MONDAY, NOVEMBER 15, 1993, 9:00 A.M.

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MR. DEL PIERO: Ladies and gentlemen, this hearing will come to order.

For those of you that may not have been here before, my name is Marc del Piero. I am Vice Chair of the State Water Resources Control Board.

With me today is John Brown, a member of the State Water Resources Control Board.

This is a continuation of the hearing regarding the Amendment of the City of Los Angeles' Water Rights Licenses for Diversion of Water From Tributary Streams to Mono Lake.

Joining us today is our staff counsel for this matter, Dan Frink; our environmental specialists, Jim Canaday and Steve Herrera; and staff engineers Richard Satkowski and Hugh Smith.

Also joining us is my supervisor, Alice Book.

When last we left we had broken in terms of the presentation by the City of Los Angeles. However, it is my understanding that the witness on behalf of the Environmental Protection Agency is here today.

Is that true, Mr. Frink?

MR. FRINK: Yes, it is Mr. David Calkins and Mr. Zabel, their attorney.

MR. DEL PIERO: Those witnesses who intend to

present testimony today, if you have not previously been sworn, would you please stand and raise your right hand.

(Three witnesses were thereupon sworn.)

Okay, counsel for the EPA. Good morning, sir.

For the record, in order to have a complete record so that everyone can understand who is talking and who wasn't at the time, we ask that when your witness, or you for that matter, sir, when you identify yourself, spell your last name so we get that clearly in the record and there is no question about it.

Additionally, when testimony is to be presented, we ask that the individuals who are presenting that testimony speak as clearly and distinctly as possible so we can keep a record for this hearing.

Please proceed.

MR. ZABEL: My name is Allan Zabel, Z-a-b-e-l. I am an attorney representing the U. S. Environmental Protection Agency.

DAVID L. CALKINS,

having been sworn, testified as follows:

DIRECT EXAMINATION

by MR. ZABEL:

Q Would you please state your name for the record.

A Yes, I am David Calkins, C-a-l-k-i-n-s. I am Chief of the Air Planning Branch at the U. S. EPA, Region 9, San

Francisco.
Q I would like you to look at what's entitled Testimony of David L. Calkins for the U. S. EPA, if you would, please.
Mr. Vice Chair, that should have been identified as U. S. EPA Exhibit 4. Inadvertently it was not.
MR. DEL PIERO: Do you have that, Mr. Canaday?
MR. SMITH: Yes.
MR. ZABEL: It was not marked as U. S. ERA 4 before, and it is not on the list of exhibits, but it should be.
MR. DEL PIERO: Okay.
MR. ZABEL: Q Mr. Calkins, is that document your written testimony before this Board?
A Yes, it is.
Q Could you summarize that for us, please?
A Surely. Vice Chairman del Piero and Member Brown, good morning.
My summary statement today concerns the submitted testimony on the redesignation of the Mono portion of Mono County known as the Mono Basin, from unclassified to moderate nonattainment status for particulate matter which is an air pollutant.
Particulate matter under the federal Clean Air Act is measured at PM 10, which means particles less than or equal to ten micrometers.

In 1987, EPA set an annual 24-hour national ambient air quality standard to protect public health, or PM 10.

If an area is found to violate either of those national health standards, the Clean Air Act and the EPA policy sets forth a regulatory program to bring the area into attainment of the standard.

These programs and the accompanying attainment deadlines are based on the severity of the problem and the date designated attainment or nonattainment.

On August 1 of 1991, the California Air Resources Board, as the designee of the Governor of California, and based upon air quality monitoring data collected by the Great Basin Unified Air Pollution Control District, requested that EPA redesignate the Mono Basin to nonattainment.

I should note that the 1990 Clean Air Act amendments automatically designated all areas that were not currently nonattainment as unclassified.

On July 16 of 1993, ERA published in the Federal Register a notice of proposed rule making to redesignate the Mono Basin to nonattainment for PM 10.

The only comments received during the 30-day public comment period was from the Los Angeles Department of Water and Power. The major focus of their comments was to delay the final designation of the Mono Basin until after these

hearings were conducted.

EPA responded to the Los Angeles Department of Water and Power request that any designation of the Mono Basin must be made solely upon air quality criteria, and the procedures set forth in the Clean Air Act. Designation is strictly a procedural act, and the control strategies that impact the public comment during the plan preparation stages.

Accordingly, EPA denied the request to extend the comment deadline period.

Designation to nonattainment sets up a series of planning and regulatory deadline requirements for the State and the local pollution control agencies under the 1990 Clean Air Act.

By operation of law, the Mono Basin is initially classified as moderate upon final designation. California then has 18 months following this official redesignation to submit an implementation plan to ERA that either demonstrates nonattainment no later than the end of the sixth calendar year following the effective date of redesignation, or shows that such a demonstration is impracticable.

Other requirements of this plan include assurances that all reasonably available control measures to control PM 10 are implemented no later than four years after

redesignation; that there's a permit program for new and modified major stationary sources of PM 10 in place; a program to demonstrate reasonably further progress towards attainment is occurring; and control requirements on major stationary sources of precursors of PM 10 as identified under current EPA guidance are in place.

Now, that last requirement can be dropped if it is clear that the precursors do not contribute significantly to the PM 10 exceedences.

If California does not demonstrate attainment or does demonstrate attainment is impracticable within six years from the designation date, the area gets upgraded to serious classification, or the second classification of PM 10 rules.

Although this provides additional time to attain the standard, it also triggers additional legal and planning requirements, including a new implementation plan within 18 months, and yet, an additional plan is due four years after reclassification to serious nonattainment, and this second plan must demonstrate attainment as expeditiously as practicable, but in no case later than ten years after the designation to serious.

So, if you have kept track of the addition, this would be mid-2005.

So, as you can see, the Clean Air Act is generous

for those areas having difficult attainment of the PM 10 standard.

Finally, I must note that failure of California to provide an adequate implementation plan legally obligates EPA under the 1990 Clean Air Act to promulgate its own federal implementation plan to achieve the attainment of the PM 10 standard in the Mono Basin.

Thank you.

Q Mr. Calkins, in your testimony you discuss the proposed redesignation rule making. Could you give the Board the status of that rule-making action?

A Yes. On Friday, November 12, EPA signed the final rule-making action .to designate the Mono Basin as nonattainment for PM 10, and this should be published in the Federal Register probably around the first of December. It will be effective 30 days thereafter.

Q Mr. Calkins, I would like you to look at what has been marked U. S. EPA 1. Could you identify that for the Board?

A That is the proposed rule making to redesignate the area to nonattainment of July 16, 1993.

Q Would you now look at what has been marked U. S. ERA 2.

A Yes, those are the comments submitted by the Los Angeles Department of Water and Power on the proposed rule

making.
Q Would you also look at U. S. ERA 3 and identify that for the Board?
A Those are three sections of the 1990 Clean Air Act related to the obligation to promulgate a fifth if there is not a State plan, describes Sections 188 and 189 which describe a planning requirement for PM 10 areas; and finally, a section that describes how the designation classification takes place.
MR. ZABEL: Mr. Vice Chair, the U. S. EPA would request that U. S. EPA Exhibits 1 through 4 be admitted as evidence.
MR. DEL PIERO: Thank you very much.
Any objection at this point in regard to those submittals? No, and they are so ordered.
Does that conclude your direct?
MR. ZABEL: That concludes direct.
MR. DEL PIERO: Thank you. Mr. Birmingham.

CROSS-EXAMINATION

by MR. BIRMINGHAM:
Q Good morning, Mr. Calkins. I am Tom Birmingham, one of the attorneys representing the Los Angeles Department of Water and Power in these matters, and I have a few questions that I would like to ask, if I may.
You indicated that the designation of Mono Basin to

a nonattainment area was strictly procedural; is that correct?
A That is correct.
Q I believe your testimony states that any designation of the Mono Basin must be based solely upon air quality criteria and procedures set forth in the Clean Air Act?
A Yes.
Q Therefore, with respect to the application of the Clean Air Act generally, there is no balancing of harm done to the resource, in this case, air quality against the cost of preventing the harm; is that correct?
A The designation is based on the air quality standards which are health standards and are based on impact on health.
Q The air quality standards are standards established because of impacts to health?
A Yes, they are, the primary standards are, which are what PM 10 standards consist of.
Q And, in fact, during the summary of your written testimony you referred to these standards as national health standards; is that correct?
A Yes.
Q And there's a 24-hour standard and that's 150 micrograms per cubic meter; is that correct?
A That is correct.

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Q And there is an annual standard that is 50 micrograms per cubic meter; is that correct?
A Yes.
Q Is there a distinction between anthroprogenic and nonanthroprogenic sources of emission?
A In setting the standard or in the planning -- what context?
Q Well, under the Clean Air Act, is there a difference between anthroprogenic and nonanthroprogenic sources?
A Certainly. There's man-made sources and there's natural sources. That gets taken into account in the planning process. The health standards are based on health no matter what it comes from.
Q And for nonanthroprogenic sources, the requirements of the Clean Air Act can be waived; is that correct, the requirement of developing and implementing a State implementation plan?
A I'm not sure I follow your question.
Q Is it correct that EPA has discretion to waive the attainment standards for nonanthroprogenic sources of particulate matter?
A Not under the 1990 Clean Air Act.
Q Under the 1990 Clean Air Act, the Environmental Protection Agency is not responsible for developing a State implementation plan; is that correct?

A That is only true if, in fact, there is a State plan developed and we can approve it. If not, then it turns into a federal role. We do work with the State and with the local districts to provide policy guidance and assistance in developing it, but it is the State's responsibility.
Q And in California initial authority to develop a State implementation plan rests in this case with the Great Basin Unified Air Pollution Control District; is that correct?
MR. FLINN: Objection. That calls for a legal conclusion particularly of California law.
MR. DEL PIERO: Okay, you can get to where you want to go.
MR. BIRMINGHAM: Q Your testimony refers to the Governor having certain authority, the Governor of the State having certain authority to implement the federal Clean Air Act; is that correct?
A Yes.
Q And your testimony indicates that the Governor of the State of California has delegated that authority to an agency; is that correct?
A It has delegated the Air Resources Board to develop a plan.
Q And do you know if the Air Resources Board, or under California law, there has been any further delegation of

authority to local agencies?
A I think in most cases the California Air Resources Board primarily deals with the mobile source aspect of the planning. Stationary source aspects are quite frequently carried out under California law by the local air pollution control district. I am not familiar with the specific relationship between California and the Great Basin Unified Air Pollution Control District. I'm more familiar with the larger districts in the Bay Area.
Q In the Bay Area under State law authority has been delegated to a local agency?
A Yes, it has, although the ultimate plan still must be signed off by the Governor or his designee.
Q And in California that would be the California Air Resources Board?
A Yes.
Q And it is, therefore, up to the State through its delegated agencies or through agencies to whom it has delegated authority to develop a State implementation plan?
A Yes, it is the ultimate responsibility of the State to turn in that plan to EPA.
Q And there's nothing in the Clean Air Act that requires that the level of Mono Lake be raised to deal with the emission of particulate matters; is that correct?
A That's correct.

Q And there's nothing in the Clean Air Act that prescribes the specific content of a State implementation plan?
A There are specific guidances as to what must be included within the plan in terms of reasonably available control measures. This is policy under the Clean Air Act.
Q But there isn't anything in the Clean Air Act that specifies how those policies are to be implemented?
A That is the responsibility of the State.
Q Now, you stated that under the Clean Air Act in these designation decisions there is no balancing. Would you agree that if EPA had discretion to conduct some kind of balancing, that cleaning the air in the Mono Basin would be low on the list of priorities of EPA? Isn't that correct?
A I think that's speculation.
MR. ZABEL: It's leading the witness, facts not in evidence.
MR. FLINN: It's a hypothetical question and to the extent this witness is an expert, it is not directed to his expertise. He is an expert on what the existing regulatory regime is at the EPA. He is not an expert on what EPA might do under some other regulatory or statutory situation.
MR. BIRMINGHAM: Let me ask it another way.
MR. DEL PIERO: If you want to.
MR. BIRMINGHAM: If I ask a question the witness

does not know the answer to, I would appreciate getting that as the answer.
Q It is correct; isn't it, that except on a few days in each year that the air quality in the Mono Basin is pristine?
A It is within the standard, yes, but there were enough days over the standard during the three-year period to cause the exceedences and violation.
Q Let me ask you about that. Could I ask the reporter to read back that last question or that last answer.
(The reporter read back the answer as follows: It is within the standard, yes, but there were enough days over the standard during the three-year period to cause the exceedences and violation.)
MR. BIRMINGHAM: Q Now in your last answer you referred to a three-year period. Isn't it correct that Section 50.6, Title XXXX, that's a title with which you are familiar?
A Somewhat, yes.
Q You were responsible for administering that in Region 9?
A Yes.
Q Section 50.6 of Title XXXX of federal regulations provides that national and primary secondary 24-hour ambient

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air quality standards are attained when the primary and secondary 24-ambient air quality standards are attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms per cubic meter as determined in accordance with Appendix K of this part is equal to or less than 1; is that correct?
A That's correct. That is why I mentioned three years of four exceedences because that makes the average over one.
Q And Appendix K sets forth the procedure that you are to use to determine whether or not that standard has been violated or attained; is that correct?
A Yes.
Q Appendix K is part of the code of federal regulations?
A Yes.
Q Appendix K provides that the number of expected exceedences at a site is determined by recording the number of exceedences in each calendar year, and then averaging them over three years; is that correct?
A Yes.
Q Now the exceedences that are cited in ERA Exhibit 1, the first exceedence occurred on which date?
A I need to find Exhibit 1.
Q It's correct that the first exceedence occurred on May 16, 1988; is that correct? I'm looking at the second

page of EPA Exhibit 1, middle column, toward the bottom of the last paragraph where it says the exceedences of the PM 10 ambient national air quality standard was measured on May 16, 1988, May 23, 1990, and May 23, 1991, and May 16, 1991.
Is that correct?
A Yes.
Q Now, if I count correctly, that is four separate calendar years; isn't that correct, 1988, 1989, 1990, those are three calendar years, and then 1991 is a fourth calendar year. Isn't that correct?
A But within a three-year time frame.
Q Well, is it within a three-year time frame because, first of all, Appendix K says three calendar years; isn't that correct?
A That is right.
Q It doesn't say a three-year time frame.
A That is correct.
Q Appendix K says three calendar years.
A Yes.
Q And these exceedences did not occur within three calendar years; did they, Mr. Calkins?
A Not within the same three calendar years, no.
Q Did they occur within three years?
A Yes.
Yes, they did, within three years basically.

Q Well, May 16 to May 15 would be 365 days; is that correct?
A Correct, although you do have a leap year in there.
Q Then, the fourth exceedence was actually more than three years beyond the first exceedence; isn't that correct? It was on the first day of the beginning of the fourth year; isn't that correct?
A It would appear that way, yes.
Q So, in fact, four exceedences did not occur within three years; did they?
MR. ZABEL: Objection. You say those four exceedences. There are other exceedences in this rule-making package which are cited as evidence here.
MR. BIRMINGHAM: Q Let's look at EPA Exhibit No. 1, the four exceedences which EPA is using to make this procedural redesignation are the four exceedences listed in the last paragraph in the middle column on page 2 of ERA Exhibit 1; isn't that correct?
MR. ZABEL: Objection. That calls for a conclusion. This rule-making package has already been signed by the administrator. If they had these objections to a federal rule-making, LADWP had ample opportunity to make these objections. They did not.
It is also argumentative. Those are not the exceedences upon which ERA based the rule making.

MR. DEL PIERO: First of all, if LADWP had objections pursuant to the rule-making process, it would be appropriate for them to file those objections in the rule-making process. This is a different process. It's not an EPA process, not a federal process, it's an administrative hearing on the part of a State agency to get information this Board is ultimately going to use.

Now, in terms of the question, frankly, Ms. Book, would you read that back to me so I can recall what it was.

(The reporter read as follows: Let's look at EPA Exhibit No. 1, the four exceedences which EPA is using to make this procedural redesignation are the four exceedences listed in the last paragraph in the middle column on page 2 of EPA Exhibit 1; isn't that correct?

MR. DEL PIERO: Mr. Calkins, are those four listed on the exhibit that Mr. Birmingham referred to --

A He did refer to those four.

MR. DEL PIERO: Are those the four that they are using to establish justification for the redesignation, or are they using more?

A I would have to defer to probably the State that sent in the designation request, because they looked at the numbers that came in from the Great Basin and made the decision to turn it in.

MR. DEL PIERO: So, the State Air Resources Board may have made that recommendation?
A They would have made a recommendation to us. The Federal Register also indicates they have checked the numbers out and made sure they were properly sampled. Whether those were the numbers used for the redesignation decision, personally I do not know.
MR. DEL PIERO: Thank you very much.
Please proceed, Mr. Birmingham.
MR. BIRMINGHAM: Q We were talking when we started that line of questions about air quality in the Mono Basin and I believe my last question on that subject was whether or not it was correct that except on the few days when there are dust storms in the Mono Basin generally the air quality in Mono Basin is excellent; isn't that correct?
A Yes, it does meet the annual standard.
Q The annual standard, I think you said was 50; is that correct?
A I believe you said it was, but that is correct.
Q Isn't it correct that the annualized, the measured annualized -- excuse me, may I take moment?
MR. DEL PIERO: Sure. We will go in recess for five minutes.
(Recess)
MR. DEL PIERO: Ladies and gentlemen, we are going to

continue.
Mr. Birmingham, before you begin, sir, I have an appointment at eleven o'clock which is about an hour and fifteen minutes from now, so I am going to break about ten minutes to eleven, and we will resume again at one o'clock, so you will have about a two-hour break for lunch.
I'm sorry, but that appointment was set up by my secretary this morning and there is no alternate for me, so thank you.
Mr. Birmingham, why don't you proceed.
MR. BIRMINGHAM: Q Mr. Calkins, before the recess we had begun talking about the annual PM 10 standard and in response to two questions that I asked, you announced that the annual PM 10 standard established by the EPA is 50 micrograms per cubic meter.
Isn't it correct that the measured annual concentrations of PM 10 in the Mono Basin is approximately 11 micrograms per cubic meter?
A I'm not familiar with the exact numbers, but I know it is considerably below the 50 standard.
Q In addition to the Great Basin Unified Air Pollution Control District region or area, there are 13 other air basins in California; is that correct?
A I believe that's a correct number, yes. I am thinking in terms of Region 9, which I know there are 22 in

the region, but for California 13 sounds right.
Q So, there would be a total of 14 regions or basins in California?
A Yes.
Q And the annual PM 10 standard is exceeded in 11 of those 14 basins; is that correct?
A I am not familiar with the numbers.
Q But the annualized concentration of PM 10 in Mono Basin is, I think you said, considerably less than the standard established by EPA?
A If that number 11 is correct, yes.
Q Now, isn't it correct that when dust storms do occur in the Mono Basin, the particulate matter is dispersed over an unpopulated area?
A I don't have the answer to that.
Q You stated before that the standard established by ERA for particulate matter of 10 microns in diameter or less was established as a health standard; is that correct?
A Yes.
Q Isn't it correct that there is no public health problem caused by air quality in the Mono Basin?
MR. ZABEL: Objection. That's a legal conclusion. We have already stated that the national ambient air quality standards are violated here. It contradicts Mr. Calkins' earlier testimony.

MR. FLINN: An additional objection -- it calls for an opinion outside the area of this particular witness's expertise. He was proffered as a witness on public health.

MR. DEL PIERO: I am going to sustain the objection.

MR. BIRMINGHAM: I have no further questions. Thank you.

MR. DEL PIERO: Thank you very much, Mr. Birmingham.

Mr. Thomas or Ms. Cahill.

MS. CAHILL: We have no questions for this witness.

MR. DEL PIERO: Mr. Flinn or Mr. Dodge.

MR. FLINN: Mr. Flinn this morning.

The first thing I would like to do is introduce myself. My name is Patrick Flinn. I am one of the attorneys for the Audubon Society and the Mono Lake Committee.

CROSS-EXAMINATION

by MR. FLINN:

Q What I would first like to do is ask you to look at a document that we have marked as Exhibit NAS and MLC Exhibit 222, and ask if you can identify this as an Environmental Protection Agency memorandum stating, among other things, current EPA policy on rural fugitive dust.

We will pass around copies to the parties and members.

A Yes, this, in fact, was sent to the Chief of the Air

Branch in each of the ten regions, one of which I am the Chief of the Air Branch.

MR. FLINN: I would move the admission of Exhibit 222.

MR. DEL PIERO: Any objection?

MR. ROOS-COLLINS: Mr. del Piero, I haven't seen it yet.

MR. FLINN: It arrived this morning.

MR. ROOS-COLLINS: (After receiving the document) Mr. del Piero, I have no objection.

MR. DEL PIERO: Mr. Birmingham, any objection?

MR. BIRMINGHAM: I have no objection.

MR. DEL PIERO: So ordered.

MR. FLINN: Q Mr. Birmingham was asking you about the annual standard versus the 24-hour standard. Does the EPA have two different standards; one a 24-hour standard and another an annual standard?

A There are two standards, both based on health, long term and short term.

Q And does the short-term standard, the 24-hour standard, to your understanding, represent judgment by the ERA with respect to the short-term effects of exposure to PM 10?

A Yes, it definitely does. In fact, for some standards we only have a longer term annual standard because there are

not short-term demonstrated health impacts. For PM 10, definitely there are short-term impacts and that is why we have the 24-hour standard.

Q Now, Mr. Birmingham also asked you if you were aware that the annual PM 10 standard was being violated in other parts of California.

Let me ask you as a general matter, to your understanding under the way the ERA operates and the Clean Air Act operates, is the fact it may be worse in other places justification for violation of the federal Clean Air Act?

A I am sorry, I misunderstood -- justification where?

Q To your knowledge under the way the Clean Air Act works and under EPA's regulations, can you obtain a waiver or dispensation from compliance with the Clean Air Act by pointing out it is worse in other places?

A No.

Q I have a couple of overheads here because Mr. Birmingham asked you about the waiver for anthroprogenic sources. Now, the Clean Air Act was amended by Congress in 1990?

A Yes, it was.

Q Now, I am going to show you what are excerpts from the Report of the Committee, the United States Senate, the Committee on the Environment and Public Works, the Committee

Report for those amendments, and the Committee Report of the House of Representatives, the Committee on Energy and Commerce.

These have to do with the Clean Air Act amendments and I will ask the Board to take judicial notice of these materials.

Showing you, first, the Senate Report, and I will read it aloud: The term anthroprogenic source includes sources that are indirectly created by human activity as well as those that are the direct result of such activity. An example of such a source indirectly created by human activity are the dust storms that are generated from dry lake beds at Owens and Mono Lakes in California. These dust storms which have resulted in the highest PM 10 levels in the country are the result of the diversion of water that would normally flow into the lakes. The diversion has exposed alkali lake beds which have been the source of severe dust storms that have created PM 10 concentrations that have exceeded levels measured in forest fires.

Measures to control PM 10 from sources such as these must be developed and implemented, and

waivers of the requirements in subpart 4 of the Act applicable to PM 10 nonattainment areas are not available in these cases.

Is this consistent with your understanding with regard to Mono Lake? In particular, it is defined as an anthroprogenic source for which no waiver is available.

MR. BIRMINGHAM: Objection, calls for legal conclusion.

MR. FLINN: Q You testified earlier --

MR. DEL PIERO: I assume you withdrew the question.

MR. FLINN: I withdrew the question.

Q You testified earlier with regard to whether or not a waiver is available. Can you tell me whether or not you have an understanding in your capacity as a U. S. EPA official whether or not a waiver is available for the dry lake bed at Mono Lake?

