 Board's Water Quality Control Plan.

22 MS. MURRAY: Does that conclude your testimony?

23 MR. SWEETNAM: Yes, it does.

24 MS. MURRAY: Debra. Please state and spell your
25 name for the record.

1 MS. McKEE: My name is Debra McKee, M, small C,
2 capital K-E-E.

3 MS. MURRAY: And is DFG Exhibit 6 a correct copy of
4 your qualifications.

5 MS. McKEE: Yes, it is.

6 MS. MURRAY: Please summarize your qualifications?

7 MR. NELSON: Excuse me, Mr. Stubchaer --

8 HEARING OFFICER STUBCHAER: Mr. Nelson.

9 MR. NELSON: Has Ms. McKee been sworn?

10 MS. MURRAY: You're right. Thank you.

11 HEARING OFFICER STUBCHAER: Thank you. Somebody is
12 up-to-date. Please, stand and raise your right hand.
13 You promise to tell the truth in these proceedings?

14 MS. McKEE: I do.

15 HEARING OFFICER STUBCHAER: Please, be seated.

16 MS. MURRAY: Please summarize your qualifications.

17 MS. McKEE: I'm a senior biologist, specialist in
18 Marine/Fisheries with the California Fish and Game,
19 Inland Fishery Division. My bachelor of science degree
20 is in resource conservation, with an emphasis in fishery
21 management from the California State University,
22 Sacramento. I have over 16 years experience in fisheries
23 and wildlife research and management.

24 In my present capacity during my last two years
25 as the Department's Statewide coordinator for anadromous

1 fisheries recovery activities, I have been responsible
2 for administering the Department's Statewide research,
3 management, and recovery for State and federally-listed
4 anadromous fish.

5 MS. MURRAY: And is DFG Exhibit 5 a correct copy of
6 your testimony?

7 MS. McKEE: Yes, it is.

8 MS. MURRAY: Would you, please, summarize that
9 testimony.

10 MS. McKEE: I'll be using overheads, also, which
11 are talking points to assist in my oral presentation
12 today. And all of that information depicted on the
13 overheads is contained within my written testimony.

14 In the interest of time I would like to start
15 off by providing a very, very brief summary of the
16 relevant information on the life history requirements of
17 winter and spring-run chinook salmon as it relates to the
18 Department's assessment of project effects, and the
19 Department's rationale for its reasonable and prudent
20 measures and in its Biological Opinion. And the
21 additional conservation measures recommended for
22 inclusion in any permit granted by the Board for the
23 Delta Wetlands Project.

24 We assessed the potential effects of the Delta
25 Wetlands Project relative to the timing and duration of

1 migration for juvenile and adult winter- and spring-run
2 chinook salmon and their habitat needs within the Delta.

3 The following are considered to be the principal
4 factors within the lower Sacramento River and Delta
5 responsible for the decline of the winter-run chinook
6 salmon. These are losses to unscreened diversions within
7 the winter-run's migratory and rearing habitat adverse;
8 and adverse flow conditions which includes reductions in
9 Sacramento River flow and altered hydrodynamics within
10 the Delta as a result of State and Federal Water Project
11 operations.

12 Diversion of out-migrating juveniles into the
13 Central Delta via the Delta Cross Channel and other
14 natural waterways where their survival is lower; loss of
15 riparian and tidal marsh habitat. Other factors that
16 also may have adverse effects on winter-run chinook
17 salmon include delays in adult migration through the
18 Delta.

19 Also interestingly these same general factors
20 have also been found to be principle factors in the
21 decline for the spring-run chinook salmon, including
22 diversions in the Delta, loss of migrating fish both
23 adult and juvenile in the estuary and forced survival of
24 outmigrants.

25 The next slide, please. The first adult

1 winter-run chinook salmon upstream migrants can appear in
2 the Delta as early as mid to November -- mid to late
3 November. Although some adult winter-run are still
4 passing upstream through the Delta on their migration run
5 as late as mid June. Adult spring-run chinook salmon
6 migrate from the Delta estuary from approximately January
7 through May through June.

8 Both adult winter- and spring-run can be
9 expected to use channels around Webb Tract and Bouldin
10 Island during their upstream migration via the Central
11 Delta to their spawning ground in the upper Sacramento
12 River and its tributaries. Adults are vulnerable to
13 physical disturbance and flow disruption during the
14 migratory period.

15 And they require adequate flow volume and
16 direction, suitable water quality to ensure that they can
17 move upstream towards their spawning habitat and that
18 their migration is not blocked or delayed. Adequate
19 water flows and water quality are essential to ensure
20 that they are not delayed, or blocked from moving
21 upstream.

22 Juvenile winter-run chinook salmon can be
23 present in the lower Sacramento River and the Delta from
24 as early as late September through June, although in any
25 one year the actual arrival and residence time in the

1 Delta is strongly influenced by pattern of stream flows
2 and turbidity events in the Sacramento River.

3 Some juveniles rear in the Delta waterways for
4 extended periods of time. The majority of winter-run
5 chinook salmon juveniles are pre-smolts during the late
6 fall and early winter months and are unlikely to emigrate
7 to the ocean at this time, instead continuing to rear in
8 the Delta and the Sacramento River for extend -- for
9 several weeks to months until they are ready to leave the
10 estuary. At the same time, some fraction of the juvenile
11 population is still entering the Delta in March.

12 Juvenile spring-run can emigrate downstream as
13 early young-of-the-year fry and fingerlings and they can
14 also emigrate downstream as yearlings. Spring-run
15 yearlings may be present in the vicinity of the project
16 islands from October through February. And fry and
17 fingerlings can be in the Delta from around September
18 through June in years with the extreme high winter flows
19 such as the last two years. Most spring-run production
20 may exit the tributaries as fry with few to none
21 remaining to over-summer and exit the next fall as
22 yearlings.

23 Historically, a significant proportion of the
24 juvenile Sacramento River salmon were observed to
25 naturally migrate into the Delta via the Georgiana

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1 Slough. This was estimated to be in direct proportion to
2 the volume of water transporting them, which at the time
3 the observations were made in 1948 was approximately 20
4 percent. And this was prior to the construction of the
5 Delta Cross Channel.

6 These juvenile salmon then dispersed throughout
7 the Central and South Delta, and reared for some period
8 of time. The juvenile salmon also moved through Three
9 Mile Slough and Sherman Lake into the Central Delta.
10 Under present day operations of the Delta Cross Channel
11 as much as 70 percent of the Sacramento flow at Walnut
12 Grove will be diverted into the Central Delta. Whereas
13 only 20 to 30 percent is drawn into the Central Delta
14 when the Cross Channel is closed.

15 If the juvenile salmon are entrained into the
16 Central in direct proportion to the volume of water
17 transporting them, significantly greater numbers of
18 Sacramento juvenile chinook salmon are now transported
19 into the Delta on their outmigration than occurred
20 historically.

21 And when they are diverted into the Central and
22 South Delta they're exposed to a highly altered system
23 with manipulated flow conditions resulting in direct and
24 indirect impacts causing reduced survival when compared
25 to juveniles which remain in the Sacramento River.

1 Within the Central and South Delta, juveniles
2 are exposed to reversed flows; entrainment to small
3 unscreened agricultural diversions; entrainment to the
4 State and Federal water export facilities; predation;
5 reduced shallow water habitat for fry; reduced water
6 quality conditions including higher water temperatures;
7 reduced river inflows during spring months which
8 decreases their available habitat, nutrients, and
9 transport flows for migration.

10 The U.S. Fish and Wildlife Service conducted
11 studies during the 1980's to assess the relative
12 difference in survival of juvenile chinook salmon smolts
13 emigrating down the Sacramento River in comparison to
14 those entrained to the Central Delta through the Cross
15 Channel and Georgiana Slough.

16 During the last four years the service has
17 conducted a special study using larger juvenile late-fall
18 chinook salmon making releases during cooler months of
19 December and January in order to evaluate mortality level
20 for juvenile winter-run chinook salmon which emigrate
21 through the Central Delta. The studies have yielded
22 similar results to the earlier studies done with
23 fall-run.

24 The juvenile late-fall run which were released
25 into the Georgiana Slough and had emigrate through the

1 Central Delta experienced reduced survival compared to
2 the releases in the Sacramento River downstream of the
3 Cross Channel and Georgiana Slough. The relative
4 difference in survival was on average 4.3 times less for
5 the juveniles that were released into Georgiana Slough.

6 In each of the study's four years, some of the
7 late-fall tagged fish released into the Sacramento River
8 were drawn into the South Delta, presumably up the lower
9 San Joaquin River and through Three Mile and ended up at
10 the State and Federal fish salvage facilities. And in
11 two of these years the releases are made at Ryde. And
12 the other two years, the releases were made all the way
13 down at Isleton.