A My understanding is it would not be available for this situation. The report of the Senate Public Works Committee, as well as the House Committee, as you probably know, described the intent of what the legislation that ended up in the Clean Air Act means and we look at that very closely in developing our policy, such as the one that was referenced in the September 24, 1993, document that was submitted.

Q Just for the record, showing the excerpt from the

House Report, the House Report likewise includes the following:

> The term anthroprogenic sources is intended to include activities that are anthroprogenic in origin. An example of such sources is the dry lake bed at Owens and Mono Lakes in California which give rise to dust storms that are the result of the diversion of water that would otherwise flow to such lakes and should be considered anthroprogenic sources.

I would now like to have marked as the National Audubon Society and Mono Lake Committee exhibit next in order a September 11, 1991, letter from James Boyd of the Air Resources Board to Mr. Dennis C. Williams.

This is in relation to the nonconsecutive versus consecutive years issues that Mr. Birmingham brought up with you.

I have got a simple question for you now. You are not listed as a cc on this letter, but Mr. Howekamp of EPA is listed. Can you tell us who Mr. Howekamp is?

A David Howekamp is Director of the Air Toxics Division at EPA Region 9, and that division has four branches, and I head up the Planning Branch.

Q Have you ever seen a copy of this letter before?

MR. BIRMINGHAM: We will stipulate that is the actual

letter that was sent by the Air Resources Board that was sent to the Department of Water and Power, and I will stipulate to its admission.

MR. FLINN: It is offered then.

MR. DEL PIERO: Unless I hear an objection, I will order it entered.

MR. ROOS-COLLINS: No objection.

MS. CAHILL: No objection.

MR. FLINN: Q Now, Mr. Birmingham also asked you about whether there were four exceedences cited in the EPA rule making. Do you have that document in front of you?

A Yes, I do.

Q I believe that is EPA Exhibit 1; is that right?

A Yes.

Q Are there more than four exceedences listed in that rule making?

A Yes, there are. The four we were talking about were related to the letter that came in initially from the State to suggest that we redesignate the area. However, before we took any action to propose that redesignation, there were several more experiences, and if you look at the third column near the bottom, there are two more dates where there were exceedences, and that totals five exceedences within a three-calendar year period; in 1990, '91 and '92, there are

a total of five exceedences, if I read this correctly.
Q Even if you use consecutive years or calendar years, or whatever, you still have more than one a year?
A Right, for the 1990 to 1992 period.
MR. FLINN: No further questions.
MR. DEL PIERO: Thank you very much, Mr. Flinn.
Mr. Roos-Collins.
MR. ROOS-COLLINS: No questions.
MR. DEL PIERO: Ms. Scoonover.
MS. SCOONOVER: Yes, I have a few.

CROSS-EXAMINATION

by MS. SCOONOVER:
Q Good morning, Mr. Calkins. My name is Mary Scoonover and I represent the California Department of Parks and Recreation and the State Lands Commission.
I have just a few questions for you this morning and I would like to start with the redesignation and plan preparation process.
You testified earlier that if the area is designated as serious, that we are looking potentially at mid 2005 for meeting the standards for PM 10 in the Mono Basin; is that correct?
A That is the end point that it could take to reach it. However in that plan that might suggest that date, you have to do everything reasonable and practical through the period

of time to reach the standard as expeditiously as practicable, so if there are measures that can bring it to an earlier attainment, that must be in the plan.

Q If, at the end of that process, attainment is not reached, what are EPA's remedies aside from designating or designing its own implementation plan? Are there any penalties?

A Depending on what was in the plan, if there are some measures in the plan that should have been implemented and they were failed to be implemented, then we would take enforcement actions and this would occur as we went along in the process.

However, if everything was tried and still do not attain the standard, then it is my understanding it would be a federal plan as opposed to -- there are no additional extensions that I am aware of. There are some one-year extensions earlier in the process.

Q Is my understanding that one of the avenues open to EPA is to prevent federal highway funds from going to an area that is nonattainment as well as preventing additional construction of new major stationary sources of PM 10; is that correct?

A Those are our sanctions, yes. In the Clean Air Act there are sanctions available to the agency for failure to submit a plan. Ultimately though, there has to be a federal

plan written, but this is a possible outcome for PM 10 nonattainment; that is, this has now been designated.
Q Can you give me an example of a major stationary source?
A Say a large cement plant crushing facility.
Q Has the EPA clocked any major stationary sources of PM 10 anywhere in California at this time?
A The clocks for the PM 10 sanctions have not run out, as I say, under the 1990 Clean Air Act, so for PM 10 we have not yet.
Q Are you familiar with the Owens Lake area which is in fairly close proximity to Mono Basin?
A I'm somewhat familiar, not so much from the technical standpoint.
Q Are you aware that Owens Lake was identified some 13 years ago as being in violation of State and Federal air quality standards?
A How many years, 13?
Q Thirteen years ago.
A I'm not personally aware of that.
Q Do you know whether the air quality in the Owens basin is better now than when it was designated as a gross violation some 13 years ago?
MR. BIRMINGHAM: Objection, relevance.
A I am not an expert in that area.

MR. DEL PIERO: I am going to sustain the objection unless you can indicate relevance.

MS. SCOONOVER: Mr. del Piero, I think the relevance is that ERA is responsible -- Region 9, not only contains Mono Basin but also a number of other areas.

Mr. Birmingham himself was comparing air quality violations in 11 of 13 other areas. This was one more specific one.

I won't try to press the witness beyond his knowledge of the area, but I think the area has been opened by Mr. Birmingham.

A I might add --

MR. DEL PIERO: Wait, wait. Mr. Birmingham.

MR. BIRMINGHAM: What this Board is engaged in is a balancing and it must balance the benefits derived from exporting water from the Mono Basin with the harm to public trust values in Mono Basin. And how air quality of the Mono Basin compares to air quality in other places certainly is relevant to what damage is being done to the air quality in the Mono Basin.

The issue of what is going on in the Owens Valley is unrelated to the public trust balance in which the Board is asked to act with respect to these water rights licenses.

MR. DEL PIERO: Ms. Scoonover, I have one question before I rule.

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In terms of your question to this witness, beyond the condition of the air quality within the Owens Lake area of the Great Basin area or Management District, what are you attempting to show in relationship to Mono, the EPA's failure to succeed in enforcing the regulations?

MS. SCOONOVER: Specifically, the application of the EPA air quality requirements, not only to Mono Basin, but also to the Owens Basin. There are some similarities, and there are some differences, but I think it is constructive as far as what can be expected of the Mono Basin.

MR. DEL PIERO: Sir, do you recall the question?

A No, I would need to have it repeated.

MR. DEL PIERO: Ms. Book, would you read the question back to the gentleman?

(The reporter read back the question as follows:
Do you know whether the air quality in the Owens
Basin is better now than when it was designated
as a gross violation some 13 years ago?)

MR. DEL PIERO: Do you know the answer to that?

A What confuses me on this is the 13 years ago designation.

MR. DEL PIERO: If you don't know the answer, the answer is, I don't know.

A Thirteen years ago, no.

MS. SCOONOVER: Q You have testified that you were

familiar with the exceedences of the federal standard at Mono Lake; correct?
A Yes.
Q To that end are you aware that dust levels seen downwind of Mono Lake would require wearing a respirator in any factory in the U. S. under federal health and safety rules?
A I am not aware.
Q Are you aware that in May of 1993 during Mono Lake storms there were three gross exceedences of the federal 150 micrograms per cubic meter, primary health based standard, in one month?
A No.
Q Are you aware that one of those storms reached 981 micrograms per cubic meter during that storm?
A Once again, this is 1993?
Q Correct.
A No, I'm not.
Q Does the EPA in any way account for how bad a violation is once it reaches the 150 micrograms per cubic meter?
A Our plan that's developed for a nonattainment area is based on what we call the design value, what the level is you need to reduce from and to protect against, so obviously an area that is just slightly over the standard would not

require the same degree of additional control as an area that's grossly over. So it does affect the plan design.
In the designation itself or the acknowledgement of exceedence, however, once the 150 micrograms per cubic meter level has been reached, there are no additional acknowledgements if the levels exceed by, say, 200 percent the standard?
A No, because it is based on the health standard, and the health is impacted on the short-term standard when you have more than one exceedence per year.
Q So, for example, if you had two exceedences a year of 160 micrograms per cubic meter, that would be equal to a federal violation?
A Two exceedences.
Q Two exceedences per year at 160 micrograms per cubic meter would constitute an exceedence of the federal standard, would it not?
A The way the exceedences are measured, we normally take a three-year period and average that out.
Q If the exceedence was instead 980 micrograms per cubic meter as opposed to 160 micrograms per cubic meter and the violation occurred regularly enough to be considered a federal violation over the three-year standard, would there be any difference in the designation itself of the violation?
A No, no, the designation by operation of law is in the

moderate category. Once there is four exceedences over three years, then it is in the moderate category. It's designated as we did in this situation.
Q So no matter how bad the designation, it's still categorized in the same way. It's dealt differently, however, in the planning process?
A That's correct.
MS. SCOONOVER: Thank you.
MR. DEL PIERO: Thank you very much, Ms. Scoonover.
Ms. Niebauer is not here, Mr. Haselton is not here, Mr. Silver is not here. Is there anyone else wishing to cross-examine this witness? Mr. Frink.

EXAMINATION

by MR. FRINK:
Q Mr. Calkins, in the case of a stationary source of air pollution, does EPA have standard criteria specifying the distance from the pollutant source at which the ambient air quality is to be measured?
A It's access by the public to the facility. Obviously if they work there, they are affected by it. If it is not accessible to the general public within that area, it is based on public access, bottom line.
Q So by analogy, if you had a factory with a smokestack and you could measure a violation of ambient air quality on the other side of the property line, would that qualify as a

violation of the ambient air quality standard?
A Yes, it would.
Q Is it your understanding that the blowing dust from the area surrounding Mono Lake is a major source of air pollution in the Mono Basin?
A That's my understanding, yes.
Q How far from the playa is the Warm Springs measuring site located?
A I don't know the mileage. I am sure staff knows that. I just don't know it.
Q Do you know if it is off the playa area?
A It's on the east side. Maybe you could define the playa area again to make sure we are talking about the same terms.
Q I wouldn't attempt to do that. I'm sure I would get into an argument with people.
A I know where the sites are. I've looked at the map, I have seen aerial photographs of the sites. As far as distance from the source, the playa area, I cannot personally say what that is.
Q Is it your understanding that the measuring site is located outside of the source of the pollutants?
A The measuring site -- as part of this process we had to validate the site within an area that measures ambient air to qualify for exceedences and was properly running at the

time, and if the record says yes that it was, and that it is accessible to the public. My understanding is if a hiker or somebody could go into that area and actually be at the ranch site.

MR. FRINK: That's all I have. Thank you.

MR. DEL PIERO: Mr. Satkowski.

EXAMINATION

by MR. SATKOWSKI:

Q I have a couple of questions dealing with your implementation plan. On page 2 of your Exhibit 4, under the heading Impact of the Final Redesignation, you mention that if the area was classified as a moderate nonattainment area, that California would have 18 months from the effective date of the redesignation to submit to EPA a preliminary implementation plan for the Mono Basin. Then you go on to say that there's some criteria and some items that must be included in the plan and that it must be developed, or the plan must be put together as expeditiously as practicable in order to solve the air attainment problems.

Could an implementation plan for air quality include a plan that might take 30 years or more to achieve your desired result?

A No, the plan must show that it reaches the attainment by those certain dates, those deadlines. They want the two-step process for the PM 10 planning set up -- in fact,

if you cannot show attainment by that sixth calendar year from designation, let's say that's January 1, 1994, which is probably the practical date we're talking about now, if it could not attain by January 1 of the year 2000, you must have all these other things, reasonable controls in your plans, these measures that protect against new sources of exceedence standards and this sort. And then you become another category. You become a serious area, and you have a new planning deadline to attain, plus additional controls you must take, and then you have ten additional years from that point.

Q So it sounds like, I think you said 2005 was the farthest date that you look out into the future.

A That's the way, if I add this up right with the ten years, say, the area cannot come up with a plan to attain at the end of the sixth year, then this other proposal to add the ten would bring it to 2005.

Q Are you aware in the draft DEIR that if all the exports were to cease from the Mono Basin, it may take 12 years or more just to reach a target elevation of 6390?

A Yes, I did see that about the 6390 and what it would take to rise to that level.

Q Are you aware that if you were to follow the 6390 alternative as outlined in the EIR, it may take upwards of 30 years to reach 6390?

A No, I am not.
Q Or also that for 6400 it may take up to 80 years to reach that target elevation?
A I am not aware of that.
Q I have just another question, you said that the State needs to follow all these procedures and 2005 is the target date, what would the State have to do if we were to show that it was not practical to reach, say, the 6390 target elevation which some people say is needed to save the air quality problem, what if it was not practical to reach that by 2005, what if it did take 30 years to reach that level, do you have any comment on that?
A I think the State will have to look at all possible strategies. It would appear just from reading the EIR that the most practical strategy to reduce the wind-blown exceedences, would be to raise the lake level, from reading your EIR. And I would imagine that's what would go in the plan. If it could not show attainment by the year -- we would approve what we could of the plan, if that was the strategy, but then if it didn't reach it by 2005, there would have to be some additional measures. There are options. It rarely happens, but that is 15 years from the passage of the 1990 Act, perhaps there could be a clause or amendment or the Act would change at that point in time, but I wouldn't expect any immediate changes in the Clean Air Act. Congress is very

hesitant to make changes in the short term. That's the only other option, unless there's additional measures that the State comes up with during this period of planning, a plan that could add on to the lake level.

Q I think at least the federal government needs to sort of sign off with the State plan, the State comes up with their air quality plan.

A We must publish in the Federal Register approval or disapproval, and then our final action on it, so 18 months, mid-1995 would be the deadline to turn in the plan, and then we would have a period of time which I would image would take six months to propose approval, hearings, comment, and then the final.

Q What if the State Board decides to come up with a plan that may take 50 years and for some reason they believe that is the most reasonable approach toward solving all the problems in the Mono Lake Basin as opposed to, say, 30 years which was decided in the EIR or 12 years if all exports were to cease from the Mono Lake Basin. Is it your understanding that EPA would disapprove a 50-year plan versus some of these other plans?

A Under the current Clean Air Act, I don't think we have a voice on that, particularly if there was a 12-year possibility to attain the standard.

MR. SATKOWSKI: Thank you. I believe I have no other

questions.
MR. DEL PIERO: Mr. Canady has left. Board members?
MR. BROWN: I have two questions.
EXAMINATION
by MR. BROWN:
Q In your testing, what particulate matter is of greatest concern?
A In the monitoring?
Q Right.
A Well, these are sampled through particulate matter monitoring sites, and we weigh the filters and determine from the amount on the filter what the levels are. Also, the Great Basin District analyzes the filters to find out what material, what heavy metals, what other materials might be found on the filter as well.
Q That's my question, which is of greatest concern, or is it the total dust that is in the air?
A Well, the standard is based on the total dust in the air where they measure. However, in developing the control strategy, it behooves you to look at what materials are there to help identify the sources of the problem.
Q And the follow-up question on that, if you are looking at the total, how much of the total from your monitoring stations that you have. do you estimate comes from the surrounding lake area as opposed to the surrounding

neighboring area?
A I don't believe I could answer that. That would be a question of the State or the Great Basin District. That's the kind of information that they have and will look at when they develop the plan for the area and determine where the control strategy should be placed. I believe they can determine that amount when they look at the filters, and perhaps someone else who will be speaking before you can tell you what those filters look like.

MR. BROWN: That's all.

MR. DEL PIERO: Actually, I don't think I have a question of you. I have questions of people from the Great Basin Unified Air Pollution Control District, but I don't think I'm going to get a chance to ask those. I had anticipated having a whole bunch of questions. I wanted more specificity in terms of what EPA's standards are. At this point I don't think so, so let's go back to redirect. Do you have anything further, sir?

MR. ZABEL: No, I do not.

MR. DEL PIERO: Mr. Birmingham, any recross?

RECROSS EXAMINATION

by MR. BIRMINGHAM:

Q Mr. Calkins, under the Clean Air Act and the regulations promulgated by EPA to implement the Clean Air Act, can nonattainment areas be determined from air

dispersion models?
A Yes, they can.
Q So, if an air dispersion model approved by EPA shows that there will be exceedences of the federal standard in excess of one per year, then the area being modeled would be designated a nonattainment area?
A Yes, that can be done in addition to the actual sampling.
Q I'm going to ask you a hypothetical, and I'm going to ask you to assume the following: The inland western snowy plover is a bird which is a candidate species to be listed as threatened and endangered under the Endangered Species Act, and I'm going to ask you to assume that the species is listed under the Endangered Species Act, and I'm going to ask you to further assume that the lake bed playa from which dust is emitted around Mono Lake is an area which serves as nesting habitat for the species that is listed as threatened or endangered under the Endangered Species Act, and that raising the level of Mono Lake to an elevation of 6390 would have detrimental effects on the nesting habitat of the threatened species; under those circumstances, what application would the Clean Air Act have?
MR. ZABEL: Objection. This calls for extreme speculation on the witness's part.
MR. DEL PIERO: It is a hypothetical question. Mr.

Flinn, unless you have something better --
MR. FLINN: Well, I will try. I believe that it lacks foundation, it calls for expertise, not on the Clean Air Act itself, but how the Clean Air Act interrelates with the Endangered Species Act. Maybe this witness has familiarity with that, maybe he doesn't, but if he doesn't have familiarity or particular experience with that interaction, then there is no foundation for it.
MR. DEL PIERO: I am going to sustain Mr. Flinn's objection, but let me ask the witness to recall the question because I think with one or two questions of foundation, Mr. Birmingham, you can then ask the question again.
MR. BIRMINGHAM: Q Are you familiar with the Endangered Species Act?
A I am aware of it. I am not an expert in that area, no.
Q Does the Environmental Protection Agency cooperate with the Fish and Wildlife Service through any consultation process?
A Yes, in the Environmental Impact Statement process, persons in our programs obviously deal with other federal agencies.
Q And in connection with the implementation of the Endangered Species Act by the Fish and Wildlife Service, does EPA consult with the Fish and Wildlife Service?

A It comes about once again through the impact statement process.
Q Are you aware of any circumstances in which the application of the Clean Air Act may have resulted in the take of a threatened or endangered species?
A No, I'm not.
Q So you couldn't tell the Board what to expect if the proposed strategy to reduce emissions from the Mono Lake bed playa would result in the take of endangered or threatened species?
A No, I --
MR. DEL PIERO: First, Mr. Flinn.
MR. FLINN: Actually, I could not understand the question, and I was going to ask to have it reread. I think it is objectionable, but I just don't understand it.
MR. DEL PIERO: Mr. Thomas.
MR. THOMAS: We would object on the basis this witness has no expertise in the take designation.
MR. DEL PIERO: In regard to Mr. Thomas' objection, I am going to overrule that because the witness did indicate he had some understanding of the Endangered Species Act. As to whether or not it is necessary to be an expert in terms of that in order to interpret what the term "take" is, which is defined in the Act, I don't think that's necessary. I'm sorry, Mr. Flinn, what was your objection?

MR. FLINN: I wanted the question read back.
MR. DEL PIERO: So you could figure out what your objection was?
MR. FLINN: If I have to.
MR. DEL PIERO: Alice, could you please read the question back.
(The reporter read the question as follows: So you couldn't tell the Board what to expect if the proposed strategy to reduce emissions from the Mono Lake bed playa would result in the take of endangered or threatened species?)
MR. DEL PIERO: Can you tell us what to expect in terms of the regulatory process as it would relate to this point?
A No, I could not.
MR. DEL PIERO: There is the answer. Mr. Birmingham, proceed.
MR. BIRMINGHAM: Q Mr. Satkowski asked you some questions about the State's obligation in implementing the Clean Water Act. This Board has no obligation with respect to implementation of the Clean Air Act; isn't that correct?
MR. ZABEL: That calls for a legal conclusion.
MR. DEL PIERO: Sustained.
MR. BIRMINGHAM: Q Let me restate the question. Under the Clean Air Act, the governor of each state is

delegated authority to implement the Clean Air Act; is that correct?
A Yes.
Q And it was your testimony earlier that the Governor of California has designated that authority to the California Air Resources Board; is that correct?
A Yes.
Q Are you aware of any authority that the Governor has delegated to the State Water Resources Control Board to implement the Clean Air Act?
A I am not aware of any authority. However, the set of measures that a state can come up with, in this case the Air Resources Board in submitting to us, can be a combination from many agencies, state, local, transportation agencies, whatever. It is not only air pollution agencies that develop strategies that turn into regulations, but eventually the Air Resources Board submits whatever that combination is.
Q And among the agencies which can determine which strategies can be pursued, that is the State Legislature; is that correct?
A Yes.
Q And isn't it correct that the State Legislature has told the Great Basin Unified Air Pollution Control District that in implementing the Clean Air Act it may not undertake any activity which would reduce the water gathering

activities of the City of Los Angeles?
MR. FLINN: I would object. That calls for a conclusion of California law about which there is a fairly big controversy.
MR. DEL PIERO: Sustained.
MR. BIRMINGHAM: Q Have you reviewed the State statutes with respect to the implementation of the Clean Air Act by the Great Basin Unified Air Pollution Control District?
A No, I have not.
Q Now you have stated in response to a question by Mr. Satkowski that the State needs to consider all possible strategies in ameliorating the emission of particulate matter from the lake bed playa at Mono Lake; is that correct?
A All possible strategies for the Mono Basin, yes. That's what the implementation planning process is all about.
Q Are you aware of any strategies other than raising the level of Mono Lake that have been considered?
A I am not aware that they have started considering those strategies yet. First they need to be designated nonattainment. Now the 18-month process begins at which they look at the possible strategies and make that decision.
Q Those would be strategies developed by the Great Basin Unified Air Pollution Control District in conjunction with the California Air Resources Board?

A Yes.
MR. BIRMINGHAM: Thank you very much.
MR. DEL PIERO: Thank you very much. Mr. Flinn -- I'm sorry. Mr. Thomas.
MR. FLINN: I'll start.
MR. THOMAS: No questions.
MR. DEL PIERO: Mr. Flinn.

RECROSS EXAMINATION

by MR. FLINN:
Q Mr. Calkins, if you could get out the National Audubon Society and Mono Lake Committee Exhibit 222, and if you could turn to page 11, the third paragraph of that, I wanted to talk a little bit more about this timing area that Mr. Satkowski raised, and the third paragraph begins, if a serious area fails to attain by the applicable attainment date, which may be an extended attainment date -- Do you see that sentence there?

A Yes.
Q Then there's talk about progress relating to 5 percent of the amount of such emissions, less than 5 percent of the amount of such emissions reported in the most recent area. Do you see that?
A Yes.
Q Could you explain to us how this particular provision works?

A As I mentioned earlier, there is a provision for one additional year in the attainment if they have shown they have carried out everything else. This would appear to provide that there be this 5 percent a year reduction, at least from the most recent emission inventory in the plan and the strategy. In order to get the extension they would have to have a 5 percent reduction.

Q Is this a one-time only, or if the State can show continuing progress and revises the State implementation plan, it can continue to stay within regulatory approval?

A I believe I would have to research that. As was mentioned before, this policy has just been signed. It will be part of the new general preamble to the development of implementation plans that the agency is about to come out with, which would be an addendum to the existing one.

I see that, and until we can discuss how you interpret. this, I would rather not comment on it.

MR. FLINN: Okay, no further questions.

MR. DEL PIERO: Thank you very much. Mr. Roos-Collins.

MR. ROOS-COLLINS: No questions.

MR. DEL PIERO: Ms. Scoonover.

MS. SCOONOVER: I have no further questions.

MR. DEL PIERO: Anyone else? Mr. Frink, any more for you?

MR. FRINK: I have just a couple. I will go after Jim.

MR. DEL PIERO: Mr. Canaday, why don't you go first?

EXAMINATION

by MR. CANADAY:

Q Mr. Calkins, the PM 10 standard, I want to be sure I understand it correctly, that the human risk assessment that has already been done is inherent in the standard; is that correct?

A Yes.

Q It doesn't require a risk assessment within the Mono Basin?

A No, the standard was set based on health studies.

Q You testified earlier that if the State in its various planning processes failed to meet or to achieve the standard, that EPA would then be required or could establish its own implementation standard; is that correct?

A That's required by the Act, yes.

Q In looking at the opportunity that may be available in the implementation planning process in other areas under similar circumstances, there may be a suite of opportunities of different measures you could take to reduce the source areas. In this case we have a basin and primarily most, if not all, the source areas are contained within the U. S. Forest Service National Scenic Area which has been designated

by Congress, and therefore there are limitations, at least under that Act, of the kind of the activities that can take place within that area. Okay, what if the State in its implementation plan is limited, even though there are practicable measures, but those measures are not available to the State because of the limitations of the Forest Service, and therefore the only practicable measure, and this is a hypothetical, remaining is a raise in elevation of the lake. Would that be cause for an extension of time to implement the process given the fact that time is what we are talking about that it takes under natural hydrology?

A I assume you are referring, if the federal government had to develop a plan, the State had to develop the plan to turn in a plan and the EPA was developing a federal implementation plan, am I right?

Q Given the conditions in the Mono Basin, if it were outside of the Mono Basin, there may be some engineering solutions that would be available, but because of the fact that the area is designated as a National Scenic Area, and therefore the Forest Service has certain authority to require or limit certain activities within that scenic area, it reduces those things that are considered practicable, and my question to you is, if, in fact, the only thing that remains after this triage of opportunity is raising the lake level, and based on some questions by Mr. Satkowski, that's going to

take considerably more time than the 16 years, so is it likely that the State could get an extension of time, acknowledging that limitation?
A Well, first we would be working in either scenario whether it is a federal plan or a State implementation plan, close to our sister agencies such as the Forest Service, to see what could be worked out within their requirements and laws and our legislation. Secondly, and it was pointed out in one of the earlier questioning, the document here on serious PM 10 areas, it appears with this 5 percent per year there's some ability to reduce emissions even beyond the deadline, but once again I would consult staff to see how this plays into the attainment deadline, because Congress was pretty clear on what the ultimate deadline would be with these various extensions that you could get.
Q Since all or most all of the source areas are within the jurisdiction of the U. S. Forest Service, a federal agency, will the implementation plan ultimately require a NEPA document?
A Not knowing what the cost involved would be in the plan or, actually, I am quite certain it would be. In fact, quite often on plans, State plans, there are EIR's or NEPA documents, so this would involve the Forest Service, and there is a good possibility of that, but I couldn't say what the measures were.

MR. CANADAY: Thank you.

EXAMINATION

by MR. FRINK:

Q Mr. Calkins, along the lines of the amount of time available for achieving compliance with the federal standard, I direct your attention to page 11 of the National Audubon Society-Mono/Lake Committee Exhibit 222, which is the September 4, 1993, memo from EPA. The second paragraph of that indicates that if the State is unable to reach attainment within the statutory deadline of ten years, applicable to serious nonattainment areas, it may apply to the EPA for an extension not to exceed five years beyond the serious area attainment date.

So just adding up the time I want to make sure I am clear on this. Is it a case in which the State has 18 months to come up with a plan initially?

A Yes.

Q Then it has an additional ten years to achieve compliance from the date it submits the plan or from the date of nonattainment?

A The first plan is for its moderate status, and only if it can show it is doing these various measures that it cannot attain in six years, then it would be reclassified as serious, and that gives you a ten-year period of time.

Q Is it a period of ten years from the time at which the

area is designated as a serious nonattainment area?
A Ten years from its redesignation to serious, so you're talking probably two years -- Let's try the dates out. January 1, 1994 is probably when we're talking about the official designation and the 18-month start. So 18 months later we get a plan if it stretched out to the full 18 months, probably about six months for EPA to approve or disapprove. And let's say they cannot make it and we have to go to the serious, then there is a redesignation process that happens. I do not believe it's automatic by operation of law. I think there is a six-month period where it's proposed and goes final. So we're probably talking ten years starting from January 1 of '96, so we're talking closer to the year 2006, that deadline. Then you grant five more years under the policy here which I would have to assume is implementing the intent of Congress to have some sort of escape clause where it cannot be met at the 2006 mark, so we're talking about 2011. It looks like 2011. Once again we could have the staff research that, but reading this, 2011 looks like the far end of any extension you can get.
Q And insofar as your understanding is concerned, the criteria for attaining that additional five-year extension of time are the factors spelled out in the second paragraph on page 11?
A Right.

Q Then going on, the paragraph after that says, if a serious area fails to attain the applicable attainment date, which may be an extended attainment date, another SIP revision is required within 12 months that provides for attainment, and until then, for annual reductions in PM 10 or PM 10 precursor emissions within the area of not less than 5 percent of the amount of such emissions as reported in the most recent emission inventory for the area. See Section 189 (d).

Now I am interested in your understanding of this. If, in fact, the State can demonstrate it is not practicable to achieve attainment in ten years from the time that the area is designated as a serious nonattainment area, and if, in fact, it receives an additional five-year extension beyond that, meeting the criteria specified in the second paragraph, page 11, is it then possible for the State to be in compliance with federal law if it can demonstrate that the measures it is taking result in a 5 percent reduction in emissions per year?

A If everything else has been done as expeditiously as practicable up to that point, all these other measures have been tried, it is not like you wait until that time and start your 5 percent a year. In reading the policy I think you are correct, and I think my earlier statement in my summary of the Act being very generous, PM 10 is even more generous than

I may have indicated in my statement there when you add in the extra 5 percent per year.
Q So if the criteria specified in the memorandum are met, it is possible that the State could have in excess of 16 years from this initial designation of moderate nonattainment to come within compliance with federal air quality regulations; is that correct?
A It would appear from the policy -- The only thing I caution you is that Congress set certain dates. They did not write the policy for these extensions, and there could be conceivably a Congressional oversight question whether that extra time is correct. That is the only caution I would like to make.
Q And just to clarify one more point on that, the 5 percent reduction referred to in paragraph 3 on page 11, in an instance such as the Mono Basin in which your nonattainment instances occur on the average of once or a little more every year, how would you determine if, in fact, you are achieving a 5 percent reduction in emissions?
A It's somewhat speculative, but I would think it would almost be on air quality at this year 2011 or whatever you are down to at that time, and say the exceedences are 50 percent over the standard, you might in this case, if we don't have more sophisticated emission inventory techniques by then, which we may well have, you might have to assume

that you're 50 percent over the standard, so you got 50 percent more emissions than allowed and reduce 5 percent of that 50 percent emissions a year. That's speculative, but that may be one way of going about it.

Q The way you would determine if you were likely to meet those reductions in emissions would be based on modeling your results; is that correct?

A Most likely, yes.

MR. FRINK: I believe that's all our questions.

MR. DEL PIERO: Any other questions by staff, Board members?

MR. STUBCHAER: I have one question.

MR. DEL PIERO: Mr. Stubchaer.

EXAMINATION

by MR. STUBCHAER:

Q Relating to the last discussion about the 5 percent reduction, looking at the paragraph that Mr. Frink referred to, it says not less than 5 percent of such emissions as reported in the most recent emission inventory for the area -- Does that mean if you do a new emission inventory each year it is 5 percent of that amount then that has to be reduced?

A My understanding is when you submitted that plan that said we still could not meet it within the five-year extension when that plan was submitted, there would have to

be a baseline inventory along with that, and that's what you would work against. You couldn't keep reducing, or you would never get down to --
Q Right. I was thinking of 5 percent of 95, et cetera. So then it is really not the most recent, it is the baseline.
A Baseline at the time of the plan. That's what we're working on, the current Clean Air Act has a 1990 baseline inventory. As of actually today, nationwide all of your ozone areas in the country have to turn in a plan showing they are making their 3 percent a year or 15 percent for the first five years plans, and it is based on the 1990 baseline inventory, and I assume that's the same technique that would be used.
Q Then the memo ought to be reworded.
A Good point.

EXAMINATION

by MR. DEL PIERO:
Q Mr. Calkins, I have a couple of questions. EPA Region 9 consists of both an Air Division and a Water Division; is that right?
A Yes, and several other divisions.
Q Has it been the practice of EPA to make recommendations to other federal agencies to withhold federal funds for a variety of programs in certain areas of Region 9 when they fail to meet the air quality standards and the

water quality standards?
A As you know, Mr. Vice Chairman, right now we are in the process of proposing highway sanctions, federal highway sanctions, on the California Smog Check Program, and we deal with the federal transportation, Department of Transportation, the FDA, Transportation Agency, and the Federal Highways in that process, and we have done this before.

This happened under the 1980 Clean Air Act where we worked closely with the Department of Transportation and actually withheld funds, and that is mandated by the Clean Air Act. So we have worked with other agencies in funding issues.

Q Do you know if the Division of Region 9 has conditioned that grants for sanitary sewer projects and water quality projects requiring certain areas that are recipient agencies of those grants to comply with air quality standards?

A Well, you probably know the current Clean Air Act does not provide for that sanctioning of construction grants, water grants, but the previous Clean Air Act did, and as far as I know, we did not sanction any projects and the water area did. After we looked at it from a total environmental standpoint, we thought we were probably hurting more than helping.

Q As far as you know.
A As far as we know. You may be familiar with when we did within the agency.
Q Do you believe that in the future in order to insure compliance with federal statutes like the Clean Air Act, that EPA could require other governmental agencies besides the State Air Resources Board to comply with certain water rights in order to receive federal funds?
A One of the very important parts of the Clean Air Act is, and I might say it is also being signed today or has been signed today by Administrator Bronner, are the conforming parts of the Clean Air Act where any federal actions that take place must be in conformance with the State implementation plan of the Federal Clean Air Act. So the conforming provisions, particularly the general conforming ones which are the ones that apply in a case like this, would apply whether it be the Forest Service or Corps of Engineers, or any other federal agency, Department of Transportation, would have to show that any funding or planning process was in conformance with the Federal Clean Air Act. There would be that relation in the federal level, and the states must obviously carry out their own.
Q In the absence of the ability of those regional divisions of those various federal departments to show conformity, would that money be prohibited from being

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expended?
A If, in fact, they could show it was conforming?
Q Could not.
A Yes, they could not construct that project.
MR. DEL PIERO: That's all I have.
Ladies and gentlemen, we are going to be in recess until 1:00 o'clock. Thank you very much, Mr. Calkins, and your counsel. Short of anything else, I think you're excused.
(Noon recess)

MONDAY, NOVEMBER 15, 1993, 1:00 P.M.

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MR. DEL PIERO: Ladies and gentlemen, this hearing will again come to order. Good afternoon. Mr. Dodge.

MR. DODGE: I have a procedural matter, actually two matters, which I hope turn out to be related.

Last week we were talking about potentially adding December 1 to the hearing schedule, and I demurred based on my schedule. I can be available on December 1. And the related point is a couple of weeks ago, I think we agreed in principle that there would be a hearing date in the Mono Basin where the historical folks can testify and also the air pollution witnesses that aren't experts, but rather lay witnesses, and we have never set that date.

In the interim, my client has called the historical witnesses, and I think it is fair to say they are generally available, but as you get closer and closer to Christmas, they tend to have family coming in, but they are generally available, and I would suggest December 1 as a good day for that. That is a Wednesday.

MR. DEL PIERO: Okay.

MR. FRINK: Mr. Del Piero, there might be a complication there if we are planning to go ahead with the hearing on December 2 as well. To have everybody over there, if we had a full day on the 1st, that's about a five-hour

drive back. I suppose it is doable, but it will be late at night coming back if there are many witnesses.

MR. DEL PIERO: Mr. Dodge, I'm sorry, sir, go ahead.

MR. DODGE: We were planning to put them on in terms of two panels. If it is more convenient, we'll put them on as one panel. There's approximately eight people, I believe.

MR. DEL PIERO: I think Mr. Frink's concern is not whether or not to put them on in one or two panels. It is the day, Wednesday, as opposed to Friday.

MR. DODGE: I think I was adjusting his concern. It might shorten the day if we did it in one panel.

MR. FRINK: I talked to Mr. Flinn earlier this morning, and he indicated that you were still at least looking at the possibility of having them appear on videotape by way of deposition. Is that something you are still actively considering?

MR. DODGE: No, it is not. Unhappily, Mr. Flinn was not here when we agreed in principle that there would be a day in Mono Basin.

MR. DEL PIERO: Okay. Let me answer those questions I am capable of answering, and then I will make some new answers up for tomorrow in terms of ones that I can't answer now.

All the dates set are available now for hearing on November 15 through 17, December 1 through 3, December 6 and

7, December 15 through 17. When do you leave, Mary?
MS. SCOONOVER: The 19th.
MR. DEL PIERO: And December 20 through 22.
MS. SCOONOVER: I think Mr. Stevens or Mr. Valentine can cover it.
MR. FRINK: Is December 8 still on until 3:00 p.m.?
MR. DEL PIERO: December 8 until 3:00 p.m. Because it is a holiday, we will be breaking at 3:00 p.m.
MS. CAHILL: Can you tell us which of those are evening sessions at all or are they all?
MR. DEL PIERO: Wednesday is what day?
MS. CAHILL: The 17th is this Wednesday.
MR. DEL PIERO: The 17th I have to go to San Bernardino. December 1 through 3 it is probably safe to assume that the majority of them will be; I am not in a position at this point to tell you what day it is that we're going to go over to Mono to do the senior citizens over there, but I assume they are senior citizens; is that true?
MR. DODGE: Well, certainly the first group talking about the prediversion conditions are senior citizens. There is a second group of three people that live out there who are going to talk about air pollution. I don't know what their ages are.
MR. DEL PIERO: Okay. Do you have an alternate day or alternate days other than the 1st of December?

MR. DODGE: Again, I'm told that these folks are generally available and that they would like to stay away from Christmas as much as possible.

MR. DEL PIERO: What is the 6th?

MR. DODGE: Monday.

MR. BIRMINGHAM: Excuse me, Mr. Del Piero, I have a hearing in Fresno on that day.

MR. DEL PIERO: Then we aren't going to do it that day. Is the 15th a Monday?

MR. DODGE: It's a Wednesday.

MR. DEL PIERO: How about Friday?

MR. CANADAY: The 17th?

MR. DEL PIERO: Yes, the 17th.

MR. CANADAY: If I might ask Mr. Frink, what's our noticing requirement in days?

MR. FRINK: Once the hearing is going, I think the continuation of the hearing can be done at any time. We are adding days now, and we are certainly sufficiently in advance of the 15th.

MR. DEL PIERO: Can you be in Mono Lake on the 17th?

MS. SCOONOVER: Yes.

MR. DEL PIERO: Anyone else have a problem with the 17th?

MR. DODGE: Mr. Cain informs me the weather can be potentially rough in terms of getting there.

MR. DEL PIERO: Is the 15th a better day? The State of California does have access to a four-wheel drive. I'm going to let my people who provide me with counsel discuss this matter with me this evening, Mr. Dodge, and we will have an answer first thing in the morning, sir.

MR. DODGE: Thank you.

MR. DEL PIERO: Does anybody have any days at which they can't be here besides the 6th for Mr. Birmingham and everything after the 19th for Ms. Scoonover?

MR. DODGE: Well, if we are talking about December 20, 21, and 22, I'm scheduled to work on another case.

MR. DEL PIERO: Okay. Is Mr. Flinn scheduled to work on the same case?

MR. DODGE: Not to my knowledge.

MR. DEL PIERO: Mr. Roos-Collins.

MR. ROOS-COLLINS: Your question concerns the dates that were just set, I am unavailable after 1:00 o'clock on Wednesday, December 15, and I am available December 21 and 22.

MR. DEL PIERO: You are unavailable after 1:00 on the 15th until when?

MR. ROOS-COLLINS: For the rest of that day.

MR. DEL PIERO: Like on the 17th you are available?

MR. ROOS-COLLINS: Yes.

MR. DEL PIERO: We will have an answer in regard to

the day that we will travel to Mono tomorrow, not later than tomorrow morning at 8:30 when we begin again.

MR. THOMAS: Mr. Del Piero, there was earlier an objection to Mr. Tillemans' testimony that needs to be taken up prior to commencing.

MR. DEL PIERO: Was it raised by you, sir?

MR. THOMAS: Yes.

MR. DEL PIERO: Forgive me, but I don't recall what it was.

MR. THOMAS: Originally we were objecting to Mr. Tillemans' testimony if we're going to the condition of wildlife in the Mono Basin as it deals exclusively with Crowley Lake and the wetlands at Crowley.

We had a conversation earlier today with the LADWP counsel, and we agreed that if the testimony is limited to the cumulative impact of the trust value of the Crowley wetlands and does not apply and does not go to the existence or nonexistence of wildlife in Mono Lake, our objection would be satisfied.

MR. DEL PIERO: Mr. Birmingham, is that acceptable to you, sir?

MR. BIRMINGHAM: Yes. Mr. Tillemans' testimony is being offered to establish habitat at Crowley Lake, not the conditions in the Mono Basin, with the exception of a videotape which Mr. Tillemans will show during his testimony,

and Mr. Thomas and I discussed that, and I don't know if he had any objections to that.

MR. DEL PIERO: Mr. Thomas.

MR. THOMAS: Insofar as the video is divided, and you are speaking to the Mono section of the video, no.

MR. DEL PIERO: Mr. Roos-Collins.

MR. ROOS-COLLINS: Mr. Del Piero, I was unaware of this. I don't like the result. I would like to ask this witness questions about wildlife impact both in the Mono and Owens Basin, not limited to Lake Crowley.

MR. BIRMINGHAM: I believe the agreement only related to Mr. Tillemans' direct testimony and did not relate to cross-examination by other parties.

MR. ROOS-COLLINS: With that clarification, I will sit down.

MR. BIRMINGHAM: Mr. Thomas may have a different understanding.

MR. DEL PIERO: Mr. Thomas, do you have a different understanding?

MR. THOMAS: Only insofar as one's cross should not --

MR. DEL PIERO: We have flexible rules.

MR. THOMAS: That is right, we do have flexible rules.

MR. CANADAY: For parties that have come a long way today who are not necessarily interested in this panel we have now, and since you are intending to go into an evening

session, could we understand from Mr. Birmingham who his next witness may be who may come on board this evening?

MR. DEL PIERO: Mr. Birmingham.

MR. BIRMINGHAM: John Pinsonnault who will testify on air quality and Dr. Fedoruk, who is supposed to arrive at :00 o'clock, and we hope he will be here this evening, but in any event, we will go forward with Mr. Pinsonnault.

MR. DEL PIERO: Dr. Fedoruk is on birds?

MR. BIRMINGHAM: No, he is on air quality.

MR. DEL PIERO: Oh, he is on air quality also. Any other questions before we begin again? Okay, Ms. Goldsmith, good afternoon.

MS. GOLDSMITH: Good afternoon. I am presenting as a panel Dr. Joseph Jehl and Mr. Brian Tillemans, and I will start with Dr. Jehl.

JOSEPH R. JEHL,

having been sworn, testified as follows:

DIRECT EXAMINATION

by MS. GOLDSMITH:

Q Dr. Jehl, would you please state your name and spell it for the reporter.

A My name is Joseph Jehl, J-E-H-L, Jr.

MR. DEL PIERO: Have you been sworn?

A This morning, sir.

MS. GOLDSMITH: Q What is your employment, Dr. Jehl?

A I am Senior Research Biologist of the Hubbs Seaworld Research Institute in San Diego.
Q Is LADWP Exhibit 35 a correct statement of your education and experience?
A I believe so.
Q Would you please briefly summarize for the Board your education and experience as it is relevant to the issues you will address concerning Mono Lake.
A I have a Ph.D. in Biology from the University of Michigan. I have been studying water birds for about 40 years. I have been doing work in the Mono Basin since 1980 continuously. I have been in the past the editor of several technical journals. In 1987 and 1988 I acted as Chief Scientist for the President's Council for Environmental Quality in Washington, D.C.
Q What species of birds have you studied at Mono Lake?
A Essentially all of them with the exception of -- I have not studied snowy plovers in any great detail.
Q Are LADWP Exhibits 36, 37, and 40 papers which you authored, at least in part?
A Yes.
Q Did the information contained in them assist you in forming the conclusions you offer in your testimony today?
A They did.
Q Are LADWP Exhibits 38 and 39 papers on which you

relied in forming your opinions and conclusions concerning Mono Lake?
A Yes, they are.
Q Is Exhibit 34 a correct copy of your testimony today?
A I believe so.
Q Do you have any corrections that you would like to make?
A Yes, there are a couple of minor corrections I would like to make as part of my testimony.
Q You will identify the corrections as you go through?
A Yes.
Q Will you briefly summarize your testimony, Dr. Jehl?
A The Department of Water and Power proposes to regulate Mono Lake at a range of elevations from 6374 to 6385 feet approximately, and I want to discuss how this act is likely to affect the important components of the bird life.

My opinions are based on personal field and historical research since 1980 at Mono Lake, and at many other saline lakes.

Some of my findings have been published in 35 scientific papers. I want to acknowledge that the preparation of the EIR required that an enormous amount of material be evaluated. In some cases, however, important information was not incorporated, and some was misinterpreted.

I will mention some of these findings that require modification and revision before being used to draw any conclusions. I want to begin by commenting on several species in particular. One is the Caspian tern. I have previously published a paper on the history of the Mono Lake colony through 1986 and have updated that material and the table in my written testimony which you should have before you.

I also need to add some earlier historical information to expand the record further.

Q Dr. Jehl, is the table that you are referring to Table A in your testimony?

A That's correct. Now, the Caspian tern is not a particularly common species in the interior of the West. It nests often in association with gulls on open, barren islands.

This habitat did not exist at Mono Lake until the lake began to fall, unless you want to count when Paoha Island erupted 200 years ago. But within our historical framework, the habitat did not exist.

As mentioned in my publication on this subject, but not in the written testimony, the terms probably began nesting at the lake in the mid-1960s. The earliest documented date known to me is 1963, if you want to pencil that in, when the lake was about 6393.

Because of habitat requirements, the first nesting area at the lake was probably on the crest of Twain Island. Now I will stop for a minute here, because I don't know how much background you have here on the geography of the lake and the names of various island groups, but there are two major islands, Paoha and Negit. Then there's a series of smaller islands, the Negit islets over here and Paoha islets over here, and those four islets I will be mentioning off and on.

Now, as I said, because of habitat requirements, the first nesting area was probably on the crest of Twain Island, which is in the Negit islet group.

The birds continued to nest there through 1981 as shown in the table.

Some of them moved to the Paoha Island on the other side of the lake. After the lake began to rise in 1983, the colony moved to another island in that area.

The number of pairs decreased for awhile, and since then there has been a slow increase, although production is too low, always has been too low, for the colony to maintain itself.

The tern's presence as a breeding species at Mono Lake depends upon the existence of flat, sandy nesting areas which will likely disappear under the upper limits of the 6383 alternative.

Indeed, the current nesting site will disappear at the higher range level of the 6377 alternative or even at the LADWP plan.