14 So, the important point here is that Sacramento
15 juvenile salmon can be entrained to the Central Delta and
16 thence the South Delta through the lower San Joaquin
17 River and Three Mile Slough as well as the Delta Cross
18 Channel and Georgiana Slough.

19 The Department's analysis of potential project
20 impacts for the Delta Wetlands Project included a review
21 and assessment of information provided to it by the
22 Board; the project applicant; as well as reviewing the
23 NMFS's Biological Opinion on the Delta Wetlands Project
24 before it issued its own determination for the winter-run
25 chinook salmon.

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1 In the NMFS analysis of the Delta Wetlands
2 Project for impacts to winter-run and steelhead trout,
3 they concluded that the environmental baseline will be
4 degraded as a result of the project. They also found,
5 and the Department concurred, that the Delta Wetlands
6 Project operations are likely to adversely effect
7 winter-run chinook salmon and diminish some of the
8 fisheries habitat benefits gained in the Delta Accord.

9 Juvenile winter-run chinook salmon will be
10 adversely affected by adverse impacts on flow volumes,
11 flow patterns which can be expected to increase the
12 number entrained or migrating into the Central Delta;
13 result in higher entrainment of juveniles in local
14 diversions in the central and southern Delta; increase
15 the chances of juvenile winter- and spring-run chinook
16 salmon being entrained to south Delta channels which lead
17 towards the Delta pumps instead of allowing them to
18 emigrate out to the lower San Joaquin River; cause higher
19 entrainment of juvenile winter- and spring-run at the
20 Central Valley and State Water Project pumps when project
21 water released from the islands is exported to south of
22 the Delta; increase predation on juveniles; degrade
23 conditions for natural smolt outmigration stimulus and
24 seaward orientation; and delay migration of adult winter-
25 and spring-run chinook which are headed for the upper

1 Sacramento River via the northern Delta channel.

2 These impacts are expected to occur during both
3 filling of the reservoir and habitat islands and during
4 the discharge of waters from the islands for subsequent
5 export at the Central Valley and State Water Project
6 pumping plants or habitat island drawdowns.

7 The Delta Wetlands Project will operate
8 frequently during the peak months for both adult and
9 juvenile winter-and spring-run chinook salmon.
10 Reservoir filling can occur as much as 36 percent of the
11 time during September to May, and most diversions are in
12 the October and February months.

13 The project will cause incremental adverse
14 changes in internal Delta flow patterns. And these
15 include increasing the net reverse flows in the Central
16 and South Delta waterways, which includes increasing net
17 reverse flows in the lower San Joaquin River; increasing
18 net reverse flows down Old and Middle River between Webb
19 and Bacon Island -- Webb Tract and Bacon Island;
20 increased net reverse flows can reach a maximum of
21 4,500 csf at Old and Middle River; reduced Delta outflow.

22 The decrease in Delta outflow can reach an
23 average daily maximum of 9,000 csf and average monthly
24 maximum of 4,000 csf. It can also increase the percent
25 of Sacramento inflow diverted to the Delta and from the

1 Delta.

2 After review of the project impacts as
3 conditioned by the Federal Biological Opinions, the
4 Department also determined that the project will not
5 cause jeopardy to the winter-run salmon, but the project
6 would still cause significant adverse impacts for winter-
7 and spring-run chinook salmon.

8 The protective measures set forth in the NMFS
9 Biological Opinion does not include adequate mitigation
10 measures to minimize the incidental take winter-run, nor
11 to reduce impacts to winter-and spring-run chinook salmon
12 to less than significant levels.

13 Additional protective measures are required from
14 October through June in all years in order to provide to
15 adequate protection for these races of chinook salmon and
16 in order to avoid reducing the beneficial habitat effects
17 of actions implemented under the Bay-Delta Accord.

18 The Department requests the Board condition the
19 Delta Wetlands Project's water rights permits to include
20 the reasonable and prudent measures in the DFG Biological
21 Opinion, and the additional conservation measures
22 outlined in the DFG Biological Opinion and its testimony
23 in order to reduce impacts to less than significant
24 levels for the winter-run chinook salmon.

25 If the Fish and Game Commission lists the

1 spring-run chinook salmon, re-initiation of formal
2 consultation will be required. I also further believe
3 that even with the project as conditioned with all of the
4 above measures that it will still remain significant
5 unmitigated impacts on both winter- and spring-run
6 chinook salmon.

7 I recommend the Board further condition the
8 Delta Wetlands Project water right permits to require
9 funding and screening of a yet-to-be determined number of
10 unscreened diversions within the Delta, specifically the
11 Georgiana Slough; second and third-level priority
12 locations where screening would be considered beneficial
13 to these two races of chinook salmon are the North Fork
14 of the Mokelumne River below the confluence with the
15 Delta Cross Channel, and the South Fork of the Mokelumne
16 River.

17 I recommend that the Board and Delta Wetlands
18 work with the Department to develop the specifics of
19 locations and number of diversions which would achieve a
20 level of increased survival and improved habitat
21 conditions which would off-set remaining project impacts.

22 Thank you.

23 MS. MURRAY: And does that conclude your testimony?

24 MS. McKEE: Yes.

25 MS. MURRAY: Okay. Dr. Rich, please, state and

1 spell your name for the record.

2 DR. RICH: My name is Alice A. Rich, R-I-C-H.

3 MS. MURRAY: And is DFG Exhibit 8 a correct copy
4 of your qualifications?

5 DR. RICH: Yes, it is,

6 MS. MURRAY: Could you, please, summarize your
7 qualifications.

8 DR. RICH: I am a fish physiologist. I have over
9 25 years of experience in analyzing the stressful impacts
10 of man-made and natural stressors on fishes, particularly
11 salmonids, which are salmon and trout. My bachelor's
12 degree was in zoology from UC Davis. My master's and my
13 Ph.D. degrees were from the School of Fisheries in
14 Seattle. Both degrees focused on stressful impacts on
15 both salmon and trout. And my Ph.D. in addition focused
16 on physiological and biochemical aspects of the fry smolt
17 transformation.

18 In 1983 after hatching out of the School of
19 Fisheries I migrated back to California to my own native
20 area, which is Marin County and founded A. A. Rich and
21 Associates, a fisheries and ecological consulting firm.
22 I worked extensively over the last 13 or 14 years in the
23 Central Valley. And one of the studies that I've work
24 at -- actually worked on, but is directly relevant to
25 this testimony was a thermal bioenergetics study

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1 conducted on behalf of Sacramento County.

2 During that project I designed and supervised
3 juvenile chinook salmon and thermal bioenergetics studies
4 and testified before this -- before this Board with
5 regard to thermal and other requirements of chinook
6 salmon, steelhead trout, and other fishes of the lower
7 American River.

8 MS. MURRAY: Is DFG Exhibit 7 a correct copy of
9 your testimony?

10 DR. RICH: Yes, it is.

11 MS. MURRAY: Can you, please, summarize that
12 testimony.

13 DR. RICH: Yeah. In the interest of time I'm going
14 to be very brief and I'm going to try not to talk like
15 Alice the chipmunk. May I have the first overhead.

16 This overhead is derived -- actually, a number
17 of the overheads are derived from my expert -- I mean my
18 written testimony. And this is simply some "talking
19 points" as Mr. Vogel termed last week.

20 I was retained by the Department of Fish and
21 Game to, first of all, critique Delta Wetlands's final
22 operations criteria with regard to water temperature and
23 dissolved oxygen criteria. And, secondly, to assist the
24 Department of Fish and Game with the development of water
25 temperature and DO criteria for the Delta Wetlands

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1 Project, which would be minimally stressful to fishes,
2 particularly the listed winter-run chinook salmon and the
3 Delta smelt and the steelhead, which has been proposed
4 for listing. That's it for that overhead.

5 I'm going to present to you today, first of all,
6 my general conclusions on the impacts of the thermal and
7 DO criteria being offered as protective by Department of
8 Fish and Game on one hand, and Delta Wetlands in their
9 final operations criteria on the other hand. And,
10 secondly, I'm going to provide a very brief general basis
11 for my conclusions regarding those impacts.

12 First, let's address thermal criteria. May I
13 have the other -- thank you. You're one step ahead.
14 Again, I'm using this as -- this overhead is derived from
15 DFG Exhibit 7. I'm using it to illustrate some points.
16 As you know there's been two different sets of thermal
17 criteria that have been offered as being protective for
18 the fishes of the -- affected by the Delta Wetlands
19 Project.

20 Based on my own knowledge and work as well as
21 the results of the scientific literature on the subject,
22 I've reached a number of conclusions. First of all, the
23 Delta Wetlands -- the Department of Fish and Game's
24 thermal criteria would result in less stress to
25 salmonids than those of the Delta Wetlands's final

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1 operations criteria.