As the lake rises and the island size contracts, gulls that nest around the edge of these islands will be forced higher and higher onto the island, and because they come in earlier and nest earlier than the terns, and they dominate the terns, they will eventually take over the tern nesting areas and exclude them.

Now, Caspian terns are not a rare bird, and the loss of Mono Lake as a nesting area will have no effect whatsoever on the species. But if, as the EIR acknowledges, the terns are of interest to ornithologists and recreationists because they add biological diversity of the lake, perhaps they should be considered. At least the pros and cons of the probable loss of this species should have been discussed.

The EIR also says that this is a valuable colony because if it increases, it could become a source for the population that is expanding into the Great Basin. Obviously, that is impossible if the 6377 or 6383 alternatives are adopted, because this habitat will not exist.

So we can't have the source for a population and destroy the habitat at the same time, and this needs to be discussed.

I want to talk a little bit now about the eared grebe. The eared grebe, with a population of nearly 11 million, is by far the most abundant bird at Mono Lake. It comprises over 85 percent of the avian biomass. What that means is if you add up all the weight of all the birds up in the lake. you find out that 85 percent of that mass is taken up by eared grebes. That means 85 percent of the impact on the lake's resources, or more, is dominated by this single bird.

The bird is interesting because individuals may remain continuously at the lake for up to eight months and because the majority of the new world population occurs here in the fall, and because the grebes are totally reliant on the lake's resources, they can't fly. Once they are there, they stay there for a long, long time.

Changes in the lake's ecology will have a greater impact on this species than any other we are going to talk about.

The adequacy of the lake's food supply for grebes and other species was mentioned as a matter of concern in the EIR.

I and others have studied the eared grebe and published major papers on its biology and ecology in feeding. All have found, as the EIR acknowledges, that even when the lake was at an historic low, 6372, food was more than adequate to support the population.

We can illustrate this by comparing the weights of grebes and in the fall with respect to the size of the brine shrimp population that they're eating.

You can see that the weights of the birds are increasing from June through October each year. This is the average body mass of a grebe. When it comes in, it is skinny and weighs about 200 to 300 grams. While they are at the lake they fatten up and increase by more than double their weight with huge fat deposits, some of them getting up to as much as 700 grams. At the same time they are doing that --

Q For the record, the dotted line is the weight of the eared grebes?

A Yes. This other line here is the mean density of the brine shrimp. This data was provided by people from Santa Barbara who have been measuring this for years.

You can see that early in the year, August and September, brine shrimp numbers are very high, and then they drop down. Even though these numbers are dropping very quickly, the birds continue to gain weight until the brine shrimp biomass gets around 3,000 per meter square.

And this is just not a simple response because the number of birds that we started with here is about 20,000, and by the time we are up here, we have close to a million. So the impact, the number of things that are eating, is increasing tremendously, and yet they are holding their

weight until late in the year when the brine shrimp are normally dying anyway.

Q For the record, were you referring to Figure 1 from your direct testimony?

A I was. Now the EIR asserted that the relative sizes of the spring and summer shrimp generations could have an important effect on the eared grebe population, but didn't say what or why.

During my study there have been major changes in the relative abundance of the spring and summer shrimp generations, but these don't seem to have any important effect. What does have an effect is the absolute abundance of shrimp in the fall, and when the numbers get down around the 3,000 per meter square level, the birds leave.

This may take place as early as November. It may take place as late as February.

In summary, all the data known to me indicate that food resources for grebes are not a matter of concern at any of the proposed lake levels.

The world's second largest assemblage of California gulls nest at Mono Lake. Since the start of diversions, numbers have increased greatly, from about 5,000 in 1950, not 1940 as it says in your testimony, we don't know exactly how many there were in 1940 at the start of the diversions, to a high of about 65,000 in 1992.

These changes have occurred despite changes in the lake elevation and the number and accessibility of specific islands and the large annual changes in the abundance of prey populations. From 1983 to 1993, chick production has been high. Shrimp production is shown in the dark blue line which fluctuates. Chick production is shown in the dotted line. The number of gulls that are present at the lake is shown in the dark blue line.

Q Is this Figure 2?

A This is Figure 2. The horizontal line that you see is set at about 0.6 per pair, which is estimated to be what it takes for this to be a break even for productivity in the colony.

And you can see that all but one year over the years for which we have data, productivity was more than good enough to not only maintain the population, but allow the population to grow.

Q Would you repeat the level of the horizontal line?

A The horizontal line is set at about .6 chicks per pair. So the observation is that the breeding productivity is very good, and the population continues to increase exactly as you would expect. So the numbers, as you can see in this particular range from 1983 when we began to get productivity data, to today, have gone from 45,000 gulls to about 65,000 gulls.

Now on another topic, the issue of nesting habitat suitability has been raised implicitly in the EIR. I have reviewed this subject in several places based on the literature and field work in many colonies in the Western United States and Canada, but these data don't seem to have been used very much, so let me summarize briefly.

Throughout their range, California gulls typically nest in open areas on islands, if possible next to some kind of object such as a rock or a log or a small bush.

They avoid areas of high dense vegetation. Indeed, one of the largest colonies in the world of about 64,000 birds nest on a manmade dyke in the Great Salt Lake.

The EIR suggests that some colonies occupy or prefer brushy areas similar to that found on Negit Island today, but the evidence cited for that idea is not correct.

One of the nesting colonies, Gunnison Island in the Great Salt Lake, vegetation, where it exists, is barely shin-high. It is not at all comparable to that at Negit Island, and even some 20,000 gulls that nest there avoid it and breed in the open, sandy areas. At Honey Lake, California, which is also mentioned, there is a brushy island comparable to Negit, but that habitat was avoided in 1990 when the gulls nested there, and I am told it was avoided in 1993.

The behavior of gulls moving into new nesting areas

also provides evidence about their habitat preference. At Mono Lake, when gulls returned to Negit Island in 1985, they bred in open, rocky areas along the shore with only a few birds nesting in the brush at the edge of those colonies.

Nowhere in the scientific literature or in my field experience is there evidence that brushy habitats are preferred.

The habitat issue extends to Paoha Island which the EIR implies is not suitable for nesting because it never held more than 2,000 gulls. This is misleading.

The historical records indicate that in 1963 the entire Mono Lake gull population, whose size is unknown at this time, but has been described by some as very large, was evidently on Paoha, and in 1916, when the estimate of 2,000 birds was made, the entire colony, then the third largest in the world, was on Paoha, and this would seem to indicate nesting conditions might not have been too bad.

The habitat issue is relevant because a lake level rise will force most gulls from open, barren islands where they now nest into brushy habitats on Negit Island.

The EIR ranks these brushy habitats as highly suitable, whereas open areas that the gulls actually use and have used are ranked as marginally suitable. I find that interesting.

Under the 6383 option, the Paoha Island, which in 1992

and 1993 held more than 25 percent of the entire Mono Lake population, would be lost forever because the islands will be eroded away.

These islands had higher productivity in 1990 than any other California colony known to me.

Also inundated but recoverable would be excellent nesting areas on the Negit islets, including part of Twain Island, which is the largest single nesting area at the lake today.

Now physically it may make very little difference which islands the gulls nest on, but any plan that would concentrate the bulk of a colony on a single island has risks because of terrestrial predators gaining access, and the EIR concludes they probably cannot be excluded. The potential for mass nesting failure is high. The risk of the spread of disease or infection by parasites would be much higher than when the population is dispersed over several islands as it is today.

So the EIR emphasizes suspected benefits of nesting on Negit, and it ignores the risk, and it does not discuss the comparative risks and benefits of nesting in a more dispersed pattern on small islands.

I think the Board needs this information before it makes any decisions.

The EIR makes other predictions about how many gulls

will be supported at various lake levels. All are based on the unstated assumption that nesting space limits the size of the population. Other factors that may determine population size, such as food supply, predation, or disease, or even nothing, were not considered.

The major problem throughout the EIR is the lack of attention to how the dynamics change in what species might affect other species.

For example, the EIR implies that a colony of 320,000 gulls could be accommodated at a lake level of 6377. This would be five times larger than the largest known colony or even in the total U. S. population of the species in 1980.

Now if your Board considers this to be a realistic possibility, it must ask for a more integrated study that will discuss how this massive increase would affect other species using the lake, how would it affect the food supply for grebes or phalaropes. How would it affect predation on plovers?. In fact, how would the increase affect the reproductive success of gulls themselves?

Let me turn now to phalaropes. There are two species of phalaropes that occur on the Mono Lake.

Some of the conclusions pertaining to the red-necked phalaropes are highly questionable, yet they appear in several sections of the report. One of these concerns the bird distribution. Because this bird feeds on brine flies,

it is often found near shore or near tufa shoals. In 1990 and 1991, phalaropes concentrations occurred mostly in the northeastern sector of the lake. This prompted the idea that the western sector would not be used, and the birds would not even be viewable by visitors until the lake rose.

Yet the published distribution maps for 1980 and 1982, and this is a paper authored several years ago, and this was the distribution of the birds in 1981 and 1982 when the lake was at 6372, its lowest point, unquestionably show that the species would consistently concentrate in the north and northwest side of the lake.

Therefore, I suppose the EIR should have concluded that the birds would be more visible to the visitors if the lake were low, but the very use of short-term data sets is risky -- 1981 and 1982, 1990 and 1991 -- because as we summarize all the data that I have collected since 1980, there is no simple pattern of distribution.

The dark blue line, and this is Figure 4, shows what the lake elevations were, and the big areas on top show the major distribution, so between 1980 and 1986 or so, most of the birds were on the west side of the lake or in Negit Lagoon which is north central, and from 1988 or so through 1992, and to some extent but not consistently this year, the birds have been in the north and northeastern sector.

Now since there is no simple pattern of distribution

as a function of lake level, and there is no obvious pattern under conditions that we have already studied, it seems impossible for me to tell you how to predict distribution at lake levels that have not yet occurred.

The second misinterpretation in regard to phalaropes is that food will be insufficient for phalaropes at low lake levels even though the EIR acknowledges, evidently based on my studies, bird populations were healthy at an elevation of 6372. So minimal requirements were present.

The idea that food shortage may be a problem is based on a laboratory study which although imaginative in approach is questionable in applicability to a natural situation. It essentially contends that because captive birds pluck food more easily than wild birds, that wild birds are food stressed. Now this is an important idea, but it wasn't tested. Now one possible way to test this would be to use time budget studies which means you go out and you watch animals and see what they are doing, what percentage of their time is doing various things.

If birds were food stressed, that means they were hungry, and that means they were starving, and they would have to feed continuously to break even energetically. But that's not what you see. You see them sleeping, preening, standing on rocks. So there is a direct observation that tells you something about this captive experiment. It

doesn't match what the real world says.

Now you can also test whether or not your food is adequate by comparing weights of birds of different years, presumptively, when food supplies differ.

I did not make such a study, but I have gathered some data over the years that may help illustrate the approach.

This is Figure 5. Now what you see in here are the weights on the top of males, bottom of females, red-necked phalaropes, and the symbols represent different years in which they are collected. The symbols go from Mono Lake 1980-81, which are the open circles, to Mono Lake 1992, which are the closed circles, and we will just leave it right there for the discussion, and I have data for other years which are not presented, and they are dated for 1976 for Mono Lake.

The point is that these data do not give any indication of differences in size between the birds between 1981 and 1982 and 1992, and the weight ranges we see from other data are similar.

Despite the lack of evidence, the EIR extends its speculation that red-necked phalaropes gain weight slowly at Mono Lake because they have less than an optimal diet. We can use the same approach to test that idea. We can compare the weights of phalaropes at Mono Lake with red-necked phalaropes at Abert Lake in Oregon and the Great Salt Lake where their main prey, which is brine flies, occurred in

incredible numbers far beyond the capacity of the birds to exploit them.

Now as I say, this was not the research project I intended to do. This is just data I have. The point of the data is when you are under regression lines for Mono Lake, all the rest of these birds fit right on it with the same range of weights that you would expect for that season of the year. They don't suggest any differences among these three sets.

So unless you want to argue that the diet of phalaropes is suboptimal every place it occurs in migration in the Great Basin, and if that were the case, the species would not migrate there. One cannot logically contend the birds at Mono Lake are food stressed.

A third issue regarding phalaropes is the idea that female red-necked phalaropes are more food-stressed than males. I will just briefly say there is no evidence for this in the EIR or any auxiliary report. Even to begin this kind of analysis, you have to make sure the birds are correctly sexed. That paper does not tell us how the birds were sexed, so if we cannot assume they were sexually correct, we drop the subject.

The fourth problem that I alluded to earlier is the lack of integration of discussion of interaction among species. For example, at 6383 the EIR postulates up to a 390

percent increase in gull numbers, or at least in the habitat that can control gulls, and we are assuming again, as mentioned before, that the number of birds is set by the amount of habitat.

The EIR also implies that alkali flies are the preferred prey of young gulls. Now if that is the case, and the flies are already limiting for phalaropes as suggested, isn't the increased gull population likely to adversely affect the food supply for the phalaropes? And if it is, why isn't it mentioned? That's what the EIR is for.

Most of the problems regarding this species stem from the EIR's reliance on the study of birds in captivity.

As major conclusions of that report are not substantiated by field observations, I conclude that the study is irrelevant to lake issues, and its conclusions must be reconsidered before they are used in the EIR.

In summary, as any locality, Mono Lake has seen many more changes in the abundance or productivity in individual bird species and in their prey. Nevertheless, the current bird life, although differing in some respects from that present before diversions, is healthy and typical of highly saline lakes.

In my studies I have not been able to determine any long-term effects on the birds that can be attributed to changes in lake level of salinity, and my studies are 14

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years.

I must therefore conclude that the maintenance of the lake over a range of elevations similar to those that have occurred during my studies, that is, between 6372 and 6382, is unlikely to have any adverse effects, but I caution that there is much uncertainty in environmental planning and still in our research, and there are gaps in our knowledge. Therefore, whatever your ultimate decision, I urge the Board to move cautiously and to avoid any actions that cannot be reversed. Thank you.

MS. GOLDSMITH: Thank you, Dr. Jehl.

BRIAN TILLEMANS

having been sworn, testified as follows:

DIRECT EXAMINATION

by MS. GOLDSMITH:

Q Mr. Tillemans, would you state your name for the record and spell it.

A My name is Brian Tillemans, B-r-i-a-n T-i-l-l-e-m-a-n-s.

Q What is your employment, Mr. Tillemans?

A I work as a Range Wildlife Specialist for the Los Angeles Department of Water and Power.

Q Would you briefly summarize your education and experience?

A I received a Bachelor of Science Degree in Natural

Resources from the University of California at Davis. Mr. Canaday was my mammalogy professor while I was there.

I have worked with the Department of Water and Power since the spring of 1981 as a Range and Wildlife Specialist. The Department of Water and Power own over 300,000 acres in the Eastern Sierra, private undeveloped rangeland and watershed, and within that watershed there are many wildlife and fishery issues that arise, and I have dealt with those over my past dozen years.

That includes many waterfowl surveys, both in the Owens Valley and Long Valley areas with the California Department of Fish and Game and also on my own.

And although I have not done any studies in great detail, my job duties are varied, and five days a week I am probably doing five different things, but I do consider myself very familiar with the Eastern Sierra. Long Valley, and Mono Basin areas.

Q Is Exhibit 43 a true copy of your testimony?

A Yes, it is.

Q Are there any corrections or additions that you would like to offer?

A Yes, I would.

Q Are those summarized on LADWP Exhibit 43-A which is then distributed to counsel and the Board staff?

A Is that the addendum?

Q Yes, it is.
A Yes.
Q Would you like to go through them briefly?
A Including the misspelling of my name on the figure up here. The first correction I would like to do is on the biography, and about the middle of the paragraph I would like to delete "every year since 1987" and add I have flown the area many times since, but not in connection with any surveys conducted by the Department of Fish and Game.

I would also like to add that I assisted Dr. Platts with designing and implementing riparian/livestock projects to enhance Crowley Lake tributaries in Long Valley.

On page 61, Table C, the lower portion of the table should read -- I would like to delete the reference to Wilson's snipe as that is a misprint. It should be common snipe, and the table should read, common snipe, 19; nests, 4; and directly across the sheet it should read, common snipe 28, 4 nests each with 4 eggs.

On page 67, second to the last paragraph, the number of bald eagles should be 11, not 17.

And my last correction would be on page 67, the last sentence of the last paragraph should read: "LADWP, USFS, BLM, and the Predatory Bird Research Group of U. C. Santa Cruz.

Q Mr. Tillemans, is Exhibit 34 a videotape which you

have prepared as part of your testimony?
A Yes, I did.
Q Would you please briefly summarize your testimony and feel free to use the videotape at the appropriate points.
A I would like to show the video again. Today my primary focus will be the positive benefits resulting from information on Crowley Lake. Specifically, I will concentrate on three aspects. the Crowley Lake area wetlands and the benefits to waterfowl, shorebirds, and other wetland species; the benefits of Crowley Lake and a trophy trout fishery, unquestionably one of the most popular trout fisheries in the state.

Crowley Lake lies just south of Mono Basin in the Long Valley-Owens River drainage. The Mono Basin tunnel transports water from Grant Lake in the Mono Basin to the Upper Owens River. The Upper Owens River drains directly into Crowley Lake.

Crowley Lake was completed as a direct result of Mono Basin exports.

The creation of Crowley Lake in association with LADWP irrigation systems has maintained very productive freshwater habitat of major regional importance. These lake-fringing wetlands support the highest breeding population of waterfowl, shorebirds, and other wetland species to be found in the entire eastern end of Inyo and Mono counties.

The most common waterfowl species that breed in Crowley Lake are mallards, pintails, gadwalls, cinnamon and greenwing teals, and American widgeons.

My colleague, Tom Blankinship, who previously worked in Bishop as a local wildlife biologist for the California Department of Fish and Game, and I both shared an avid interest in waterfowl. For several consecutive years in the mid-80s we conducted one-day nesting surveys to get a general idea of waterfowl densities in the region.

Waterfowl was the focus of our efforts, but shorebirds and other species were also noted because of their general abundance.

All those surveys were limited in scope. They did indicate general densities of nesting waterfowl and other species.

Using nesting densities from these past surveys, it can be conservatively estimated that the Crowley Lake area produces several thousand ducklings in a given year based on the following factors: The total acreage of wetland breeding habitat available in the Crowley Lake area is approximately ,409 acres. There are breeding densities of waterfowl ranging from approximately 0.5 to 3-plus nests per acre. Typical waterfowl clutches contain 6 to 10 eggs each, and the average nest success in the intermountain region based on the literature averages 50 to 60 percent.

My estimates were confirmed by a recent aerial flight in mid-August 1993, at which time I personally observed several thousand ducks at Crowley Lake, the majority of which were newly fledged broods. The broods were observed prior to the initiation of fall migration and represent resident birds.

Additional confirmation of waterfowl nesting numbers comes from David Shuford and Peter Metropulos who studied breeding fauna of the Crowley Lake/Glass Mountain area in 1991. They found 2 to 3 hundred pairs of ducks and geese of ten species nesting and raising broods at Crowley Lake.

In fact, Mr. Metropulos, a California Department of Fish and Game Wildlife Biologist, went so far as to say in 1991 that Crowley Lake and the pockets of marshland along its shores provide nesting habitat for multitudes of ducks. geese, grebes, terns, shorebirds, and other aquatic-oriented bird species. Indeed, we estimate as many as 500 pairs of nesting grebes of four species at this locality. I can be safe in stating that Crowley Lake is the richest breeding site for waterfowl and other water birds in the entire Great Basin and Eastern Sierra south of Lassen County.

I might add also that recently I documented in a 1992 article in the American Bird magazine that there were 808 eared grebe nests found in Crowley in 1992. This was one of the four species of grebes that nest there.

The data upon which I relied in estimating waterfowl production yields conservative estimates in my opinion. The surveys were generally conducted in one day, usually in June. Waterfowl nesting in the high area can occur from early May through July. It was also our desire to conduct multiple surveys throughout the nesting season, but manpower and other commitments would not allow it.

Therefore, densities do not reflect any missed nests, either from the survey itself or any nesting that may have occurred early or late.

None of our waterfowl surveys accounted for any geese nesting activity. As geese are known for being notorious early nesters, it is not surprising we did not detect their nests. Nonetheless, a resident population of approximately 120 Canada geese has recently been established at Crowley Lake based on my recent aerial flight in mid-August.

Shorebird species, especially Wilson phalaropes and common snipes, use the Crowley Lake marshland extensively for breeding purposes.

Our limited survey significantly underestimated the breeding numbers due to the fact that these species will utilize a less dense cover than the areas of potential breeding habitat we surveyed.

Wetlands at Crowley Lake provide quality breeding habitat for waterfowl because of the existence of Crowley

Lake and because of cooperative habitat projects with the California Department of Fish and Game which has created freshwater ponds often nearby open waters. These nearby open waters provide protection from predators while nestlings are incapable of flight, and add to the attractiveness of the area's wetlands to waterfowl and shorebirds.

Prior to Crowley's formation, waterfowl had little refuge habitat available in the Long Valley area. If pressured by hunters today, the birds seek secure refuge in the open waters of Crowley Lake.

Recent cooperative efforts by the Department of Water and Power, U. S. Forest Service, BLM, and U. C. Santa Cruz Predatory Bird Research Group have reestablished the endangered peregrine falcon in the Crowley area. This site was chosen because of the abundance of prey birds provided by Crowley's wetlands.

Peregrine falcons are known to catch the prey in the air.

In the future we anticipate wetlands will increase in the Crowley Lake tributaries.

If LADWP's newly planned and implemented riparian/livestock project increase riparian vegetation, thereby trapping sediments and building water tables, wetland habitat will increase throughout the floodplains. Positive results have already been observed on McGee and Convict

creeks, and those projects have been in effect for less than two growing seasons.

Crowley Lake has also benefited fishing and bird species, such as white pelicans, double-crested cormorants, mergansers, several loons, grebes, which have taken advantage of the abundant food supply that Crowley's fishery provides.

A resident flock of approximately 221 white pelicans has recently established in addition to the many migrating pelicans who utilize Crowley Lake for annual migration.

Crowley Lake also serves as an important wintering site for the endangered bald eagle. Up to 11 bald eagles have been observed by me during midwinter surveys. Bald eagles take advantage of fish as well as the abundant waterfowl concentrations.

Finally, I would like to comment on the popularity and quality of Crowley Lake's trout fishery. In researching my files, I came across a California Department of Fish and Game 1989 report entitled, Fisheries Management Plan for Mammoth Lakes Basin and Certain Adjacent Waters in Mono, Madera, and Fresno Counties by Charles Montgildern (phonetic), Inland Fisheries Division.

MR. THOMAS: Objection, this is outside the direct. There is nothing at all in the record about fisheries. It is out of order and beyond the scope.

MR. DEL PIERO: Ms. Goldsmith.

MS. GOLDSMITH: This is a report, a public document, that has recently come into our awareness.

MR. DEL PIERO: I am aware of what the report is. The question is the nature of the objection is not that.

MS. GOLDSMITH: As I understand -- Well, we will withdraw it.

MR. DEL PIERO: Okay.

A I guess being a resident of the Eastern Sierra, it is very evident that the most popular trout fishing in the area is Crowley Lake, and I won't go into the report at this time but --

MR. DODGE: I don't wish to interrupt Mr. Tillemans, Mr. Chairman, but I think to me it is going beyond the scope of the implicit ruling. Ms. Goldsmith withdrew the line of questioning.

MR. DEL PIERO: Ms. Goldsmith.

MS. GOLDSMITH: I have no comment.

MR. DEL PIERO: I am going to have to sustain the objection.

A Okay. In conclusion, many positive benefits have been derived from the creation of Crowley Lake. It provides high quality breeding habitat for the waterfowl, shorebirds, and other wetlands species, and it provides quality habitat for many fish-eating bird species. With that, I will have a short video.

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MR. DEL PIERO: Thank you very much.

(Thereupon a videotape was shown.)

MS. GOLDSMITH: That concludes the direct testimony of this panel, I believe.

If I may, I would request that if there is any remaining recross of Mr. Tillemans from his panel with Dr. Beschta, that perhaps it could be included in the cross-examination at this time so he doesn't have to come back to tomorrow.

MR. DEL PIERO: Nevertheless, the request has been made, and so that will be then. Mr. Thomas.

MR. THOMAS: Yes, sir. Good afternoon, Mr. Chairman, Mr. Tillemans, Dr. Jehl. I am Harold Thomas with the Department of Fish and Game.

CROSS-EXAMINATION

by MR. THOMAS:

Q I will start with Mr. Tillemans. Sir, your background is in range management -- was that your testimony?

MR. TILLEMANS: It is in range and wildlife.

Q And you have used this in the Eastern Sierra in the range and wildlife management area in the Mono Basin?

A I have worked on some ranges using Mono Basin, yes.

Q And you are familiar with the grazing moratorium process?

A Yes, I am.

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Q And you have worked on ranges using the Crowley Lake area?
A Yes, I have.
Q Anywhere else in the Eastern Sierra?
A I have dealt with numerous issues in Owens Valley as well.
Q Numerous grazing issues?
A Yes, we have 59 leases, I think approximately, in the Eastern Sierra, and throughout the 12 years or so I have worked, I have dealt inadvertently with many leases.
Q Are you involved in grazing planning activities?
A Yes, I am.
Q Could you describe those?
A Currently, we have already implemented two riparian/livestock programs, one on Convict and one on McGee. We are also in the process of implementing a riparian/livestock program on Mammoth Creek, and that should be completed either this fall or early spring, and we are currently working on a riparian/livestock program for the Upper Owens River.
Q So you are familiar with the drainages of Convict, McGee, and Mammoth creeks?
A In what respect?
Q Familiar with their locations and their length and breadth and habitat?

A Basically, yes.
Q Now I want to go through your direct testimony and get a summary here, so I will ask you several questions about your direct, and if you could answer yes or no, I would appreciate it.
You stated that no other site, talking about Crowley Lake, no other site produces so many waterfowl and wetland-associated species. Is that your testimony?
A Yes, in Inyo and Mono counties.
Q And, in fact, you said the Eastern Sierra.
A Eastern Sierra region.
Q And that Eastern Sierra extends from where to where?
A I would consider that from basically Reno south.
Q South to the desert?
A To Owens Lake.
Q And you testified that Crowley Lake provided very productive freshwater wetland habitat and rich diversity of waterfowl and other water species.
A Yes, in comparison to other sites that I know of in the Eastern Sierra.
Q And you testified Crowley Lake maintains these wetlands that you spoke of in your Figure 1.
A The hydrology in Crowley, as well as the irrigation systems, and probably one item I didn't mention, maybe some subsurface flow from the creeks.

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Q And you also testified that Crowley and its hydrology created the freshwater wetlands; is that correct?
A Created the productive freshwater wetlands and their attractiveness to waterfowl and shorebirds, yes.
Q And you stated that on your videotape) is that correct?
A Yes.
Q And you stated that in your written testimony, that there was 500 pairs of nesting grebes and 2 to 3 hundred pairs of ducks and geese; is that correct?
A Yes.
Q And a resident flock of 120 Canada geese?
A Yes.
Q You stated that there were approximately 916 acres of wetland on the western shore of Crowley Lake?
A Yes.
Q Perhaps if we could bring Figure 1 forward, it would help. I want to thank L. A. for providing such good graphics. I, too, could not afford those graphics.
MS. GOLDSMITH: And their rate payers.
MR. THOMAS: Q And the rate payers, that's right. And you also testified that there were 400, approximately 493 acres of wetlands on three other department leases?
A Yes.
Q And would those leases be the Hot Creek area shown to

the north on this Figure l?
A Correct.
Q Are these known as the Hot Creek wetlands?
A Yes, those are in the delta area of Hot Creek. That figure shows one tributary of Hot Creek and it's actually three into the Owens River.
Q And you testified that you found in your annual survey 11 bald eagles utilizing Crowley Lake?
A Yes, I have, in mid-winter.
Q And that's 11 different birds?
A Yes, it is.
Q And these surveys were conducted by yourself?
A There's annual surveys that multi agencies do in every January. I usually conduct those in the Haiwee area, and someone from Fish and Game --
Q Excuse me, sir, I am speaking of the Crowley survey.
A Yes, as far as the Crowley area, I am up in the Crowley area very often, and I take note, of bald eagles.
Q And these 11 birds you saw, was that conducted as part of the multi-agency study?
A No, they weren't. They were my own.
Q These are personal observations?
A Yes, they are.
Q Am I correct that you testified that you observed tens of thousands of American Coots and ruddy ducks during the

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fall migration?
A Yes, I have seen flushes coming through on Crowley Lake in the fall.
Q Okay. Now, I want to ask you what are the biological and physical factors in your opinion that make Crowley and these Long Valley wetlands so productive and valuable to waterfowl?
A Well, the freshwater wetlands -- My testimony basically pertains to breeding habitat, and Crowley Lake has provided large open water that can offer security to nestlings as well as the birds, not only during the hunting season but at night, and it's a well-known fact that waterfowl usually require some open water for waterfowl nesting.
Q Water is important to waterfowl?
A Yes.
Q Is the presence of seasonal and shallow water important for waterfowl?
A I think there is no question, particularly if you look at prairie potholes, it is.
Q And that's where the bulk of those prairie potholes which are shallow and standing water are, and that is where much of our waterfowl production is on this continent?
A Well, what you're looking at is not only seasonal habitat. Basically, Crowley Lake is permanent habitat.

Q And these wetlands at Crowley are permanent wetlands?
A Yes.
Q And that means they are all year around, and there is standing water all year round?
A Basically, yes.
Q And is the presence of aquatic vegetation and marsh grass important to the productivity of the wetlands?
A Yes, it is.
Q Is the fact that these wetlands are located on the Great Basin leg of the flyway important for their use by waterfowl? Do you know where the birds that migrate through Crowley Lake come from?
A I have turned in several bands, and basically most of the birds come from the praire pothole region.
Q And you have seen our testimony and Fish and Game exhibits that show banded data in the 40s from the prairie pothole region?
A I haven't seen band data.
Q The duck population and migratory waterfowl population you see on Crowley Lake, does that come from -- do those birds migrate from the Great Salt Lake down to Crowley Lake?
A I have no doubt probably some of the birds do. The majority of the ducks in our area come from the prairie pothole region and come over the Pacific flyway via the intermountain ranges.

Q And they stop at the Great Salt Lake, am I correct?
A Yes.
Q And at the ruby (phonetic) marshes?
A They can all stop there and then down to the Crowley wetlands.
Q And then south?
A And south over around Sierra Lake.
Q Is the topography of Long Valley important to creating these wetlands as they are located on the west side of Crowley Lake; do you know?
A Could you be more specific?
Q Is the reason we have those wetlands due to topographic features?
A Yes, in part.
Q And what would be those topographic features that create the wetlands?
A I think you are getting at two different questions here, but --
Q I have no agenda.
A It's the slope of that land, yes, and the hydrology with Crowley Lake, and the irrigation system, and subsurface flows.
Q And the land slopes down to Crowley Lake from the uplands of McGee; am I correct?
A Yes.

Q The water runs from the west to the east downhill?
A Basically.
Q And I am pointing to Figure 1, to Convict and McGee creeks. Is the location of the dam at the head of the gorge important in impounding water behind it?
A Yes.
Q Isn't that the lowest point in the valley, the plug in the gorge?
A Yes.
Q Now, in your direct testimony, you identified 2 to 3 hundred pairs of nesting ducks and geese on the wetlands area; is that correct?
A That was David Shuford and Peter Metropulos in their 91 survey.
Q But that was included in your direct testimony?
A Yes.
Q And the total acreage you were considering is 1400 acres, approximately?
A Yes.
Q So that works out to about 4.7 acres per nesting pair; is that correct -- that translates to the density of the birds?
A I think I worked it out to 0.5 to 3-plus nests per acre based on observed nesting density as well as being out there with Tom and seeing some of the primary sites. We do

have several birds in one acre site.
Q If you took the 300 pairs over the entire wetland areas and divided the 1400 by 300 pairs, you would end up with one pair for every 4.7 acres, am I correct?
A No, you are not correct, because the birds that you count on Crowley may not account for the birds on the Upper Owens River drainage below Crowley Lake.
Q So the 300 pair of birds are scattered, are located in one spot? They are not located on the entire wetlands area?
A They would be located in the vicinity of all the wetlands, but some of the birds that they observed on Crowley may be in the Upper Owens drainage or in the Hot Creek delta.
Q It's true that geese were found at Mono Lake in the 1940s, am I correct?
A If I recall the DEIR, I don't think in any great numbers. I recall them as being migratory through there.
Q Have you seen Fish and Game Exhibit 97, where we provided banding data from geese at Mono Lake?
A No, I haven't.
Q Now, you've indicated that you saw 11 bald eagles using the Crowley area. I think the term you used was utilizing the Crowley area. Is that the right word?
A Yes. When I do those surveys, I try to do them as quickly as possible. When they are utilizing the Crowley area, they are seen on the shorelines, particularly when

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there is open water and the fish are available to them, and also when there is a concentration of waterfowl.
Q And when one utilizes, when a bald eagle utilizes habitat, does that mean it is important for the bald eagle to be located on that habitat?
A Yes, and I might add there's some BLM publication that identifies Crowley Lake as being an important bald eagle site.
Q Would you say it is critical for the existence of bald eagles to use this area?
A In what respect?
Q Critical to those life stages, its reproduction, its continued viability.
A That's hard to answer at this point. If Crowley wasn't there, they may utilize another habitat.
Q So you don't have an opinion as to whether it is critical or not?
A At this point, I consider it an important area for the wintering bald eagles because of the habitat available in the Eastern Sierra, yes.
Q Now you identified 1409 acres of wetlands on this Figure 1; am I correct?
A That's correct.
Q And did any of these wetlands predate the construction of Crowley Lake, Long Valley Dam, and the subsequent filling

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of Crowley Lake?
A Yes, they did, and let me clarify, the wetlands that I have there are basically what I am calling prime breeding wetlands. There are probably other wetlands in the area, but they are the drier habitat.
Q And you have testified that Crowley created wetlands and maintains the wetlands that are there?
A My testimony basically pertains to the fact that because Crowley is there, and because of cooperative projects that we have done with Fish and Game, there is open water available, open water habitat available for waterfowl attraction as well as the shorebirds.
Q If Crowley Lake would disappear, would these wetlands disappear?
A The wetlands wouldn't disappear, but they would be very insignificant in terms of numbers historically versus today, I would suspect.
Q You say insignificant, a half or a third as much?
A I couldn't give you exactly, but my understanding is that prior to the formation of Crowley Lake, there was very little open water except for some springs and seeps that came up that had small channels going down the river, and those small channels would be of little use to waterfowl as far as numbers.
Q You are not familiar with any hunting of waterfowl

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that existed along the Owens River prior to the construction of Crowley Lake?
A I have no doubt people hunt the Owens River just like I do in the Owens Valley, but in relation to a lake habitat. it is not as significant.
Q In fact, they took thousands of ducks along the Owens River prior to 1940; am I correct?
A I am not quite sure of that number. I do know that when you talk to some of the people around Bishop that they will tell you waterfowl had little refuge in those days. They basically jumped them from fork to fork, and it was easy pickings. Once you jump ducks at Crowley, they can go to the middle and be perfectly safe.
Q But there were thousands of ducks along Owens River where there was no open habitat prior to 1940?
A There may have been. I don't know those figures, but I think you're comparing apples and oranges. My testimony refers to breeding habitat.
Q I am asking about the existence of ducks, and isn't it true that the Department of Fish and Game exhibits, bienniel report, shows in 1940 thousands of ducks being taken along the Upper Owens River?
A I haven't seen those reports. I am sure you could relate that to Owens Valley also in the fall.
Q Could you expand on that?

A Even today, people shoot thousands of ducks in Owens Valley.

Q And these wetlands that existed prior to Crowley Lake, how large an expanse and scope were they?

A It's questionable. I have seen testimony stating that there was 2400 acres of true marshland in the early 1900s at Crowley Lake.

Q And would that true marshland have been valuable to ducks and waterfowl?

A It would have if there was open water available to them, which there wasn't.

Q I am going to ask you to look at Exhibit -- we'll mark it next in order for Fish and Game. It's a 1914 survey of wetlands along the Owens River, and I would like you to compare that with your Exhibit Figure 1 from your testimony.

MR. DEL PIERO: Mr. Thomas, your 20 minutes have expired.

MR. THOMAS: I petition for an additional 20 minutes in light of the complexity.

MR. DEL PIERO: Granted.

MR. FRINK: Mr. Thomas, our records show that the report you have just handed out would be designated as DFG Exhibit 137, and for the record the exhibit is entitled, Report of Sanitary Investigation of the Tributaries and Mountain Streams Emptying Into Owens River.

MR. THOMAS: And I will just mark it for identification now, and we will introduce it later.

Q I have, for purposes of comparison, a copy of your Figure 1, if this will help you. I would like you to consider both documents together and make a comparison of the historic wetlands that existed prior to Crowley and the wetlands that are there today.

MR. BIRMINGHAM: Mr. Del Piero, if Dr. Jehl is offering the fact that he has some information, these witnesses are being offered as a panel, and it is our understanding that either Dr. Jehl or Mr. Tillemans can respond to questions by Mr. Thomas.

MR. DEL PIERO: They way this works I made clear early on. When witnesses are offered as a panel, the individual who is cross-examining and asking questions can direct the questions to the individual or panel as he or she chooses. In the event the individual to whom the question is asked cannot effectively respond, then someone else on the panel who may be able to respond may do so. However, keep in mind everyone on the panel is under oath, so if they do have direct knowledge of the answer to the question being posed to them directly, they are obliged to answer that question.

MR. DODGE: Someone has handed me a copy of Figure 1 from Mr. Tillemans' written testimony. Could I inquire as to whether this is a new exhibit?

MR. THOMAS: This is a copy of Figure 1 that exists in LADWP --
MR. DEL PIERO: Are you suggesting it is not in the original submittal?
MR. DODGE: No, I am wondering if this is a new exhibit or is used for demonstrative purposes.
MR. THOMAS: It is used for demonstrative purposes. It is to be used for a comparison with the historical map and aiding the Board members and the witnesses in their comparison.
MR. DEL PIERO: The date on this is what?
MR. THOMAS: 1914.
MR. DEL PIERO: Okay.
MR. THOMAS: That's 137 for identification. The only reason I provided you the second copy is that it is very difficult to see.
MR. DEL PIERO: That's fine.
MR. THOMAS: I wanted you to be able to compare.
MR. DEL PIERO: Please proceed.
MR. THOMAS: Q Mr. Tillemans, would you read on the first page of the 1914 submission, read the first sentence -- I will read the sentence to you: A sanitary investigation of the source of the water supply of Los Angeles was begun by me on July 23, 1914. The trip was made by automobile, and a careful study of the United States Geological Survey Map

guided our party to such streams and swamps as make up the water flowing into the Los Angeles aqueduct. Credit is due Mr. H. E. Linden, Civil Engineer, and Mr. U. G. Smith, resident of Bishop, California, for their aide in directing us to the principle creeks, camps, and ranch homes throughout Long Valley, Round Valley, the Owens River Gorge, and immediate environs of Bishop.

Now, if you could turn to the map that was attached to that document, is that in actuality a map of the Inyo and Mono counties, with the Owens River running from the portal down toward the town of Big Pine?

A It is.

Q Could I direct you to the word "Long Valley," and can you locate or identify for us the location of the current Crowley Lake dam?

A Yes.

Q And isn't it true that immediately upstream of Crowley Lake, the Long Valley Dam is the word "swamp" written in rather large letters?

A Yes, it is.

Q And could I direct your eyes to the section lines that are crossing the swamp identified under the words "Long Valley".

A Those are sections, yes.

Q Well, I was asking, you are a specialist in range

management; am I correct?
A They probably are. This is the first time I have seen this map, and there's no key here.
Q If I could direct your eyes to the right, you will see township and range lines; am I correct?
A Yes.
Q And you are familiar with townships and range lines because grazing is conducted within townships and ranges; am I correct?
A Yes.
Q Could you count the number of section that overlay the area called swamp under the words "Long Valley"?
A Okay. On that map I count approximately -- it is hard to tell -- some of these sections are part and some are full.
Q Are there approximately six sections there, the majority --
A Five.
Q Five or six sections. Each section is 640 acres; am I correct?
A That's correct, under normal mapping, yes.
Q So we could assume for purposes of this discussion that we have about 3200 acres of wetlands, being 5 times 640 acres; am I correct?
A That's 800 acres more than what Dr. Stine had testified to, so now it has grown by BOO acres.

Q I asked you to answer the question, am I correct, 5 sections is approximately 3200 acres?
A That is right, if this is an accurate map.
Q And isn't it true that you have told us there's approximately 1,000 acres remaining after the inundation of Crowley Lake as shown on Figure l?
A Yes.
Q And isn't 3200 acres minus 1,000 remaining acres equal to 2200 acres inundated by Crowley Lake?
A That would be correct.
Q And isn't that what Dr. Stine has, in fact, testified to in direct, that there's 2200 acres of land inundated by Crowley Lake?
MR. DEL PIERO: Dr. Stine hasn't testified here at all. Are you talking about his submittal?
MR. THOMAS: Q In his submittal, I apologize.
A I will not say his statement is correct, based on what I know and the work that my survey and land use section has done.
Q But the logic isn't inaccurate, we do have 3200 acres of wetlands shown on this 1914 map, and there were 1,000 acres on your map not inundated, and when you subtract 1,000 from 3200, you get 2200 inundated by Crowley; isn't that correct?
A I would like to explain at this point why I think it

is incorrect.
Q Please do.
A First of all, this map was done in the early 1900s. Number one, if you get out the USGS topographic map, which I consider a more accurate map than probably this one, and it has sections on it, and what I had my land use and survey crew do is basically superimpose upon the marshland that was designated on that map, Crowley Lake, and I asked them not to be generous in their estimate, and we had some questions on whether there may be an indentation, they drew a straight line, and we feel a generous estimate of what was inundated was not 2400, but 933 acres based on the USGS topographic map.
Q Was that work submitted as part of the evidence in this hearing?
A No, it wasn't, but you are asking me.
Q So you are testifying today as to that work?
A Yes.
Q Thank you. You can proceed.
A Also, maps in those days were sketched in. I called the USGS in Menlo Park and talked to several -- I didn't call, my survey party did, and talked to Lori Tremble who talked with her staff and informed us that maps in the early 1900s were basically sketched in. They did not have aerial photos for accuracy. They were not shot, and if you were to

draw them in on a horizontal scale, which maps produced before 1948 generally did not meet established standards for horizontal scales, your error can be quite large. If it is one inch, it is over a 10,000-foot error. If it is a quarter of an inch, it is over a 2600-foot error, and if it is an eighth of an inch, it's over a 1,300-foot error, and if you look at that as far as a circumference of these wetlands, and if there is any error of an eighth inch or above, it is quite substantial in terms of acreage.

I have also in the course of my job talked to ranchers, I deal with lessees all the time, and we talk about history, and consistently when you mention 2400 acres of marsh in the Long Valley area, they question that substantially.

Q I understand that. I think you have answered the question. Would you agree with me that if the 2400 acres that were 2200 acres inundated by the reservoir were hypothetically of high value, that the impact of the Crowley construction would be a net degradation of waterfowl habitat?

A High value in terms of what?

Q In terms of any objective standard. Hypothetically, if these were high value wetlands that were inundated, wouldn't it be correct that the impact of Crowley Lake would be an adverse impact to waterfowl?

A If you are talking about waterfowl, I don't think

these areas receive much waterfowl use.
Q So would your answer be no?
A Yes, in terms of waterfowl.

Q I wanted to read one section out of a text that accompanied this map and ask you if you agree, if your experience comports with the conclusion of this person. The individual states, these creeks and their drainage, are best

understood when considered with the topography of Long Valley, the whole valley, including more than 20,000 acres, which slopes from all points toward the south forming a deep basin and making a larger part of the valley one immense swamp.

MS. GOLDSMITH: Excuse me, may I ask you to identify what you are reading from?

MR. THOMAS: Page 13 of a report marked 167 for identification, of Fish and Game.

MR. FRINK: I believe the report was marked 137.

MS. GOLDSMITH: I don't have a copy of that. I have a copy of the first page and the map.

MR. THOMAS: I'm asking the witness if, in fact, his understanding of the topography of Crowley Lake Basin is consistent with this excerpt. We will introduce the excerpt as I indicated on direct.

MS. GOLDSMITH: May I ask that you introduce the entire report.

MR. THOMAS: We will introduce the entire report.

MS. GOLDSMITH: Do you have a copy with you now?

MR. THOMAS: No, I don't have a copy with me now. I can secure a copy if you want. We are only asking the witness's understanding. I am not representing the veracity of this.

MR. DEL PIERO: Folks, we are here.

MR. THOMAS: Sir, I apologize. I'm merely seeking to understand the witness --

MR. DEL PIERO: I have not heard an objection to the question.

MR. THOMAS: We will proceed.

MR. DEL PIERO: In terms of making available the excerpt that Ms. Goldsmith is requesting, I suggest the two of you make arrangements to exchange whatever materials you want to outside of your current 20 minutes.

MS. GOLDSMITH: Mr. Del Piero, I won't object to this question, but if Mr. Thomas intends to ask more questions from this paper, I would ask an opportunity to review it before he does.

MR. DEL PIERO: Surely. The nature of the question is asking Mr. Tillemans' general understanding of the geography of Crowley Lake, so why don't you go ahead, Mr. Thomas. And when you are done, sir, we are going to take a break.

MR. THOMAS: I understand. Would you like the

question reread?
A Yes, please.
MR. THOMAS: Q I will go back from page 13, and reading from page 13 of this 1914 report, these creeks and their drainage, and this is referring to the Crowley Lake complex, are best understood when considered with the topography of Long Valley. The whole valley, including more than 20,000 acres, slopes from all points toward the south forming a deep basin and making a large part of the valley one immense swamp.
Would you agree this represents the prediversion condition?
A Not based on what I have researched.
Q Could you tell us the basis of your opinion?
A Well, because this map isn't labeled swamp. The USGS labels it as a marsh, and there's basically no indication of open water. I've also looked at land use classification maps and looked at land and cattle maps in the 1920s, and they show no open water in the north half around Hot Creek and other evidence in the Crowley/Long Valley area, as well as the land use classification maps, do not show any open water, and so if you are referring to a swamp as open water, emergent marsh type situation with a mixture of open water and wetland habitat, I think you are incorrect.
Q Dr. Jehl, was it your opinion, sir, that the rising

lake level will have a long-term adverse effect on grebes and phalaropes?
DR. JEHL: A No, I think I testified that under none of the alternatives that have been suggested would change of lake level affect the grebes, and there are two species of phalaropes, and I would ask you to state your question specifically to either one of them, and I will think about it.
Q Is it your opinion that the rising lake level will have a long-term adverse effect on the population of phalaropes?
A No. Up to what level?
Q Up to the historic level.
A Sixty-four hundred?
Q Whatever the historic level was.
A No, probably not.
Q Sir, you have been the Director of Hubbs Seaworld Research since 1980?
A I have been Director of Research until I resigned all administrative duties a year ago, thankfully.
Q And you are the senior researcher today?
A One of them, yes.
Q And has the LADWP been funding the Seaworld organization since 1980?
A Since 1981.