2 Secondly, Delta Wetlands thermal criteria could
3 result in significant salmonid losses both from lethal
4 and sublethal impacts. Third, Department of Fish and
5 Game's criteria provides safe thermal thresholds. And,
6 lastly, Delta Wetlands does not provide safe thermal
7 thresholds.

8 This overhead is derived, again, from Exhibit
9 DFG 7. And it illustrates two talking points. Similar
10 to water temperature, two different sets of dissolved
11 oxygen criteria are being offered as being protective of
12 fishes. Based, again, on my own knowledge and work and
13 the results of the scientific literature I have reached
14 two general conclusion regarding those.

15 First of all, Department of Fish and Game's
16 dissolved oxygen criteria would minimize stress to
17 salmonids. Secondly, Delta Wetlands's dissolved oxygen
18 criteria could result in significant salmonid losses. So
19 how did I reach these conclusions?

20 Well, first let's talk about water temperature.
21 To adequately design, or evaluate water temperature
22 criteria one must first know the thermal requirements for
23 each life stage of the fish in question. In this case
24 we're talking four races of chinook salmon and the
25 steelhead trout. The Delta smelt are very sensitive

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1 species as well, but they are more thermally tolerant
2 than the salmon and trout. So I'm going to focus my
3 attention on the salmon and trout requirements. And if
4 those requirements are met then those of the Delta smelt
5 should also be met.

6 Of all the life stage requirements of fishes,
7 water temperature is really the most important from the
8 physiological context. It controls everything a fish
9 does, every minute, every hour, all the time, 24 hours a
10 day. Yet, water temperature requirements are often
11 subject to debate among fish biologists. It has been my
12 experience in studying the thermal impacts on fishes for
13 a long time that there's a couple of reasons for this.

14 First of all, there's really a lack of
15 standardization of methodologies and definitions in
16 thermal studies. Physiology like a lot of things has
17 sort of evolved through time. And fish thermal
18 physiology has its own nomenclature for different
19 definitions which can be sort of confusing when you have
20 words like "optimal," "lethal," "preferred," "tolerance,"
21 "threshold," "stressful" and each one of those, depending
22 on which study one is looking at could have a different
23 definition.

24 So, for example, we can end up with a range of
25 water temperatures which have been shown to be lethal

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1 for, say, chinook salmon juveniles. Suffice it to say,
2 many of those water temperatures may not be the upper
3 incipient lethal. They -- there's simply a lot of range
4 there. May I have the next overhead.

5 This is derived from Exhibit DFG 7. Again, it's
6 for some talking points. The second problem which I
7 believe is a good cause for thermal debate is either one
8 of misinterpretation or misapplication of the results of
9 thermal physiology studies. Some of the misapplications
10 which can result are:

11 First of all, these are various things I've seen
12 over the years. You can have a biologist transferring
13 unvalidated estimates from one study to another study.
14 For example, at the end of someone's study, thermal study
15 they may make some hypothetical estimates of what may be
16 happening, say, out in the field if their experiment was
17 done outside. Someone else then in some other
18 geographical area takes those unvalidated numbers and
19 applies them to their area. And so what you end up
20 having is an unvalidated number that's been transferred
21 to another unvalidated area. And I think of this as sort
22 of a bio-accumulation of errors where you end up
23 having -- you don't know what you've got. You then apply
24 it to some area where you don't know what you've got and
25 you end up not knowing what you've got, only what someone

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1 tells you they know what you have.

2 Another thing that happens is transferring
3 results from a laboratory study directly to a field
4 situation. A good example might be someone simply finds
5 a number like 30 percent is lethal for juvenile chinook
6 salmon, or some other species at a particular water
7 temperature. You go out to the Delta, or lower American
8 River, or someplace like that and you find the same
9 temperature there and you say, okay, there's going to be
10 a 30-percent mortality on this fish. Obviously, you
11 haven't validated that. This is also incorrect.

12 Finally, another thing that happens and
13 sometimes this is naive, sometimes it's not. It's either
14 a disregard, or a selective exclusion of the results of
15 relevant thermal studies. They say sometimes people
16 don't know of all the thermal studies and so they don't
17 use them. But sometimes, excuse me, it's purposely when
18 someone is trying to prove a point and to do so purposely
19 omits some very relevant information, because the
20 information does not agree with his or her conclusion.

21 So when one incorrectly applies the results of
22 studies, one runs the risk of making some incorrect
23 conclusions with regard to what's optimal and what's
24 stressful and lethal. So to protect thermally sensitive
25 species it is important to apply correctly the results of

1 the various studies. I'm finish with that overhead.

2 Well, you just heard of some don't's. I'm going
3 to give you some do's now. There's been well over 25
4 thermal studies on chinook salmon alone. So with so many
5 thermal studies on salmon and many, many studies on
6 steelhead and other fishes and whatnot, how do you
7 determine what criteria should be used when physiologists
8 from opposing camps supposedly reviewing the same
9 information come up with different conclusions with
10 regard to what's considered safe, what's considered
11 unsafe, or stressful, or lethal?

12 I'm going to tell you. You're going to hear
13 about "A Day in the Life of a Salmon Constantly Trying to
14 Cope with Water Temperature and Stress." I'm going to
15 touch on temperature, metabolism, energy requirements,
16 stress, and cumulative stress. To understand what it's
17 like to be a fish coping with water temperature and
18 stress one really needs to understand what it means
19 physiologically to be a fish.

20 Fish have been termed cold-blooded. Whereas we
21 as humans are often referred to as warm-blooded. And
22 while warm-blooded is a rather apt description of us,
23 because we do maintain an internal warm body temperature,
24 fishes are cold only when the water is cold. They're hot
25 when the water is hot. They're constantly at the mercy

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1 of thermal characteristics of the thermal environment.
2 And contrary to what is often modeled by hydrologists,
3 fish do not respond to mean monthly water temperatures.
4 They respond to water temperature that they're hit with.

5 One of the ways that fish respond to temperature
6 is via the metabolism. When water temperature is
7 increased the fishes' metabolism increases, so does the
8 fishes's need for food and energy. Let me provide you
9 with an example. When a fish eats a meal the energy of
10 that food, similar to when we eat a meal, follows a
11 specific path. The energy provided by the food must
12 first satisfy metabolic needs such just perspiring,
13 breathing. Metabolic metabolizes food. Basically it
14 needs to satisfy a fish couch potato. They're not doing
15 much.

16 If the water temperature increases then those
17 basic metabolic needs also increase. If there's enough
18 food energy to satisfy that then the fish can move on and
19 grow to avoid predators and whatnot. But if the water
20 temperature increases beyond the point -- in other words,
21 if the water temperature increases to a stressful level
22 then the animal runs into some problems. One of the
23 things that can happen is the stress becomes too much and
24 they may not avoid that predator. And they'll get
25 gobbled up. Another thing that could happen is they may

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1 not be able to swim very well. They may be impinged on a
2 screen. They may not be able to go through the
3 parr-smolt transformation, or migrate up to reach their
4 final stream to spawn.

5 To illustrate this point, may I have the next
6 slide, please. As stated over 40 years ago by an often
7 quoted fish physiologist, who spent much of his time
8 addressing thermal physiology:

9 "Within a population the inability to maintain
10 near optimum growth at less than optimum temperature is
11 as decisive to continued survival as more extreme
12 temperatures are to immediate life."

13 In other words, subthermal stress is linked
14 directly to the long-term survival, or lack of it, of the
15 salmon and trout in the Delta.

16 Now, if thermal stress isn't bad enough, let's
17 add a second and third factor. Let's add some stress to
18 the life of this fish. For the Delta Wetlands Project,
19 certain stresses could be trying to avoid predators,
20 avoiding being impinged on a fish screen, trying to
21 breath in polluted waters, trying to contend with
22 reversed flow. All these things happen in the Delta.

23 All of these stresses also increase the energy
24 demands on the fish, just like water temperatures do.
25 And the various physiological responses to the stress,

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1 whether it's from water temperature, or any of these
2 other things I've been talking about, they all result in
3 a universal set of reactions in fishes. This is called
4 the General Adaptation Syndrome and actually was designed
5 or developed over 40 years ago by a man named Dr. Hans
6 Selye up in Montreal, Canada.

7 It's a set of responses that the animal
8 undergoes in its attempt to respond and to cope with
9 stress. While back in the 1970's and the 1980's
10 Dr. Gary Wedemeyer of Seattle, myself, and a number of
11 actually literally dozens of other people have validated
12 the General Adaptation Syndrome in fishes. And most of
13 the studies actually have been done on salmon and trout.

14 So what happens? Basically, what happens is
15 just like happens with you and me when we're stressed.
16 We get stressed then the body secretes stress hormones
17 such as adrenaline. These hormones then act on various
18 organs of the body to stimulate the body to adapt to the
19 stress. And either the body adapts or it doesn't.