MS. GOLDSMITH: Objection. It is ambiguous whether you are suggesting that LADWP is funding the entire institute or a portion of it.

MR. THOMAS: The answer can speak for itself.

MR. DEL PIERO: Go ahead and answer the question, Dr. Jehl.

A The question was, has the institute been funded to do research?

MR. THOMAS: Has it been funded by LADWP?

A No, the research has been funded by the Department of Water and Power.

Q Are you saying that the checks are not written to the Seaworld organization?

A The checks are written to do research. The Hubbs Seaworld Research has been written since, I think, 1981. The original research was sponsored by the National Geographic Society and by the Hubbs Seaworld Institute for a year before.

Q You have answered my question. Thank you.

You testified earlier that the bird life was different before the diversion; am I correct in my recollection?

A Yes.

Q Could you tell us how it was different prior to diversion?

A Prior to diversion, there were no Caspian terns. The

population of gulls was very small at that time. We didn't have adequate information to know what the populations of phalaropes and grebes were except that they were there. There was no early indication of snowy plovers being there. They had to be there, the habitat was there, and there were probably certainly larger concentrations of waterfowl around the wetlands than there are today.

I think those would be the major changes you would see.

Q Are you familiar with the prediversion condition that existed on Mono Lake? Have you done any research to determine prediversion conditions?

A With regard to the lake level?

Q With regard to the species diversity?

A I think I have read the entire literature on Mono Lake, yes.

Q Have you read the 1902 condor article on Mono Lake?

A Yes.

Q And you are familiar with the reference to phalaropes?

A Yes. I am also familiar with the misidentification of grebes.

Q So you consider the article flawed because it misidentifies grebes?

A It's flawed. You have to take all of these articles with a grain of salt, even if they are reviewed.

Q This is published in the Cooper ornithological club bulletin; correct?
A The name of the journal is The Condor, that is correct.
Q And the 1902 article did state that phalaropes come in countless hundreds?
A Yes, I believe that is correct. That should have said, if you want to be specific, red-necked phalaropes. It does not necessarily refer to both species. The date of the observation was early September, so it only could possibly have referred to one species, not the Wilson.
Q Okay, I have a couple more questions for Mr. Tillemans on grazing issues. Are you familiar. Mr. Tillemans, with Dr. Platts' and Mr. Chapman's opinion that removal of grazing was important for the riparian recovery in the Mono Basin?
MR. TILLEMANS: A Yes, I am.
Q And the cows now graze in and around Crowley wetlands that you have identified on Figure 1; correct?
A Very little in the wetlands that are delineated right here.
Q Is there a formal exclusion or moratorium on grazing in that area?
A No, there is not, but the areas I am talking about are very hydric soils. In fact, a lot of them when you stand on them it feels like you are standing on an elevator, and

cattle will avoid those areas because they don't feel secure on them, as well as there's a lot of bugs, and they avoid the bugs, also. I have observed these sites in the summer consistent, probably more than 50 times if not more, and I would only see a handful of cattle in that area. The video was taken in the middle grazing season, and you didn't see one cow in there.

Q So Los Angeles wouldn't oppose a grazing moratorium on the areas delineated as wetlands if it was attached as a condition of the water rights.

MS. GOLDSMITH: Objection. This calls for a conclusion which is beyond the expertise of the witness.

MR. DEL PIERO: Sustained.

MR. THOMAS: Q Do you have an opinion whether an exclusion of cattle from that area would be beneficial to the wetland habitat that currently exists?

A It is totally unnecessary, in my opinion.

Q And the reason it is unnecessary?

A Is because the cattle don't utilize that area I have designated to any great extent. In fact, during nesting season there's a Fish and Game memo in regard to some of our earlier surveys in which your biologist, Tom Blankinship, said, I am not certain that the level of grazing that's occurred on the wetter sites, either inside or outside the fence, has any substantial impact on nesting habitat.

Q And of the 1409 acres of wetlands, would your opinion hold to all 1409 acres?
A Yes.
Q Would you believe that the riparian vegetation in the Owens River-Crowley system will show a similar rebound if a grazing moratorium is extended to the area shown in Figure 1, the riparian zone?
MS. GOLDSMITH: Objection. I believe this goes beyond the scope of the direct. You are talking about wetland stream vegetation.
MR. DEL PIERO: I am going to overrule the objection because it goes to the nature of the qualification of the expert witness. He is a range manager. Go ahead and ask your questions.
MR. THOMAS: Thank you, sir.
Excuse me, go ahead and answer the question?
MR. DEL PIERO: Yes, sir.
A I think you have to put what's happening in the Mono Basin in terms of a grazing moratorium on the floodplain into what's happening on the Crowley tributaries, and number one, the grazing had to be removed off the floodplain in the Mono Basin because of the degradation that occurred and was

basically a recovering floodplain, and any new vegetation that was coming up was immediately being eaten by the sheep, and Doctor Platts, I think, mentioned this in his testimony.

Each lease is site-specific. You don't generalize from one lease to all the others. Otherwise, ranching would be a very simple business. You have to take into account soils and the plants, how the operations are run, and what type of riparian system you are dealing with.

What we are doing in Long Valley is basically controlling livestock distribution with our fencing project. and we are improving those riparian systems as we speak, and it is a totally different situation than what you have in Mono Basin.

Q Sir, but please be responsive. If we were to extend the grazing moratorium to the riparian corridors, would the vegetation rebound in a similar manner as the Mono Basin?

A It could rebound in the same way it is rebounding right now with our current system.

Q You are saying there is no degradation of the riparian corridor due to grazing in its current state?

A In its current state the systems are recovering and doing quite nicely.

Q Are they degraded?

A They were degraded previously, but that's getting back to the same thing that Dr. Platts and Mr. Chapman testified to, is Long Valley experienced severe overgrazing at the turn of the century, about 100,000 sheep or so, so most of the degradation has occurred. You have to look at history.

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Q Are they degraded today, sir?
A Yes, they are, and they are improving because of our programs.
Q So they are degraded today; is that your testimony?
A They haven't reached their full potential.
Q Would they benefit from a grazing moratorium similar to how the Mono Basin streams benefited?
A Yes, they would, not anymore than what the current system is that we have.
Q Last question, are you familiar with the wetlands and the Eastern Sierra generally?
A Yes.
Q Are you familiar with the historical value of wetlands in the Owens River system?
A Basically, yes.
Q Is it your belief that there has been a reduction in the amount of wetland acreage throughout the Owens system since the onset of groundwater pumping and grazing activities and water diversions by L. A. Department of Water and Power?
A There may have been some degradation. There has also been a lot of mitigation projects to make up for that.
Q If I were to tell you hypothetically that all of these wetlands shown in 1914 were there in 1914, can you tell us if there are any of these wetlands remaining south downstream of the Long Valley dam?

A Yes, there's a lot of the wetlands. Bird Creek, Bishop Creek have a lot of riparian areas, Pleasant Valley is basically one big wetland and bottomland.
Q Is the acreage identified in this map extant today in the Owens system?
A I'm sorry, I can't cumulate all these acreages you are talking about right off the bat just looking at this. I would have to have time.
MR. THOMAS: I will leave the question. Thanks very much.
MR. DEL PIERO: Thank you very much. We're going to take a break, and we will be back in ten minutes.
(Recess.)
MR. DEL PIERO: Ladies and gentlemen, this hearing will again come to order. Mr. Dodge.
MR. DODGE: Thank you, Mr. Del Piero.

CROSS-EXAMINATION

by MR. DODGE:
Q Mr. Tillemans, I have a few questions for you. Let me ask you first about present-day ducks at Crowley Lake. I ask you to look at Table A under your testimony at page 59.
A Okay.
Q I want to focus you in on specifically the highest number there, October 19, 1983, total ducks, 5,180. Do you see that?

A Yes, I do.
Q Now, under present-day conditions, are you aware of higher counts than that?
A Yes, I am.
Q And what order of magnitude at Crowley Lake?
A It may be five times as much.
Q Where could I find those counts in the literature?
A It is not in the literature.

Q Was there some reason why you put this 5,180 on Table A?
A Yes, it was basically to show the diversity of species that are found at Crowley Lake.
Q And October 19, 1983, that's about the same time of year that Mr. Dombrowski was making his historical counts; wasn't it?
A I think he did some in October as well as September.
Q Is it your understanding these are migratory ducks, or not?
A No, in October they would be migratory.
Q And so the highest counts that you are aware of are approximately 5 times 5,000, or approximately 25,000; correct?
A Approximately, yes.
Q And if the Draft EIR is accurate as to the historical counts of ducks at Mono Lake, you would agree that this is

hardly a replacement for that?
A Just taking it at face value, but in context of the time, there's a lot of things that have happened.
Q Now, let me ask you about historical conditions at Crowley Lake, and you have told us that you were very familiar with those, and Mr. Thomas asked you a lot of questions about it. First, let's look at Figure 1 which is up there on the easel, and to the north of Crowley Lake, I see some reference to 41 acres, 313 acres, and 139 acres. Do you see that?
A Correct.
Q And those are wetlands; are they?
A Yes, they are wetland designations based on the classification in which I show the dominant species in my written testimony.
Q And would you agree with me that those would exist whether or not Crowley Lake was there?
A Yes.
Q And let me go down to the 916 acres which are just to the left of Crowley Lake as shown on Figure 1. Would you agree that those wetlands would be there even if Crowley Lake did not exist?
A I'm not quite sure, your hydrology may have changed the lake level there. There's very wet conditions which provided open water which is attractive to both waterfowl and

shorebirds.
Q I'm not talking about the lake, I'm talking about the 916 acres immediately to the left of the lake. Wouldn't you agree that that would exist even if the lake were not in existence?
A Some of it. There may be some new ones created because of the presence of Crowley and the irrigation found there.
Q You and Mr. Thomas had a long debate about how many acres of wetlands were inundated by Crowley Lake, and he tried to get you to agree to some number, and you indicated that your best evidence was 933 acres?
A Yes.
Q And I don't want to get into an argument or discussion with you about numbers of acres, but let me ask you, however many acres there was, wouldn't you agree that that had substantial benefit for breeding waterfowl?
A No, I wouldn't.
Q Well, would you agree that they had largely refuge from human intrusion?
A Not based on what I know from talking with some of the old-timers.
Q You haven't read this Report of Sanitary Investigation that Mr. Thomas found: have you?
A No.

Q It is interesting -- You were not the person that checked it out on November 1, 1978, the last person before Mr. Thomas to check it out? (Laughter.)
A I don't think so.
MR. DEL PIERO: Mr. Dodge, other than you -- Well, now we all know what your reading preferences are.
MR. DODGE: Q But Mr. Thomas read you a portion that said the larger part of the slope is almost impassable. Do you recall that?
A Yes, I recall one area there.
Q Would you suggest that that at least suggests that there is refuge from human predation?
A Yes, from human predation possibly.
Q Wasn't there also nesting habitat historically that had immunity from animal predation?
A An area like this would probably have a lot of ground predators.
Q Do you know that for a fact, sir?
A Yes, a lot of the nests that we have found had predation on them as we speak. As we speak in those same areas, there's snakes, coyotes, there's --
Q You're talking about today?
A Yes.
Q Today there are nests that work out and nests that don't work out; correct?

A Correct.
Q And there's predation; correct?
A Correct.
Q My question is, wasn't that also true pre-1940 in these inundated wetlands however many acres there were?
A No, because the area of Crowley Lake that was inundated had very little open water. Most of the water had perked out as spring seeps down toward the bottom and as where irrigation returns came back in on the west side of the river, and you could ride horses through that area, and you had to go around little stringer meadows and what-have-you, but there was very little open water that in terms of waterfowl, they probably would not seek out this area as any great nesting area.
Q What do you mean by open water, sir?
A I mean like ponds, a true swamp that has open water and emergent vegetation.
Q You are not talking about a big expanse like Crowley Lake, you are talking about small ponds with land forms in the pond where the waterfowl can nest?
A It would have to of substantial size to be of any use, yes.
Q And again the basis for your testimony is that that didn't exist prediversions?
A My basis for that is basically talking about the

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history of the area with several ranchers and with hydrographers who worked in the area prior to Crowley Lake forming.
Q Can you give us some names?
A Howard Arcularius, Bud Hashbaugh (phonetic), and David McCoy.
Q Let me move on to page 62 of your testimony where you talk about the yellow rail. Do you recall that testimony?
A Yes.
Q Is it a fact that the yellow rail before Crowley used to breed in Long Valley?
DR. JEHL: A There was a record of one breeding spot.
Q And the yellow rail hasn't bred in Long Valley for decades; isn't that true?
A That's my understanding.
Q In fact, there are no breeding yellow rails in California; isn't that true?
A That's true.
Q And as a result, it is listed as a species of special concern in California?
A True.

Q Now, Mr. Tillemans, let me get back to one more area with you, and that is the aerial view of the Mono Lake lagoons near Warm Springs and Simons Spring. Do you recall that testimony, sir?

MR. TILLEMANS: A Yes, I do.
Q Now I thought I heard your narrative say that that was fresh water behind berms. Is that your testimony?
A On the video on Mono Lake wetlands, I did say there was fresh water backing up behind the berms.
Q What tests have you made to determine that?
A Well, the springs are there, and they are coming back down towards the lake, and it is probably a mixture of brackish and fresh water down towards the lake, and above it is more fresh, but the reason why I took that video was because Randal Orton suggested that Joe Jehl go out there and take a look at those, and they wanted films and documents of what was happening out there, and I have not been on the ground, and I regret not being on the ground, but I am not familiar with Mono Lake lagoons and wetlands like Dr. Jehl is. He would be more appropriate to talk to you about that.
Q Either one of you is fine, but you haven't made any tests whether that water is fresh or saline; have you?
A I haven't.
Q Have you, Dr. Jehl?
DR. JEHL: A I know it is almost straight lake water that's there. It's very brackish.
Q So, it's not fresh water, is it?
A No.
Q Now, again, the question to both of you, is it true

that these lagoons are ephemeral as opposed to permanent?
A Well, all lagoons are a function of lake levels, and so long as lake levels change, lagoons are going to come and go because they are formed by off-shore bars, and that's controlled by the slope of the bottom of the lake, and they are not in the same place each year, but there are lagoons at the lake each year.
Q But the location of the lagoons will change as Mono Lake rises and falls; correct?
A To some degree, correct.
Q And also the size of the lagoons?
A That's correct.
Q Have you made any computation of the acreage of these lagoons?
A You mean the ones this year?
Q This year, yes.
A No -- A mile and a half long and very large. I walked it, and it's quite extensive, and there also is some on Simons Spring and there have been some in the past. Some of my earliest days in there we used to take the three-wheel motorcycle and have to go around these lagoons that formed in Simons Spring, 1980, 81, and 82.
Q Again, sir, your testimony as to the acreage, you don't know?
A It is fairly extensive. I wouldn't guess acreage.

Q Now, Dr. Jehl, first you have told us earlier in your testimony that you had not studied the snowy plover, and then towards the end of your testimony you indicated to Mr. Thomas that snowy plovers were present prediversion. Can you give us the basis for that statement?
A I said I hadn't studied them in detail. The basis for the statement is the habitat has been there all the time, and the fact it was not seen by the early observers, as correctly noted in the EIR, was just that the early observers did not walk the sandy beaches around the east side of the lake. There have been no snowy plovers in there as long as there has been an alkali beach.
Q And that would have been true prediversion?
A Yes, sir.
Q Okay. Now, let me move quickly. We got rid of that one species in a minute and a half here. Before we get to our favorite subject, the California gull, of yours and mine, let me move through the Caspian tern.
Dr. Jehl, at page 29 of your testimony, and this is what I would like to explore with you, you state that the nesting habitat of the Caspian tern is largely eliminated at lake elevations about 6386. Do you see that, sir?
A What page?
Q Page 29, the first bullet point.
A Yes.

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Q Okay. Now, before we get into that, Caspian tern is a worldwide bird; isn't it?
A To the extent that populations exist on just about every continent, yes.
Q And you had approximately ten nesting pairs at Mono Lake, it went up and down?
A Most recently we have this year 13, something like that.
Q And you had approximately how many nesting birds from California gulls this year?
A Thirty thousand.
Q Caspian tern is a fish-eater; is that right?
A That's correct.
Q So, unlike the other birds around Mono Lake, it goes to Grant Lake for dinner; correct?
A That's right.
Q Now, you said initially it was first seen by Dr. Winkler in 1976 at Mono Lake, then I think you told us today that there was also a 1963 sighting; correct?
A I think I wrote it was first discovered, first reported nesting by Winkler in 1976, and I corrected that today, yes.
Q And you weren't there in 1976?
A No.
Q And Dr. Winkler, in his conversation with you, told

you that he had found it on Twain; is that correct?
A No, I don't recall specifically in those conversations. I am not sure he was specific.
Q At some point you became aware that he had discovered the nesting on Twain in 1976; correct?
A I'm not sure it was on Twain in 1976. The chart here which was taken from my paper, says Twain, 1980 and 1981, so I don't recall that Winkler told me that specifically.
Q Dr. Jehl, Twain is right here as part of the Negit islets; right?
A Right.
Q And at least in 1980 and 1981, Dr. Winkler told you that the Caspian tern nested on Twain; isn't that correct?
A Twain and Pancake.
Q Twain and Pancake, okay, and where on Twain?
A I don't know.
Q I thought I heard you tell us in direct examination that you had been told it nested on the crest of Twain?
A No, I did not say that. I said that when the birds first were nesting, which was 1963, the only place they could have nested on those islets or at the lake would have to be near the crest of Twain because that's the only place where there was open, sandy habitat. Most of the top of that island is rocky. There's very little platform there that they could have nested on, that is all.

Q In 1980 and 1981, based on your conversation with Dr. Winkler, do you know where these birds nested on Twain?
A No.
Q You don't know. And then they moved to Paoha islets as Mono Lake sank; correct?
A Yes.
Q And then they show up in 1982 on Gull, which is a Paoha islet; correct?
A Yes.
Q Now, would you agree with me that at a 6410 elevation of Mono Lake, there is still a substantial Twain islet?
A I think the top of Twain islet is 6420, as I recall.
Q Have you seen a photograph of Mono Lake at 6420 where Twain islet still exists?
A I haven't seen that, but there are many maps Dr. Stine has made over the years for us. I'm sure we could look at that. You said there is a substantial upper part of Twain islet is rocky and is not good tern habitat. It needs sand. They don't nest in rocks, so you would have to have the lake somewhat lower than that to expose that platform. I don't know what the elevation is.
Q You don't know what the elevation is?
A Not offhand.
Q There might some of this habitat available on Twain at 6410?

A I doubt it.
Q Have you made that measurement?
A No. I don't know.
Q You don't know. You don't know whether this Caspian tern is going to come back to Twain at 6386 or not, do you?
A I have a pretty good idea.
Q What is your idea?
A If it comes back, it won't make any difference because the gull population is so much bigger than it was 30 years ago that it would swamp it and drive them out, even if the habitat exists. So there may be habitat, but that habitat, as I tried to explain in my testimony, is likely to be taken over by the swelling gull population which is outcompeting. or will outcompete, these birds for habitat.

So my testimony remains the same. The birds are going to be excluded when the lake gets up high, whether all the nesting habitat at Paoha is eliminated or whether they are excluded by competition from gulls. Either way the species is going to go.

Q You are assuming as Mono Lake gets higher, there are going to be more and more gulls?
A There don't have to be more gulls. Those that are currently nesting there will come back to the same island. As their areas near the shore are inundated, those birds will move higher and higher before they will move to other places.

and that whole island will be saturated.
MR. DEL PIERO: Your time is up.
MR. DODGE: I would ask for another 20 minutes based on the complexity.
MR. DEL PIERO: Granted.
MR. DODGE: In fact, Dr. Jehl, after 1987, after the lake had a sudden rise in 1986, the terns returned to Twain; didn't they?
A Yes.
Q In fact, they nested on Twain in 1987; correct?
A I was told they did.
Q So, based on at least the California gull populations that existed in 1987, the Caspian tern could coexist on Twain; isn't that correct?
A They did.
Q Wouldn't you agree that it is highly speculative for you to say that with much higher levels of California gulls today that the Caspian tern can't coexist on Twain?
A We'll find out. I don't think so. I think what we know about the gull population and watching them move to other islands and take the habitat, the same thing is going to happen eventually here.
Q Let me ask you a few questions about phalaropes, and I will try to limit this so we can spend some time on the gulls. Now, you agree that there have been very few

phalaropes in the past few years on the west side; correct?
A Yes.
Q And would you agree, and I appreciate you haven't studied this, but the probable cause of that is somehow related to food?
A No.
Q You don't agree with that?
A No, sir.
Q Let me ask you, would you agree, and you testified at page 46 about the possible impact of humans, would you agree that that's unlikely because of phalaropes moving from the west side?
A No, you have to be clear on this. There are two different kinds of phalaropes, and I think the issues are mainly with regard to the red-necked phalaropes.
Wilson phalaropes are birds that use fresh water. They like to hang around the beach of marshes. They come into the bay early in the morning, and in the early 80s when we were still camping at the lake, the south tufa area was the major concentration point for them. Subsequent to that, with the increase of human populations, those birds just don't come in, cause and effect maybe. That doesn't include entirely other changes that have taken place, but the human population, the human disturbance in the south tufa area, including people walking down the beaches, uncontrolled dogs

that are not supposed to be there, but the rangers can't do everything, are there, and I have seen the birds chased out repeatedly.
Q Either phalarope is not a particularly shy bird; is it?
A It depends where it is.
Q South tufa on Mono Lake?
A If you try to photograph them, if there is a dog running, it is a shy bird. They go right back out to the water.
Q But the dogs aside, humans walking around aren't going to affect the Wilson phalarope?
A Sure.
Q Have you any evidence?
A I have watched the birds, and they swim off to sea. They move out of the area, so there is a human disturbance.
Q You have observed then swim out to sea?
A And not come back into those marshes. If the marshes are occupied with predators, they are not going to come.
Q Let me move to the California gull because we are limited in time. Now, you told us that the approximate

population in 1950, and you previously said 1940, was 5,000. That's not a systematic count; is it? Isn't that a guess?
A I wouldn't say it's a guess. I would say it is much more accurate than the duck populations we will talk about

sooner or later. It was made by a trained biologist out there.
Q From 1940 to 1979, the gull population increased substantially; correct?
A That's correct.
Q And most of the great bulk of that increase was on Negit Island; correct?
A That's correct.
Q And in 1976 Negit Island held about 75 percent of the gull population; isn't that right?
A I think that's right.
Q And this is Negit Island right here?
A Yes, sir.
Q It land bridges at 6375; correct?
A About.
Q And would you agree with me that in 1976 the bulk of the population on Negit Island was in the shrub habitat at the top of the island?
A I wasn't there in 1976. I have a map that was made by Dr. Winkler about that time which showed approximately the distribution was, the bulk of it, there, more than half, yes. I think that's correct.
Q And you would agree that shrub habitat at Negit Island is above the Mono Lake high water; wouldn't you?
A Yes.