20 And in the fish world, in the Delta fish they
21 don't adapt. Fry and juveniles may not be able to swim
22 away from predators. Fry and juveniles may not be able
23 to get away from those screens. They may actually result
24 in being diseased. Sometimes growth can cease.
25 Sometimes they won't get through the fry-smolt

1 transformation. They'll revert back to a parr and
2 ultimately die. This isn't something that happens
3 overnight. It takes time, which brings me to my last
4 point regarding stress which is: Stress is cumulative.

5 So if an animal is exposed to, say, the stress
6 of avoiding a predator a day, or week, an hour, or
7 whatever before that stress has literally stressed its
8 body and then if it undergoes high temperatures, we have
9 more stress. It may want to avoid the predators, but it
10 may not be able to in terms of its energy ability.

11 So given that little teaching lesson, Stress
12 Physiology 101, let's turn our attention now to the
13 thermal requirements for the salmon and trout. The
14 protective optimal thermal ranges for each of these life
15 stages of both the chinook salmon and the steelhead trout
16 are considerably below the thermal criteria that the
17 Delta Wetlands has presented to you as being protective.

18 Knowledge of temperature tolerance and sublethal
19 stress responses on chinook salmon and steelhead is far
20 from adequate to define safe limits in the field. If
21 it's possible, at all, we must determine what the
22 requirements are in the field site-specific studies. In
23 the absence of those site-specific we need to err on the
24 side of caution and use water temperatures that we know
25 will not harm these fish.

1 HEARING OFFICER STUBCHAER: Excuse me, before you
2 take that off --

3 DR. RICH: Yeah.

4 HEARING OFFICER STUBCHAER: -- I'd like to ask a
5 question about that quotation. It says "growth at less
6 than optimum." Would that read better if it said "other
7 than optimum," or does it mean lower --

8 DR. RICH: It actually can be either one.

9 HEARING OFFICER STUBCHAER: So it would be "other
10 than optimum temperature." And then the next part about
11 "extreme temperature." Does that mean greater variation
12 from the optimum or does that mean extremely high?

13 DR. RICH: It's basically extremely different from
14 the optimum. So it could be very, very high; or very,
15 very low.

16 HEARING OFFICER STUBCHAER: Okay. Thank you.

17 DR. RICH: May we have the next overhead. And,
18 actually, I'm going to answer what you just asked.
19 You're one step ahead of me. After putting the thermal
20 puzzle together for each of the life stages of each of
21 the fish species I end up with a figure such as this one.
22 This is from Exhibit DFG 7. It is page A-21. This
23 particular example was for juvenile rearing for chinook
24 salmon.

25 And using the information in the literature plus

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1 the studies we did on the American River, the optimal
2 range for the juvenile chinook -- this is the Central
3 Valley fall-run stock was 55 to 60 degrees. As you go
4 above that above 60, or you go below 55 you increase the
5 stress on the animal. And as you get closer and closer
6 to the extremes the fish has a greater chance of dying
7 right away. I'm finished with that overhead.

8 I'd like to finish up my discussion now with a
9 little discussion on dissolved oxygen requirements and
10 criteria. DO, or dissolved oxygen is essential and in
11 some cases even the limiting factor in maintaining
12 aquatic life. The sensitivity of fish to low DO
13 concentrations differs between species, life stages, life
14 processes very similar to temperature in that respect.

15 So DO criteria must be taken into account all of
16 these factors. Although there is a considerable amount
17 of laboratory data on the effects of dissolved oxygen
18 much of it is incomplete. There's even less information
19 of low DO on wild fish. Thus, unless the concentrations
20 are so low that the fish are literally "belly-up" and you
21 know they're dead, or they're so high as to have no
22 stressful effect on the fish whatsoever. It's really
23 difficult to identify a generic nonstressful dissolved
24 oxygen criteria.

25 There really are no suitable site-specific

1 physiological impact studies of sublethal impacts of DO
2 in the project area. However, there are studies
3 demonstrating that DO concentrations of as high as seven
4 to nine milligrams per liter can be stressful to
5 salmonids and other fishes. Thus, again, given the
6 amount of stress that the fish are already exposed to in
7 the Delta, it's best to minimize the risk of harming the
8 fish and err on the side of caution.

9 Later, if one undertakes a field study to
10 validate these and we change our minds, that's fine but
11 we should start off with caution. Based on the results
12 of physiological experiments on the effects of DO on
13 salmonids, and considering the thermal and other
14 stressors that the fish is constantly being exposed to,
15 the optimal DO concentration would be actually above
16 seven milligrams during the cooler months; and above nine
17 milligrams per liter during the warmer months.

18 I'd like to make a couple of concluding remarks.
19 Can I have the next overhead, please. Thank you. The
20 thermal and DO criteria that the Department of Fish and
21 Game is presenting are based on relying on a margin of
22 safety. In other words, choosing the lower temperature
23 of two when the results of two non-site specific studies
24 are different.

25 As Dr. Brett -- again, he said a lot of things

1 40 years ago. He made this statement which was true then
2 and is true now, but:

3 "The species of Pacific salmon are comparatively
4 stenothermal." This is derived from Exhibit DFG 7. And
5 what that means in lay persons terms is basically that
6 the chinook salmon, the steelhead trout, similar to other
7 Pacific salmon species can really adapt to only slight
8 variations in water temperature. They have evolved as a
9 temperate climate fish.

10 If we are not cautious with regard to the
11 thermal and DO criteria we use, we really are conducting
12 a giant field experiment with the fish being the guinea
13 pigs. Perhaps, a human analogy will illustrate this a
14 little clearer.

15 It would be similar to all of us climbing onto
16 an airplane, flying up the airplane explodes. We all
17 die. And airline engineers explaining to our families
18 and to the FAA that this was an experimental flight.
19 They were sorry, they had assumed that because they
20 tested all the other airplanes of the same "age class"
21 and the same model that this plane would work out, too.
22 And would have no problems. Obviously, checking out the
23 safety of each plane beforehand is mandatory.

24 Well, similarly if we do not incorporate safety
25 measures such as the Department of Fish and Game's

1 thermal and DO criteria for the sensitive fishes in the
2 Delta, these species will continue to decline to the
3 point where they may become extinct.

4 In closing, I'd like to recommend the use of the
5 Department of Fish and Game's thermal and DO criteria for
6 the Delta Wetlands Project. The Delta Wetlands's final
7 operations criteria for water temperature and DO could be
8 stressful and potentially lethal to the sensitive fishes
9 of the Delta. The fish species which inhabit the Delta
10 are unique to the State of California. And they're
11 really invaluable.

12 Thank you very much, Mr. Stubchaer, and Members
13 of Staff, for allowing me to briefly wade through the
14 rather confusing world of fish physiology.

15 MS. MURRAY: And does that conclude your testimony?

16 DR. RICH: Yes, it does.

17 MS. MURRAY: That concludes our direct.

18 HEARING OFFICER STUBCHAER: Very good. Thank you.

19 MS. MURRAY: Under time I believe.

20 HEARING OFFICER STUBCHAER: You bet. You did it in
21 a hundred minutes. Okay. We'll take a 12-minute break
22 now before we begin cross-examination.

23 (Recess taken from 2:30 p.m. to 2:42 p.m.)

24 HEARING OFFICER STUBCHAER: Okay. On the record,
25 we'll reconvene the Delta Wetlands water rights hearing.

1 I'd like a show of hands of those who intend to
2 cross-examine the Fish and Game panel. All right. All
3 right. We have about 40 minutes left of today's session.

4 How much -- Delta Wetlands, how long do you
5 think your cross-examination will take?

6 MR. NELSON: Two and a half to three hours.

7 HEARING OFFICER STUBCHAER: All right. Let me ask
8 Mr. Margiotta a question. You've heard the direct
9 testimony of Fish and Game. Do you want to wait until
10 after the cross-examination is completed before you give
11 your direct?

12 MR. MARGIOTTA: I might as well, because I have
13 questions I want to pose, also.

14 HEARING OFFICER STUBCHAER: Very good. That's
15 fine. I was just trying to accommodate you.

16 MR. MARGIOTTA: I appreciate that.

17 HEARING OFFICER STUBCHAER: Other parties who wish
18 to cross-examine, anyone under 20 minutes or less?
19 Mr. Moss, and then you, Mr. Etheridge.

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CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME
BY PACIFIC GAS AND ELECTRIC
BY RICHARD MOSS

MR. MOSS: Hopefully, one or two minutes at the most. To Mr. Sweetnam, I observed and heard about this what strikes me as a very interesting dichotomy in odd even years on the abundance of Delta smelt.

Could you comment on that and what it's implications are, in general?

MR. SWEETNAM: If you look at the abundance index Figure 3, should be in Fish and Game Exhibit 9, page 26. In the 1990s we have had that occurrence where the odd years have been of higher abundance than the even years

MR. MOSS: Yes.

MR. SWEETNAM: We're trying to evaluate what the potential causes of that is -- are, but we haven't come to any conclusions yet.

MR. MOSS: Thank you.

MR. SWEETNAM: We wish we knew.

HEARING OFFICER STUBCHAER: Okay. Mr. Etheridge.

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CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME

BY EAST BAY MUNICIPAL UTILITY DISTRICT

BY FRED ETHERIDGE

MR. ETHERIDGE: Thank you, Mr. Stubchaer. For the record my name is Fred Etheridge from the East Bay Municipal Utility District. I have just a few questions. First for Mr. Wernette.

I believe you testified as a reasonable and prudent measure, or RPM the Department of Fish and Game proposes to add the month of March as a no-diversion period for Delta Wetlands. Is that correct?

MR. WERNETTE: That's correct.

MR. ETHERIDGE: And why was that proposed by the Department?

MR. WERNETTE: Why was it proposed?

MR. ETHERIDGE: Correct.

MR. WERNETTE: We believe that the justification for having the April/May period is a critical period which we agreed with, applied equally as strongly to the month of March for the listed species.

MR. ETHERIDGE: I believe further reasons for that will -- was potential impacts in March for Delta Wetlands to operate in March upon rearing fry and migrating smolts; is that correct?

1 MR. WERNETTE: That's correct. From the
2 perspective of winter-run we were concerned with the
3 prospective of rearing fry in the early -- in the
4 beginning of the smolt migration. So from the winter-run
5 salmon standpoint that was a principle reason for March.
6 We also had reasons with respect to Delta smelt.

7 MR. ETHERIDGE: Okay. Thank you. In your opinion
8 would the Delta Wetlands Project, if it were to divert in
9 March, impact those fish, the rearing fry and migrating
10 smolt?

11 MR. WERNETTE: It's my opinion it would.

12 MR. ETHERIDGE: Thank you. I also had a couple of
13 questions for Ms. McKee. You testified that the Delta
14 Wetlands Project will increase net reverse flows in the
15 lower San Joaquin and Old and Middle Rivers; is that
16 correct?

17 MS. McKEE: Yes.

18 MR. ETHERIDGE: What impacts from the juvenile
19 chinook salmon from the east side tributaries to the
20 Mokelumne River and Consumnes River would such reverse
21 flows have?

22 MS. McKEE: Basically the same as any for any race
23 of salmon that is coming down through the Central Delta
24 and hitting the lower San Joaquin that is bound for
25 Chipps Islands is going to experience confusion in the

1 reverse flows, could delay outmigration. It could also
2 assist in entraining them towards South Delta Channels.
3 So whether or not it's from the San Joaquin, Mokelumne,
4 or Sacramento, fish that came in through the DCC.

5 MR. ETHERIDGE: Is one impact of those reverse
6 flows to -- to move fish from places in the Delta that
7 they would otherwise be in the absence of those flows?

8 MS. McKEE: It -- what we believe is that the
9 reverse flows basically help confuse the fish as far as
10 trying to find their way out to Chipps Islands, because
11 instead of the flows which historically move downstream
12 towards Chipps are moving upstream towards Stockton. And
13 these fish are also at the confluence of the Mokelumne,
14 the confluence of Middle and Old River, and in that
15 general region where the reverse flows are pulling them
16 up towards those South Delta Channels. And then those
17 channels are also in the reverse flow condition which
18 cause entrainment with the south Delta flows.

19 MR. ETHERIDGE: And as far as the specific impacts
20 that result from that entrainment, I believe you
21 mentioned the potential delays in smolt outmigration.

22 MS. McKEE: Yes.

23 MR. ETHERIDGE: Are there other potential impacts
24 such as moving these juvenile fish to portions of the
25 Delta which might create additional predation impacts?

1 MS. MCKEE: Yes. Anything that's going to delay
2 these fish that are trying to emigrate out to Chipps
3 Island will increase their exposure time where there are
4 adverse conditions within the Delta including predation.

5 MR. ETHERIDGE: Okay. Thank you very much. That's
6 all the questions I have.

7 HEARING OFFICER STUBCHAER: Okay. Mr. Maddow.

8 MR. MADDOW: I'm sorry, Mr. Stubchaer, I do not
9 intend to cross Fish and Game.

10 HEARING OFFICER STUBCHAER: All right. Could I
11 see, again, who else besides Delta Wetlands --

12 HEARING OFFICER STUBCHAER: Okay. Mr. Margiotta.

13 ----oOo----

14 CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME

15 BY PETE MARGIOTTA

16 MR. MARGIOTTA: Mr. my name is Pete Margiotta.
17 Mr. Wernette, could you tell me how long you feel -- or
18 if you feel the Swainson's hawk has been an indigenous
19 species to the Delta?

20 MR. WERNETTE: Most of the evidence, at least from
21 historical information, suggested that the Delta had a
22 habitat type -- at least, the Central Delta deep Delta
23 was a combination of tidal wetlands, riparian, and was a
24 system that probably wouldn't have supported the prey
25 items for the Swainson's hawks. At the upper elevations

1 of the Delta where it supported perennial grassland, you
2 know, it probably was suitable. But when you ask about
3 how long that transformation to agricultural lands and,
4 therefore, suitable for aging habitat, or Swainson's
5 began to occur in the mid too late 1800's.

6 MR. MARGIOTTA: So that the start of the Swainson's
7 hawk could not have forged in the Central Delta with the
8 given habitat that was there at that time?

9 MR. WERNETTE: Given what we know about their food
10 habits and the type of habitat that they use now, which
11 is a surrogate is the agricultural habitat, it's my
12 opinion that the suitable habitat in the Central Delta,
13 the more peat or tulle parts of the Delta would not
14 probably have supported the Swainson's hawk.

15 MR. MARGIOTTA: So it's man's creation of
16 agriculture in that portion of the Delta that has allowed
17 the Swainson's hawk to now forge in that area?

18 MR. WERNETTE: That's correct.

19 MR. MARGIOTTA: Isn't that like asking somebody to
20 mitigate like a housing development that puts in a
21 recreational park to put in water in their park and they
22 create a wetland by the runoff to mitigate when they put
23 water in the park?

24 MR. WERNETTE: I would not characterize it as an
25 equivalent example. In my view of the habitat that is

1 new used, Swainson's has in part been a result -- it has
2 been a result almost exclusively of human use, not only
3 from the standpoint of land conversions in the Delta, but
4 urban development at the edges of the Delta that have
5 taken out habitat that used to be used by Swainson's 200
6 years ago.

7 So the urban development in the Sacramento area,
8 the San Joaquin Valley area, around Stockton for
9 instance, that habitat some of it is not available any
10 longer. So the combination of land use changes there
11 along with the agricultural lands conversions provide an
12 opportunity for these birds to hang on and stay viable,
13 at least, in the Central Valley, or at least this part of
14 the Central Valley because of the combination of
15 occurrences.

16 When the species was listed in the, you know,
17 the habitat requirements of the species were identified,
18 it was clearly recognized in the conclusion to list this
19 species by the Fish and Game Commission that we were
20 looking at what that species needed in today's condition
21 in order to sustain it. And, hopefully, recover habitat
22 to the point where that animal could be delisted.

23 MR. MARGIOTTA: Does the Department feel that
24 mitigation conditions should occur for the Swainson's
25 hawk on this project to the detriment of indigenous

1 species regardless of whether they're threatened or not
2 threatened?

3 MR. WERNETTE: It is not our opinion that the
4 habitat plan that's devised right now is really at the
5 detriment of other indigenous species. In other words,
6 the habitats that were included in the habitat management
7 plan and the way they'll be managed, in our view,
8 provides habitat in combination with indigenous species
9 are able to provide habitat for Swainson's hawk.

10 MR. MARGIOTTA: Okay. Could -- there's been a lot
11 of discussion about the impact on the Jones's Fisheries
12 in the Delta by this project. And I would submit that
13 has been impacted by part by a great many other projects
14 as well.

15 Could barging of these fry, or young salmon
16 through the Delta circumvent the problems they incur by
17 entrapment and predation?

18 MR. WERNETTE: In the case of fry, these are fish
19 that are not yet prepared physiologically --

20 MR. MARGIOTTA: My terminology, I may not be using
21 the correct term, but when a fish, a young salmon is
22 ready to move down could not barging of those fish though
23 the recommendation of the -- I think it was
24 Mr. Freezey's (phonetic) proposal to use tubing, or nets
25 underneath -- a containment tube underneath the boats.