Q It's about 6428; correct?
A That's correct.
Q So at least in 1976 the gulls at Mono Lake did not avoid vegetation; isn't that correct?
A That's right. However --
Q I am limited in time, sir. Ms. Goldsmith will have some questions for you.
Let me ask you hypothetically, if Mono Lake rises and Negit Island is saved on a constant basis from terrestrial predators, would you agree with me that Negit Island could again support high numbers of California gulls?
A Yes, sir.
Q And that would be true at 6390; correct?
A Yes.
Q It would be true at 6410?
A Yes.
Q Just looking at the map, aside from Paoha Island, and I will get to that in a moment, Negit Island is by far the largest island in Mono Lake?
A Correct.
Q If the gull population at Mono Lake were going to expand for whatever reason, the largest potential habitat for the gull is on Negit Island; is that correct?
A That is correct.
Q And Paoha Island hasn't had gulls for years and years;

has it?
A Not a substantial number. There was a nesting in '85 or '86 or thereabouts.
Q On page 37 you said there has been no successful nesting in recent years.
A I said successful. There were unsuccessful nests.
Q In your opinion, is that because there are resident coyotes on Paoha Island?
A Is your question from the time they left, or is your question from the recent past?
Q Recent past.
A Yes.
Q And, in fact, Paoha Island is the only island in Mono Lake that has coyotes on it?
A I assume that's where they sustain themselves, yes.
Q Now, you have testified in your written testimony that Paoha islets over here contain about 28 percent of the nesting gulls today.
A That's been the case in the last couple of years.
Q And they started to be inhabited after Negit Island was invaded in 1979, and the gulls moved to the Paoha islet; correct?
A That's what the historical record says, and it is not too good. I wouldn't be surprised if a few were there before, but not large numbers.

00152

Q Let me ask you to talk about the lake level of 6373-83 and ask that this be marked next in order as our Exhibit 221.

Now, Dr. Jehl, do you recognize our Exhibit 221 as the exhibit that you prepared in 1990, and it was labeled 327 in --

A I'll take your word for it.

Q This is a document that you yourself prepared; right?

A I believe so.

Q And looking at the left-hand column, left-hand two columns, is it fair to say that what you are trying to do is to calculate the loss to the California gull if Negit, Java, Twain, and Pancake islands are eliminated as habitat?

A I think that is what we tried to do in those days.

Q You are assuming, then, that Negit, Java, Twain, and Pancake are lost to the California gull, and you are trying to calculate what sort of population would be left?

A That is right.

Q And am I right that Negit, Java, Twain, and Pancake in the late 1970s held about 70 percent of the population of the California gulls at Mono Lake?

A I would think that is probably right.

Q And you give a total at the bottom of the left two columns from 15.000 and changed it to 17,000 and based on your earlier testimony, that's about 50 percent of the birds currently nesting at Mono Lake?

A Yes.
Q And you also told us before, I think in 1990, that this was your effort as a reasonable worst case.
A That was my effort to look at the maximum number of birds that nested on the islands that could be accommodated again.
Q And you have a total for the Negit Island, then, and then you added 5,145 for Paoha; correct?
A Yes, I did.
Q Now, lost habitat to Negit Island is temporary because if the lake goes up, then over time the habitat reappears; correct?
A I don't follow. If the lake goes up --
Q Well, as the lake goes up for enough Years to a high enough level, you can regain Negit Island as habitat; correct?
A Oh, sure.
Q And that's true of all Negit Islands; correct?
A If the lake goes up, most of the Negit Islands are going to lose a lot of nesting habitat. I guess I'm not following what you are saying.
Q Okay. Let me ask it this way, sir. Our Exhibit 221 calculates the losses from the loss of four of the Negit Islands; correct?
A Yes.

Q And I'm just trying to establish with you that these are temporary losses in the sense that if the lake goes up, these areas can be recolonized by the gulls.
A No, no, you are saying something wrong. If the lake goes up, these islands are not going to be recolonized. There are going to be fewer birds on these islands that we have.
Q I meant the four that are temporarily lost. Negit can be regained if the lake goes up?
A That's right.
Q So can Twain?
A Yes, right.
Q Okay. Now, let me go over to the Paoha Island. Now you tell us at page 31 of your testimony that at 6383 feet, most of the Paoha islets will be inundated, and only a small portion of Browne and Coyote still exists?
A Yes.
Q So at 6385 feet, sir, is there anything of Paoha islets left?
A 6385?
Q Yes. Is there any habitat left?
A If there is, it wouldn't last very long because wave action will take it down.
Q Now, let me ask you about the wave action. It's true, isn't it, that Paoha islets are highly erodible?

A Yes, sir.
Q And, in fact, as Mono Lake rose from 1982, there was substantial erosion at the Paoha islets; correct?
A That's correct.
Q And that's in contrast to the Negit islets which are largely rock?
A Correct.
Q So, going back to Exhibit 221, sir, and this 5,145 for Paoha islets, if, in fact, Mono Lake were to rise to 6385 feet, and then to fall back to a lower level, it is not safe to say that there's still habitat for 5,145 pairs of gulls on the Paoha islets, is it?
A It is not safe to say that the figures here, 5,145, represent the maximum that could have been achieved at that time.
Q If Mono Lake were to rise to 6385 feet and then to fall back to, say, 6377, isn't your opinion that a lot of the Paoha islets would have been washed away and would not be available for gull habitat?
A Unless mitigating circumstances were instituted to save them so they could be recreated if we need them, that is correct.
Q So, this number 5,145 is going to fall substantially under my hypothetical?
A It could fall even more because under current

conditions, that number, instead of 5,000, could be closer to 10,000, that is, if the lake were let alone there might be 10,000 on that island.
Q So, would you agree with me that -- Let me back up. We talked initially about 6373 elevation. You would agree with me that the four islands we were talking about, Pancake, Negit, Twain, and Java, are in substantial jeopardy at that elevation?
A They are all accessible to coyotes about then, yes.
Q Would you agree with me that a management plan that takes Mono Lake from 6373 feet to 6385 feet presents problems to the California gull both at the low end and at the high end?
A No.
Q Why not?
A Because we have had an observation in the past 14 and 15 years as to what the population has done. It's gone from 40,000 to 65,000. It has increased. The birds have moved around as new islands come and go, but it hasn't changed the population. The population has done beautifully, so I don't agree with your question.
Q Just a couple more questions, sir. Do you have an opinion today as to the lake level necessary to protect Negit Island from coyotes?
A No, sir.

00157

Q And do you remember telling me in 1990 that a lake level as high as 6380 presented no guarantee of protection from coyotes?
A I think what I told you, and I still hold to it, the coyotes can get to any island anytime they want to. On Paoha, they got there somehow, so there's no automatic insurance at any lake level, and I think the EIR correctly concluded that.
Q So, you don't have a minimal level necessary to protect Negit Island?
A No.
Q Would you agree that assuming that Paoha islets are unavailable for California gull nesting, would you agree that the resurrection of Negit Island as a gull habitat becomes more important?
A Well, if your important means maintaining the same population size or larger, sure.
Q Now, last question on Negit Island, you testified that higher lake levels, I think, would force the gulls into brushy habitat. Do you recall that?
A That's right.
Q Isn't it a fact that so-called brushy habitat is the scrub at the top of Negit Island?
A Some of it, yes.
Q And, in fact, that scrub habitat on Negit Island is at

the very high elevations; isn't it?
A Yes.
Q I mean, you already told us the bulk of the population in 1976 was above the historic lake level stand?
A Right.
Q Above 6428.
A Wait a minute, above 6428?
Q Yes.
A I can't say that for sure, Mr. Dodge. I can tell you that it was above the white rocks, whatever that shoreline is. Is that 6410? It doesn't make any difference because it is scrub habitat all through there from where it is green up to the top. So, if you are talking about habitat, it's not a distinction.
Q Final question, Dr. Jehl. At page 29 --
MR. DEL PIERO: Time is up.
MR. DODGE: May I have a couple more minutes for the same reason?
MR. DEL PIERO: Yes.
MR. DODGE: Q On page 29 of your testimony, you say that Mono Lake has seen annual changes in abundance or productivity of individual avian species, as is the case at any locality. Yet no long-term adverse effects on the major species discussed in this report can be attributed to change in the level of Mono Lake. Do you see that evidence?

A Yes, sir.
Q Now, am I right that when you refer to species discussed in this report, you are not talking about ducks?
A That's correct.
Q And you told us that you had seen no long-term effects over 14 years. Do you recall that testimony?
A Yes. That is correct.
Q And that's the limit of your analysis, the last 14 years?
A That is what I personally can attest to. That is what I wrote about.
Q So what happened to the duck population more than 14 years ago, you haven't written about that.
A No, I have not contributed literature to that period. I have read the literature.
MR. DODGE: Thank you, sir.
MR. DEL PIERO: Thank you very much, Mr. Dodge.
MR. HERRERA: Mr. Dodge, you referred to that photograph there. Would you identify that for us, please?
MR. DODGE: It's an aerial photograph taken in May of 1991 with a lake elevation of 6375.1 feet, and it is showing Negit Island and among others Java islet, Twain islet, and I don't have extra copies. I would be happy to have it marked, if people prefer that.
MR. HERRERA: We haven't seen it. I was curious where

the reference was.
MR. DODGE: Let me hand it to you. I just got it myself.
MR. DEL PIERO: Mr. Roos-Collins.
MR. ROOS-COLLINS: Yes, I have a few questions.
CROSS-EXAMINATION
by MR. ROOS-COLLINS:
Q Let me begin with an observation. This proceeding concerns changes in conditions in the Mono Basin between 1941 and 1993. Department of Fish and Game Exhibit 137 demonstrates to my satisfaction, at least, conditions have gotten better, at least in one respect. You will notice that in the foreword they cite a Dr. Stockmann who has just made the discovery that all the sources of our moral life are poisoned and that the whole fabric of our civic community is founded on the pestiferous soil of falsehood.
Mr. Tillemans, my questions will be for you. Your written testimony concerns freshwater wetlands habitat. What is your definition of wetland?
MR. TILLEMANS: A My testimony, what I'm referring to as wetlands, I am basically referring to from a wildlife perspective and how important wetlands are to wildlife in terms of breeding habitat.
Q So, you aren't referring specifically to the Army Corps of Engineers' definition of wetlands?

A Not specifically. The wetlands would still come under that jurisdiction, but I looked at that more from a wildlife standpoint.
Q I see. Mr. Tillemans, Cal-Trout will stipulate for the purpose of this examination that Crowley Lake is a very productive freshwater wetland habitat. We will also stipulate that Crowley Lake is an important trout fishery. We have no quarrel with you on those questions.
Instead, I would like to focus on a different question, how wetland habitat has changed in the Mono and Owens basins since 1941. Do you have an opinion whether the acreage of wetland habitat along the tributaries to Mono Lake has changed since 1941?
A Yes.
Q What is that opinion?
A It has changed since 1941. I don't know total acreages and figures for you, but it's documented in the EIR.
Q Have you seen Table 3C-2 in Volume I of the Draft EIR?
A Yes, I have.
Q Does Table 3C-2 show that approximately 100 acres of wetland habitat has been lost along the tributaries of Mono Lake since 1941? I am referring to the far right-hand column.
A Along which creek, I'm sorry.
Q Tributaries to Mono Lake.

A Okay, and you are talking wetland vegetation and how many acres has been lost?
Q Yes.
A Could you please restate the question.
Q Mr. Tillemans, I need to look at the tables, too. Let me move this microphone around. In Table 3C-2, the far right-hand column shows the prediversion acreage of wetland and meadow vegetation along the tributary to Mono Lake; is that correct?
A Yes.
Q And the point of reference column shows the acreage along the same tributaries in August of 1989; is that correct?
A I think that's correct, yes.
Q Between the prediversion conditions and August of 1989, what was the net loss of meadow and wetland vegetation along the tributaries to Mono Lake?
A According to this map, approximately about what you said -- I think about 100 acres, 90 acres.
Q Do you agree with that estimate?
A I haven't studied it at great length to be an expert on it, so I would have a hard time contesting it.
Q Do you have any evidence to the contrary?
A No, I do not at this point in time.
Q Let's discuss the Owens Basin, and again before we

begin the questions, let me make sure we are talking about the same geography. Owens Basin, I mean the hydrologic basin between Dead Man Creek and extending southward all the way to Haiwee Reservoir. Do you have that same understanding?
A Yes.
Q Do you have an opinion as to the net change in wetland habitat on lands owned by LADWP from 1941 to the present in the Owens Basin?
A There have been some changes, yes.
Q Gains or losses?
A There have been some losses and some gains.
Q What's the net?
A I couldn't give you the net. In all due respect, Bruce, the Inyo County Water Department deals with Inyo County. I have not been in that process.
Q Let's talk now about grazing in the Mono Basin. How many acre-feet a year of water are used for irrigation on lands owned by LADWP for grazing or related purposes?
A In the Mono Basin?
Q Mono Basin.
A I couldn't give you total acreages. Our land use engineer could. But I know it has been substantially reduced because most of the meadows below the conduit have been now taken out of irrigation, and I think the only areas that are being irrigated currently are up in the Bohler Canyon area

just above Parker Creek.
Q Are you familiar with the estimates in the Draft EIR at pages 3G-11 and 12 that irrigation water applications in the Mono Basin in Los Angeles' lands have varied from 0 to 11,000 acre-feet in recent years?
A I am not familiar with that.
Q What about the Owens Basin, do you have an opinion as to the average acre-feet per year used on LADWP lands for irrigation for cattle-related purposes?
A I think each lessee is allotted, I think it is like 5 acre-feet of water per acre.
Q And the total?
A I couldn't give you the total. As far as acreages and totals, we have a land use engineer that keeps track of all the irrigation and informs the lessees when their allotments are getting close to the end, so I stay out of that aspect.
Q What is that land use engineer's name?
A Wayne Hopper.
Q Do you have any knowledge as to the rate that LADWP charges for such water use for cattle-related purposes?
A I know about generalities, I know what they charge per AUMs.
Q Can you convert that general knowledge into an estimated rate per acre-foot used for cattle-related purposes in Owens Basin?

A Not at the moment, I can't. I basically don't deal with budgets and allotments. I basically deal with wildlife and working on issues such as riparian programs and from a resource standpoint.
Q Mr. Tillemans, you mentioned a riparian/livestock program for Convict, McGee, and Mammoth creeks. Could you describe that program?
A It is basically that we increased our fencing out in the Long Valley area on those creeks. Mammoth Creek hasn't been implemented, but it will be, I am told, either this fall or in the spring, and basically the goal of the project is to control livestock distribution more and with the goal of enhancing riparian systems in the creeks.
Q And when was this program initiated?
A Actually on the ground it was a couple of years ago for Convict and McGee creeks, and this year will be Mammoth Creek, and we're working right now on the Upper Owens River, including Cal-Trout working on that.
Q Since you mentioned my client, I will express my client's gratitude for this program which we believe has great potential for benefiting the creeks and the river named. Does LADWP intend that this program be permanent along these creeks and along the Upper Owens River?
A Yes, but I need to clarify the word "permanent," because as our program goes on, there will be changes out

there, and we will refine our management as those changes allow us to, and basically, our indicator is going to be the vegetation and how well the riparian system is responding to our treatments.
Q At this point is the program required by any court order or law?
A Not that I know of. We basically have done this project on our own.
Q On your own initiative?
A Yes.
Q Let me ask you about a statement in the Draft EIR at 3G-24. It says, "LADWP staff has expressed an intent to reduce irrigation of its Mono Basin land by diversions from the four currently diverted streams (Kodama pers. comm.)." Do you know what that statement is referring to?
A Could you read that again, please?
Q Let me show it to you.
A I think at this point it is referring to lands below the conduit.
Q And do you know what the statement anticipates by way of reductions and diversions -- Excuse me, let me withdraw that question. Do you know what the statement is referring to by way of new initiatives that the City might undertake?
A No, I don't. This was basically a decision of what to do with irrigation in the future, and it was done by who was

in charge of my section and Mr. Mitch, and I wasn't involved in the final decision.

MR. ROOS-COLLINS: Thank you, no further questions.

MR. DEL PIERO: The State Lands Commission is up next.

MR. VALENTINE: Thank you, Mr. Del Piero. Good afternoon, gentlemen. My name is Michael Valentine. I am representing the State Lands Commission, and I have questions which are much less numerous than they were before Mr. Dodge, et al, started talking, so I am going to do this quickly. I will start with Mr. Tillemans.

CROSS-EXAMINATION

by MR. VALENTINE:

Q On page 57 of your written submittal to the Board, you compare the Crowley Lake wetland habitat favorably with all of the other habitats now existing on the Eastern Sierra. Is that based totally on Shuford and Metropulos letters?

A No, it is based on, like I said, our property goes from Haiwee Reservoir to Mono Lake. I have also spent considerable time in Mono County and a lot of the Eastern Sierra region.

Q It is based on your personal observation as well?

A Yes.

Q Is it based on any scientific study which you have done?

A Not other than what was listed in my testimony that

was done with Fish and Game.
Q Can you testify as to how the Crowley Lake wetland habitats compare with prediversion habitats at other locations?
A No, I can't.
MS. GOLDSMITH: Objection, ambiguous.
MR. DEL PIERO: I think he answered the question, but you're right, and I will sustain the objection. He says he doesn't know.
MR. VALENTINE: Q Perhaps it was ambiguous, but apparently the witness didn't think so.
Do you have any basis on which to compare the wetlands at Crowley to, say, the wetlands at Carson Sink?
A Are you talking the Stillwater area?
Q Yes, I am.
A No, I don't, because I don't consider that the Eastern Sierra region.
Q So, when you say in the Eastern Sierra, you would mean primarily Mono and Inyo counties?
A Yes, I think everybody that lives in the area always refers to that area.
Q I am now going to ask questions which probably disclose more about what I don't know than what I do, but on page 60, you mention that your habitat survey included the exclosure?

A Yes.
Q What do you mean by exclosure?
A That is a grazing exclosure. The intent was a grazing exclosure.
Q Was it effective?
A I don't think so, not due to grazing.
Q What's the size of the exclosure?
A Could you again cite the table you are referring to?
Q Table B, page 60.
A I think it is the five-acre plot -- No, excuse me.
Q That is why I asked. Table C refers to the five-acre plot. I can't tell from Table B what the size is.
A I think it is five acres. I couldn't exactly tell you.
Q Thank you. On Table D, starting at page 63, there is a list of birds which, according to the caption of the table, is Common Waterfowl, Shorebirds, and Wetlands Species of the Crowley Lake Area. Do you see that?
A Yes.
Q On page 62, when you refer to that table, you refer to a list of waterfowl found in the Long Valley area.
A Yes.
Q Crowley Lake and Long Valley are not co-extensive, are they?
A Well, you see waterfowl associated with Crowley Lake

and Long Valley. The habitats are utilized interchangeably, Crowley being used as a refuge.
Q Isn't Long Valley almost 100 miles long?
A No, it is not.
Q How long is it?
A Long Valley goes from the Upper Owens through Crowley Lake, I would venture to guess 15 miles or so, 20 miles.
Q So the list on Table D is essentially within seven miles of Crowley Lake, that is what you mean?
A Yes.
Q Under previous questioning, Dr. Jehl testified that the yellow rail no longer breeds in California; do you recall that?
A Yes.
Q And yet the yellow rail is listed on your Table D as a common waterfowl or shorebird of Crowley Lake; isn't that correct?
A Yes, and I think if you look at the caption, it is a U. S. Forest and Bureau of Reclamation management publication regarding the Long Valley proposed geothermal area. I put that in there to give an idea of the diversity of waterfowl use in the Long Valley-Crowley area. That's why it is in there.
Q Do you have another citation of this authority from which you got this list, and I will tell you the background

of my question. I called BLM, the Forest Service, several offices, and I can't locate this document based on this description.
A I got this document from a co-worker named Dave Babb, who had this in his files, and he had written, 1977 U. S. Forest Service/BLM publication.
Q So, is this publication an environmental impact report, environmental impact assessment?
A I think it may have been done in conjunction with the geothermal project. I guess the point is pretty moot, and if you get American Bird, or whatever articles, and look at the diversity of waterfowl and shorebirds at Crowley Lake, the birds you see on here, there would be very little difference.
Q What I'm trying to do right now is find out what this document is and how I can find it.
A I could go back to my office and ask Dave to further research and give me the exact document, but it is basically where I took it from.
Q Do you have personal knowledge of whether these birds that are on the list actually are common or even present occasionally at the lake?
A Yes.
Q So you have seen birds at the bottom of the first page, Oldsquaw, at Crowley Lake?
A The majority of these species, I can't recall seeing

Oldsquaw, but there are a lot of these species I could tell you.
Q Are you familiar with the publication called California Wildlife, a publication by the Department of Fish and Game, dated 1991?
A No, I am not.
Q So, the fact there is a Department of Fish and Game publication called California Wildlife with a whole volume of birds is something that's unknown to you?
A I haven't seen that volume.
Q Moving on to your total acreage of wetlands which you list somewhere in the neighborhood of 1400 acres --
A Yes.
Q Approximately 500 of these acres, you say, are leased land. By that do you mean Los Angeles leases them out to somebody?
A They are all leased land.
MR. DEL PIERO: Excuse me, I didn't understand the response to that question, Mr. Tillemans.
A All our lands are leased.
MR. DEL PIERO: You didn't listen to the question. Ms. Book, would you read the question back, please?
(The reporter read the question as follow.)
Q Approximately 500 of these acres, you say, are leased lands. By that do you mean Los

Angeles leases them out to somebody?
A Yes, I don't know where the 500 acres came from.
MR. VALENTINE: Q Well, I think I can assist with that one. At page 67, the third paragraph, you say, the total acreage of wetland habitats available in the Crowley Lake/Long Valley area is 1409 acres.
A Correct.
Q 916 of which are on the west side of Crowley Lake?
A Correct.
Q So, where I got the 500 acres is the difference between 1409 and 916.
A I guess there is a misunderstanding. All our land is leased basically, the majority of it.
Q To answer my question, it is leased out from Los Angeles to private landowners who operate the land?
A Not landowner, to lessees that run their livestock operations on the land, yes.
Q With that correction, thanks. Is there any obligation placed on the lessees in the lease documents to maintain wetland acreage?
A Not specifically with the ranchers, but the Department of Water and Power is cognizant of the fact, and that's why we have a range and wildlife staff, and we are cognizant of the fact there is a wetland out there, and part of our job is to look over the resources on our property.

Q But there is no binding legal obligation flowing from Los Angeles to the lessees to preserve or maintain existing wetland habitat or values?
A There is no binding legal obligation?
Q Yes, that's the question.
MS. GOLDSMITH: Objection, calls for a legal conclusion.
MR. DEL PIERO: I am going to sustain the objection.
MR. VALENTINE: Q Are you aware of any provision in the leases that by their plain English terms would require lessees to maintain existing wetlands?
A Not the lessees, it's the Department's responsibility.
Q Thank you. Doctor Jehl, I have just a few questions for you. Let's start again with the yellow rail which you testified about earlier. You said that the yellow rails no longer breed in California. Is that because the yellow rail was extirpated from the California range due to the destruction of its breeding habitat?
DR. JEHL: A I have no way to answer that question. What I know about the yellow rail, there was a record in the Bridgeport area, maybe in the Crowley area, many, many years ago. As far as I know, it was the only pair that ever nested in California. It could have been an extension of the range. It could have been a rare bird at that time.
There are other habitats that I've seen in places in

Owens Valley and in Long Valley that in theory could hold yellow rails. I don't know how hard anybody has looked for them. Nobody has found them in many years. There was a sighting by the late David Gains a year or two before he died.

So, I don't know why they are not there. There are some places that the habitat looks pretty good. I don't know.

Q Caspian terns nest rather densely in their colonies; is that correct?

A Yes. They nest about 2 or 3 feet apart, the way the gulls do.

Q Can you estimate for me the amount of habitat nesting area would be required for the existing population of Caspian terns at Mono Lake?

A Very little. Currently they are nesting in an area about the size of these three tables, whatever that would be.

Q Is that about 250 square feet?

A At most.

Q You mentioned that in 1981 the Caspian terns were nesting at Twain islet, and they moved to Paoha Island in 82. Is that because coyotes invaded Twain islet in early 82?

A I don't know, but that's a reasonable hypothesis.

Q Coyotes did, in fact, come to the islet in 82?

A The gulls were disrupted from nesting. They didn't

produce any chicks in 82, so it is likely everything was disrupted, yes.
Q When gulls are disrupted from their nesting colony, they don't just come back to the habitat, even if it is suitable; is that correct?
A Sometimes they do, and sometimes they don't. I have seen lots of evidence where there has been prolonged predation, for example, by owls, which are going to get to any of the colonies, and these areas are not reoccupied the next year, and we have seen the same thing where there has been owl predation, the same areas are reoccupied.
We have to know a little more about the individual histories of the birds. It may be the areas are reoccupied by young birds that haven't had the experience of having their heads bitten off.
Q When we are talking about the kind of disturbance that an owl causes, however, and the kind caused by coyotes, a coyote is considerably more disturbing to a colony than an owl?
A No, I don't think so. We have had lots of evidence that one owl in a colony can disturb quite a large area for a night, so the birds would desert the colony.
Q Where did this occur?
A It's happened on Coyote Island.
The depredation occurs nightly on many of the islands.

It has happened on Winkler Island a couple of years ago, and the birds have never come back in any big numbers.

But a single owl at night can be quite disturbing, and we have published on this, Charles Chase and others, in comparison to other colonies.

And the difference is that the gulls at night know there is something out there, and they can't see it, and they respond to it by fleeing.

When a coyote comes into a colony, it is quite often by day, and they see the predators, and they can respond to it, and they know how far away they have to be from it before they have to move.

Q When a coyote comes into a colony, it often kills more animals than it can possibly eat; isn't that true?

A I haven't seen a coyote in the colony. I don't have any evidence for that. There is certainly evidence of that on owls killing more than they can eat.

Q Do you have any evidence that coyotes will disturb more nests than is necessary to meet their dietary requirements?

A Sure. I think it is a fact that a terrestrial predator on an island is going to cause a panic response over a large portion of the island. There was a report in the EIR, I am sure you are aware, that was researched on coyotes, and I believe in 1991 or 1992, as I recall, the presence of a

single coyote that took up residence on Negit Island in that year disturbed all the nesting on the whole island, and there were several subcolonies.
Q When a colony has nested, there is a ripple effect, when a subcolony is disturbed, there is a ripple effect, and if you would like for me to explain what I mean by that -- from your expression I can see that you would. The gulls who abandon a nest for that year then become predator species.
A That's one of the great fairy tales of Mono Lake. I don't believe it for a minute. I would like to see it documented in the literature. I think it is time we put that one to bed.
Q All right. In your testimony, you say that nowhere in the literature is there any evidence that nesting in brushy habitat is preferred.
A Correct.
Q There is evidence that there's other colonies nesting in brushy habitat; is there not?
A Not brushy habitat anywhere near comparable to what we are talking about on Negit Island.
Q Part of the Morton Salt Company colony nests in scrub; does it not?
A It does, a very small portion on flat, sandy islands. They will even nest in the scrub.
Q And the Ogden Bay colony also nests in vegetation,

although low vegetation?
A What we are referring to now is a series of colonies at the Great Salt Lake of which there are perhaps, I don't know, 15 or 20. Ogden Bay is a broad area that moves around from year to year. Most of the birds on Ogden Bay recently have been nesting on manmade dykes. There was one year when the dyke was unavailable because the lake rose, and the birds were forced into a pasture.

I think that's what you are talking about, Mr. Valentine, and they nested in an open pasture. Would you like to see a picture of that?

Q No, thank you. I have seen it. You mentioned in your testimony beginning at page 75, there seems to be some controversy about the conclusions reached by Pugesek and Diem in a 1983 paper.

A Yes.

Q I will let the paper stand on its own, but I wanted to ask you a question. This Pugesek and Diem study was a two-year study; was it not?

A I think that the data in that report were over a relatively short time. I can tell you that Dr. Diem has studied that colony since -- Well, I think the study is now in its 24th or 25th year. I think it is the single longest-term study of any. So the data there would pertain to the whole experience, which is not a two-year study.

Q Isn't it safe to say if your study is based on two years' worth of data is a two-year study, no matter how long you've been at the sites?
A You can say that, sure.
Q And as I recall, feel free to correct me here as you have done so often in the past, as I recall, in that Pugesek and Diem study, the mature gulls were believed to be the ones nesting in the scrub, the mature gulls being the older ones. Do you recall that?
A Well, the issue is not nesting in scrub. This is a tough one because we're getting into semantics. The birds are nesting next to something. California gulls nest next to objects. They don't always do that. If you give them a choice, they will find a log, a rock, something. The object on this island happened to be scrub. Those are very low scrub which is not in any way comparable to the kinds of habitat we see on Negit Island. This has been a point of confusion for many, many years for some of us who have been talking about it.
MR. DEL PIERO: Your time is up.
MR. VALENTINE: Mr. Del Piero, I have just a few more minutes of questions, and I would like the Board's indulgence for ten more minutes.
MR. DEL PIERO: Granted.
MR. VALENTINE: Q One of the reasons, Dr. Jehl, that

the birds like to nest close to those obstructions, or rough spots, is that it forms a barrier between them and the next nest; is that right?
A It probably has a little bit of visual barrier to some degree, but that is certainly a very rare case because the biggest problem that California gulls have is predation. They don't like to nest where they can't see something coming, so they prefer to nest where it is low or open. And things that block their view are things they avoid.
Q So you don't think that separation from other gulls in the same nesting colony is important to them?
A There is a minimum spacing that the birds will take, yes. Sure, separation is important. They only rarely nest very, very close to each other because they are going to interfere with each other. By very, very close, I mean less than a foot.
Q We have had in the past much discussion about heat loading of gull chicks. They get hot. You mentioned in your written testimony, I can't find the citation right now, but I think it is in the vicinity of page 37. Anyway, you suggest that the gull chicks, if they get hot, can reduce that heat stress simply by going into the water. Is that reasonably accurate paraphrase of your testimony?
A Sure.
Q Unless the chicks are in nests right along the water,

they're going to have to travel through the colony to get to that water; am I right?
A That's right.
Q And if in doing so they intrude into the territory of another gull, they do so at the risk of their lives; is that right?
A In theory, that's right. In practice, once the gulls get to the stage of a couple of weeks old, they move back and forth through the colonies, through other people's territory, onto the lake daily. They form big flotillas of hundreds of chicks and come back at night.
And I have mortality data which I have published in annual reports, and the mortality is essentially insignificant.
Q For two weeks at least, according to your testimony, the gull chicks would be almost dependent upon their parents to provide them shade; is that correct?
A That's right.
Q During that period that shade would be provided at the expense of foraging opportunities; is that right?
A Well --
Q It's a very simple question. All I'm trying to suggest --
A If you're saying that by shading the chicks they are not going to forage as much as they have to, that is not

necessarily true. One parent may be getting enough food while they're protecting the chicks.

Let me follow it up. If they are not shading the chicks, they are protecting their chicks anyway. There is one parent in the colony regardless of the temperature, so if he is there and it gets hot, he may provide shade.

Q How long does it take a chick from hatch to fledge?

A About five weeks.

Q Are you aware of any studies done at Mono Lake which demonstrate different rates of reproductive success with a subcolony or colonies on one large island or is dispersed throughout the region?

A I am not sure I understand your question. I can tell you that there are differences in reproductive success among all the islands.

Q Excuse me, Dr. Jehl, my question is, are you aware of any studies published demonstrating differences in reproductive success between a consolidated large colony and several dispersed subcolonies?

A No, but I can give you those data that exist from this year. I can cite data that would go either way. I think you can really, for example, specifically, Twain Island is your biggest. The productivity of that island is much less than the productivity on Paoha Island this year. Now, if you went out and looked next year, it may not be true. But if I was

going to select my data to answer your question, the answer is yes, and I could use it.
Q I direct your attention now to page 44, and you will be happy to know I am almost done. Page 44, Figure 6.
A Yes.
Q I direct your attention to the right side of your chart there at which point it shows at a fairly low lake elevation there was a large sighting or number of birds counted in 1990?
A Yes, that's correct.
Q Isn't one plausible explanation for this that as the lake declines, ease of observation increases?
A No, because all those numbers are made from thorough boat census, whole lake census. I go out in the boat and do the whole lake. Those data are comparable from year to year within the limits of counting error. It is not a census error, it is not a visual error.
MR. VALENTINE: I have no further questions, thank you.
MR. DEL PIERO: Thank you very much, Mr. Valentine. Anyone else wish to cross-examine? Mr. Frink.
EXAMINATION
by MR. FRINK:
Q My first questions are for Dr. Jehl. Dr. Jehl, on page 38 of your written testimony, you refer to the nesting

habitat of California gulls and state that the figures that are given in the Draft EIR are not well supported. At the top of the page you go on to say, in particular, the notion that Mono Lake may support 320,000 birds, 160,000 pairs, at a lake level of 6377 is a mathematical extrapolation with no biological basis. Such a colony would be more than four times larger than the largest known colony, and even larger than the total U. S. population of the species in 1980.

My question is this, where does the Draft EIR refer to 320,000 gulls at a lake level of 6377?

DR. JEHL: A Well, right offhand, I do not know. There are extrapolations in there of how many birds can be accommodated at certain acreages. It is one of the tables. I don't know which one it is.

Q You cited Table 1, page 9. I believe actually that is the table at the beginning of Volume I of the Draft EIR which is Table S-1.

MR. DEL PIERO: Dr. Jehl, do you have a copy of that?

MR. FRINK: Q It is the first volume of the EIR, page 9. Is this the table that you based your statements on that are included in paragraph 1 at page 38 of your testimony?

A Yes, I think so.

Q Now, you will notice that the second column of that table on page 9 is entitled, Percentage Change In Potential Gull Nesting Capacity. For the lake level of 6377 feet, it

shows a potential increase of 440 percent; is that correct?
A Yes.
Q Now, in referring to the mathematical extrapolation with no logical basis, isn't it true that you, and not Jones and Stokes, did that mathematical extrapolation to come up with the figure of 320,000 gulls?
A No, I don't think so. Let's talk about that. I am sure you will.
Q Yes, I would like to know. The only information cited out of the EIR for your statement there is Table 1, and I believe you meant Table S-1, and if you do multiply out the increase in habitat by the number of gulls on the existing habitat, I believe you approach the number of 320,000 gulls, but is there anything in the EIR that indicates Jones and Stokes believe that would happen?
A Is there anything the EIR that suggested Jones and Stokes didn't believe that would happen? It assumes- the passive assumption through here is that gulls are limited by nesting habitat.
Q So you are the one that did the mathematical extrapolation?
A No, sir. The gulls are limited by nesting habitat. That's why they went through the exercise of looking at the habitat at various islands. How much space was available, and if you multiply that out, how much more space is

available, the 440 percent -- I don't recall ever doing that mathematics with 320,000 or where that comes from.
Q But the only basis that you are aware of for coming up with the 320,000 figure for potential gulls at Mono Lake would be basing that upon the potential increase in habitat; is that correct?
A The potential increase in habitat and the nesting densities which could be achieved, that's right.
Q And right now you are not able to identify anyplace in the EIR that Jones and Stokes made such a calculation; are you?
A I don't mean to be flip, but I couldn't identify anyplace in this document where I could find anything. It is a very difficult document to work with. If you give me a few minutes, I sure would like to try and find it. It is a hard thing to do.
Q You may have an opportunity if we take a break.
I have a couple of questions on the snowy plover, too. Page 3F-34 of the Draft EIR reported that -- Let me get my copy of that handy first. Excuse me, you may need a copy of that as well. It is the second volume of the EIR. I think I can ask the question without your actually looking at it. It reported in 1978 a statewide census was made of the snowy plover at Mono Lake, and that represented approximately 11 percent of the statewide population. Would you have any

reason to question that information from the Draft EIR?
A No. I believe that came from publications by Gary Page and his colleagues, and I have no reason to question it.
Q Are you aware that the western snowy plover has been designated as a candidate for listing as either a threatened or endangered species?
A Yes.
Q In cross-examination I recall your stating something to the effect of being familiar with all the literature on avian fauna in the Mono Basin.
A Practically all of it, yes.
Q Your testimony is titled, The Effects of Lake Level on the Birds of the Mono Basin. I was wondering if in reporting on the effect of various lake levels on the kinds of birds in the Mono Basin, was there any particular reason that you did not mention snowy plover in your analysis?
A Yes. I have not studied them in detail myself. The work that has been done I am satisfied with, and I think it has been correctly reported in the EIR, so I didn't see any reason to follow up.
Q Similarly, I didn't notice any discussion of ducks in your testimony. Did you also exclude ducks from your testimony for the same reason?
A Ducks were again not a specie that I studied in great detail because when this program started, we were interested

in birds of hypersaline lakes, and ducks are not generally birds of hypersaline lakes. There are a couple of species that can use them. I didn't study them in detail, except I had enough field notes and censuses of most species, high numbers and things like that, but it was not a detailed research program.

Q Have you seen the document entitled, The Mono Lake Management Plan, that was prepared by the Department of Water and Power?

A I have seen that, yes.

Q And are you familiar with the graphic depiction of bird species on pages 4 and 5 of the Mono Lake Management Plan? I will show you a copy of it.

A I am now, yes.

Q The graph portrays the relative changes in populations of California gulls, grebes, and red-necked phalaropes; is that correct -- Oh, excuse me, I think I am looking farther than I have to look. Is that the same as Figure 7 in your written testimony?

A Maybe -- pretty similar. We can look at this one.

Q I am assuming if it is the same figure, then the graph in the Mono Lake Management Plan is based in part or substantially upon your work; is that correct?

A I'm sure that's the case.

Q Okay, and that graph doesn't include any

representation of population of snowy plovers and ducks either?
A No, sir.
MR. FRINK: Thank you. That's all the questions I have.
MR. DEL PIERO: Mr. Satkowski.
EXAMINATION
by MR. SATKOWSKI: Q I have a couple of questions for Mr. Tillemans. On the top of page 57 of your exhibit, you state that the formation of Crowley Lake in association with LADWP irrigation systems have created a very productive freshwater wetland habitat of major regional importance.
In general, does your testimony imply that a decrease in water supply from the Mono Basin to Crowley Lake would impact the wetland habitat or the wildlife in the Crowley Lake area?
MR. TILLEMANS: A It could possibly.
Q Briefly, how will a decrease in water supply of this kind affect wetland habitat or wildlife in the Crowley Lake area?
A Once the final decisions are made as to water allocations, et cetera, if there are lower lake levels or decreased irrigation, or whatever, there might be possible impact on wildlife in the Long Valley area. There's other species we haven't talked about in terms of sage grouse, and

so they may also be impacted.
Q Have you done any specific studies looking at the impact of decreased water supplies on the wildlife or wetlands in the Crowley Lake area?
A I haven't done any specific studies.
Q On the table in front of you are copies of Table S-1, page 9 of 15. Are you familiar with this table?
A Yes, not heavily, but I have looked it over.
Q On Table S-1, I do not see any column summarizing the impact to wildlife in the Crowley Lake area. Do you agree with that statement?
A Yes, I do.
Q Do you happen to know why that wasn't summarized separately in the EIR?
A No, I don't. I have had very little contact with Jones and Stokes personnel.
Q And are you aware of anywhere in the report where that information is contained, either summarized or in longer form?
A Not that I am aware of at the moment, no.
Q The last column of that page entitled, Wildlife Habitat Values of Tributary Streams, do you see that column?
A Yes, I do.
Q In that column they rate the habitat values from low to high. In one case they had the word "none" in there. I

assume that means no impact; is that right?
A It's got an asterisk which says significant project impact. It is pretty hard to tell.
Q Well, let me go on.
A There's a check for significant cumulative impact.
Q Maybe I was mistaken. Let me go on. That wasn't the point I wanted to make. If we were to assume that a column was added next to this column entitled, Wildlife Habitat Values of Tributary Streams, and it was entitled Wildlife or Wetlands Habitat Values at Crowley Lake Area, in your opinion, how would you rate these alternatives, maybe beginning with no restriction alternative and going down to the no diversion alternative in terms of maybe low, medium, and high?
A Sir, in terms of Crowley Lake tributaries?
Q That is correct, just in the Crowley Lake area.
A Okay, if you are dealing with tributaries, you would lose probably some creek acreage due to the rising of Crowley Lake. I guess I would have to know the levels of Crowley and how high Crowley would be. Under no restriction it has a high elevation mark, and most of the work that I have here is based on the high elevation of Crowley Lake, and so I don't think it would go up much further in the no restrictions.
Q Would it be fair to say as you go from the no restriction alternative to the no diversion alternative, the

impact would generally run from low to high, in that order?
A It could be. I'm sure there's always pluses and minuses, and some areas may be benefited and some may not.
Q Would it help you to answer the question if you had information on the Lake Crowley drawdown in wet years? On page 11 of 15 there is a column entitled, Lake Crowley Reservoir Drawdown. In wet years would information like that help you determine what the impact might be?
A Well, I think when you are speaking of drawdown, you are probably talking something that occurs in anticipation of spring runoff, and so in terms of wetland and tributaries, I don't think there would be much impact.
Q Let me just ask you more specifically. For the 6377-foot alternative, would you know, or in your opinion what would be the impact to the wetland habitat in the Crowley Lake area? Would it be low, moderate, or high?
A At 6377?
Q Yes.
A We are at 6375 right now. I imagine you could take care of that with some operational constraints or management changes. You would have to talk to a hydrologist on that. I am unclear as to the final picture here in terms of lake levels and that.
MR. SATKOWSKI: If that's the case, I won't go on and ask you about the other alternatives. Thank you.

MR. DEL PIERO: Mr. Smith.

EXAMINATION

by MR. SMITH:

Q I have a couple of questions for Dr. Jehl. I wanted to ask first off a question about the Negit Island and Negit islets. At the 6390 alternative, would the gulls have both the island and some or most of the islets?

DR. JEHL: A The question is, would they have nesting habitats on the tops of some of the islets and Negit Island itself?

Q Yes.

A Yes.

Q Do you know approximately how many of the islets would be lost or how much would be retained, if any?

A It's not the number I think is so important. Well, it's number and size of what's left, and I don't have a map of 6390 in my head.

Q I notice that in your graph that shows the lake levels and also the location of the red-necked phalaropes, there is no indication for the Wilson's, and there is also only data from 1981 through 1982. Do you have other data?

A The graph in there is 14 years of data. The figure I showed before, the outline of the lake which is also in that report, 1981 and 1982, I have data on the distribution of all the birds, red-necked phalaropes, Wilson's phalaropes,

grebes. Gulls don't count.
Q Would you provide the Board with that, or is there a report you have written?
A I haven't analyzed it because it was not an issue. I would be happy to discuss it, but it was not raised in the EIR, and it isn't really particularly relevant because I don't think that the numbers of birds at the lake are going to be changed in any way within this range of lake levels we are talking about. Will the distribution be changed? Probably to some degree.

There are certain physical factors in the lake that are going to concentrate food in certain places.

One of the places where we had concentrations of phalaropes in many years recently is this northeast corner of the lake. That has pretty good feeding grounds in there. That's always going to have good feeding ground in there at any lake level because the currents work around this way, and Dr. Stine has showed or maybe the people from Santa Barbara, but the currents, quite often because the wind works this way, and when they come together those floating brine shrimp or brine flies are brought to the surface, and they sit there. Then the current turns around and goes back out to the island.

That's not always the case, but there are certain physical constraints of the lake system, prevailing winds,

that means certain conditions are going to happen regardless of what the lake level is going to be.
Q You answered three of my questions that I was going to pose to you. Thank you.

EXAMINATION

by MR. HERRERA:
Q My questions will be directed initially to Mr. Tillemans. Do you have any idea, have you seen any surveys or any evaluation of the nesting habitat associated with riverine habitat in the areas that drain to Crowley Lake?
MR. TILLEMANS: A No, I haven't.
Q Have you got a personal observation of nesting habitat on riverine habitat?
A I have seen a brood on the Upper Owens River, yes.
Q In what areas?
A In the Hot Creek and Upper Owens.
Q What kind of habitat was that located in?
A In the water.
Q In the water itself?
A Right. We haven't gone out and done any detailed surveys.
Q Earlier you mentioned that there were areas directly adjacent to Crowley Lake that cattle would not move into because it was like, you said like an elevator.
A Certain areas, yes.

Q Is that true of other areas in the drainage to Crowley?
A Basically, for the type that I am referring to, yes.
Q Does grazing of cattle or livestock in other areas impact on nesting habitat of waterfowl?
A Not to any great degree, not in the habitats that I am referring to. I am really restricted, you know. As you come up out of there, there are even more pasture lands, you might call wetlands and what have you, and the cattle do graze on those drier portions.

When you get into these areas here that I have designated, in the areas here that I have designated, the plant associations as well as the soils are basically the same, and that's why the cattle will avoid those type areas.
Q Did waterfowl nest in these irrigated pasture areas that cattle have access to?
A In some of the Hot Creek areas, yes.
Q In other areas?
A Basically, I think I would be fairly comfortable in saying yes, in the areas I have designated because of the close proximity to water.
Q You mentioned earlier in cross-examination from staff here that a decrease in irrigation would impact wetlands in the Crowley Lake area. Would you expand on that a little bit, please?

A Well, we have some leased acreage on the Upper Owens River, and there's a lot of pasture out there, and if decreased acreages occur because of decreased irrigation, there may be a potential impact on waterfowl or shorebirds.
Q There are waterfowl and shorebirds nesting in those areas?
A There's snipes and phalaropes nesting out in these areas.
Q If that's true, would you suggest that maybe prior to Crowley Lake there was a similar sort of nesting habitat available along the Owens River that was not necessarily designated as wetland?
A I referred to that in my testimony, and there's stringers and pockets and seeps that's limited habitat for waterfowl and shorebirds in comparison to what we have today.
Q Was any of that supported by irrigation prior to the creation of Crowley?
A I think so. There are indications some of that water that perked out down by the river came out on the west side, and as the water tables hit the floodplain, some of that may have been supported by irrigation. There was a lot of irrigation going on before Crowley.
Q So, your answer is that there was irrigation and more likely that irrigated area provided habitat for waterfowl?
A Down by the river in those isolated pockets, Yes, but

not to any great extent. Those spring channels and small channels and some of the seeps and small rills, what have you, did not provide a lot of habitat for ducks.
Q Habitat for ducks, let's just talk about ducks in general. Would you say that wetland habitat or open water habitat is more critical for the nesting of waterfowl?
A Yes, having sufficient water nearby is critical for waterfowl breeding.
Q It is more critical than having wetland habitat for waterfowl nesting?
A Yes.
Q For waterfowl in general, is wetland habitat restrictive throughout the range, or is it open water that is restrictive throughout the range?
DR. JEHL: A Can I take a shot at that? I think the question is specific enough. Well, the nesting habitats of various waterfowl species are quite different. I mean, there are waterfowl that will nest a mile from water.
Q But my question is, is wetland more critical than open water, or is open water more critical for waterfowl habitat, specifically, how about ducks?
A Not even ducks. I mean, there are certain kinds of waterfowl that are pretty habitat specific and certain kinds of waterfowl that nest, literally, a mile from water. And we just couldn't talk about waterfowl. You have to get a little

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