1 MS. McKEE: The presumption of barging is that
2 first you would be able to gather the fish in a manner
3 that wouldn't increase losses to the fish. So --

4 MR. MARGIOTTA: From hatchery, let's say.

5 MS. McKEE: For hatchery, one of the problems with
6 the concept of barging and the Department has received
7 numerous proposals over the years and we have evaluated
8 them, so has the U.S. Fish and Wildlife Service received
9 proposals. They have actually in combination with the
10 Department taken a look at efforts that have been done
11 elsewhere, including on the Columbia River. And one of
12 the major setbacks with any kind of a barging operation
13 is the highly increased strain rate of those fish. They
14 fail to be able to locate their native stream when you
15 barge them and some of them, but most of them won't --

16 MR. MARGIOTTA: When I use the term "barging," I
17 don't mean in a container.

18 MS. McKEE: Right.

19 MR. MARGIOTTA: I mean a container that is
20 submerged and immersed in the natural waters.

21 MS. McKEE: That is correct. So the Department and
22 the Fish and Wildlife Service have both expressed grave
23 concerns that while it may sound like a good idea, to
24 date there are no studies to indicate that it would
25 overall increase the survival of these fish due to some

1 of these other problems that it would cause.

2 MR. MARGIOTTA: Has the Department conducted those
3 studies, or any studies in that respect.

4 MS. McKEE: I don't believe the Department has
5 conducted any studies, but there have been studies
6 conducted elsewhere, and there's specific examples on the
7 Columbia River.

8 MR. MARGIOTTA: The Mokolumne River, do they not
9 release their fish within the river, they don't barge
10 them out to sea?

11 MS. McKEE: I'm not an expert on the Mokolumne
12 River experiments.

13 MR. MARGIOTTA: All right. So the Department of
14 Fish and Game has not conducted any studies to determine
15 if barging out to sea would reduce the amount of
16 predation, or loss of small fishes, I'll use that term,
17 out of hatcheries. Is that correct?

18 MS. McKEE: Not to my knowledge.

19 MR. MARGIOTTA: Okay. Thank you. Has the
20 Department of Fish and Game required other water -- other
21 agencies who store, or transport water to release their
22 stored waters, or water rights for outflow purposes?

23 The most recent one that I'm familiar with is
24 Los Vaqueros reservoir. It's in my home county. Have
25 you made a request of them to release their stored water

1 during certain times of the year to increase the flows in
2 the Delta?

3 MR. WERNETTE: We have not -- or did not in our
4 2081. And the reasons for that are that we're talking
5 about very different projects, both in the nature of the
6 project and the scope of the project. The initial part
7 of your question regarding releases, the Department
8 commonly set standards with regards to minimum flow
9 releases below reservoirs to protect fisheries below
10 reservoirs. But even from -- other than just responding
11 to your first part of the question, that even that
12 doesn't really, you know, correlate very well with what
13 we're talking about here because of the unique nature of
14 this proposal.

15 MR. MARGIOTTA: It just seems with the amount of
16 water that's drawn out of the Delta by all the agencies,
17 if the same requirements were placed maybe there would be
18 more outflows. And I'm wondering with the amount of
19 benefits to the terrestrial species that this project
20 offers, I'm wondering was it the intent to make it so
21 prohibitive from the aquatic standpoint that the project
22 can't survive?

23 MR. WERNETTE: In my opinion, there is no -- no
24 such motivation on our Department's part to cause the
25 project not to move forward and obtain the terrestrial

1 benefits that you're talking about. Those terrestrial
2 benefits are considerable, I attest to that myself.

3 It's our view that we, yet, still have an
4 obligation to deal with the aquatic impacts of the
5 project and that's the purpose of our measures. And
6 quite frankly we're hopeful that the project with the
7 advantages that it has if -- if it could live under those
8 conditions we would be very hopeful that it could move
9 forward under those conditions.

10 MR. MARGIOTTA: Has the Department considered
11 requiring other diverters to not divert water during the
12 same periods that they're requesting Delta Wetlands to
13 not withdraw water, or divert water?

14 MR. WERNETTE: The -- from the same point of view
15 of say, for instance, the State or Federal Water Projects
16 there have been longstanding requests from the biological
17 perspective to limit diversions during those key months
18 that we're talking about, primarily April/May.

19 But even now under the Accord during other
20 periods we haven't, you know -- within the content of the
21 Accord we have this discussion about no net loss of water
22 supplies. And so from that point of view we are being
23 consistent in trying to protect that key time of the
24 year. Whether our requests are that we end up asking
25 them to shut their diversions down for a three-month

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1 period, we have not made that request.

2 MR. MARGIOTTA: If -- are your requests followed,
3 or are they required, or are they just a request and they
4 can say, sorry?

5 MR. WERNETTE: Could you repeat that?

6 MR. MARGIOTTA: Yeah. When you make a request of
7 an agency not to divert under the Accord, what course of
8 law do you have to enforce it, or can you?

9 MR. WERNETTE: The --

10 MS. MURRAY: Actually, I'm going to object to that
11 as calling for a legal conclusion.

12 MR. MARGIOTTA: Okay.

13 HEARING OFFICER STUBCHAER: I would say: Answer to
14 the best of your ability. If you can't answer it, say
15 so.

16 MR. WERNETTE: The difficulty -- the question is a
17 little confusing to me.

18 MR. MARGIOTTA: Let me restate it. Does the
19 Department of Fish and Game have any authority over the
20 other water agencies to prohibit them from diverting
21 based upon your request for those periods of times that
22 you want them to not to divert?

23 MR. WERNETTE: To the best of my knowledge we have
24 no legal authority to do that. Most of the requests that
25 we have made, if they're in compliance with the Water

1 Control Plan, would be from the standpoint of
2 recommendations of the OPS group and people like Larry
3 Gage would assess the possibilities of dealings with
4 those requests and the affects on water project supplies.

5 So it's in the context of us not necessarily
6 having the authority to -- from the standpoint of having
7 a hammer, but more from the way we're dealing with water
8 project issues these days and the OPS group in terms of
9 discussing and trying to find out what we could to
10 improve the aquatic benefits at the same time allow
11 continued water supplies.

12 MR. MARGIOTTA: Are you aware of any other project
13 in the Delta -- water project in the Delta that has ever
14 offered the terrestrial -- the potential terrestrial
15 benefits that this project is offering?

16 MR. WERNETTE: I'm not.

17 MR. MARGIOTTA: In -- when -- I believe Fish and
18 Game has Twitchell Island. And I heard that there was
19 going to be a study done on shallow water wetland. I
20 also believe that the Fish and Game is going to be
21 managing Prospect Island, which has been acquired by the
22 State.

23 Has there been any studies done in terms of the
24 impact on water quality when you off-load these islands
25 and your wetland projects?

1 MR. WERNETTE: Pete, I was thinking I may start out
2 by clarifying a couple of things. The Department doesn't
3 own Twitchell Island.

4 MR. MARGIOTTA: Okay.

5 MR. WERNETTE: It's owned by -- well, the State of
6 California. And Prospect Island when it's developed it's
7 now owned by the Bureau, when it's developed is likely to
8 be managed as a satellite of the Stone Lakes Preserve by
9 Fish and Wildlife. So that's just for clarification.
10 You asked, ultimately, a question about whether we
11 assessed what comes off those wetlands --

12 MR. MARGIOTTA: Uh-huh.

13 MR. WERNETTE: -- after we've had normal
14 discharges after the wetlands, for instance, need to be
15 drained.

16 MR. MARGIOTTA: Right.

17 MR. WERNETTE: I personally have not been involved
18 in those. So I have no direct knowledge about whether
19 those evaluations have occurred.

20 MR. MARGIOTTA: What agency -- I don't know who
21 would answer this, but who would determine what the water
22 quality impacts are going to be in those projects?

23 MR. WERNETTE: I don't know the answer to that.
24 I'm assuming that the Regional Board under their
25 authority, you know, if there were any concerns. To my

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1 knowledge I have not -- I don't have any direct knowledge
2 of any concerns with regards to any wetlands, or whether
3 the Regional Board is evaluating those, or what --

4 MR. MARGIOTTA: Who becomes the lead agency when
5 they propose those projects, when Fish and Game proposes
6 a habitat management project like on Prospect Island or
7 Twitchell?

8 MR. WERNETTE: In the case of Water Resources that
9 would be the lead agency, if there was a development
10 proposal specific to Twitchell Island.

11 MR. MARGIOTTA: Okay. Let me change --

12 HEARING OFFICER STUBCHAER: And I'd like to say:
13 If anyone on the panel knows the answer, they may speak
14 up.

15 MR. MARGIOTTA: Right.

16 HEARING OFFICER STUBCHAER: Mr. Margiotta, it
17 looks -- it looked like another person wants to answer
18 your question.

19 MR. MARGIOTTA: Thank you.

20 MR. SWEETNAM: This is Dale Sweetnam. The proposed
21 Prospect Island Project is being overseen by the Corp of
22 Engineers, I believe. And it actually has either two
23 breaches of the original design, or one breach. So it's
24 not a water-holding body. It's -- it's basically allowed
25 to flood and add with the tide. So I don't think there's

1 going to be a problem with the holding of contaminants
2 within the island, or anything like that.

3 And the proposed monitoring is a joint proposal
4 through a whole series of agencies. Our Department put
5 together some of the terrestrial monitoring proposals and
6 fishery monitoring proposals for that.

7 MR. MARGIOTTA: You feel, then, that breaching of
8 the levee is a better management tool for --

9 MR. SWEETNAM: In terms of fisheries habitat within
10 the island, yes. And that's what the proposal is for.

11 MR. MARGIOTTA: Okay. Let me go n now to there's
12 been discussion and testimony about predation as a result
13 of boat docks associated with this project. Could not
14 that predation be reduced by limiting the number of
15 docks, or reducing the number of docks?

16 MR. WERNETTE: Yes, it could be.

17 MR. MARGIOTTA: Has that been proposed by the
18 Department?

19 MR. WERNETTE: We haven't recommended that, because
20 we thought a more effective -- the more effective package
21 of measures that we have recommended are our reasonable
22 and prudent measures and the additional conservation
23 recommendations. And together with the final operations
24 criteria that are already in the project proposal to --
25 if that entire thing was packaged together, in our view,

1 there would be no need to do addition mitigation for boat
2 docks. In other words, reducing the number of boat
3 docks, or modifying their design, because the whole
4 package of measures in our view would represent a series
5 of measures that would offset even those additional
6 predation impacts.

7 MR. MARGIOTTA: Okay. What scientific
8 observations, or data was used to determine the need for
9 close zones on the habitat island?

10 MR. WERNETTE: The principle focus during our
11 discussions of developing the habitat management plan
12 were with respect to the two State listed species. In
13 the case of the sandhill crane an important component of
14 suitable habitat for sandhill cranes are having roosting
15 areas that are undisturbed, or relatively undisturbed by
16 human use that have the other correct habitat
17 requirements for forging and, you know, areas they can
18 get up out of the water.

19 So from that point of view based on observations
20 of suitable habitat in the Delta where we do have
21 conditions of, you know, safe roosting areas, we felt it
22 was necessary to include close zones so that when cranes
23 were roosting in this part of the Delta, there would be
24 locations managed as suitable roosting habitat that would
25 not be subjected to frequent disturbances by people

1 coming and going to the hunting areas, or actually
2 hunting.

3 So that was the main focus.

4 We also in managing some of our wildlife areas,
5 you know, to my knowledge we haven't done any specific
6 evaluations of, you know, the size of close zones, but
7 during the preparation of the management plan Jones and
8 Stokes's consultants actually took an assessment of the
9 current wildlife areas that are in the Central Valley and
10 drew conclusions about what is now being used by
11 professional wildlife managers in percents of close zones
12 and their location. They used that data to guide us in
13 terms of where we would put close zones and their size
14 and percent of those two habitat islands.

15 MR. MARGIOTTA: Was there any observations
16 conducted during the hunting season on any of the project
17 islands in terms of disturbance to sandhill cranes?

18 MR. WERNETTE: I did not conduct any myself.

19 MR. MARGIOTTA: Then could you tell me that
20 couldn't you achieve the same effect of a close zone by
21 reducing the density of recreational activities on the
22 island?

23 MR. WERNETTE: That is a possibility. And, Pete, I
24 think if you look at the adaptive management aspects of
25 this plan we have various barriers on the habitat islands

1 where we've actually -- there's a prescription for some
2 fairly light hunting pressure. And I think that the way
3 we've crafted that is that during monitoring of the
4 actual implementation when it's constructed and built,
5 observations will be made. And if we note, you know,
6 that these cranes are not being disturbed by those light
7 hunting pressures, then we have a mechanism for those
8 kinds of modifications to come through a habitat
9 management advisory committee that could include you even
10 on that committee potential. And that those requests
11 would come through that committee. And if the data
12 support it, then we'd be willing to consider it.

13 MR. MARGIOTTA: Okay. Did you take into the
14 consideration the potential negative impacts of the close
15 zones to both waterfowl species that could possibly
16 result from unnatural congregations of birds and the
17 potential for alien diseases as well as the net --
18 potential negative impact to adjoining islands and/or
19 recreational values to those islands?

20 MR. WERNETTE: I believe we did. From the disease
21 standpoint there is -- Pete, there's always a risk that
22 if you have areas that are sanctuaries that have high
23 food supplies like will be in the case of this plan,
24 there's always a risk that birds will be pushed around
25 from island to island, or location to location on that

1 island and concentrate in -- in these areas. And if
2 there is a disease outbreak and there's no careful
3 monitoring of the outbreak, that could be a situation
4 that results in, you know, high losses of waterfowl.

5 So when we took that into account we believe the
6 way to deal with that is in the monitoring program to
7 include a component of monitoring during that time. And
8 some reporting of disease die offs and some -- that would
9 trigger specific actions in terms of management to
10 discourage waterfowl use in those areas and reduce the
11 risk of waterfowl disease.

12 We don't expect these areas will be the only
13 places we have to watch for disease outbreaks, because as
14 I mentioned these islands will have tremendous benefits
15 for waterfowl and, you know, we'll have to watch
16 regardless of whether of it's within or without the
17 hunting area.

18 MR. MARGIOTTA: Let me ask this: How fast would
19 you project a management team to be able to respond to an
20 outbreak of waterfowl diseases, or --

21 MR. WERNETTE: Typically, the typical problem in
22 the Delta is with fowl collar which is a disease that
23 normally affects the time period of October at the
24 earliest, but generally December, January, and February.
25 So during that time the Department actually has a team on

1 standby that's monitoring by air and ground waterfowl
2 concentrations in the Delta and note disease outbreaks
3 where they occur throughout the Delta.

4 The mechanism we envision is that Delta Wetlands
5 on their own would do additional monitoring. And there
6 would be a mechanism to report that and provide us free
7 access to get to their island to do pick up of dead
8 birds. In our response time, when I was involved in it
9 as a unit biologist was within a day we would be able to
10 be there. But our main problem was detection. And
11 without people monitoring, if we have three weeks of fog
12 and not able to fly, these outbreaks could get away from
13 us. So the fact that Delta Wetlands will have staff
14 monitoring it and give us access and not deny us access,
15 which can happen, we believe we'll have very fast
16 response.

17 MR. MARGIOTTA: Thank you. I heard a lot of talk
18 about the CAL/FED and -- and how it's going to help fix
19 the ills of the Delta. Are there any HMP studies that
20 have been reviewed and -- I mean HMP plans that have been
21 studied and reviewed to the degree that the Delta
22 Wetlands Project HMP has been studied?

23 MR. WERNETTE: I don't know the answer to your
24 specific question.

25 MR. MARGIOTTA: Is anyone aware of any habitat

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1 management plan, specific plans laid to paper that have
2 had environmental impacts studies conducted regarding the
3 plan?

4 MR. WERNETTE: Are you talking --

5 MR. MARGIOTTA: CAL/FED, to the Fish and Game
6 Department. That question is to the Department.

7 MR. WERNETTE: I'm struggling with your question,
8 Pete, because I'm not sure if it's in the context of the
9 CAL/FED Ecosystem Restoration Program --

10 MR. MARGIOTTA: Yes.

11 MR. WERNETTE: -- or other places in the United
12 States?

13 MR. MARGIOTTA: I'm sorry. CAL/FED in terms of the
14 Delta restoration -- or wildlife restoration plan.

15 MR. WERNETTE: If you're that focused, this project
16 actually has received more attention and more
17 comprehensive treatment than anywhere else I'm aware of
18 in the Delta.

19 MR. MARGIOTTA: The Delta Wetlands Project?

20 MR. WERNETTE: The Delta Wetlands Project. And as
21 a matter of fact, the lessons we learned during the
22 development of this habitat management plan have already
23 been applied to the mitigation project on Palm Tract for
24 the transmission agencies on Northern California's
25 Project, their transmission line account to Oregon.

1 The lessons we've learned also have already been
2 included in some of the ecosystem restoration programs of
3 CAL/FED. So in a sense, you know, this has been a test
4 bed at least at a planning stage from what CAL/FED would
5 do from the managed wetland and modified agricultural
6 practices that were advocated for this plan.

7 MR. MARGIOTTA: Given that you brought up Palm
8 Track and there was some discussion about agricultural --
9 continued user-friendly agricultural practices, as you
10 know I have been involved with the Palm Track mitigation
11 Project.

12 I should say that in my view that the -- there
13 hasn't been a documented successful mitigation project
14 relative to terrestrial species in the Delta. One of the
15 concerns regarding agriculture. I've discussed to some
16 degree is how -- what changes would you make in the
17 current agricultural practices of the habitat islands --
18 in Delta Wetlands Project, what changes would you require
19 or would you require any changes relative to wildlife
20 benefits and being wildlife friendly?

21 MR. WERNETTE: At this time I'm not aware of any
22 changes that I would make, but we'd be willing to
23 entertain modifications based on actual observations of
24 how waterfowl and other wildlife use these islands. And
25 adaptively managing it we feel that without any

1 additional cost to the project, the Delta Wetlands
2 Project, those changes could be made.

3 MR. MARGIOTTA: Would you concur that the use of
4 spud ditches for irrigation are, in fact, an entrapment
5 that kills ground nesting waterfowl?

6 MR. WERNETTE: I think there's data gathered now by
7 the California Waterfowl Association in their nesting
8 studies that suggest that a tremendous amount of
9 waterfowl -- there is a tremendous amount of waterfowl
10 nesting that occurs in wheat fields, for instance, winter
11 wheat fields that have spud ditches in them, which maybe
12 ditches that may be a foot wide.

13 MR. MARGIOTTA: 10, 12 inches at the most.

14 MR. WERNETTE: And sometimes two feet deep, or
15 three feet deep.

16 MR. MARGIOTTA: Straight walls.

17 MR. WERNETTE: And there are very straight walls.
18 So under conditions of terrestrial nesting would -- that
19 you have maybe a half a mile away from any waterfowl that
20 are nesting. And when the hen is ready to lead her
21 ducklings to water for brewed water, they have to
22 negotiate these spud ditches. And they do represent a
23 fairly significant obstacle. If those ducklings fall in
24 they're not going to have the ability to crawl up these
25 steep walls. And they're susceptible to being lost and

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1 preyed upon by raccoons and other wildlife that are
2 there.

3 MR. MARGIOTTA: Wouldn't it be a reasonable measure
4 then to impose upon the project that they not be allowed
5 to use spud ditches for any farming practice that would
6 be detrimental to the indigenous species that are going
7 to be using the project habitat island?

8 MR. WERNETTE: We've had quite a bit of discussion
9 about this balance about how -- how do you run a
10 legitimate farming program and do it in a wildlife
11 friendly manner? And the advice we got from
12 Dr. McClanderous with CWA was to allow these spud ditches
13 at less frequent intervals and to modify them so that
14 there are what we call escape ramps, or off ramps, or on
15 ramps. And the way they work is so that these birds work
16 down these spud ditches and then extricate themselves
17 from these and then move on to brood water.

18 MR. MARGIOTTA: It seems to me -- I don't know how
19 to pose this in a question, but if you're going to create
20 a wetland management mitigation project, then that all of
21 the measures that are going to be taken for that project
22 mitigation should not have any negative impact on those
23 indigenous species.

24 And on Palm Track they use the spud ditches and
25 thereby create an attractive nuisance, but since their

1 mitigation only requires that they reproduce a hundred
2 and fifty ducklings --

3 HEARING OFFICER STUBCHAER: Mr. Margiotta --

4 MR. MARGIOTTA: I'm sorry. I'm getting off track.

5 HEARING OFFICER STUBCHAER: You're testifying. You
6 can do that --

7 MR. MARGIOTTA: I'm sorry. I'm sorry. Okay. In
8 your opinion, Mr. Wernette, can you tell me how public
9 hunting -- as a measure for this project, public hunting
10 access to the project islands will benefit wildlife, or
11 terrestrial values on the island?

12 MR. WERNETTE: Our suggestion that public access be
13 considered by the project proponent is indirectly linked
14 to improving conditions for wildlife in a sense that --
15 first of all, we believe that it's good public policy if
16 the project proponent is willing to allow public access
17 to provide for it in a very controlled manner. So that
18 people -- there's a tremendous demand for public access,
19 not only for hunting but also for bird observation and
20 photography. For providing that in a controlled manner
21 you actually reduce levels of poaching. You reduce
22 conditions where people are dumping garbage, because you
23 have a -- there is a presence there and you have the
24 ability to control access.

25 In addition it heightens people's awareness of

1 the values of wildlife in general and waterfowl in the
2 Delta, which is a centrally located location from the
3 standpoint of Sacramento, Stockton, and the Bay Area and
4 tremendous opportunities to enhance people's knowledge of
5 wildlife and wildlife processes, particularly, as it
6 relates to agricultural operations. So I guess
7 indirectly I think there's a tremendous benefit and I
8 think it's a good public policy as well.

9 MR. MARGIOTTA: Do you feel that by allowing public
10 hunting there would be greater disruptance, or
11 disturbance of the habitat islands than there would be if
12 it was all private and maintained at a low density?

13 MR. WERNETTE: Well, our recommendation would be
14 that whatever criteria are being expected of the project
15 proponent in terms of density that would be applied to
16 hunting in a public area and we would anticipate that the
17 same controls and limitations would be placed on a public
18 hunting area as well. So I don't see a difference in
19 terms of effects on wildlife.

20 MR. MARGIOTTA: Okay. Thank you. That concludes
21 my questions.

22 HEARING OFFICER STUBCHAER: Thank you.

23 Ms. Crothers, how long -- did she leave?

24 MR. CANADAY: She just stepped out.

25 HEARING OFFICER STUBCHAER: How long would your

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1 cross-examination be expected to last?

2 MS. CROTHERS: Mr. Stubchaer, I'm just trying to
3 determine whether we really needed to have any
4 cross-examination. It would be helpful to hear what
5 Delta Wetlands's cross-examination -- really, we may not
6 have any questions at all, but that's kind of predicament
7 I'm kind of inclined not to have any questions. So --

8 HEARING OFFICER STUBCHAER: All right.

9 MS. CROTHERS: Actually, I do have one question
10 maybe I should --

11 HEARING OFFICER STUBCHAER: Please, come up and --

12 MS. CROTHERS: Okay.

13 HEARING OFFICER STUBCHAER: -- ask your question.

14 ---oOo---

15 CROSS-EXAMINATION OF DEPARTMENT OF FISH AND GAME

16 BY CALIFORNIA DEPARTMENT OF WATER RESOURCES

17 BY CATHY CROTHERS

18 MS. CROTHERS: This is Cathy Crothers for
19 Department of Water Resources. It's mostly a
20 clarification question. In the Fish and Game Biological
21 Opinion on page 24 of their opinion they made a
22 comparative statement that were -- the combined exports
23 from the CVP and SWP were 6.1 million acre feet.

24 I just wanted to clarify that if they got that
25 from a planning document, or something but in actuality

1 it's more in the nature of -- of an average export of
2 about 4.5 million acre feet per year. And the maximum
3 five-year average is 5.7 million acre feet per year.

4 HEARING OFFICER STUBCHAER: Is that a question.

5 MS. MURRAY: Yeah --

6 HEARING OFFICER STUBCHAER: Say: Isn't it?

7 MS. CROTHERS: I lost my focus here. Excuse me.
8 And then I just did -- I guess my question is: Where did
9 Fish and Game obtain the 6.1 million, because it's not
10 what we believe would be an accurate statement. I guess
11 that's for anybody.

12 MR. WERNETTE: I think our intent was to identify
13 a -- you know, we've identified in the case of this
14 comparison an average and a maximum, but I think we ended
15 up doing was not really using a correct average in terms
16 of the State and Federal Water Project in terms of
17 operations. But used a number that might reflect more
18 fairly the recent maximum delivery for the State and
19 Federal Water Project.

20 In other words, we didn't have a five-year
21 averaging period, or the last 15 years. So from this
22 comparison, the comparison would probably have a number
23 closer to what you described a few minutes ago.

24 MR. NOMELLINI: I'll stipulate we should cut them
25 back to 4.1.

1 HEARING OFFICER STUBCHAER: You're out of order,
2 Mr. Nomellini.

3 MS. CROTHERS: I guess we were trying to clarify
4 how this number was being used and what was intended by
5 the use of it. That's fine. Thank you.

6 HEARING OFFICER STUBCHAER: Okay. Thank you. This
7 hearing will be continued to 9:00 a.m. Tuesday, July
8 29th. That's next Tuesday. We will have the
9 cross-examination of this panel by Delta Wetlands and we
10 will have Mr. Margiotta's direct testimony, and
11 Caltrans's direct testimony and, of course,
12 cross-examination. And then following that would be
13 rebuttal, I believe.

14 MS. LEIDIGH: Yes.

15 HEARING OFFICER STUBCHAER: So are there any
16 questions, or comments on procedure before we recess?

17 MR. NOMESELLINI: Order of rebuttal will be Delta
18 Wetlands first?

19 HEARING OFFICER STUBCHAER: The order of rebuttal
20 will be the same as order of presentation, yes.

21 HEARING OFFICER STUBCHAER: Mr. Sutton, or Ms. --
22 staff?

23 MS. LEIDIGH: Staff just wanted to point out so
24 everybody knows that if you have documents that you are
25 going to present as evidence on rebuttal, that you should

1 have copies for all the other parties and 13 copies for
2 the staff and Board Members just as was required for the
3 cases in chief.

4 HEARING OFFICER STUBCHAER: Okay. And with that
5 we're in recess.

6 (The proceeding concluded at 3:25 p.m.)

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